

Stormwater Management Report

For the Proposed:

Warehouse

Located at:

240 Ellington Road
South Windsor, Connecticut

Prepared for Submission to:

Town of South Windsor, Connecticut

November 13, 2020

Prepared for:

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BL Project Number: 201166



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Executive Summary

This report has been prepared in support of a Site Plan Modification Application by Scannell Properties LLC to the Town of South Windsor for the proposed warehouse modification at 240 Ellington Road. The project parcel is approximately 15.96 acres in size and is currently under construction. The building being constructed currently is a 182,000 warehouse with associated site improvements including parking, sidewalks, landscaping, lighting, utilities, and a stormwater management system. The proposed site plan modification includes additional parking, minor building exterior modifications, pedestrian safety features, landscaping, pads for future EV charging stations, and expansion to the stormwater management system for the increase in impervious. The remaining site area will remain as previously designed and/or unchanged and there will be no change to the building footprint. The property is located at the northeastern corner of the intersection of Route 5 and I-291 to the west of Ellington Road. It is roughly bordered by the I-291 Corridor Development Zone (CD) on the north.

In general, the existing topography, as under construction, generally drains towards the southeast and northwest to detention ponds. Elevations on site range from 48' to 91'. The construction includes catch basins and drainage piping on site.

The proposed stormwater management system is designed to be in compliance with the 2002 State of Connecticut Guidelines for Soil Erosion and Sediment Control, and the 2004 State of Connecticut Stormwater Quality Manual.

A HydroCAD model, using TR-55 methodology, was developed to evaluate the existing and proposed drainage conditions of the property. The results of the analysis demonstrate that there will not be an increase in peak stormwater runoff rates for the 2-, 10-, 25-, 50-, and 100-year storm events.

The proposed stormwater management system has been designed to attenuate the increased flows generated by the parking expansion. Stormwater quality is being addressed by a formalized street sweeping program, deep sumps and hooded outlet catch basins, and a hydrodynamic separator. The two stormwater basins under construction will continue to function as approved. These features will provide the minimum required 80% TSS removal as required in the CT Stormwater Quality Manual.

Existing Site Conditions and Hydrologic Conditions

General Site Information

The site soils identified by the United States Department of Agriculture (USDA) Natural Resources Conservation Services (NRCS) are Windsor loamy sand, 0 to 3 percent slopes, Windsor loamy sand, 3 to 8 percent, Ninigret fine sandy loam, 0 to 3 percent slopes. Per the USDA, the NRCS Hydrologic Soil Group ratings for soils within the project area are A, A, and C respectively. A copy of the USDA NRCS Hydrologic Soil Group Map is included in Appendix A for reference.

Per the FEMA Flood Insurance Rate Map Number 09003C0386F for the town of South Windsor and town of East Hartford, map revised date: September 26, 2008, the site resides in FEMA Flood Hazard Area X (unshaded). Zone X (unshaded) is defined as “areas determined to be outside the 0.2% annual chance floodplain”. A copy of the FEMA Flood insurance rate Map is included in Appendix A for reference.

Existing Hydrologic Conditions

The previously approved design depicted in “Stormwater Management Report” by Design Professionals, Inc. dated 11/4/2019, is still in construction, however, for the purpose of this report, it is considered to be the existing condition. The existing drainage areas mimic the drainage areas in the aforementioned report. The existing site drainage area that was analyzed totals 18.06 acres and is approximately 55% impervious. This area includes the drainage areas to the two ponds on site; Infiltration Basin #1 and Wet Pond #2. The existing stormwater management system onsite is a series of catch basins which drain to those two ponds prior to eventually discharging offsite. Below is a description of that area.

The following is a brief analysis of the existing design points as shown on the enclosed Existing Drainage Mapping (ED-1) Map, in Appendix E.

Existing Drainage Area 10 (EDA-10): This drainage area consists of the northern portion of the project parcel which flows towards an existing on-site depression. The spill over from this area eventually reaches Infiltration Basin #1 (DP-1). This drainage area is 3.1 acres and is approximately 0% impervious. EDA-10 consists of grass, woods, and brush.

Existing Drainage Area 11 (EDA-11): This drainage area consists of the northwestern half of the development area. This area is captured and flows to the forebay of Infiltration Basin #1 (DP-1). It is 6.45 acres and is approximately 85% impervious. EDA-11 consists of impervious parking, road, and building area, wooded, and lawn areas.

Existing Drainage Area 12 (EDA-12): This drainage area consists of the area sheet flowing directly to Infiltration Basin #1 (DP-1). It is 0.5 acres and is approximately 0% impervious. EDA-12 consists of lawn areas.

Existing Drainage Area 20 (EDA-20): This drainage area consists of the southeastern half of the development area. This area is captured and flows to the forebay of Wet Pond #2 (DP-2). It is 4.5 acres and is approximately 94% impervious. EDA-20 consists of impervious parking, road, and building area, and lawn areas.

Existing Drainage Area 21 (EDA-21): This drainage area consists of the eastern portion of the drainage area analyzed which drains into Wet Pond #2 (DP-2). It 2.3 acres and is approximately 15% impervious. EDA-21 consists of impervious road, wooded, and lawn areas.

Existing Drainage Area 22 (EDA-22): This drainage area consists of the area sheet flowing directly to Wet Pond #2 (DP-2). It is 0.6 acres and is approximately 7% impervious. EDA-22 consists of lawn areas.

Existing Drainage Area 23 (EDA-23): This drainage area consists of the northeastern portion of the project parcel which flows towards an existing on-site depression. The spill over from this area eventually reaches Wet Pond #2 (DP-2). This drainage area is 0.6 acres and is approximately 0% impervious. EDA-10 consists of grass, woods, and brush.

Table 1 – Pre-Development (Existing Conditions) Drainage Characteristics.

Drainage Area	Area (square feet)	Composite Curve Number	Impervious Cover (%)	Time of Concentration (minutes)
EDA-10	136,695	41	0	15.2
EDA-11	277,220	90	85	5.0
EDA-12	22,675	49	0	5.0
EDA-20	194,105	96	94	5.0
EDA-21	101,055	79	15	23.4
EDA-22	28,095	78	7	5.0
EDA-23	26,760	45	0	16.9

Table 2 – Pre-Development Conditions Peak Flows

Analysis Point	Peak Flow (cfs)				
	2-yr	10-yr	25-yr	50-yr	100-yr
Design Point 1 (Pond #1)	20.03	34.67	43.98	51.07	58.75
Design Point 2 (Pond #2)	18.73	30.73	38.30	44.03	50.07

Developed Site Conditions and Hydrologic Conditions

In the proposed condition, a site stormwater management system will be installed to mitigate any increase in peak flow from the site due to the increase in impervious area of the parking lot expansion. The two existing ponds on site will remain and function as designed and approved. A subsurface stormwater detention system will be installed on-site. The site stormwater system will discharge to the existing ponds. The stormwater system will also provide stormwater detention and quality improvements through the implementation of a formalized street sweeping program for the impervious surfaces and the installation of deep sump and hooded outlet catch basins, and a hydrodynamic separator. These measures will treat the stormwater quality flow through structural means to provide water quality treatment in conformance with the State of Connecticut Water Quality Manual.

The proposed site drainage area analyzed totals 18.06 acres and is approximately 58% impervious. The intent of the proposed site drainage is to match existing drainage patterns to the maximum extent practical. For the hydrologic analysis, the developed site retained the same Design Points as the existing model. The following drainage areas were developed to model the proposed site improvements.

Proposed Drainage Area 10 (PDA-10): This drainage area consists of the northern portion of the project parcel which flows towards an existing on-site depression. The spill over from this area eventually reaches Infiltration Basin #1 (DP-1). This drainage area is 2.3 acres and is approximately 0% impervious. PDA-10 consists of grass, woods, and brush. This area's runoff is clean or unchanged.

Proposed Drainage Area 11 (PDA-11): This drainage area consists of the northwestern half of the development area. This area is captured and flows to the forebay of Infiltration Basin #1 (DP-1). It is 6.5 acres and is approximately 78% impervious. PDA-11 consists of impervious parking, road, and building area, wooded, and lawn areas. The impervious area was decreased within this drainage area.

Proposed Drainage Area 12 (PDA-12): This drainage area consists of the area sheet flowing directly to Infiltration Basin #1 (DP-1). It is 0.6 acres and is approximately 0% impervious. PDA-12 consists of lawn areas. This area's runoff is clean or unchanged.

Proposed Drainage Area 13 (PDA-13): This drainage area consists of the northern portion of the parking expansion. There will be additional catch basins and storm piping installed in this area that drain into Subsurface Detention System #1 with a hydrodynamic separator and eventually into the

Infiltration Basin #1 (DP-1). It is 1.3 acres and is approximately 64% impervious. The subsurface stormwater detention system has been designed to mitigate the increase in peak flows for all storm events. Therefore, the increase in impervious area will not cause any adverse effects to Infiltration Basin #1 and the pond will continue to function as designed. PDA-13 consists of impervious parking area, wooded area, and lawn area.

Proposed Drainage Area 20 (PDA-20): This drainage area consists of the southeastern half of the development area. This area is captured and flows to the forebay of Wet Pond #2 (DP-2). It is 4.5 acres and is approximately 94% impervious. PDA-20 consists of impervious parking, road, and building area, and lawn areas. This area's runoff is clean or unchanged.

Proposed Drainage Area 21 (PDA-21): This drainage area consists of the eastern portion of the drainage area analyzed which drains into Wet Pond #2 (DP-2). It 2.3 acres and is approximately 15% impervious. PDA-21 consists of impervious road, wooded, and lawn areas. This area's runoff is clean or unchanged.

Proposed Drainage Area 22 (EDA-22): This drainage area consists of the area sheet flowing directly to Wet Pond #2 (DP-2). It is 0.6 acres and is approximately 7% impervious. PDA-22 consists of lawn areas. This area's runoff is clean or unchanged.

Table 3 – Post-Development Drainage Characteristics.

Drainage Area	Area (square feet)	Composite Curve Number	Impervious Cover (%)	Time of Concentration (minutes)
PDA-10	98,955	42	0	15.2
PDA-11	280,865	87	78	5.0
PDA-12	24,775	49	0	5.0
PDA-13	57,730	79	64	5.0
PDA-20	194,105	96	94	5.0
PDA-21	102,080	78	15	23.4
PDA-22	28,095	79	7	5.0

Table 4 – Post-Development Conditions Peak Flows

Analysis Point	Peak Flow (cfs)				
	2-yr	10-yr	25-yr	50-yr	100-yr
Design Point 1 (CBs Southeast of site)	17.97	32.83	42.41	49.69	57.57
Design Point 2 (CBs Southwest of site)	18.68	30.68	38.22	43.89	49.83

Table 5 – Existing vs Proposed Peak Rates of Runoff

	Peak Flow Rate in Cubic Feet per Second (cfs)				
Drainage Area	2-yr	10-yr	25-yr	50-yr	100-yr
Design Point 1					
Existing	20.03	34.67	43.98	51.07	58.75
Proposed	17.97	32.83	42.41	49.69	57.57
Percent Change	-10.28%	-5.31%	-3.57%	-2.70%	-2.01%
Design Point 2					
Existing	18.73	30.73	38.30	44.03	50.07
Proposed	18.68	30.68	38.22	43.89	49.83
Percent Change	-0.27%	-0.16%	-0.21%	-0.32%	-0.48%

Stormwater Management

Hydrologic Modeling of the Entire Site

The hydrologic analysis to determine peak stormwater discharge rates was performed using the HydroCAD stormwater modeling system computer program, version 10.00 developed by HydroCAD Software Solutions, LLC. Hydrographs for each watershed were developed using the SCS Synthetic Unit Hydrograph Method. Rainfall depths and distribution per the NOAA Atlas 14 for South Windsor, CT were used for the calculation of peak flow rates and are listed in Table 6. The drainage areas, or subcatchments as labeled by the program, are depicted by hexagons on the attached drainage diagrams. Pre-development HydroCAD output can be found in Appendix B and Post-development HydroCAD output can be found in Appendix C.

**Table 6 – Rainfall Depths per NOAA Atlas 14
Appendix B - 24 hour Rainfall Data**

Return Period	24-hour Rainfall Depth
2-year	3.09"
10-year	4.90"
25-year	6.03"
50-year	6.85"
100-year	7.77"

Summary

The post-development peak discharge rates for the total developed site have been maintained or decreased for all storm events. All post development stormwater will be discharged offsite to match existing drainage patterns. The proposed underground stormwater detention system has been designed to attenuate peak flows for the 2-, 10-, 25-, 50-, and 100-year storm events. Stormwater quality is being addressed by a formalized street sweeping program, deep sump and hooded outlet catch basins, and a hydrodynamic separator. The two onsite stormwater ponds will remain and function as approved. These features will provide the minimum required 80% TSS removal as required in the CT Stormwater Manual. The proposed stormwater management system will meet the stormwater quality requirements of the State of Connecticut.

APPENDIX A

LOCATION MAPS

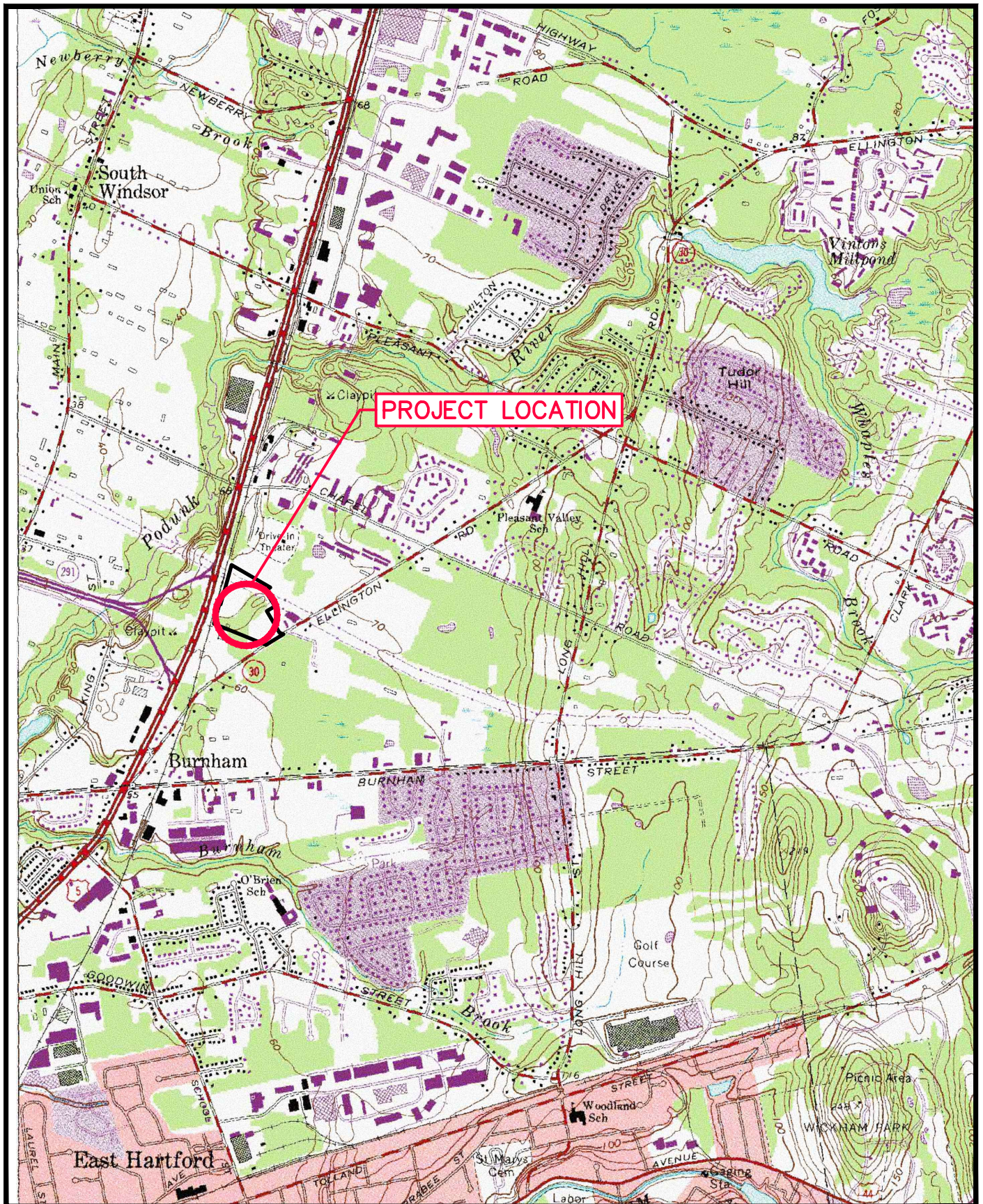
Figure 1: USGS Location Map

Figure 2: Aerial Location Map

Figure 3: NRCS Soil Survey Map with Hydrologic Soil Group Data

Figure 4: FEMA Federal Insurance Rate Map

Figure 5: NOAA Atlas 14 Storm Data

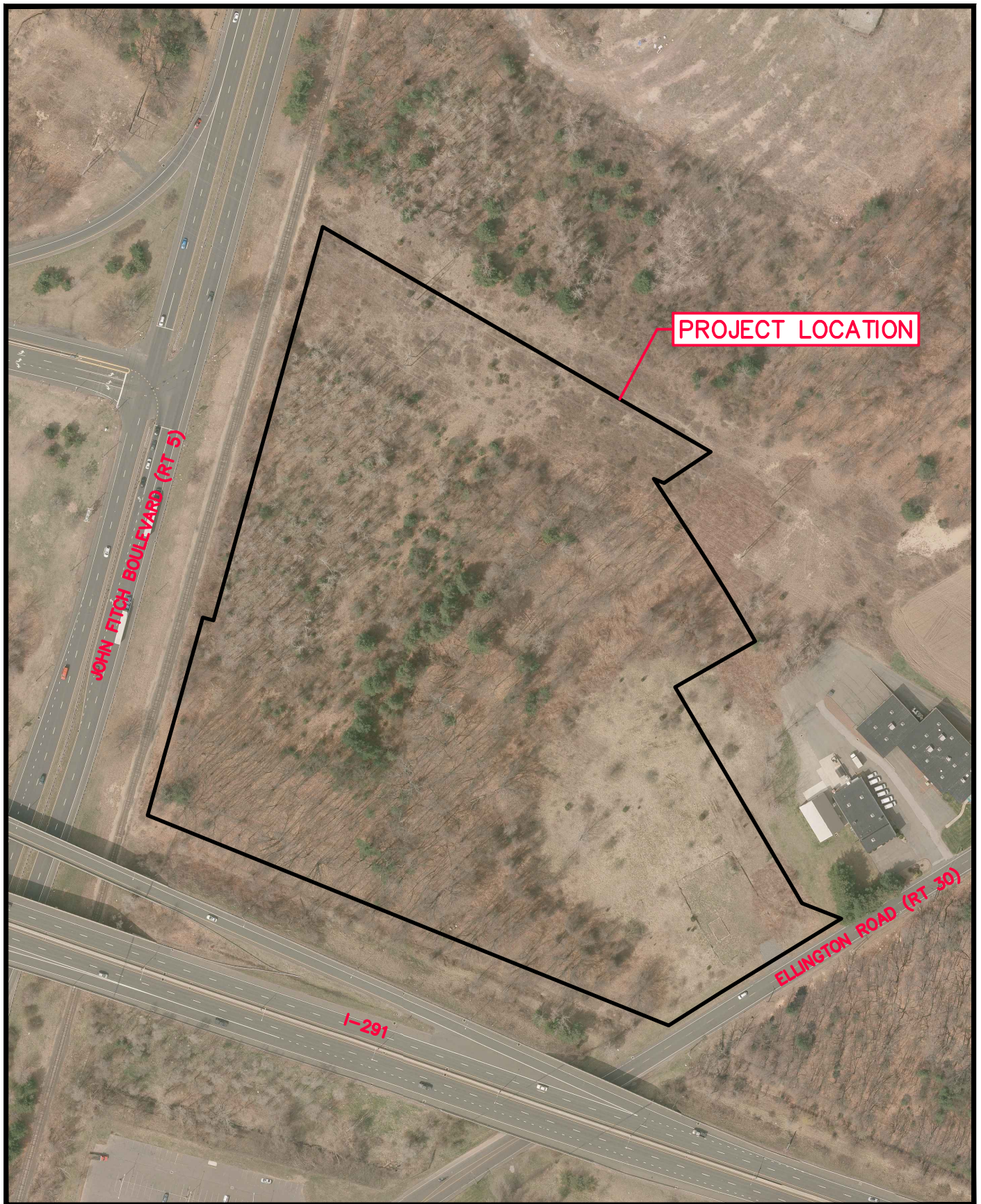


ARCHITECTURE
ENGINEERING
ENVIRONMENTAL
LAND SURVEYING

**PROPOSED
WAREHOUSE**
240 ELLINGTON ROAD
SOUTH WINDSOR, CONNECTICUT

Designed S.E.L.
Drawn S.E.L.
Checked M.J.B.
Approved M.J.B.
Scale 1"=2,000'
Project No. 2001166
Date 11/13/2020
CAD File LOC20116601

FIGURE 1
USGS LOCATION MAP



ARCHITECTURE
ENGINEERING
ENVIRONMENTAL
LAND SURVEYING

**PROPOSED
WAREHOUSE**
240 ELLINGTON ROAD
SOUTH WINDSOR, CONNECTICUT

Designed
Drawn
Checked
Approved
Scale
Project No.
Date
CAD File

S.E.L.
S.E.L.
M.J.B.
M.J.B.
1"=200'
2001166
11/13/2020
LOC20116601

FIGURE 2
AERIAL LOCATION MAP



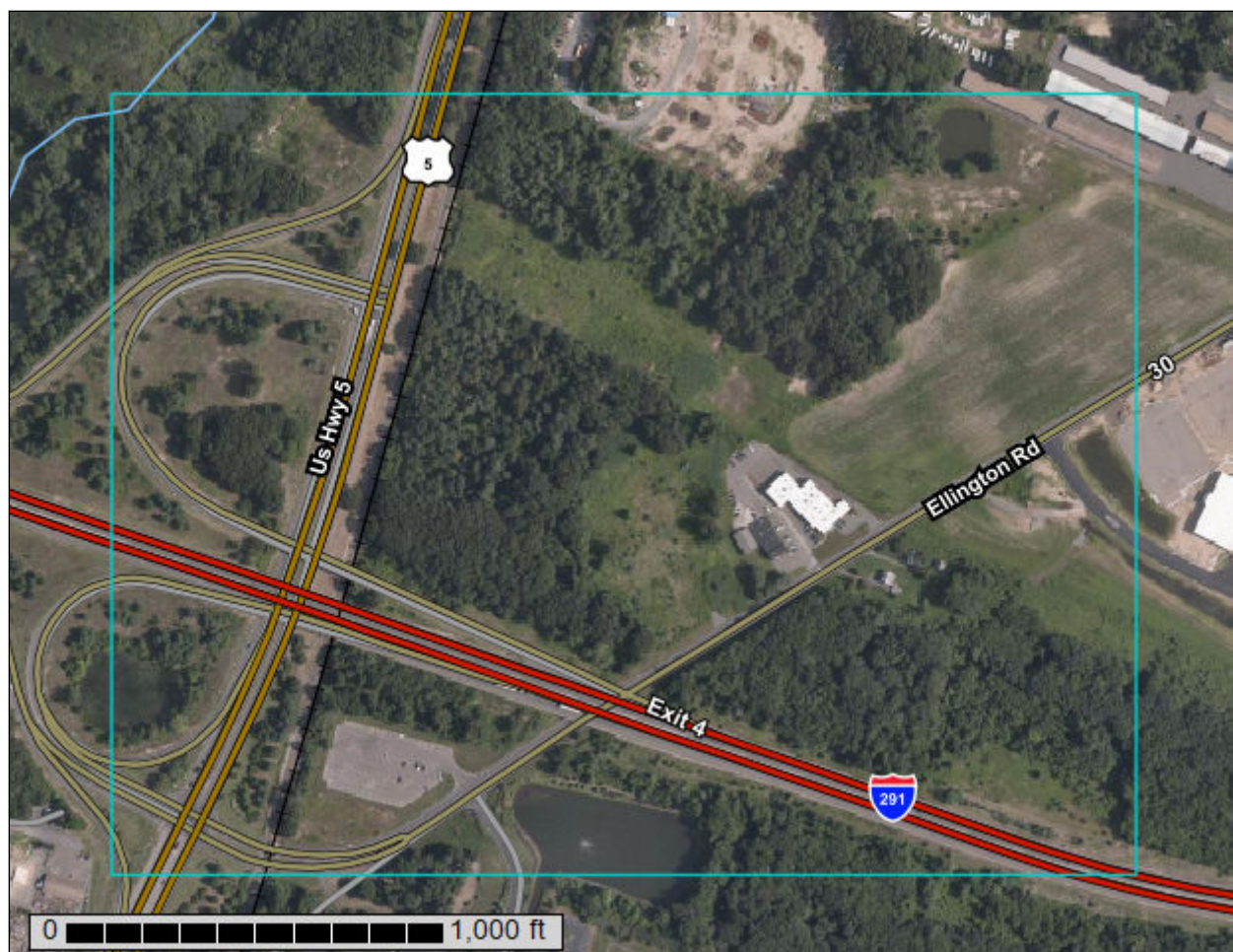
United States
Department of
Agriculture

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



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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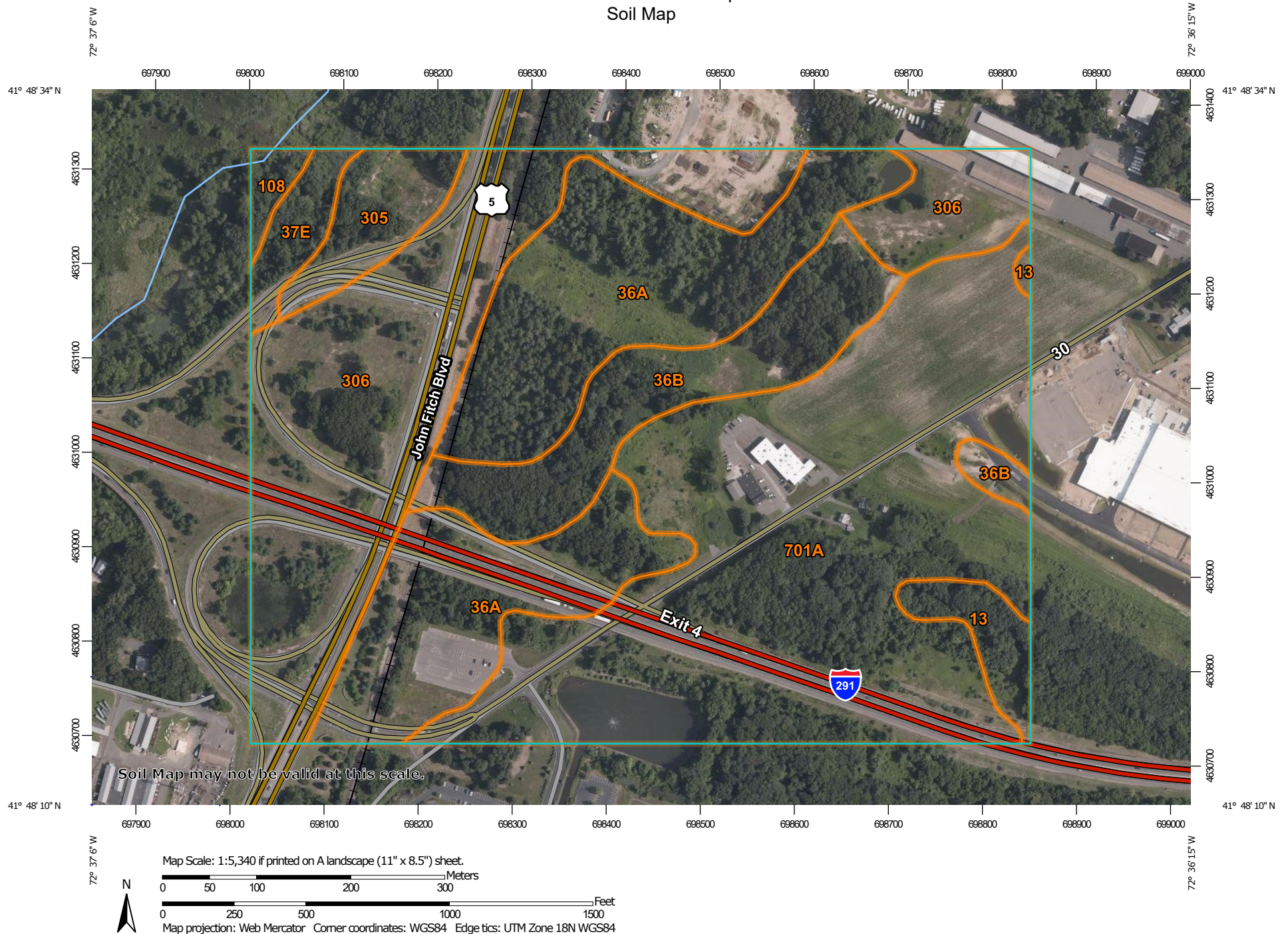
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Soil Map

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



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: 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
13	Walpole sandy loam, 0 to 3 percent slopes	2.7	2.1%
36A	Windsor loamy sand, 0 to 3 percent slopes	29.7	22.9%
36B	Windsor loamy sand, 3 to 8 percent slopes	11.8	9.1%
37E	Manchester gravelly sandy loam, 15 to 45 percent slopes	2.3	1.8%
108	Saco silt loam	1.0	0.7%
305	Udorthents-Pits complex, gravelly	4.0	3.1%
306	Udorthents-Urban land complex	31.2	24.1%
701A	Ninigret fine sandy loam, 0 to 3 percent slopes	46.9	36.2%
Totals for Area of Interest		129.7	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

13—Walpole sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2svkl

Elevation: 0 to 1,020 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 250 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Walpole and similar soils: 80 percent

Minor components: 20 percent

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

Description of Walpole

Setting

Landform: Outwash terraces, outwash plains, depressions, deltas, depressions

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread, dip, talf

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Sandy glaciofluvial deposits derived from igneous, metamorphic and sedimentary rock

Typical profile

Oe - 0 to 1 inches: mucky peat

A - 1 to 7 inches: sandy loam

Bg - 7 to 21 inches: sandy loam

BC - 21 to 25 inches: gravelly sandy loam

C - 25 to 65 inches: very gravelly sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.14 to 14.17 in/hr)

Depth to water table: About 0 to 4 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: B/D

Ecological site: F144AY028MA - Wet Outwash

Hydric soil rating: Yes

Minor Components

Sudbury

Percent of map unit: 10 percent
Landform: Deltas, outwash plains, terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Scarboro

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

36A—Windsor loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2svkg
Elevation: 0 to 990 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Windsor, Loamy Sand

Setting

Landform: Outwash terraces, outwash plains, dunes, deltas
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

O - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loamy sand
Bw - 3 to 25 inches: loamy sand

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C - 25 to 65 inches: sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: A

Ecological site: F144AY022MA - Dry Outwash

Hydric soil rating: No

Minor Components

Deerfield, loamy sand

Percent of map unit: 10 percent

Landform: Outwash plains, terraces, deltas

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread, tal

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Hinckley, loamy sand

Percent of map unit: 5 percent

Landform: Deltas, outwash plains, eskers, kames

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Nose slope, side slope, crest, head slope, rise

Down-slope shape: Convex

Across-slope shape: Convex, linear

Hydric soil rating: No

36B—Windsor loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svkf

Elevation: 0 to 1,210 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

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Farmland classification: Farmland of statewide importance

Map Unit Composition

Windsor, loamy sand, and similar soils: 85 percent

Minor components: 15 percent

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

Description of Windsor, Loamy Sand

Setting

Landform: Outwash terraces, deltas, outwash plains, dunes

Landform position (three-dimensional): Tread, riser

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

O - 0 to 1 inches: moderately decomposed plant material

A - 1 to 3 inches: loamy sand

Bw - 3 to 25 inches: loamy sand

C - 25 to 65 inches: sand

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: A

Ecological site: F144AY022MA - Dry Outwash

Hydric soil rating: No

Minor Components

Hinckley, loamy sand

Percent of map unit: 10 percent

Landform: Eskers, kames, deltas, outwash plains

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Nose slope, side slope, crest, head slope, rise

Down-slope shape: Convex

Across-slope shape: Convex, linear

Hydric soil rating: No

Deerfield, loamy sand

Percent of map unit: 5 percent
Landform: Outwash plains, terraces, deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
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

108—Saco silt loam

Map Unit Setting

National map unit symbol: 9ljv

Elevation: 0 to 1,200 feet

Mean annual precipitation: 43 to 54 inches

Mean annual air temperature: 45 to 55 degrees F

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Frost-free period: 140 to 185 days

Farmland classification: Not prime farmland

Map Unit Composition

Saco and similar soils: 80 percent

Minor components: 20 percent

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

Description of Saco

Setting

Landform: Flood plains

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Coarse-silty alluvium

Typical profile

A - 0 to 12 inches: silt loam

Cg1 - 12 to 32 inches: silt loam

Cg2 - 32 to 48 inches: silt loam

2Cg3 - 48 to 60 inches: stratified very gravelly coarse sand to loamy fine sand

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: 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: About 0 to 6 inches

Frequency of flooding: FrequentNone

Frequency of ponding: Frequent

Available water capacity: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: B/D

Ecological site: F144AY016MA - Very Wet Low Floodplain

Hydric soil rating: Yes

Minor Components

Lim

Percent of map unit: 5 percent

Landform: Flood plains

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Limerick

Percent of map unit: 5 percent

Landform: Flood plains

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Winooski

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

Rippowam

Percent of map unit: 3 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Hadley

Percent of map unit: 2 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Bash

Percent of map unit: 2 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

305—Udorthents-Pits complex, gravelly

Map Unit Setting

National map unit symbol: 9lmf
Elevation: 0 to 2,000 feet
Mean annual precipitation: 43 to 54 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: 65 percent
Pits: 25 percent
Minor components: 10 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: Gravelly outwash

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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 35 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately 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 24 to 54 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): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Pits

Typical profile

C - 0 to 65 inches: very gravelly sand

Interpretive groups

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

Minor Components

Windsor

Percent of map unit: 2 percent
Landform: Terraces, kames, outwash plains
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Merrimac

Percent of map unit: 2 percent
Landform: Kames, outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Gloucester

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

Hinckley

Percent of map unit: 2 percent

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Landform: Eskers, kames, outwash plains, terraces
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Ninigret

Percent of map unit: 1 percent
Landform: Outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Sudbury

Percent of map unit: 1 percent
Landform: Outwash plains, terraces
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

306—Udorthents-Urban land complex

Map Unit Setting

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

Map Unit Composition

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

Description of Udorthents

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 25 percent
Depth to restrictive feature: More than 80 inches

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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

701A—Ninigret fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2y07d

Elevation: 0 to 1,260 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

Ninigret and similar soils: 85 percent

Minor components: 15 percent

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

Description of Ninigret

Setting

Landform: Outwash terraces, kames, moraines, outwash plains, kame terraces

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope, tread

Down-slope shape: Linear, convex

Across-slope shape: Concave, convex

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

Typical profile

Ap - 0 to 8 inches: fine sandy loam

Bw1 - 8 to 16 inches: fine sandy loam

Bw2 - 16 to 26 inches: fine sandy loam

2C - 26 to 65 inches: stratified loamy sand to loamy fine sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 18 to 38 inches to strongly contrasting textural stratification

Drainage class: Moderately well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)

Depth to water table: About 17 to 39 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C

Ecological site: F144AY026CT - Moist Silty Outwash

Hydric soil rating: No

Minor Components

Merrimac

Percent of map unit: 5 percent

Landform: Moraines, kames, eskers, outwash terraces, outwash plains

Landform position (two-dimensional): Shoulder, summit

Landform position (three-dimensional): Side slope, crest, tread

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Agawam

Percent of map unit: 5 percent

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Landform: Moraines, outwash terraces, outwash plains, kame terraces, kames

Landform position (two-dimensional): Shoulder, summit

Landform position (three-dimensional): Side slope, crest, tread

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Tisbury

Percent of map unit: 3 percent

Landform: Outwash terraces, outwash plains, deltas, valley trains

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: No

Raypol

Percent of map unit: 2 percent

Landform: Depressions, drainageways

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Soil Information for All Uses

Soil Properties and Qualities

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

Soil Qualities and Features

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

Hydrologic Soil Group

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

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

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

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

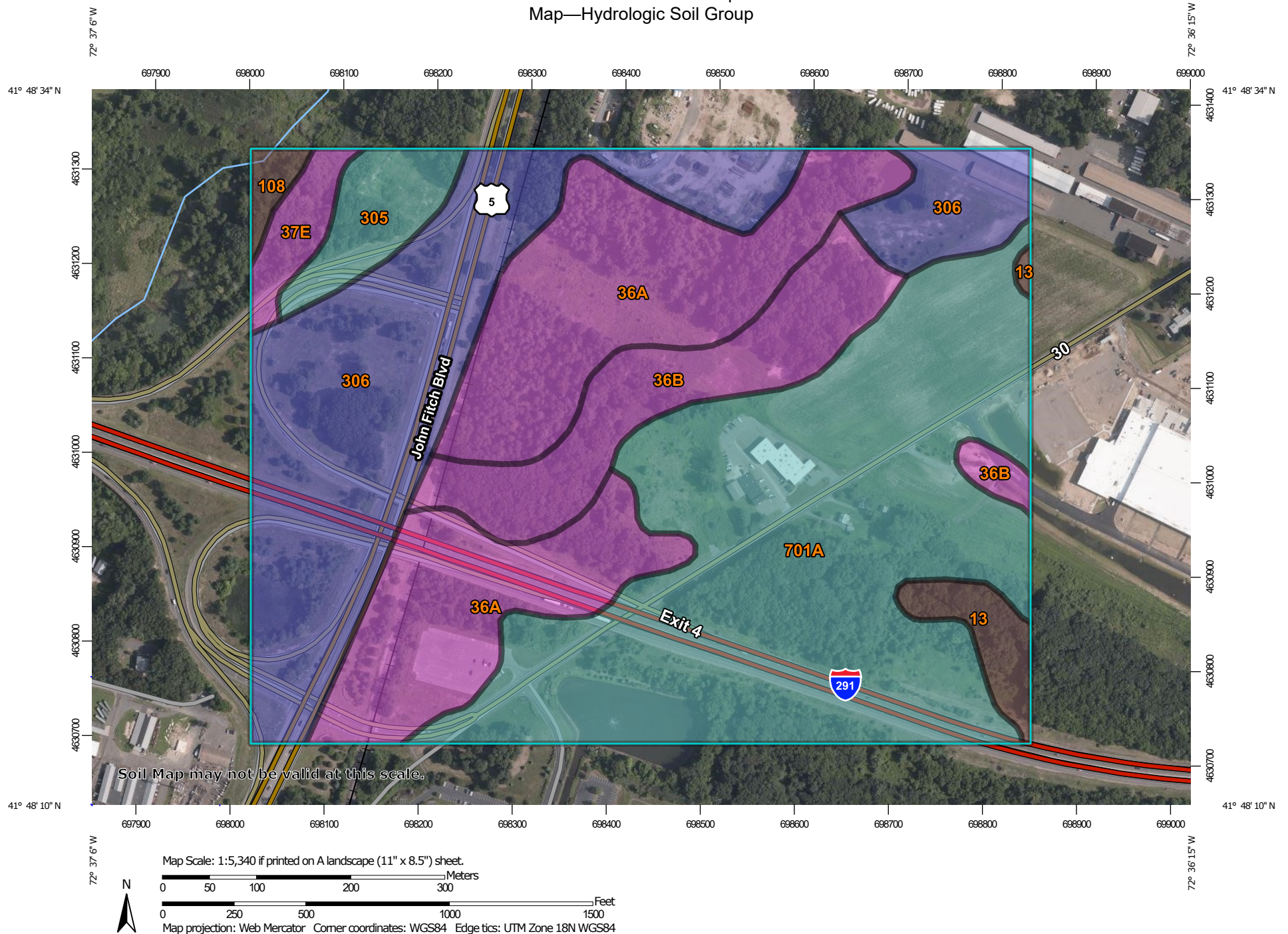
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Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water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

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

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

Custom Soil Resource Report Map—Hydrologic Soil Group



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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

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

Soil Rating Lines

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

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: State of Connecticut
 Survey Area Data: Version 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.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
13	Walpole sandy loam, 0 to 3 percent slopes	B/D	2.7	2.1%
36A	Windsor loamy sand, 0 to 3 percent slopes	A	29.7	22.9%
36B	Windsor loamy sand, 3 to 8 percent slopes	A	11.8	9.1%
37E	Manchester gravelly sandy loam, 15 to 45 percent slopes	A	2.3	1.8%
108	Saco silt loam	B/D	1.0	0.7%
305	Udorthents-Pits complex, gravelly	C	4.0	3.1%
306	Udorthents-Urban land complex	B	31.2	24.1%
701A	Ninigret fine sandy loam, 0 to 3 percent slopes	C	46.9	36.2%
Totals for Area of Interest			129.7	100.0%

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

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NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevation** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevation (BFEs) shown on this map apply only landward of 0.0' North American Vertical Datum (NAVD). Users of this FIRM should be aware that coastal flood elevations may also be provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map is Universal Transverse Mercator (UTM) zone 18. The **horizontal datum** is NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit their website at www.ngs.noaa.gov.

Base map information shown on this FIRM was provided in digital format by CT DEP.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

An accompanying Flood Insurance Study report, Letters of Map Revision or Letters of Map Amendment revising portions of this panel, and digital versions of this PANEL may be available. Contact the **FEMA Map Service Center** at the following phone numbers and Internet address for information on all related products available from FEMA:

Phone: 800-358-9616
FAX: 800-358-9620
<http://msc.fema.gov/>

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/business/nfip/>

This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report may reflect stream channel distances that differ from what is shown on this map.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

- ZONE A** No base flood elevations determined.
- ZONE AE** Base flood elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.
- ZONE A99** Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no base flood elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no base flood elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or velocities.
- Base Flood Elevation line and value; elevation in 0'
- Base Flood Elevation value where uniform within zone; elevation in 0'

*Referenced to the North American Vertical Datum of 1988

Cross Section Line

Transsect Line

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)

1000-meter Universal Transverse Mercator grid values, zone 18

5000-foot grid ticks

Bench mark (see explanation in Notes to Users section of this FIRM panel).

River Mile

MAP REPOSITORY

Refer to Repository Listing on Index Map

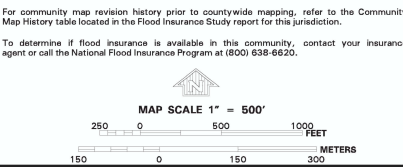
EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP

SEPTEMBER 26, 2008

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

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



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0386F

FIRM
FLOOD INSURANCE RATE MAP
HARTFORD COUNTY,
CONNECTICUT
(ALL JURISDICTIONS)

PANEL 386 OF 675

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY:

NUMBER:

PANEL:

SUFFIX:

SOUTH WINDSOR, TOWN OF

EAST HARTFORD, TOWN OF

080036 0386 F

080036 0386 F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



MAP NUMBER
09003C0386F

EFFECTIVE DATE:
SEPTEMBER 26, 2008

Federal Emergency Management Agency



NOAA Atlas 14, Volume 10, Version 3
Location name: South Windsor, Connecticut, USA*
Latitude: 41.8058°, Longitude: -72.6115°
Elevation: 67.93 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerals](#)

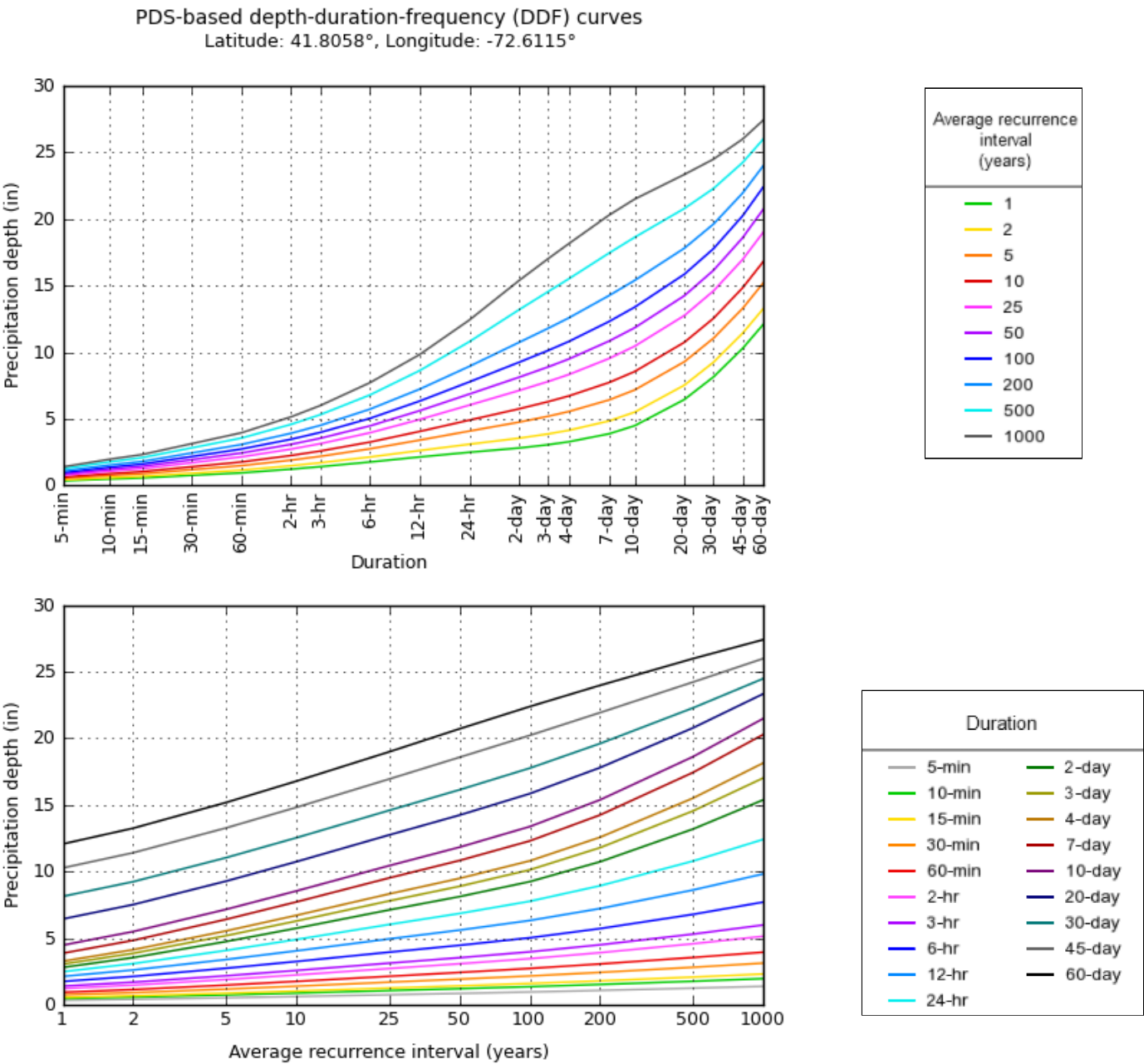
PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.335 (0.262-0.428)	0.406 (0.317-0.520)	0.523 (0.407-0.671)	0.619 (0.480-0.800)	0.753 (0.564-1.02)	0.854 (0.626-1.18)	0.959 (0.683-1.38)	1.08 (0.727-1.59)	1.25 (0.809-1.91)	1.39 (0.877-2.16)
10-min	0.475 (0.371-0.606)	0.576 (0.449-0.737)	0.741 (0.577-0.951)	0.878 (0.679-1.13)	1.07 (0.799-1.44)	1.21 (0.886-1.67)	1.36 (0.967-1.95)	1.53 (1.03-2.25)	1.77 (1.15-2.70)	1.96 (1.24-3.06)
15-min	0.558 (0.436-0.714)	0.677 (0.529-0.867)	0.871 (0.678-1.12)	1.03 (0.799-1.33)	1.25 (0.940-1.70)	1.42 (1.04-1.97)	1.60 (1.14-2.30)	1.80 (1.21-2.64)	2.08 (1.35-3.17)	2.31 (1.46-3.60)
30-min	0.748 (0.585-0.956)	0.910 (0.710-1.16)	1.18 (0.914-1.51)	1.40 (1.08-1.80)	1.70 (1.27-2.30)	1.92 (1.41-2.66)	2.16 (1.54-3.11)	2.43 (1.64-3.58)	2.81 (1.82-4.30)	3.13 (1.98-4.88)
60-min	0.938 (0.733-1.20)	1.14 (0.892-1.46)	1.48 (1.15-1.90)	1.76 (1.36-2.27)	2.14 (1.60-2.89)	2.43 (1.78-3.36)	2.73 (1.94-3.92)	3.07 (2.07-4.51)	3.55 (2.30-5.42)	3.95 (2.50-6.15)
2-hr	1.22 (0.956-1.55)	1.47 (1.16-1.87)	1.89 (1.48-2.42)	2.24 (1.74-2.88)	2.72 (2.05-3.67)	3.08 (2.28-4.25)	3.46 (2.49-4.98)	3.91 (2.64-5.72)	4.58 (2.98-6.95)	5.14 (3.27-7.97)
3-hr	1.40 (1.11-1.78)	1.70 (1.34-2.15)	2.18 (1.71-2.77)	2.58 (2.01-3.30)	3.13 (2.37-4.20)	3.53 (2.62-4.87)	3.97 (2.87-5.71)	4.50 (3.05-6.57)	5.30 (3.45-8.02)	5.99 (3.81-9.24)
6-hr	1.75 (1.39-2.21)	2.13 (1.69-2.68)	2.74 (2.17-3.46)	3.25 (2.55-4.13)	3.95 (3.01-5.29)	4.47 (3.34-6.13)	5.03 (3.66-7.21)	5.72 (3.89-8.29)	6.79 (4.43-10.2)	7.71 (4.92-11.8)
12-hr	2.13 (1.70-2.66)	2.61 (2.08-3.27)	3.40 (2.70-4.27)	4.05 (3.20-5.12)	4.95 (3.79-6.59)	5.61 (4.21-7.66)	6.33 (4.64-9.04)	7.22 (4.93-10.4)	8.62 (5.65-12.9)	9.82 (6.29-15.0)
24-hr	2.48 (1.99-3.09)	3.09 (2.48-3.84)	4.08 (3.26-5.09)	4.90 (3.89-6.15)	6.03 (4.65-8.00)	6.85 (5.19-9.34)	7.77 (5.75-11.1)	8.94 (6.11-12.8)	10.8 (7.09-16.0)	12.4 (7.97-18.8)
2-day	2.80 (2.27-3.46)	3.54 (2.86-4.38)	4.75 (3.82-5.89)	5.75 (4.59-7.17)	7.12 (5.54-9.43)	8.12 (6.20-11.1)	9.24 (6.92-13.2)	10.7 (7.37-15.3)	13.2 (8.69-19.5)	15.4 (9.90-23.1)
3-day	3.05 (2.48-3.76)	3.86 (3.13-4.76)	5.19 (4.18-6.41)	6.29 (5.04-7.82)	7.80 (6.08-10.3)	8.89 (6.82-12.1)	10.1 (7.62-14.5)	11.8 (8.11-16.7)	14.5 (9.60-21.4)	17.0 (11.0-25.5)
4-day	3.27 (2.66-4.02)	4.13 (3.36-5.08)	5.54 (4.48-6.84)	6.71 (5.40-8.33)	8.32 (6.51-11.0)	9.49 (7.29-12.9)	10.8 (8.14-15.4)	12.6 (8.66-17.8)	15.5 (10.3-22.7)	18.1 (11.7-27.1)
7-day	3.87 (3.16-4.72)	4.83 (3.94-5.91)	6.41 (5.21-7.87)	7.72 (6.24-9.53)	9.52 (7.47-12.5)	10.8 (8.35-14.6)	12.3 (9.27-17.4)	14.2 (9.85-20.0)	17.4 (11.6-25.4)	20.3 (13.1-30.1)
10-day	4.48 (3.67-5.45)	5.50 (4.50-6.70)	7.16 (5.84-8.76)	8.54 (6.92-10.5)	10.4 (8.21-13.6)	11.8 (9.12-15.8)	13.4 (10.1-18.7)	15.4 (10.7-21.6)	18.6 (12.4-27.0)	21.5 (13.9-31.8)
20-day	6.44 (5.31-7.79)	7.52 (6.19-9.11)	9.28 (7.61-11.3)	10.7 (8.75-13.1)	12.8 (10.0-16.3)	14.2 (11.0-18.7)	15.8 (11.8-21.7)	17.8 (12.4-24.7)	20.8 (13.9-29.9)	23.3 (15.2-34.3)
30-day	8.14 (6.73-9.81)	9.24 (7.64-11.1)	11.0 (9.09-13.4)	12.5 (10.3-15.3)	14.6 (11.5-18.5)	16.1 (12.4-21.0)	17.8 (13.2-24.0)	19.6 (13.7-27.1)	22.3 (14.9-31.9)	24.5 (16.0-35.8)
45-day	10.3 (8.53-12.3)	11.4 (9.47-13.7)	13.3 (11.0-16.0)	14.8 (12.2-18.0)	16.9 (13.4-21.3)	18.6 (14.3-23.9)	20.2 (15.0-26.9)	21.9 (15.4-30.1)	24.2 (16.3-34.5)	26.0 (17.0-37.9)
60-day	12.1 (10.1-14.5)	13.3 (11.0-15.9)	15.2 (12.6-18.3)	16.8 (13.8-20.3)	19.0 (15.0-23.8)	20.7 (15.9-26.4)	22.4 (16.5-29.4)	24.0 (16.9-32.8)	26.0 (17.5-36.9)	27.4 (17.9-39.8)

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

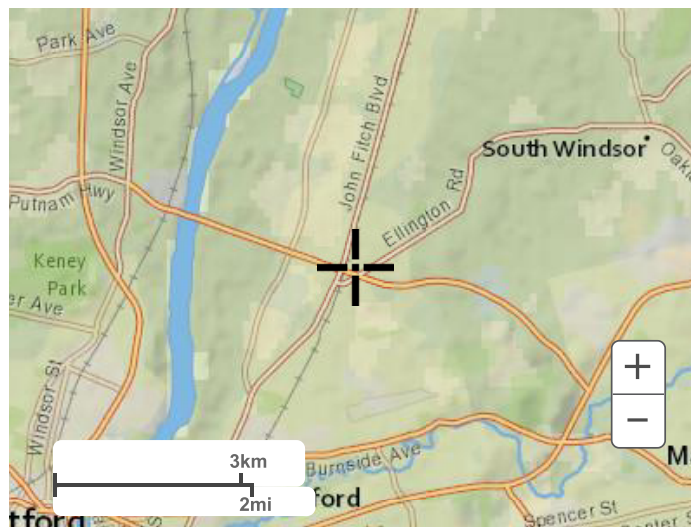
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PF graphical

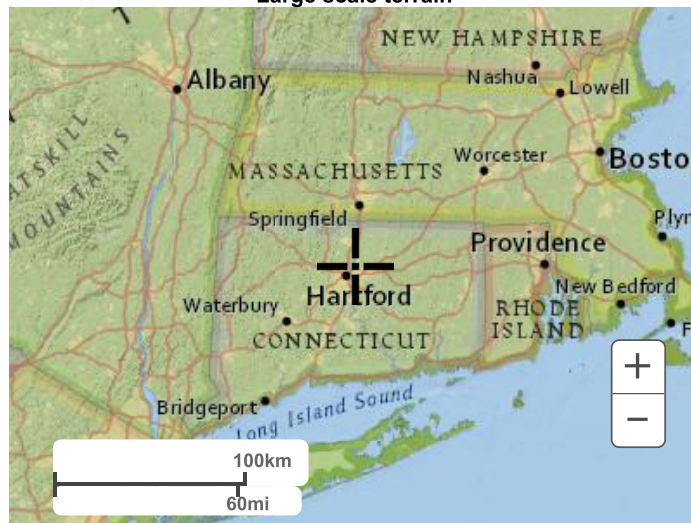


Maps & aerials

Small scale terrain



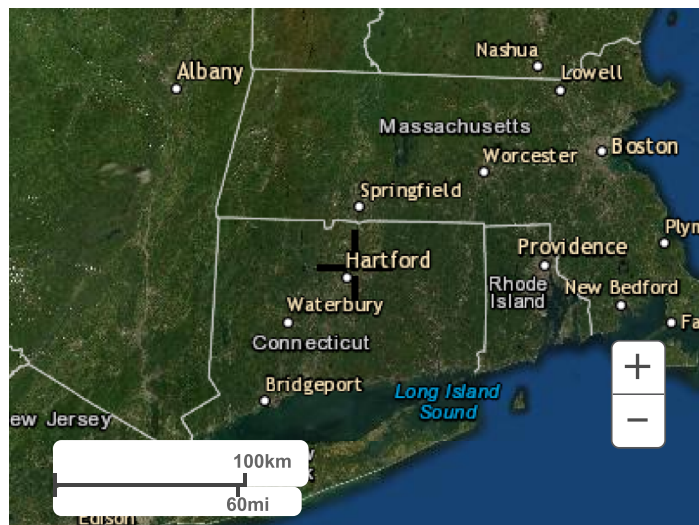
Large scale terrain



Large scale map



Large scale aerial



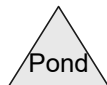
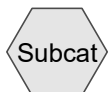
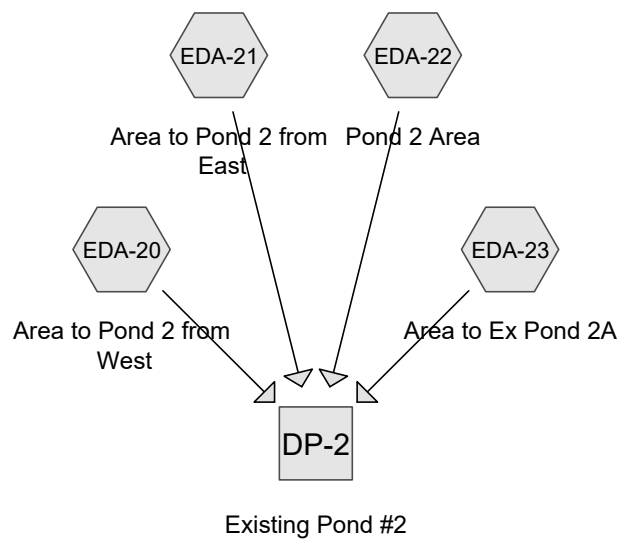
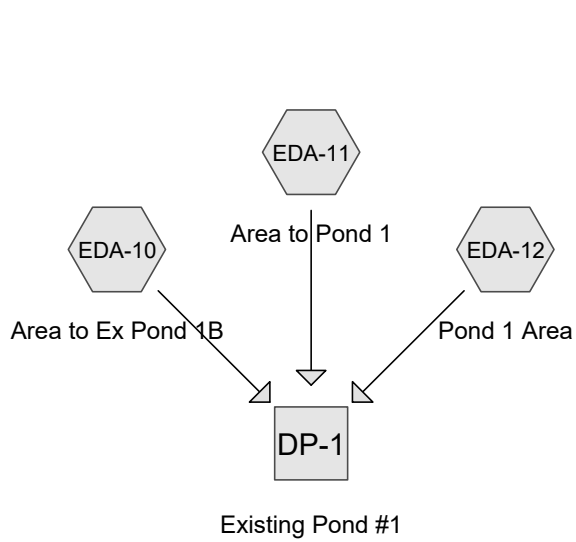
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[US Department of Commerce](#)
[National Oceanic and Atmospheric Administration](#)
[National Weather Service](#)
[National Water Center](#)
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

