

PRELIMINARY DRAINAGE REPORT

“Timber Crest Estates” Medway, MA

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PRELIMINARY DRAINAGE REPORT
“Timber Crest Estates”
MEDWAY, MASSACHUSETTS

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DRAINAGE REPORT
“Timber Crest Estates”
MEDWAY, MASSACHUSETTS

Section 1.0: Introduction

These drainage calculations have been prepared to accompany the proposed Timber Crest Estates subdivision plans, part of a Comprehensive Permit filing under MGL Ch. 40B. The drainage calculations herein are preliminary in nature to document that stormwater runoff rates can be controlled using appropriate structural and low-impact development techniques, whereas the plans and drainage design will ultimately comply with the Massachusetts Department of Environmental Protection’s (DEP’s) Stormwater Management Regulations when finalized.

Section 2.0: Existing Conditions

Timber Crest Estates is located in the northerly area of Medway (refer to USGS Locus Map), containing 10 parcels of mostly woodlands, totaling 170 acres. The site is bordered by residential areas along Winthrop Street and Ohlson Circle to the west, Fairway Lane to the north, Holliston Street to the east, and Fern Path and Howe Street to the south. The site is in the AR-I zoning district. Homes in the area are generally ranch or colonial-style homes situated on lots ranging in size from approximately ¼ to 1+ acres.

The property is currently mostly wooded, except for homesites at 102 Winthrop Street and 165 Holliston Street, with two utility easements running parallel to each other across the site. These easements are for underground natural gas mains (Algonquin Gas Transmission Company) and overhead, electric power transmission lines (Boston Edison). The site topography is relatively gently sloping, characterized by small hills and lower valleys where wetlands are located.

The site location is not within any mapped environmentally sensitive areas based on review of MassGIS data, except for a small certified vernal pool located in the northeast portion of the site and several other potential vernal pools. The site is not within any regulatory floodways (i.e., no 100-yr. floodplains, see attached Flood Insurance Rate Map), state-designated Outstanding Resource Waters, Areas of Critical Environmental Concern (see attached map), Zone II of public wells or Zone A of public water supplies, or priority habitat of endangered or rare species as mapped by the MA Division of Fisheries and Wildlife (see attached map).

The wetlands on the site have been delineated with most of the bordering vegetated wetlands approved via two Orders of Resource Area Delineation issued by the Medway Conservation Commission; a third ORAD indicates that there is an intermittent stream present on the east portion of the site flowing to a culvert under Fairway Lane (note: the intermittent determination extends up to the south property line of the 165 Holliston Street property, although the stream has been observed to be dry across this property). The wetlands cover much of the interior portions of the site, and drain off-site to the northwest, northeast and southwest through three (3) different intermittent streams. Other

discharge points are located (1) along the west boundary of the site towards the Winthrop Street drainage system, (2) two isolated wetlands in the southwest corner of the site, and (3) the front yard of the house that drains east at 165 Holliston Street. These areas were delineated as a result of field investigations and review of the topography.

As such, the site was delineated into several sub-catchment areas, and runoff conditions were calculated at 6 design discharge points, representing the flow to each of the wetland areas and offsite at 165 Holliston Street (please refer to Appendix A-1 for Pre-Development Drainage Calcs and Appendix C for the Pre-Development Watershed Plan).

Section 3.0: Proposed Development

Timber Crest Estates is a planned unit development with two separate independent neighborhoods, which are bisected by wetlands and open space. The project consists of 157 homes, including 72 single family homes on the west portion of the site and 85 single-family homes on the east portion of the site. The subdivision roadway entrance for the west side is off of Winthrop Street directly opposite from Stephanie Road, ending in a cul de sac with an emergency access connecting to Ohlson Circle. The subdivision will be serviced by town sewer and water mains. Underground cable utilities and natural gas are also to be provided.

The east side subdivision includes roadway entrances that will connect Fairway Lane to Holliston Street, and a small cul de sac at the end of Fern Path. These east side homes will also be serviced by town water and sewer (requiring a pump station), with underground cable utilities and natural gas also to be provided.

Three permanent wetland crossings will be required to build the roadways, and two temporary wetland alterations will be required to connect town water mains and sewer force main between cul de sacs on the east side subdivision. Wetland replication areas will be provided at a ratio of 1:1.

The site design features sustainable development technologies to minimize the impact on the environment. It utilizes several low impact/sustainable development techniques in the site design and stormwater management including the following:

- Narrower roadways and short driveways to reduce impervious area,
- Roof drains are planned for all homes to recharge groundwater, and bioretention areas (or rain gardens) are planned in several locations to control runoff.
- Stormwater infiltration basins and detention basins are proposed to control the majority of site runoff.
- As was recommended by the Medway Department of Public Services in a comment letter, the stormwater system may be further evaluated during final design to incorporate other low impact development site design and drainage features, such as hammerhead or T-style turnarounds, grass swales etc.

All stormwater runoff will be directed to deep sump catch basins (and possibly grass swales if incorporated in final design) and piped to detention and infiltration basins which will store and infiltrate the runoff and slowly release it at a reduced flow rate from

existing conditions. Some of the runoff will be discharged into the underlying soil (via roof drains and infiltration basins) thus providing recharge to the local aquifer. Refer to Appendix A-2 for the post-development runoff calculations and Appendix C for the watershed map.

Section 4.0: Drainage Design Methodology

To determine changes in storm runoff for the proposed project, the HydroCAD Stormwater Modeling System software was used. This software closely approximates the USDA Soil Conservation Service (SCS) TR-20 methodology for calculating runoff. The calculations determined the change in the existing and post-development runoff rates to each drainage design point for each of the 2 year, 10 year, and 100 year storm events. All storm events analyzed comply with Technical Paper-40 (*Rainfall Frequency Atlas of the United States*) Rainfall Data.

Test pits were dug in many locations where stormwater basins are proposed to document soil types and groundwater conditions (refer to the subdivision plans for test pit locations and soil logs), and more remain to be done especially on the property at 165 Holliston Street. Infiltration rates are based on the soil types found at the test pits. Refer to Appendix B for NRCS soils maps.

The final project design will fully comply with the Department of Environmental Protections (DEP) Stormwater Management Regulations, incorporating a number of Best Management Practices (BMP's) for water quality, recharge and runoff control. These preliminary calculations document compliance with rate control and sizing of the detention and infiltration systems. Other calculations regarding pretreatment, water quality, and recharge volumes will be provided during final design. The appendices contain detailed runoff calculations for both existing and post-development watershed areas and design points, including routing calculations through the proposed infiltration and detention basins, and pre-and post-development watershed maps.

Section 5.0: Summary of Results

In accordance with the DEP requirements, drainage basins have been incorporated into the storm water design to control runoff for the 2 year, 10 year, and 100 year storm events below existing conditions. The preliminary design includes the following, which may be modified as the design is finalized:

- Catch basins and water quality tanks and/or sediment forebays will be used to achieve the DEP required pretreatment volumes prior to discharge to the infiltration and detention basins.
- Infiltration basins and underground leaching chambers are used extensively throughout the subdivision area. Generally, detention basins were used in areas where setbacks to wetlands were less than 50 ft.
- Roof drains will be used on all homes.
- Porous pavement is not planned at this time, although this and other low impact development BMPs may be incorporated into the final design. If utilized in final design, porous pavement would further reduce offsite runoff rates and volumes.

There are 6 off-site design points that were analyzed with a summary of runoff rates as follows.

Comparison of Pre- & Post-Development Runoff Rates
Design Point 1 - To Wetland and Low Area @ Winthrop Street

	<u>Pre development</u>	<u>Post development</u>
	Rate	Rate
<u>2 Year Storm (3.20")</u> <ul style="list-style-type: none"> • To Design Point 1 	0.33 cfs 0.077 af	0.14 cfs 0.028 af
<u>10 Year Storm (4.70")</u> <ul style="list-style-type: none"> • To Design Point 1 	3.42 cfs 0.480 af	3.00 cfs 0.328 af
<u>100 Year Storm (6.70")</u> <ul style="list-style-type: none"> • To Design Point 1 	11.94 cfs 1.228 af	4.68 cfs .908 af

Design Point 2 – To Intermittent Stream Flowing Offsite Northwest

	<u>Pre development</u>	<u>Post development</u>
	Rate	Rate
<u>2 Year Storm (3.20")</u> <ul style="list-style-type: none"> • To Design Point 2 	0.70 cfs 0.140 af	0.49 cfs 0.107 af
<u>10 Year Storm (4.70")</u> <ul style="list-style-type: none"> • To Design Point 2 	3.84 cfs 0.447 af	3.14 cfs 0.413 af
<u>100 Year Storm (6.70")</u> <ul style="list-style-type: none"> • To Design Point 2 	10.41 cfs 1.621 af	8.68 cfs 1.429 af

Design Point 3 - To Central Wetlands Flowing to Lovering Street

	<u>Pre development</u>	<u>Post development</u>
	Rate	Rate
<u>2 Year Storm (3.20")</u> <ul style="list-style-type: none"> • To Design Point 3 	1.65 cfs 0.394 af	1.40 cfs 0.352 af
<u>10 Year Storm (4.70")</u> <ul style="list-style-type: none"> • To Design Point 3 	9.47 cfs 1.43 af	8.74 cfs 1.399 af
<u>100 Year Storm (6.70")</u> <ul style="list-style-type: none"> • To Design Point 3 	29.08 cfs 3.735 af	29.06 cfs 3.652 af

Design Point 4 - To East Wetlands Flowing to Fairway Lane Culvert

	<u>Pre development</u>	<u>Post development</u>
	Rate	Rate
<u>2 Year Storm (3.20")</u> <ul style="list-style-type: none"> To Design Point 4 	3.15 cfs 0.418 af	2.95 cfs 0.388 af
<u>10 Year Storm (4.70")</u> <ul style="list-style-type: none"> To Design Point 4 	8.67 cfs 1.177 af	8.28 cfs 1.082 af
<u>100 Year Storm (6.70")</u> <ul style="list-style-type: none"> To Design Point 4 	23.17 cfs 2.711 af	22.67 cfs 2.504 af

Design Point 5 - To Onsite Isolated Wetlands North of Ohlson Circle

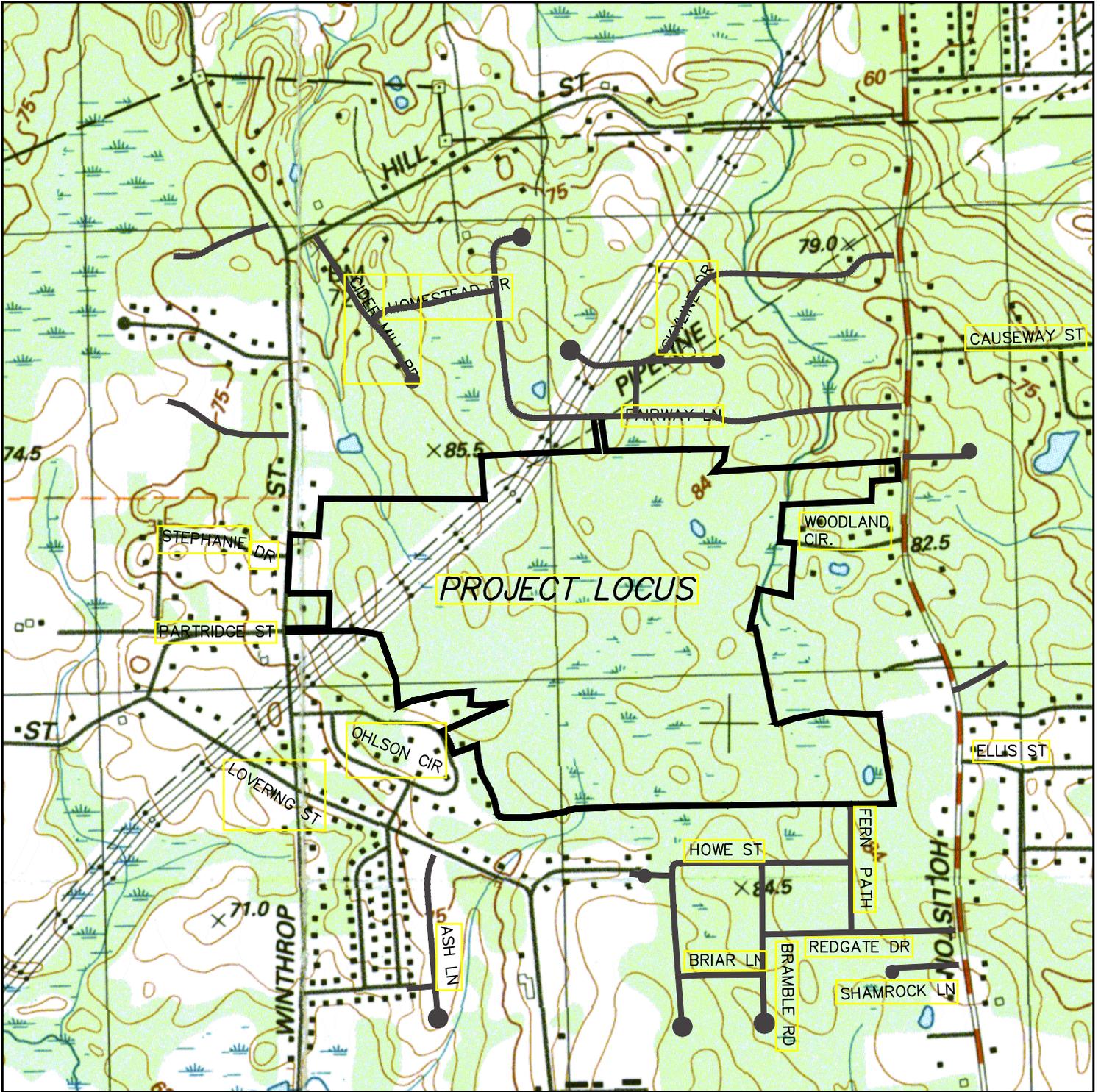
	<u>Pre development</u>	<u>Post development</u>
	Rate	Rate
<u>2 Year Storm (3.20")</u> <ul style="list-style-type: none"> To Design Point 5 	0.00 cfs 0.00 af	0.00 cfs 0.00 af
<u>10 Year Storm (4.70")</u> <ul style="list-style-type: none"> To Design Point 5 	0.00 cfs 0.00 af	0.00 cfs 0.001 af
<u>100 Year Storm (6.70")</u> <ul style="list-style-type: none"> To Design Point 5 	0.14 cfs 0.089 af	0.12 cfs 0.076 af

Design Point 6 - Offsite Towards Holliston Street

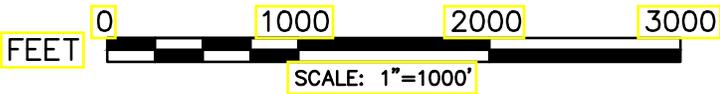
	<u>Pre development</u>	<u>Post development</u>
	Rate	Rate
<u>2 Year Storm (3.20")</u> <ul style="list-style-type: none"> To Design Point 6 	0.01 cfs 0.003 af	0.00 cfs 0.00 af
<u>10 Year Storm (4.70")</u> <ul style="list-style-type: none"> To Design Point 6 	0.09 cfs 0.010 af	0.00 cfs 0.00 af
<u>100 Year Storm (6.70")</u> <ul style="list-style-type: none"> To Design Point 6 	0.33 cfs 0.027 af	0.00 cfs * 0.00 af *

* All runoff from Road F is contained within leaching chamber LC1.

Refer to Appendices for runoff calculations and watershed plans.

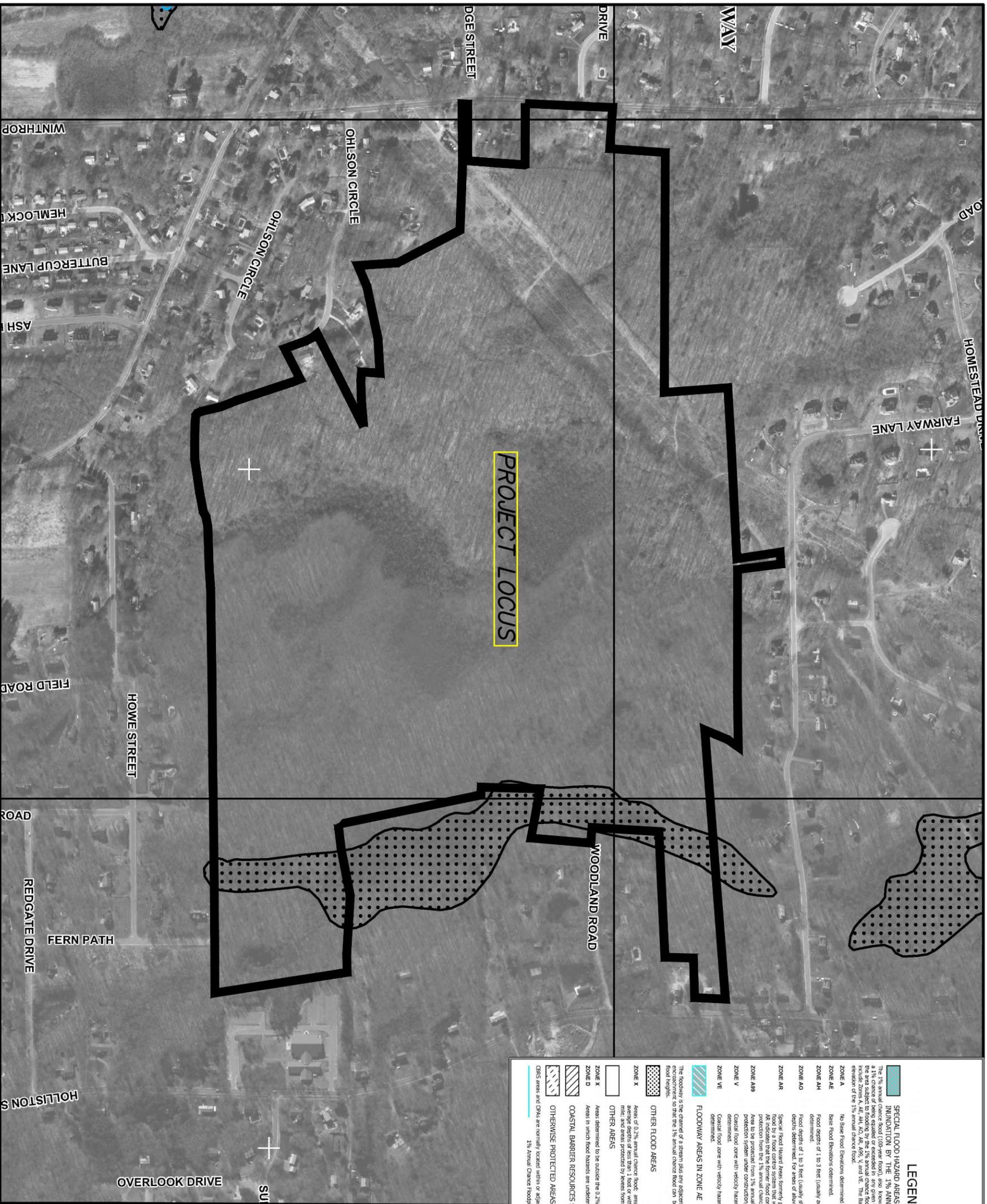


USGS LOCUS MAP
 "TIMBER CREST ESTATES"
 MEDWAY, MASS.
 SOURCE: USGS MAP



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LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
 The 1% Annual Chance 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 AE, AH, AO, ANR, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% Annual Chance Flood.

- ZONE AE**
No Base Flood Elevations determined. 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 areas of ponding). Base Flood Elevations determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR**
Special Flood Hazard Areas formerly protected from the 1% Annual Chance Flood by a flood control system that subsequently deteriorated. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% Annual Chance or greater flood.
- ZONE ANR**
Areas to be protected from the 1% Annual Chance Flood by a Federal Flood Protection System under construction. Base Flood Elevations determined. Coastal flood zones with velocity hazard (wave action); no base flood elevations determined.
- ZONE VE**
Coastal flood zones with velocity hazard (wave action). Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE
 The boundary to the channel of a stream that provides floodplain areas that must be kept free of obstructions to the 1% Annual Chance Flood can be shown. Structures located in flood heights.

OTHER FLOOD AREAS
 Areas of 0.2% annual chance flood, areas of 1% annual chance flood with average depths less than 1 foot, areas of 1% annual chance flood with average depths of 1 to 3 feet, and areas protected by levees from 1% annual chance flood.

OTHER AREAS
 Areas determined to be outside the 0.2% annual chance floodplain. Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS
 Areas in which flood hazards are undetermined, but possible.

OTHERWISE PROTECTED AREAS (OPAs)
 CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% Annual Chance Floodplain Boundary

NATIONAL FLOOD INSURANCE PROGRAM

LEGEND

PANEL 0141E

FIRM
 FLOOD INSURANCE RATE MAP
 NORFOLK COUNTY,
 MASSACHUSETTS
 (ALL JURISDICTIONS)

PANEL 141 OF 430
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:
 COMMUNITY NUMBER PANEL SURFIX
 MEDWAY TOWN OF 250243 0141 E

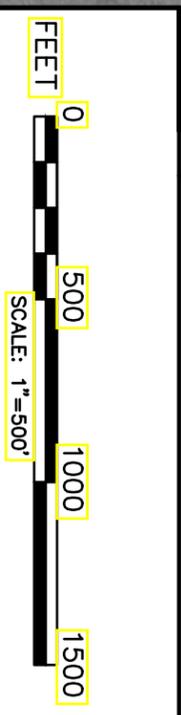
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

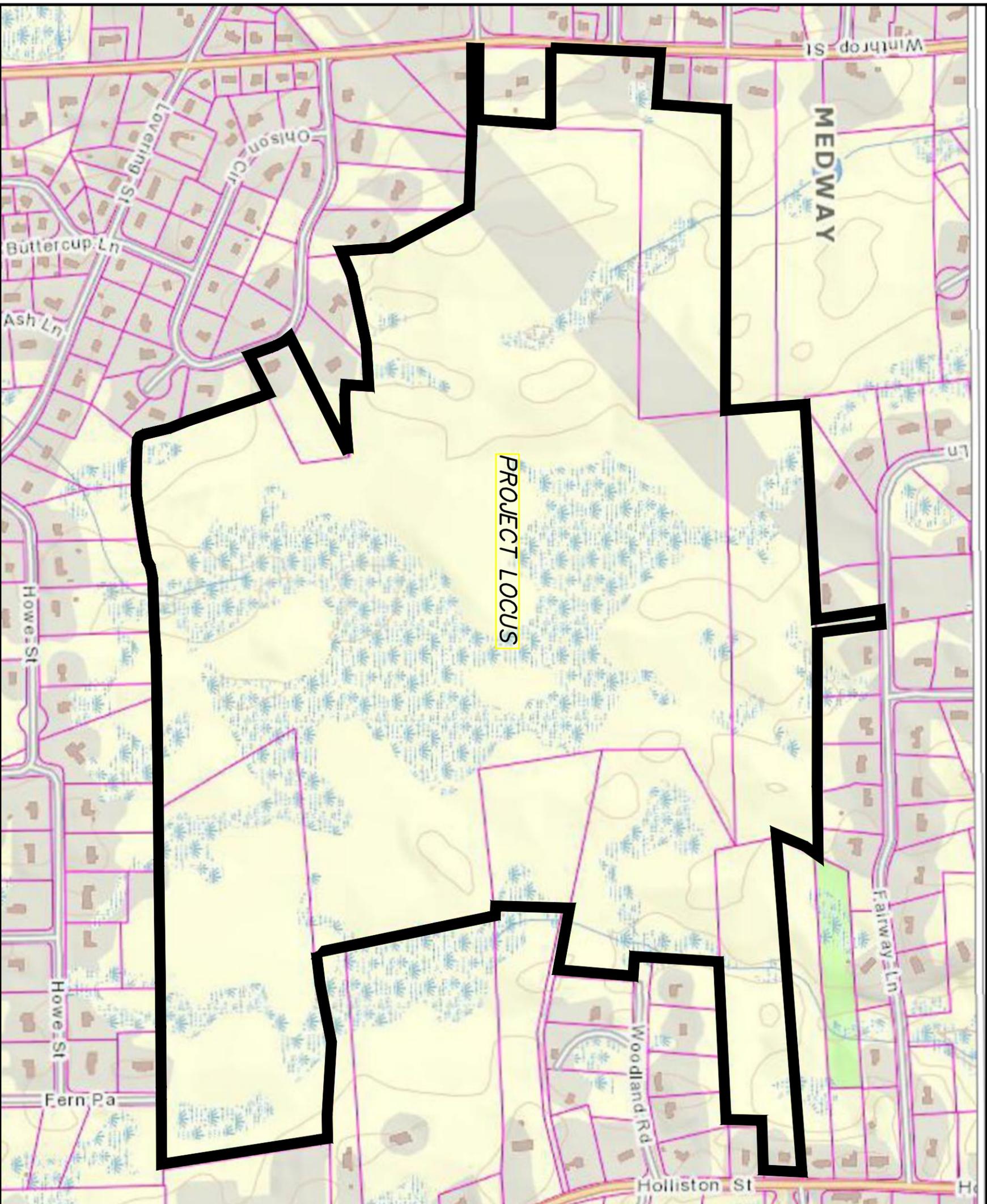
MAP NUMBER 25021C0141E
 EFFECTIVE DATE JULY 17, 2012
 Federal Emergency Management Agency