[Disclaimer](#)

APPENDIX B

PRE-DEVELOPMENT HYDROLOGY



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 EDA-10: Area to Ex Pond 1B Runoff Area=136,695 sf 0.00% Impervious Runoff Depth=0.00"
 Flow Length=227' Tc=15.2 min CN=41 Runoff=0.00 cfs 0.001 af

Subcatchment EDA-11: Area to Pond 1 Runoff Area=277,220 sf 84.74% Impervious Runoff Depth=2.07"
 Tc=5.0 min CN=90 Runoff=20.03 cfs 1.096 af

Subcatchment EDA-12: Pond 1 Area Runoff Area=22,675 sf 0.00% Impervious Runoff Depth=0.09"
 Tc=5.0 min CN=49 Runoff=0.00 cfs 0.004 af

Subcatchment EDA-20: Area to Pond 2 Runoff Area=194,105 sf 93.71% Impervious Runoff Depth=2.64"
 Tc=5.0 min CN=96 Runoff=16.94 cfs 0.981 af

Subcatchment EDA-21: Area to Pond 2 Runoff Area=101,055 sf 15.16% Impervious Runoff Depth=1.25"
 Flow Length=283' Slope=0.0035 '/' Tc=23.4 min CN=79 Runoff=2.11 cfs 0.243 af

Subcatchment EDA-22: Pond 2 Area Runoff Area=28,095 sf 6.69% Impervious Runoff Depth=1.19"
 Tc=5.0 min CN=78 Runoff=1.14 cfs 0.064 af

Subcatchment EDA-23: Area to Ex Pond 2A Runoff Area=26,760 sf 0.00% Impervious Runoff Depth=0.03"
 Flow Length=64' Slope=0.0156 '/' Tc=16.9 min CN=45 Runoff=0.00 cfs 0.002 af

Reach DP-1: Existing Pond #1 Inflow=20.03 cfs 1.101 af
 Outflow=20.03 cfs 1.101 af

Reach DP-2: Existing Pond #2 Inflow=18.73 cfs 1.289 af
 Outflow=18.73 cfs 1.289 af

Total Runoff Area = 18.058 ac Runoff Volume = 2.390 af Average Runoff Depth = 1.59"
44.83% Pervious = 8.095 ac 55.17% Impervious = 9.963 ac

Summary for Subcatchment EDA-10: Area to Ex Pond 1B

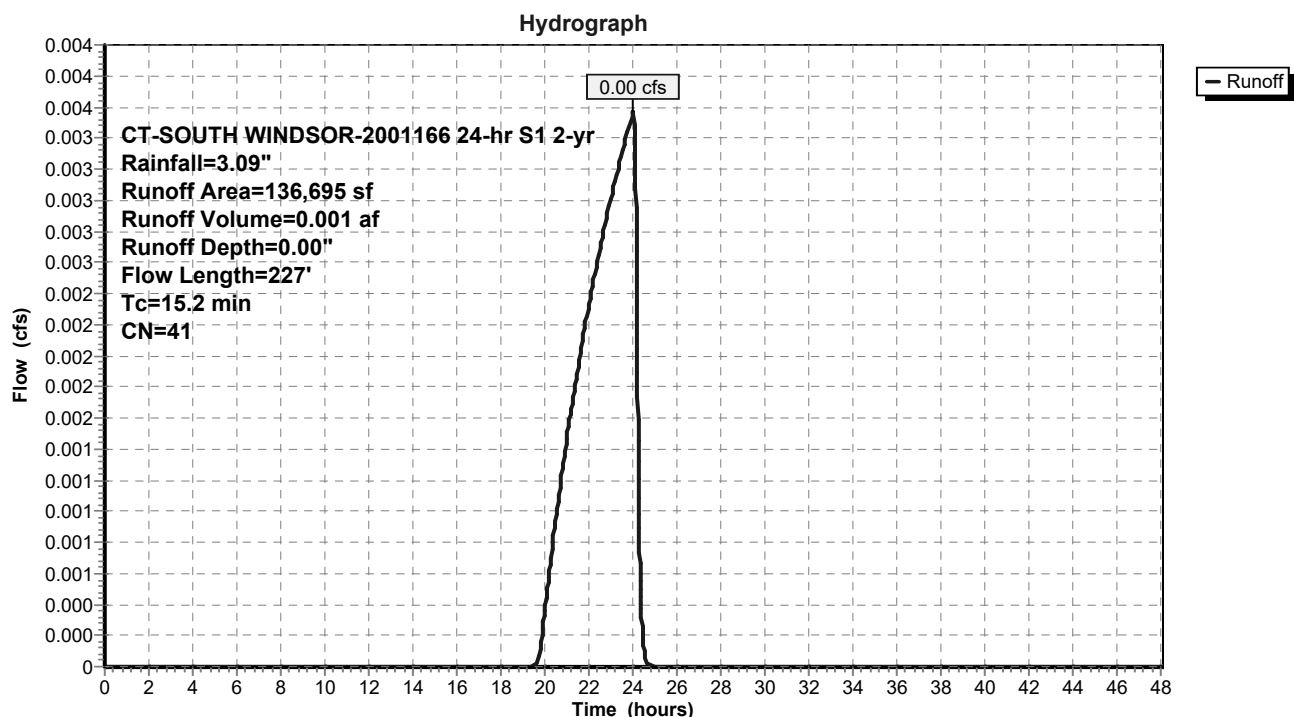
Runoff = 0.00 cfs @ 24.03 hrs, Volume= 0.001 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 2-yr Rainfall=3.09"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
52,060	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
23,870	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
60,765	35	Brush, Fair, HSG A
136,695	41	Weighted Average
136,695		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0100	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.09"
2.0	127	0.0236	1.08		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
15.2	227	Total			

Subcatchment EDA-10: Area to Ex Pond 1B



Summary for Subcatchment EDA-11: Area to Pond 1

Runoff = 20.03 cfs @ 12.03 hrs, Volume= 1.096 af, Depth= 2.07"

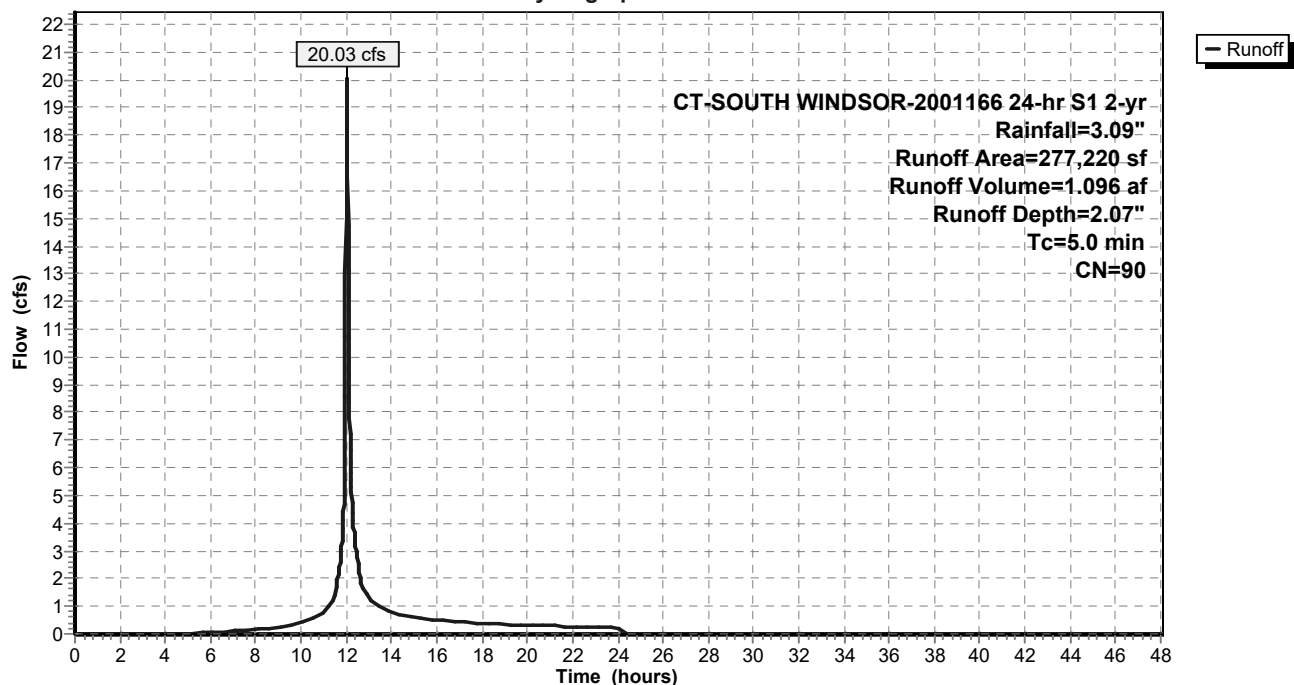
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 CT-SOUTH WINDSOR-2001166 24-hr S1 2-yr Rainfall=3.09"

Area (sf)	CN	Description
211,670	98	Paved parking, HSG A
23,235	98	Paved parking, HSG C
25,820	49	50-75% Grass cover, Fair, HSG A
2,165	79	50-75% Grass cover, Fair, HSG C
14,330	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
277,220	90	Weighted Average
42,315		15.26% Pervious Area
234,905		84.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-11: Area to Pond 1

Hydrograph



Summary for Subcatchment EDA-12: Pond 1 Area

Runoff = 0.00 cfs @ 14.54 hrs, Volume= 0.004 af, Depth= 0.09"

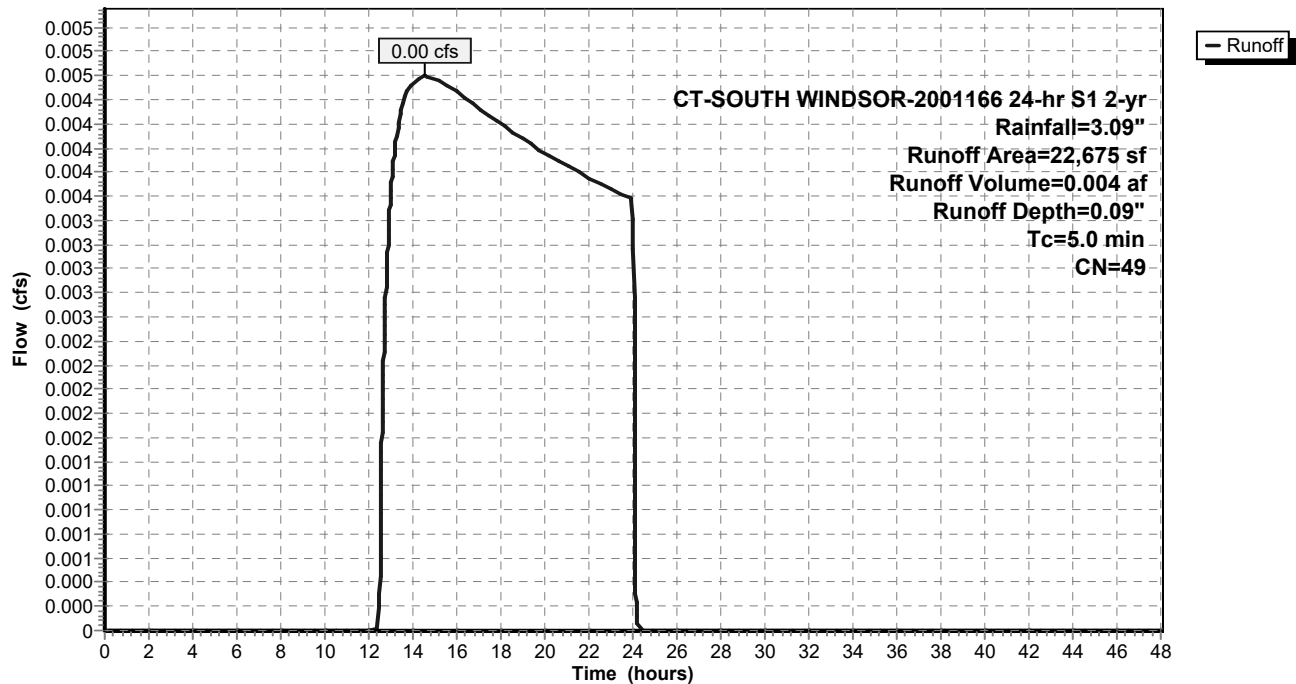
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 CT-SOUTH WINDSOR-2001166 24-hr S1 2-yr Rainfall=3.09"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
22,675	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
22,675	49	Weighted Average
22,675		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-12: Pond 1 Area

Hydrograph



Summary for Subcatchment EDA-20: Area to Pond 2 from West

Runoff = 16.94 cfs @ 12.03 hrs, Volume= 0.981 af, Depth= 2.64"

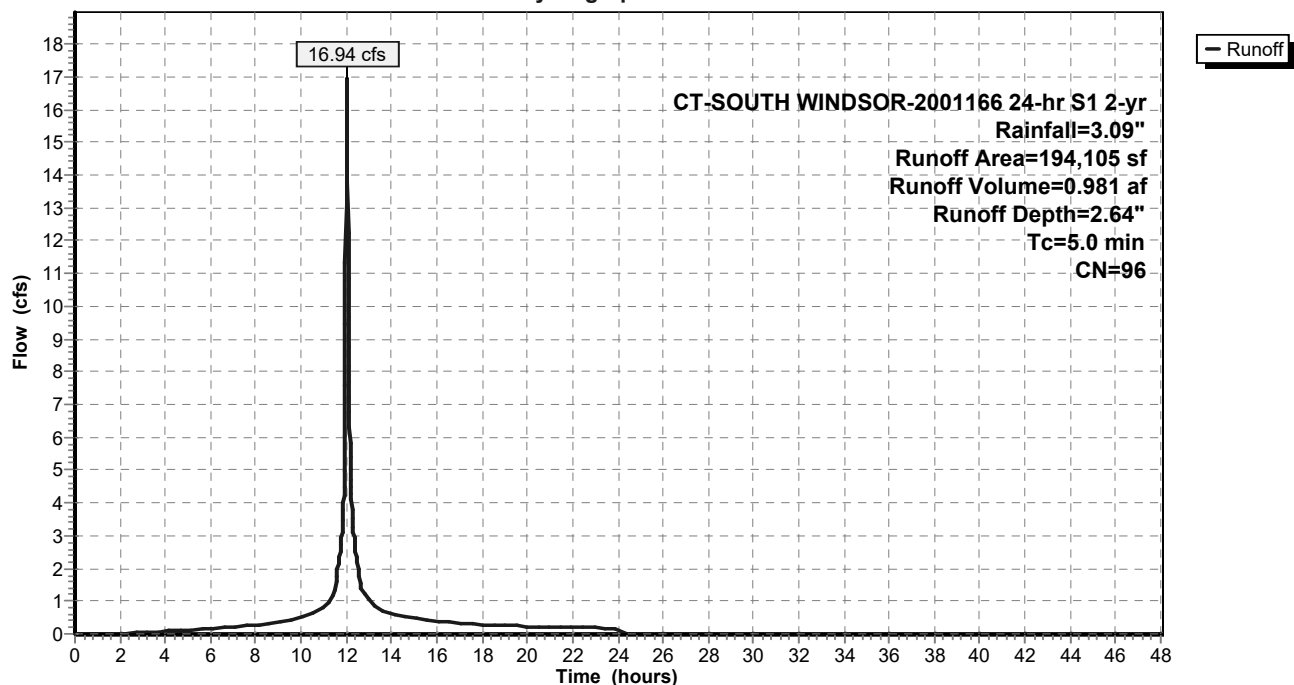
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 CT-SOUTH WINDSOR-2001166 24-hr S1 2-yr Rainfall=3.09"

Area (sf)	CN	Description
134,845	98	Paved parking, HSG A
47,055	98	Paved parking, HSG C
7,810	49	50-75% Grass cover, Fair, HSG A
4,395	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
194,105	96	Weighted Average
12,205		6.29% Pervious Area
181,900		93.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-20: Area to Pond 2 from West

Hydrograph



Summary for Subcatchment EDA-21: Area to Pond 2 from East

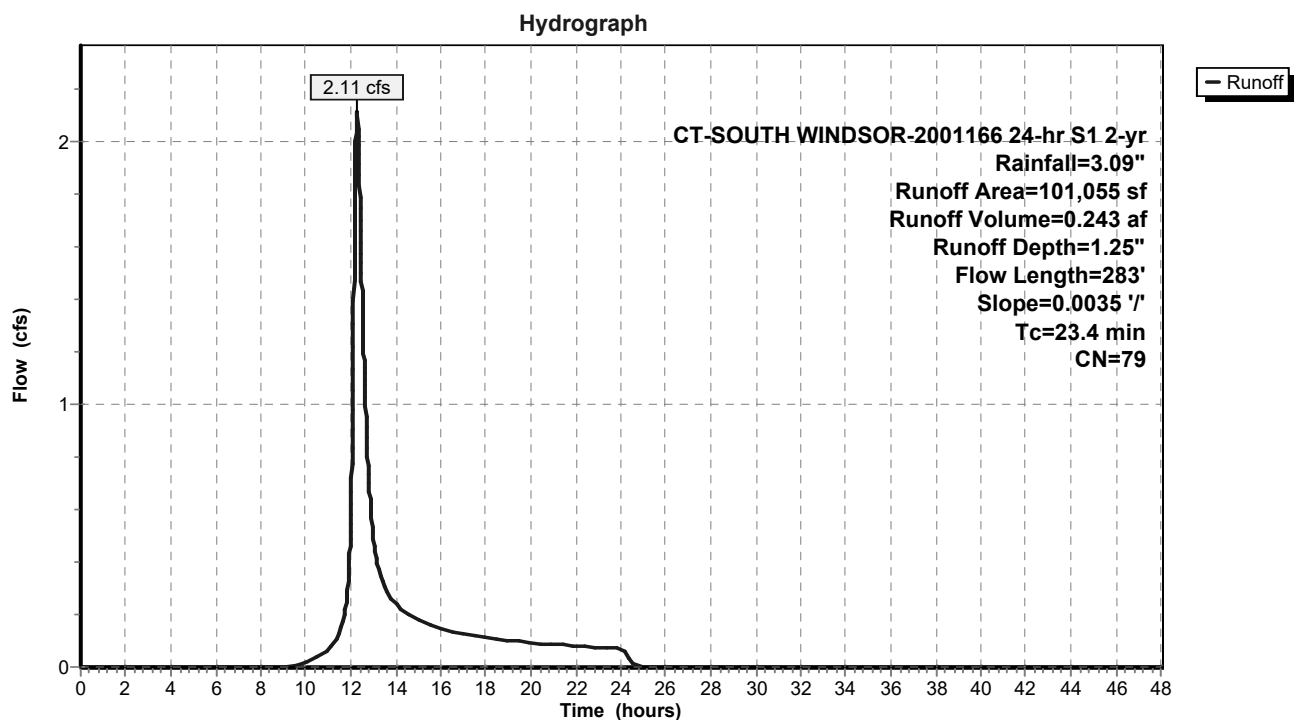
Runoff = 2.11 cfs @ 12.28 hrs, Volume= 0.243 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 CT-SOUTH WINDSOR-2001166 24-hr S1 2-yr Rainfall=3.09"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
15,320	98	Paved parking, HSG C
10,195	49	50-75% Grass cover, Fair, HSG A
71,850	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
3,690	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
101,055	79	Weighted Average
85,735		84.84% Pervious Area
15,320		15.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0035	0.08		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.09"
3.4	183	0.0035	0.89		Shallow Concentrated Flow,
					Grassed Waterway Kv= 15.0 fps
23.4	283	Total			

Subcatchment EDA-21: Area to Pond 2 from East



Summary for Subcatchment EDA-22: Pond 2 Area

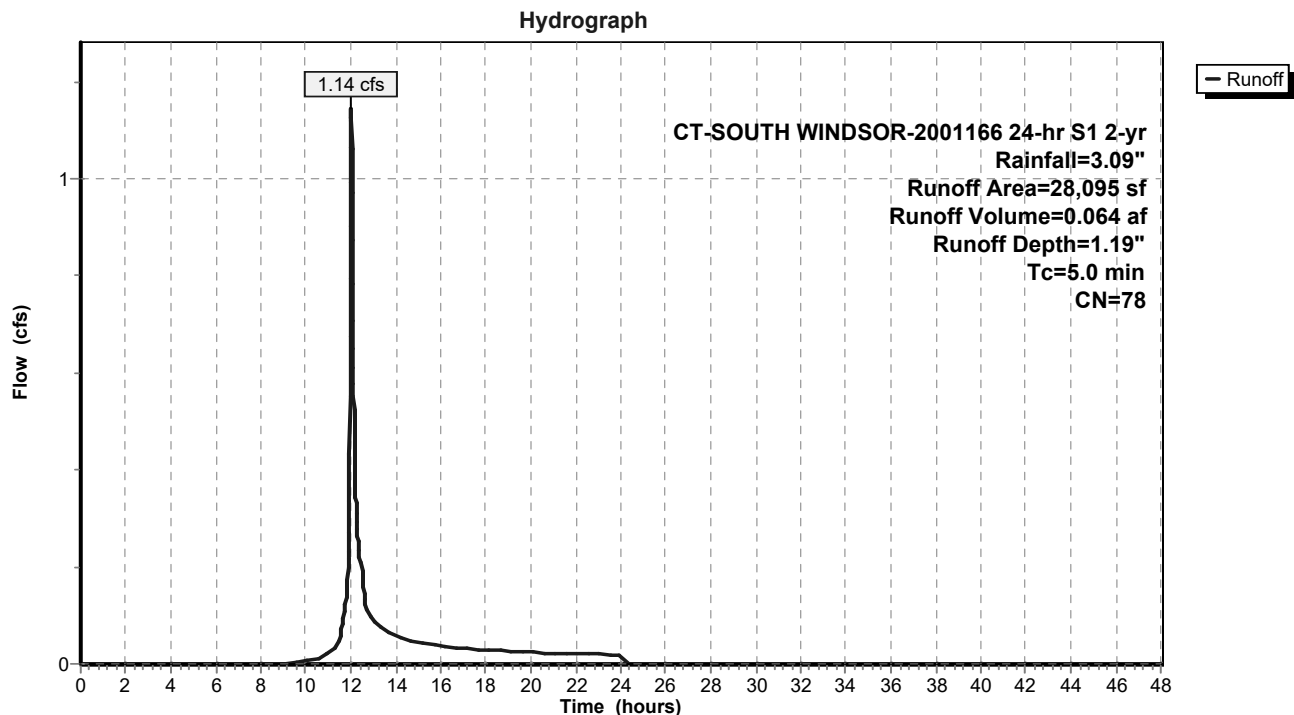
Runoff = 1.14 cfs @ 12.03 hrs, Volume= 0.064 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 CT-SOUTH WINDSOR-2001166 24-hr S1 2-yr Rainfall=3.09"

Area (sf)	CN	Description
425	98	Paved parking, HSG A
1,455	98	Paved parking, HSG C
2,070	49	50-75% Grass cover, Fair, HSG A
24,145	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
28,095	78	Weighted Average
26,215		93.31% Pervious Area
1,880		6.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-22: Pond 2 Area



Summary for Subcatchment EDA-23: Area to Ex Pond 2A

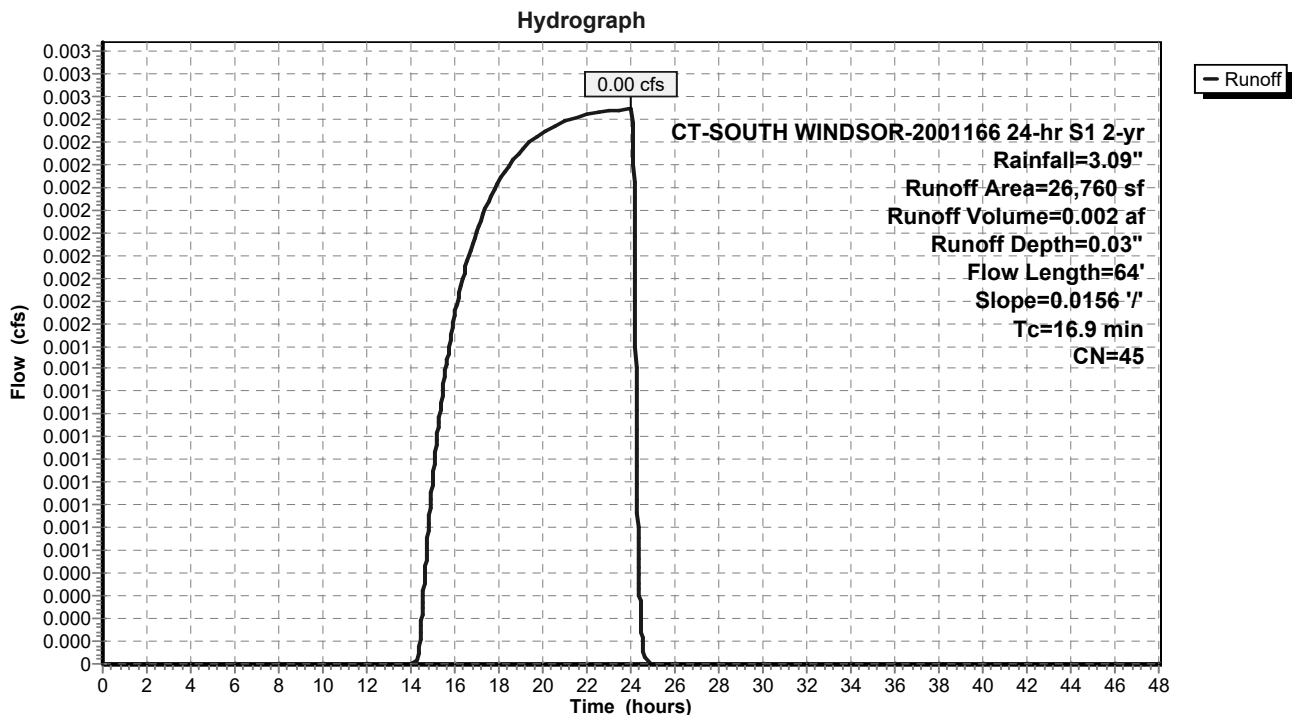
Runoff = 0.00 cfs @ 23.98 hrs, Volume= 0.002 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 CT-SOUTH WINDSOR-2001166 24-hr S1 2-yr Rainfall=3.09"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
18,540	49	50-75% Grass cover, Fair, HSG A
35	79	50-75% Grass cover, Fair, HSG C
7,955	36	Woods, Fair, HSG A
230	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
26,760	45	Weighted Average
26,760		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	64	0.0156	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.09"

Subcatchment EDA-23: Area to Ex Pond 2A

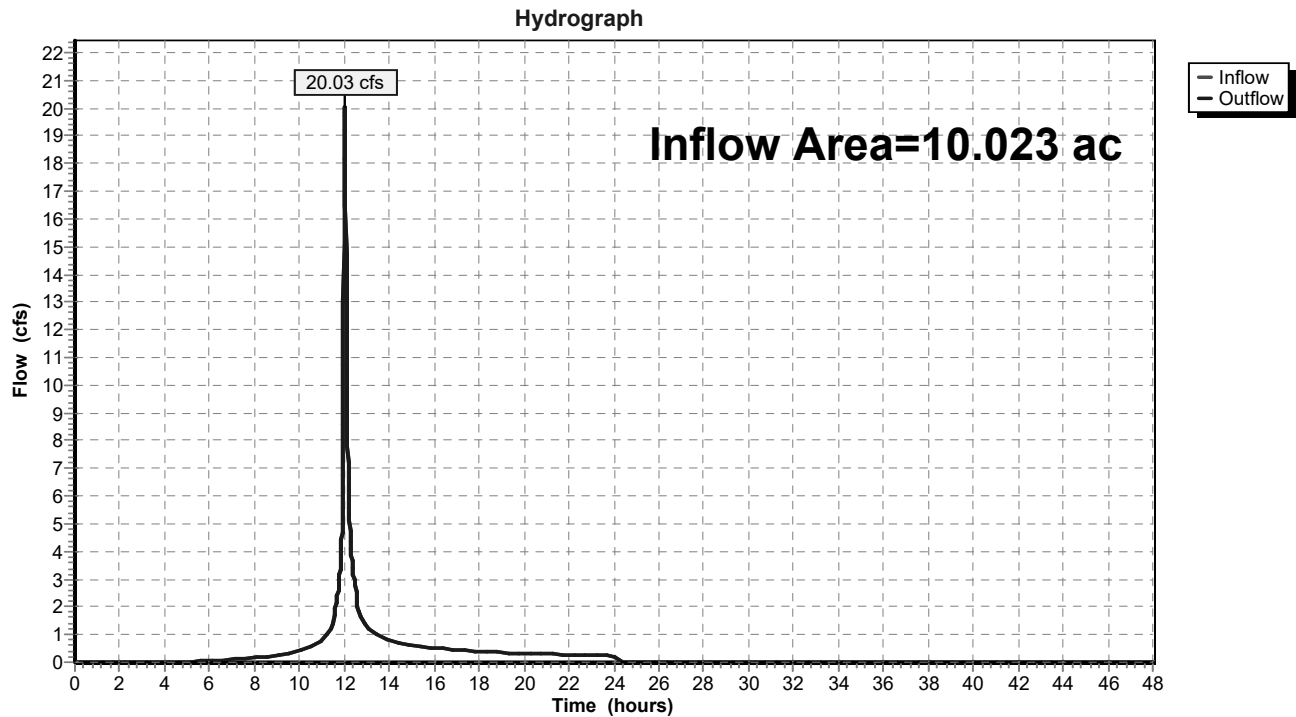


Summary for Reach DP-1: Existing Pond #1

Inflow Area = 10.023 ac, 53.80% Impervious, Inflow Depth = 1.32" for 2-yr event
Inflow = 20.03 cfs @ 12.03 hrs, Volume= 1.101 af
Outflow = 20.03 cfs @ 12.03 hrs, Volume= 1.101 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-1: Existing Pond #1

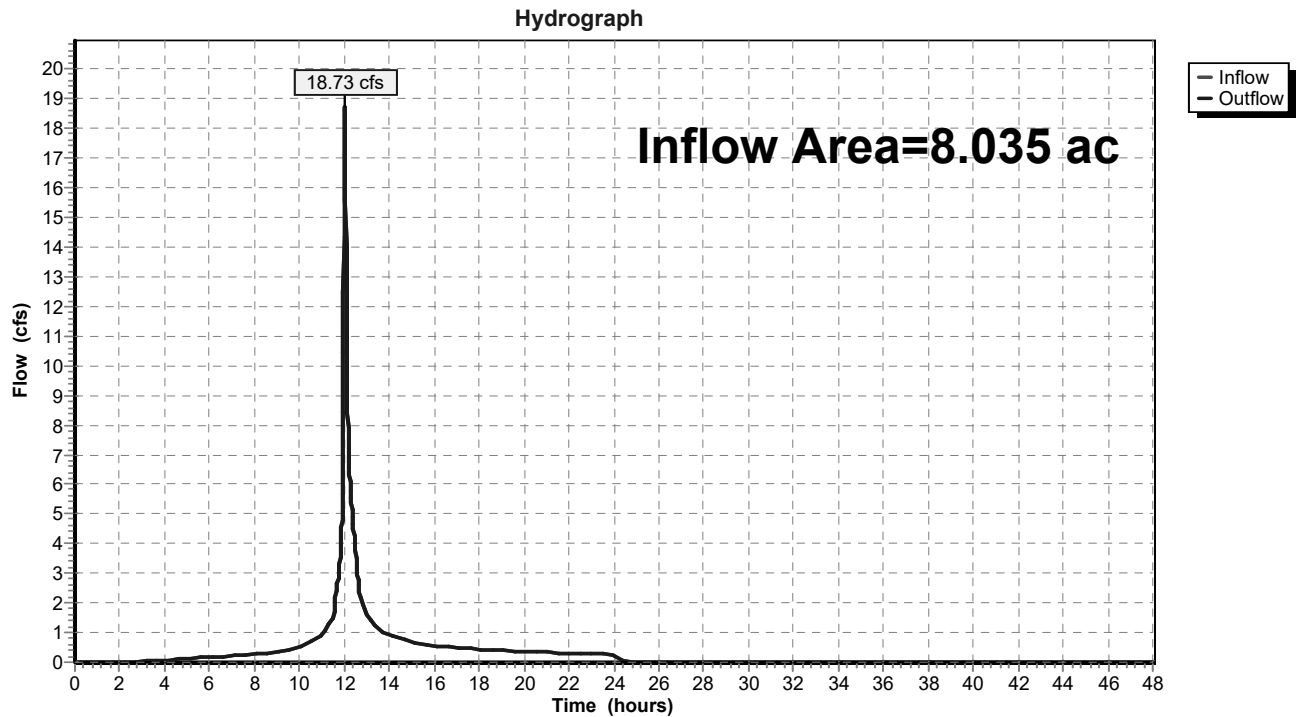


Summary for Reach DP-2: Existing Pond #2

Inflow Area = 8.035 ac, 56.88% Impervious, Inflow Depth = 1.92" for 2-yr event
Inflow = 18.73 cfs @ 12.03 hrs, Volume= 1.289 af
Outflow = 18.73 cfs @ 12.03 hrs, Volume= 1.289 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-2: Existing Pond #2



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEDA-10: Area to Ex Pond 1B Runoff Area=136,695 sf 0.00% Impervious Runoff Depth=0.25"
Flow Length=227' Tc=15.2 min CN=41 Runoff=0.12 cfs 0.065 af

SubcatchmentEDA-11: Area to Pond 1 Runoff Area=277,220 sf 84.74% Impervious Runoff Depth=3.78"
Tc=5.0 min CN=90 Runoff=34.48 cfs 2.005 af

SubcatchmentEDA-12: Pond 1 Area Runoff Area=22,675 sf 0.00% Impervious Runoff Depth=0.60"
Tc=5.0 min CN=49 Runoff=0.22 cfs 0.026 af

SubcatchmentEDA-20: Area to Pond 2 Runoff Area=194,105 sf 93.71% Impervious Runoff Depth=4.43"
Tc=5.0 min CN=96 Runoff=26.62 cfs 1.646 af

SubcatchmentEDA-21: Area to Pond 2 Runoff Area=101,055 sf 15.16% Impervious Runoff Depth=2.72"
Flow Length=283' Slope=0.0035 '/' Tc=23.4 min CN=79 Runoff=4.56 cfs 0.525 af

SubcatchmentEDA-22: Pond 2 Area Runoff Area=28,095 sf 6.69% Impervious Runoff Depth=2.63"
Tc=5.0 min CN=78 Runoff=2.50 cfs 0.141 af

SubcatchmentEDA-23: Area to Ex Pond 2A Runoff Area=26,760 sf 0.00% Impervious Runoff Depth=0.41"
Flow Length=64' Slope=0.0156 '/' Tc=16.9 min CN=45 Runoff=0.07 cfs 0.021 af

Reach DP-1: Existing Pond #1 Inflow=34.67 cfs 2.096 af
Outflow=34.67 cfs 2.096 af

Reach DP-2: Existing Pond #2 Inflow=30.73 cfs 2.333 af
Outflow=30.73 cfs 2.333 af

Total Runoff Area = 18.058 ac Runoff Volume = 4.429 af Average Runoff Depth = 2.94"
44.83% Pervious = 8.095 ac 55.17% Impervious = 9.963 ac

Summary for Subcatchment EDA-10: Area to Ex Pond 1B

Runoff = 0.12 cfs @ 12.62 hrs, Volume= 0.065 af, Depth= 0.25"

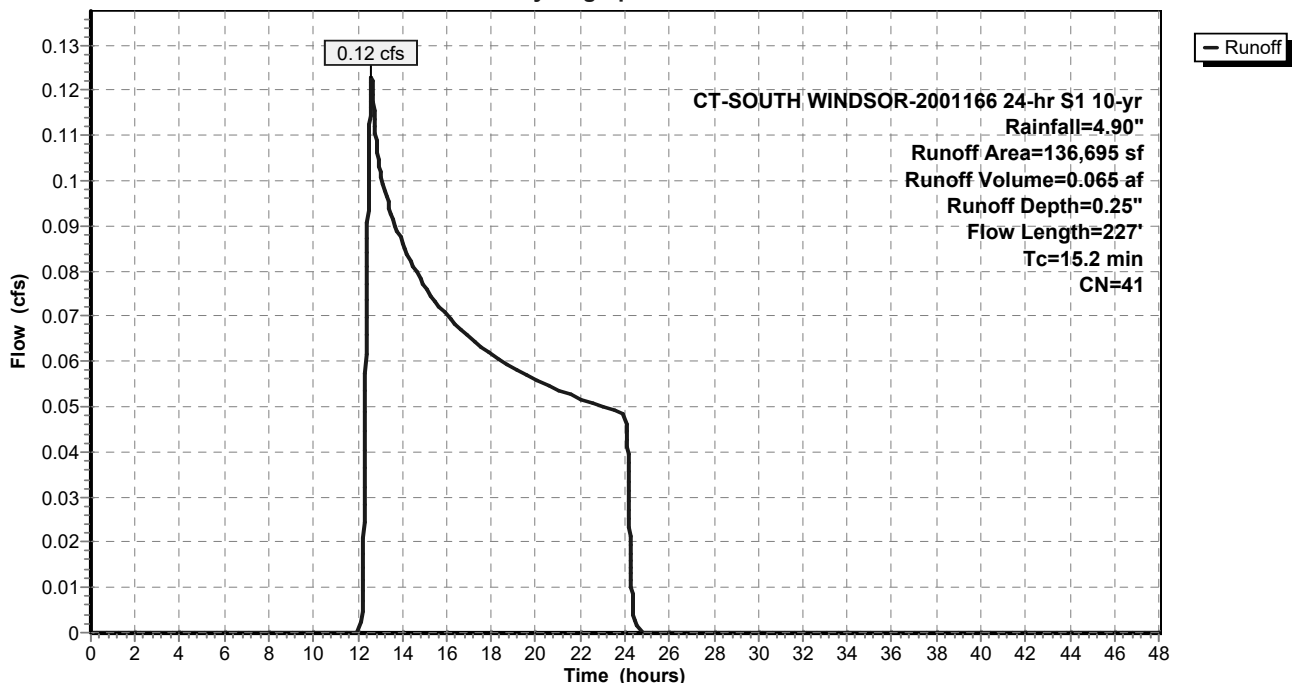
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 10-yr Rainfall=4.90"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
52,060	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
23,870	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
60,765	35	Brush, Fair, HSG A
136,695	41	Weighted Average
136,695		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0100	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.09"
2.0	127	0.0236	1.08		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
15.2	227	Total			

Subcatchment EDA-10: Area to Ex Pond 1B

Hydrograph



Summary for Subcatchment EDA-11: Area to Pond 1

Runoff = 34.48 cfs @ 12.03 hrs, Volume= 2.005 af, Depth= 3.78"

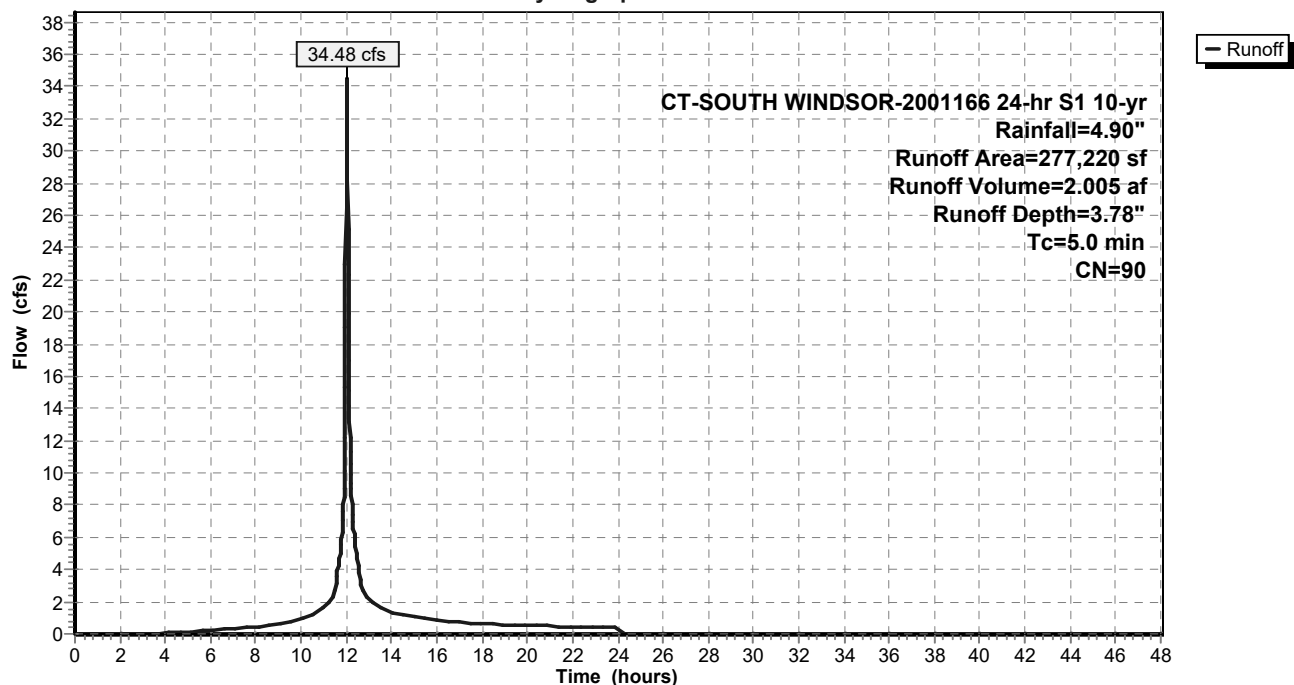
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 10-yr Rainfall=4.90"

Area (sf)	CN	Description
211,670	98	Paved parking, HSG A
23,235	98	Paved parking, HSG C
25,820	49	50-75% Grass cover, Fair, HSG A
2,165	79	50-75% Grass cover, Fair, HSG C
14,330	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
277,220	90	Weighted Average
42,315		15.26% Pervious Area
234,905		84.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-11: Area to Pond 1

Hydrograph



Summary for Subcatchment EDA-12: Pond 1 Area

Runoff = 0.22 cfs @ 12.05 hrs, Volume= 0.026 af, Depth= 0.60"

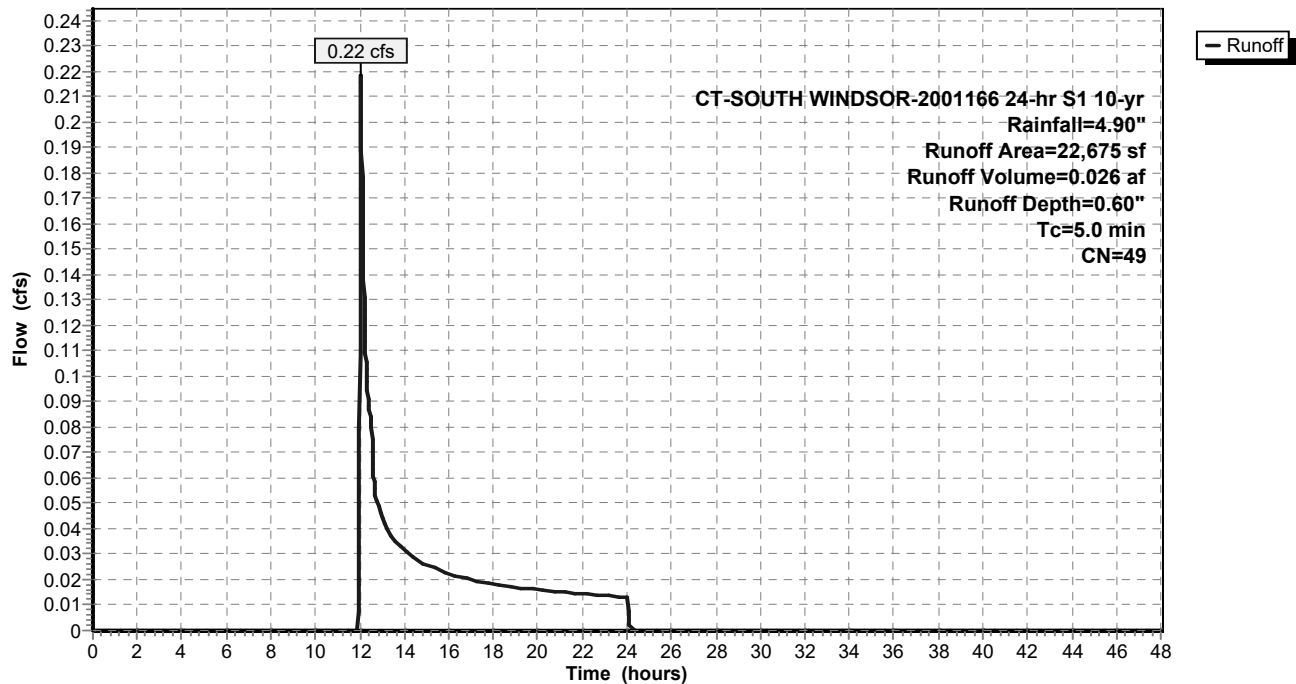
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 10-yr Rainfall=4.90"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
22,675	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
22,675	49	Weighted Average
22,675		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-12: Pond 1 Area

Hydrograph



Summary for Subcatchment EDA-20: Area to Pond 2 from West

Runoff = 26.62 cfs @ 12.03 hrs, Volume= 1.646 af, Depth= 4.43"

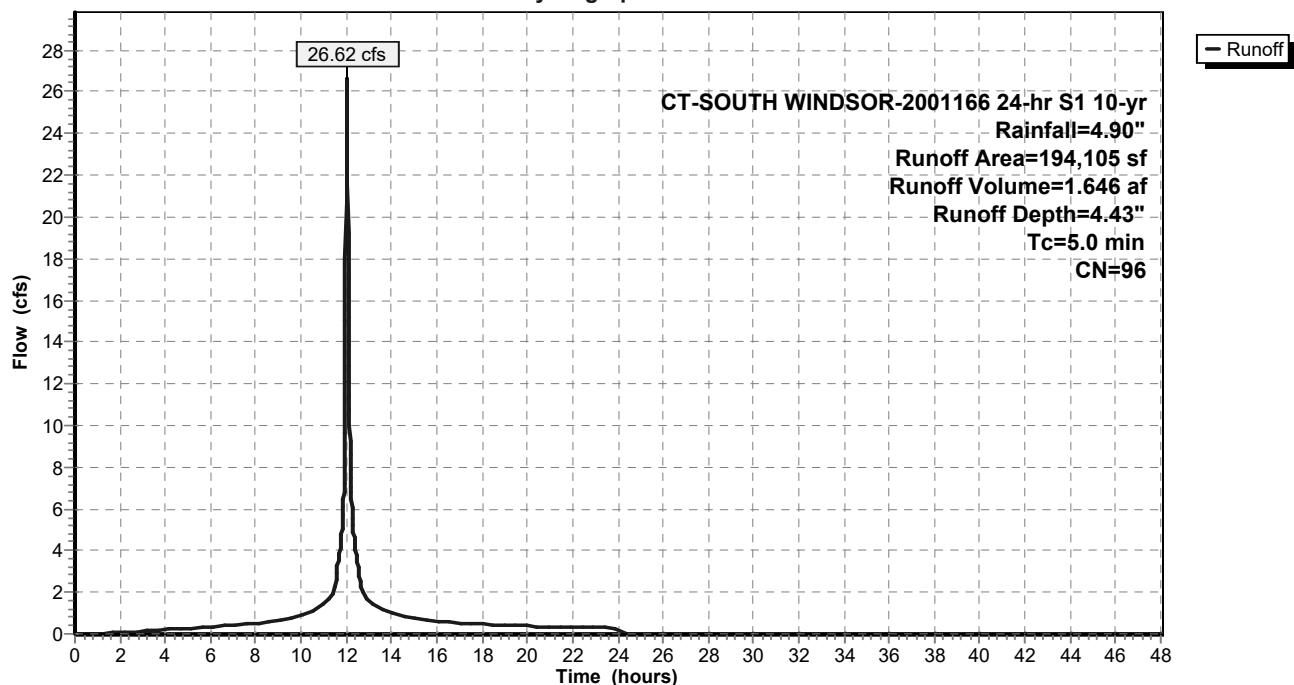
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 10-yr Rainfall=4.90"

Area (sf)	CN	Description
134,845	98	Paved parking, HSG A
47,055	98	Paved parking, HSG C
7,810	49	50-75% Grass cover, Fair, HSG A
4,395	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
194,105	96	Weighted Average
12,205		6.29% Pervious Area
181,900		93.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-20: Area to Pond 2 from West

Hydrograph



Summary for Subcatchment EDA-21: Area to Pond 2 from East

Runoff = 4.56 cfs @ 12.27 hrs, Volume= 0.525 af, Depth= 2.72"

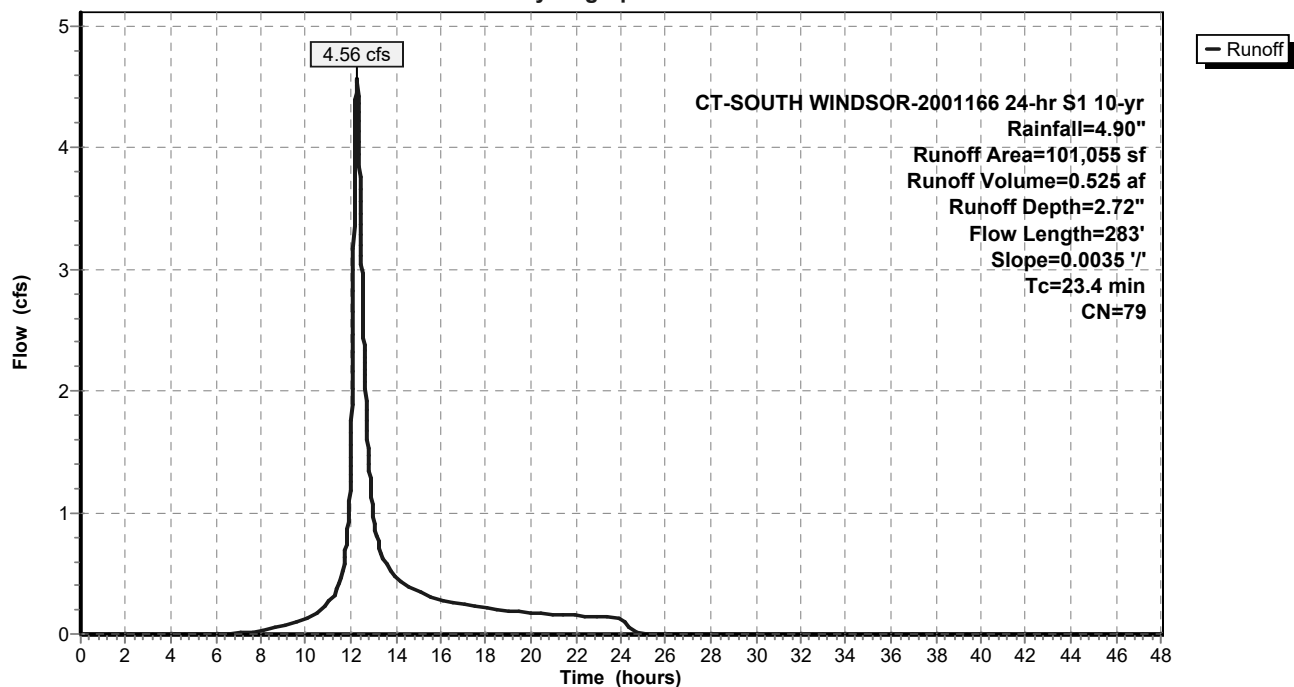
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 10-yr Rainfall=4.90"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
15,320	98	Paved parking, HSG C
10,195	49	50-75% Grass cover, Fair, HSG A
71,850	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
3,690	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
101,055	79	Weighted Average
85,735		84.84% Pervious Area
15,320		15.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0035	0.08		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.09"
3.4	183	0.0035	0.89		Shallow Concentrated Flow,
					Grassed Waterway Kv= 15.0 fps
23.4	283	Total			

Subcatchment EDA-21: Area to Pond 2 from East

Hydrograph



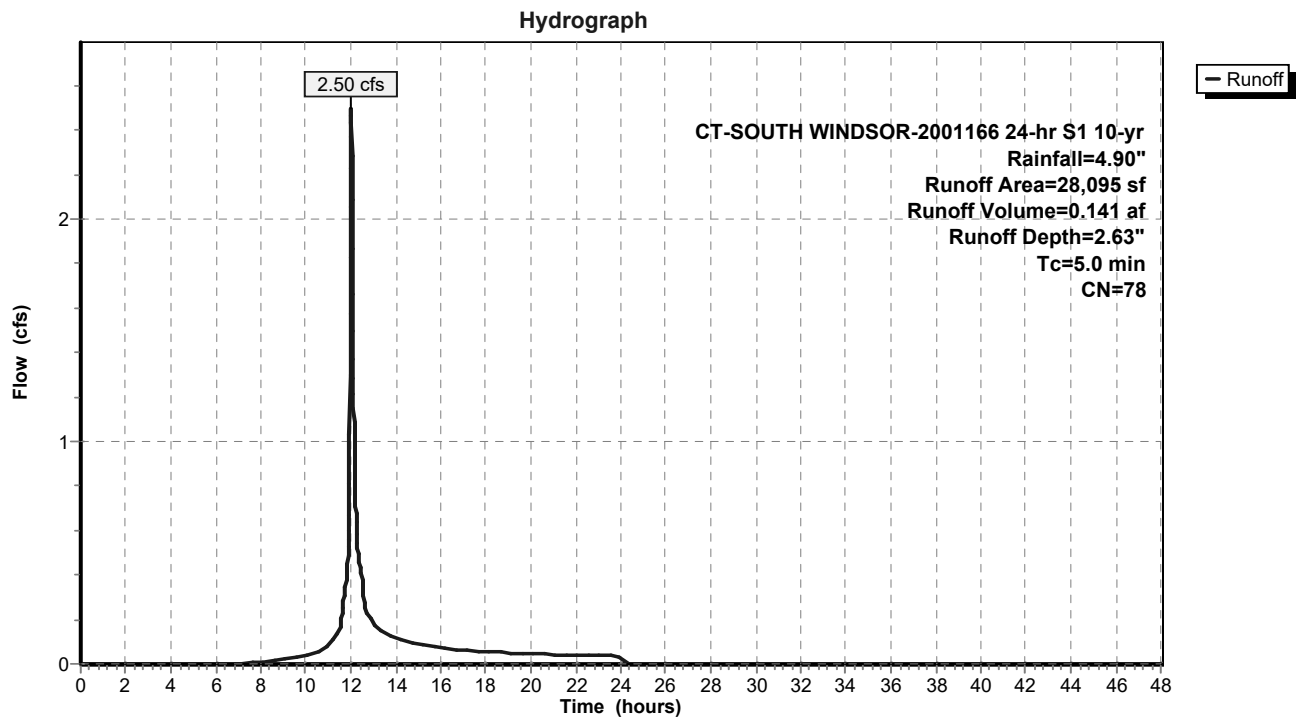
Summary for Subcatchment EDA-22: Pond 2 Area

Runoff = 2.50 cfs @ 12.03 hrs, Volume= 0.141 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 10-yr Rainfall=4.90"

Area (sf)	CN	Description
425	98	Paved parking, HSG A
1,455	98	Paved parking, HSG C
2,070	49	50-75% Grass cover, Fair, HSG A
24,145	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
28,095	78	Weighted Average
26,215		93.31% Pervious Area
1,880		6.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-22: Pond 2 Area

Summary for Subcatchment EDA-23: Area to Ex Pond 2A

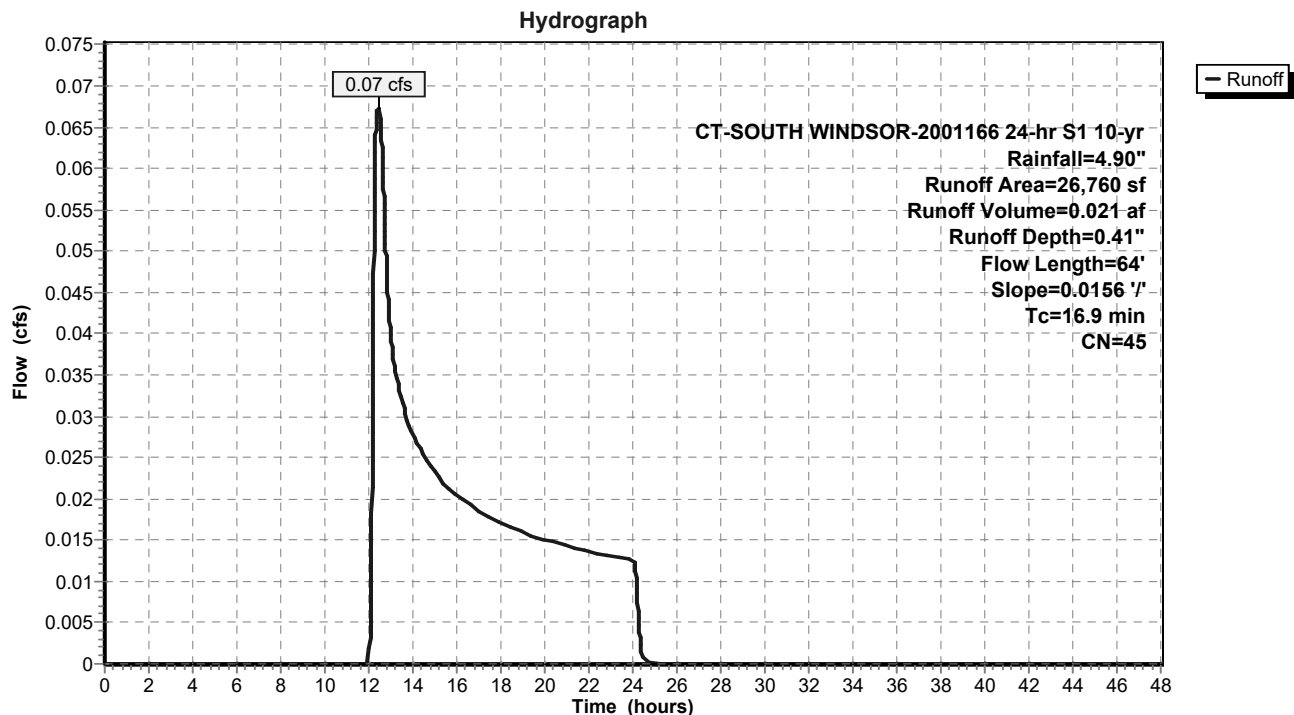
Runoff = 0.07 cfs @ 12.41 hrs, Volume= 0.021 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 10-yr Rainfall=4.90"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
18,540	49	50-75% Grass cover, Fair, HSG A
35	79	50-75% Grass cover, Fair, HSG C
7,955	36	Woods, Fair, HSG A
230	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
26,760	45	Weighted Average
26,760		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	64	0.0156	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.09"