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FLOOD MAP
 "TIMBER CREST ESTATES"
 MEDWAY, MASS.
 SOURCE: BING MAPS





PROJECT LOCUS

Areas of Critical Environmental Concern ACECs

Tax Parcels for Query

Detailed Features

Tax Parcels

Structures

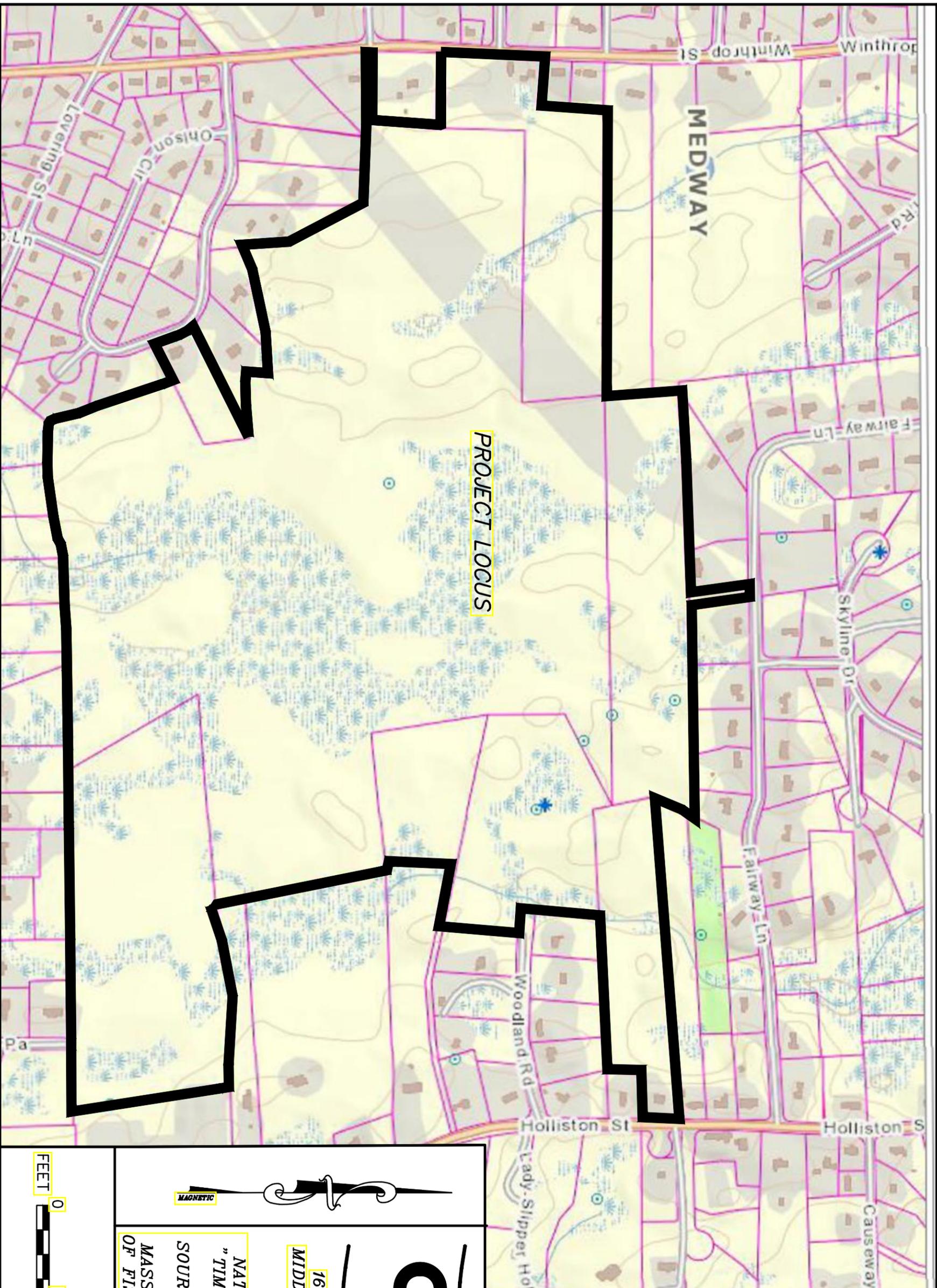


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AREAS OF CRITICAL AND ENVIRONMENTAL CONCERN "TIMBER CREST ESTATES" MEDWAY, MASS.
 SOURCE: MASSGIS





LEGEND

- NHESP Estimated Habitats of Rare Wildlife
- Potential Vernal Pools
- NHESP Priority Habitats of Rare Species
- NHESP Certified Vernal Pools
- Tax Parcels for Query
- Detailed Features
- Tax Parcels
- Structures



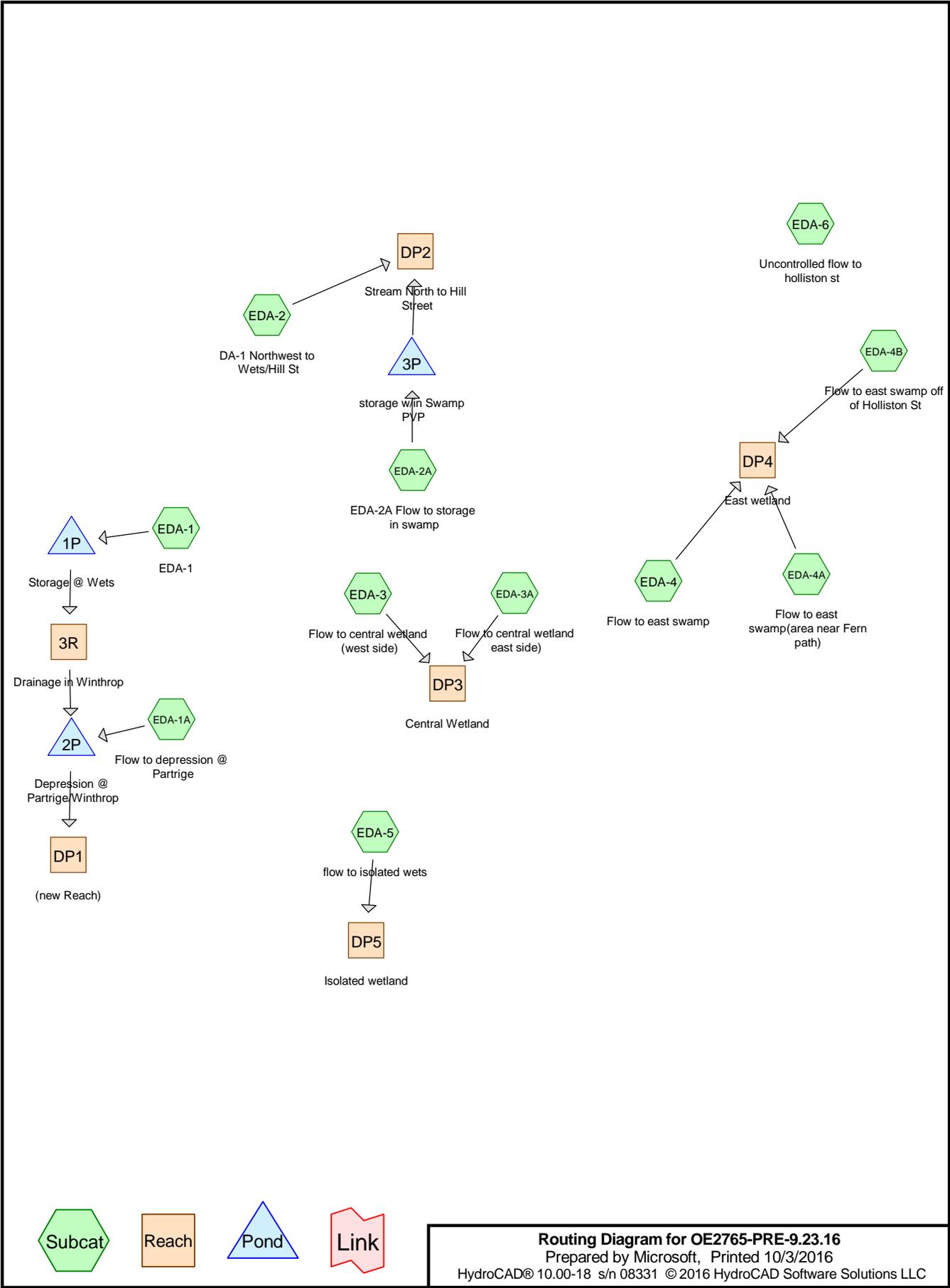
NATURAL HERITAGE MAP
 "TIMBER CREST ESTATES"
 MEDWAY, MASS.
 SOURCE: 2008 MAPPING BY
 NHESP OF THE
 MASSACHUSETTS DIVISIONS
 OF FISHERIES AND WILDLIFE

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Appendix A-1
EXISTING HYDROLOGY CALCULATIONS
(STANDARD #2)



Routing Diagram for OE2765-PRE-9.23.16
 Prepared by Microsoft, Printed 10/3/2016
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.723	51	1 acre lots, 20% imp, HSG A (EDA-1, EDA-1A, EDA-2, EDA-3, EDA-3A)
1.849	79	1 acre lots, 20% imp, HSG C (EDA-1, EDA-1A, EDA-2)
0.206	84	1 acre lots, 20% imp, HSG D (EDA-3A)
0.250	49	50-75% Grass cover, Fair, HSG A (EDA-4B, EDA-6)
0.115	39	>75% Grass cover, Good, HSG A (EDA-5)
0.019	98	Unconnected roofs, HSG A (EDA-6)
0.488	36	Woods, Fair, HSG A (EDA-2A)
0.141	73	Woods, Fair, HSG C (EDA-2)
3.026	79	Woods, Fair, HSG D (EDA-2, EDA-2A)
49.624	30	Woods, Good, HSG A (EDA-1, EDA-1A, EDA-2, EDA-2A, EDA-3, EDA-3A, EDA-4, EDA-4B, EDA-5)
17.861	70	Woods, Good, HSG C (EDA-1, EDA-2, EDA-3, EDA-3A, EDA-4, EDA-4A)
7.029	77	Woods, Good, HSG D (EDA-2, EDA-2A, EDA-3, EDA-3A, EDA-4, EDA-4A, EDA-4B)
0.004	98	ex roof (EDA-5)
0.071	49	ex. 163 holliston st lawn (EDA-4B)
0.017	98	ex. roof Monego (EDA-4B)
2.579	77	wetland , HSG D (EDA-3A)
0.713	30	wetland HSG A (EDA-3A)
88.715	47	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
55.932	HSG A	EDA-1, EDA-1A, EDA-2, EDA-2A, EDA-3, EDA-3A, EDA-4, EDA-4B, EDA-5, EDA-6
0.000	HSG B	
19.851	HSG C	EDA-1, EDA-1A, EDA-2, EDA-3, EDA-3A, EDA-4, EDA-4A
12.840	HSG D	EDA-2, EDA-2A, EDA-3, EDA-3A, EDA-4, EDA-4A, EDA-4B
0.093	Other	EDA-4B, EDA-5
88.715		TOTAL AREA

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Summary for Subcatchment EDA-1: EDA-1

Runoff = 1.19 cfs @ 12.40 hrs, Volume= 0.198 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
116,100	70	Woods, Good, HSG C
47,785	79	1 acre lots, 20% imp, HSG C
25,570	51	1 acre lots, 20% imp, HSG A
64,438	30	Woods, Good, HSG A
253,893	60	Weighted Average
239,222		94.22% Pervious Area
14,671		5.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
6.2	360	0.0380	0.97		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
18.5	410	Total			

Summary for Subcatchment EDA-1A: Flow to depression @ Partridge

Runoff = 0.04 cfs @ 12.99 hrs, Volume= 0.022 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
35,109	30	Woods, Good, HSG A
34,104	51	1 acre lots, 20% imp, HSG A
21,736	79	1 acre lots, 20% imp, HSG C
90,949	50	Weighted Average
79,781		87.72% Pervious Area
11,168		12.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
10.4	650	0.0430	1.04		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
20.9	700	Total			

Summary for Subcatchment EDA-2: DA-1 Northwest to Wets/Hill St

Runoff = 0.70 cfs @ 12.42 hrs, Volume= 0.140 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
70,267	70	Woods, Good, HSG C
97,291	30	Woods, Good, HSG A
23,173	77	Woods, Good, HSG D
15,000	51	1 acre lots, 20% imp, HSG A
11,000	79	1 acre lots, 20% imp, HSG C
1,983	30	Woods, Good, HSG A
37,177	79	Woods, Fair, HSG D
6,161	73	Woods, Fair, HSG C
262,052	56	Weighted Average
256,852		98.02% Pervious Area
5,200		1.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.8	400	0.0220	2.39		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
13.3	450	Total			

Summary for Subcatchment EDA-2A: EDA-2A Flow to storage in swamp

Runoff = 0.05 cfs @ 15.94 hrs, Volume= 0.032 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
354,543	30	Woods, Good, HSG A
55,228	77	Woods, Good, HSG D
21,275	36	Woods, Fair, HSG A
94,623	79	Woods, Fair, HSG D
525,669	44	Weighted Average
525,669		100.00% Pervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
9.4	420	0.0220	0.74		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
21.7	470	Total			

Summary for Subcatchment EDA-3: Flow to central wetland (west side)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
547,340	30	Woods, Good, HSG A
24,107	70	Woods, Good, HSG C
60,955	77	Woods, Good, HSG D
48,400	51	1 acre lots, 20% imp, HSG A
680,802	37	Weighted Average
671,122		98.58% Pervious Area
9,680		1.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	50	0.0260	0.08		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
3.1	187	0.0400	1.00		Shallow Concentrated Flow, BC Woodland Kv= 5.0 fps
14.2	237	Total			

Summary for Subcatchment EDA-3A: Flow to central wetland east side)

Runoff = 1.65 cfs @ 12.54 hrs, Volume= 0.394 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Area (sf)	CN	Description
276,175	30	Woods, Good, HSG A
210,377	70	Woods, Good, HSG C
99,197	77	Woods, Good, HSG D
82,670	51	1 acre lots, 20% imp, HSG A
8,962	84	1 acre lots, 20% imp, HSG D
* 31,051	30	wetland HSG A
* 112,352	77	wetland , HSG D
820,784	55	Weighted Average
802,458		97.77% Pervious Area
18,326		2.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, ab Woods: Light underbrush n= 0.400 P2= 3.20"
3.3	158	0.0260	0.81		Shallow Concentrated Flow, bc Woodland Kv= 5.0 fps
19.6	208	Total			

Summary for Subcatchment EDA-4: Flow to east swamp

Runoff = 0.09 cfs @ 15.20 hrs, Volume= 0.059 af, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
326,247	30	Woods, Good, HSG A
173,077	70	Woods, Good, HSG C
32,641	77	Woods, Good, HSG D
531,965	46	Weighted Average
531,965		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	50	0.0330	0.08		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
5.2	270	0.0300	0.87		Shallow Concentrated Flow, BC Woodland Kv= 5.0 fps
15.3	320	Total			

Summary for Subcatchment EDA-4A: Flow to east swamp(area near Fern path)

Runoff = 3.15 cfs @ 12.29 hrs, Volume= 0.359 af, Depth= 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Area (sf)	CN	Description
184,092	70	Woods, Good, HSG C
29,657	77	Woods, Good, HSG D
213,749	71	Weighted Average
213,749		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	50	0.0150	0.06		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
4.9	180	0.0150	0.61		Shallow Concentrated Flow, BC Woodland Kv= 5.0 fps
18.7	230	Total			

Summary for Subcatchment EDA-4B: Flow to east swamp off of Holliston St

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
179,571	30	Woods, Good, HSG A
5,339	77	Woods, Good, HSG D
* 740	98	ex. roof Monego
* 3,100	49	ex. 163 holliston st lawn
2,900	49	50-75% Grass cover, Fair, HSG A
191,650	32	Weighted Average
190,910		99.61% Pervious Area
740		0.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
1.1	233	0.0500	3.60		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
17.4	283	Total			

Summary for Subcatchment EDA-5: flow to isolated wets

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Area (sf)	CN	Description
278,932	30	Woods, Good, HSG A
* 192	98	ex roof
5,000	39	>75% Grass cover, Good, HSG A
284,124	30	Weighted Average
283,932		99.93% Pervious Area
192		0.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
0.9	210	0.0540	3.74		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
17.2	260	Total			

Summary for Subcatchment EDA-6: Uncontrolled flow to holliston st

Runoff = 0.01 cfs @ 12.43 hrs, Volume= 0.003 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Adj	Description
7,990	49		50-75% Grass cover, Fair, HSG A
809	98		Unconnected roofs, HSG A
8,799	54	51	Weighted Average, UI Adjusted
7,990			90.81% Pervious Area
809			9.19% Impervious Area
809			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"

Summary for Reach 3R: Drainage in Winthrop

Inflow Area = 5.829 ac, 5.78% Impervious, Inflow Depth = 0.12" for 2-Yr Storm event
Inflow = 0.30 cfs @ 13.18 hrs, Volume= 0.059 af
Outflow = 0.30 cfs @ 13.18 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP1: (new Reach)

Inflow Area = 7.916 ac, 7.49% Impervious, Inflow Depth = 0.12" for 2-Yr Storm event
Inflow = 0.33 cfs @ 13.21 hrs, Volume= 0.077 af
Outflow = 0.33 cfs @ 13.21 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP2: Stream North to Hill Street

Inflow Area = 18.084 ac, 0.66% Impervious, Inflow Depth = 0.09" for 2-Yr Storm event
Inflow = 0.70 cfs @ 12.42 hrs, Volume= 0.140 af
Outflow = 0.70 cfs @ 12.42 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP3: Central Wetland

Inflow Area = 34.472 ac, 1.87% Impervious, Inflow Depth = 0.14" for 2-Yr Storm event
Inflow = 1.65 cfs @ 12.54 hrs, Volume= 0.394 af
Outflow = 1.65 cfs @ 12.54 hrs, Volume= 0.394 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP4: East wetland

Inflow Area = 21.519 ac, 0.08% Impervious, Inflow Depth = 0.23" for 2-Yr Storm event
Inflow = 3.15 cfs @ 12.29 hrs, Volume= 0.418 af
Outflow = 3.15 cfs @ 12.29 hrs, Volume= 0.418 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP5: Isolated wetland

Inflow Area = 6.523 ac, 0.07% Impervious, Inflow Depth = 0.00" for 2-Yr Storm event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Storage @ Wets

Inflow Area = 5.829 ac, 5.78% Impervious, Inflow Depth = 0.41" for 2-Yr Storm event
Inflow = 1.19 cfs @ 12.40 hrs, Volume= 0.198 af
Outflow = 0.40 cfs @ 13.18 hrs, Volume= 0.184 af, Atten= 67%, Lag= 46.9 min
Discarded = 0.10 cfs @ 13.18 hrs, Volume= 0.125 af
Primary = 0.30 cfs @ 13.18 hrs, Volume= 0.059 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Peak Elev= 260.05' @ 13.18 hrs Surf.Area= 4,196 sf Storage= 2,429 cf

Plug-Flow detention time= 219.3 min calculated for 0.184 af (93% of inflow)
Center-of-Mass det. time= 184.0 min (1,116.0 - 932.0)

Volume	Invert	Avail.Storage	Storage Description			
#1	259.00'	8,718 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
259.00	850	120.0	0	0	850	
261.00	9,400	360.0	8,718	8,718	10,030	

Device	Routing	Invert	Outlet Devices								
#1	Discarded	259.00'	1.020 in/hr Exfiltration over Surface area								
#2	Primary	260.00'	10.0' long x 12.0' breadth Broad-Crested Rectangular Weir								
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60								
			Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64								

Discarded OutFlow Max=0.10 cfs @ 13.18 hrs HW=260.05' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.10 cfs)

Primary OutFlow Max=0.29 cfs @ 13.18 hrs HW=260.05' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.29 cfs @ 0.58 fps)

Summary for Pond 2P: Depression @ Partridge/Winthrop

Inflow Area = 7.916 ac, 7.49% Impervious, Inflow Depth = 0.12" for 2-Yr Storm event
 Inflow = 0.34 cfs @ 13.18 hrs, Volume= 0.082 af
 Outflow = 0.34 cfs @ 13.21 hrs, Volume= 0.082 af, Atten= 0%, Lag= 1.9 min
 Discarded = 0.01 cfs @ 13.21 hrs, Volume= 0.005 af
 Primary = 0.33 cfs @ 13.21 hrs, Volume= 0.077 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 254.50' @ 13.21 hrs Surf.Area= 191 sf Storage= 32 cf

Plug-Flow detention time= 2.0 min calculated for 0.081 af (100% of inflow)
Center-of-Mass det. time= 2.0 min (926.0 - 923.9)

Volume	Invert	Avail.Storage	Storage Description			
#1	254.00'	6,459 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
254.00	0	0.0	0	0	0	
255.50	1,720	170.0	860	860	2,303	
257.00	6,210	300.0	5,599	6,459	7,178	

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	254.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	254.20'	12.0" Round Culvert L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 254.20' / 254.00' S= 0.0200 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#3	Primary	256.00'	30.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.01 cfs @ 13.21 hrs HW=254.50' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.33 cfs @ 13.21 hrs HW=254.50' (Free Discharge)
↑**2=Culvert** (Inlet Controls 0.33 cfs @ 1.65 fps)
↑**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: storage w/in Swamp PVP

Inflow Area = 12.068 ac, 0.00% Impervious, Inflow Depth = 0.03" for 2-Yr Storm event
 Inflow = 0.05 cfs @ 15.94 hrs, Volume= 0.032 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 274.05' @ 25.25 hrs Surf.Area= 28,809 sf Storage= 1,402 cf

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

Volume	Invert	Avail.Storage	Storage Description			
#1	274.00'	48,566 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
274.00	27,000	1,100.0	0	0	27,000	
275.00	74,000	1,890.0	48,566	48,566	214,976	