Subcatchment EDA-23: Area to Ex Pond 2A

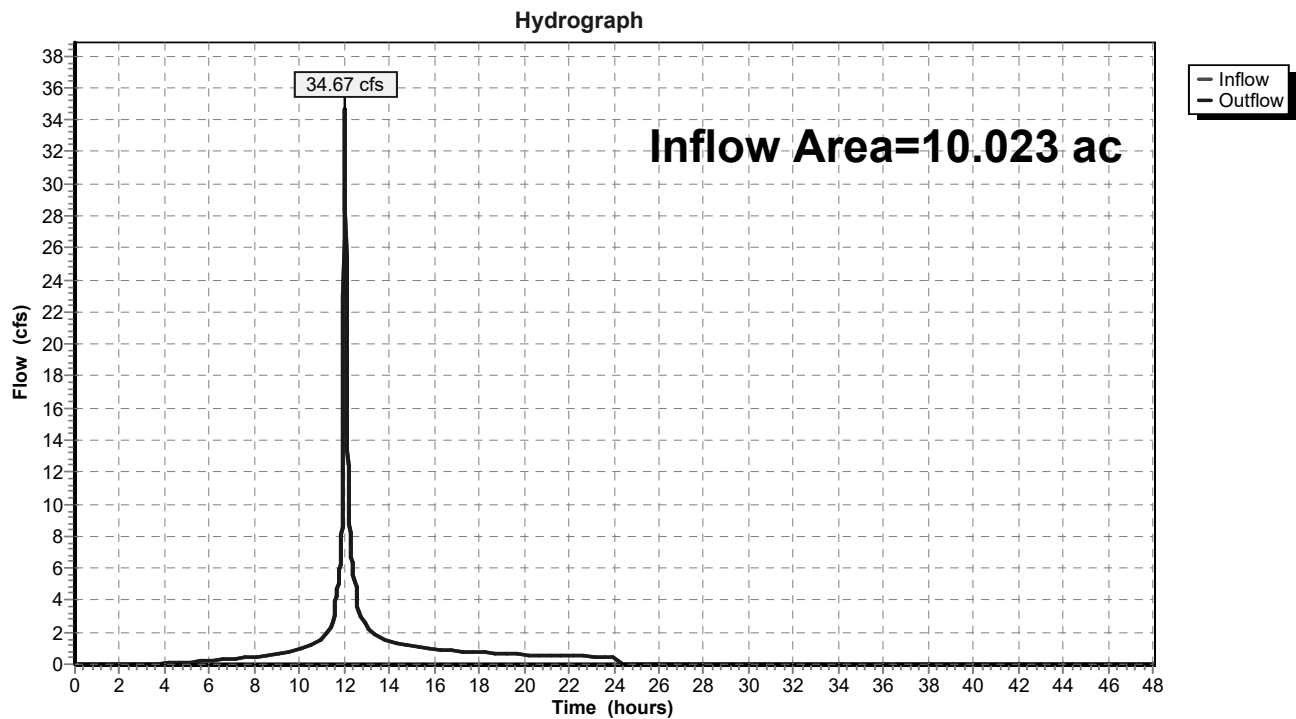


Summary for Reach DP-1: Existing Pond #1

Inflow Area = 10.023 ac, 53.80% Impervious, Inflow Depth = 2.51" for 10-yr event
Inflow = 34.67 cfs @ 12.03 hrs, Volume= 2.096 af
Outflow = 34.67 cfs @ 12.03 hrs, Volume= 2.096 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-1: Existing Pond #1

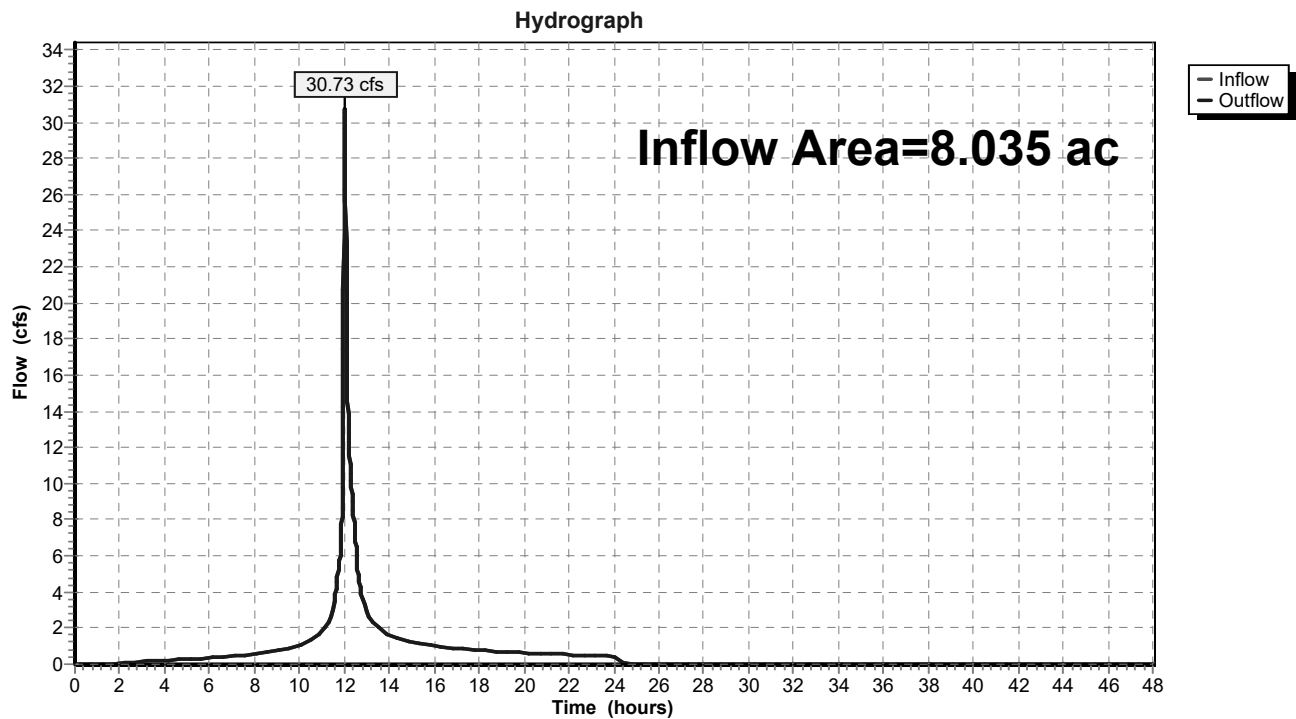


Summary for Reach DP-2: Existing Pond #2

Inflow Area = 8.035 ac, 56.88% Impervious, Inflow Depth = 3.48" for 10-yr event
Inflow = 30.73 cfs @ 12.03 hrs, Volume= 2.333 af
Outflow = 30.73 cfs @ 12.03 hrs, Volume= 2.333 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-2: Existing Pond #2



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEDA-10: Area to Ex Pond 1B Runoff Area=136,695 sf 0.00% Impervious Runoff Depth=0.57"
Flow Length=227' Tc=15.2 min CN=41 Runoff=0.55 cfs 0.148 af

SubcatchmentEDA-11: Area to Pond 1 Runoff Area=277,220 sf 84.74% Impervious Runoff Depth=4.88"
Tc=5.0 min CN=90 Runoff=43.39 cfs 2.585 af

SubcatchmentEDA-12: Pond 1 Area Runoff Area=22,675 sf 0.00% Impervious Runoff Depth=1.09"
Tc=5.0 min CN=49 Runoff=0.60 cfs 0.047 af

SubcatchmentEDA-20: Area to Pond 2 Runoff Area=194,105 sf 93.71% Impervious Runoff Depth=5.56"
Tc=5.0 min CN=96 Runoff=32.63 cfs 2.064 af

SubcatchmentEDA-21: Area to Pond 2 Runoff Area=101,055 sf 15.16% Impervious Runoff Depth=3.71"
Flow Length=283' Slope=0.0035 '/' Tc=23.4 min CN=79 Runoff=6.16 cfs 0.717 af

SubcatchmentEDA-22: Pond 2 Area Runoff Area=28,095 sf 6.69% Impervious Runoff Depth=3.61"
Tc=5.0 min CN=78 Runoff=3.39 cfs 0.194 af

SubcatchmentEDA-23: Area to Ex Pond 2A Runoff Area=26,760 sf 0.00% Impervious Runoff Depth=0.81"
Flow Length=64' Slope=0.0156 '/' Tc=16.9 min CN=45 Runoff=0.23 cfs 0.042 af

Reach DP-1: Existing Pond #1 Inflow=43.98 cfs 2.781 af
Outflow=43.98 cfs 2.781 af

Reach DP-2: Existing Pond #2 Inflow=38.30 cfs 3.016 af
Outflow=38.30 cfs 3.016 af

Total Runoff Area = 18.058 ac Runoff Volume = 5.796 af Average Runoff Depth = 3.85"
44.83% Pervious = 8.095 ac 55.17% Impervious = 9.963 ac

Summary for Subcatchment EDA-10: Area to Ex Pond 1B

Runoff = 0.55 cfs @ 12.31 hrs, Volume= 0.148 af, Depth= 0.57"

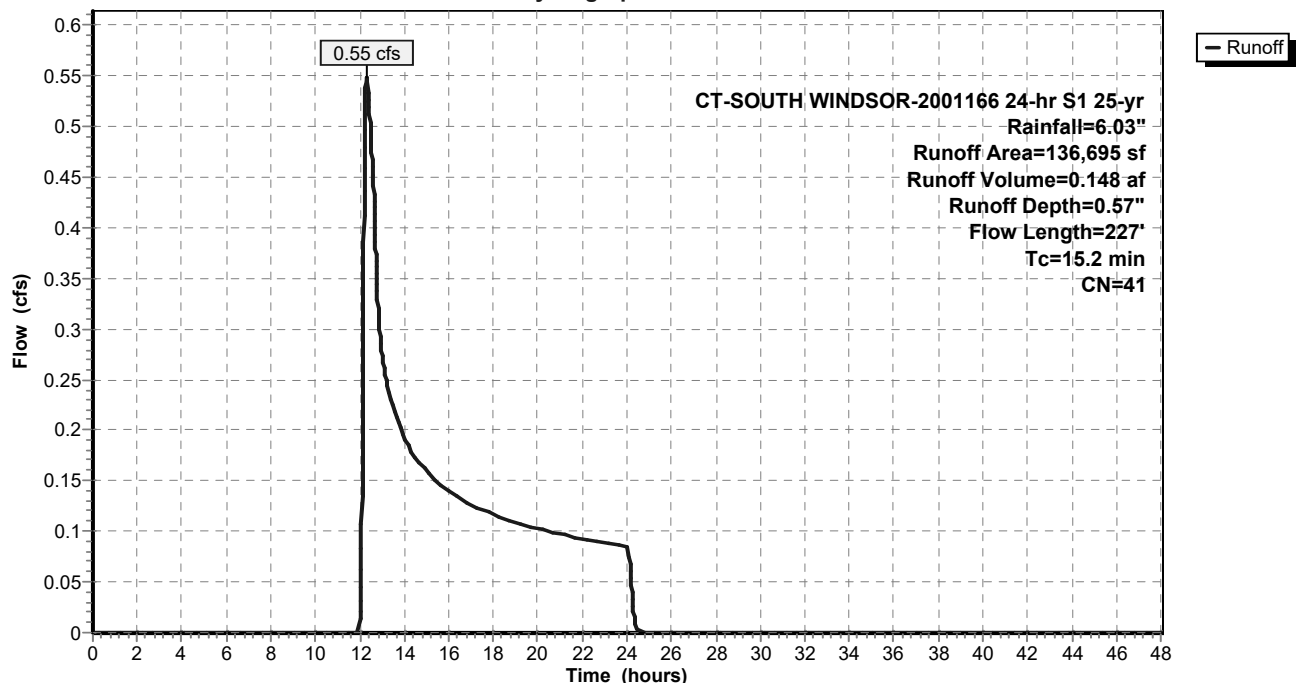
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 25-yr Rainfall=6.03"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
52,060	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
23,870	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
60,765	35	Brush, Fair, HSG A
136,695	41	Weighted Average
136,695		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0100	0.13		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.09"
2.0	127	0.0236	1.08		Shallow Concentrated Flow,
					Short Grass Pasture Kv= 7.0 fps
15.2	227	Total			

Subcatchment EDA-10: Area to Ex Pond 1B

Hydrograph



Summary for Subcatchment EDA-11: Area to Pond 1

Runoff = 43.39 cfs @ 12.03 hrs, Volume= 2.585 af, Depth= 4.88"

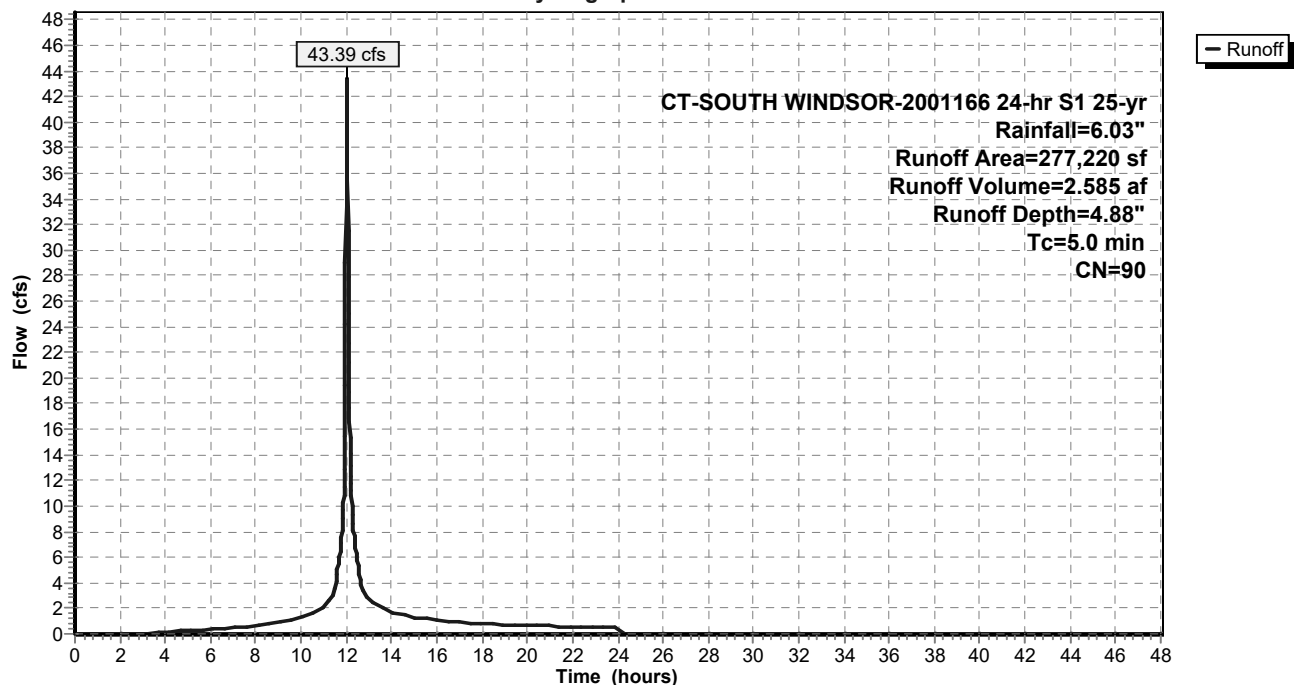
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 25-yr Rainfall=6.03"

Area (sf)	CN	Description
211,670	98	Paved parking, HSG A
23,235	98	Paved parking, HSG C
25,820	49	50-75% Grass cover, Fair, HSG A
2,165	79	50-75% Grass cover, Fair, HSG C
14,330	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
277,220	90	Weighted Average
42,315		15.26% Pervious Area
234,905		84.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-11: Area to Pond 1

Hydrograph



Summary for Subcatchment EDA-12: Pond 1 Area

Runoff = 0.60 cfs @ 12.04 hrs, Volume= 0.047 af, Depth= 1.09"

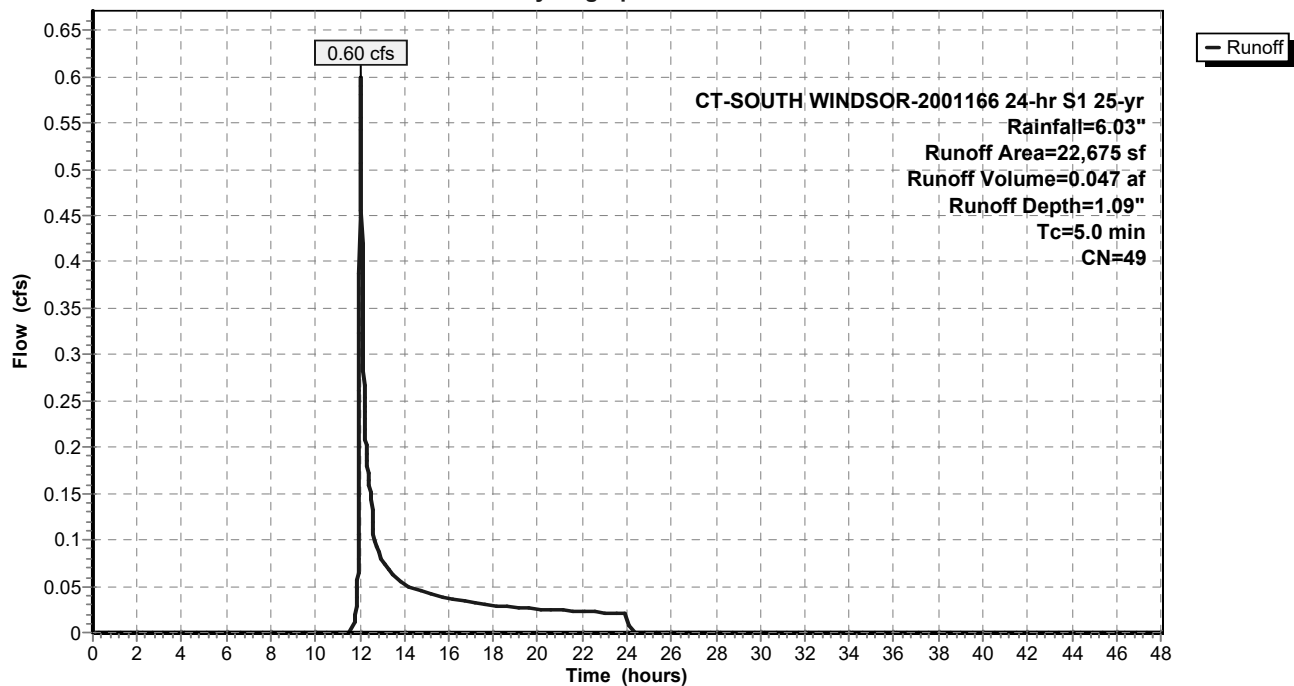
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 25-yr Rainfall=6.03"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
22,675	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
22,675	49	Weighted Average
22,675		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-12: Pond 1 Area

Hydrograph



Summary for Subcatchment EDA-20: Area to Pond 2 from West

Runoff = 32.63 cfs @ 12.03 hrs, Volume= 2.064 af, Depth= 5.56"

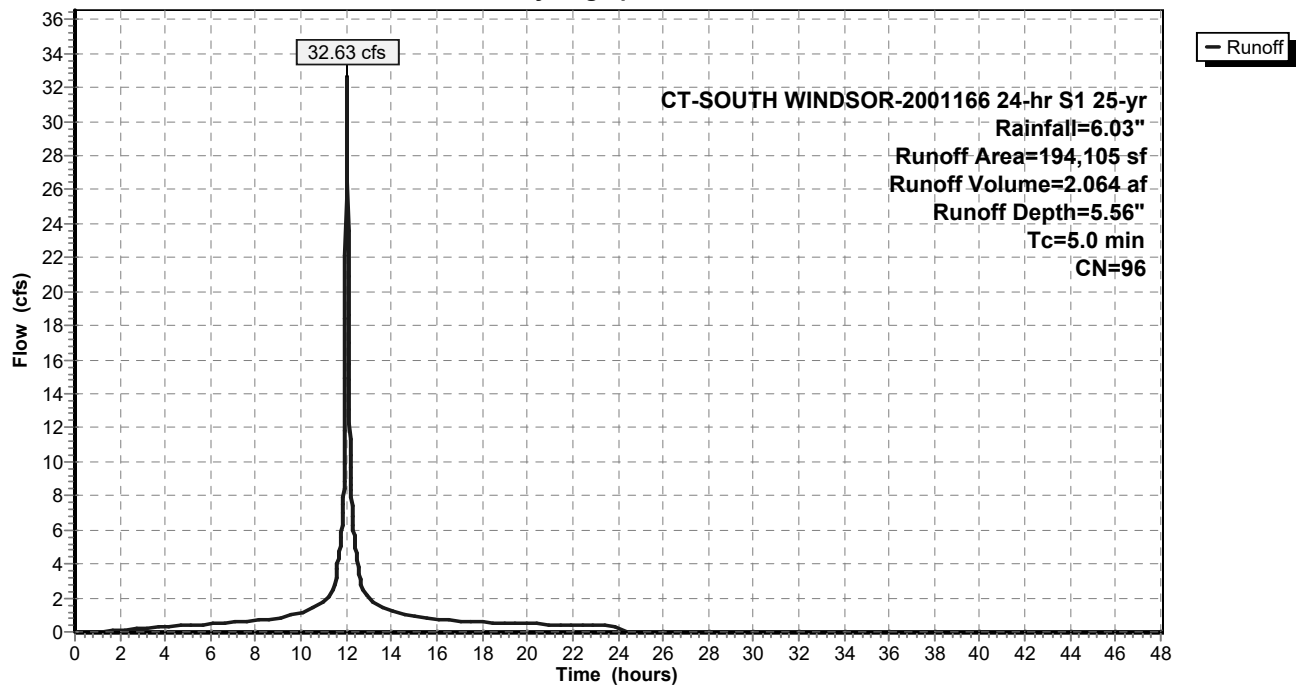
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 25-yr Rainfall=6.03"

Area (sf)	CN	Description
134,845	98	Paved parking, HSG A
47,055	98	Paved parking, HSG C
7,810	49	50-75% Grass cover, Fair, HSG A
4,395	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
194,105	96	Weighted Average
12,205		6.29% Pervious Area
181,900		93.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-20: Area to Pond 2 from West

Hydrograph



Summary for Subcatchment EDA-21: Area to Pond 2 from East

Runoff = 6.16 cfs @ 12.27 hrs, Volume= 0.717 af, Depth= 3.71"

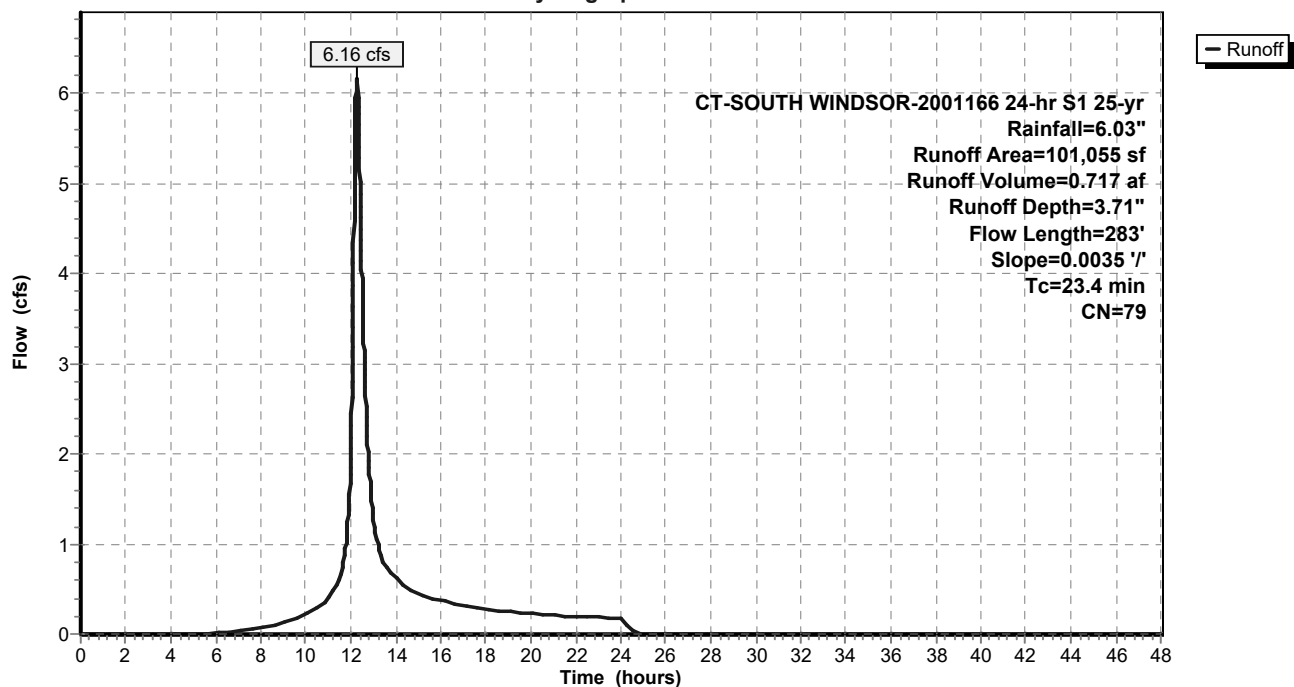
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 25-yr Rainfall=6.03"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
15,320	98	Paved parking, HSG C
10,195	49	50-75% Grass cover, Fair, HSG A
71,850	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
3,690	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
101,055	79	Weighted Average
85,735		84.84% Pervious Area
15,320		15.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0035	0.08		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.09"
3.4	183	0.0035	0.89		Shallow Concentrated Flow,
					Grassed Waterway Kv= 15.0 fps
23.4	283	Total			

Subcatchment EDA-21: Area to Pond 2 from East

Hydrograph



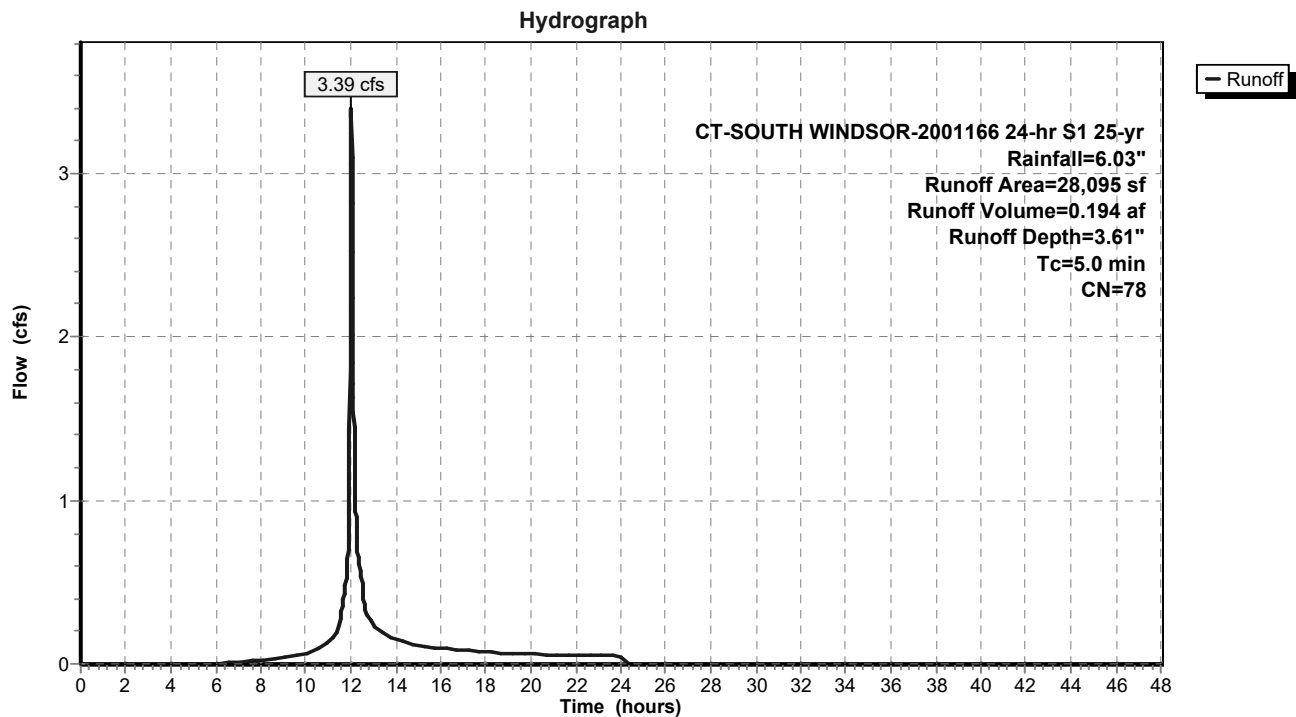
Summary for Subcatchment EDA-22: Pond 2 Area

Runoff = 3.39 cfs @ 12.03 hrs, Volume= 0.194 af, Depth= 3.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 25-yr Rainfall=6.03"

Area (sf)	CN	Description
425	98	Paved parking, HSG A
1,455	98	Paved parking, HSG C
2,070	49	50-75% Grass cover, Fair, HSG A
24,145	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
28,095	78	Weighted Average
26,215		93.31% Pervious Area
1,880		6.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-22: Pond 2 Area

Summary for Subcatchment EDA-23: Area to Ex Pond 2A

Runoff = 0.23 cfs @ 12.25 hrs, Volume= 0.042 af, Depth= 0.81"

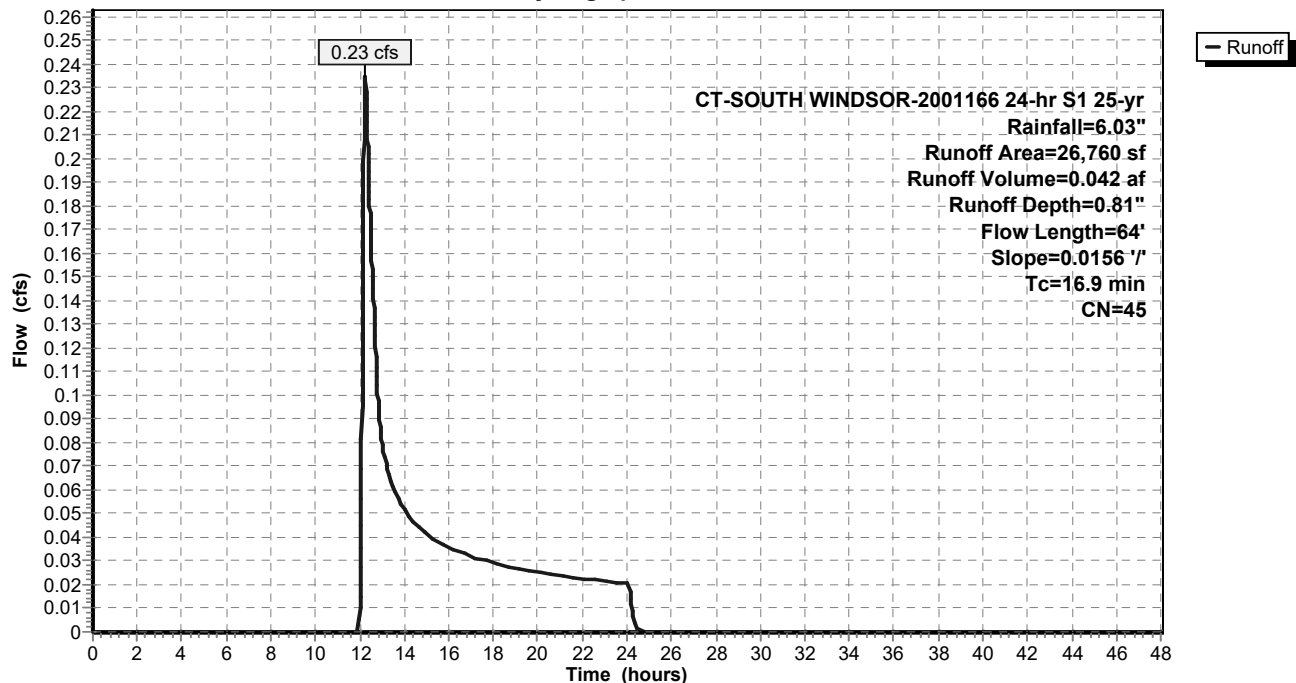
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 25-yr Rainfall=6.03"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
18,540	49	50-75% Grass cover, Fair, HSG A
35	79	50-75% Grass cover, Fair, HSG C
7,955	36	Woods, Fair, HSG A
230	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
26,760	45	Weighted Average
26,760		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	64	0.0156	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.09"

Subcatchment EDA-23: Area to Ex Pond 2A

Hydrograph

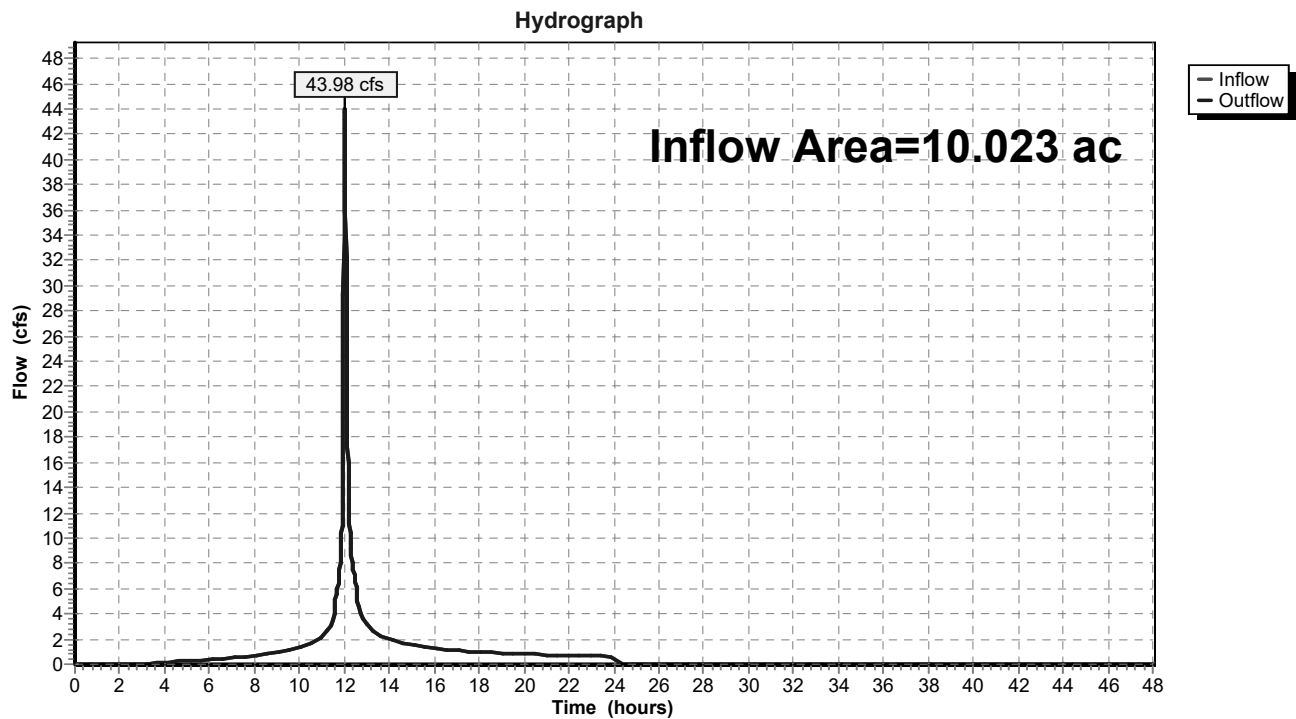


Summary for Reach DP-1: Existing Pond #1

Inflow Area = 10.023 ac, 53.80% Impervious, Inflow Depth = 3.33" for 25-yr event
Inflow = 43.98 cfs @ 12.03 hrs, Volume= 2.781 af
Outflow = 43.98 cfs @ 12.03 hrs, Volume= 2.781 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-1: Existing Pond #1

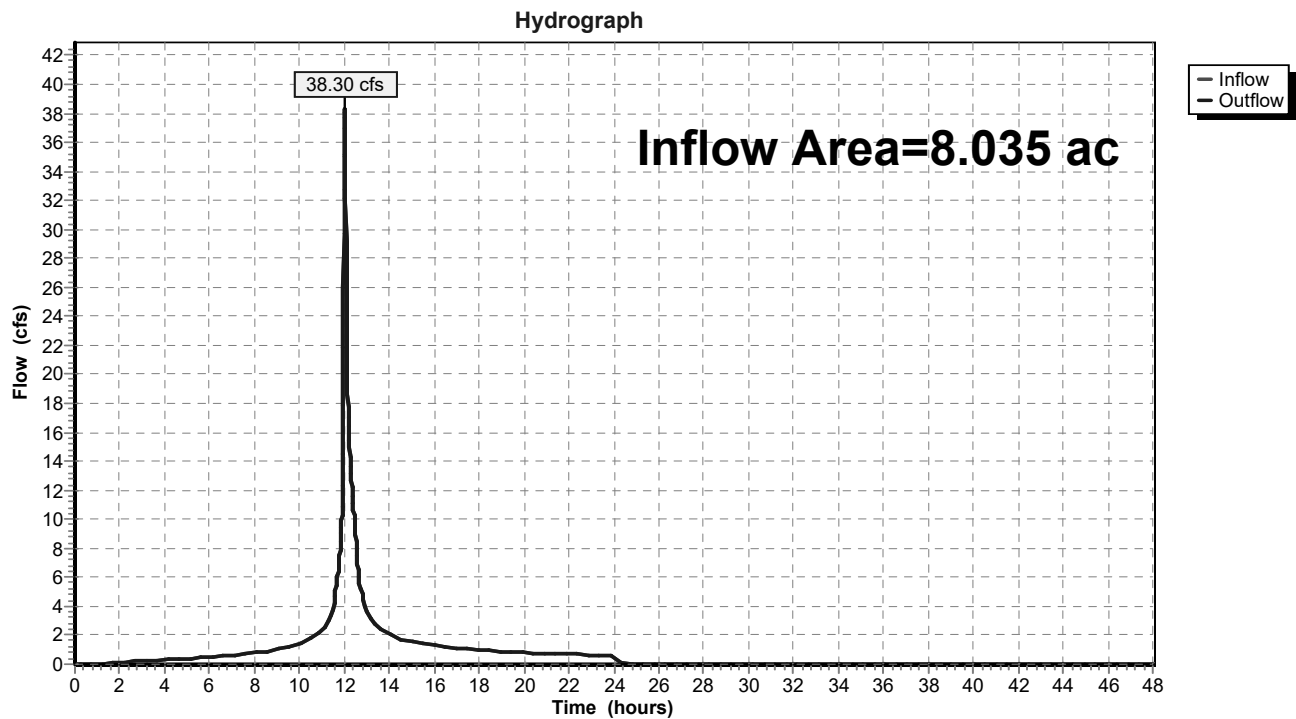


Summary for Reach DP-2: Existing Pond #2

Inflow Area = 8.035 ac, 56.88% Impervious, Inflow Depth = 4.50" for 25-yr event
Inflow = 38.30 cfs @ 12.03 hrs, Volume= 3.016 af
Outflow = 38.30 cfs @ 12.03 hrs, Volume= 3.016 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-2: Existing Pond #2



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEDA-10: Area to Ex Pond 1B Runoff Area=136,695 sf 0.00% Impervious Runoff Depth=0.86"
Flow Length=227' Tc=15.2 min CN=41 Runoff=1.22 cfs 0.225 af

SubcatchmentEDA-11: Area to Pond 1 Runoff Area=277,220 sf 84.74% Impervious Runoff Depth=5.68"
Tc=5.0 min CN=90 Runoff=50.02 cfs 3.010 af

SubcatchmentEDA-12: Pond 1 Area Runoff Area=22,675 sf 0.00% Impervious Runoff Depth=1.50"
Tc=5.0 min CN=49 Runoff=0.93 cfs 0.065 af

SubcatchmentEDA-20: Area to Pond 2 Runoff Area=194,105 sf 93.71% Impervious Runoff Depth=6.37"
Tc=5.0 min CN=96 Runoff=37.13 cfs 2.367 af

SubcatchmentEDA-21: Area to Pond 2 Runoff Area=101,055 sf 15.16% Impervious Runoff Depth=4.45"
Flow Length=283' Slope=0.0035 '/' Tc=23.4 min CN=79 Runoff=7.37 cfs 0.860 af

SubcatchmentEDA-22: Pond 2 Area Runoff Area=28,095 sf 6.69% Impervious Runoff Depth=4.34"
Tc=5.0 min CN=78 Runoff=4.07 cfs 0.233 af

SubcatchmentEDA-23: Area to Ex Pond 2A Runoff Area=26,760 sf 0.00% Impervious Runoff Depth=1.17"
Flow Length=64' Slope=0.0156 '/' Tc=16.9 min CN=45 Runoff=0.42 cfs 0.060 af

Reach DP-1: Existing Pond #1 Inflow=51.07 cfs 3.300 af
Outflow=51.07 cfs 3.300 af

Reach DP-2: Existing Pond #2 Inflow=44.03 cfs 3.520 af
Outflow=44.03 cfs 3.520 af

Total Runoff Area = 18.058 ac Runoff Volume = 6.820 af Average Runoff Depth = 4.53"
44.83% Pervious = 8.095 ac 55.17% Impervious = 9.963 ac

Summary for Subcatchment EDA-10: Area to Ex Pond 1B

Runoff = 1.22 cfs @ 12.23 hrs, Volume= 0.225 af, Depth= 0.86"

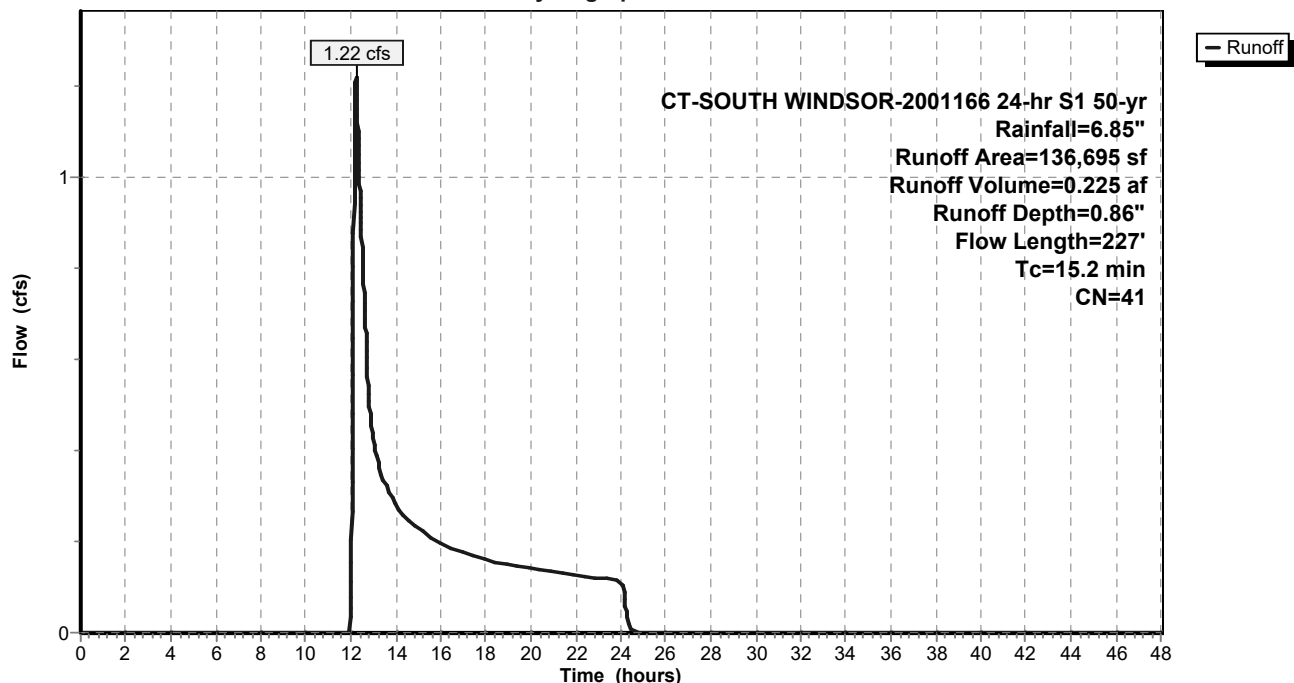
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 50-yr Rainfall=6.85"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
52,060	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
23,870	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
60,765	35	Brush, Fair, HSG A
136,695	41	Weighted Average
136,695		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0100	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.09"
2.0	127	0.0236	1.08		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
15.2	227	Total			

Subcatchment EDA-10: Area to Ex Pond 1B

Hydrograph



Summary for Subcatchment EDA-11: Area to Pond 1

Runoff = 50.02 cfs @ 12.03 hrs, Volume= 3.010 af, Depth= 5.68"

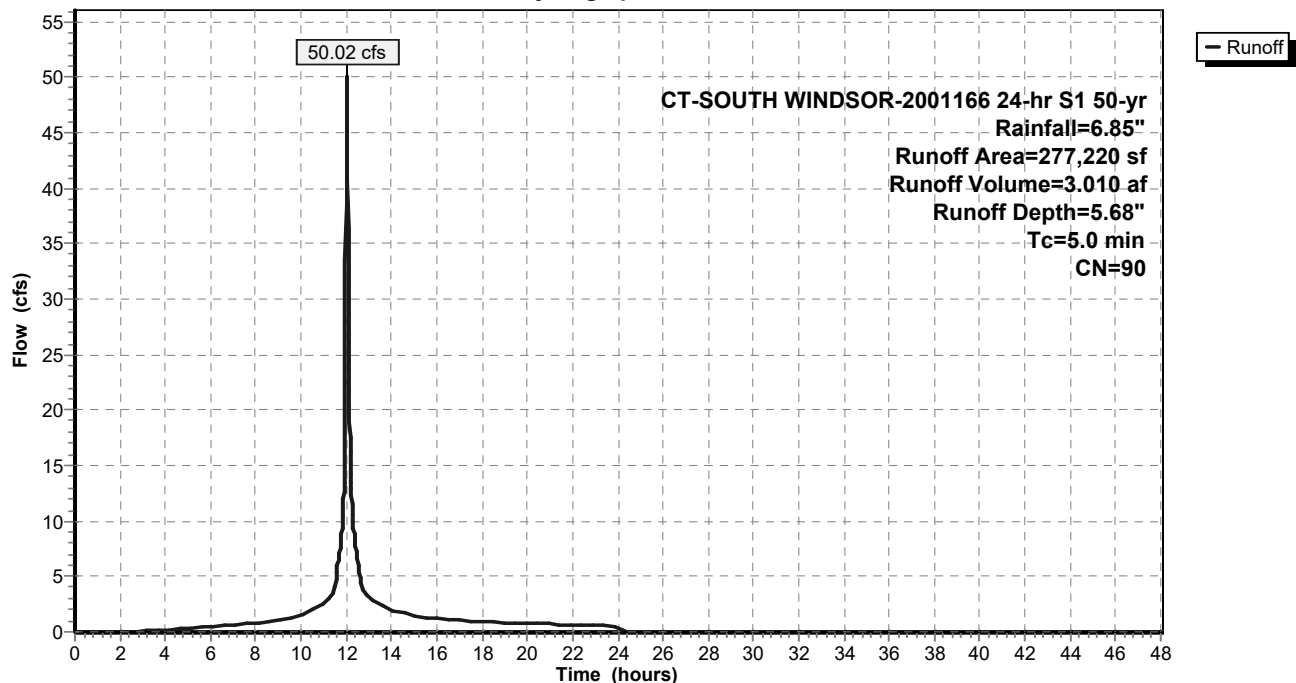
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 50-yr Rainfall=6.85"

Area (sf)	CN	Description
211,670	98	Paved parking, HSG A
23,235	98	Paved parking, HSG C
25,820	49	50-75% Grass cover, Fair, HSG A
2,165	79	50-75% Grass cover, Fair, HSG C
14,330	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
277,220	90	Weighted Average
42,315		15.26% Pervious Area
234,905		84.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-11: Area to Pond 1

Hydrograph



Summary for Subcatchment EDA-12: Pond 1 Area

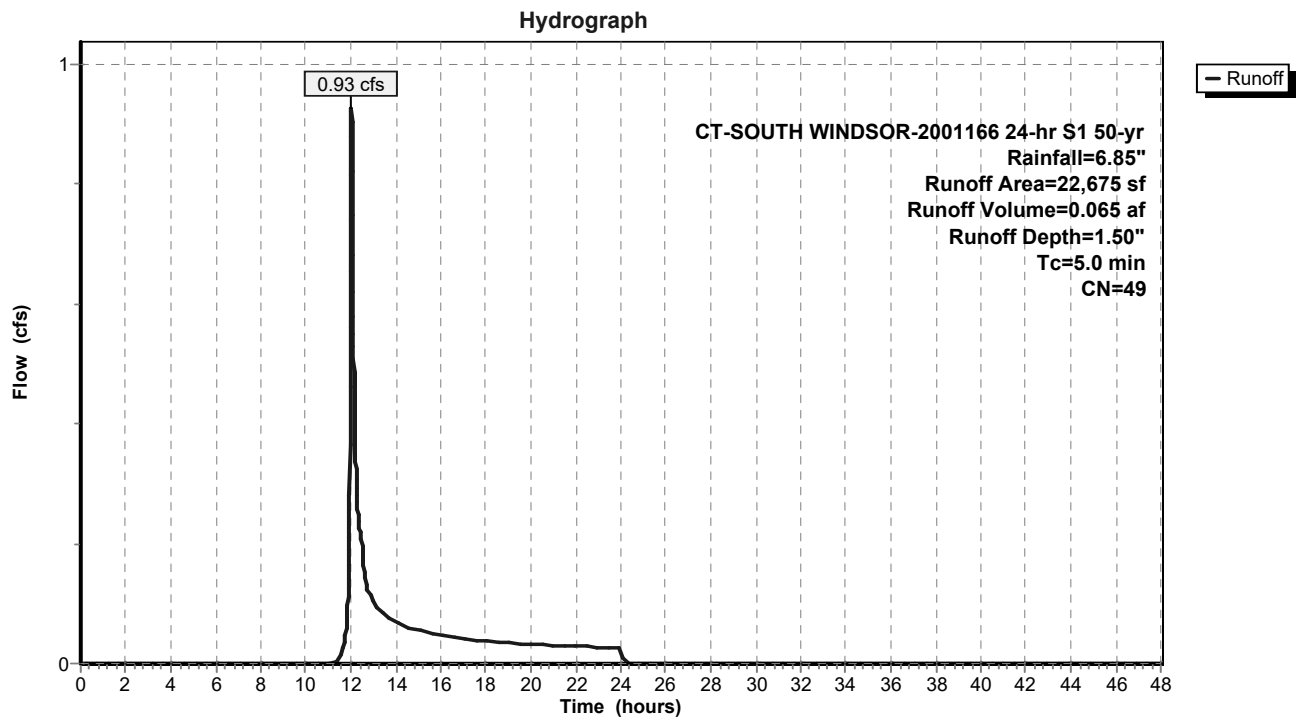
Runoff = 0.93 cfs @ 12.04 hrs, Volume= 0.065 af, Depth= 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 50-yr Rainfall=6.85"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
22,675	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
22,675	49	Weighted Average
22,675		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-12: Pond 1 Area



Summary for Subcatchment EDA-20: Area to Pond 2 from West

Runoff = 37.13 cfs @ 12.03 hrs, Volume= 2.367 af, Depth= 6.37"

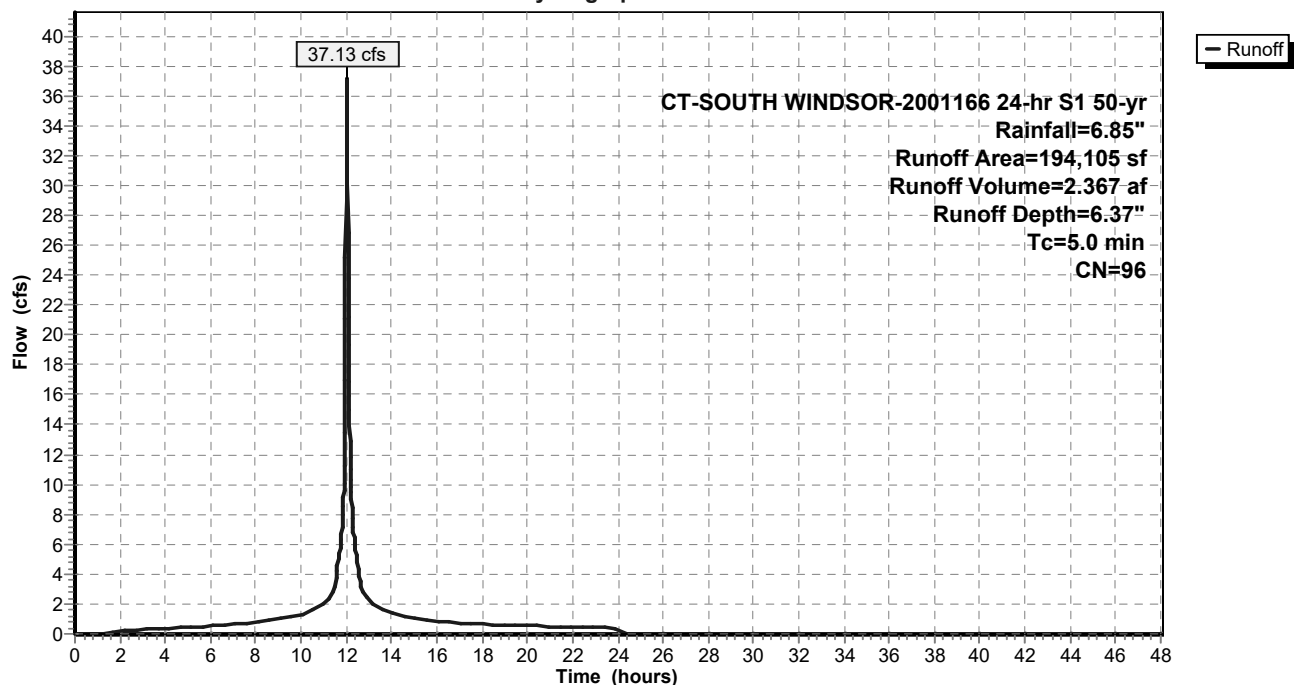
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 50-yr Rainfall=6.85"

Area (sf)	CN	Description
134,845	98	Paved parking, HSG A
47,055	98	Paved parking, HSG C
7,810	49	50-75% Grass cover, Fair, HSG A
4,395	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
194,105	96	Weighted Average
12,205		6.29% Pervious Area
181,900		93.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-20: Area to Pond 2 from West

Hydrograph



Summary for Subcatchment EDA-21: Area to Pond 2 from East

Runoff = 7.37 cfs @ 12.27 hrs, Volume= 0.860 af, Depth= 4.45"

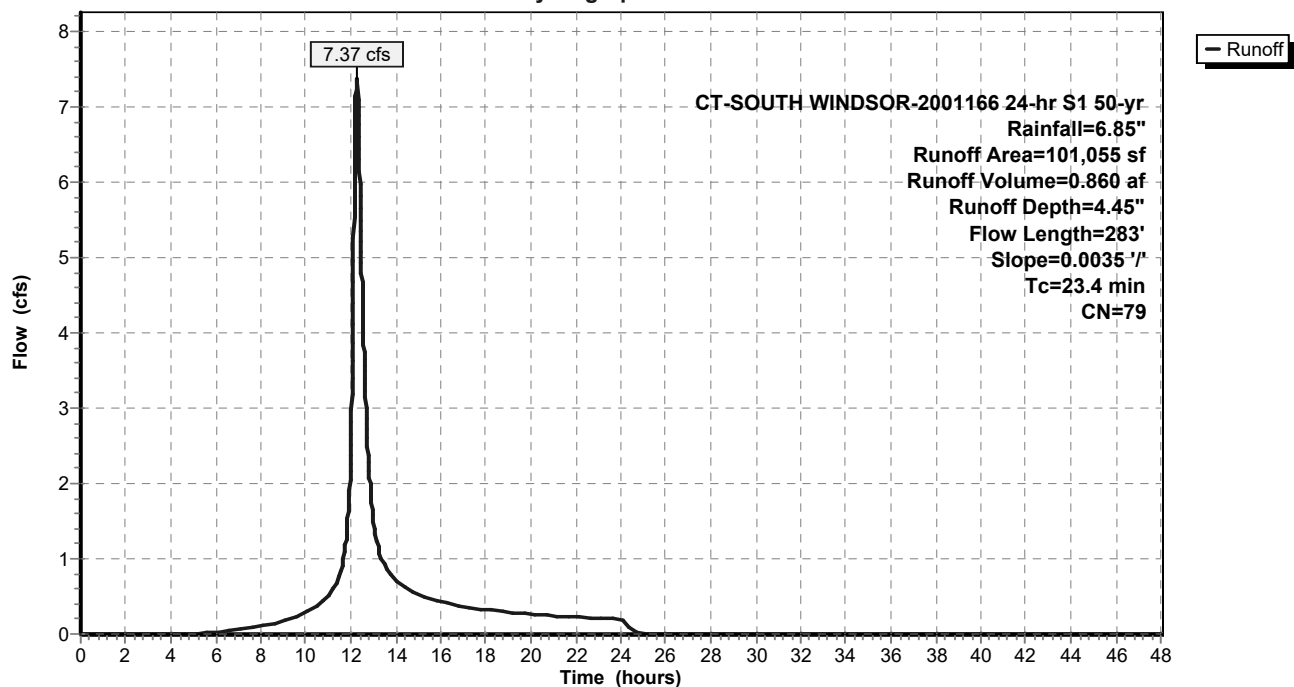
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 50-yr Rainfall=6.85"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
15,320	98	Paved parking, HSG C
10,195	49	50-75% Grass cover, Fair, HSG A
71,850	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
3,690	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
101,055	79	Weighted Average
85,735		84.84% Pervious Area
15,320		15.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0035	0.08		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.09"
3.4	183	0.0035	0.89		Shallow Concentrated Flow,
					Grassed Waterway Kv= 15.0 fps
23.4	283	Total			

Subcatchment EDA-21: Area to Pond 2 from East

Hydrograph



Summary for Subcatchment EDA-22: Pond 2 Area

Runoff = 4.07 cfs @ 12.03 hrs, Volume= 0.233 af, Depth= 4.34"

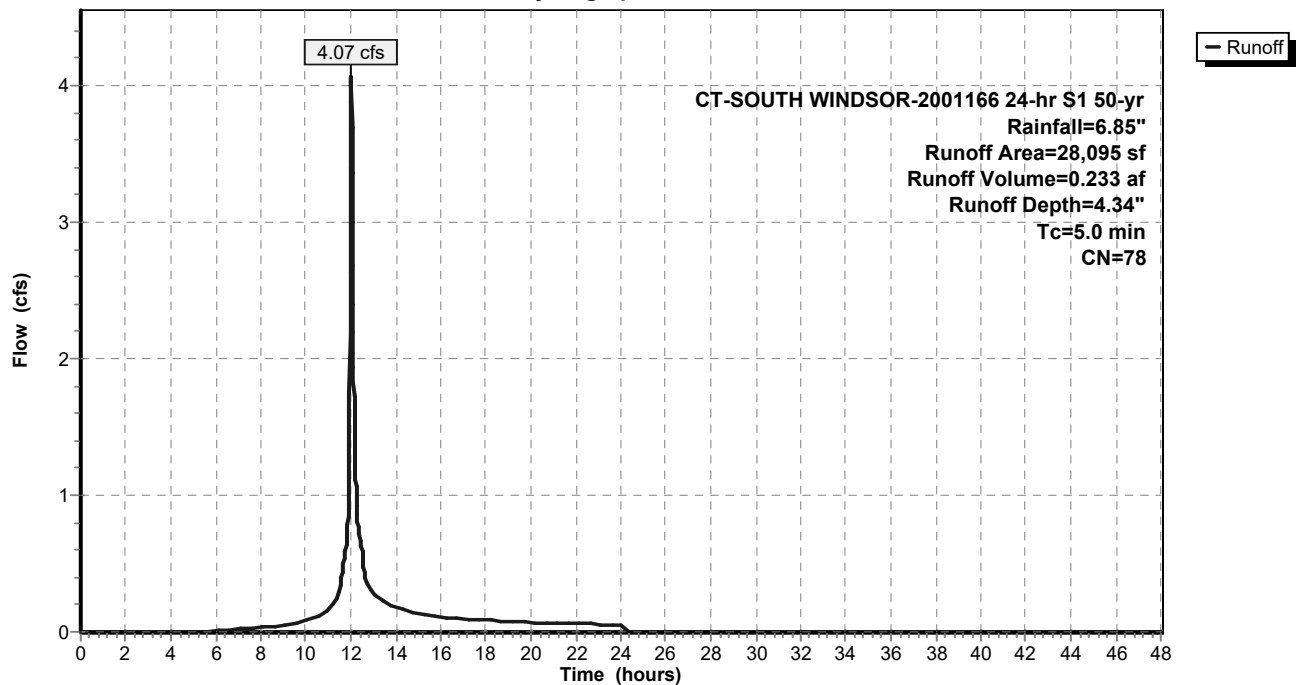
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 50-yr Rainfall=6.85"

Area (sf)	CN	Description
425	98	Paved parking, HSG A
1,455	98	Paved parking, HSG C
2,070	49	50-75% Grass cover, Fair, HSG A
24,145	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
28,095	78	Weighted Average
26,215		93.31% Pervious Area
1,880		6.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-22: Pond 2 Area

Hydrograph



Summary for Subcatchment EDA-23: Area to Ex Pond 2A

Runoff = 0.42 cfs @ 12.22 hrs, Volume= 0.060 af, Depth= 1.17"

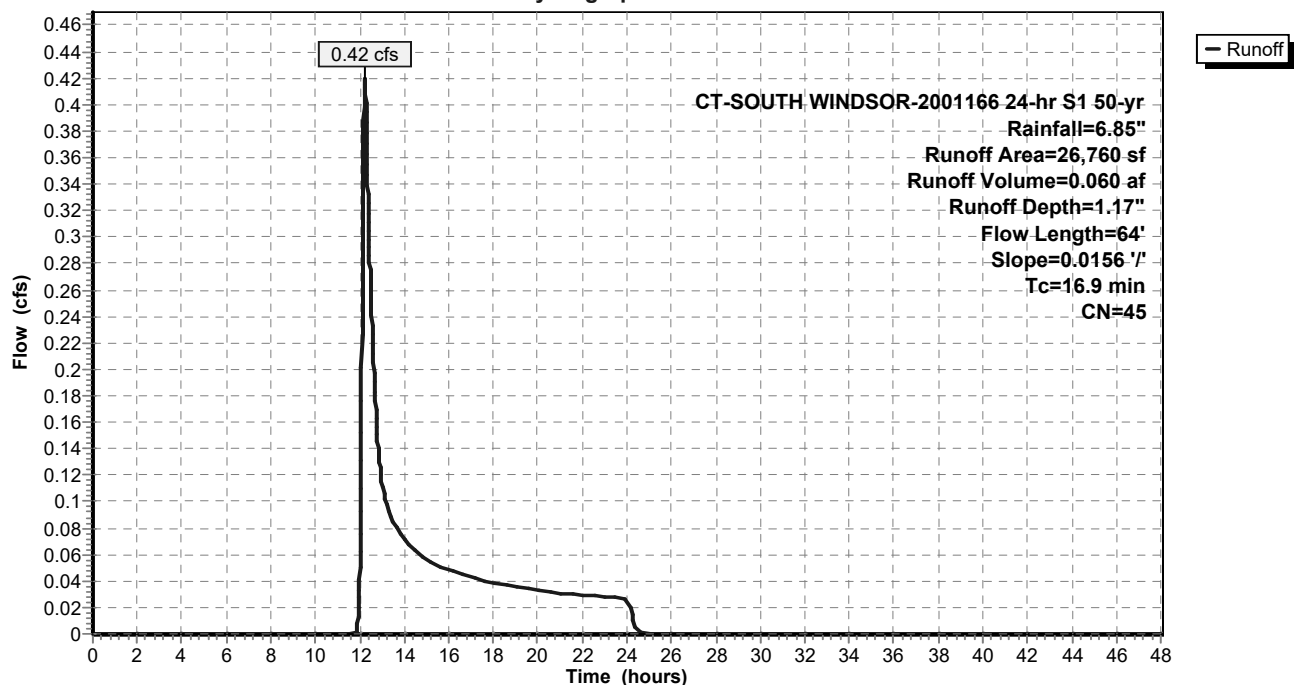
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 50-yr Rainfall=6.85"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
18,540	49	50-75% Grass cover, Fair, HSG A
35	79	50-75% Grass cover, Fair, HSG C
7,955	36	Woods, Fair, HSG A
230	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
26,760	45	Weighted Average
26,760		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	64	0.0156	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.09"

Subcatchment EDA-23: Area to Ex Pond 2A

Hydrograph

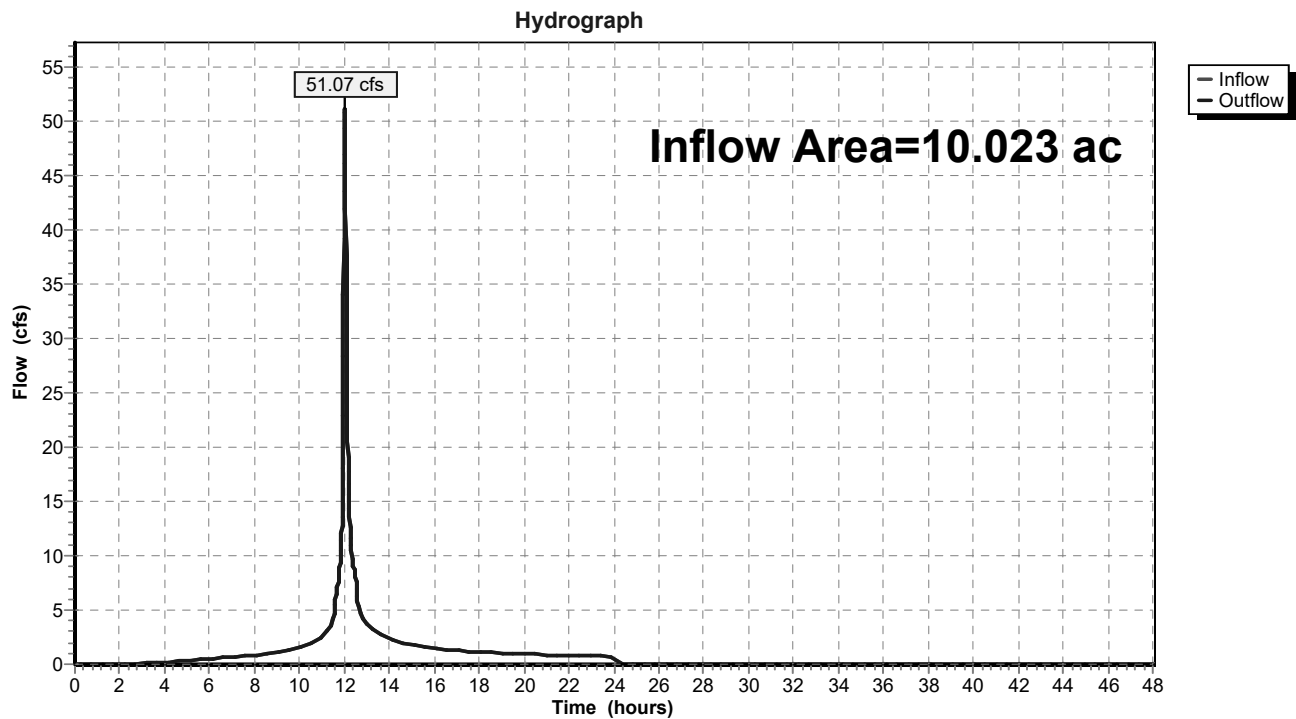


Summary for Reach DP-1: Existing Pond #1

Inflow Area = 10.023 ac, 53.80% Impervious, Inflow Depth = 3.95" for 50-yr event
Inflow = 51.07 cfs @ 12.03 hrs, Volume= 3.300 af
Outflow = 51.07 cfs @ 12.03 hrs, Volume= 3.300 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-1: Existing Pond #1

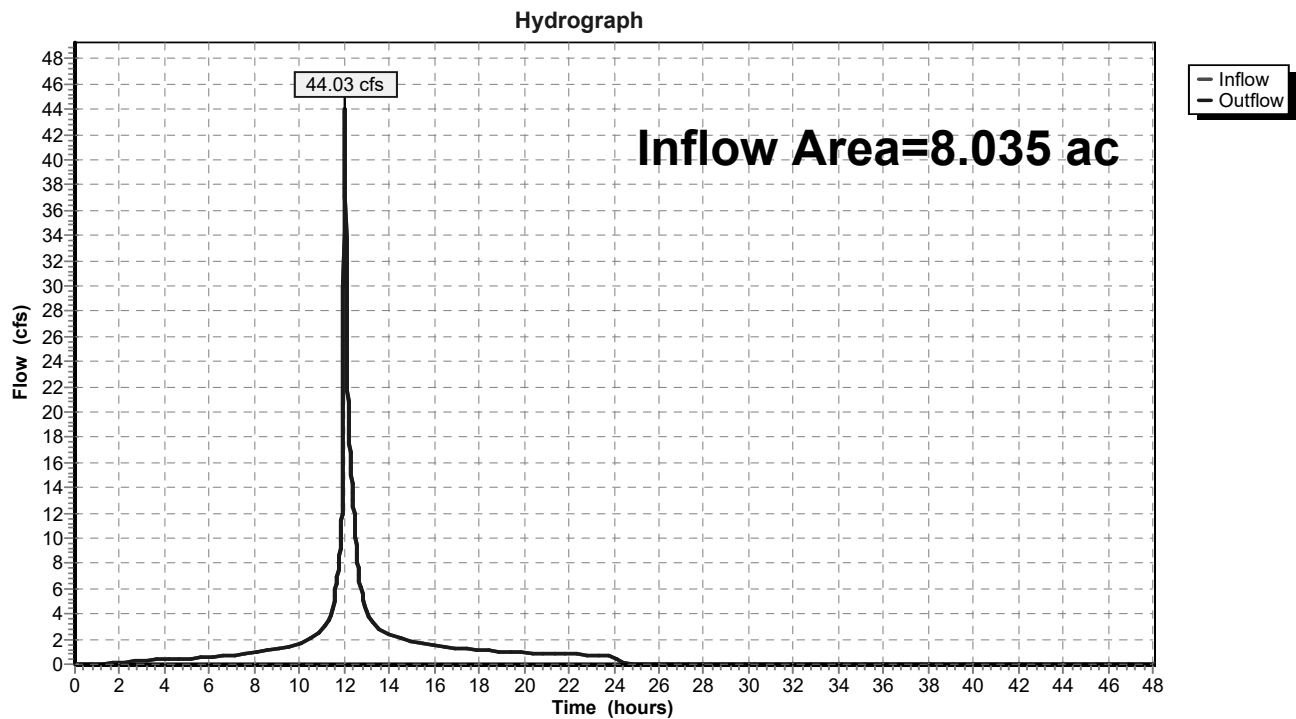


Summary for Reach DP-2: Existing Pond #2

Inflow Area = 8.035 ac, 56.88% Impervious, Inflow Depth = 5.26" for 50-yr event
Inflow = 44.03 cfs @ 12.03 hrs, Volume= 3.520 af
Outflow = 44.03 cfs @ 12.03 hrs, Volume= 3.520 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-2: Existing Pond #2



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEDA-10: Area to Ex Pond 1B Runoff Area=136,695 sf 0.00% Impervious Runoff Depth=1.24"
Flow Length=227' Tc=15.2 min CN=41 Runoff=2.24 cfs 0.325 af

SubcatchmentEDA-11: Area to Pond 1 Runoff Area=277,220 sf 84.74% Impervious Runoff Depth=6.58"
Tc=5.0 min CN=90 Runoff=56.94 cfs 3.489 af

SubcatchmentEDA-12: Pond 1 Area Runoff Area=22,675 sf 0.00% Impervious Runoff Depth=2.01"
Tc=5.0 min CN=49 Runoff=1.32 cfs 0.087 af

SubcatchmentEDA-20: Area to Pond 2 Runoff Area=194,105 sf 93.71% Impervious Runoff Depth=7.29"
Tc=5.0 min CN=96 Runoff=41.81 cfs 2.708 af

SubcatchmentEDA-21: Area to Pond 2 Runoff Area=101,055 sf 15.16% Impervious Runoff Depth=5.29"
Flow Length=283' Slope=0.0035 '/' Tc=23.4 min CN=79 Runoff=8.66 cfs 1.023 af

SubcatchmentEDA-22: Pond 2 Area Runoff Area=28,095 sf 6.69% Impervious Runoff Depth=5.18"
Tc=5.0 min CN=78 Runoff=4.79 cfs 0.278 af

SubcatchmentEDA-23: Area to Ex Pond 2A Runoff Area=26,760 sf 0.00% Impervious Runoff Depth=1.62"
Flow Length=64' Slope=0.0156 '/' Tc=16.9 min CN=45 Runoff=0.66 cfs 0.083 af

Reach DP-1: Existing Pond #1 Inflow=58.75 cfs 3.901 af
Outflow=58.75 cfs 3.901 af

Reach DP-2: Existing Pond #2 Inflow=50.07 cfs 4.092 af
Outflow=50.07 cfs 4.092 af

Total Runoff Area = 18.058 ac Runoff Volume = 7.993 af Average Runoff Depth = 5.31"
44.83% Pervious = 8.095 ac 55.17% Impervious = 9.963 ac

Summary for Subcatchment EDA-10: Area to Ex Pond 1B

Runoff = 2.24 cfs @ 12.20 hrs, Volume= 0.325 af, Depth= 1.24"

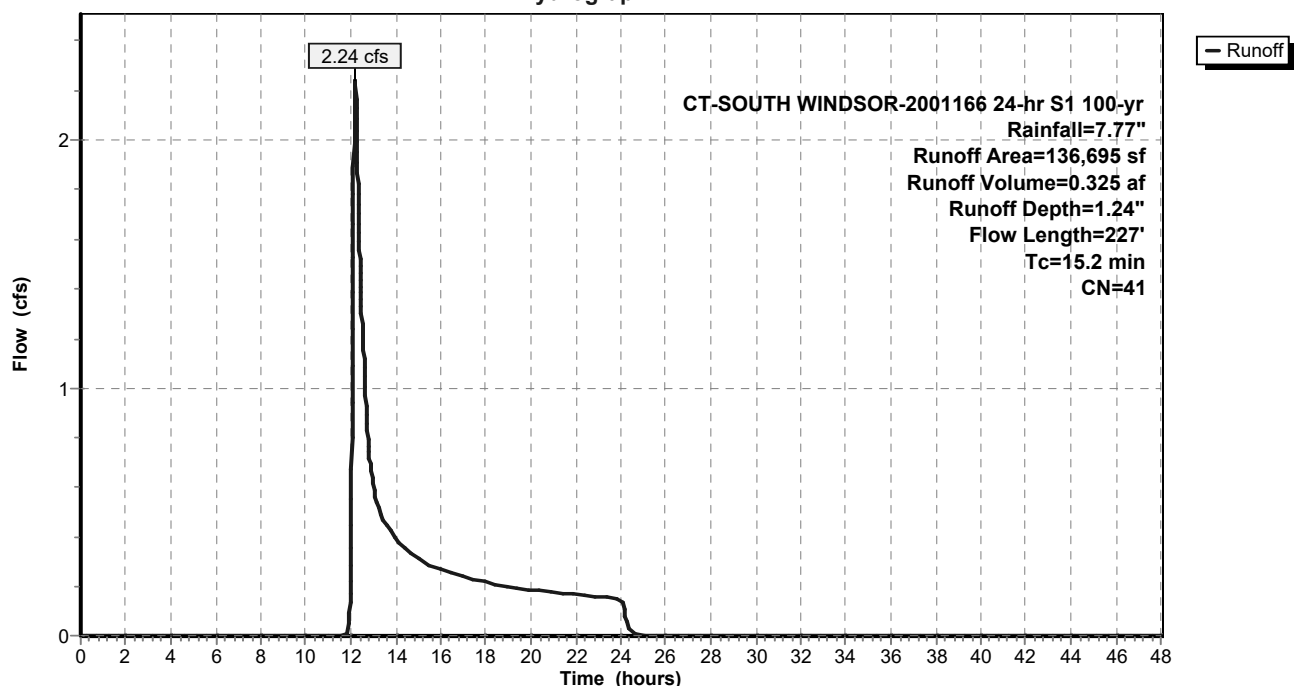
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 100-yr Rainfall=7.77"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
52,060	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
23,870	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
60,765	35	Brush, Fair, HSG A
136,695	41	Weighted Average
136,695		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0100	0.13		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.09"
2.0	127	0.0236	1.08		Shallow Concentrated Flow,
					Short Grass Pasture Kv= 7.0 fps
15.2	227	Total			

Subcatchment EDA-10: Area to Ex Pond 1B

Hydrograph



Summary for Subcatchment EDA-11: Area to Pond 1

Runoff = 56.94 cfs @ 12.03 hrs, Volume= 3.489 af, Depth= 6.58"

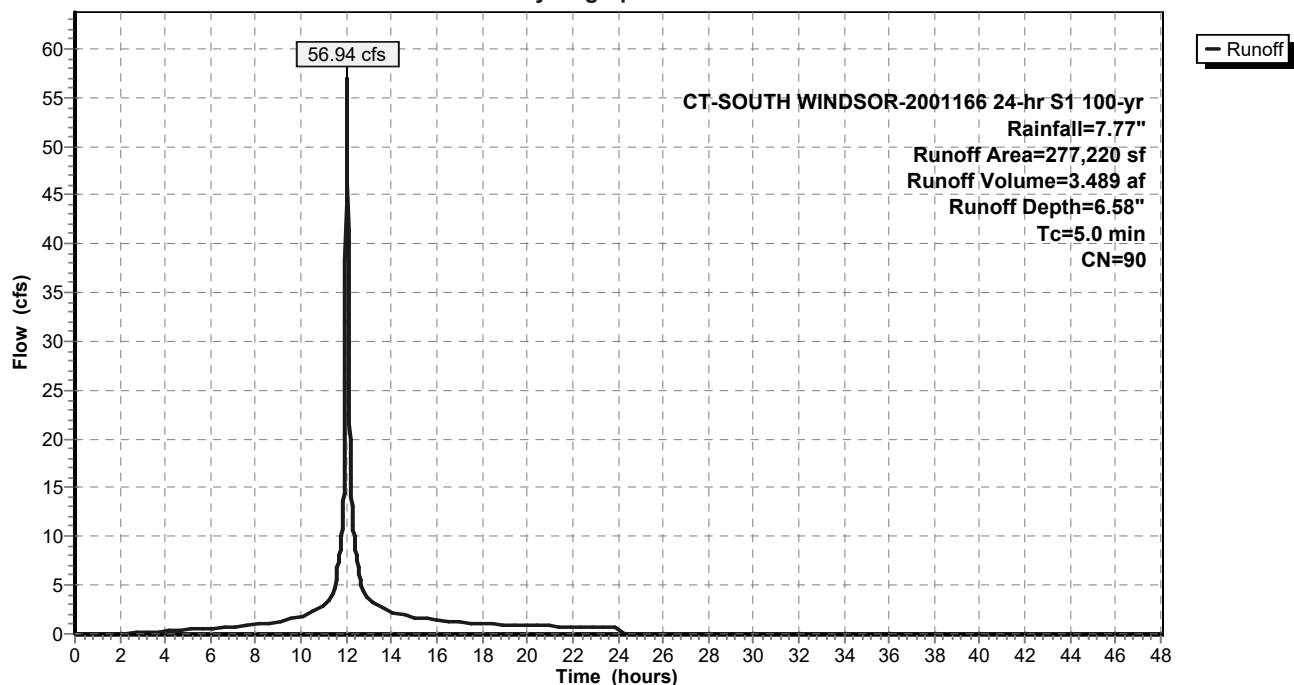
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 100-yr Rainfall=7.77"

Area (sf)	CN	Description
211,670	98	Paved parking, HSG A
23,235	98	Paved parking, HSG C
25,820	49	50-75% Grass cover, Fair, HSG A
2,165	79	50-75% Grass cover, Fair, HSG C
14,330	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
277,220	90	Weighted Average
42,315		15.26% Pervious Area
234,905		84.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-11: Area to Pond 1

Hydrograph



Summary for Subcatchment EDA-12: Pond 1 Area

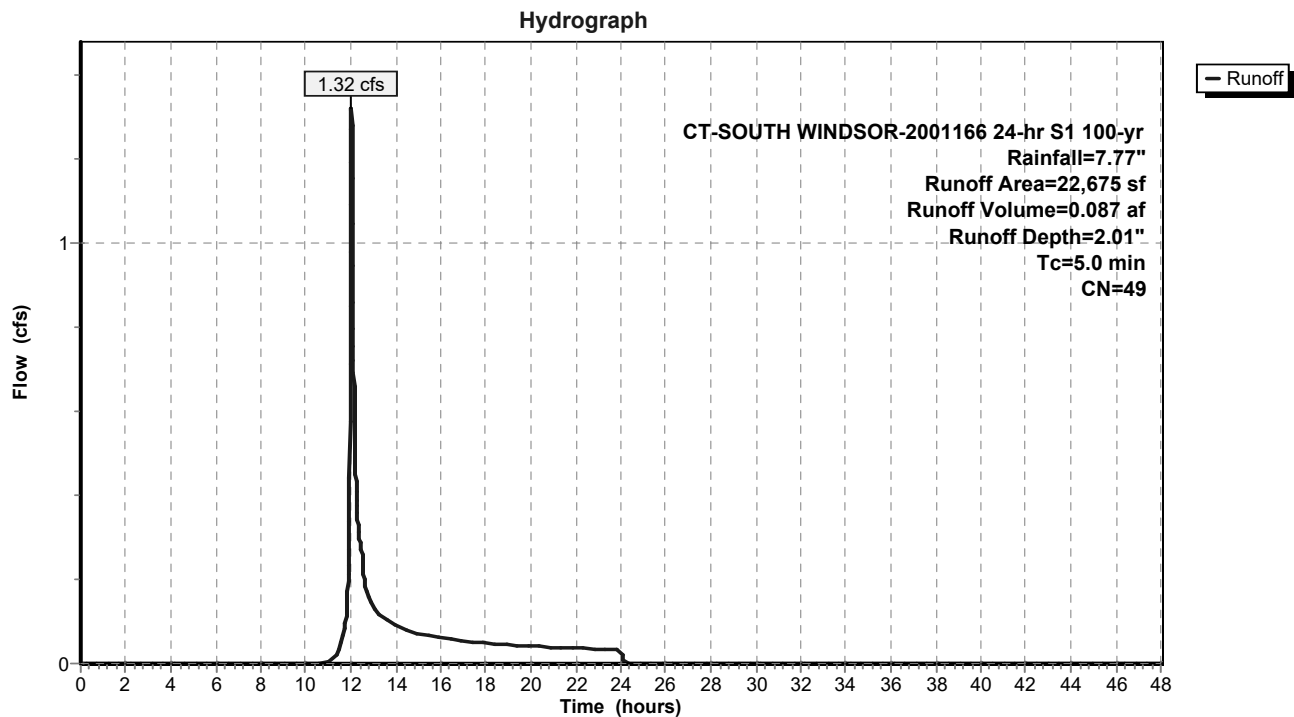
Runoff = 1.32 cfs @ 12.03 hrs, Volume= 0.087 af, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 100-yr Rainfall=7.77"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
22,675	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
22,675	49	Weighted Average
22,675		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-12: Pond 1 Area



Summary for Subcatchment EDA-20: Area to Pond 2 from West

Runoff = 41.81 cfs @ 12.03 hrs, Volume= 2.708 af, Depth= 7.29"

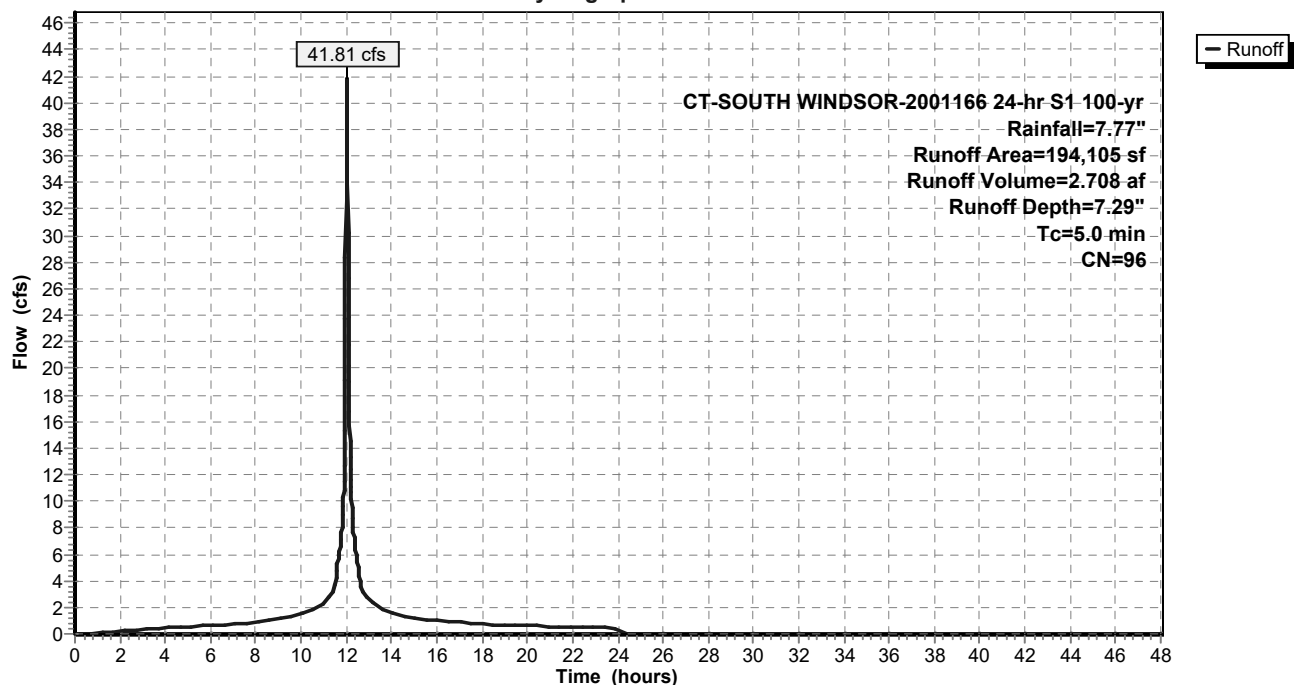
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 100-yr Rainfall=7.77"

Area (sf)	CN	Description
134,845	98	Paved parking, HSG A
47,055	98	Paved parking, HSG C
7,810	49	50-75% Grass cover, Fair, HSG A
4,395	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
194,105	96	Weighted Average
12,205		6.29% Pervious Area
181,900		93.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-20: Area to Pond 2 from West

Hydrograph



Summary for Subcatchment EDA-21: Area to Pond 2 from East

Runoff = 8.66 cfs @ 12.26 hrs, Volume= 1.023 af, Depth= 5.29"

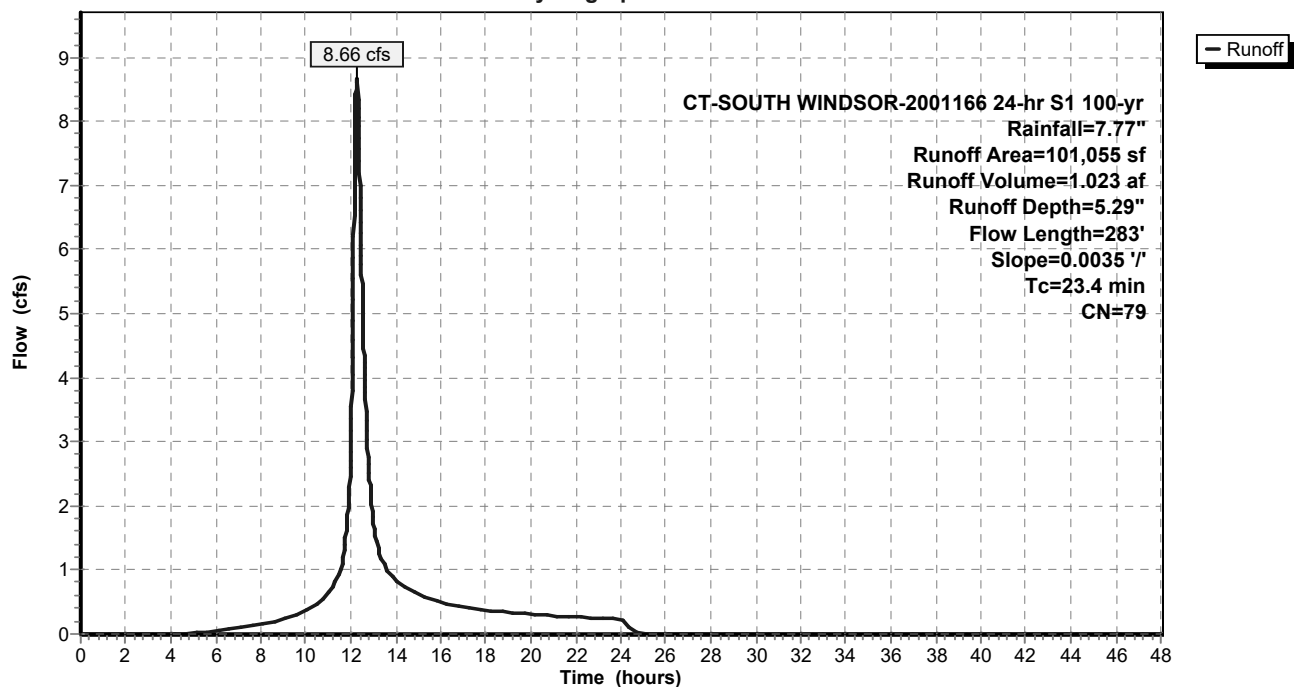
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 100-yr Rainfall=7.77"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
15,320	98	Paved parking, HSG C
10,195	49	50-75% Grass cover, Fair, HSG A
71,850	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
3,690	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
101,055	79	Weighted Average
85,735		84.84% Pervious Area
15,320		15.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0035	0.08		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.09"
3.4	183	0.0035	0.89		Shallow Concentrated Flow,
					Grassed Waterway Kv= 15.0 fps
23.4	283	Total			

Subcatchment EDA-21: Area to Pond 2 from East

Hydrograph



Summary for Subcatchment EDA-22: Pond 2 Area

Runoff = 4.79 cfs @ 12.03 hrs, Volume= 0.278 af, Depth= 5.18"

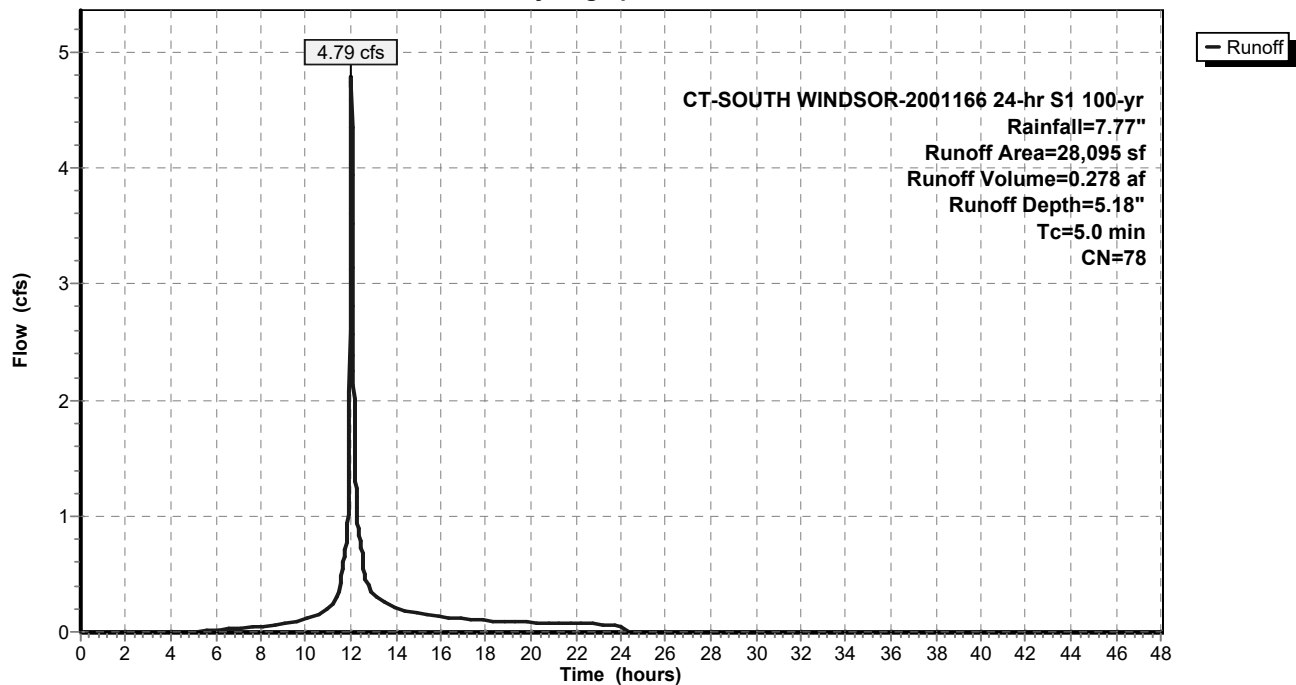
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 100-yr Rainfall=7.77"

Area (sf)	CN	Description
425	98	Paved parking, HSG A
1,455	98	Paved parking, HSG C
2,070	49	50-75% Grass cover, Fair, HSG A
24,145	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
28,095	78	Weighted Average
26,215		93.31% Pervious Area
1,880		6.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment EDA-22: Pond 2 Area

Hydrograph



Summary for Subcatchment EDA-23: Area to Ex Pond 2A

Runoff = 0.66 cfs @ 12.21 hrs, Volume= 0.083 af, Depth= 1.62"

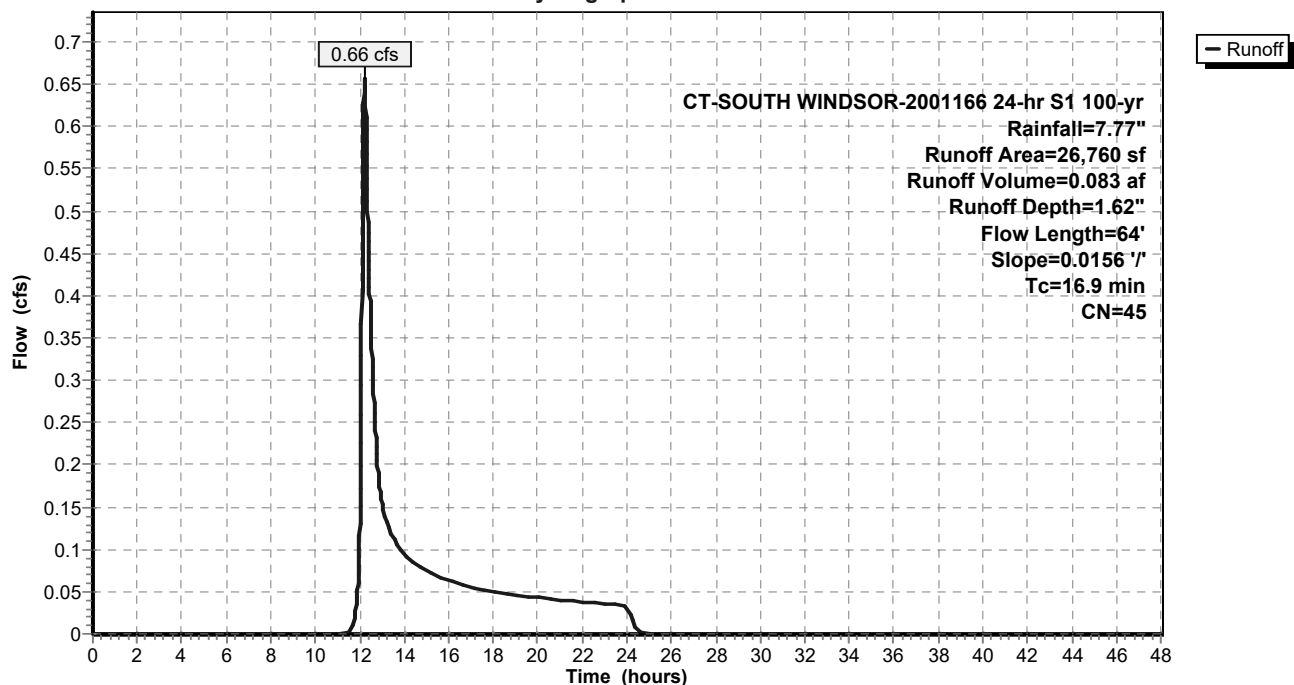
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 100-yr Rainfall=7.77"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
18,540	49	50-75% Grass cover, Fair, HSG A
35	79	50-75% Grass cover, Fair, HSG C
7,955	36	Woods, Fair, HSG A
230	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
26,760	45	Weighted Average
26,760		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	64	0.0156	0.06		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.09"

Subcatchment EDA-23: Area to Ex Pond 2A

Hydrograph

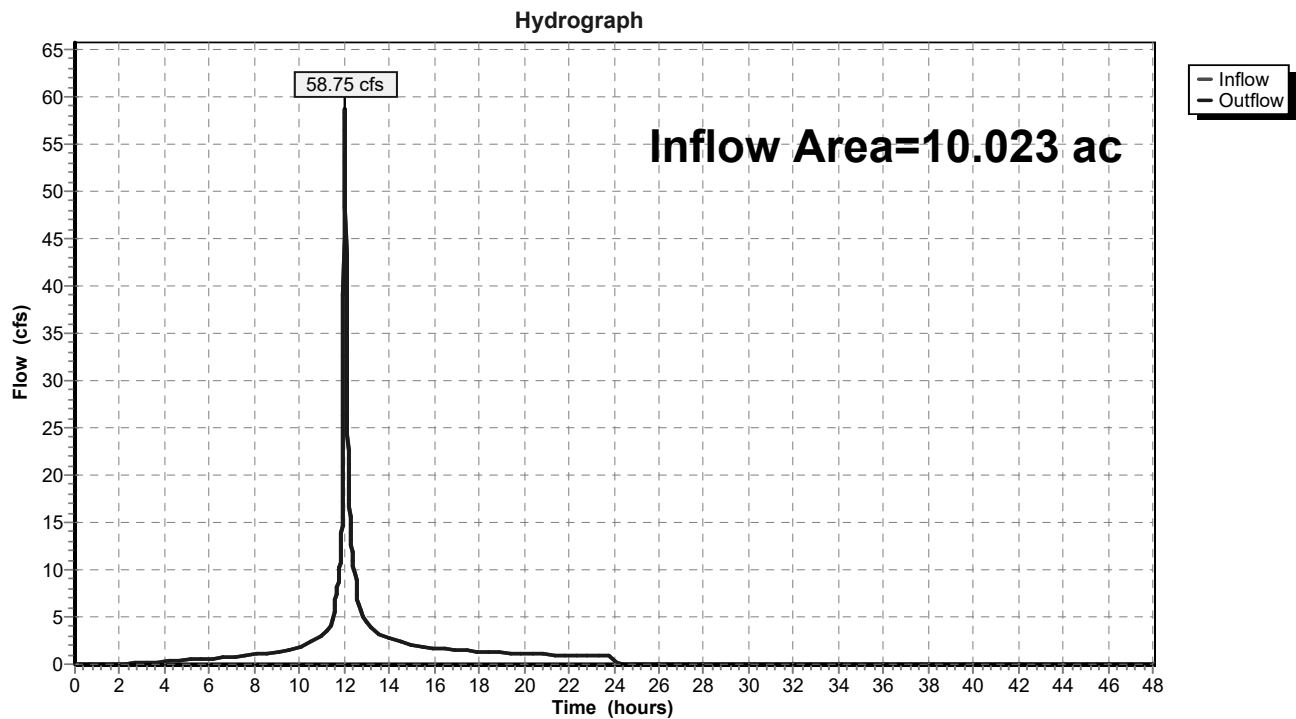


Summary for Reach DP-1: Existing Pond #1

Inflow Area = 10.023 ac, 53.80% Impervious, Inflow Depth = 4.67" for 100-yr event
Inflow = 58.75 cfs @ 12.03 hrs, Volume= 3.901 af
Outflow = 58.75 cfs @ 12.03 hrs, Volume= 3.901 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-1: Existing Pond #1

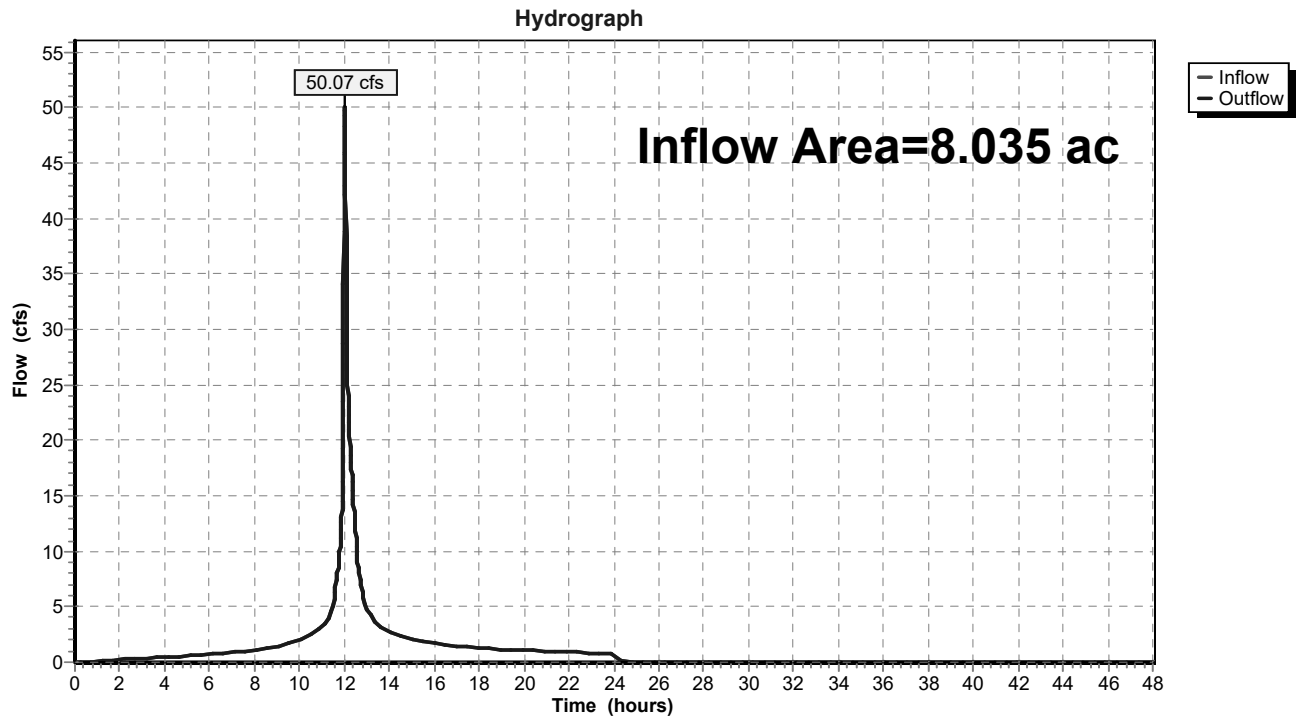


Summary for Reach DP-2: Existing Pond #2

Inflow Area = 8.035 ac, 56.88% Impervious, Inflow Depth = 6.11" for 100-yr event
Inflow = 50.07 cfs @ 12.03 hrs, Volume= 4.092 af
Outflow = 50.07 cfs @ 12.03 hrs, Volume= 4.092 af, Atten= 0%, Lag= 0.0 min

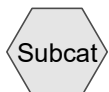
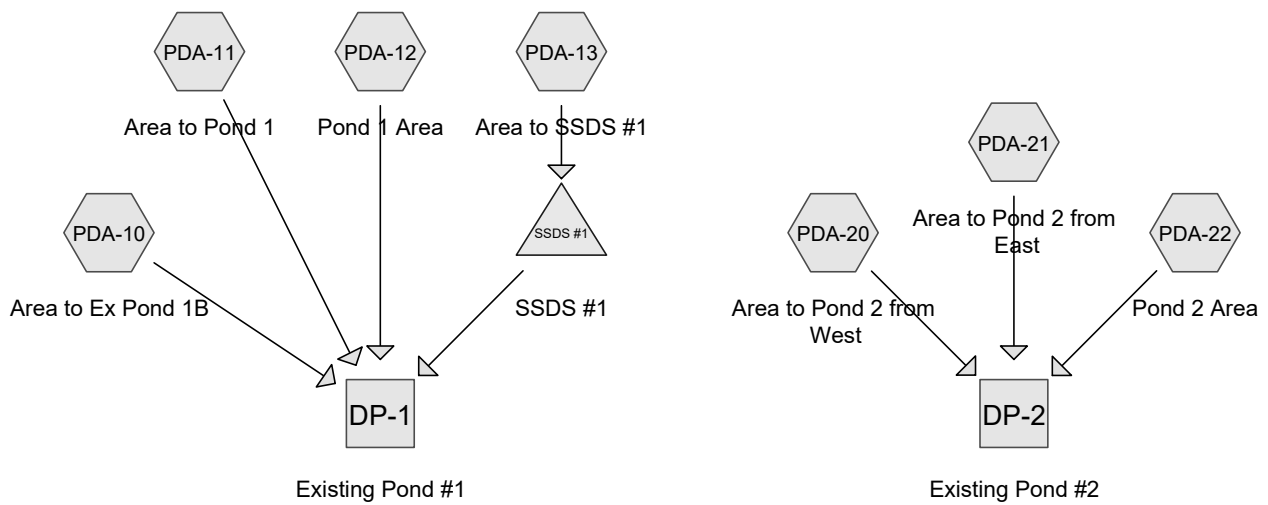
Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-2: Existing Pond #2



APPENDIX C

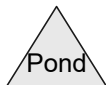
POST-DEVELOPMENT HYDROLOGY



Subcat



Reach



Pond



Link

Routing Diagram for C-DAT-2001166-PROPOSED HYDROLOGY

Prepared by BL Companies, Inc., Printed 11/12/2020
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C-DAT-2001166-PROPOSED HY CT-SOUTH WINDSOR-2001166 24-hr S1 2-yr Rainfall=3.09"

Prepared by BL Companies, Inc.

Printed 11/12/2020

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Page 2

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPDA-10: Area to Ex Pond 1B Runoff Area=98,955 sf 0.00% Impervious Runoff Depth=0.01"
Flow Length=227' Tc=15.2 min CN=42 Runoff=0.00 cfs 0.001 af

SubcatchmentPDA-11: Area to Pond 1 Runoff Area=280,865 sf 77.82% Impervious Runoff Depth=1.82"
Tc=5.0 min CN=87 Runoff=17.97 cfs 0.977 af

SubcatchmentPDA-12: Pond 1 Area Runoff Area=24,775 sf 0.00% Impervious Runoff Depth=0.09"
Tc=5.0 min CN=49 Runoff=0.01 cfs 0.004 af

SubcatchmentPDA-13: Area to SSDS #1 Runoff Area=57,730 sf 64.24% Impervious Runoff Depth=1.25"
Tc=5.0 min CN=79 Runoff=2.49 cfs 0.139 af

SubcatchmentPDA-20: Area to Pond 2 Runoff Area=194,105 sf 94.25% Impervious Runoff Depth=2.64"
Tc=5.0 min CN=96 Runoff=16.94 cfs 0.981 af

SubcatchmentPDA-21: Area to Pond 2 Runoff Area=102,080 sf 15.01% Impervious Runoff Depth=1.19"
Flow Length=283' Slope=0.0035 '/' Tc=23.4 min CN=78 Runoff=2.01 cfs 0.233 af

SubcatchmentPDA-22: Pond 2 Area Runoff Area=28,095 sf 6.69% Impervious Runoff Depth=1.19"
Tc=5.0 min CN=78 Runoff=1.14 cfs 0.064 af

Reach DP-1: Existing Pond #1 Inflow=17.97 cfs 0.982 af
Outflow=17.97 cfs 0.982 af

Reach DP-2: Existing Pond #2 Inflow=18.68 cfs 1.278 af
Outflow=18.68 cfs 1.278 af

Pond SSDS #1: SSDS #1 Peak Elev=54.47' Storage=1,780 cf Inflow=2.49 cfs 0.139 af
Discarded=0.24 cfs 0.139 af Primary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.139 af

Total Runoff Area = 18.058 ac Runoff Volume = 2.399 af Average Runoff Depth = 1.59"
42.06% Pervious = 7.594 ac 57.94% Impervious = 10.464 ac

Summary for Subcatchment PDA-10: Area to Ex Pond 1B

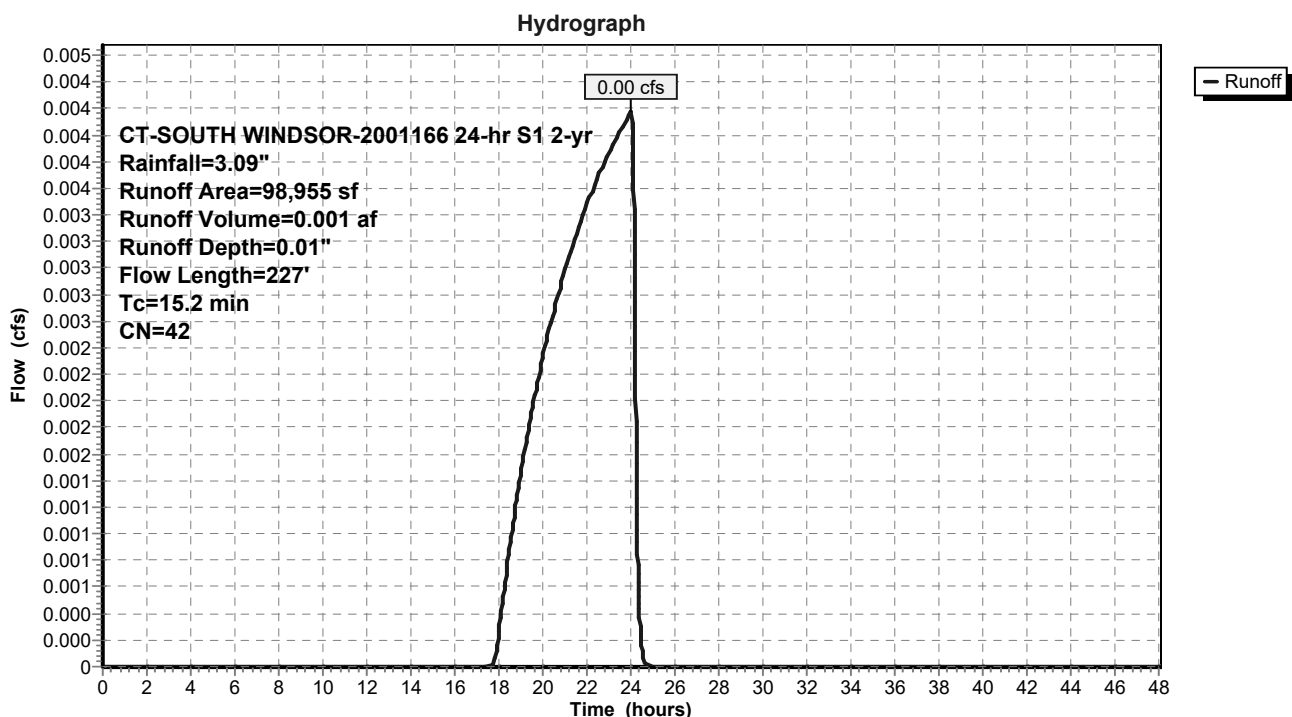
Runoff = 0.00 cfs @ 24.03 hrs, Volume= 0.001 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 2-yr Rainfall=3.09"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
51,680	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
765	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
46,510	35	Brush, Fair, HSG A
98,955	42	Weighted Average
98,955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0100	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 3.09"
2.0	127	0.0236	1.08		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
15.2	227	Total			

Subcatchment PDA-10: Area to Ex Pond 1B



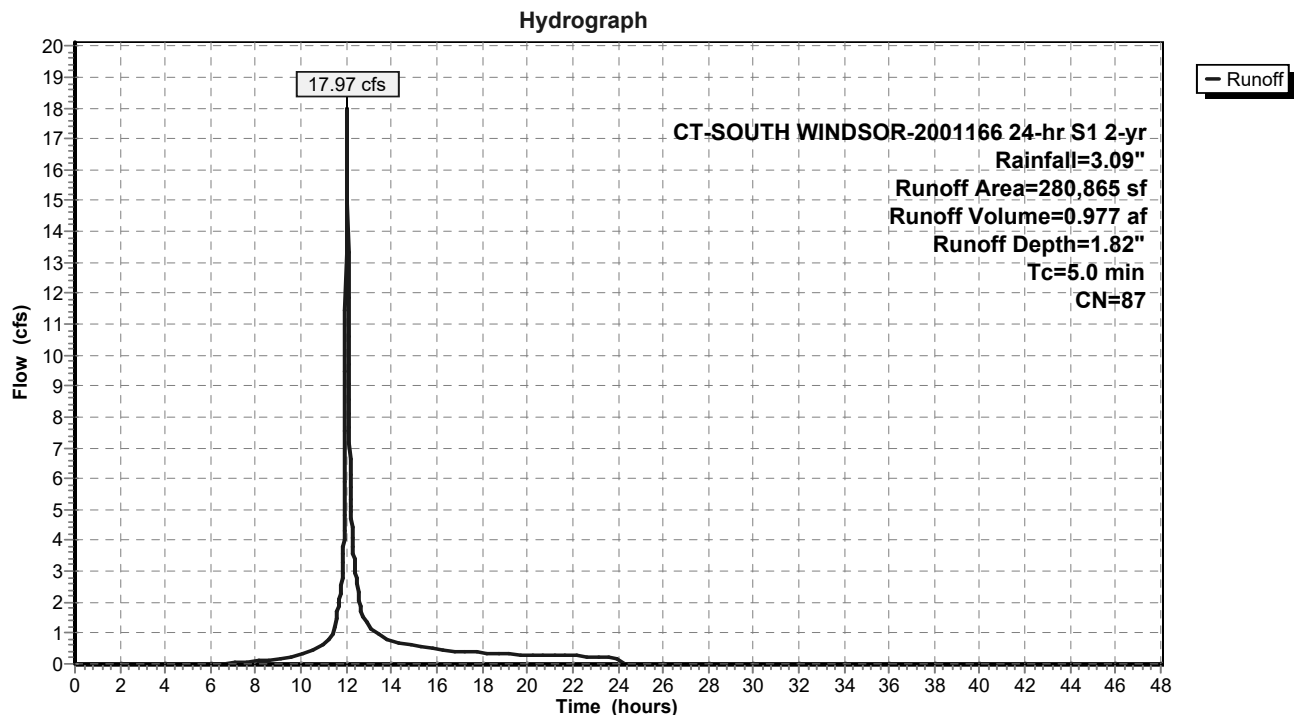
Summary for Subcatchment PDA-11: Area to Pond 1

Runoff = 17.97 cfs @ 12.03 hrs, Volume= 0.977 af, Depth= 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 2-yr Rainfall=3.09"

Area (sf)	CN	Description
196,325	98	Paved parking, HSG A
22,240	98	Paved parking, HSG C
45,245	49	50-75% Grass cover, Fair, HSG A
2,725	79	50-75% Grass cover, Fair, HSG C
14,330	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
280,865	87	Weighted Average
62,300		22.18% Pervious Area
218,565		77.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-11: Area to Pond 1

Summary for Subcatchment PDA-12: Pond 1 Area

Runoff = 0.01 cfs @ 14.54 hrs, Volume= 0.004 af, Depth= 0.09"

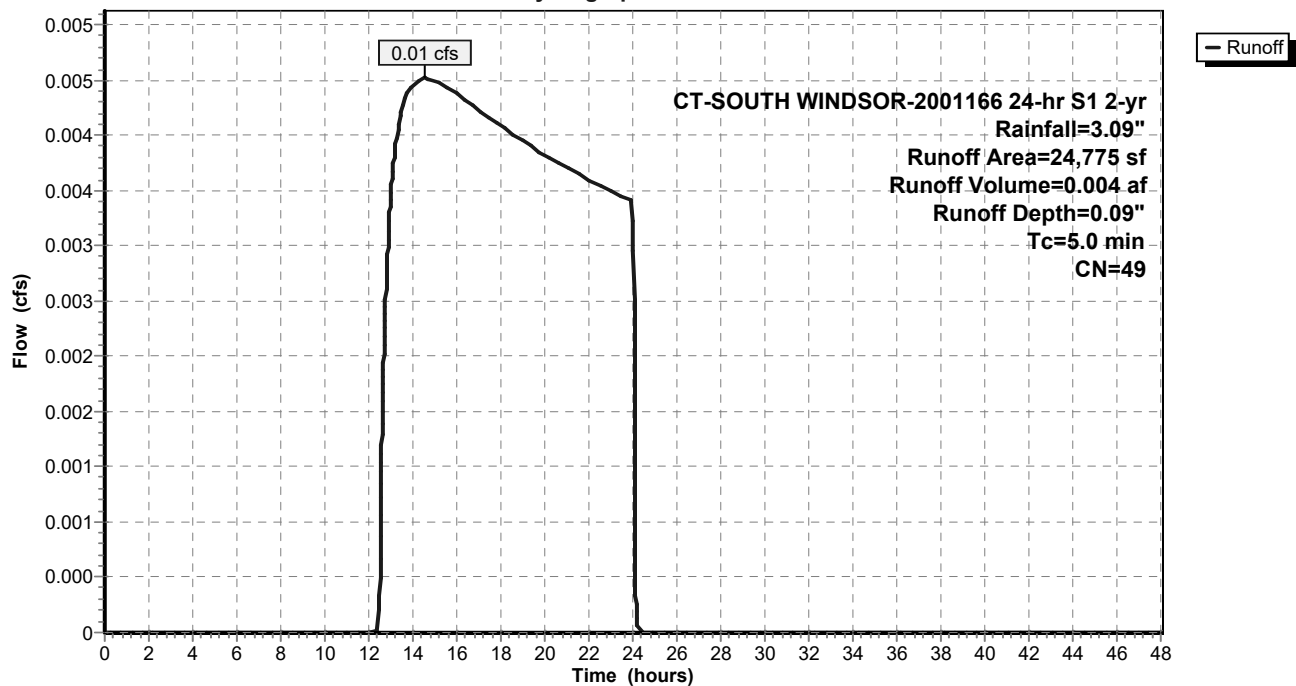
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 2-yr Rainfall=3.09"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
24,775	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
24,775	49	Weighted Average
24,775		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-12: Pond 1 Area

Hydrograph



Summary for Subcatchment PDA-13: Area to SSDS #1

Runoff = 2.49 cfs @ 12.03 hrs, Volume= 0.139 af, Depth= 1.25"