Device	Routing	Invert	Outlet Devices
#1	Primary	274.50'	50.0' long x 50.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment EDA-1: EDA-1

Runoff = 4.63 cfs @ 12.30 hrs, Volume= 0.549 af, Depth= 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
116,100	70	Woods, Good, HSG C
47,785	79	1 acre lots, 20% imp, HSG C
25,570	51	1 acre lots, 20% imp, HSG A
64,438	30	Woods, Good, HSG A
253,893	60	Weighted Average
239,222		94.22% Pervious Area
14,671		5.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
6.2	360	0.0380	0.97		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
18.5	410	Total			

Summary for Subcatchment EDA-1A: Flow to depression @ Partridge

Runoff = 0.56 cfs @ 12.45 hrs, Volume= 0.100 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
35,109	30	Woods, Good, HSG A
34,104	51	1 acre lots, 20% imp, HSG A
21,736	79	1 acre lots, 20% imp, HSG C
90,949	50	Weighted Average
79,781		87.72% Pervious Area
11,168		12.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
10.4	650	0.0430	1.04		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
20.9	700	Total			

Summary for Subcatchment EDA-2: DA-1 Northwest to Wets/Hill St

Runoff = 3.84 cfs @ 12.22 hrs, Volume= 0.447 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
70,267	70	Woods, Good, HSG C
97,291	30	Woods, Good, HSG A
23,173	77	Woods, Good, HSG D
15,000	51	1 acre lots, 20% imp, HSG A
11,000	79	1 acre lots, 20% imp, HSG C
1,983	30	Woods, Good, HSG A
37,177	79	Woods, Fair, HSG D
6,161	73	Woods, Fair, HSG C
262,052	56	Weighted Average
256,852		98.02% Pervious Area
5,200		1.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.8	400	0.0220	2.39		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
13.3	450	Total			

Summary for Subcatchment EDA-2A: EDA-2A Flow to storage in swamp

Runoff = 1.09 cfs @ 12.60 hrs, Volume= 0.314 af, Depth= 0.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
354,543	30	Woods, Good, HSG A
55,228	77	Woods, Good, HSG D
21,275	36	Woods, Fair, HSG A
94,623	79	Woods, Fair, HSG D
525,669	44	Weighted Average
525,669		100.00% Pervious Area

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
9.4	420	0.0220	0.74		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
21.7	470	Total			

Summary for Subcatchment EDA-3: Flow to central wetland (west side)

Runoff = 0.19 cfs @ 15.10 hrs, Volume= 0.119 af, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
547,340	30	Woods, Good, HSG A
24,107	70	Woods, Good, HSG C
60,955	77	Woods, Good, HSG D
48,400	51	1 acre lots, 20% imp, HSG A
680,802	37	Weighted Average
671,122		98.58% Pervious Area
9,680		1.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	50	0.0260	0.08		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
3.1	187	0.0400	1.00		Shallow Concentrated Flow, BC Woodland Kv= 5.0 fps
14.2	237	Total			

Summary for Subcatchment EDA-3A: Flow to central wetland east side)

Runoff = 9.47 cfs @ 12.35 hrs, Volume= 1.311 af, Depth= 0.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Area (sf)	CN	Description
276,175	30	Woods, Good, HSG A
210,377	70	Woods, Good, HSG C
99,197	77	Woods, Good, HSG D
82,670	51	1 acre lots, 20% imp, HSG A
8,962	84	1 acre lots, 20% imp, HSG D
* 31,051	30	wetland HSG A
* 112,352	77	wetland , HSG D
820,784	55	Weighted Average
802,458		97.77% Pervious Area
18,326		2.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, ab Woods: Light underbrush n= 0.400 P2= 3.20"
3.3	158	0.0260	0.81		Shallow Concentrated Flow, bc Woodland Kv= 5.0 fps
19.6	208	Total			

Summary for Subcatchment EDA-4: Flow to east swamp

Runoff = 1.88 cfs @ 12.46 hrs, Volume= 0.400 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
326,247	30	Woods, Good, HSG A
173,077	70	Woods, Good, HSG C
32,641	77	Woods, Good, HSG D
531,965	46	Weighted Average
531,965		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	50	0.0330	0.08		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
5.2	270	0.0300	0.87		Shallow Concentrated Flow, BC Woodland Kv= 5.0 fps
15.3	320	Total			

Summary for Subcatchment EDA-4A: Flow to east swamp(area near Fern path)

Runoff = 7.35 cfs @ 12.27 hrs, Volume= 0.774 af, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Area (sf)	CN	Description
184,092	70	Woods, Good, HSG C
29,657	77	Woods, Good, HSG D
213,749	71	Weighted Average
213,749		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	50	0.0150	0.06		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
4.9	180	0.0150	0.61		Shallow Concentrated Flow, BC Woodland Kv= 5.0 fps
18.7	230	Total			

Summary for Subcatchment EDA-4B: Flow to east swamp off of Holliston St

Runoff = 0.01 cfs @ 23.03 hrs, Volume= 0.003 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
179,571	30	Woods, Good, HSG A
5,339	77	Woods, Good, HSG D
* 740	98	ex. roof Monego
* 3,100	49	ex. 163 holliston st lawn
2,900	49	50-75% Grass cover, Fair, HSG A
191,650	32	Weighted Average
190,910		99.61% Pervious Area
740		0.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
1.1	233	0.0500	3.60		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
17.4	283	Total			

Summary for Subcatchment EDA-5: flow to isolated wets

Runoff = 0.00 cfs @ 24.09 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

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 Type III 24-hr 10-Yr Storm Rainfall=4.70"
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Area (sf)	CN	Description
278,932	30	Woods, Good, HSG A
* 192	98	ex roof
5,000	39	>75% Grass cover, Good, HSG A
284,124	30	Weighted Average
283,932		99.93% Pervious Area
192		0.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
0.9	210	0.0540	3.74		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
17.2	260	Total			

Summary for Subcatchment EDA-6: Uncontrolled flow to holliston st

Runoff = 0.09 cfs @ 12.12 hrs, Volume= 0.010 af, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Adj	Description
7,990	49		50-75% Grass cover, Fair, HSG A
809	98		Unconnected roofs, HSG A
8,799	54	51	Weighted Average, UI Adjusted
7,990			90.81% Pervious Area
809			9.19% Impervious Area
809			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"

Summary for Reach 3R: Drainage in Winthrop

Inflow Area = 5.829 ac, 5.78% Impervious, Inflow Depth = 0.82" for 10-Yr Storm event
 Inflow = 3.89 cfs @ 12.44 hrs, Volume= 0.396 af
 Outflow = 3.89 cfs @ 12.44 hrs, Volume= 0.396 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP1: (new Reach)

Inflow Area = 7.916 ac, 7.49% Impervious, Inflow Depth = 0.73" for 10-Yr Storm event
Inflow = 3.42 cfs @ 12.62 hrs, Volume= 0.480 af
Outflow = 3.42 cfs @ 12.62 hrs, Volume= 0.480 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP2: Stream North to Hill Street

Inflow Area = 18.084 ac, 0.66% Impervious, Inflow Depth = 0.30" for 10-Yr Storm event
Inflow = 3.84 cfs @ 12.22 hrs, Volume= 0.447 af
Outflow = 3.84 cfs @ 12.22 hrs, Volume= 0.447 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP3: Central Wetland

Inflow Area = 34.472 ac, 1.87% Impervious, Inflow Depth = 0.50" for 10-Yr Storm event
Inflow = 9.47 cfs @ 12.35 hrs, Volume= 1.430 af
Outflow = 9.47 cfs @ 12.35 hrs, Volume= 1.430 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP4: East wetland

Inflow Area = 21.519 ac, 0.08% Impervious, Inflow Depth = 0.66" for 10-Yr Storm event
Inflow = 8.67 cfs @ 12.30 hrs, Volume= 1.177 af
Outflow = 8.67 cfs @ 12.30 hrs, Volume= 1.177 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP5: Isolated wetland

Inflow Area = 6.523 ac, 0.07% Impervious, Inflow Depth = 0.00" for 10-Yr Storm event
Inflow = 0.00 cfs @ 24.09 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.09 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Storage @ Wets

Inflow Area = 5.829 ac, 5.78% Impervious, Inflow Depth = 1.13" for 10-Yr Storm event
Inflow = 4.63 cfs @ 12.30 hrs, Volume= 0.549 af
Outflow = 4.01 cfs @ 12.44 hrs, Volume= 0.531 af, Atten= 13%, Lag= 8.3 min
Discarded = 0.12 cfs @ 12.44 hrs, Volume= 0.135 af
Primary = 3.89 cfs @ 12.44 hrs, Volume= 0.396 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Peak Elev= 260.28' @ 12.43 hrs Surf.Area= 5,275 sf Storage= 3,524 cf

Plug-Flow detention time= 85.6 min calculated for 0.531 af (97% of inflow)
Center-of-Mass det. time= 68.2 min (960.0 - 891.8)

Volume	Invert	Avail.Storage	Storage Description			
#1	259.00'	8,718 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
259.00	850	120.0	0	0	850	
261.00	9,400	360.0	8,718	8,718	10,030	

Device	Routing	Invert	Outlet Devices								
#1	Discarded	259.00'	1.020 in/hr Exfiltration over Surface area								
#2	Primary	260.00'	10.0' long x 12.0' breadth Broad-Crested Rectangular Weir								
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60								
			Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64								

Discarded OutFlow Max=0.12 cfs @ 12.44 hrs HW=260.28' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=3.87 cfs @ 12.44 hrs HW=260.28' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 3.87 cfs @ 1.37 fps)

Summary for Pond 2P: Depression @ Partridge/Winthrop

Inflow Area = 7.916 ac, 7.49% Impervious, Inflow Depth = 0.75" for 10-Yr Storm event
 Inflow = 4.45 cfs @ 12.44 hrs, Volume= 0.496 af
 Outflow = 3.55 cfs @ 12.62 hrs, Volume= 0.496 af, Atten= 20%, Lag= 11.1 min
 Discarded = 0.13 cfs @ 12.62 hrs, Volume= 0.016 af
 Primary = 3.42 cfs @ 12.62 hrs, Volume= 0.480 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 255.75' @ 12.62 hrs Surf.Area= 2,283 sf Storage= 1,365 cf

Plug-Flow detention time= 2.9 min calculated for 0.495 af (100% of inflow)
Center-of-Mass det. time= 2.9 min (888.8 - 885.8)

Volume	Invert	Avail.Storage	Storage Description			
#1	254.00'	6,459 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
254.00	0	0.0	0	0	0	
255.50	1,720	170.0	860	860	2,303	
257.00	6,210	300.0	5,599	6,459	7,178	

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	254.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	254.20'	12.0" Round Culvert L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 254.20' / 254.00' S= 0.0200 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#3	Primary	256.00'	30.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.13 cfs @ 12.62 hrs HW=255.75' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=3.42 cfs @ 12.62 hrs HW=255.75' (Free Discharge)
↑**2=Culvert** (Inlet Controls 3.42 cfs @ 4.35 fps)
↑**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: storage w/in Swamp PVP

Inflow Area = 12.068 ac, 0.00% Impervious, Inflow Depth = 0.31" for 10-Yr Storm event
 Inflow = 1.09 cfs @ 12.60 hrs, Volume= 0.314 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 274.39' @ 25.25 hrs Surf.Area= 42,791 sf Storage= 13,664 cf

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

Volume	Invert	Avail.Storage	Storage Description			
#1	274.00'	48,566 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
274.00	27,000	1,100.0	0	0	27,000	
275.00	74,000	1,890.0	48,566	48,566	214,976	

Device	Routing	Invert	Outlet Devices
#1	Primary	274.50'	50.0' long x 50.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment EDA-1: EDA-1

Runoff = 10.89 cfs @ 12.27 hrs, Volume= 1.163 af, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
116,100	70	Woods, Good, HSG C
47,785	79	1 acre lots, 20% imp, HSG C
25,570	51	1 acre lots, 20% imp, HSG A
64,438	30	Woods, Good, HSG A
253,893	60	Weighted Average
239,222		94.22% Pervious Area
14,671		5.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
6.2	360	0.0380	0.97		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
18.5	410	Total			