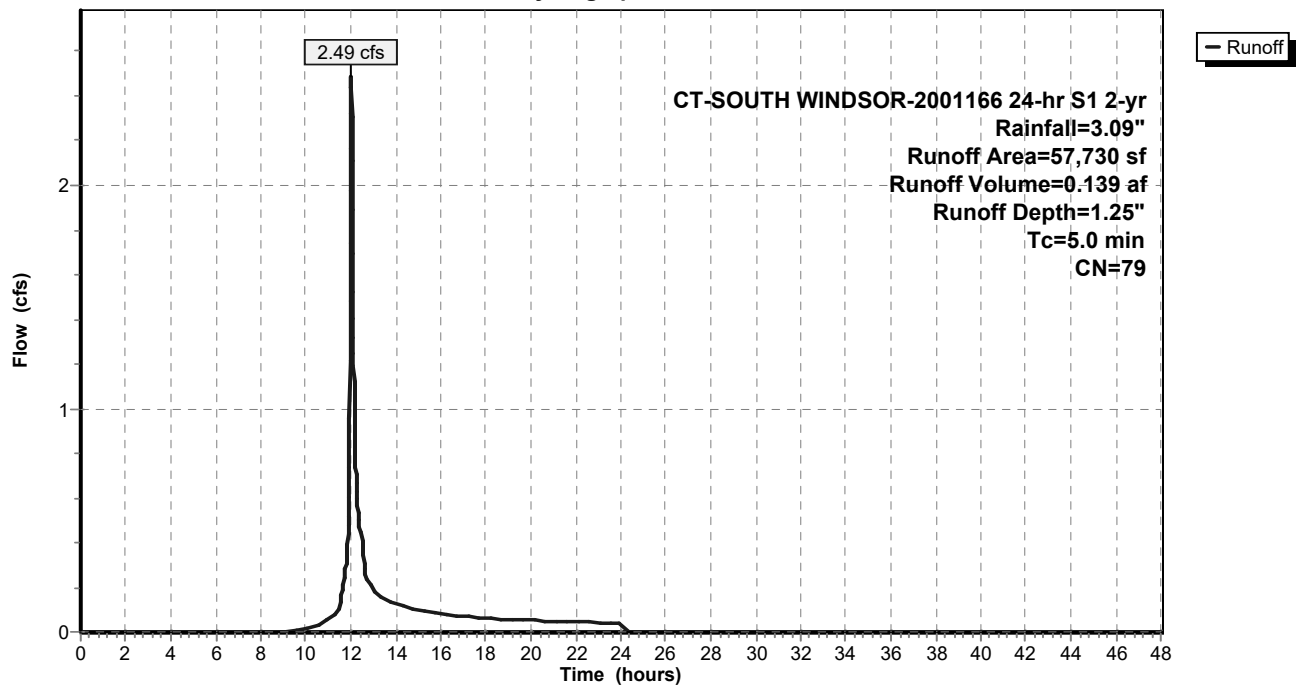
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 2-yr Rainfall=3.09"

Area (sf)	CN	Description
37,085	98	Paved parking, HSG A
0	98	Paved parking, HSG C
14,330	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
6,160	36	Woods, Fair, HSG A
65	73	Woods, Fair, HSG C
90	35	Brush, Fair, HSG A
57,730	79	Weighted Average
20,645		35.76% Pervious Area
37,085		64.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-13: Area to SSDS #1

Hydrograph



Summary for Subcatchment PDA-20: Area to Pond 2 from West

Runoff = 16.94 cfs @ 12.03 hrs, Volume= 0.981 af, Depth= 2.64"

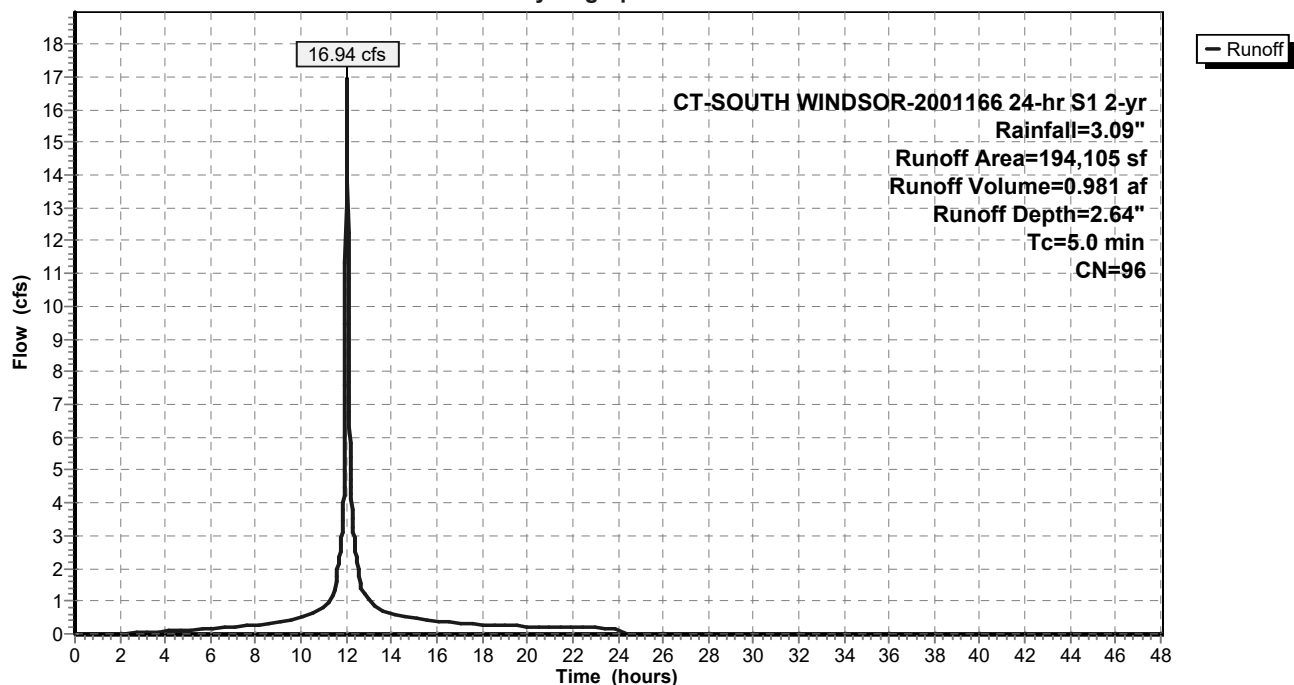
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 2-yr Rainfall=3.09"

Area (sf)	CN	Description
135,515	98	Paved parking, HSG A
47,430	98	Paved parking, HSG C
7,140	49	50-75% Grass cover, Fair, HSG A
4,020	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
194,105	96	Weighted Average
11,160		5.75% Pervious Area
182,945		94.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-20: Area to Pond 2 from West

Hydrograph



Summary for Subcatchment PDA-21: Area to Pond 2 from East

Runoff = 2.01 cfs @ 12.29 hrs, Volume= 0.233 af, Depth= 1.19"

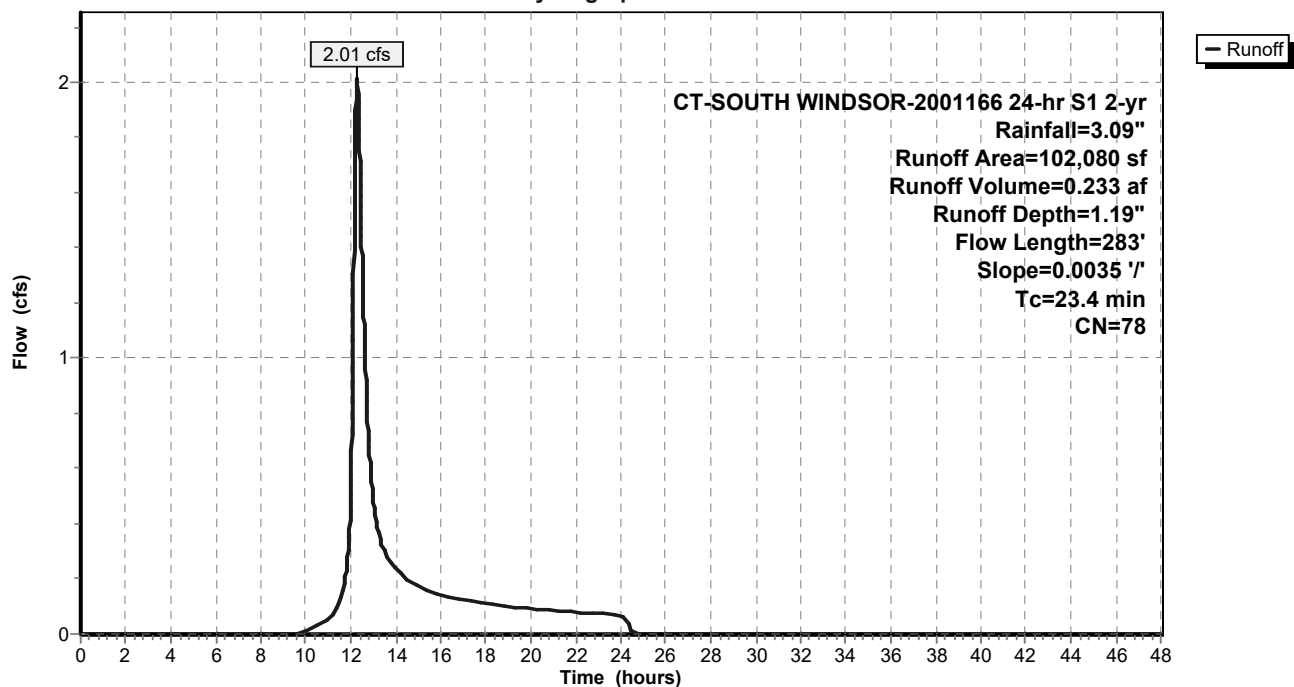
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 2-yr Rainfall=3.09"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
15,320	98	Paved parking, HSG C
10,115	49	50-75% Grass cover, Fair, HSG A
72,325	79	50-75% Grass cover, Fair, HSG C
465	36	Woods, Fair, HSG A
3,855	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
102,080	78	Weighted Average
86,760		84.99% Pervious Area
15,320		15.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0035	0.08		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.09"
3.4	183	0.0035	0.89		Shallow Concentrated Flow,
					Grassed Waterway Kv= 15.0 fps
23.4	283	Total			

Subcatchment PDA-21: Area to Pond 2 from East

Hydrograph



Summary for Subcatchment PDA-22: Pond 2 Area

Runoff = 1.14 cfs @ 12.03 hrs, Volume= 0.064 af, Depth= 1.19"

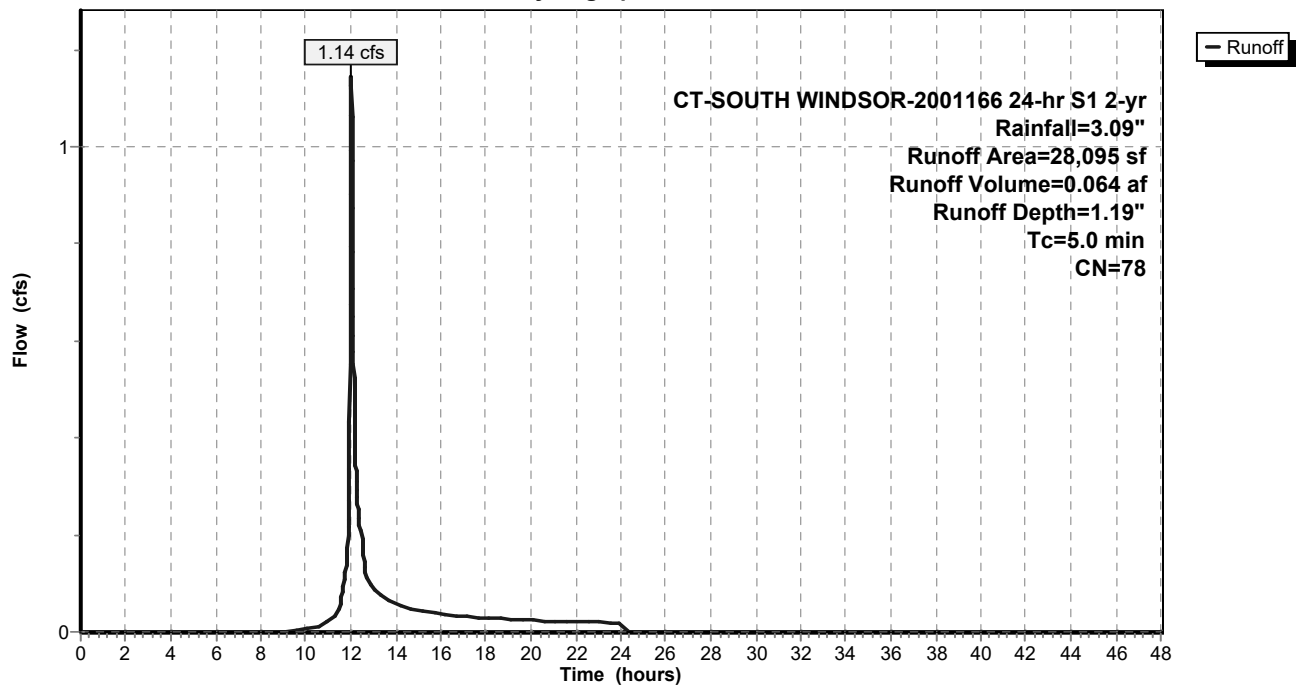
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 2-yr Rainfall=3.09"

Area (sf)	CN	Description
425	98	Paved parking, HSG A
1,455	98	Paved parking, HSG C
2,070	49	50-75% Grass cover, Fair, HSG A
24,145	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
28,095	78	Weighted Average
26,215		93.31% Pervious Area
1,880		6.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-22: Pond 2 Area

Hydrograph

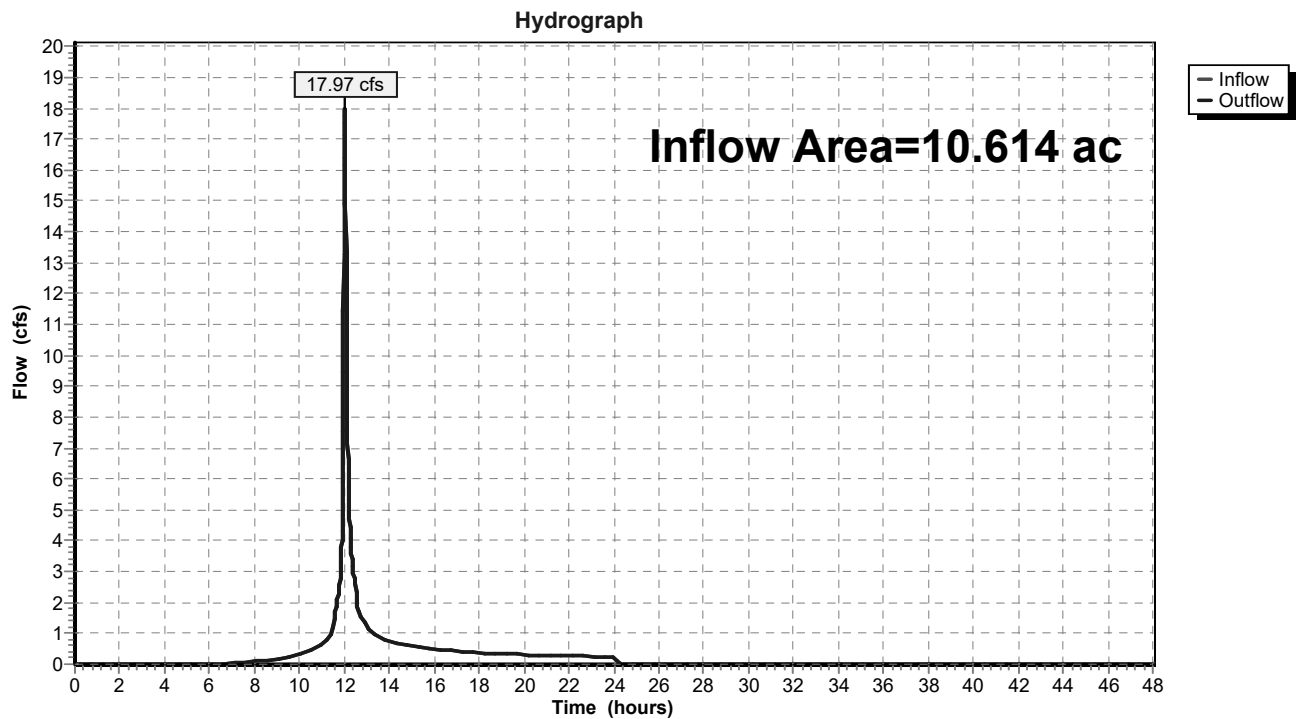


Summary for Reach DP-1: Existing Pond #1

Inflow Area = 10.614 ac, 55.30% Impervious, Inflow Depth = 1.11" for 2-yr event
Inflow = 17.97 cfs @ 12.03 hrs, Volume= 0.982 af
Outflow = 17.97 cfs @ 12.03 hrs, Volume= 0.982 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-1: Existing Pond #1

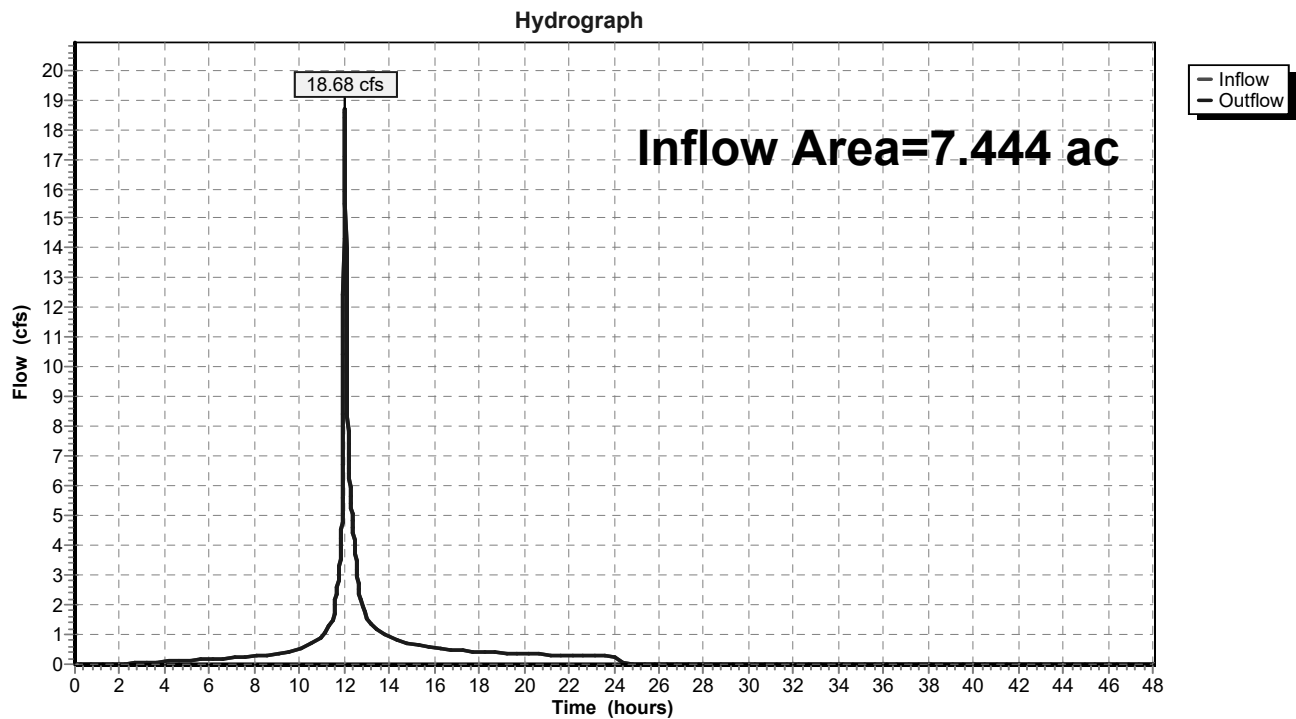


Summary for Reach DP-2: Existing Pond #2

Inflow Area = 7.444 ac, 61.72% Impervious, Inflow Depth = 2.06" for 2-yr event
Inflow = 18.68 cfs @ 12.03 hrs, Volume= 1.278 af
Outflow = 18.68 cfs @ 12.03 hrs, Volume= 1.278 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-2: Existing Pond #2



Summary for Pond SSDS #1: SSDS #1

Inflow Area = 1.325 ac, 64.24% Impervious, Inflow Depth = 1.25" for 2-yr event
 Inflow = 2.49 cfs @ 12.03 hrs, Volume= 0.139 af
 Outflow = 0.24 cfs @ 11.80 hrs, Volume= 0.139 af, Atten= 90%, Lag= 0.0 min
 Discarded = 0.24 cfs @ 11.80 hrs, Volume= 0.139 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 54.47' @ 12.73 hrs Surf.Area= 2,083 sf Storage= 1,780 cf

Plug-Flow detention time= 53.9 min calculated for 0.139 af (100% of inflow)
 Center-of-Mass det. time= 53.9 min (922.5 - 868.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	53.50'	0 cf	47.23'W x 44.10'L x 4.50'H Field A 9,374 cf Overall - 9,374 cf Embedded = 0 cf x 40.0% Voids
#2A	53.50'	7,354 cf	StormTrap ST2 SingleTrap 4-0x8 Inside #1 Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf 8 Chambers in 4 Rows 33.92' x 30.79' Core + 6.66' Border = 47.23' x 44.10' System
		7,354 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	56.30'	12.0" Round Culvert L= 35.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 56.30' / 56.12' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	53.50'	5.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.24 cfs @ 11.80 hrs HW=53.55' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=53.50' (Free Discharge)
 ↑ **1=Culvert** (Controls 0.00 cfs)

Pond SSDS #1: SSDS #1 - Chamber Wizard Field A

Chamber Model = StormTrapST2 SingleTrap 4-0 (StormTrapST2 SingleTrap®Type II+IV)

Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf

Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf

2 Chambers/Row x 15.40' Long = 30.79' Row Length +79.9" Border x 2 = 44.10' Base Length

4 Rows x 101.7" Wide + 79.9" Side Border x 2 = 47.23' Base Width

54.0" Chamber Height = 4.50' Field Height

8 Chambers x 470.3 cf + 3,592.0 cf Border = 7,354.1 cf Chamber Storage

8 Chambers x 587.4 cf + 4,673.9 cf Border = 9,373.5 cf Displacement

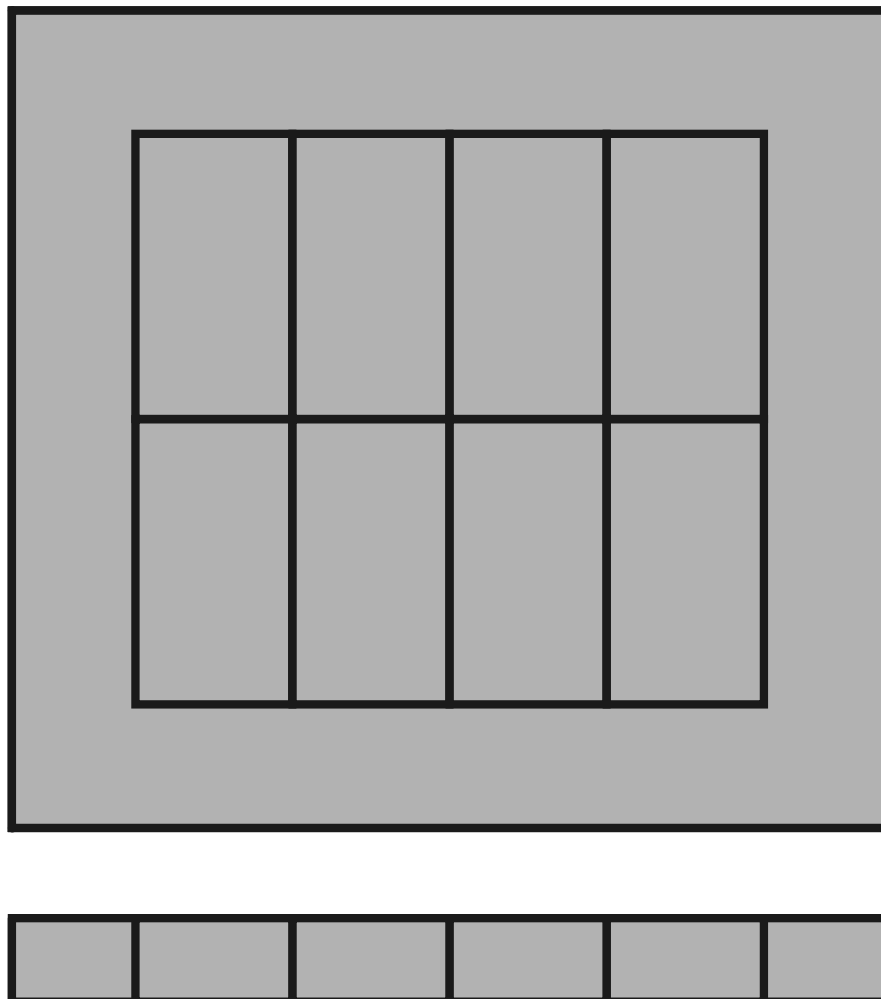
Chamber Storage = 7,354.1 cf = 0.169 af

Overall Storage Efficiency = 78.5%

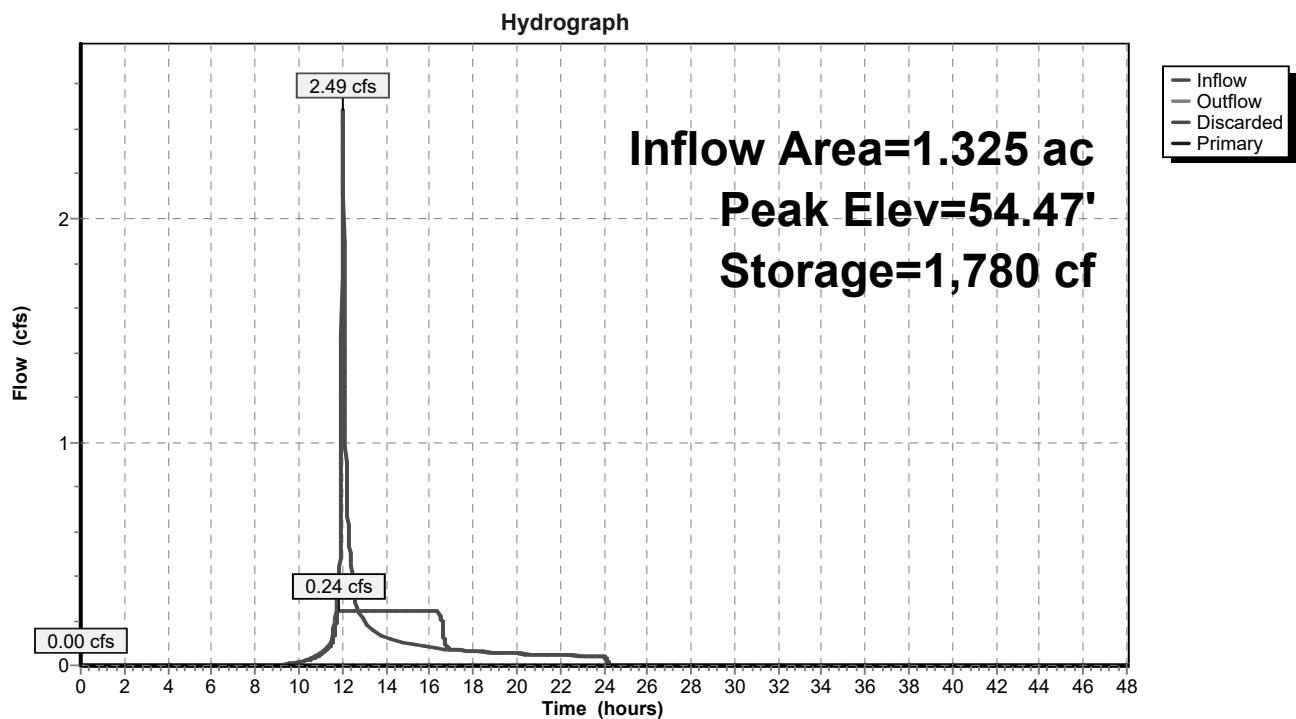
Overall System Size = 44.10' x 47.23' x 4.50'

8 Chambers (plus border)

347.2 cy Field



Pond SSDS #1: SSDS #1



C-DAT-2001166-PROPOSED HYCT-SOUTH WINDSOR-2001166 24-hr S1 10-yr Rainfall=4.90"

Prepared by BL Companies, Inc.

Printed 11/12/2020

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPDA-10: Area to Ex Pond 1B Runoff Area=98,955 sf 0.00% Impervious Runoff Depth=0.29"
Flow Length=227' Tc=15.2 min CN=42 Runoff=0.12 cfs 0.054 af

SubcatchmentPDA-11: Area to Pond 1 Runoff Area=280,865 sf 77.82% Impervious Runoff Depth=3.47"
Tc=5.0 min CN=87 Runoff=32.62 cfs 1.866 af

SubcatchmentPDA-12: Pond 1 Area Runoff Area=24,775 sf 0.00% Impervious Runoff Depth=0.60"
Tc=5.0 min CN=49 Runoff=0.24 cfs 0.028 af

SubcatchmentPDA-13: Area to SSDS #1 Runoff Area=57,730 sf 64.24% Impervious Runoff Depth=2.72"
Tc=5.0 min CN=79 Runoff=5.32 cfs 0.300 af

SubcatchmentPDA-20: Area to Pond 2 Runoff Area=194,105 sf 94.25% Impervious Runoff Depth=4.43"
Tc=5.0 min CN=96 Runoff=26.62 cfs 1.646 af

SubcatchmentPDA-21: Area to Pond 2 Runoff Area=102,080 sf 15.01% Impervious Runoff Depth=2.63"
Flow Length=283' Slope=0.0035 '/' Tc=23.4 min CN=78 Runoff=4.45 cfs 0.513 af

SubcatchmentPDA-22: Pond 2 Area Runoff Area=28,095 sf 6.69% Impervious Runoff Depth=2.63"
Tc=5.0 min CN=78 Runoff=2.50 cfs 0.141 af

Reach DP-1: Existing Pond #1 Inflow=32.83 cfs 1.951 af
Outflow=32.83 cfs 1.951 af

Reach DP-2: Existing Pond #2 Inflow=30.68 cfs 2.300 af
Outflow=30.68 cfs 2.300 af

Pond SSDS #1: SSDS #1 Peak Elev=56.38' Storage=5,295 cf Inflow=5.32 cfs 0.300 af
Discarded=0.24 cfs 0.298 af Primary=0.02 cfs 0.002 af Outflow=0.26 cfs 0.300 af

Total Runoff Area = 18.058 ac Runoff Volume = 4.549 af Average Runoff Depth = 3.02"
42.06% Pervious = 7.594 ac 57.94% Impervious = 10.464 ac

Summary for Subcatchment PDA-10: Area to Ex Pond 1B

Runoff = 0.12 cfs @ 12.59 hrs, Volume= 0.054 af, Depth= 0.29"

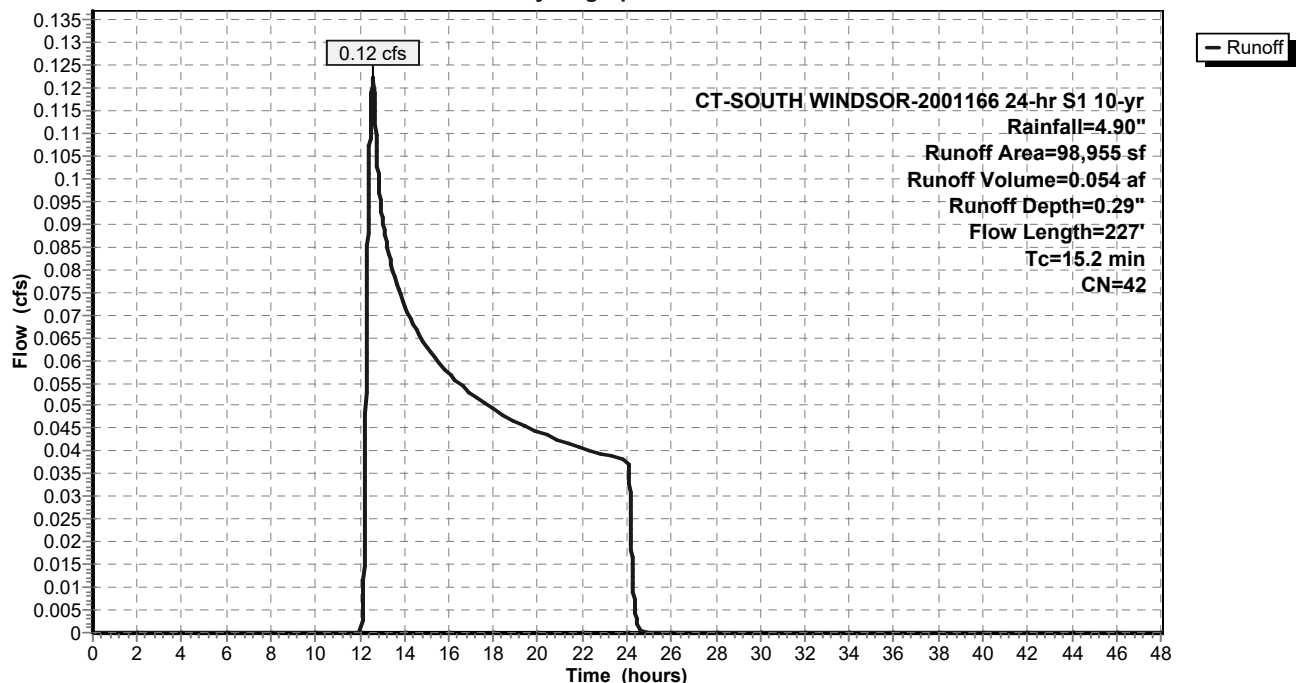
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 10-yr Rainfall=4.90"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
51,680	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
765	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
46,510	35	Brush, Fair, HSG A
98,955	42	Weighted Average
98,955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0100	0.13		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.09"
2.0	127	0.0236	1.08		Shallow Concentrated Flow,
					Short Grass Pasture Kv= 7.0 fps
15.2	227	Total			

Subcatchment PDA-10: Area to Ex Pond 1B

Hydrograph



Summary for Subcatchment PDA-11: Area to Pond 1

Runoff = 32.62 cfs @ 12.03 hrs, Volume= 1.866 af, Depth= 3.47"

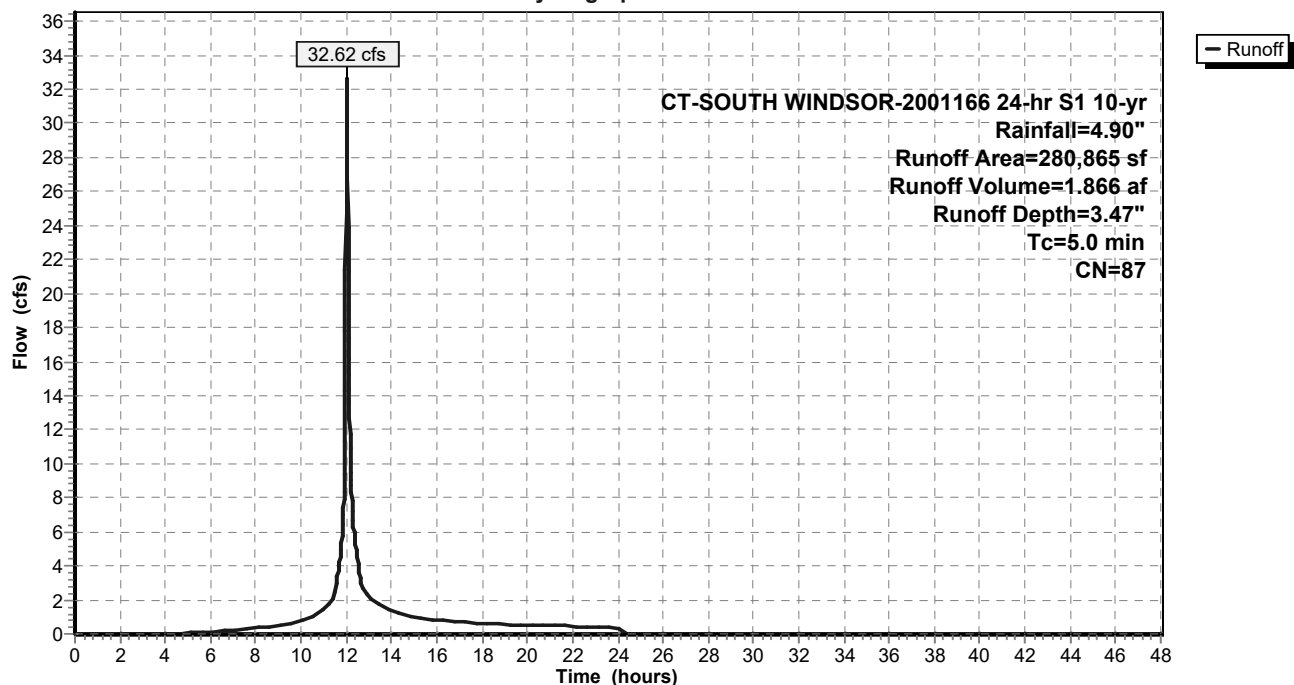
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 10-yr Rainfall=4.90"

Area (sf)	CN	Description
196,325	98	Paved parking, HSG A
22,240	98	Paved parking, HSG C
45,245	49	50-75% Grass cover, Fair, HSG A
2,725	79	50-75% Grass cover, Fair, HSG C
14,330	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
280,865	87	Weighted Average
62,300		22.18% Pervious Area
218,565		77.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-11: Area to Pond 1

Hydrograph



Summary for Subcatchment PDA-12: Pond 1 Area

Runoff = 0.24 cfs @ 12.05 hrs, Volume= 0.028 af, Depth= 0.60"

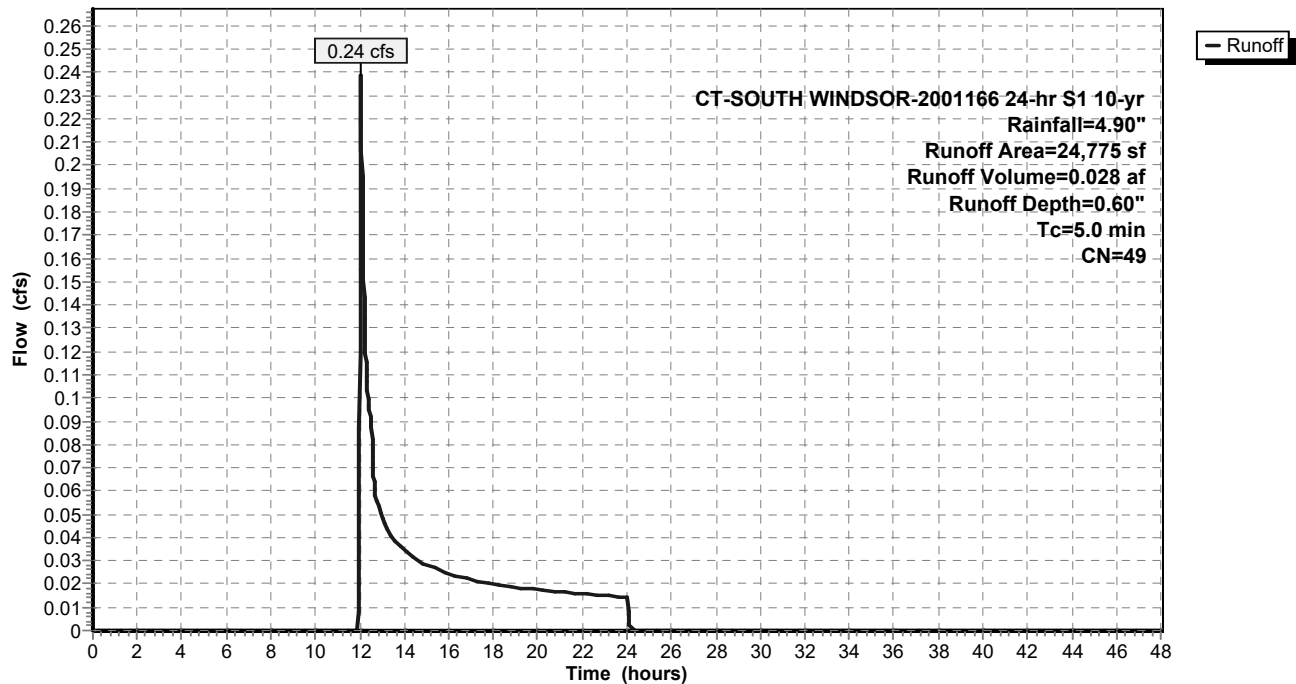
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 10-yr Rainfall=4.90"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
24,775	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
24,775	49	Weighted Average
24,775		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-12: Pond 1 Area

Hydrograph



Summary for Subcatchment PDA-13: Area to SSDS #1

Runoff = 5.32 cfs @ 12.03 hrs, Volume= 0.300 af, Depth= 2.72"

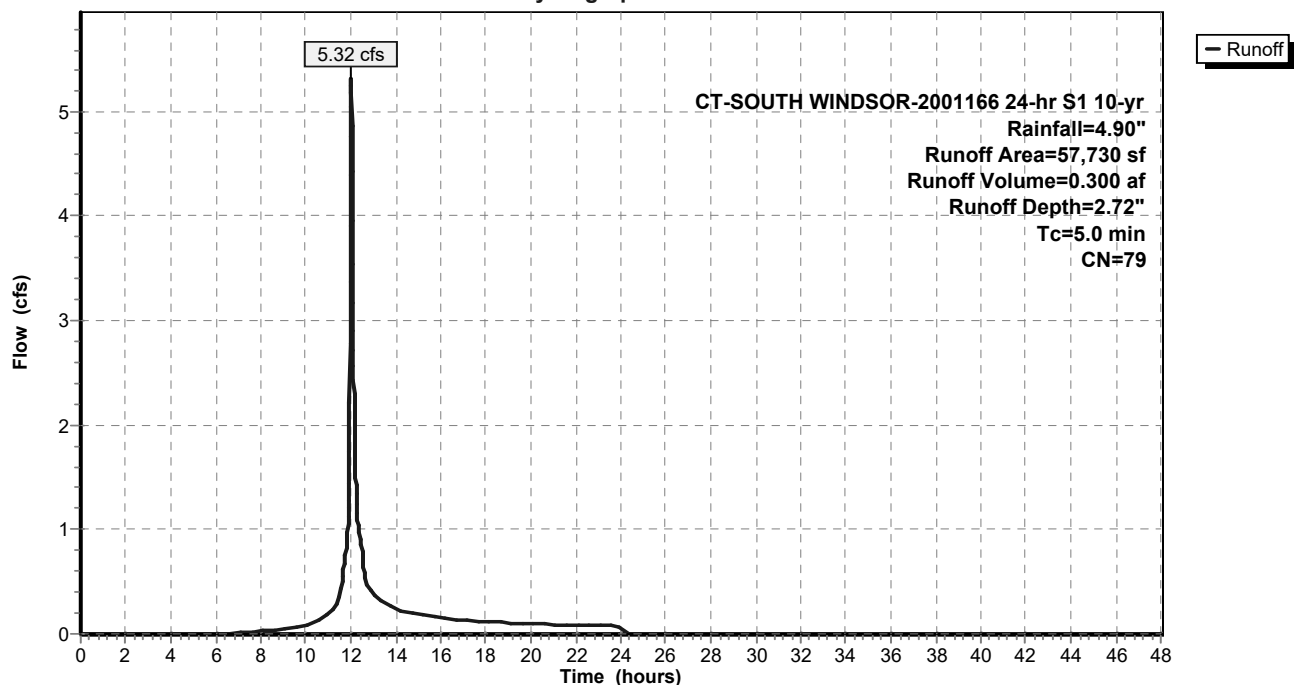
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 10-yr Rainfall=4.90"

Area (sf)	CN	Description
37,085	98	Paved parking, HSG A
0	98	Paved parking, HSG C
14,330	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
6,160	36	Woods, Fair, HSG A
65	73	Woods, Fair, HSG C
90	35	Brush, Fair, HSG A
57,730	79	Weighted Average
20,645		35.76% Pervious Area
37,085		64.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-13: Area to SSDS #1

Hydrograph



Summary for Subcatchment PDA-20: Area to Pond 2 from West

Runoff = 26.62 cfs @ 12.03 hrs, Volume= 1.646 af, Depth= 4.43"

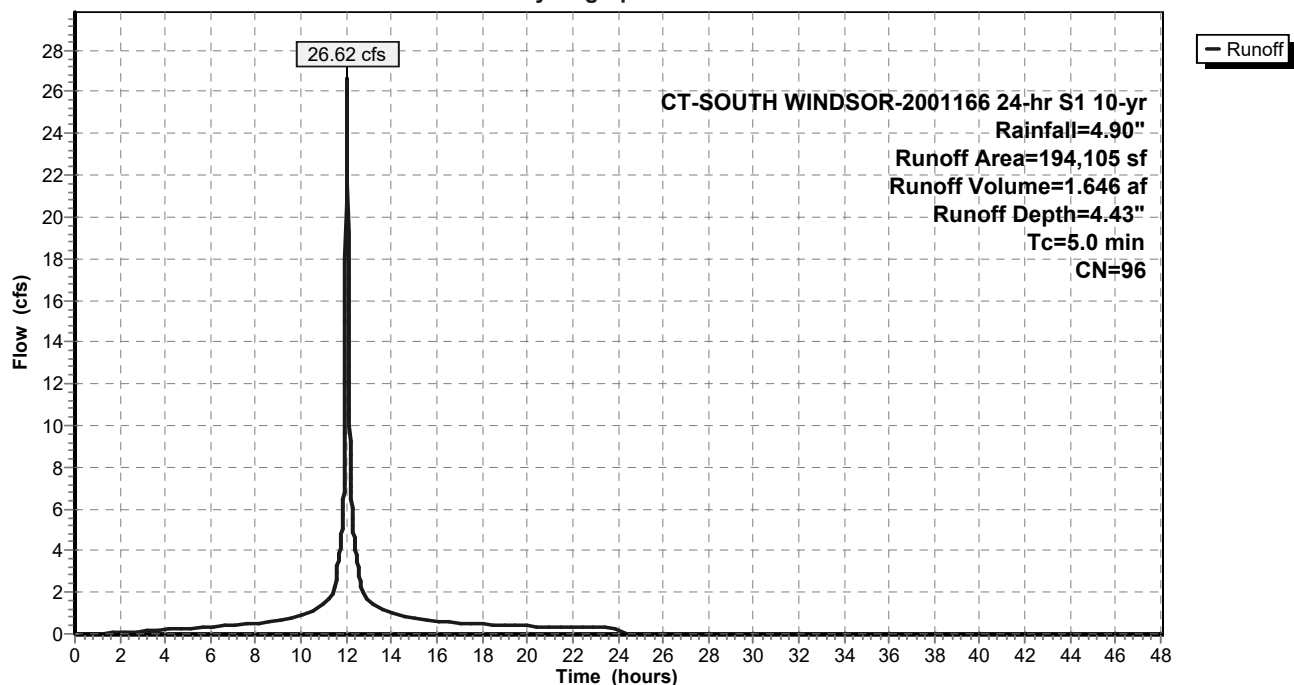
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 10-yr Rainfall=4.90"

Area (sf)	CN	Description
135,515	98	Paved parking, HSG A
47,430	98	Paved parking, HSG C
7,140	49	50-75% Grass cover, Fair, HSG A
4,020	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
194,105	96	Weighted Average
11,160		5.75% Pervious Area
182,945		94.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-20: Area to Pond 2 from West

Hydrograph



Summary for Subcatchment PDA-21: Area to Pond 2 from East

Runoff = 4.45 cfs @ 12.27 hrs, Volume= 0.513 af, Depth= 2.63"

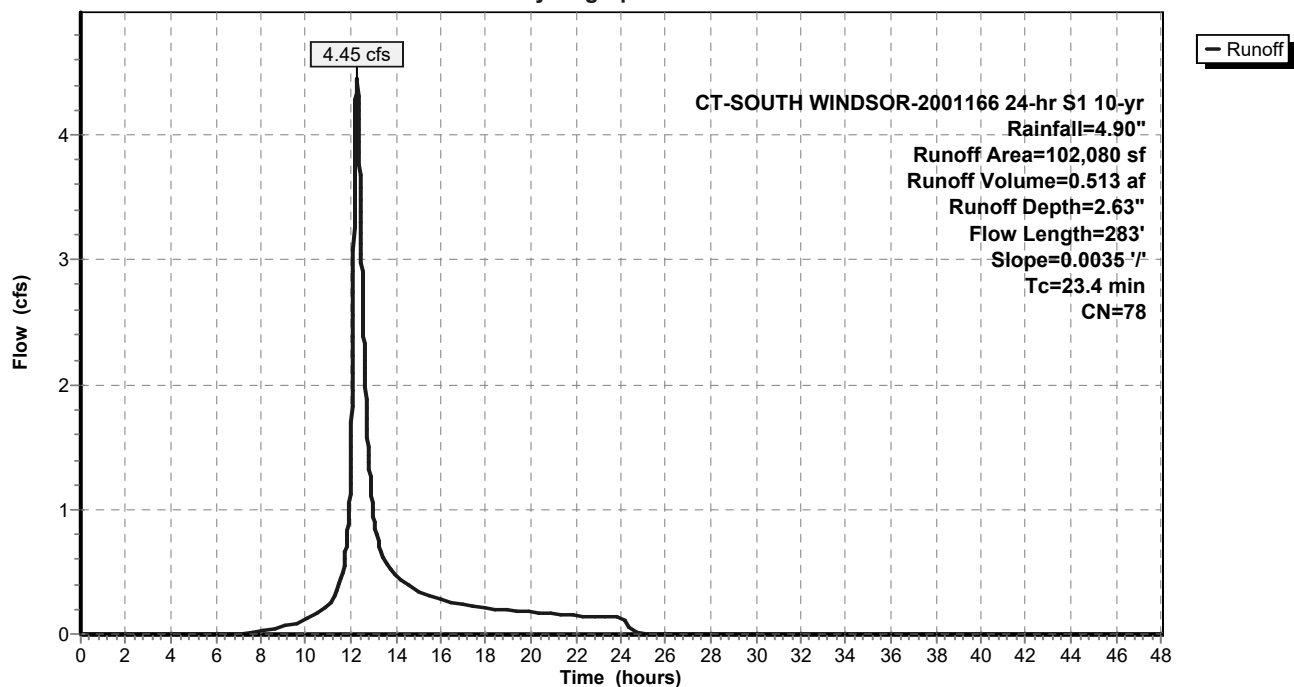
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 10-yr Rainfall=4.90"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
15,320	98	Paved parking, HSG C
10,115	49	50-75% Grass cover, Fair, HSG A
72,325	79	50-75% Grass cover, Fair, HSG C
465	36	Woods, Fair, HSG A
3,855	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
102,080	78	Weighted Average
86,760		84.99% Pervious Area
15,320		15.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0035	0.08		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.09"
3.4	183	0.0035	0.89		Shallow Concentrated Flow,
					Grassed Waterway Kv= 15.0 fps
23.4	283	Total			

Subcatchment PDA-21: Area to Pond 2 from East

Hydrograph



Summary for Subcatchment PDA-22: Pond 2 Area

Runoff = 2.50 cfs @ 12.03 hrs, Volume= 0.141 af, Depth= 2.63"

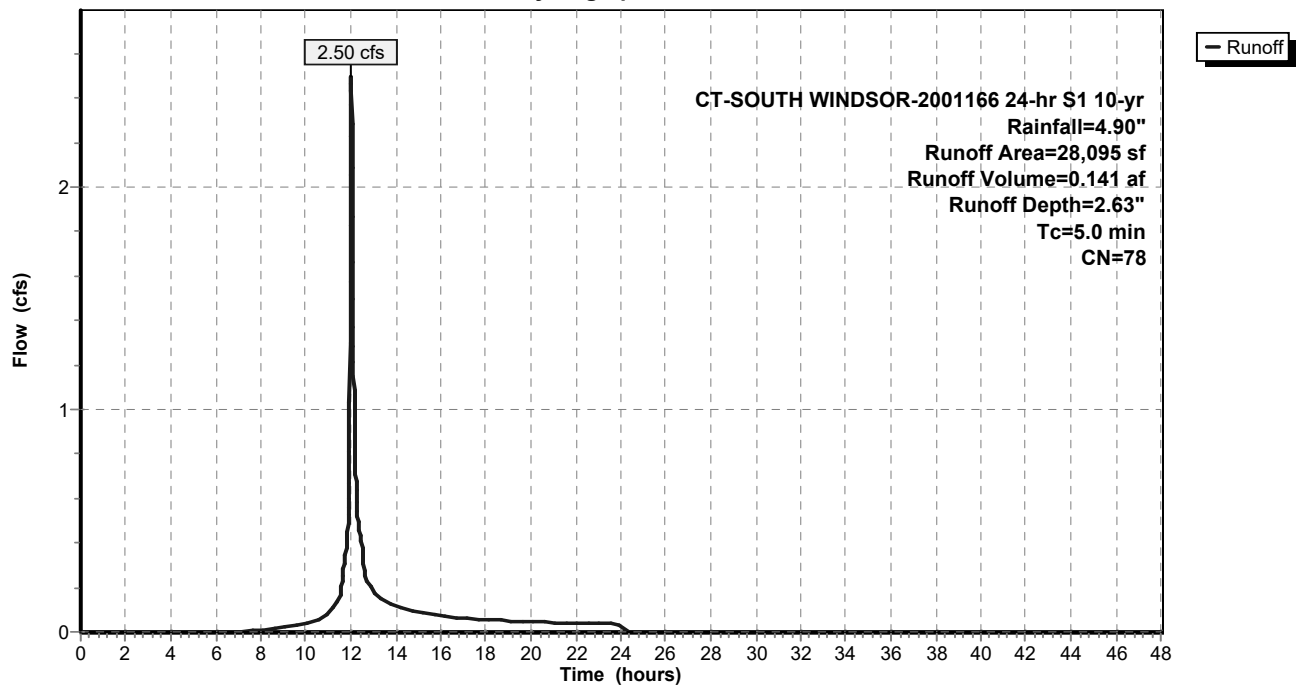
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 10-yr Rainfall=4.90"

Area (sf)	CN	Description
425	98	Paved parking, HSG A
1,455	98	Paved parking, HSG C
2,070	49	50-75% Grass cover, Fair, HSG A
24,145	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
28,095	78	Weighted Average
26,215		93.31% Pervious Area
1,880		6.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-22: Pond 2 Area

Hydrograph

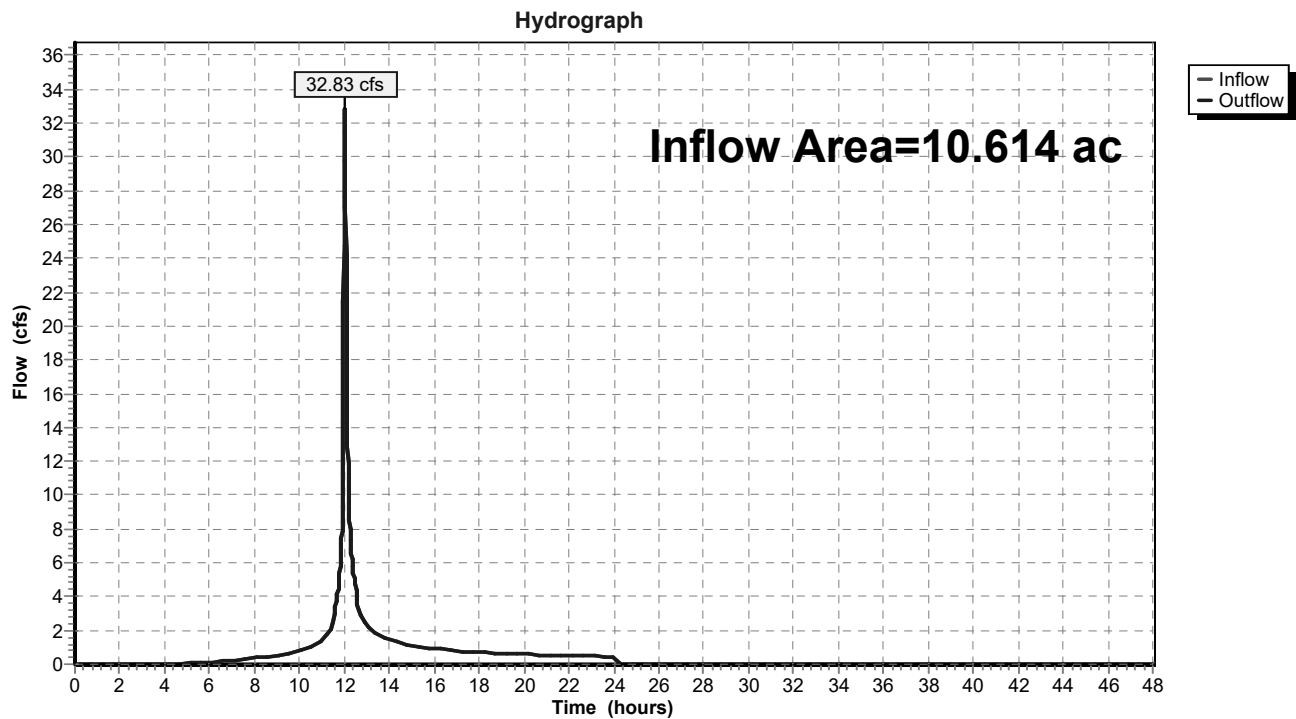


Summary for Reach DP-1: Existing Pond #1

Inflow Area = 10.614 ac, 55.30% Impervious, Inflow Depth = 2.21" for 10-yr event
Inflow = 32.83 cfs @ 12.03 hrs, Volume= 1.951 af
Outflow = 32.83 cfs @ 12.03 hrs, Volume= 1.951 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-1: Existing Pond #1

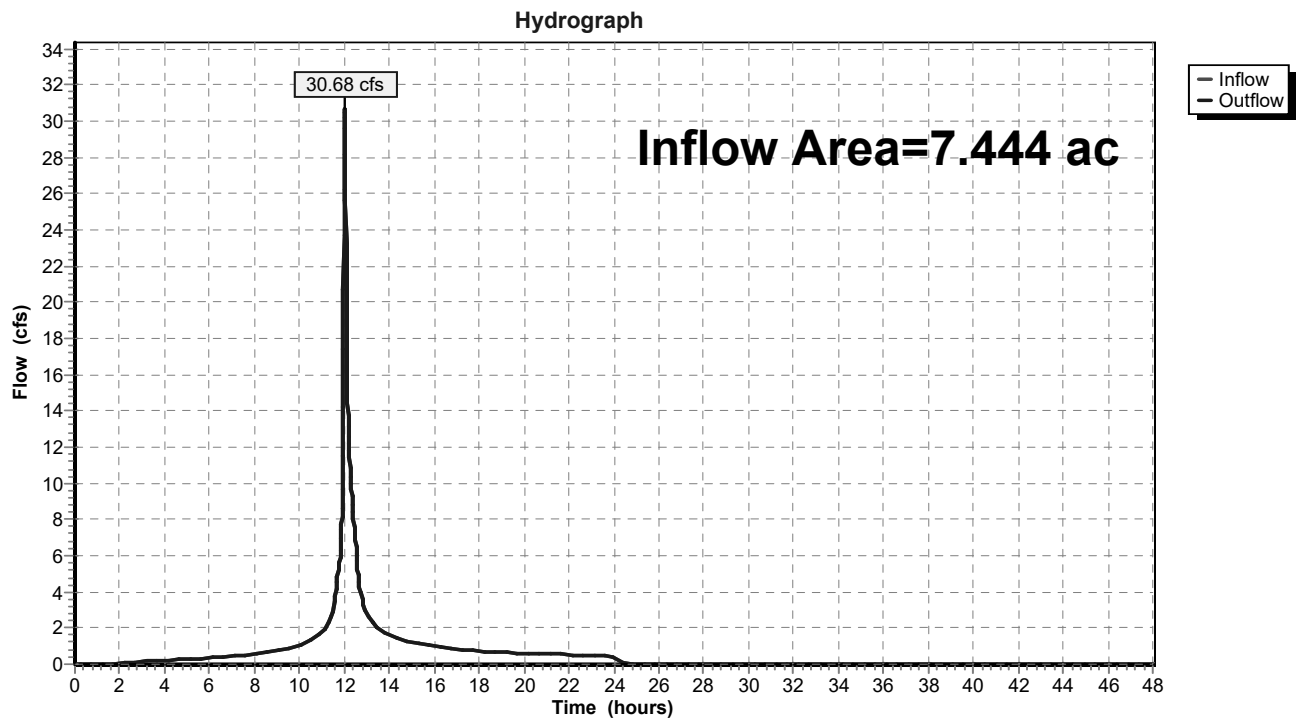


Summary for Reach DP-2: Existing Pond #2

Inflow Area = 7.444 ac, 61.72% Impervious, Inflow Depth = 3.71" for 10-yr event
Inflow = 30.68 cfs @ 12.03 hrs, Volume= 2.300 af
Outflow = 30.68 cfs @ 12.03 hrs, Volume= 2.300 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-2: Existing Pond #2