Summary for Subcatchment EDA-1A: Flow to depression @ Partridge

Runoff = 2.05 cfs @ 12.34 hrs, Volume= 0.261 af, Depth= 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
35,109	30	Woods, Good, HSG A
34,104	51	1 acre lots, 20% imp, HSG A
21,736	79	1 acre lots, 20% imp, HSG C
90,949	50	Weighted Average
79,781		87.72% Pervious Area
11,168		12.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
10.4	650	0.0430	1.04		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
20.9	700	Total			

Summary for Subcatchment EDA-2: DA-1 Northwest to Wets/Hill St

Runoff = 10.41 cfs @ 12.20 hrs, Volume= 1.015 af, Depth= 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
70,267	70	Woods, Good, HSG C
97,291	30	Woods, Good, HSG A
23,173	77	Woods, Good, HSG D
15,000	51	1 acre lots, 20% imp, HSG A
11,000	79	1 acre lots, 20% imp, HSG C
1,983	30	Woods, Good, HSG A
37,177	79	Woods, Fair, HSG D
6,161	73	Woods, Fair, HSG C
262,052	56	Weighted Average
256,852		98.02% Pervious Area
5,200		1.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.8	400	0.0220	2.39		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
13.3	450	Total			

Summary for Subcatchment EDA-2A: EDA-2A Flow to storage in swamp

Runoff = 6.61 cfs @ 12.41 hrs, Volume= 1.028 af, Depth= 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
354,543	30	Woods, Good, HSG A
55,228	77	Woods, Good, HSG D
21,275	36	Woods, Fair, HSG A
94,623	79	Woods, Fair, HSG D
525,669	44	Weighted Average
525,669		100.00% Pervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
9.4	420	0.0220	0.74		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
21.7	470	Total			

Summary for Subcatchment EDA-3: Flow to central wetland (west side)

Runoff = 3.20 cfs @ 12.46 hrs, Volume= 0.696 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
547,340	30	Woods, Good, HSG A
24,107	70	Woods, Good, HSG C
60,955	77	Woods, Good, HSG D
48,400	51	1 acre lots, 20% imp, HSG A
680,802	37	Weighted Average
671,122		98.58% Pervious Area
9,680		1.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	50	0.0260	0.08		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
3.1	187	0.0400	1.00		Shallow Concentrated Flow, BC Woodland Kv= 5.0 fps
14.2	237	Total			

Summary for Subcatchment EDA-3A: Flow to central wetland east side)

Runoff = 26.54 cfs @ 12.30 hrs, Volume= 3.040 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Area (sf)	CN	Description
276,175	30	Woods, Good, HSG A
210,377	70	Woods, Good, HSG C
99,197	77	Woods, Good, HSG D
82,670	51	1 acre lots, 20% imp, HSG A
8,962	84	1 acre lots, 20% imp, HSG D
* 31,051	30	wetland HSG A
* 112,352	77	wetland , HSG D
820,784	55	Weighted Average
802,458		97.77% Pervious Area
18,326		2.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, ab Woods: Light underbrush n= 0.400 P2= 3.20"
3.3	158	0.0260	0.81		Shallow Concentrated Flow, bc Woodland Kv= 5.0 fps
19.6	208	Total			

Summary for Subcatchment EDA-4: Flow to east swamp

Runoff = 9.39 cfs @ 12.27 hrs, Volume= 1.198 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
326,247	30	Woods, Good, HSG A
173,077	70	Woods, Good, HSG C
32,641	77	Woods, Good, HSG D
531,965	46	Weighted Average
531,965		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	50	0.0330	0.08		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
5.2	270	0.0300	0.87		Shallow Concentrated Flow, BC Woodland Kv= 5.0 fps
15.3	320	Total			

Summary for Subcatchment EDA-4A: Flow to east swamp(area near Fern path)

Runoff = 13.79 cfs @ 12.26 hrs, Volume= 1.420 af, Depth= 3.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Area (sf)	CN	Description
184,092	70	Woods, Good, HSG C
29,657	77	Woods, Good, HSG D
213,749	71	Weighted Average
213,749		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	50	0.0150	0.06		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
4.9	180	0.0150	0.61		Shallow Concentrated Flow, BC Woodland Kv= 5.0 fps
18.7	230	Total			

Summary for Subcatchment EDA-4B: Flow to east swamp off of Holliston St

Runoff = 0.16 cfs @ 13.00 hrs, Volume= 0.093 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
179,571	30	Woods, Good, HSG A
5,339	77	Woods, Good, HSG D
* 740	98	ex. roof Monego
* 3,100	49	ex. 163 holliston st lawn
2,900	49	50-75% Grass cover, Fair, HSG A
191,650	32	Weighted Average
190,910		99.61% Pervious Area
740		0.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
1.1	233	0.0500	3.60		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
17.4	283	Total			

Summary for Subcatchment EDA-5: flow to isolated wets

Runoff = 0.14 cfs @ 14.90 hrs, Volume= 0.089 af, Depth= 0.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Area (sf)	CN	Description
278,932	30	Woods, Good, HSG A
* 192	98	ex roof
5,000	39	>75% Grass cover, Good, HSG A
284,124	30	Weighted Average
283,932		99.93% Pervious Area
192		0.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
0.9	210	0.0540	3.74		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
17.2	260	Total			

Summary for Subcatchment EDA-6: Uncontrolled flow to holliston st

Runoff = 0.33 cfs @ 12.10 hrs, Volume= 0.027 af, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Adj	Description
7,990	49		50-75% Grass cover, Fair, HSG A
809	98		Unconnected roofs, HSG A
8,799	54	51	Weighted Average, UI Adjusted
7,990			90.81% Pervious Area
809			9.19% Impervious Area
809			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"

Summary for Reach 3R: Drainage in Winthrop

Inflow Area = 5.829 ac, 5.78% Impervious, Inflow Depth = 2.06" for 100-Yr Storm event
Inflow = 10.16 cfs @ 12.34 hrs, Volume= 0.999 af
Outflow = 10.16 cfs @ 12.34 hrs, Volume= 0.999 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP1: (new Reach)

Inflow Area = 7.916 ac, 7.49% Impervious, Inflow Depth = 1.86" for 100-Yr Storm event
Inflow = 11.94 cfs @ 12.36 hrs, Volume= 1.228 af
Outflow = 11.94 cfs @ 12.36 hrs, Volume= 1.228 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP2: Stream North to Hill Street

Inflow Area = 18.084 ac, 0.66% Impervious, Inflow Depth = 1.08" for 100-Yr Storm event
Inflow = 10.41 cfs @ 12.20 hrs, Volume= 1.621 af
Outflow = 10.41 cfs @ 12.20 hrs, Volume= 1.621 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP3: Central Wetland

Inflow Area = 34.472 ac, 1.87% Impervious, Inflow Depth = 1.30" for 100-Yr Storm event
Inflow = 29.08 cfs @ 12.32 hrs, Volume= 3.735 af
Outflow = 29.08 cfs @ 12.32 hrs, Volume= 3.735 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP4: East wetland

Inflow Area = 21.519 ac, 0.08% Impervious, Inflow Depth = 1.51" for 100-Yr Storm event
Inflow = 23.17 cfs @ 12.27 hrs, Volume= 2.711 af
Outflow = 23.17 cfs @ 12.27 hrs, Volume= 2.711 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP5: Isolated wetland

Inflow Area = 6.523 ac, 0.07% Impervious, Inflow Depth = 0.16" for 100-Yr Storm event
Inflow = 0.14 cfs @ 14.90 hrs, Volume= 0.089 af
Outflow = 0.14 cfs @ 14.90 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Storage @ Wets

Inflow Area = 5.829 ac, 5.78% Impervious, Inflow Depth = 2.39" for 100-Yr Storm event
Inflow = 10.89 cfs @ 12.27 hrs, Volume= 1.163 af
Outflow = 10.31 cfs @ 12.34 hrs, Volume= 1.144 af, Atten= 5%, Lag= 4.1 min
Discarded = 0.15 cfs @ 12.34 hrs, Volume= 0.145 af
Primary = 10.16 cfs @ 12.34 hrs, Volume= 0.999 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Peak Elev= 260.53' @ 12.34 hrs Surf.Area= 6,537 sf Storage= 4,953 cf

Plug-Flow detention time= 43.7 min calculated for 1.142 af (98% of inflow)
Center-of-Mass det. time= 35.3 min (902.9 - 867.7)

Volume	Invert	Avail.Storage	Storage Description			
#1	259.00'	8,718 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
259.00	850	120.0	0	0	850	
261.00	9,400	360.0	8,718	8,718	10,030	

Device	Routing	Invert	Outlet Devices								
#1	Discarded	259.00'	1.020 in/hr Exfiltration over Surface area								
#2	Primary	260.00'	10.0' long x 12.0' breadth Broad-Crested Rectangular Weir								
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60								
			Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64								

Discarded OutFlow Max=0.15 cfs @ 12.34 hrs HW=260.52' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.15 cfs)

Primary OutFlow Max=10.12 cfs @ 12.34 hrs HW=260.52' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 10.12 cfs @ 1.93 fps)

Summary for Pond 2P: Depression @ Partridge/Winthrop

Inflow Area = 7.916 ac, 7.49% Impervious, Inflow Depth = 1.91" for 100-Yr Storm event
 Inflow = 12.21 cfs @ 12.34 hrs, Volume= 1.260 af
 Outflow = 12.14 cfs @ 12.36 hrs, Volume= 1.260 af, Atten= 1%, Lag= 0.8 min
 Discarded = 0.20 cfs @ 12.36 hrs, Volume= 0.033 af
 Primary = 11.94 cfs @ 12.36 hrs, Volume= 1.228 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 256.22' @ 12.36 hrs Surf.Area= 3,532 sf Storage= 2,716 cf

Plug-Flow detention time= 3.6 min calculated for 1.258 af (100% of inflow)
Center-of-Mass det. time= 3.6 min (872.5 - 868.9)

Volume	Invert	Avail.Storage	Storage Description			
#1	254.00'	6,459 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
254.00	0	0.0	0	0	0	
255.50	1,720	170.0	860	860	2,303	
257.00	6,210	300.0	5,599	6,459	7,178	

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	254.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	254.20'	12.0" Round Culvert L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 254.20' / 254.00' S= 0.0200 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#3	Primary	256.00'	30.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.20 cfs @ 12.36 hrs HW=256.22' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.20 cfs)

Primary OutFlow Max=11.91 cfs @ 12.36 hrs HW=256.22' (Free Discharge)
↑**2=Culvert** (Inlet Controls 4.12 cfs @ 5.24 fps)
↑**3=Broad-Crested Rectangular Weir** (Weir Controls 7.80 cfs @ 1.17 fps)

Summary for Pond 3P: storage w/in Swamp PVP

Inflow Area = 12.068 ac, 0.00% Impervious, Inflow Depth = 1.02" for 100-Yr Storm event
 Inflow = 6.61 cfs @ 12.41 hrs, Volume= 1.028 af
 Outflow = 1.33 cfs @ 14.45 hrs, Volume= 0.606 af, Atten= 80%, Lag= 122.0 min
 Primary = 1.33 cfs @ 14.45 hrs, Volume= 0.606 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 274.55' @ 14.45 hrs Surf.Area= 49,785 sf Storage= 20,647 cf