Summary for Pond SSDS #1: SSDS #1

Inflow Area = 1.325 ac, 64.24% Impervious, Inflow Depth = 2.72" for 10-yr event
 Inflow = 5.32 cfs @ 12.03 hrs, Volume= 0.300 af
 Outflow = 0.26 cfs @ 13.79 hrs, Volume= 0.300 af, Atten= 95%, Lag= 105.5 min
 Discarded = 0.24 cfs @ 11.34 hrs, Volume= 0.298 af
 Primary = 0.02 cfs @ 13.79 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 56.38' @ 13.79 hrs Surf.Area= 2,083 sf Storage= 5,295 cf

Plug-Flow detention time= 207.8 min calculated for 0.300 af (100% of inflow)
 Center-of-Mass det. time= 207.7 min (1,050.9 - 843.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	53.50'	0 cf	47.23'W x 44.10'L x 4.50'H Field A 9,374 cf Overall - 9,374 cf Embedded = 0 cf x 40.0% Voids
#2A	53.50'	7,354 cf	StormTrap ST2 SingleTrap 4-0 x 8 Inside #1 Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf 8 Chambers in 4 Rows 33.92' x 30.79' Core + 6.66' Border = 47.23' x 44.10' System
		7,354 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	56.30'	12.0" Round Culvert L= 35.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 56.30' / 56.12' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	53.50'	5.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.24 cfs @ 11.34 hrs HW=53.55' (Free Discharge)
 ↑**2=Exfiltration** (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=0.02 cfs @ 13.79 hrs HW=56.38' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.02 cfs @ 0.94 fps)

Pond SSDS #1: SSDS #1 - Chamber Wizard Field A

Chamber Model = StormTrapST2 SingleTrap 4-0 (StormTrapST2 SingleTrap®Type II+IV)

Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf

Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf

2 Chambers/Row x 15.40' Long = 30.79' Row Length +79.9" Border x 2 = 44.10' Base Length

4 Rows x 101.7" Wide + 79.9" Side Border x 2 = 47.23' Base Width

54.0" Chamber Height = 4.50' Field Height

8 Chambers x 470.3 cf + 3,592.0 cf Border = 7,354.1 cf Chamber Storage

8 Chambers x 587.4 cf + 4,673.9 cf Border = 9,373.5 cf Displacement

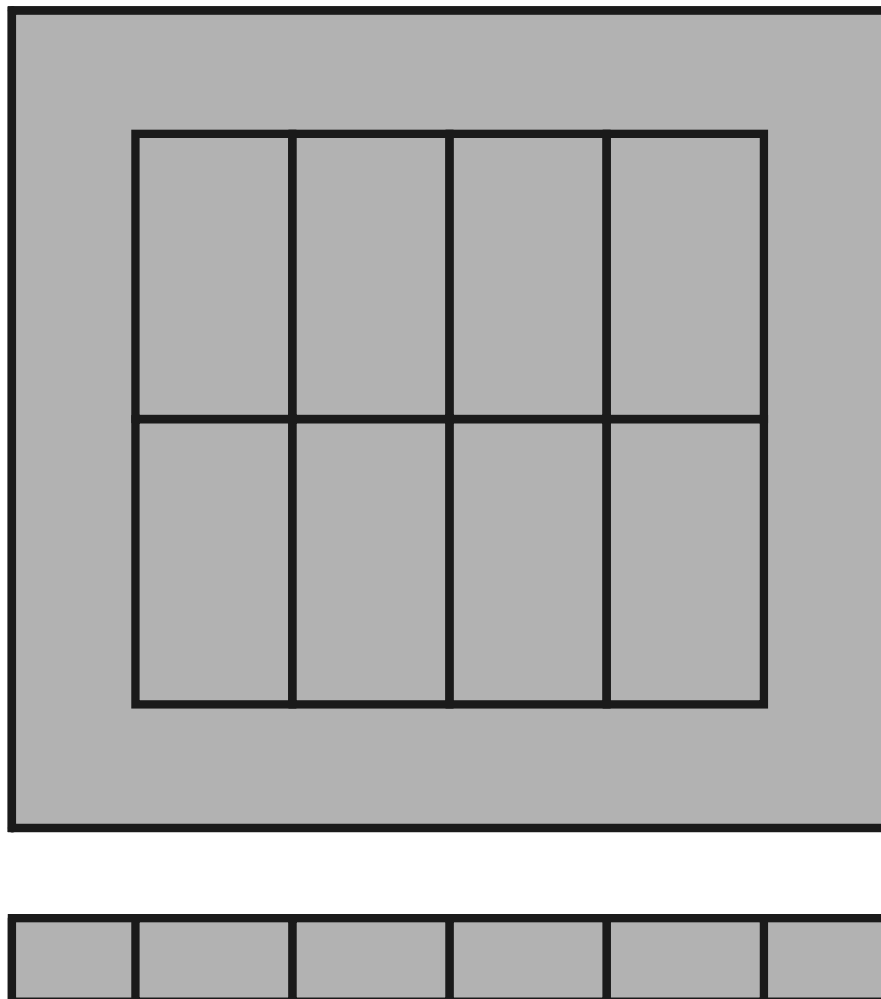
Chamber Storage = 7,354.1 cf = 0.169 af

Overall Storage Efficiency = 78.5%

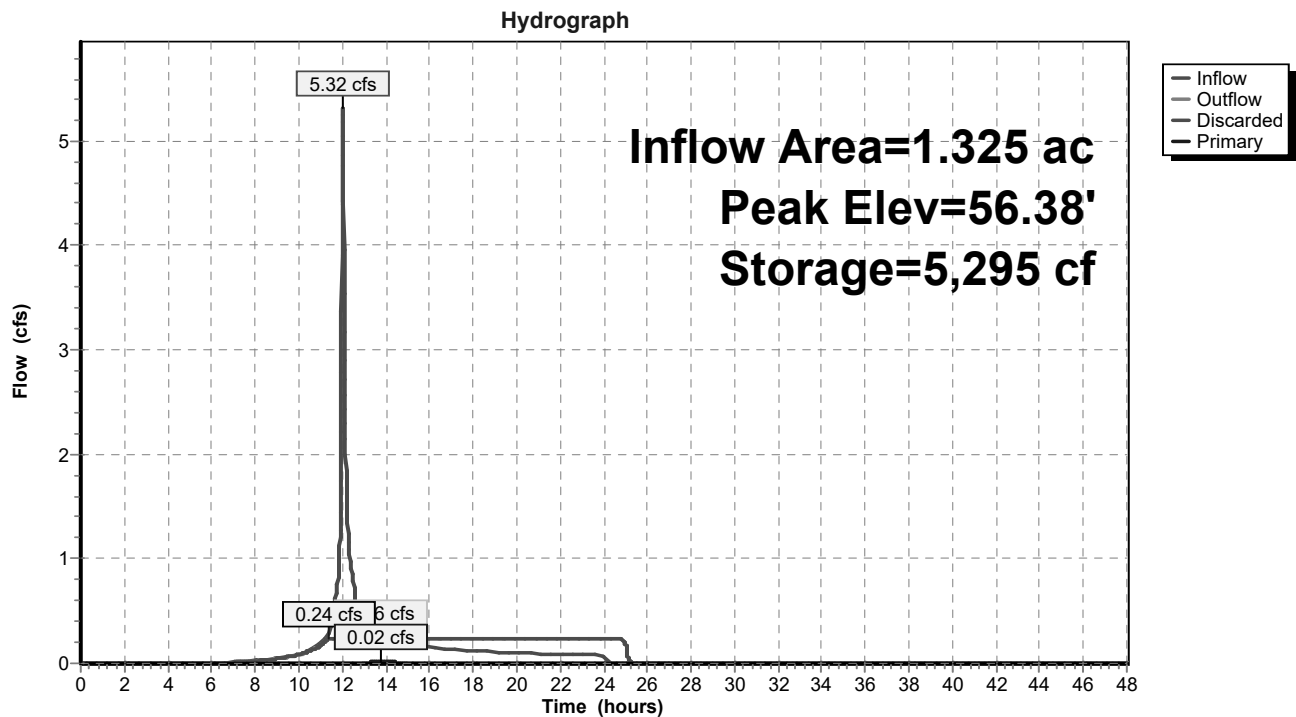
Overall System Size = 44.10' x 47.23' x 4.50'

8 Chambers (plus border)

347.2 cy Field



Pond SSDS #1: SSDS #1



C-DAT-2001166-PROPOSED HYCT-SOUTH WINDSOR-2001166 24-hr S1 25-yr Rainfall=6.03"

Prepared by BL Companies, Inc.

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPDA-10: Area to Ex Pond 1B Runoff Area=98,955 sf 0.00% Impervious Runoff Depth=0.63"
Flow Length=227' Tc=15.2 min CN=42 Runoff=0.50 cfs 0.118 af

SubcatchmentPDA-11: Area to Pond 1 Runoff Area=280,865 sf 77.82% Impervious Runoff Depth=4.55"
Tc=5.0 min CN=87 Runoff=41.74 cfs 2.443 af

SubcatchmentPDA-12: Pond 1 Area Runoff Area=24,775 sf 0.00% Impervious Runoff Depth=1.09"
Tc=5.0 min CN=49 Runoff=0.65 cfs 0.051 af

SubcatchmentPDA-13: Area to SSDS #1 Runoff Area=57,730 sf 64.24% Impervious Runoff Depth=3.71"
Tc=5.0 min CN=79 Runoff=7.16 cfs 0.409 af

SubcatchmentPDA-20: Area to Pond 2 Runoff Area=194,105 sf 94.25% Impervious Runoff Depth=5.56"
Tc=5.0 min CN=96 Runoff=32.63 cfs 2.064 af

SubcatchmentPDA-21: Area to Pond 2 Runoff Area=102,080 sf 15.01% Impervious Runoff Depth=3.61"
Flow Length=283' Slope=0.0035 '/' Tc=23.4 min CN=78 Runoff=6.06 cfs 0.704 af

SubcatchmentPDA-22: Pond 2 Area Runoff Area=28,095 sf 6.69% Impervious Runoff Depth=3.61"
Tc=5.0 min CN=78 Runoff=3.39 cfs 0.194 af

Reach DP-1: Existing Pond #1 Inflow=42.41 cfs 2.679 af
Outflow=42.41 cfs 2.679 af

Reach DP-2: Existing Pond #2 Inflow=38.22 cfs 2.961 af
Outflow=38.22 cfs 2.961 af

Pond SSDS #1: SSDS #1 Peak Elev=56.83' Storage=6,131 cf Inflow=7.16 cfs 0.409 af
Discarded=0.24 cfs 0.343 af Primary=0.78 cfs 0.066 af Outflow=1.03 cfs 0.409 af

Total Runoff Area = 18.058 ac Runoff Volume = 5.983 af Average Runoff Depth = 3.98"
42.06% Pervious = 7.594 ac 57.94% Impervious = 10.464 ac

Summary for Subcatchment PDA-10: Area to Ex Pond 1B

Runoff = 0.50 cfs @ 12.27 hrs, Volume= 0.118 af, Depth= 0.63"

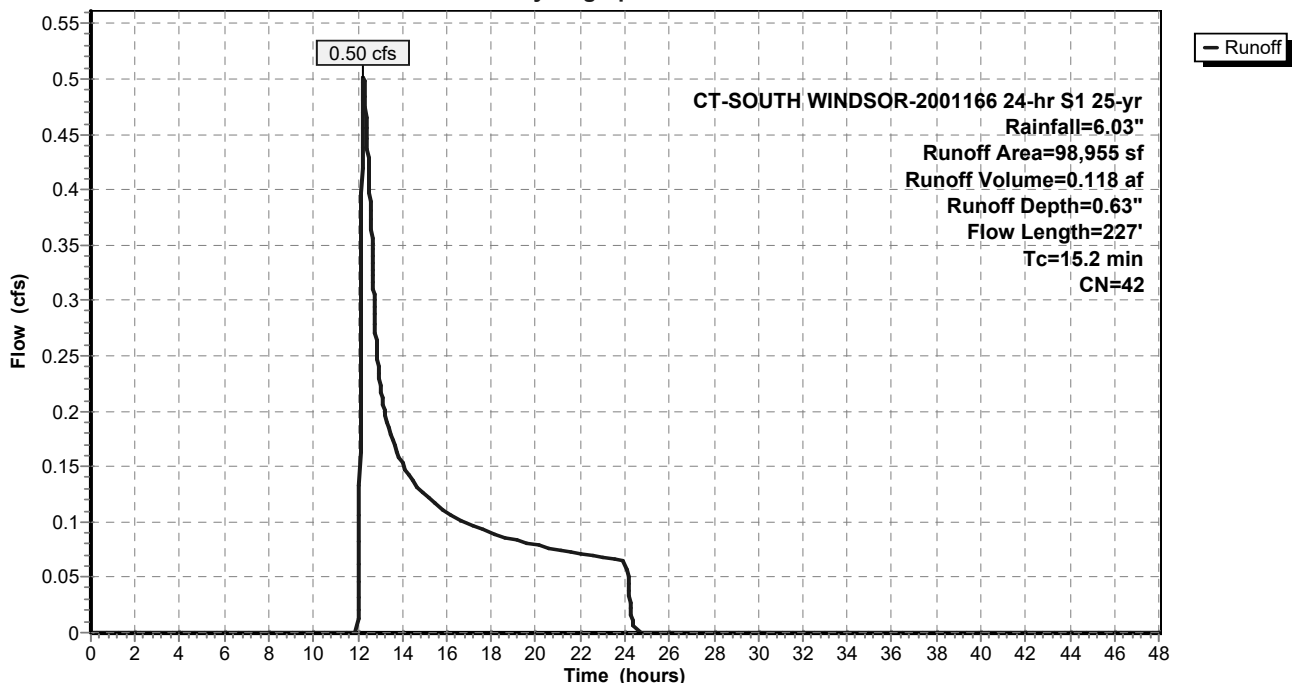
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 25-yr Rainfall=6.03"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
51,680	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
765	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
46,510	35	Brush, Fair, HSG A
98,955	42	Weighted Average
98,955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0100	0.13		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.09"
2.0	127	0.0236	1.08		Shallow Concentrated Flow,
					Short Grass Pasture Kv= 7.0 fps
15.2	227	Total			

Subcatchment PDA-10: Area to Ex Pond 1B

Hydrograph



Summary for Subcatchment PDA-11: Area to Pond 1

Runoff = 41.74 cfs @ 12.03 hrs, Volume= 2.443 af, Depth= 4.55"

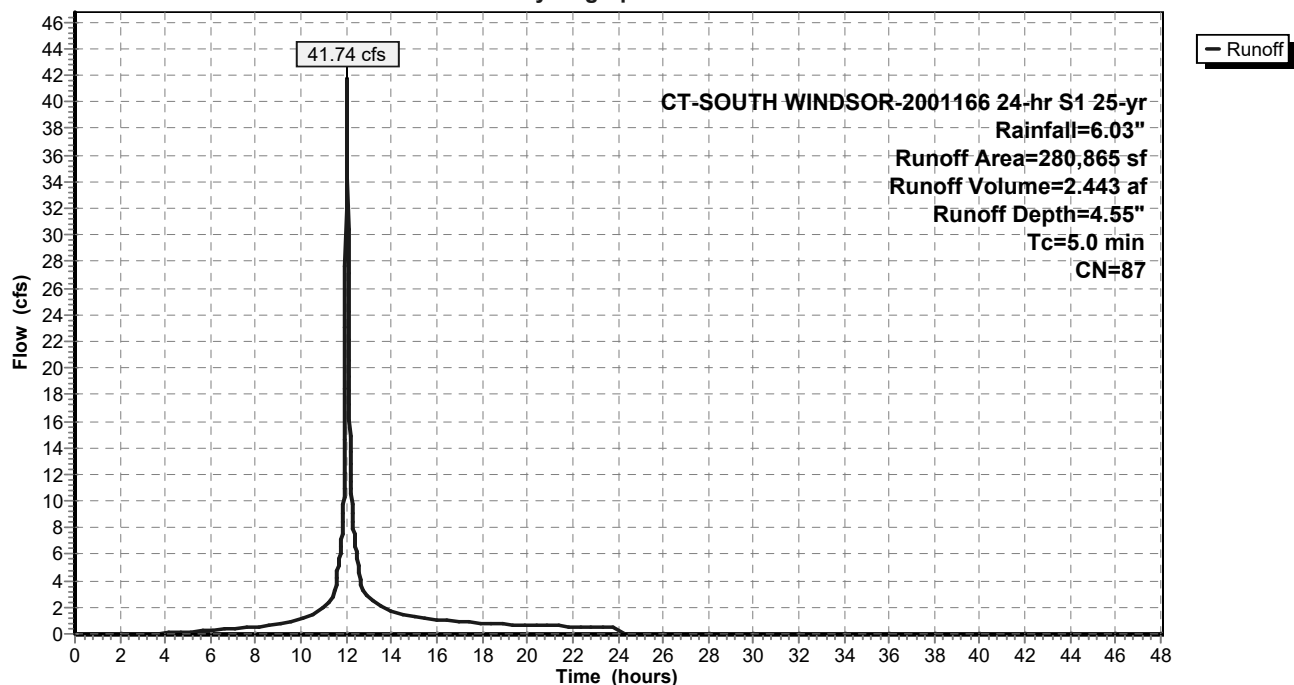
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 25-yr Rainfall=6.03"

Area (sf)	CN	Description
196,325	98	Paved parking, HSG A
22,240	98	Paved parking, HSG C
45,245	49	50-75% Grass cover, Fair, HSG A
2,725	79	50-75% Grass cover, Fair, HSG C
14,330	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
280,865	87	Weighted Average
62,300		22.18% Pervious Area
218,565		77.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-11: Area to Pond 1

Hydrograph



Summary for Subcatchment PDA-12: Pond 1 Area

Runoff = 0.65 cfs @ 12.04 hrs, Volume= 0.051 af, Depth= 1.09"

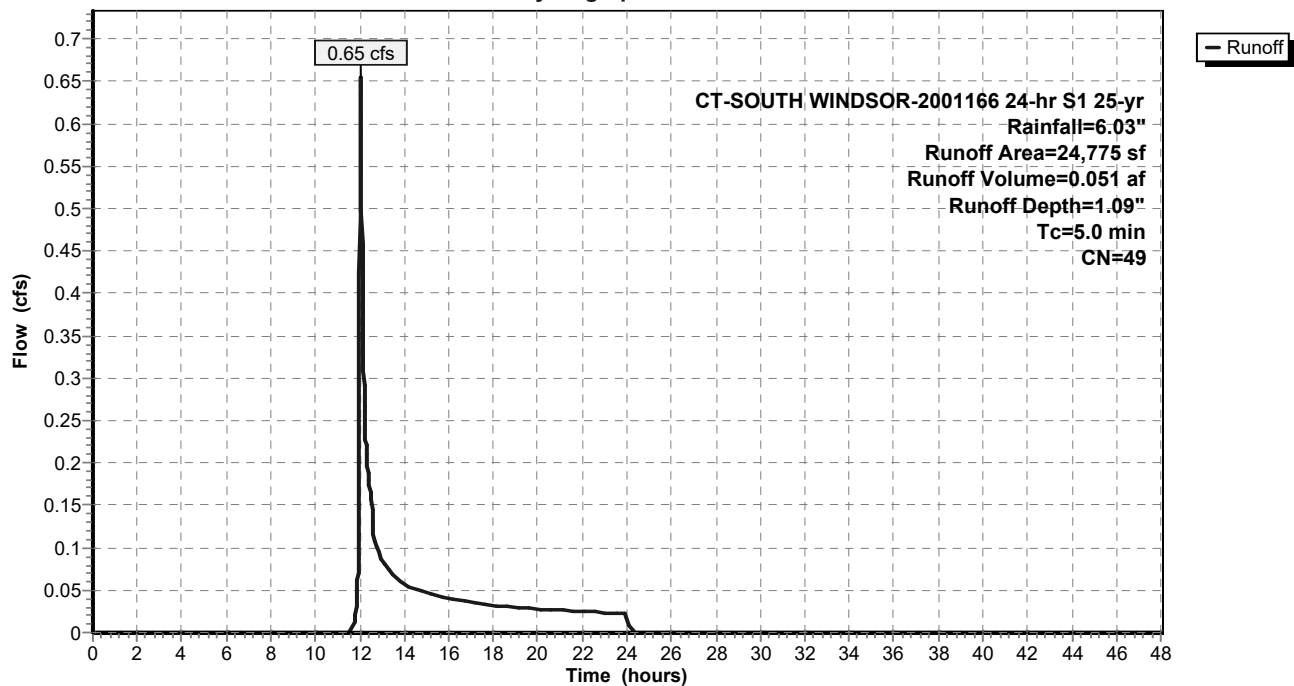
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 25-yr Rainfall=6.03"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
24,775	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
24,775	49	Weighted Average
24,775		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-12: Pond 1 Area

Hydrograph



Summary for Subcatchment PDA-13: Area to SSDS #1

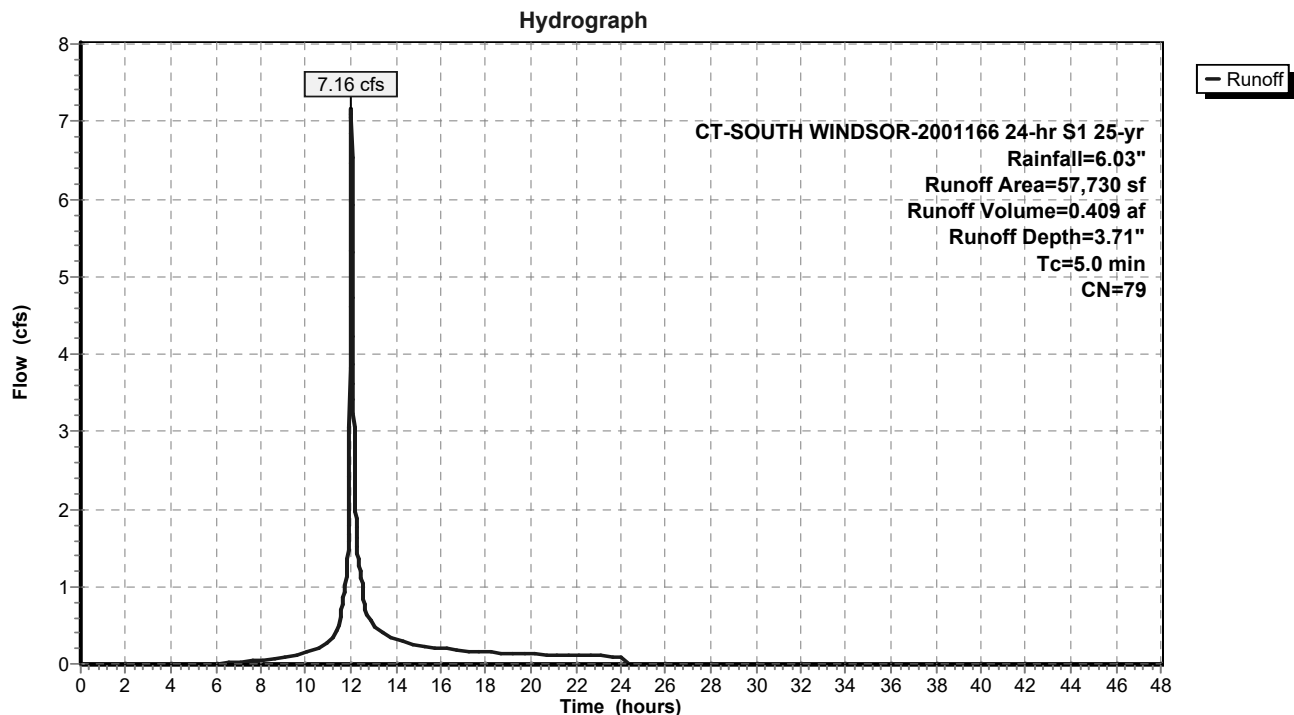
Runoff = 7.16 cfs @ 12.03 hrs, Volume= 0.409 af, Depth= 3.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 25-yr Rainfall=6.03"

Area (sf)	CN	Description
37,085	98	Paved parking, HSG A
0	98	Paved parking, HSG C
14,330	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
6,160	36	Woods, Fair, HSG A
65	73	Woods, Fair, HSG C
90	35	Brush, Fair, HSG A
57,730	79	Weighted Average
20,645		35.76% Pervious Area
37,085		64.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-13: Area to SSDS #1



Summary for Subcatchment PDA-20: Area to Pond 2 from West

Runoff = 32.63 cfs @ 12.03 hrs, Volume= 2.064 af, Depth= 5.56"

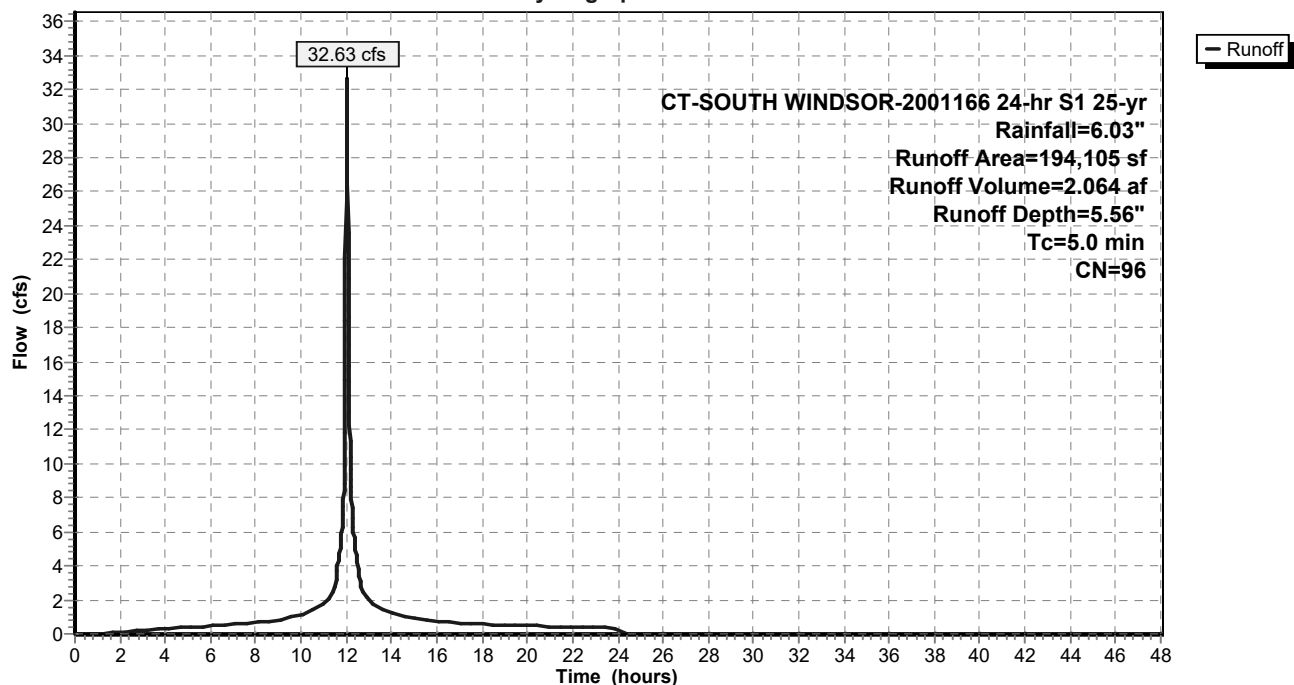
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 25-yr Rainfall=6.03"

Area (sf)	CN	Description
135,515	98	Paved parking, HSG A
47,430	98	Paved parking, HSG C
7,140	49	50-75% Grass cover, Fair, HSG A
4,020	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
194,105	96	Weighted Average
11,160		5.75% Pervious Area
182,945		94.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-20: Area to Pond 2 from West

Hydrograph



Summary for Subcatchment PDA-21: Area to Pond 2 from East

Runoff = 6.06 cfs @ 12.27 hrs, Volume= 0.704 af, Depth= 3.61"

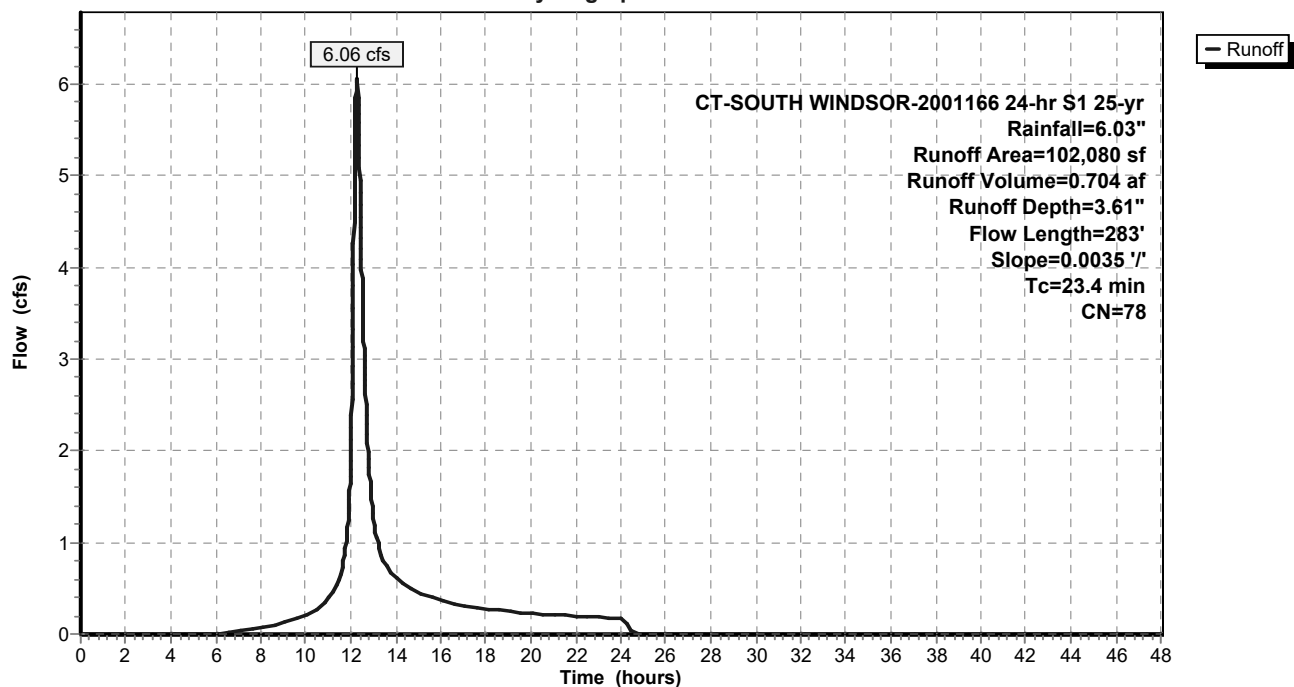
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 25-yr Rainfall=6.03"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
15,320	98	Paved parking, HSG C
10,115	49	50-75% Grass cover, Fair, HSG A
72,325	79	50-75% Grass cover, Fair, HSG C
465	36	Woods, Fair, HSG A
3,855	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
102,080	78	Weighted Average
86,760		84.99% Pervious Area
15,320		15.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0035	0.08		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.09"
3.4	183	0.0035	0.89		Shallow Concentrated Flow,
					Grassed Waterway Kv= 15.0 fps
23.4	283	Total			

Subcatchment PDA-21: Area to Pond 2 from East

Hydrograph



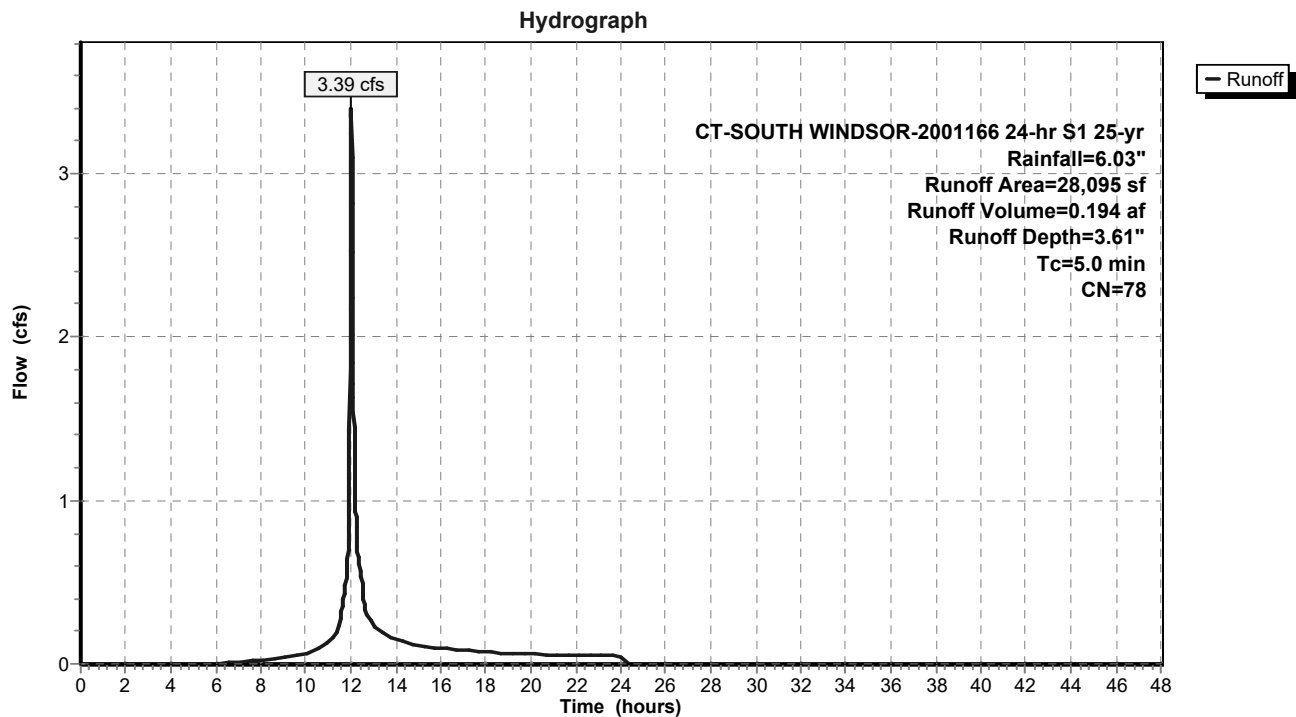
Summary for Subcatchment PDA-22: Pond 2 Area

Runoff = 3.39 cfs @ 12.03 hrs, Volume= 0.194 af, Depth= 3.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 25-yr Rainfall=6.03"

Area (sf)	CN	Description
425	98	Paved parking, HSG A
1,455	98	Paved parking, HSG C
2,070	49	50-75% Grass cover, Fair, HSG A
24,145	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
28,095	78	Weighted Average
26,215		93.31% Pervious Area
1,880		6.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

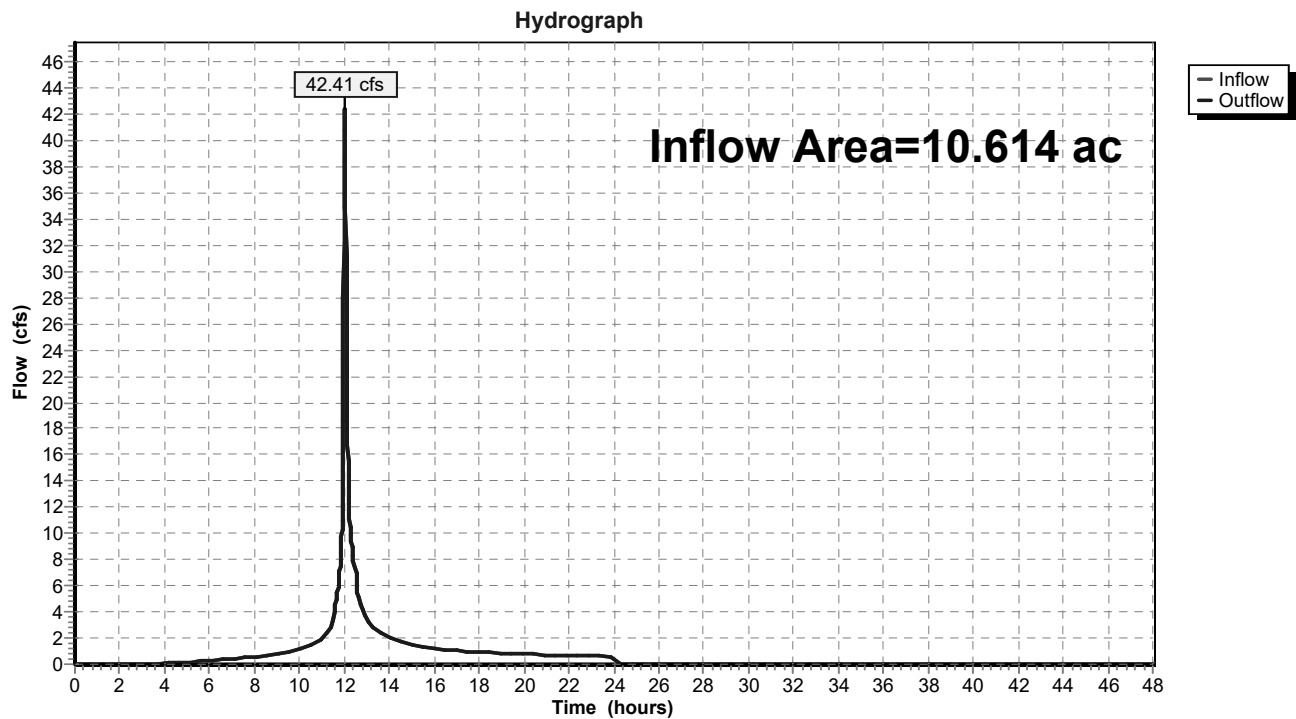
Subcatchment PDA-22: Pond 2 Area

Summary for Reach DP-1: Existing Pond #1

Inflow Area = 10.614 ac, 55.30% Impervious, Inflow Depth = 3.03" for 25-yr event
Inflow = 42.41 cfs @ 12.03 hrs, Volume= 2.679 af
Outflow = 42.41 cfs @ 12.03 hrs, Volume= 2.679 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-1: Existing Pond #1

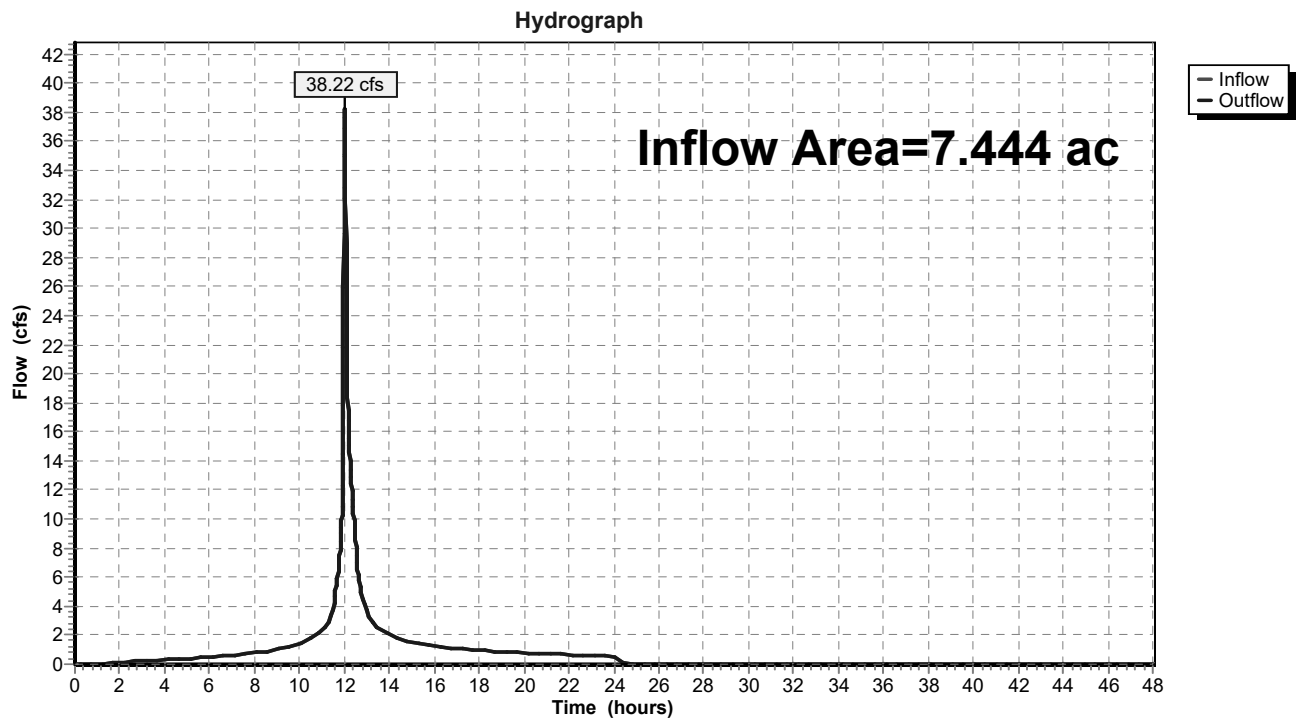


Summary for Reach DP-2: Existing Pond #2

Inflow Area = 7.444 ac, 61.72% Impervious, Inflow Depth = 4.77" for 25-yr event
Inflow = 38.22 cfs @ 12.03 hrs, Volume= 2.961 af
Outflow = 38.22 cfs @ 12.03 hrs, Volume= 2.961 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-2: Existing Pond #2



Summary for Pond SSDS #1: SSDS #1

Inflow Area = 1.325 ac, 64.24% Impervious, Inflow Depth = 3.71" for 25-yr event
 Inflow = 7.16 cfs @ 12.03 hrs, Volume= 0.409 af
 Outflow = 1.03 cfs @ 12.52 hrs, Volume= 0.409 af, Atten= 86%, Lag= 29.4 min
 Discarded = 0.24 cfs @ 10.89 hrs, Volume= 0.343 af
 Primary = 0.78 cfs @ 12.52 hrs, Volume= 0.066 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 56.83' @ 12.52 hrs Surf.Area= 2,083 sf Storage= 6,131 cf

Plug-Flow detention time= 190.5 min calculated for 0.409 af (100% of inflow)
 Center-of-Mass det. time= 190.5 min (1,023.2 - 832.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	53.50'	0 cf	47.23'W x 44.10'L x 4.50'H Field A 9,374 cf Overall - 9,374 cf Embedded = 0 cf x 40.0% Voids
#2A	53.50'	7,354 cf	StormTrap ST2 SingleTrap 4-0 x 8 Inside #1 Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf 8 Chambers in 4 Rows 33.92' x 30.79' Core + 6.66' Border = 47.23' x 44.10' System
		7,354 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	56.30'	12.0" Round Culvert L= 35.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 56.30' / 56.12' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	53.50'	5.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.24 cfs @ 10.89 hrs HW=53.55' (Free Discharge)
 ↑**2=Exfiltration** (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=0.78 cfs @ 12.52 hrs HW=56.83' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.78 cfs @ 2.66 fps)

Pond SSDS #1: SSDS #1 - Chamber Wizard Field A

Chamber Model = StormTrapST2 SingleTrap 4-0 (StormTrapST2 SingleTrap®Type II+IV)

Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf

Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf

2 Chambers/Row x 15.40' Long = 30.79' Row Length +79.9" Border x 2 = 44.10' Base Length

4 Rows x 101.7" Wide + 79.9" Side Border x 2 = 47.23' Base Width

54.0" Chamber Height = 4.50' Field Height

8 Chambers x 470.3 cf + 3,592.0 cf Border = 7,354.1 cf Chamber Storage

8 Chambers x 587.4 cf + 4,673.9 cf Border = 9,373.5 cf Displacement

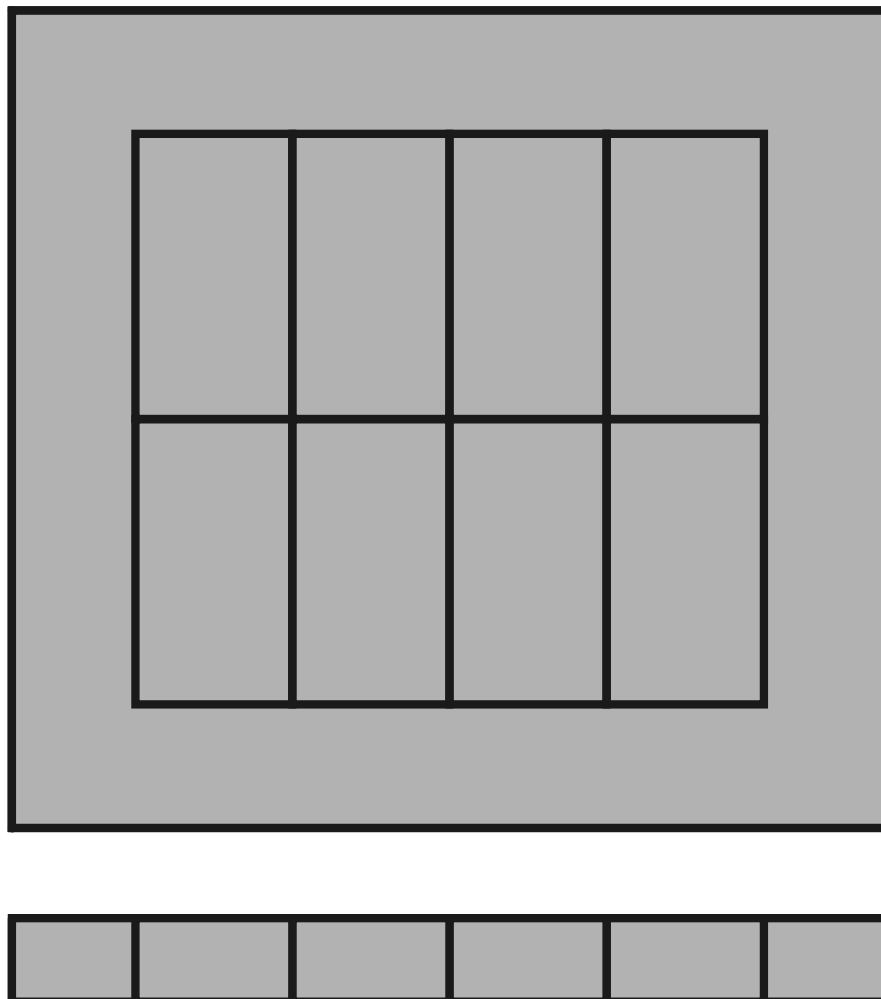
Chamber Storage = 7,354.1 cf = 0.169 af

Overall Storage Efficiency = 78.5%

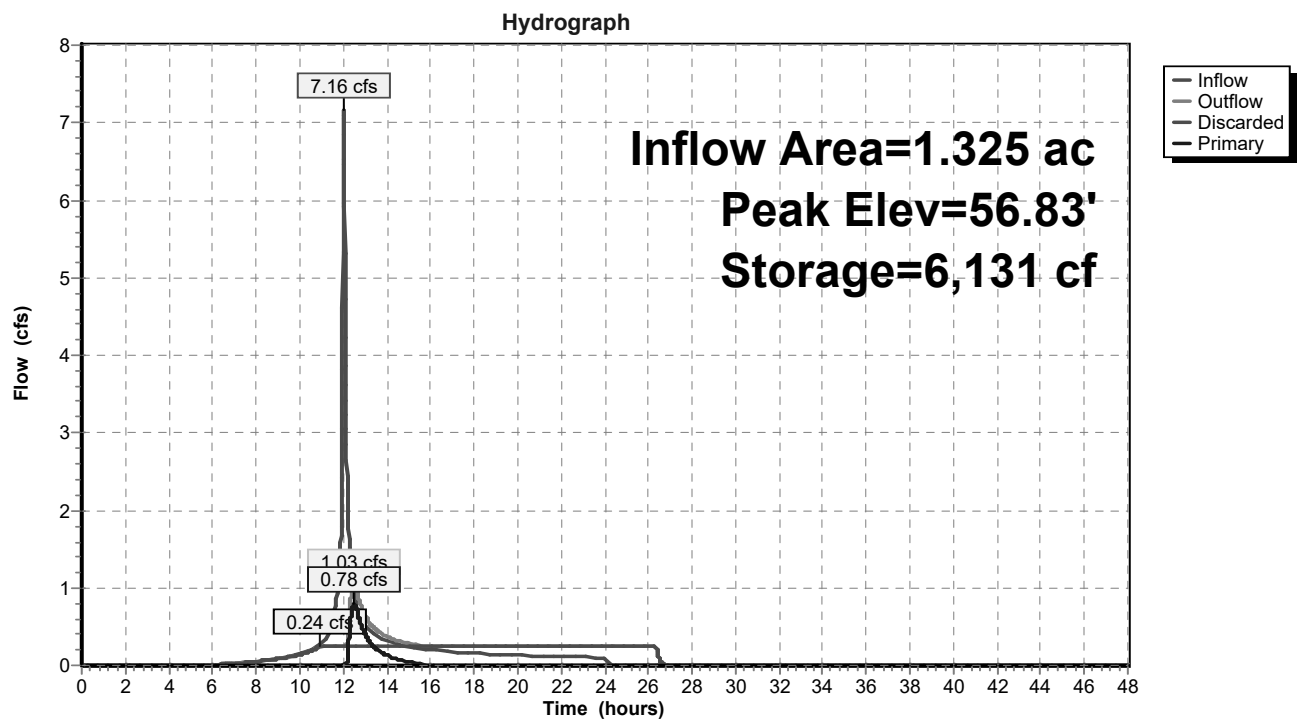
Overall System Size = 44.10' x 47.23' x 4.50'

8 Chambers (plus border)

347.2 cy Field



Pond SSDS #1: SSDS #1



C-DAT-2001166-PROPOSED HYCT-SOUTH WINDSOR-2001166 24-hr S1 50-yr Rainfall=6.85"

Prepared by BL Companies, Inc.

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPDA-10: Area to Ex Pond 1B Runoff Area=98,955 sf 0.00% Impervious Runoff Depth=0.93"
Flow Length=227' Tc=15.2 min CN=42 Runoff=1.05 cfs 0.177 af

SubcatchmentPDA-11: Area to Pond 1 Runoff Area=280,865 sf 77.82% Impervious Runoff Depth=5.33"
Tc=5.0 min CN=87 Runoff=48.54 cfs 2.866 af

SubcatchmentPDA-12: Pond 1 Area Runoff Area=24,775 sf 0.00% Impervious Runoff Depth=1.50"
Tc=5.0 min CN=49 Runoff=1.01 cfs 0.071 af

SubcatchmentPDA-13: Area to SSDS #1 Runoff Area=57,730 sf 64.24% Impervious Runoff Depth=4.45"
Tc=5.0 min CN=79 Runoff=8.56 cfs 0.491 af

SubcatchmentPDA-20: Area to Pond 2 Runoff Area=194,105 sf 94.25% Impervious Runoff Depth=6.37"
Tc=5.0 min CN=96 Runoff=37.13 cfs 2.367 af

SubcatchmentPDA-21: Area to Pond 2 Runoff Area=102,080 sf 15.01% Impervious Runoff Depth=4.34"
Flow Length=283' Slope=0.0035 '/' Tc=23.4 min CN=78 Runoff=7.27 cfs 0.847 af

SubcatchmentPDA-22: Pond 2 Area Runoff Area=28,095 sf 6.69% Impervious Runoff Depth=4.34"
Tc=5.0 min CN=78 Runoff=4.07 cfs 0.233 af

Reach DP-1: Existing Pond #1 Inflow=49.69 cfs 3.235 af
Outflow=49.69 cfs 3.235 af

Reach DP-2: Existing Pond #2 Inflow=43.89 cfs 3.448 af
Outflow=43.89 cfs 3.448 af

Pond SSDS #1: SSDS #1 Peak Elev=57.12' Storage=6,647 cf Inflow=8.56 cfs 0.491 af
Discarded=0.24 cfs 0.370 af Primary=1.60 cfs 0.121 af Outflow=1.84 cfs 0.491 af

Total Runoff Area = 18.058 ac Runoff Volume = 7.053 af Average Runoff Depth = 4.69"
42.06% Pervious = 7.594 ac 57.94% Impervious = 10.464 ac

Summary for Subcatchment PDA-10: Area to Ex Pond 1B

Runoff = 1.05 cfs @ 12.22 hrs, Volume= 0.177 af, Depth= 0.93"

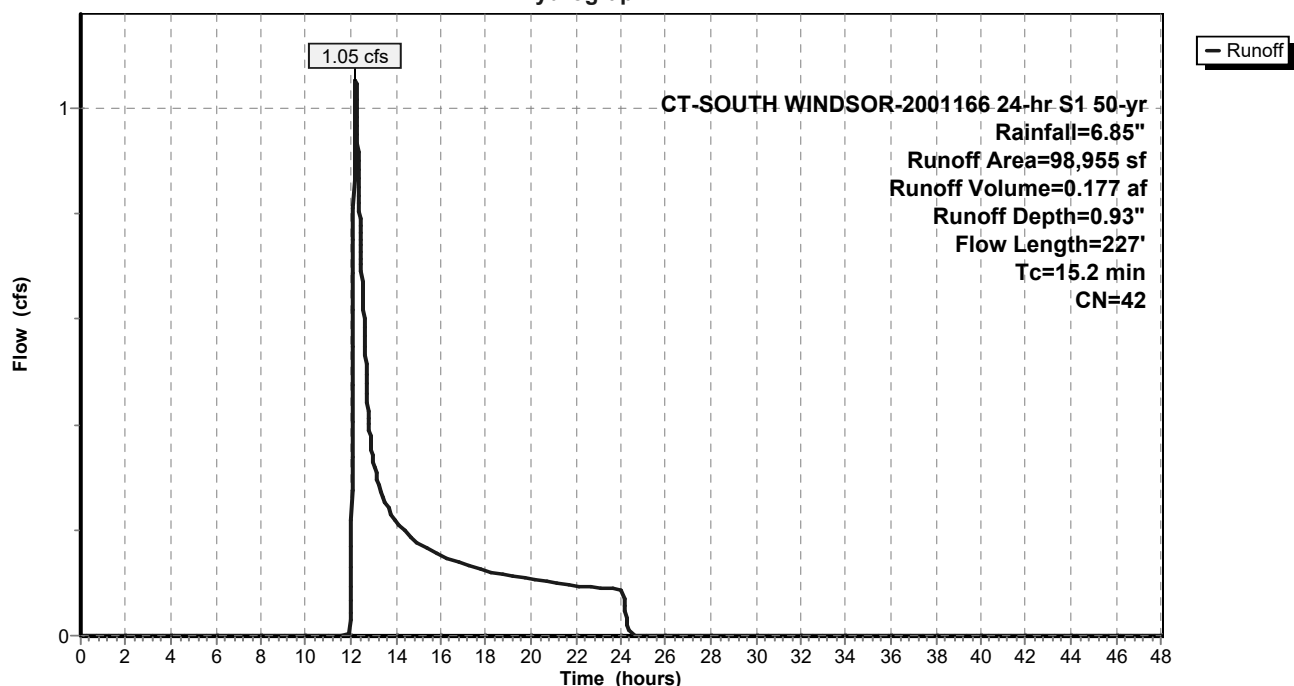
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 50-yr Rainfall=6.85"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
51,680	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
765	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
46,510	35	Brush, Fair, HSG A
98,955	42	Weighted Average
98,955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0100	0.13		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.09"
2.0	127	0.0236	1.08		Shallow Concentrated Flow,
					Short Grass Pasture Kv= 7.0 fps
15.2	227	Total			

Subcatchment PDA-10: Area to Ex Pond 1B

Hydrograph



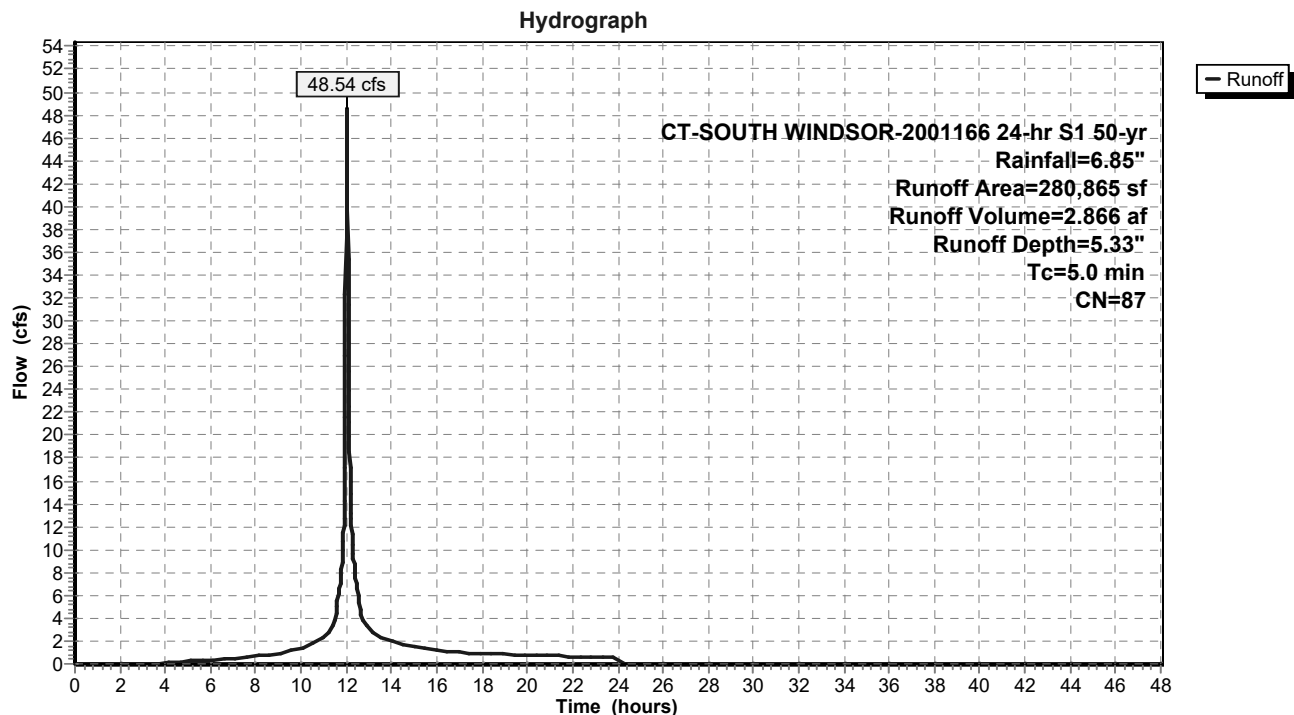
Summary for Subcatchment PDA-11: Area to Pond 1

Runoff = 48.54 cfs @ 12.03 hrs, Volume= 2.866 af, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 50-yr Rainfall=6.85"

Area (sf)	CN	Description
196,325	98	Paved parking, HSG A
22,240	98	Paved parking, HSG C
45,245	49	50-75% Grass cover, Fair, HSG A
2,725	79	50-75% Grass cover, Fair, HSG C
14,330	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
280,865	87	Weighted Average
62,300		22.18% Pervious Area
218,565		77.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-11: Area to Pond 1

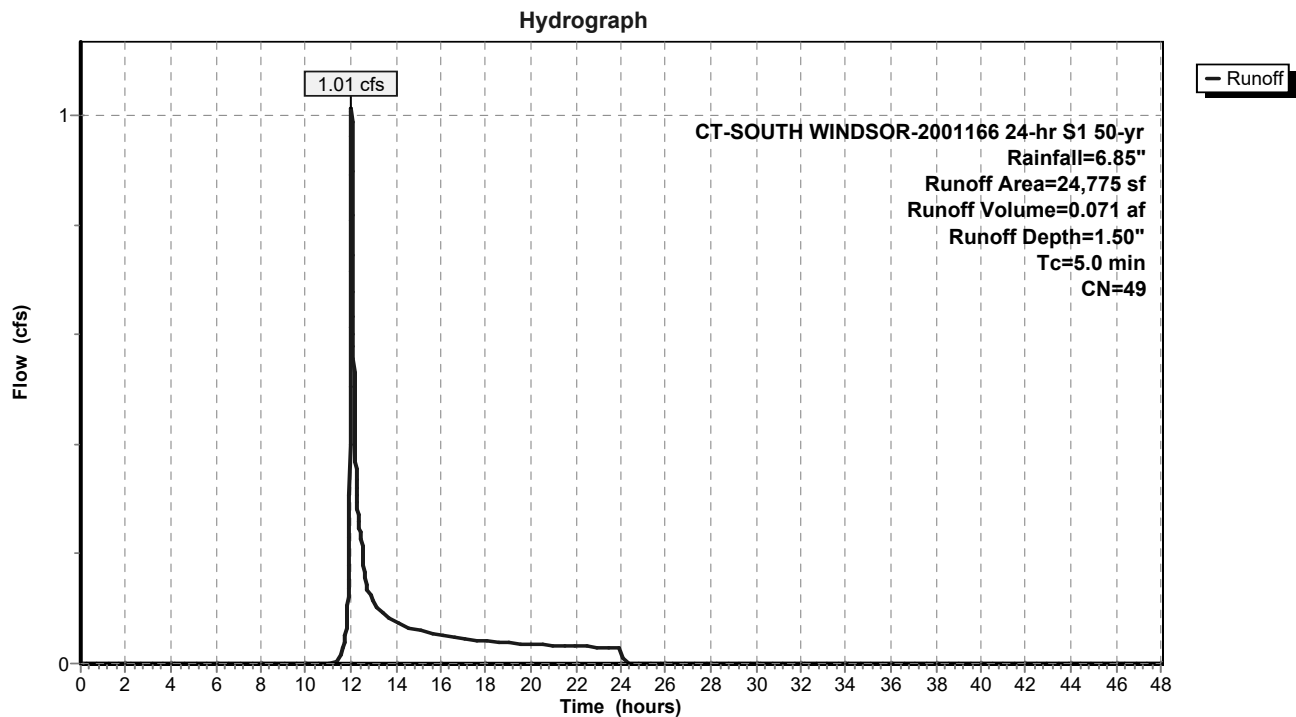
Summary for Subcatchment PDA-12: Pond 1 Area

Runoff = 1.01 cfs @ 12.04 hrs, Volume= 0.071 af, Depth= 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 50-yr Rainfall=6.85"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
24,775	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
24,775	49	Weighted Average
24,775		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-12: Pond 1 Area

Summary for Subcatchment PDA-13: Area to SSDS #1

Runoff = 8.56 cfs @ 12.03 hrs, Volume= 0.491 af, Depth= 4.45"

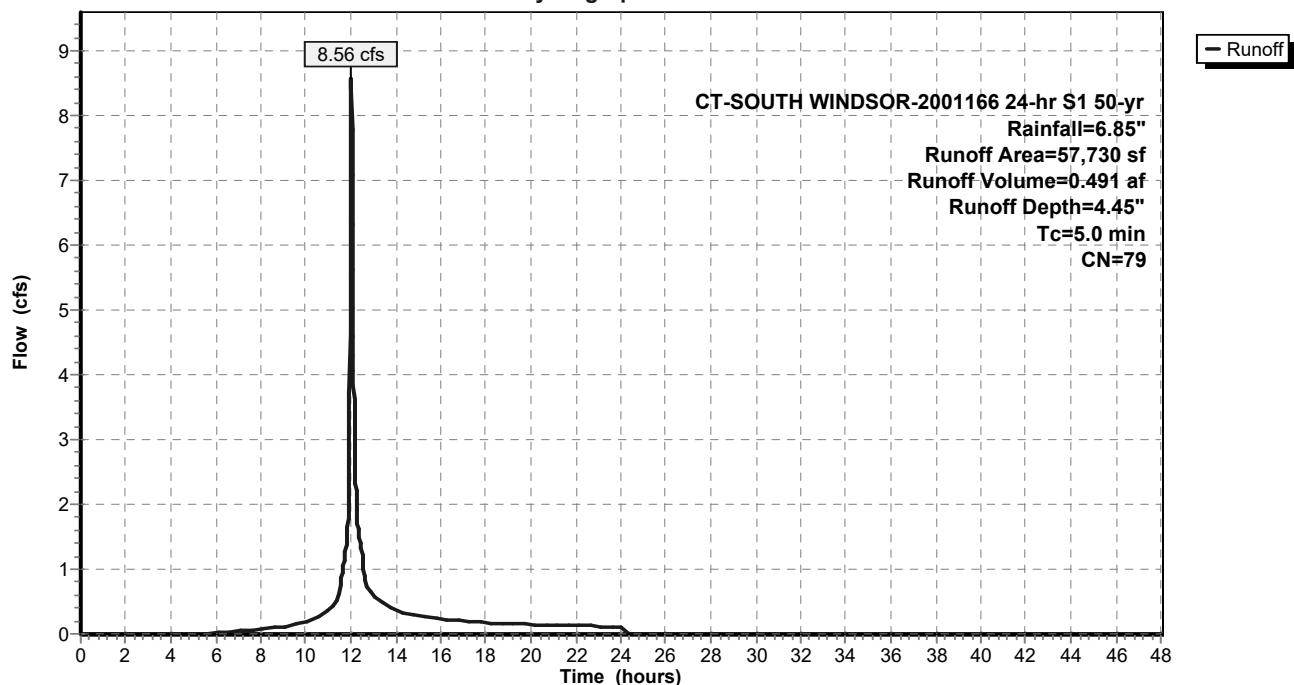
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 50-yr Rainfall=6.85"

Area (sf)	CN	Description
37,085	98	Paved parking, HSG A
0	98	Paved parking, HSG C
14,330	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
6,160	36	Woods, Fair, HSG A
65	73	Woods, Fair, HSG C
90	35	Brush, Fair, HSG A
57,730	79	Weighted Average
20,645		35.76% Pervious Area
37,085		64.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-13: Area to SSDS #1

Hydrograph



Summary for Subcatchment PDA-20: Area to Pond 2 from West

Runoff = 37.13 cfs @ 12.03 hrs, Volume= 2.367 af, Depth= 6.37"

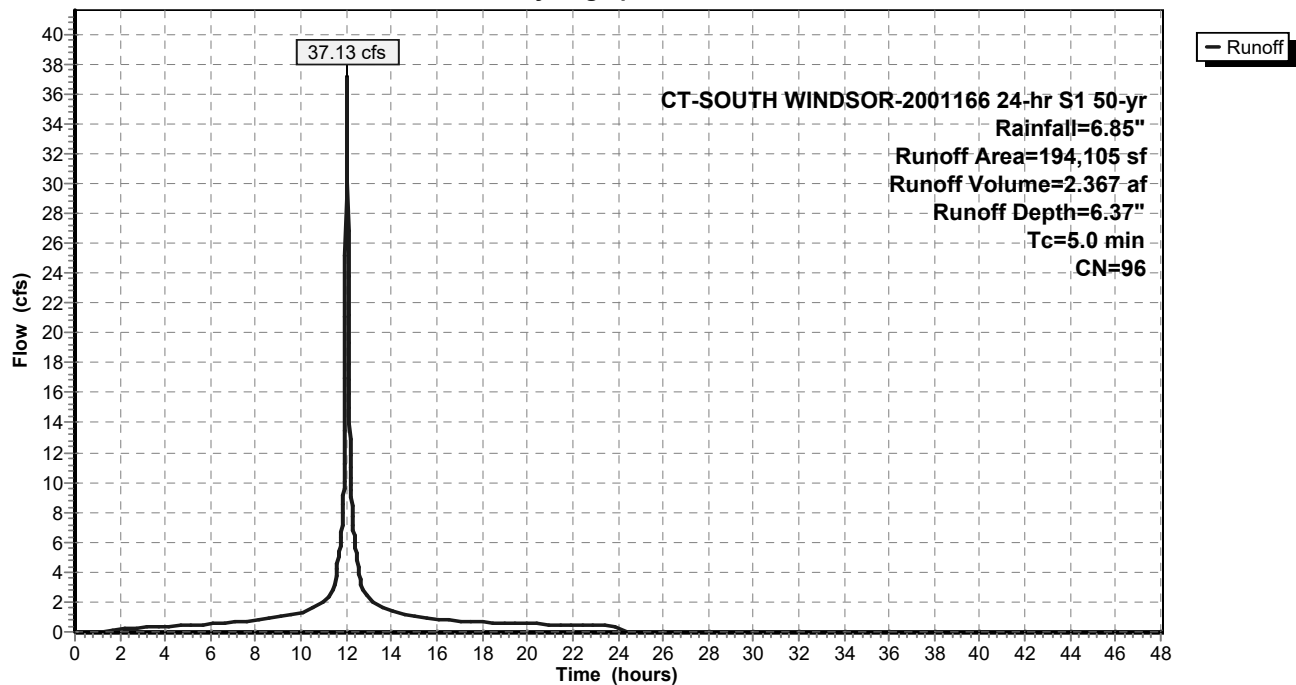
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 50-yr Rainfall=6.85"

Area (sf)	CN	Description
135,515	98	Paved parking, HSG A
47,430	98	Paved parking, HSG C
7,140	49	50-75% Grass cover, Fair, HSG A
4,020	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
194,105	96	Weighted Average
11,160		5.75% Pervious Area
182,945		94.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-20: Area to Pond 2 from West

Hydrograph



Summary for Subcatchment PDA-21: Area to Pond 2 from East

Runoff = 7.27 cfs @ 12.27 hrs, Volume= 0.847 af, Depth= 4.34"

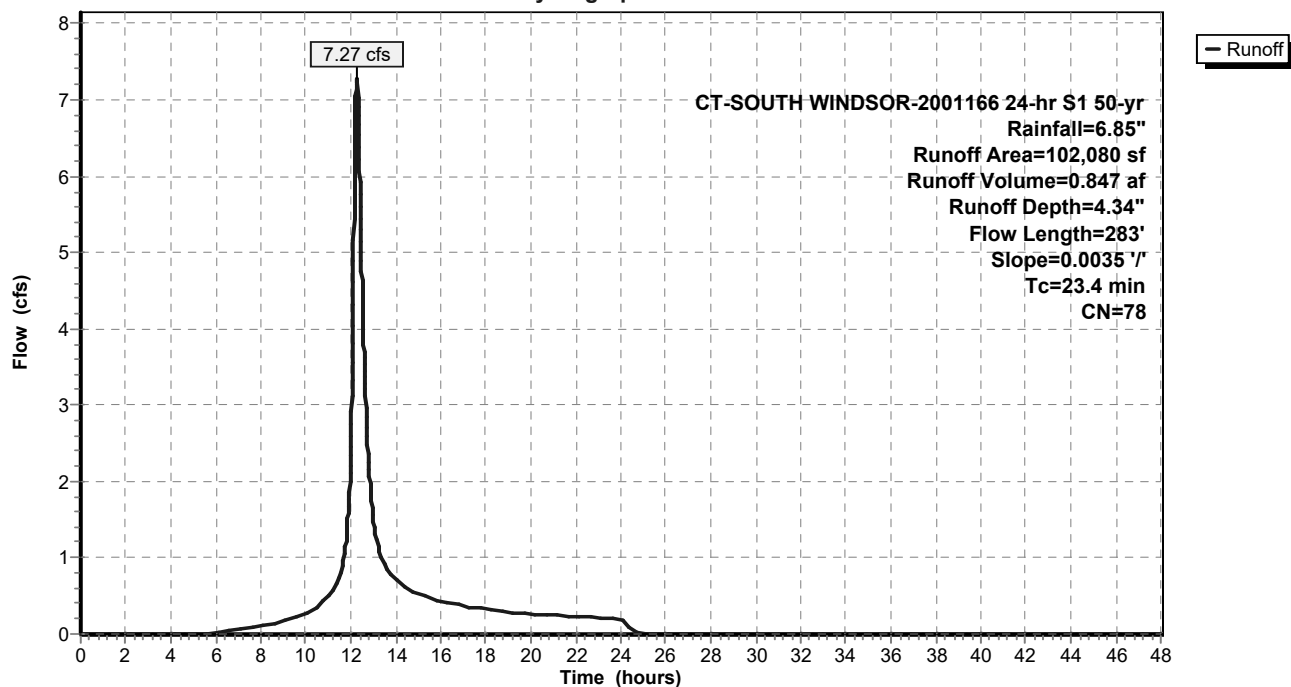
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 50-yr Rainfall=6.85"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
15,320	98	Paved parking, HSG C
10,115	49	50-75% Grass cover, Fair, HSG A
72,325	79	50-75% Grass cover, Fair, HSG C
465	36	Woods, Fair, HSG A
3,855	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
102,080	78	Weighted Average
86,760		84.99% Pervious Area
15,320		15.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0035	0.08		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.09"
3.4	183	0.0035	0.89		Shallow Concentrated Flow,
					Grassed Waterway Kv= 15.0 fps
23.4	283	Total			

Subcatchment PDA-21: Area to Pond 2 from East

Hydrograph



Summary for Subcatchment PDA-22: Pond 2 Area

Runoff = 4.07 cfs @ 12.03 hrs, Volume= 0.233 af, Depth= 4.34"

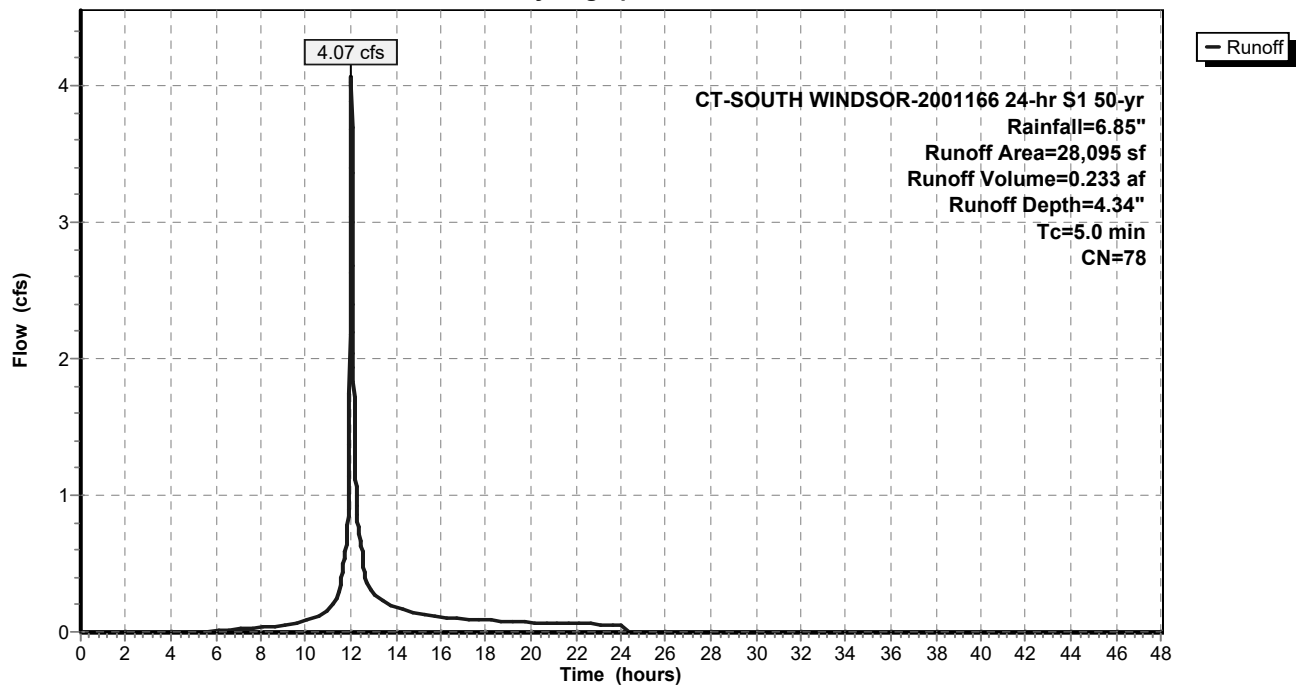
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 50-yr Rainfall=6.85"

Area (sf)	CN	Description
425	98	Paved parking, HSG A
1,455	98	Paved parking, HSG C
2,070	49	50-75% Grass cover, Fair, HSG A
24,145	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
28,095	78	Weighted Average
26,215		93.31% Pervious Area
1,880		6.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-22: Pond 2 Area

Hydrograph

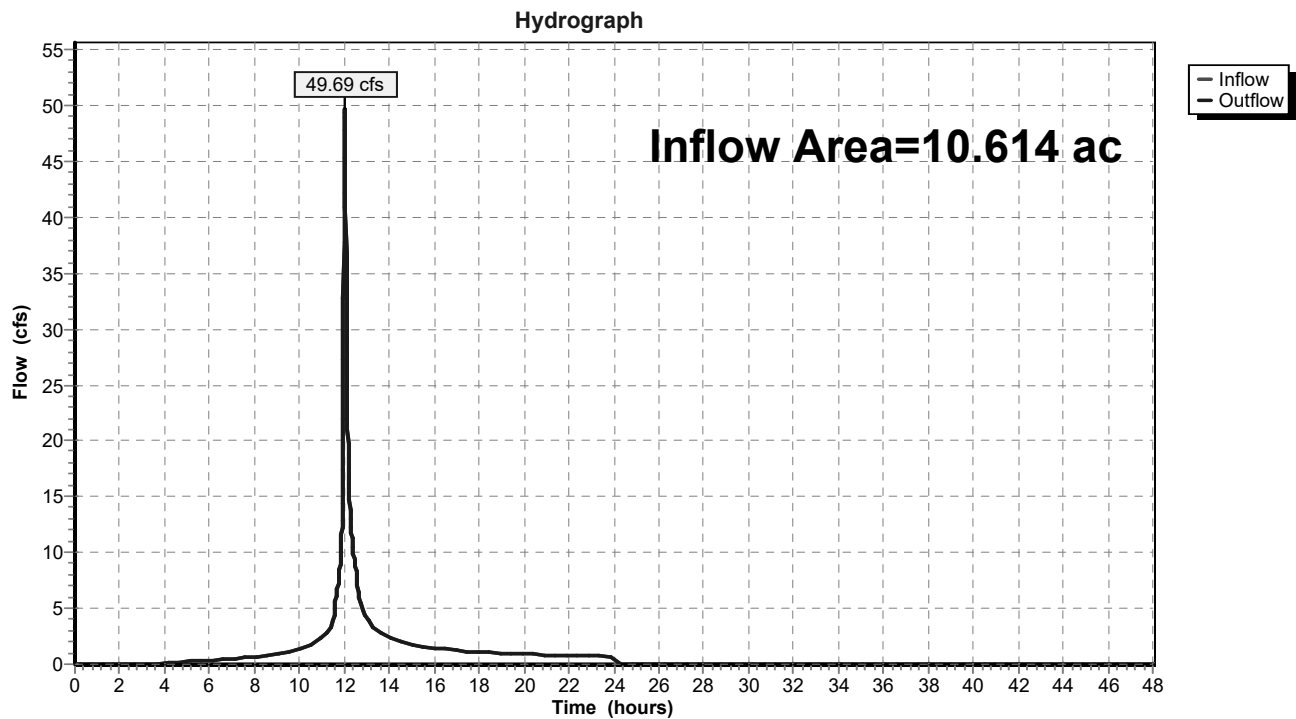


Summary for Reach DP-1: Existing Pond #1

Inflow Area = 10.614 ac, 55.30% Impervious, Inflow Depth = 3.66" for 50-yr event
Inflow = 49.69 cfs @ 12.03 hrs, Volume= 3.235 af
Outflow = 49.69 cfs @ 12.03 hrs, Volume= 3.235 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-1: Existing Pond #1

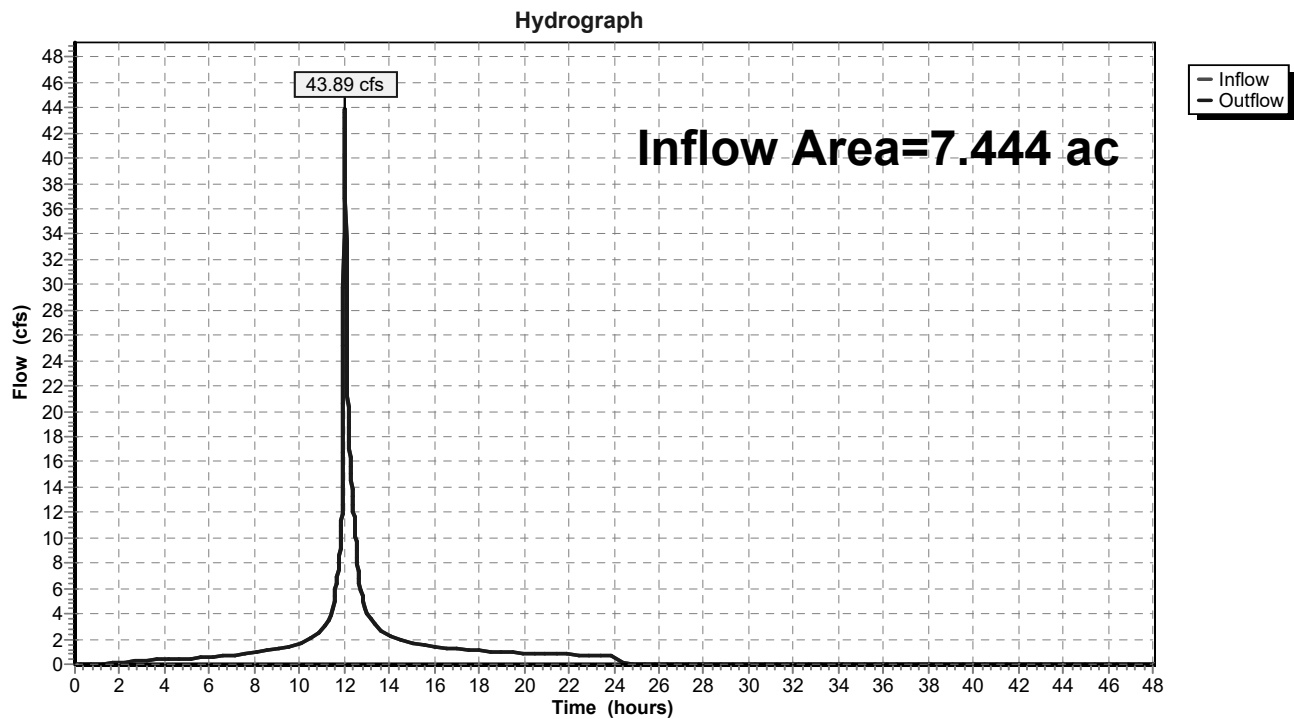


Summary for Reach DP-2: Existing Pond #2

Inflow Area = 7.444 ac, 61.72% Impervious, Inflow Depth = 5.56" for 50-yr event
Inflow = 43.89 cfs @ 12.03 hrs, Volume= 3.448 af
Outflow = 43.89 cfs @ 12.03 hrs, Volume= 3.448 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-2: Existing Pond #2



Summary for Pond SSDS #1: SSDS #1

Inflow Area = 1.325 ac, 64.24% Impervious, Inflow Depth = 4.45" for 50-yr event
 Inflow = 8.56 cfs @ 12.03 hrs, Volume= 0.491 af
 Outflow = 1.84 cfs @ 12.28 hrs, Volume= 0.491 af, Atten= 78%, Lag= 14.9 min
 Discarded = 0.24 cfs @ 10.53 hrs, Volume= 0.370 af
 Primary = 1.60 cfs @ 12.28 hrs, Volume= 0.121 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 57.12' @ 12.28 hrs Surf.Area= 2,083 sf Storage= 6,647 cf

Plug-Flow detention time= 176.9 min calculated for 0.491 af (100% of inflow)
 Center-of-Mass det. time= 176.9 min (1,003.0 - 826.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	53.50'	0 cf	47.23'W x 44.10'L x 4.50'H Field A 9,374 cf Overall - 9,374 cf Embedded = 0 cf x 40.0% Voids
#2A	53.50'	7,354 cf	StormTrap ST2 SingleTrap 4-0 x 8 Inside #1 Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf 8 Chambers in 4 Rows 33.92' x 30.79' Core + 6.66' Border = 47.23' x 44.10' System
		7,354 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	56.30'	12.0" Round Culvert L= 35.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 56.30' / 56.12' S= 0.0051 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	53.50'	5.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.24 cfs @ 10.53 hrs HW=53.55' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=1.60 cfs @ 12.28 hrs HW=57.12' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 1.60 cfs @ 3.18 fps)

Pond SSDS #1: SSDS #1 - Chamber Wizard Field A

Chamber Model = StormTrapST2 SingleTrap 4-0 (StormTrapST2 SingleTrap®Type II+IV)

Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf

Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf

2 Chambers/Row x 15.40' Long = 30.79' Row Length +79.9" Border x 2 = 44.10' Base Length

4 Rows x 101.7" Wide + 79.9" Side Border x 2 = 47.23' Base Width

54.0" Chamber Height = 4.50' Field Height

8 Chambers x 470.3 cf + 3,592.0 cf Border = 7,354.1 cf Chamber Storage

8 Chambers x 587.4 cf + 4,673.9 cf Border = 9,373.5 cf Displacement

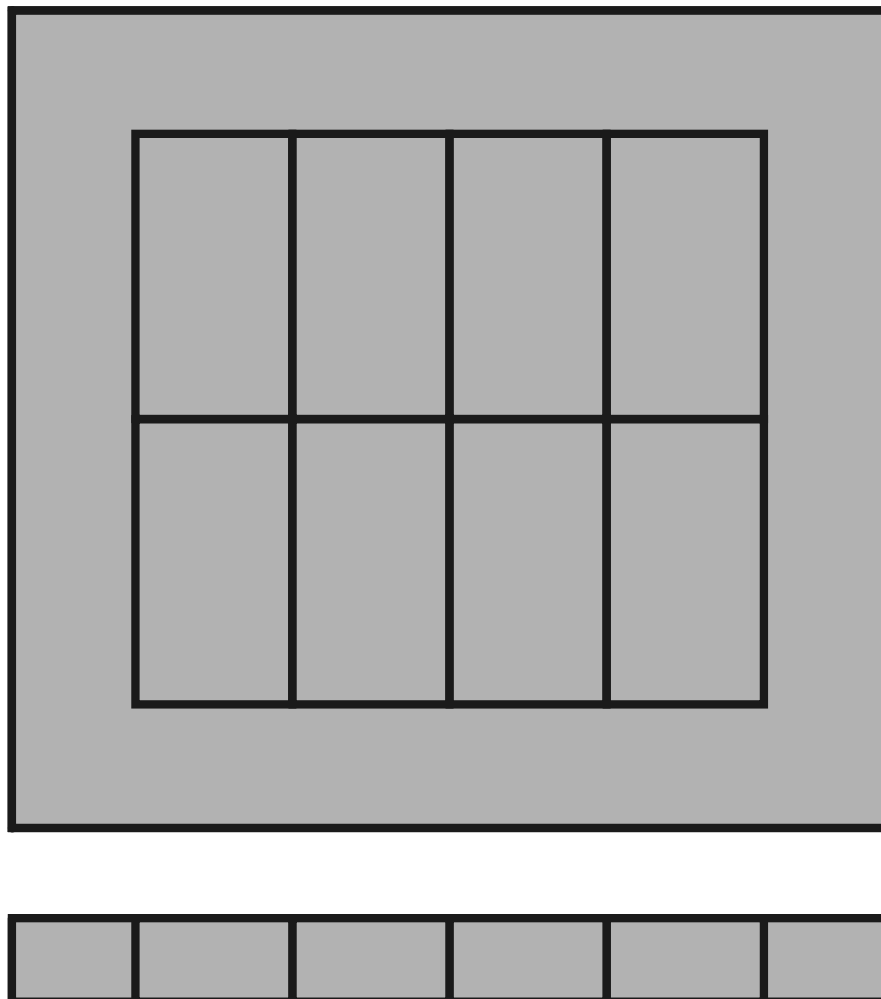
Chamber Storage = 7,354.1 cf = 0.169 af

Overall Storage Efficiency = 78.5%

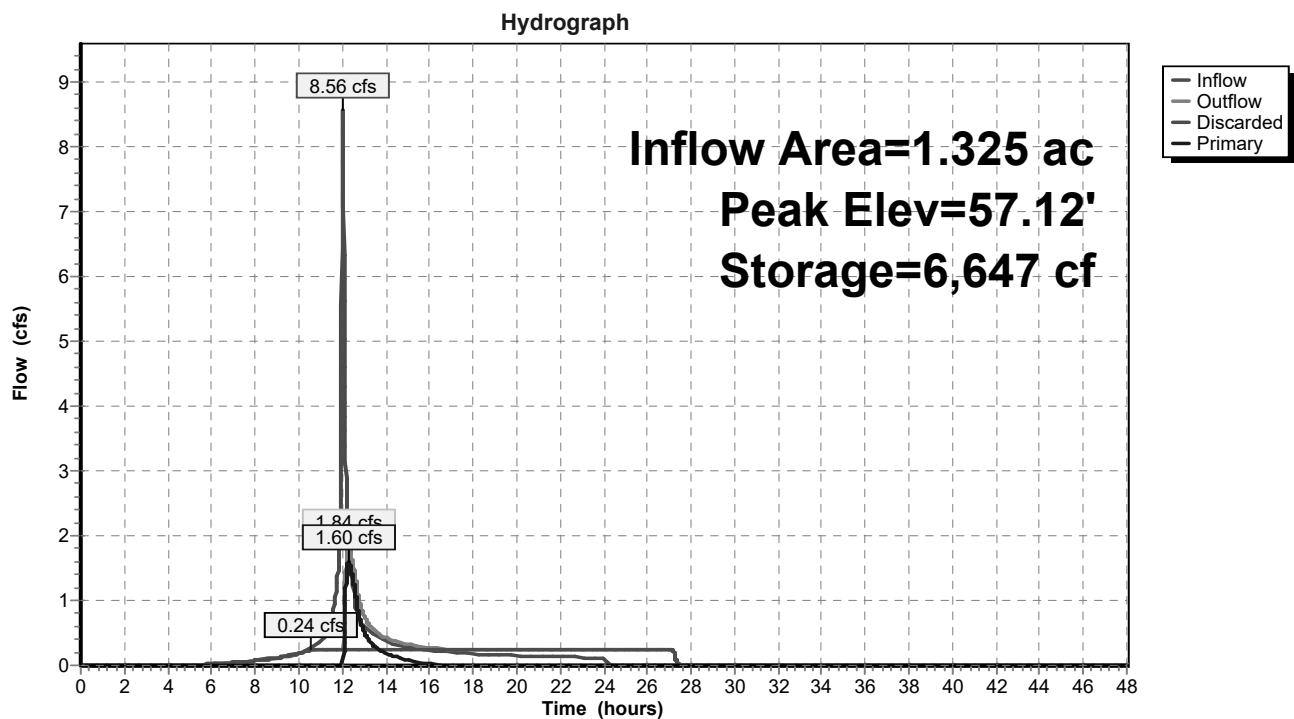
Overall System Size = 44.10' x 47.23' x 4.50'

8 Chambers (plus border)

347.2 cy Field



Pond SSDS #1: SSDS #1



C-DAT-2001166-PROPOSED HCT-SOUTH WINDSOR-2001166 24-hr S1 100-yr Rainfall=7.77"

Prepared by BL Companies, Inc.

Printed 11/12/2020

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPDA-10: Area to Ex Pond 1B Runoff Area=98,955 sf 0.00% Impervious Runoff Depth=1.33"
Flow Length=227' Tc=15.2 min CN=42 Runoff=1.85 cfs 0.252 af

SubcatchmentPDA-11: Area to Pond 1 Runoff Area=280,865 sf 77.82% Impervious Runoff Depth=6.23"
Tc=5.0 min CN=87 Runoff=55.65 cfs 3.345 af

SubcatchmentPDA-12: Pond 1 Area Runoff Area=24,775 sf 0.00% Impervious Runoff Depth=2.01"
Tc=5.0 min CN=49 Runoff=1.44 cfs 0.095 af

SubcatchmentPDA-13: Area to SSDS #1 Runoff Area=57,730 sf 64.24% Impervious Runoff Depth=5.29"
Tc=5.0 min CN=79 Runoff=10.04 cfs 0.585 af

SubcatchmentPDA-20: Area to Pond 2 Runoff Area=194,105 sf 94.25% Impervious Runoff Depth=7.29"
Tc=5.0 min CN=96 Runoff=41.81 cfs 2.708 af

SubcatchmentPDA-21: Area to Pond 2 Runoff Area=102,080 sf 15.01% Impervious Runoff Depth=5.18"
Flow Length=283' Slope=0.0035 '/' Tc=23.4 min CN=78 Runoff=8.57 cfs 1.011 af

SubcatchmentPDA-22: Pond 2 Area Runoff Area=28,095 sf 6.69% Impervious Runoff Depth=5.18"
Tc=5.0 min CN=78 Runoff=4.79 cfs 0.278 af

Reach DP-1: Existing Pond #1 Inflow=57.57 cfs 3.879 af
Outflow=57.57 cfs 3.879 af

Reach DP-2: Existing Pond #2 Inflow=49.83 cfs 3.997 af
Outflow=49.83 cfs 3.997 af

Pond SSDS #1: SSDS #1 Peak Elev=57.83' Storage=7,354 cf Inflow=10.04 cfs 0.585 af
Discarded=0.24 cfs 0.399 af Primary=3.30 cfs 0.186 af Outflow=3.54 cfs 0.585 af

Total Runoff Area = 18.058 ac Runoff Volume = 8.275 af Average Runoff Depth = 5.50"
42.06% Pervious = 7.594 ac 57.94% Impervious = 10.464 ac

Summary for Subcatchment PDA-10: Area to Ex Pond 1B

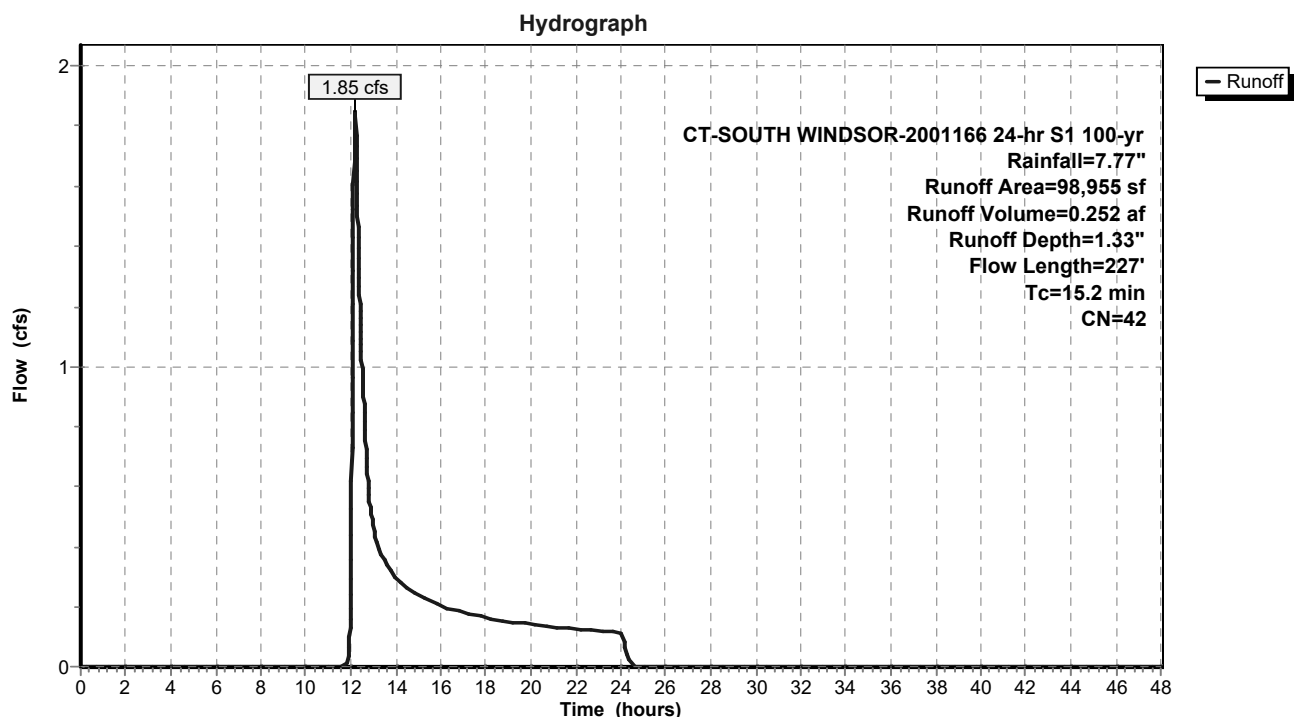
Runoff = 1.85 cfs @ 12.20 hrs, Volume= 0.252 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 100-yr Rainfall=7.77"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
51,680	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
765	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
46,510	35	Brush, Fair, HSG A
98,955	42	Weighted Average
98,955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0100	0.13		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.09"
2.0	127	0.0236	1.08		Shallow Concentrated Flow,
					Short Grass Pasture Kv= 7.0 fps
15.2	227	Total			

Subcatchment PDA-10: Area to Ex Pond 1B



Summary for Subcatchment PDA-11: Area to Pond 1

Runoff = 55.65 cfs @ 12.03 hrs, Volume= 3.345 af, Depth= 6.23"

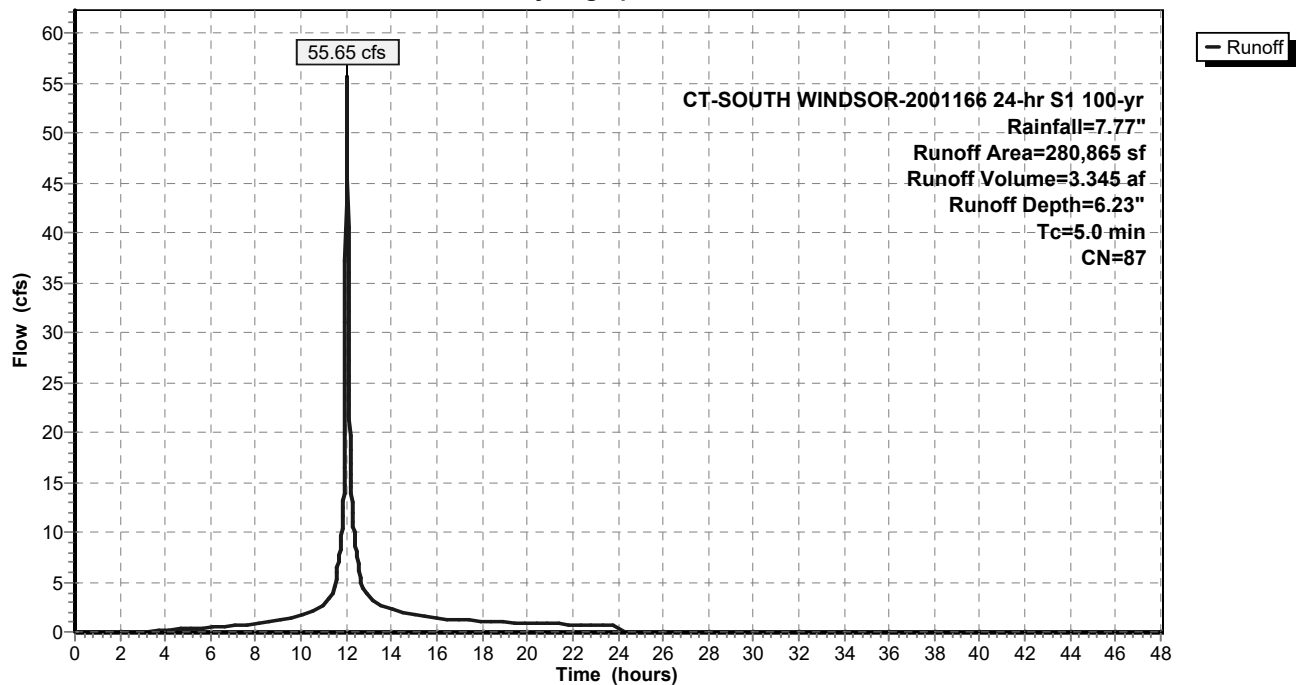
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 100-yr Rainfall=7.77"

Area (sf)	CN	Description
196,325	98	Paved parking, HSG A
22,240	98	Paved parking, HSG C
45,245	49	50-75% Grass cover, Fair, HSG A
2,725	79	50-75% Grass cover, Fair, HSG C
14,330	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
280,865	87	Weighted Average
62,300		22.18% Pervious Area
218,565		77.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-11: Area to Pond 1

Hydrograph



Summary for Subcatchment PDA-12: Pond 1 Area

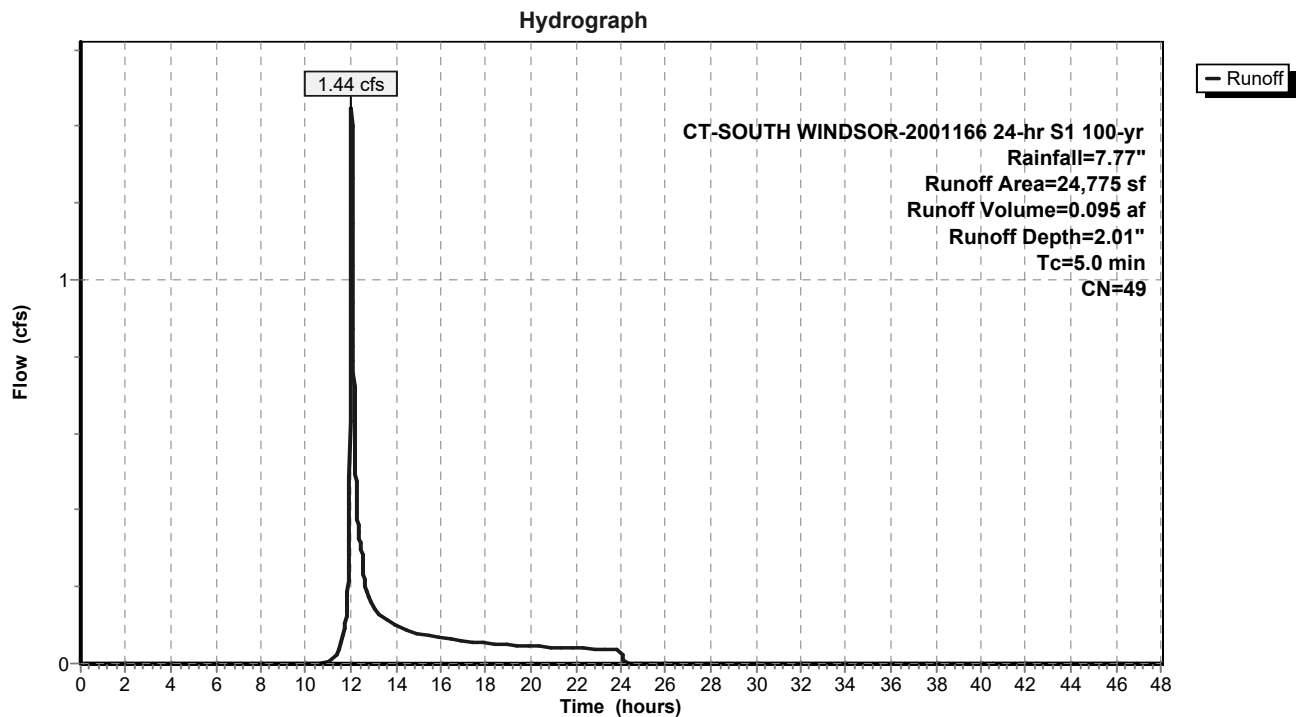
Runoff = 1.44 cfs @ 12.03 hrs, Volume= 0.095 af, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 100-yr Rainfall=7.77"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
0	98	Paved parking, HSG C
24,775	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
24,775	49	Weighted Average
24,775		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-12: Pond 1 Area



Summary for Subcatchment PDA-13: Area to SSDS #1

Runoff = 10.04 cfs @ 12.03 hrs, Volume= 0.585 af, Depth= 5.29"

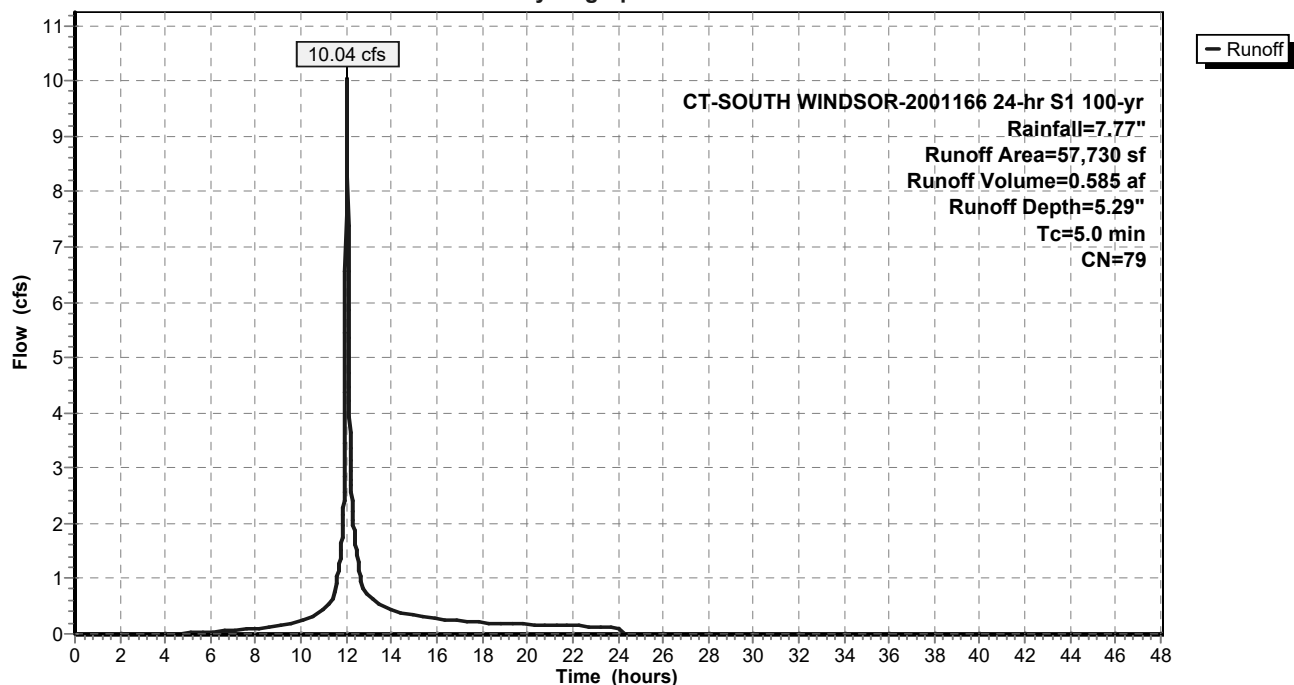
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 100-yr Rainfall=7.77"

Area (sf)	CN	Description
37,085	98	Paved parking, HSG A
0	98	Paved parking, HSG C
14,330	49	50-75% Grass cover, Fair, HSG A
0	79	50-75% Grass cover, Fair, HSG C
6,160	36	Woods, Fair, HSG A
65	73	Woods, Fair, HSG C
90	35	Brush, Fair, HSG A
57,730	79	Weighted Average
20,645		35.76% Pervious Area
37,085		64.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-13: Area to SSDS #1

Hydrograph



Summary for Subcatchment PDA-20: Area to Pond 2 from West

Runoff = 41.81 cfs @ 12.03 hrs, Volume= 2.708 af, Depth= 7.29"

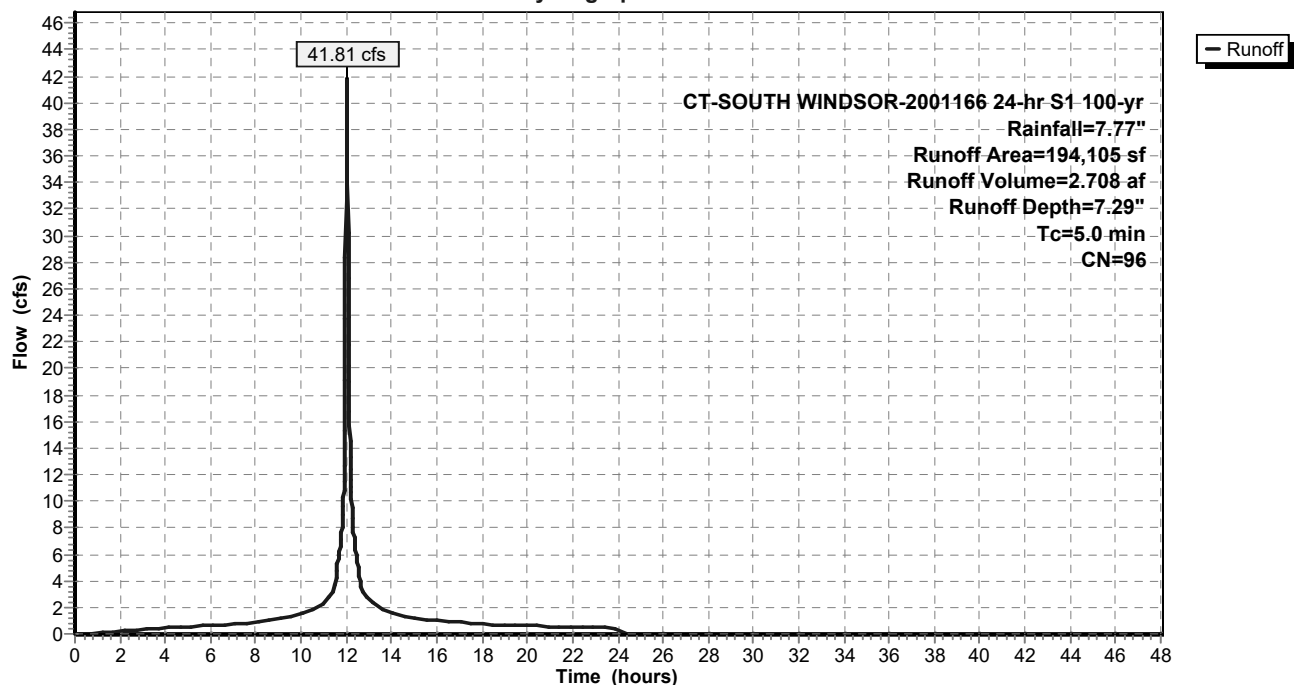
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 100-yr Rainfall=7.77"

Area (sf)	CN	Description
135,515	98	Paved parking, HSG A
47,430	98	Paved parking, HSG C
7,140	49	50-75% Grass cover, Fair, HSG A
4,020	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
194,105	96	Weighted Average
11,160		5.75% Pervious Area
182,945		94.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-20: Area to Pond 2 from West

Hydrograph



Summary for Subcatchment PDA-21: Area to Pond 2 from East

Runoff = 8.57 cfs @ 12.27 hrs, Volume= 1.011 af, Depth= 5.18"

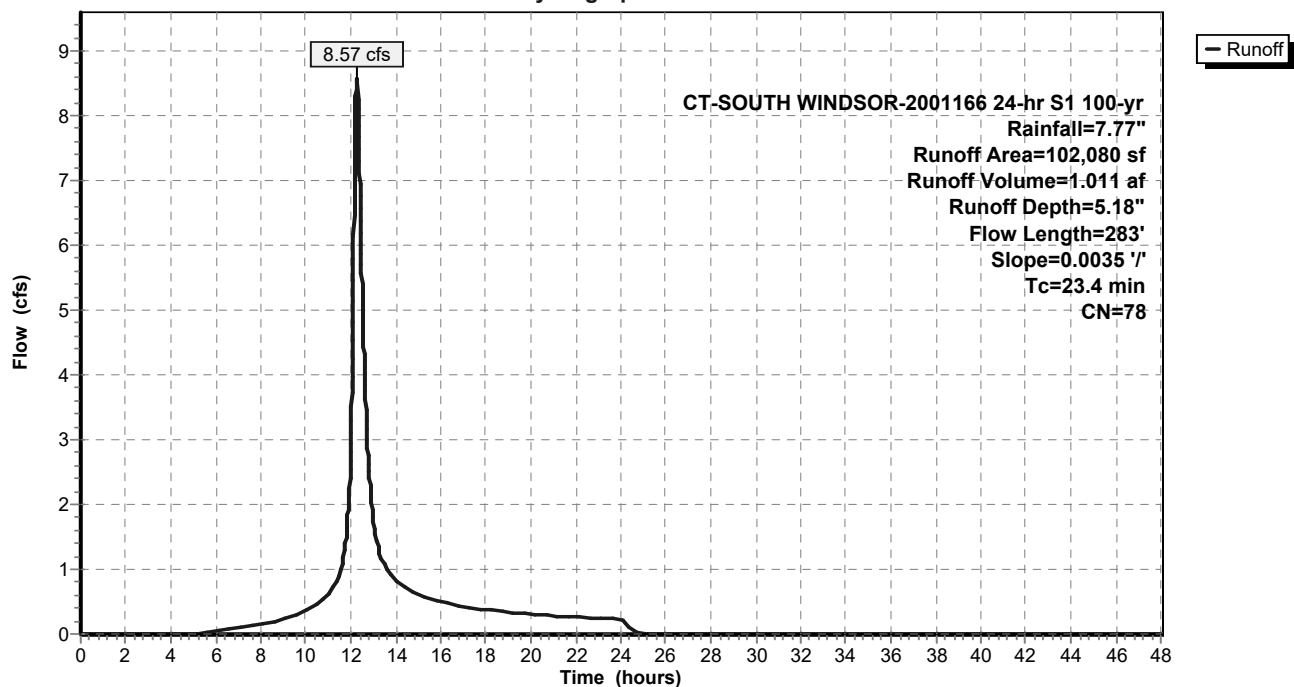
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 100-yr Rainfall=7.77"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
15,320	98	Paved parking, HSG C
10,115	49	50-75% Grass cover, Fair, HSG A
72,325	79	50-75% Grass cover, Fair, HSG C
465	36	Woods, Fair, HSG A
3,855	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
102,080	78	Weighted Average
86,760		84.99% Pervious Area
15,320		15.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0035	0.08		Sheet Flow,
					Grass: Short n= 0.150 P2= 3.09"
3.4	183	0.0035	0.89		Shallow Concentrated Flow,
					Grassed Waterway Kv= 15.0 fps
23.4	283	Total			

Subcatchment PDA-21: Area to Pond 2 from East

Hydrograph



Summary for Subcatchment PDA-22: Pond 2 Area

Runoff = 4.79 cfs @ 12.03 hrs, Volume= 0.278 af, Depth= 5.18"

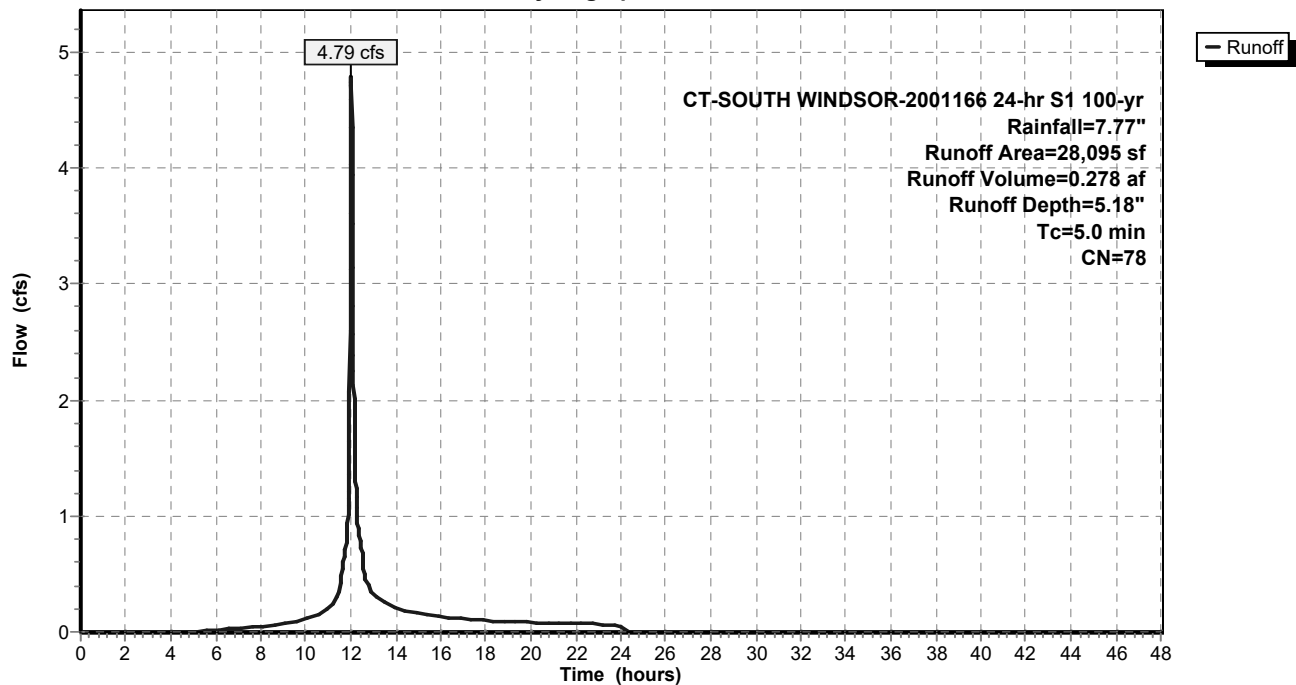
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
CT-SOUTH WINDSOR-2001166 24-hr S1 100-yr Rainfall=7.77"

Area (sf)	CN	Description
425	98	Paved parking, HSG A
1,455	98	Paved parking, HSG C
2,070	49	50-75% Grass cover, Fair, HSG A
24,145	79	50-75% Grass cover, Fair, HSG C
0	36	Woods, Fair, HSG A
0	73	Woods, Fair, HSG C
0	35	Brush, Fair, HSG A
28,095	78	Weighted Average
26,215		93.31% Pervious Area
1,880		6.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment PDA-22: Pond 2 Area