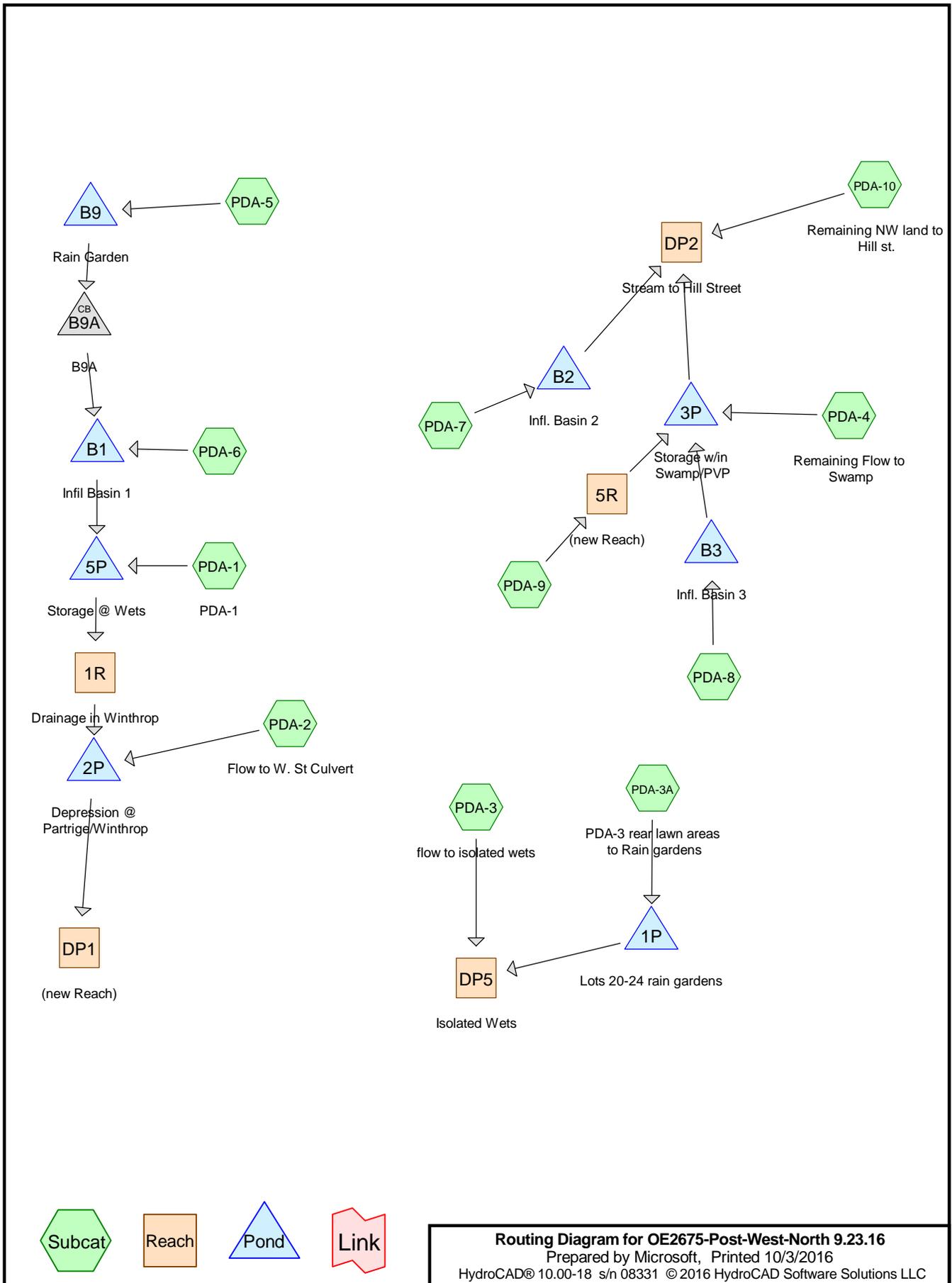
Plug-Flow detention time= 285.1 min calculated for 0.605 af (59% of inflow)
Center-of-Mass det. time= 149.5 min (1,072.5 - 923.1)

Volume	Invert	Avail.Storage	Storage Description			
#1	274.00'	48,566 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
274.00	27,000	1,100.0	0	0	27,000	
275.00	74,000	1,890.0	48,566	48,566	214,976	

Device	Routing	Invert	Outlet Devices
#1	Primary	274.50'	50.0' long x 50.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.32 cfs @ 14.45 hrs HW=274.55' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 1.32 cfs @ 0.57 fps)

Appendix A-2
POST-DEVELOPMENT HYDROLOGY CALCULATIONS
(STANDARD #2)



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.227	49	50-75% Grass cover, Fair, HSG A (PDA-1)
0.173	79	50-75% Grass cover, Fair, HSG C (PDA-1)
6.438	39	>75% Grass cover, Good, HSG A (PDA-10, PDA-2, PDA-3, PDA-3A, PDA-4, PDA-6, PDA-7, PDA-8)
3.085	74	>75% Grass cover, Good, HSG C (PDA-10, PDA-2, PDA-5, PDA-6, PDA-7)
0.028	80	>75% Grass cover, Good, HSG D (PDA-4)
1.517	35	Brush, Fair, HSG A (PDA-9)
0.003	98	Ex. Roofs, HSG A (PDA-5)
0.062	96	Gravel surface, HSG A (PDA-9)
0.999	98	Paved parking, HSG A (PDA-8)
1.569	98	Paved parking, HSG C (PDA-6, PDA-7)
3.415	79	Woods, Fair, HSG D (PDA-4)
8.285	30	Woods, Good, HSG A (PDA-10, PDA-2, PDA-3, PDA-4, PDA-6)
0.726	70	Woods, Good, HSG C (PDA-10, PDA-2, PDA-6)
1.397	77	Woods, Good, HSG D (PDA-10)
1.469	43	Woods/grass comb., Fair, HSG A (PDA-1, PDA-10, PDA-5, PDA-8)
0.089	76	Woods/grass comb., Fair, HSG C (PDA-10)
0.246	72	Woods/grass comb., Good, HSG C (PDA-1)
0.138	98	ex drive (PDA-2)
0.085	98	ex roof (PDA-10, PDA-2, PDA-3, PDA-9)
0.014	98	ex. roof (PDA-1)
29.965	54	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
19.000	HSG A	PDA-1, PDA-10, PDA-2, PDA-3, PDA-3A, PDA-4, PDA-5, PDA-6, PDA-7, PDA-8, PDA-9
0.000	HSG B	
5.887	HSG C	PDA-1, PDA-10, PDA-2, PDA-5, PDA-6, PDA-7
4.840	HSG D	PDA-10, PDA-4
0.237	Other	PDA-1, PDA-10, PDA-2, PDA-3, PDA-9
29.965		TOTAL AREA

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Type III 24-hr 2-year Rainfall=3.20"

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Summary for Subcatchment PDA-1: PDA-1

Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.033 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

Area (sf)	CN	Description
10,712	72	Woods/grass comb., Good, HSG C
9,898	49	50-75% Grass cover, Fair, HSG A
7,602	43	Woods/grass comb., Fair, HSG A
* 621	98	ex. roof
7,527	79	50-75% Grass cover, Fair, HSG C
36,360	62	Weighted Average
35,739		98.29% Pervious Area
621		1.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	30	0.0400	0.18		Sheet Flow, AB
					Grass: Short n= 0.150 P2= 3.20"
1.0	240	0.0600	3.94		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
3.8	270	Total			

Summary for Subcatchment PDA-10: Remaining NW land to Hill st.

Runoff = 0.48 cfs @ 12.45 hrs, Volume= 0.104 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

Area (sf)	CN	Description
26,256	43	Woods/grass comb., Fair, HSG A
3,882	76	Woods/grass comb., Fair, HSG C
* 885	98	ex roof
9,905	39	>75% Grass cover, Good, HSG A
21,520	74	>75% Grass cover, Good, HSG C
69,434	30	Woods, Good, HSG A
24,449	70	Woods, Good, HSG C
60,851	77	Woods, Good, HSG D
217,182	55	Weighted Average
216,297		99.59% Pervious Area
885		0.41% Impervious Area

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Type III 24-hr 2-year Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		Sheet Flow, AB
					Woods: Light underbrush n= 0.400 P2= 3.20"
2.8	400	0.0220	2.39		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
13.3	450	Total			

Summary for Subcatchment PDA-2: Flow to W. St Culvert

Runoff = 0.06 cfs @ 12.45 hrs, Volume= 0.020 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

Area (sf)	CN	Description
* 1,577	98	ex roof
* 6,027	98	ex drive
24,390	39	>75% Grass cover, Good, HSG A
12,331	74	>75% Grass cover, Good, HSG C
20,804	30	Woods, Good, HSG A
5,230	70	Woods, Good, HSG C
70,359	51	Weighted Average
62,755		89.19% Pervious Area
7,604		10.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	50	0.0360	0.19		Sheet Flow, AB
					Grass: Short n= 0.150 P2= 3.20"
2.1	485	0.0560	3.81		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
6.5	535	Total			

Summary for Subcatchment PDA-3: flow to isolated wets

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

Area (sf)	CN	Description
* 192	98	ex roof
28,475	39	>75% Grass cover, Good, HSG A
157,675	30	Woods, Good, HSG A
186,342	31	Weighted Average
186,150		99.90% Pervious Area
192		0.10% Impervious Area

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Type III 24-hr 2-year Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.4	160	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
18.7	210	Total			

Summary for Subcatchment PDA-3A: PDA-3 rear lawn areas to Rain gardens

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

Area (sf)	CN	Description
24,000	39	>75% Grass cover, Good, HSG A
24,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
0.5	65	0.0200	2.28		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
6.1	115	Total			

Summary for Subcatchment PDA-4: Remaining Flow to Swamp

Runoff = 0.71 cfs @ 12.39 hrs, Volume= 0.147 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

Area (sf)	CN	Description
50,626	39	>75% Grass cover, Good, HSG A
1,238	80	>75% Grass cover, Good, HSG D
105,623	30	Woods, Good, HSG A
148,756	79	Woods, Fair, HSG D
306,243	55	Weighted Average
306,243		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0200	0.17		Sheet Flow, Range n= 0.130 P2= 3.20"
4.3	420	0.0100	1.61		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.3	470	Total			

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Type III 24-hr 2-year Rainfall=3.20"

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Summary for Subcatchment PDA-5:

Runoff = 0.40 cfs @ 12.16 hrs, Volume= 0.041 af, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

Area (sf)	CN	Description
9,845	43	Woods/grass comb., Fair, HSG A
25,390	74	>75% Grass cover, Good, HSG C
* 140	98	Ex. Roofs, HSG A
35,375	65	Weighted Average
35,235		99.60% Pervious Area
140		0.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		Sheet Flow, AB
					Woods: Light underbrush n= 0.400 P2= 3.20"
0.8	110	0.0200	2.28		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
8.7	160	Total			

Summary for Subcatchment PDA-6:

Runoff = 1.78 cfs @ 12.15 hrs, Volume= 0.174 af, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

Area (sf)	CN	Description
47,443	74	>75% Grass cover, Good, HSG C
37,511	98	Paved parking, HSG C
47,391	39	>75% Grass cover, Good, HSG A
7,348	30	Woods, Good, HSG A
1,947	70	Woods, Good, HSG C
141,640	66	Weighted Average
104,129		73.52% Pervious Area
37,511		26.48% Impervious Area

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Type III 24-hr 2-year Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.9	127	0.0200	2.28		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
0.8	100	0.0100	2.03		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
1.2	475	0.0220	6.73	5.28	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
8.5	752	Total			

Summary for Subcatchment PDA-7:

Runoff = 1.50 cfs @ 12.18 hrs, Volume= 0.145 af, Depth= 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

Area (sf)	CN	Description
30,825	98	Paved parking, HSG C
27,957	39	>75% Grass cover, Good, HSG A
27,692	74	>75% Grass cover, Good, HSG C
86,474	71	Weighted Average
55,649		64.35% Pervious Area
30,825		35.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
1.0	191	0.0400	3.22		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
1.5	480	0.0100	5.36	4.21	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
11.8	721	Total			

Summary for Subcatchment PDA-8:

Runoff = 0.54 cfs @ 12.42 hrs, Volume= 0.094 af, Depth= 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

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Type III 24-hr 2-year Rainfall=3.20"