Hydrograph

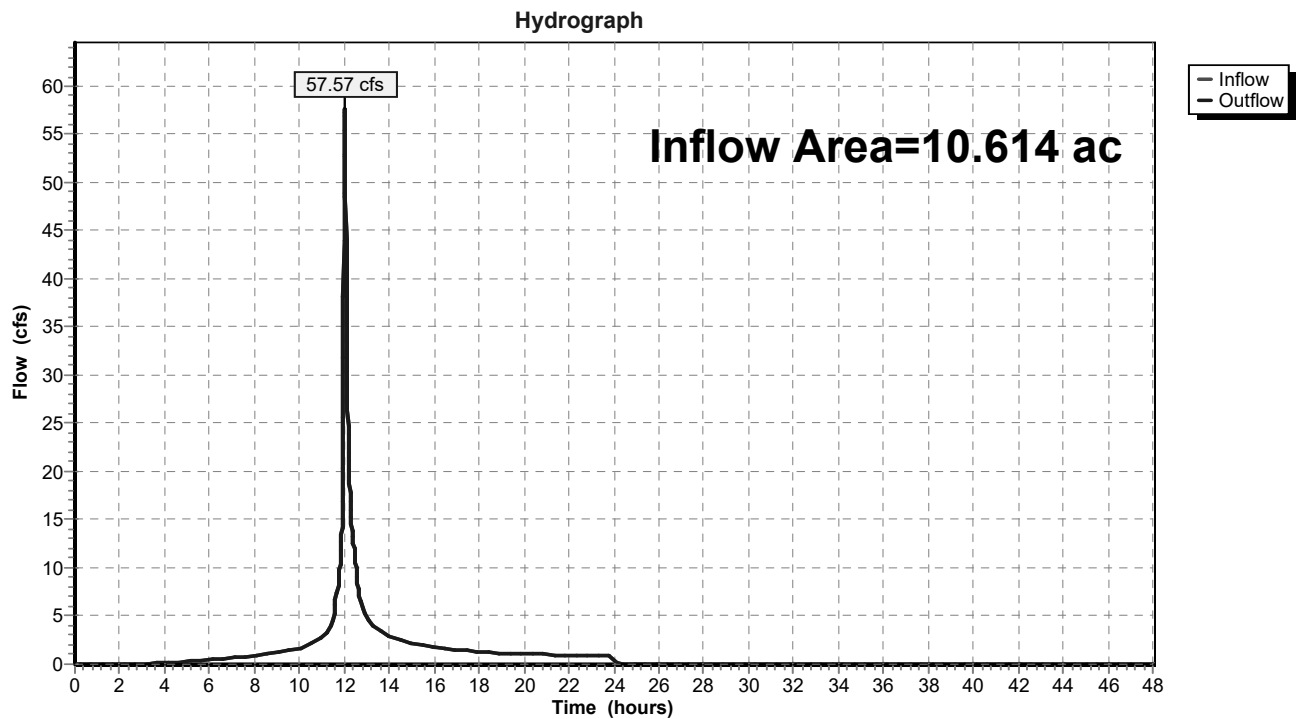


Summary for Reach DP-1: Existing Pond #1

Inflow Area = 10.614 ac, 55.30% Impervious, Inflow Depth = 4.39" for 100-yr event
Inflow = 57.57 cfs @ 12.03 hrs, Volume= 3.879 af
Outflow = 57.57 cfs @ 12.03 hrs, Volume= 3.879 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-1: Existing Pond #1

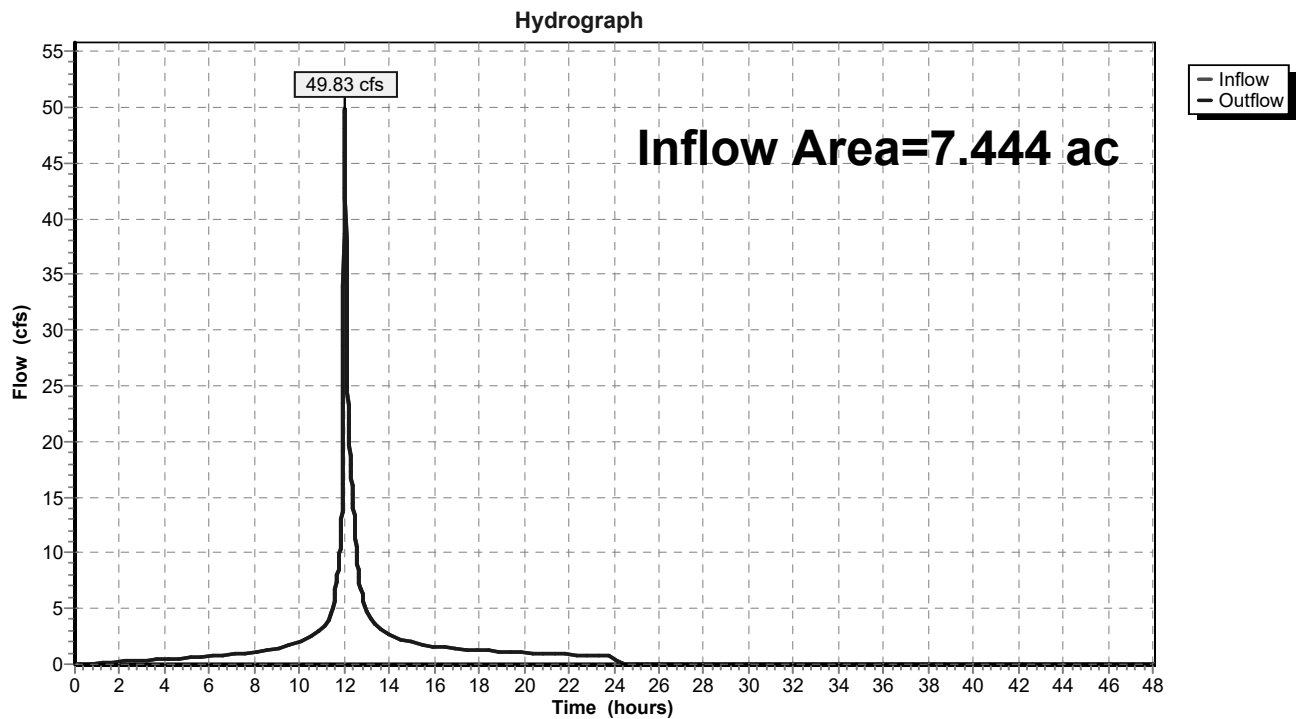


Summary for Reach DP-2: Existing Pond #2

Inflow Area = 7.444 ac, 61.72% Impervious, Inflow Depth = 6.44" for 100-yr event
Inflow = 49.83 cfs @ 12.03 hrs, Volume= 3.997 af
Outflow = 49.83 cfs @ 12.03 hrs, Volume= 3.997 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach DP-2: Existing Pond #2



Summary for Pond SSDS #1: SSDS #1

Inflow Area = 1.325 ac, 64.24% Impervious, Inflow Depth = 5.29" for 100-yr event
 Inflow = 10.04 cfs @ 12.03 hrs, Volume= 0.585 af
 Outflow = 3.54 cfs @ 12.17 hrs, Volume= 0.585 af, Atten= 65%, Lag= 8.6 min
 Discarded = 0.24 cfs @ 10.09 hrs, Volume= 0.399 af
 Primary = 3.30 cfs @ 12.17 hrs, Volume= 0.186 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 57.83' @ 12.17 hrs Surf.Area= 2,083 sf Storage= 7,354 cf

Plug-Flow detention time= 164.6 min calculated for 0.585 af (100% of inflow)
 Center-of-Mass det. time= 164.6 min (984.9 - 820.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	53.50'	0 cf	47.23'W x 44.10'L x 4.50'H Field A 9,374 cf Overall - 9,374 cf Embedded = 0 cf x 40.0% Voids
#2A	53.50'	7,354 cf	StormTrap ST2 SingleTrap 4-0 x 8 Inside #1 Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf 8 Chambers in 4 Rows 33.92' x 30.79' Core + 6.66' Border = 47.23' x 44.10' System
		7,354 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	56.30'	12.0" Round Culvert L= 35.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 56.30' / 56.12' S= 0.0051 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	53.50'	5.000 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.24 cfs @ 10.09 hrs HW=53.55' (Free Discharge)
 ↑ **2=Exfiltration** (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=3.28 cfs @ 12.17 hrs HW=57.82' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 3.28 cfs @ 4.18 fps)

Pond SSDS #1: SSDS #1 - Chamber Wizard Field A

Chamber Model = StormTrapST2 SingleTrap 4-0 (StormTrapST2 SingleTrap®Type II+IV)

Inside= 101.7"W x 48.0"H => 30.55 sf x 15.40'L = 470.3 cf

Outside= 101.7"W x 54.0"H => 38.16 sf x 15.40'L = 587.4 cf

2 Chambers/Row x 15.40' Long = 30.79' Row Length +79.9" Border x 2 = 44.10' Base Length

4 Rows x 101.7" Wide + 79.9" Side Border x 2 = 47.23' Base Width

54.0" Chamber Height = 4.50' Field Height

8 Chambers x 470.3 cf + 3,592.0 cf Border = 7,354.1 cf Chamber Storage

8 Chambers x 587.4 cf + 4,673.9 cf Border = 9,373.5 cf Displacement

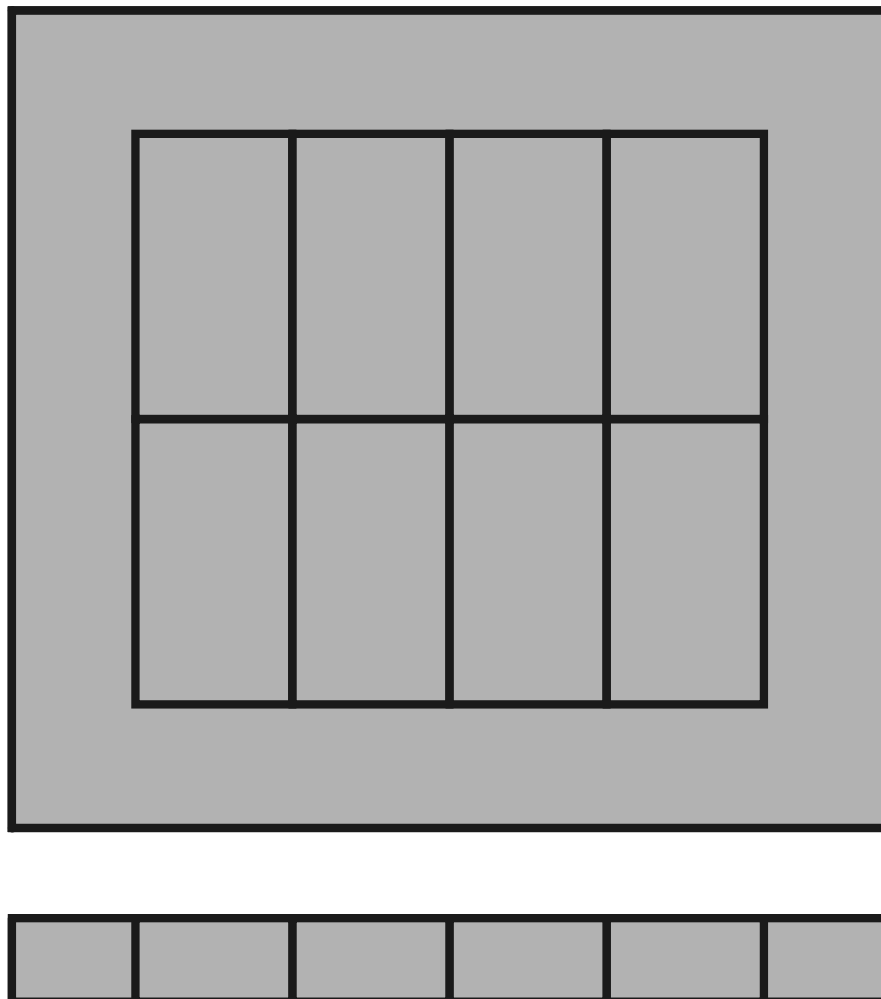
Chamber Storage = 7,354.1 cf = 0.169 af

Overall Storage Efficiency = 78.5%

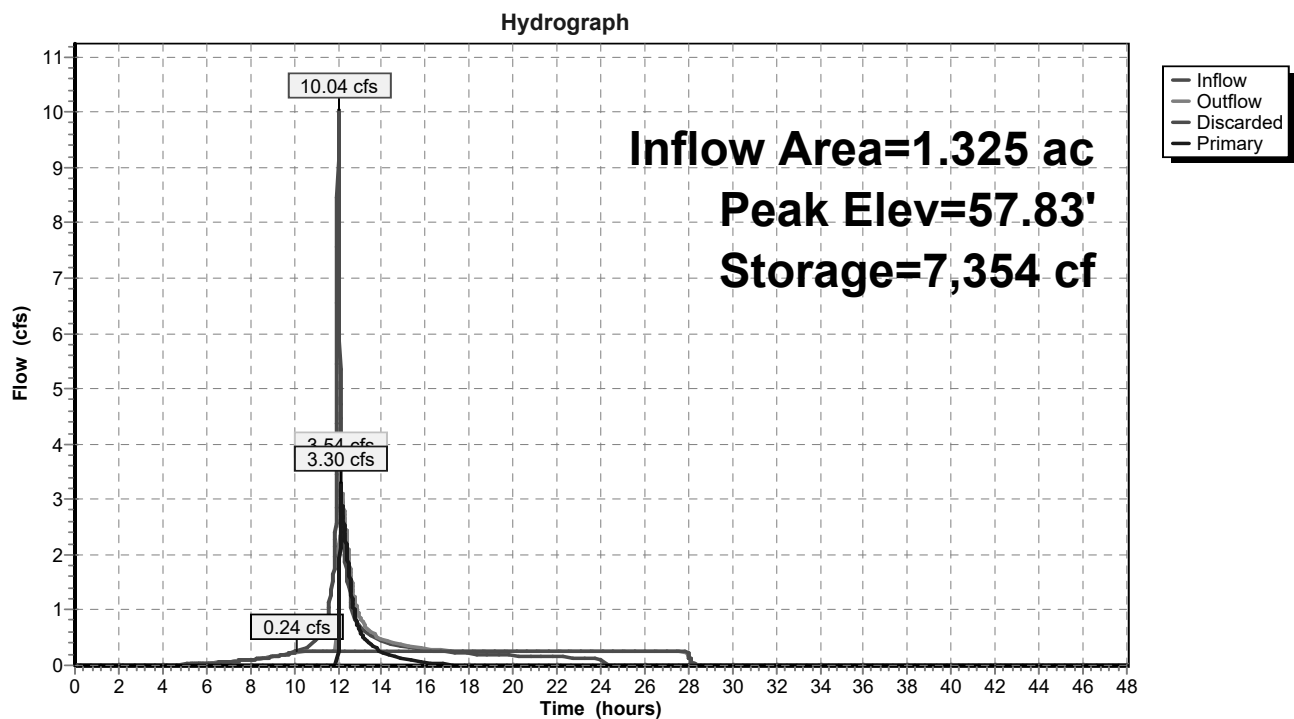
Overall System Size = 44.10' x 47.23' x 4.50'

8 Chambers (plus border)

347.2 cy Field



Pond SSDS #1: SSDS #1



APPENDIX D

WATER QUALITY CALCULATIONS

CTDEEP Water Quality Volume Calculations

CTDEEP Water Quality Flow Calculations

Groundwater Recharge Calculations

Treatment Train Efficiency Worksheet

Water Quality Calculations

Determine Water Quality Volume

From CT 2004 Stormwater Quality Manual:

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

$$R = 0.05 + 0.009(I)$$

WQV = water quality volume (ac-ft)

R = volumetric runoff coefficient

I = percent impervious cover

A = site area in acres

Area		Total Area		Impervious Area		Impervious Cover	Volumetric Runoff Coefficient	Water Quality Volume (WQV)		Proposed Water Quality Volume (WQV)*	
		ac	ft ²	ac	ft ²			acre-feet	ft ³	acre-feet	ft ³
ID						%	R				
TOTAL SITE		15.961	695,275	10.075	438,872	63.12	0.618	0.822	35,806	2.766	120,467

*The previously approved stormwater design by Design Professionals, Inc. dated 11/4/2019, stated that Pond #1 provides 74,149 CF of water quality storage volume and Pond #2 provides 41,170 CF of water quality storage volume.

Water Quality Calculations

Determine Water Quality Flow

From CT 2004 Stormwater Quality Manual:

$$CN = \left[\frac{1000}{10 + 5P + 10Q - 10(Q^2 + 1.25QP)^{\frac{1}{2}}} \right]$$

$$Q = \frac{[WQV(acre - feet) \times [12(inches / foot)]]}{DrainageArea(acres)}$$

$$WQF = (q_u)(A)(Q)$$

CN = Runoff Curve Number

P = design precipitation, inches, (1" for water quality storm)

Q = runoff depth (in watershed inches)

T_c = time of concentration

I_a = Initial abstraction, inches, from Table 4-1, Chapter 4, TR-55

q_u = unit peak discharge,

WQF = water quality flow (cfs)

Structure ID	Area ID	Total Area			Imp Area		Imp Cover %	R -	WQV acre-feet	Q in	P in	CN -	T _c		I _a in	I _a /P -	q _u * cfs/mi ² /in	WQF cfs
		ft ²	ac	mi ²	ft ²	ac							mins	hours				
CB-9 (HDS)	PDA-13	57,730	1.325	0.0021	37,085	0.851	64.23	0.628	0.069	0.62	1.00	96	5.0	0.08	0.083	0.083	660	0.85

* From Exhibit 4-III: Unit peak discharge (q_u) for SCS type III rainfall distribution, Urban Hydrology for Small Watersheds (TR-55), USDS < SCS, June 1986.

Groundwater Recharge Volume Calculations

Groundwater Recharge Volume

From CT 2004 Stormwater Quality Manual:

$$GVR = \frac{(D)(A)(I)}{12}$$

GRV Groundwater Recharge Volume (ac-ft)
 D = Depth of Runoff to be Recharged (table 7-4)
 A = site area in acres
 I = impervious cover (decimal)

	A	I													
	Total Site Area (AC)	Site Area by NRCS Hydrologic Soil Group				Impervious Cover by NRCS Hydrologic Soil Group				Site Imperviousness (Decimal) by NRCS Hydrologic Soil Group				GRV Required (ac-ft)	Potential Recharge Pond Volumes Proposed (ac-ft)
		A	B	C	D	A	B	C	D	A	B	C	D		
	15.96	13.31	0.00	2.65	0	8.48	0.00	1.63	0.00	0.53	0.00	0.10	0.00	0.238	2.766

Table 7-4 Groundwater Recharge Depth		
NRCS Hydrologic Soil Group	Average Annual Recharge	Groundwater Recharge Depth (D)
A	18 inches/year	0.4 inches
B	12 inches/year	0.25 inches
C	6 inches/year	0.10 inches
D	3 inches/year	0 inches (waived)

Source: MADEP, 1997.
 NRCS – Natural Resources Conservation Service

Best Management Practice (BMP) Treatment Train Efficiency Worksheet

Prepared for:
Proposed Warehouse
240 Ellington Road
South Windsor, CT

Prepared by:
BL Companies
100 Constitution Plaza, 10th Floor
Hartford Connecticut

Date prepared:
November 13, 2020

Overall Site Treatment Train Efficiency

Et=[1-(1-E1)(1-E2)(1-E3)(1-E4)(1-E?)]*100	<u>BMP</u>	<u>BMP Description</u>	<u>Type of Treatment</u>	<u>Efficiency Rate %</u>
	E1	Impervious Surface Sweeping***	secondary (conventional)	10
	E2	Deep Sump and Hooded Catch Basins	Secondary	25
	E3	Hydrodynamic Separator**	Secondary	80

Overall Treatment Train Efficiency (Et)= 87 % Total Suspended Solids (TSS) Removal

* 80% require per CT DEP
** Manufacturers claim 80% TSS removal
*** Schueler 1996 & EPA 1993
**** University of New Hampshire

<u>BMP</u>	<u>Type of Treatment</u>	<u>TSS Removal Rate</u>	<u>Starting TSS Load</u>	<u>Amount Removed</u>	<u>Remaining Load</u>
Impervious Surface Sweeping***	secondary (conventional)	0.10	1.00	0.10	0.90
Deep Sump and Hooded Catch Basins	Secondary	0.25	0.90	0.23	0.68
Hydrodynamic Separator**	Secondary	0.8	0.68	0.54	0.14

Overall Treatment Train Efficiency (%)

87

TSS Removal Rates (adapted from Schueler, 1996, & EPA, 1993)

BMP List	Design Rate	Range of Average TSS Removal Rates	Brief Design Requirements
Extended Detention Pond	70%	60-80%	Sediment forebay
Wet Pond (a)	70%	60-80%	Sediment forebay
Constructed Wetland (b)	80%	65-80%	Designed to infiltrate or retain
Water Quality Swale	70%	60-80%	Designed to infiltrate or retain
Infiltration Trench	80%	75-80%	Pretreatment critical
Infiltration Basin	80%	75-80% (predicted)	Pretreatment critical
Dry Well	80%	80% (predicted)	Roof-top runoff (uncontaminated only)
Sand Filter (c)	80%	80%	Pretreatment
Organic Filter (d)	80%	80%+	Pretreatment
Water Quality Inlet	25%	15-35% w/ cleanout	Off-line only; 0.1" minimum Water Quality Volume (WQV) storage
Sediment Trap (Forebay)	25%	25% w/ cleanout	Storm flows for 2-year event must not cause erosion; 0.1" minimum WQV storage
Drainage Channel	25%	25%	Check dams; non-erosive for 2-yr.
Deep Sump and Hooded Catch Basin	25%	25% w/ cleanout	Deep sump general rule = 4 x pipe diameter or 4.0' for pipes 18" or less
Street Sweeping	10%	10%	Discretionary non-structural credit, must be part of approved plan

APPENDIX E

DRAINAGE MAPS

ED-1 – Existing Drainage Mapping

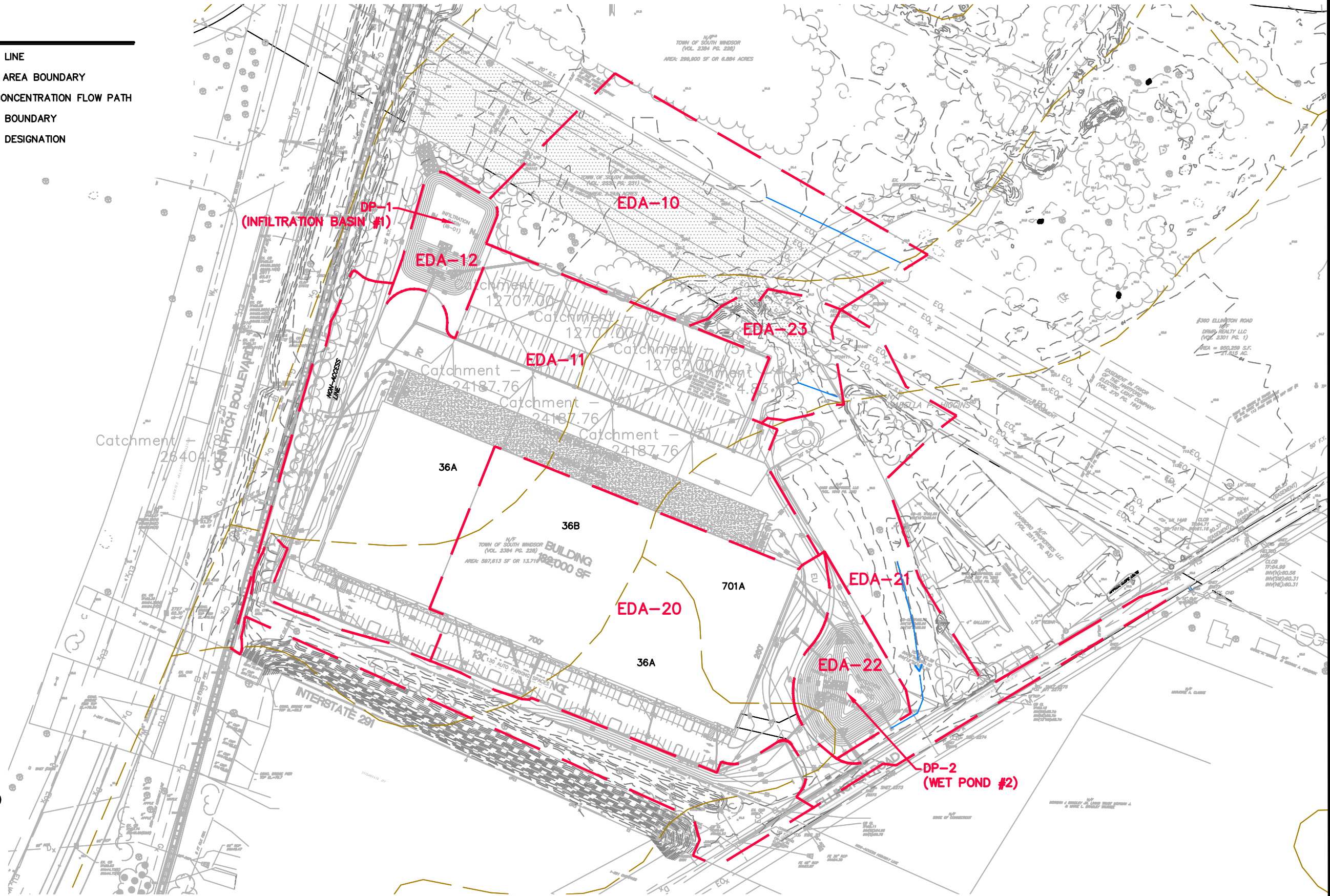
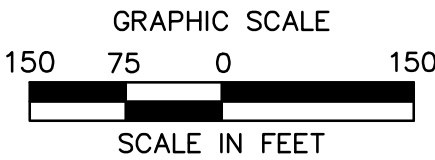
PD-1 – Proposed Drainage Mapping

Grading and Drainage Plan

HYDROLOGY LEGEND

- PROPERTY LINE
- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION FLOW PATH
- SOIL TYPE BOUNDARY
- SOIL TYPE DESIGNATION

306



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ENGINEERING
ENVIRONMENTAL
LAND SURVEYING

100 Constitution Plaza, 10th Floor
Hartford, CT 06103
(860) 249-2200
(860) 249-2400 Fax

EXISTING DRAINAGE MAPPING

PROPOSED WAREHOUSE
240 ELLINGTON ROAD
SOUTH WINDSOR, CONNECTICUT

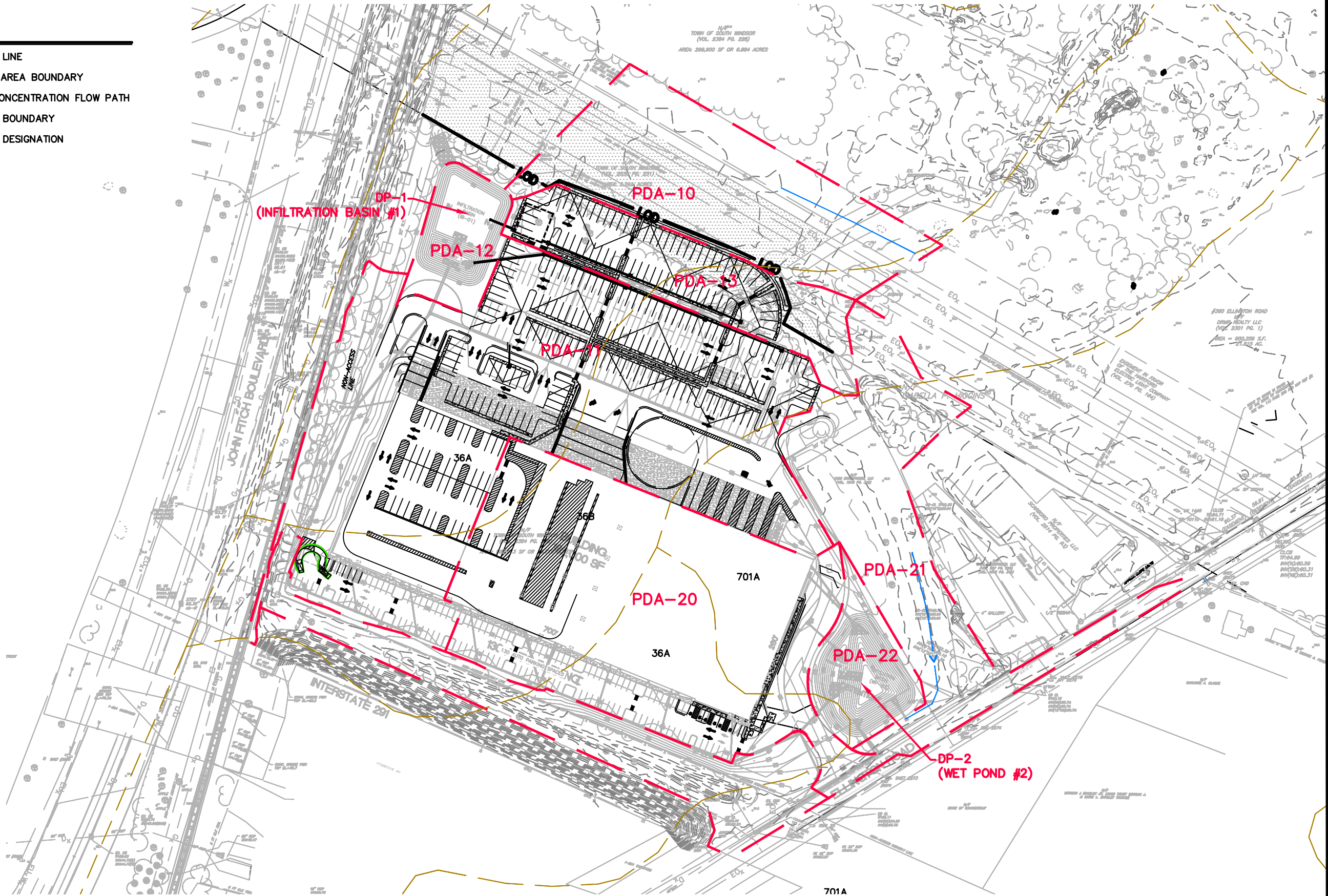
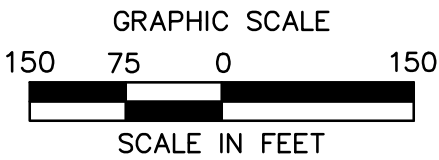
Designed	S.E.L.
Drawn	S.E.L.
Reviewed	J.A.B.
Scale	1"=150'
Project No.	2001166
Date	11/13/2020
CAD File	ED200116601

ED-1

HYDROLOGY LEGEND

- PROPERTY LINE
- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION FLOW PATH
- SOIL TYPE BOUNDARY
- SOIL TYPE DESIGNATION

306



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100 Constitution Plaza, 10th Floor
Hartford, CT 06103
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(860) 249-2400 Fax

PROPOSED DRAINAGE MAPPING

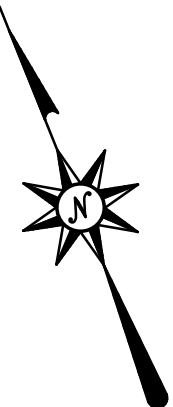
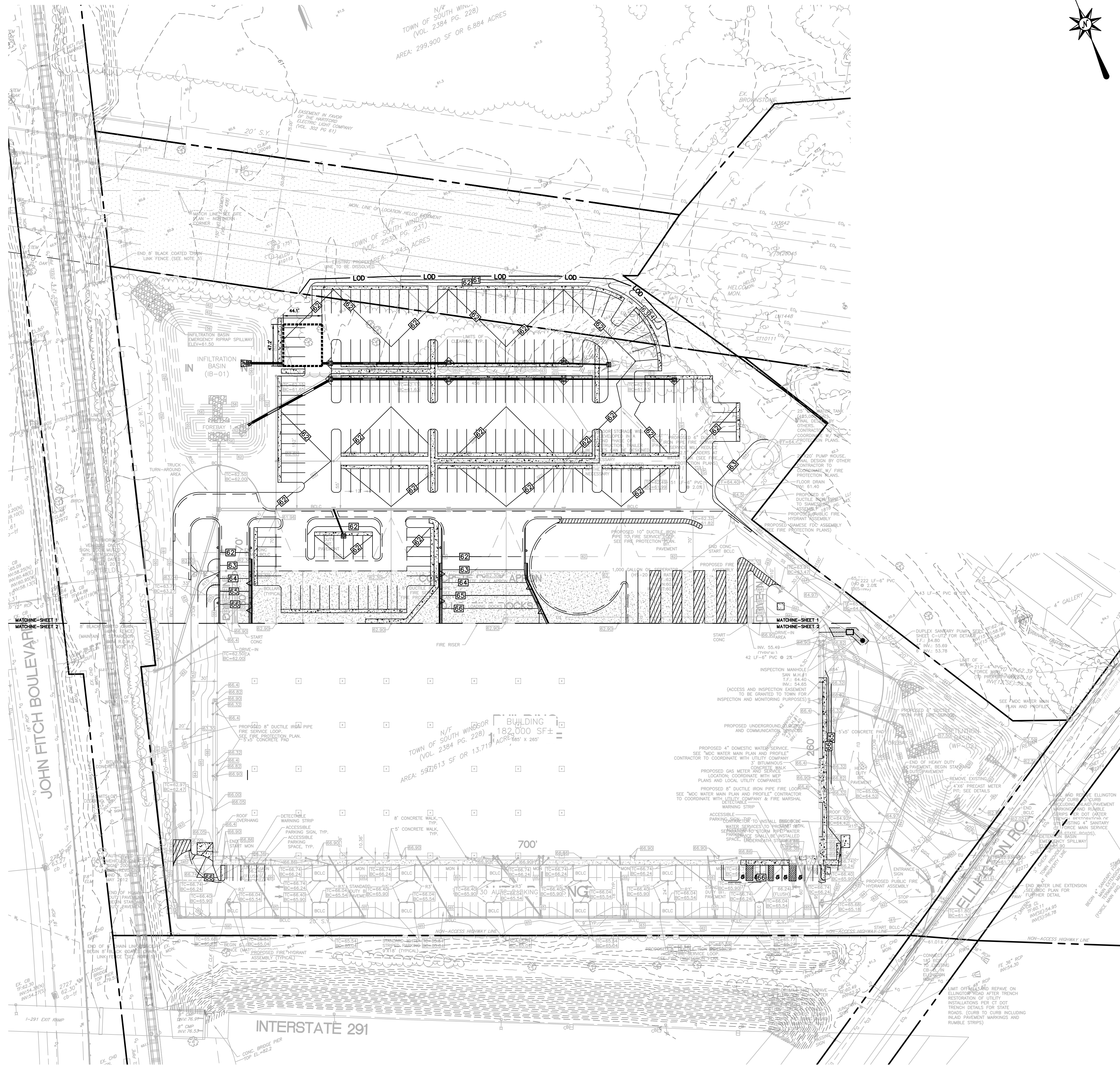
PROPOSED WAREHOUSE
240 ELLINGTON ROAD
SOUTH WINDSOR, CONNECTICUT

Designed	S.E.L.
Drawn	S.E.L.
Reviewed	J.A.B.
Scale	1"=150'
Project No.	2001166
Date	11/13/2020
CAD File	PD200116601

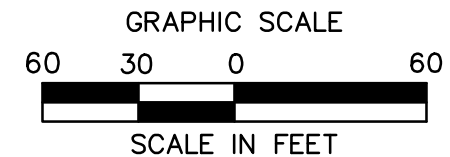
PD-1

GRADING AND DRAINAGE LEGEND

PROPERTY LINE	---
LIMIT OF DISTURBANCE LINE AND CONTRACT LIMIT LINE	---
STORM LINE	---
CATCH BASIN	□
STORM MANHOLE	○
FLARED END	▽
END WALL OR HEADWALL	└┐
OUTLET CONTROL STRUCTURE	⊙
HYDRODYNAMIC SEPARATOR	⊙
PROPOSED CONTOUR LINE	---
PROPOSED SPOT GRADE	x 100.00
ABBREVIATIONS	
- TC=TOP OF CURB	TC=100.00
- BC=BOTTOM OF CURB	BC=99.50
- TW=TOP OF WALL	TW=108.00
- BW=BOTTOM OF WALL	BW=100.00
PROPOSED SURFACE SLOPE	2%
ELECTRIC LINE	E
ELECTRIC AND TELECOMMUNICATIONS LINES	E/T
GAS LINE	G
WATER LINE	W
SANITARY SEWER LINE	S
SANITARY SEWER FORCE MAIN	SFM
OVERHEAD LINE	OH
TRANSFORMER	T
HYDRANT	⊙
UTILITY POLE	⊙
SANITARY/STORM MANHOLE	⊙
SANITARY/STORM CLEANOUT	⊙
WATER VALVE	⊙
GATE VALVE	⊙
THRUST BLOCK	⊙
GREASE TRAP	⊙



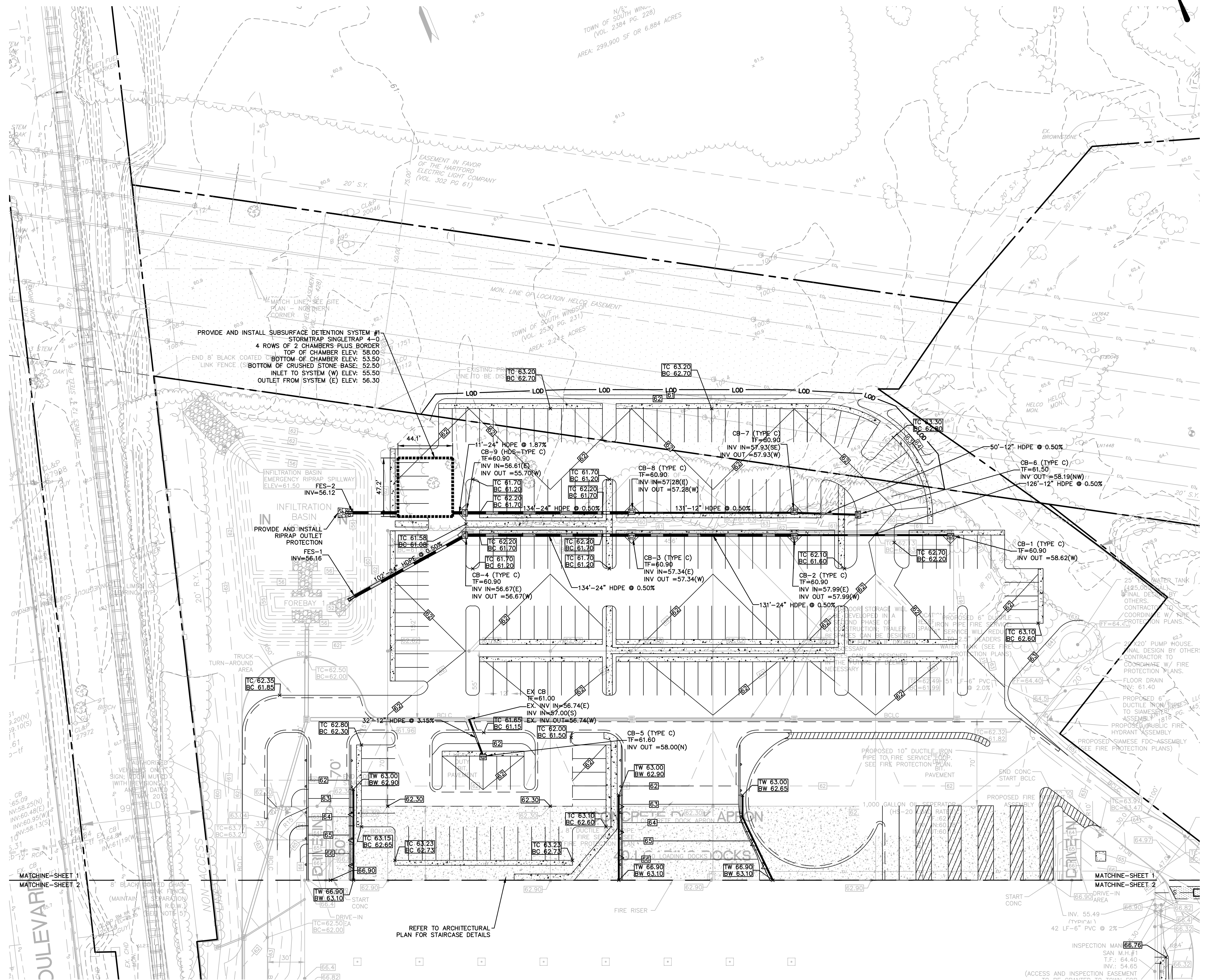
FOR PERMITTING PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION



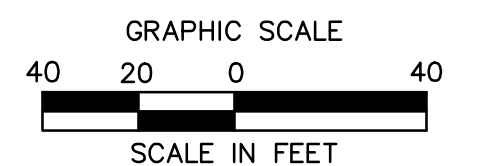
PROPOSED WAREHOUSE
240 ELLINGTON ROAD
SOUTH WINDSOR, HARTFORD COUNTY, CONNECTICUT

REVISIONS		Desc.
No.	Date	
Designed	A.J.S.	
Drawn	S.E.L.	
Reviewed		
Scale	1"=60'	
Project No.	2001166	
Date	11/13/2020	
CAD File:	GD200116601	
Title	GRADING AND DRAINAGE PLAN	
Sheet No.	OGD-1	

PROPERTY LINE	
LIMIT OF DISTURBANCE LINE AND CONTRACT LIMIT LINE	_____ 100
STORM LINE	_____
CATCH BASIN	_____
STORM MANHOLE	_____
FLARED END	_____
END WALL OR HEADWALL	_____
OUTLET CONTROL STRUCTURE	_____
HYDRODYNAMIC SEPARATOR	_____
PROPOSED CONTOUR LINE	_____
PROPOSED SPOT GRADE	_____
ABBREVIATIONS	
TC = TOP OF CURB	
BC = BOTTOM OF CURB	
TW = TOP OF WALL	
BW = BOTTOM OF WALL	
PROPOSED SURFACE SLOPE	_____
ELECTRIC LINE	_____ E _____ E
ELECTRIC AND TELECOMMUNICATIONS LINES	_____ E/T _____
GAS LINE	_____ G _____ G
WATER LINE	_____ W _____ W
SANITARY SEWER LINE	_____ S _____
SANITARY SEWER FORCE MAIN	_____ SFM _____
OVERHEAD LINE	_____ OH _____ OH
TRANSFORMER	_____
HYDRANT	_____
UTILITY POLE	_____
SANITARY/STORM MANHOLE	_____
SANITARY/STORM CLEANOUT	_____
WATER VALVE	_____
GATE VALVE	_____
THRUST BLOCK	_____
GREASE TRAP	_____

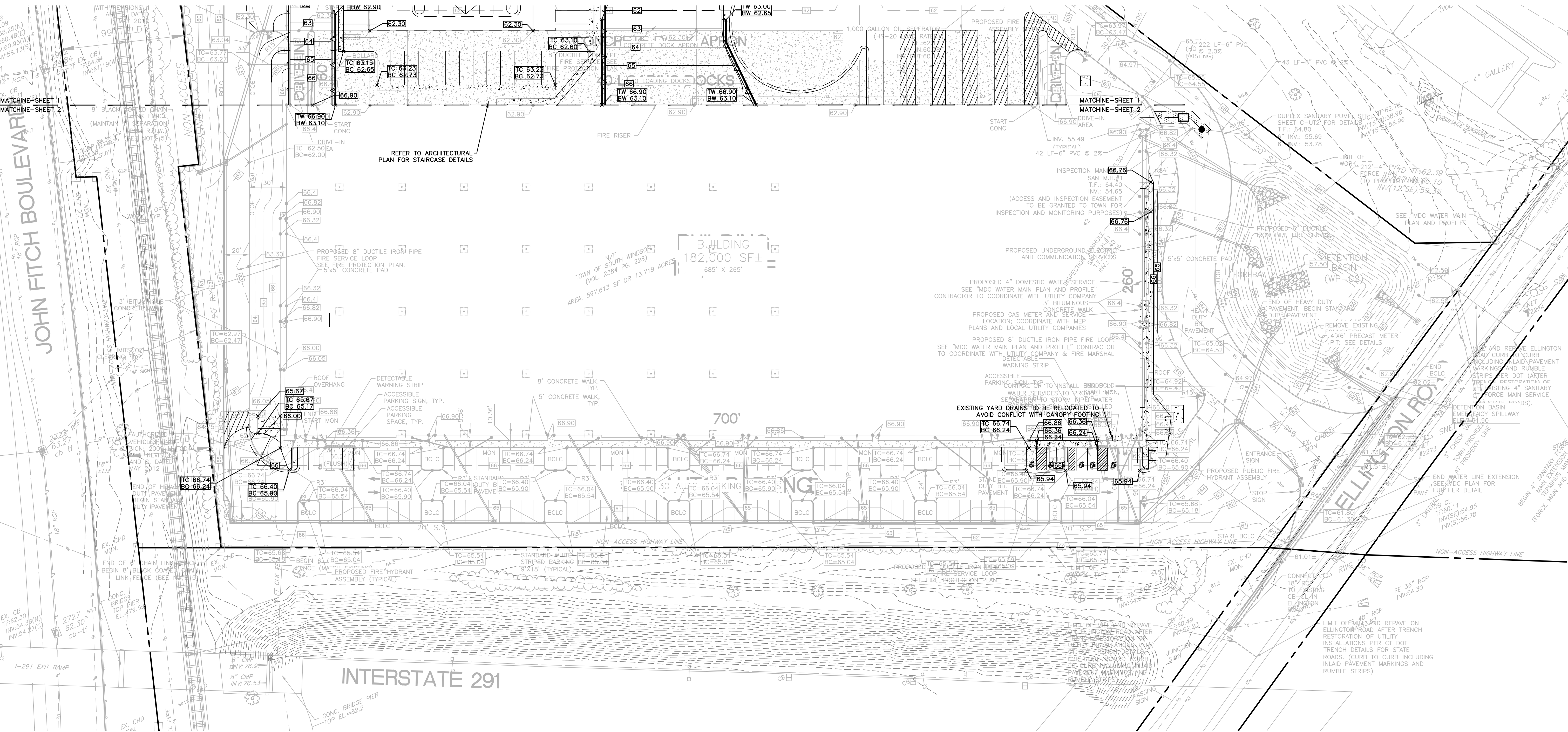


FOR PERMITTING PURPOSES ONLY
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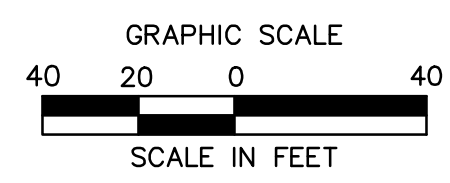


Grading and Drainage Legend

PROPERTY LINE	---	OVERHEAD LINE	OH
LIMIT OF DISTURBANCE LINE AND CONTRACT LIMIT LINE	---	TRANSFORMER	1
STORM LINE	---	HYDRANT	1
CATCH BASIN	1	UTILITY POLE	1
STORM MANHOLE	1	SANITARY/STORM MANHOLE	1
FLARED END	1	SANITARY/STORM CLEANOUT	1
END WALL OR HEADWALL	1	WATER VALVE	1
OUTLET CONTROL STRUCTURE	1	GATE VALVE	1
HYDRODYNAMIC SEPARATOR	1	THRUST BLOCK	1
PROPOSED CONTOUR LINE	---	GREASE TRAP	1
PROPOSED SPOT GRADE	100.00		
ABBREVIATIONS			
TO=TOP OF CURB	TC=100.00		
BC=BOTTOM OF CURB	BC=99.50		
TW=TOP OF WALL	TW=108.00		
BW=BOTTOM OF WALL	BW=100.00		
PROPOSED SURFACE SLOPE	2%		
ELECTRIC LINE	E		
ELECTRIC AND TELECOMMUNICATIONS LINES	E/T		
GAS LINE	G		
WATER LINE	W		
SANITARY SEWER LINE	S		
SANITARY SEWER FORCE MAIN	SFM		



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PROPOSED WAREHOUSE
240 ELLINGTON ROAD
SOUTH WINDSOR, HARTFORD COUNTY, CONNECTICUT

Desc.

REVISIONS	No.	Date
Designed	A.J.S.	
Drawn	S.E.L.	
Reviewed		
Scale	1"=40'	
Project No.	2001166	
Date	11/13/2020	
CAD File:	GD200116601	
Title	Grading and Drainage Plan	
Sheet No.	GD-2	

APPENDIX F

STORMWATER SYSTEM
OPERATION AND MAINTENANCE MANUAL

Appendix F:

**Stormwater System
Operations and Maintenance Plan**

For the Proposed:
Development

Located at:
240 Ellington Road
South Windsor, Connecticut

Prepared for Submission to:
Town of South Windsor, Connecticut

November 13, 2020

Prepared for:
Scannell Properties, LLC
8801 River Crossing Boulevard #300
Indianapolis, IN 46240

Prepared by:



BL Companies
100 Constitution Plaza, 10th Floor
Hartford, Connecticut 06103
Phone: (860) 249-2200
Fax: (860) 249-2400

BL Project Number: 2001166

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General Overview

The project parcel is located at 240 Ellington Road and is approximately 15.96 acres in size and is currently under construction. The building being constructed currently is a 182,000 warehouse with associated site improvements including parking, sidewalks, landscaping, lighting, utilities, and a stormwater management system. The proposed site plan modification includes additional parking, minor building exterior modifications, pedestrian safety features, landscaping, pads for future EV charging stations, and expansion to the stormwater management system for the increase in impervious. The remaining site area will remain as previously designed and/or unchanged and there will be no change to the building footprint. The property is located at the northeastern corner of the intersection of Route 5 and I-291 to the west of Ellington Road. It is roughly bordered by the I-291 Corridor Development Zone (CD) on the north.

In general, the existing topography, as under construction, generally drains towards the southeast and northwest to detention ponds. Elevations on site range from 48' to 91'. The construction includes catch basins and drainage piping on site.

The proposed stormwater management system has been designed to attenuate the increased flows generated by the parking expansion. Stormwater quality is being addressed by a formalized street sweeping program, deep sumps and hooded outlet catch basins, and a hydrodynamic separator. The two stormwater basins under construction will continue to function as approved. These features will provide the minimum required 80% TSS removal as required in the CT Stormwater Quality Manual.

The following Operations and Maintenance Plan was prepared specifically for this proposed development in the Town of South Windsor, Connecticut. The Plan was developed to satisfy the requirements of the Connecticut Department of Energy and Environmental Protection's 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

Purpose & Goals

The purpose of this Manual is to ensure that the stormwater management components are operated in accordance with all approvals and permits. The primary goal is to inform all the property managers about how the system operates and what maintenance items are necessary to protect downstream wetlands and watercourses. The secondary goal is to provide a practical, efficient means of maintenance planning and record keeping to verify permit compliance.

Responsible Parties

The Property Owner will be responsible for implementing the Plan on the property.

Maintenance inspections shall be performed by a qualified professional.

Some utilities located on the site will be owned and maintained by various utility companies in accordance with their standards. The property owner may maintain the service connections.

List of Permits & Special Conditions

The project will receive several permits, which may contain special conditions that require compliance by the property owner and maintenance contractors. This permit may include the following:

- Town of South Windsor – Site Plan Modification Permit, Building Permit

Maintenance Logs and Checklists

The property owner will keep a record of all maintenance procedures performed, date of inspection/ cleanings, etc. Copies of inspection reports and maintenance records shall be kept on-site.

Forms

The following forms will be developed for annual maintenance. Copies of the forms will be kept on-site as part of the Storm Water Management Plan.

- Annual Checklist
- Quarterly Checklist
- Monthly Checklist

Employee Training

The property owner will have an employee-training program, with annual up-dates, to ensure that the qualified employees charged with maintaining the buildings and grounds do so in accordance with the approved permit conditions. All employees that have maintenance duties will be adequately informed of their responsibilities.

Spill Control

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and clean-up:

- Manufacturer's recommended methods for spill clean-up will be clearly posted and site personnel will be made aware of the procedures and the location of the information and clean-up supplies.
- Materials and equipment necessary for spill clean-up will be kept in the material storage area on-site. Equipment and materials will include but not be limited to: absorbent booms or mats, brooms, dust pans, mops, rags, gloves, goggles, sand, and plastic and metal trash containers specifically for this purpose.

- All spills will be cleaned immediately after discovery.
- The spill area will be kept well-ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with hazardous substance.
- Spills of toxic or hazardous material, regardless of size, will be reported to the appropriate State or local government agency.
- If a spill occurs, this plan will be adjusted to include measures to prevent this type of spill from reoccurring and how to clean the spill if there is another one. A description of the spill, the cause, and the remediation measures will also be included.

A spill report shall be prepared by the property owner following each occurrence. The spill report shall present a description of the release, including quantity and type of material, date of spill, circumstances leading to the release, location of spill, response actions and personnel, documentation of notifications and corrective measures implemented to prevent reoccurrence.

The property owner shall identify an appropriately qualified and trained site employee involved with day-to-day site operations to be the spill prevention and clean-up coordinator. The name(s) of responsible spill personnel shall be posted on-site. Each employee shall be instructed that all spills are to be reported to the spill prevention and clean-up coordinator.

Storm Water Management

System Components

The storm water management system has several components that are shown on the Grading and Drainage Plan (GD-1 and GD-2), that performs various functions in treating storm water runoff:

Catch Basins and Manholes

The property owner is responsible for cleaning the catch basins and manholes on the property. A Connecticut Licensed hauler shall clean the sumps and dispose of removed sand legally. The road sand may be reused for winter sanding but may not be stored on-site. As part of the hauling contract, the hauler shall notify the property owner in writing where the material is being disposed.

Each catch basin shall be inspected every four months, with one inspection occurring during the month of April. Any debris occurring within one foot from the bottom of each sump shall be removed by Vacuum "Vactor" type of maintenance equipment.

During the inspection of each of the catch basin sumps, the hoods (where provided) on each of the outlet pipes shall also be observed for trash accumulation as well as overall condition. In the event that a hood is damaged or off the hanger, it shall be reset or repaired.

Hydrodynamic Separators (or approved equal)

The hydrodynamic separator manholes will be cleaned periodically during construction, and at the end of construction once the landscaped areas are fully stabilized.

For the first year of operation following construction, inspect each manhole once each month for the months of January, February, March and April, and once every four months thereafter. A graduated measuring device (stadia rod) shall be inserted into each grit chamber and measurements of any accumulations shall be recorded. Any debris, which has accumulated to within one foot of the water surface inside the grit chamber portion of each tank, shall be removed by vacuum "Vactor" type of equipment.

After the first year of operation, each manhole shall be inspected at a minimum, three times yearly with one inspection occurring in the month of April in the same manner as described above for the first season of operation. Any accumulations found to be occurring within one foot of the water surface shall be removed from the manhole and properly disposed off-site. Also, any floating material discovered during inspections shall be removed from the tank.

A detailed maintenance logbook shall be kept for each manhole. Information is to include, but not be limited to, the date of inspection, record of grit depth, condition of baffles, observation of any floatable, and date of cleaning performed.

Subsurface Detention System

The subsurface detention system shall be inspected every six months in the months of April and September. Each of the inspection ports provided shall be opened and visually checked from the surface. Observation of grit inside of the detention system shall be noted and any deposits found to be 2 inches or more, as measured from the invert of pipe, shall be cleaned and removed. The underground detention system qualifies as a Confined Space under OSHA regulations, and any maintenance involving entry into the pipes should comply with OSHA Confined Space Entry Regulations.

Site Maintenance

Parking Lots

Parking lots and sidewalks shall be swept as necessary by the property owner, or at least once per year, to clean sediment, trash, and other debris. The property owner will sweep parking lots on the property in the spring to remove winter accumulations of road sand.

Landscaping

The management company retained by the property owner will maintain landscaped areas. Normally the landscaping maintenance will consist of pruning, mulching, planting, mowing lawns, raking leaves, etc. Use of fertilizers and pesticides will be controlled and limited to minimal amounts necessary for healthy landscape maintenance.

The lawn areas, once established, will be maintained at a typical height of 3 ½". This will allow the grass to be maintained with minimal impact from weeds and/or pests. The low-maintenance areas will be maintained as a meadow or allowed to revert back to natural conditions. Topsoil, brush, leaves, clippings, woodchips, mulch, equipment, and other material shall be stored off site.

Outdoor Storage

There will be no outdoor storage of hazardous chemicals, de-icing agents, fertilizer, pesticides, or herbicides anywhere around the buildings.

Deicing and Snow Removal & Storage

The use of clean sand may be used to aid traction in conjunction with salt and/or chemicals for deicing, snow melting and other related winter weather management. Snow shall be shoveled and plowed from sidewalk and parking areas as soon as practical during and after winter storms. Sand accumulation shall be removed from the site at the end of the winter season or appropriate time when seasonal snow has melted. Alternative deicing methods must be submitted prior to use onsite for review to the Town of South Windsor for approval.

MAINTENANCE SCHEDULE

During the First Year of Operation:		
Task:	Completion Date:	Manager's Initials:
JANUARY:		
Employee Training Program with Spill Program		
*Catch Basin Inspection		
*Subsurface Stormwater Detention		
Hydrodynamic Separator		
FEBRUARY:		
*Subsurface Stormwater Detention		
Hydrodynamic Separator		
MARCH:		
* Subsurface Stormwater Detention		
Hydrodynamic Separator		
APRIL:		
*Catch Basin Inspection		
*Subsurface Stormwater Detention		
Sweeping of Paved Surfaces		
Shrub Fertilization		
Lawn Liming (if necessary)		
Hydrodynamic Separator		
JUNE:		
*Catch Basin Inspection		
Sweeping of Paved Surfaces		
SEPTEMBER:		
*Subsurface Stormwater Detention		
Sweeping of Paved Surfaces		
Tree and Lawn Fertilization		
Hydrodynamic Separator		
DECEMBER:		
*Catch Basin Inspection		
*Subsurface Stormwater Detention		
Sweeping of Paved Surfaces		
Hydrodynamic Separator		

*NOTE: Use appropriate worksheet found in this plan to conduct the inspection.

After the First Year of Operation:			
FOR YEAR _____			
Task:		Completion Date:	Manager's Initials:
JANUARY:			
Employee Training Program with Spill Program			
APRIL:			
*Catch Basin Inspection			
*Subsurface Stormwater Detention			
Sweeping of Paved Surfaces			
Shrub Fertilization			
Lawn Liming (if necessary)			
Hydrodynamic Separator			
JUNE:			
*Catch Basin Inspection			
Sweeping of Paved Surfaces			
SEPTEMBER:			
* Subsurface Stormwater Detention			
Sweeping of Paved Surfaces			
Tree and Lawn Fertilization			
Hydrodynamic Separator			
DECEMBER:			
*Catch Basin Inspection			
Sweeping of Paved Surfaces			
Hydrodynamic Separator			

*NOTE: Use appropriate worksheet found in this plan to conduct the inspection.

CATCH BASIN / CATCH BASIN INSERT INSPECTION LOG

Name of Inspector:

Date:

Catch Basin ID	Condition (circle one)		Debris above 1' within sump? (If yes then catch basin is to be cleaned)		Date of Catch Basin/Cleaning (if debris is greater than 1')		Condition of Hood (if applicable, remove trash/debris if necessary)	Comments:
	Excellent							
	Fair	Poor	Yes	No	Yes	No		
	Excellent							
	Fair	Poor	Yes	No	Yes	No		
	Excellent							
	Fair	Poor	Yes	No	Yes	No		
	Excellent							
	Fair	Poor	Yes	No	Yes	No		
	Excellent							
	Fair	Poor	Yes	No	Yes	No		
	Excellent							
	Fair	Poor	Yes	No	Yes	No		
	Excellent							
	Fair	Poor	Yes	No	Yes	No		
	Excellent							
	Fair	Poor	Yes	No	Yes	No		
	Excellent							

On-site Procedures for Inspection and Maintenance of Catch Basin Inserts

- Secure traffic and pedestrian traffic with cones, barrels, etc.
- Clean surface area around each catch basin.
- Remove grates and set aside
- Clean grates, remove litter and debris that may be trapped within the grate
- Visually inspect condition of outlet hood and remove trash and debris from hood if necessary.
- Remove by vacuum hose the debris that has been trapped in the trough area. Dispose of in accordance with local, state and federal regulatory agency requirements. Most debris that is captured in the trough or sump area will fall into the non-hazardous waste category.
- Visually inspect and check the condition of the trough area.
- Replace grate and lockdown as needed.
- Un-secure traffic control area.
- Complete service report and submit to facility owner.

SUBSURFACE STROWMATER DETENTION SYSTEM INSPECTION LOG

[illegible]

1 – Sediment deposits shall be removed from the subsurface detention basin when the deposited material reaches a height of 2" measured from the top of the stone bedding.