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Area (sf)	CN	Description
43,502	98	Paved parking, HSG A
67,683	39	>75% Grass cover, Good, HSG A
20,305	43	Woods/grass comb., Fair, HSG A
131,490	59	Weighted Average
87,988		66.92% Pervious Area
43,502		33.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	50	0.0120	0.06		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
1.8	239	0.0190	2.22		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
0.8	80	0.0070	1.70		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
0.2	47	0.0100	4.54	3.56	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
17.9	416	Total			

Summary for Subcatchment PDA-9:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.20"

Area (sf)	CN	Description
2,689	96	Gravel surface, HSG A
* 1,035	98	ex roof
66,090	35	Brush, Fair, HSG A
69,814	38	Weighted Average
68,779		98.52% Pervious Area
1,035		1.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
4.5	430	0.0100	1.61		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
12.0	480	Total			

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Type III 24-hr 2-year Rainfall=3.20"

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Summary for Reach 1R: Drainage in Winthrop

Inflow Area = 4.898 ac, 17.94% Impervious, Inflow Depth = 0.02" for 2-year event
 Inflow = 0.11 cfs @ 13.73 hrs, Volume= 0.009 af
 Outflow = 0.11 cfs @ 13.73 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach 5R: (new Reach)

Inflow Area = 1.603 ac, 1.48% Impervious, Inflow Depth = 0.00" for 2-year event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min

Avg. Velocity= 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs

Average Depth at Peak Storage= 0.00'

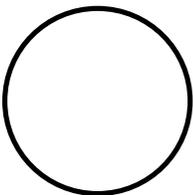
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.21 cfs

12.0" Round Pipe

n= 0.011 Concrete pipe, straight & clean

Length= 115.0' Slope= 0.0217 '/'

Inlet Invert= 279.50', Outlet Invert= 277.00'

**Summary for Reach DP1: (new Reach)**

Inflow Area = 6.514 ac, 16.17% Impervious, Inflow Depth = 0.05" for 2-year event
 Inflow = 0.14 cfs @ 13.74 hrs, Volume= 0.028 af
 Outflow = 0.14 cfs @ 13.74 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP2: Stream to Hill Street

Inflow Area = 18.623 ac, 9.40% Impervious, Inflow Depth = 0.07" for 2-year event
 Inflow = 0.49 cfs @ 12.48 hrs, Volume= 0.107 af
 Outflow = 0.49 cfs @ 12.48 hrs, Volume= 0.107 af, Atten= 0%, Lag= 0.0 min

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Type III 24-hr 2-year Rainfall=3.20"

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Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP5: Isolated Wets

Inflow Area = 4.829 ac, 0.09% Impervious, Inflow Depth = 0.00" for 2-year event
 Inflow = 0.00 cfs @ 23.99 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 23.99 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Lots 20-24 rain gardens

Inflow Area = 0.551 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-year event
 Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 23.99 hrs, Volume= 0.000 af, Atten= 2%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 23.99 hrs, Volume= 0.000 af
 Primary = 0.00 cfs @ 23.99 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Peak Elev= 275.00' @ 23.99 hrs Surf.Area= 1,123 sf Storage= 0 cf

Plug-Flow detention time= 5.0 min calculated for 0.000 af (100% of inflow)

Center-of-Mass det. time= 5.0 min (1,401.7 - 1,396.7)

Volume	Invert	Avail.Storage	Storage Description			
#1	275.00'	2,492 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
275.00	1,123	708.0	0	0	1,123	
276.70	1,838	721.0	2,492	2,492	3,036	

Device	Routing	Invert	Outlet Devices
#1	Discarded	275.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	275.00'	6.0" Round Culvert L= 20.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 275.00' / 274.80' S= 0.0100 ' /' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.20 sf

Discarded OutFlow Max=0.06 cfs @ 23.99 hrs HW=275.00' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 23.99 hrs HW=275.00' (Free Discharge)

↑**2=Culvert** (Barrel Controls 0.00 cfs @ 0.01 fps)

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Type III 24-hr 2-year Rainfall=3.20"

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Summary for Pond 2P: Depression @ Partrige/Winthrop

Inflow Area = 6.514 ac, 16.17% Impervious, Inflow Depth = 0.05" for 2-year event
 Inflow = 0.15 cfs @ 13.73 hrs, Volume= 0.029 af
 Outflow = 0.15 cfs @ 13.74 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.4 min
 Discarded = 0.00 cfs @ 13.74 hrs, Volume= 0.001 af
 Primary = 0.14 cfs @ 13.74 hrs, Volume= 0.028 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 255.50' @ 13.74 hrs Surf.Area= 1,721 sf Storage= 1 cf

Plug-Flow detention time= 0.1 min calculated for 0.029 af (100% of inflow)
 Center-of-Mass det. time= 0.1 min (949.8 - 949.6)

Volume	Invert	Avail.Storage	Storage Description			
#1	255.50'	5,599 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
255.50	1,720	170.0	0	0	1,720	
257.00	6,210	300.0	5,599	5,599	6,595	

Device	Routing	Invert	Outlet Devices			
#1	Discarded	255.50'	2.410 in/hr Exfiltration over Surface area			
#2	Primary	254.20'	12.0" Round Culvert			
			L= 10.0' CPP, mitered to conform to fill, Ke= 0.700			
			Inlet / Outlet Invert= 254.20' / 254.00' S= 0.0200 '/' Cc= 0.900			
			n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf			

Discarded OutFlow Max=0.10 cfs @ 13.74 hrs HW=255.50' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.10 cfs)

Primary OutFlow Max=2.99 cfs @ 13.74 hrs HW=255.50' (Free Discharge)
 ↑2=Culvert (Inlet Controls 2.99 cfs @ 3.80 fps)

Summary for Pond 3P: Storage w/in Swamp/PVP

Inflow Area = 11.652 ac, 8.77% Impervious, Inflow Depth = 0.15" for 2-year event
 Inflow = 0.71 cfs @ 12.39 hrs, Volume= 0.147 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 274.20' @ 24.60 hrs Surf.Area= 36,289 sf Storage= 6,402 cf

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

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Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	53,729 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	27,000	1,100.0	0	0	27,000
275.00	86,000	1,890.0	53,729	53,729	214,976

Device	Routing	Invert	Outlet Devices
#1	Primary	274.75'	50.0' long x 50.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' (Free Discharge)

↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 5P: Storage @ Wets

Inflow Area = 4.898 ac, 17.94% Impervious, Inflow Depth = 0.24" for 2-year event
 Inflow = 0.78 cfs @ 12.43 hrs, Volume= 0.098 af
 Outflow = 0.21 cfs @ 13.73 hrs, Volume= 0.098 af, Atten= 73%, Lag= 78.5 min
 Discarded = 0.10 cfs @ 13.73 hrs, Volume= 0.089 af
 Primary = 0.11 cfs @ 13.73 hrs, Volume= 0.009 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 260.03' @ 13.73 hrs Surf.Area= 4,087 sf Storage= 2,326 cf

Plug-Flow detention time= 280.0 min calculated for 0.098 af (100% of inflow)
 Center-of-Mass det. time= 279.9 min (1,115.2 - 835.3)

Volume	Invert	Avail.Storage	Storage Description
#1	259.00'	8,718 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
259.00	850	120.0	0	0	850
261.00	9,400	360.0	8,718	8,718	10,030

Device	Routing	Invert	Outlet Devices
#1	Discarded	259.00'	1.020 in/hr Exfiltration over Surface area
#2	Primary	260.00'	10.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Discarded OutFlow Max=0.10 cfs @ 13.73 hrs HW=260.03' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.10 cfs)

Primary OutFlow Max=0.11 cfs @ 13.73 hrs HW=260.03' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.11 cfs @ 0.41 fps)

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Summary for Pond B1: Infil Basin 1

Inflow Area = 4.064 ac, 21.27% Impervious, Inflow Depth = 0.51" for 2-year event
 Inflow = 1.78 cfs @ 12.15 hrs, Volume= 0.174 af
 Outflow = 0.82 cfs @ 12.49 hrs, Volume= 0.174 af, Atten= 54%, Lag= 20.6 min
 Discarded = 0.19 cfs @ 12.49 hrs, Volume= 0.110 af
 Primary = 0.63 cfs @ 12.49 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 262.45' @ 12.49 hrs Surf.Area= 3,349 sf Storage= 1,400 cf

Plug-Flow detention time= 23.8 min calculated for 0.174 af (100% of inflow)
 Center-of-Mass det. time= 23.6 min (917.0 - 893.4)

Volume	Invert	Avail.Storage	Storage Description			
#1	262.00'	20,805 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
262.00	2,901	298.0	0	0	2,901	
264.00	5,145	425.0	7,940	7,940	10,244	
266.00	7,813	463.0	12,865	20,805	13,072	

Device	Routing	Invert	Outlet Devices
#1	Discarded	262.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	262.00'	12.0" Round Culvert L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 262.00' / 261.80' S= 0.0067 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Discarded OutFlow Max=0.19 cfs @ 12.49 hrs HW=262.45' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.63 cfs @ 12.49 hrs HW=262.45' (Free Discharge)
 ↑2=Culvert (Barrel Controls 0.63 cfs @ 2.73 fps)

Summary for Pond B2: Infil. Basin 2

Inflow Area = 1.985 ac, 35.65% Impervious, Inflow Depth = 0.88" for 2-year event
 Inflow = 1.50 cfs @ 12.18 hrs, Volume= 0.145 af
 Outflow = 0.42 cfs @ 12.68 hrs, Volume= 0.145 af, Atten= 72%, Lag= 30.0 min
 Discarded = 0.36 cfs @ 12.68 hrs, Volume= 0.143 af
 Primary = 0.05 cfs @ 12.68 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 275.66' @ 12.68 hrs Surf.Area= 1,903 sf Storage= 1,674 cf

Plug-Flow detention time= 38.1 min calculated for 0.145 af (100% of inflow)
 Center-of-Mass det. time= 38.0 min (915.6 - 877.6)

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Volume	Invert	Avail.Storage	Storage Description
#1	274.50'	12,934 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.50	1,036	247.0	0	0	1,036
276.00	2,212	275.0	2,381	2,381	2,263
278.00	3,976	313.0	6,102	8,483	4,136
279.00	4,943	332.0	4,451	12,934	5,163

Device	Routing	Invert	Outlet Devices
#1	Discarded	274.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	275.50'	4.0" Vert. Orifice/Grate C= 0.600
#3	Primary	277.20'	0.8' long x 1.80' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.7' Crest Height

Discarded OutFlow Max=0.36 cfs @ 12.68 hrs HW=275.66' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.36 cfs)

Primary OutFlow Max=0.05 cfs @ 12.68 hrs HW=275.66' (Free Discharge)

↑**2=Orifice/Grate** (Orifice Controls 0.05 cfs @ 1.34 fps)

↑**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B3: Infl. Basin 3

Inflow Area = 3.019 ac, 33.08% Impervious, Inflow Depth = 0.37" for 2-year event
 Inflow = 0.54 cfs @ 12.42 hrs, Volume= 0.094 af
 Outflow = 0.25 cfs @ 12.88 hrs, Volume= 0.094 af, Atten= 53%, Lag= 27.9 min
 Discarded = 0.25 cfs @ 12.88 hrs, Volume= 0.094 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 276.11' @ 12.88 hrs Surf.Area= 4,543 sf Storage= 514 cf

Plug-Flow detention time= 17.4 min calculated for 0.094 af (100% of inflow)
 Center-of-Mass det. time= 17.2 min (954.6 - 937.4)

Volume	Invert	Avail.Storage	Storage Description
#1	276.00'	24,974 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
276.00	4,450	275.0	0	0	4,450
278.00	6,210	314.0	10,611	10,611	6,371
280.00	8,199	351.0	14,363	24,974	8,438

Device	Routing	Invert	Outlet Devices
#1	Discarded	276.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	278.50'	0.5' long x 0.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.5' Crest Height

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Discarded OutFlow Max=0.25 cfs @ 12.88 hrs HW=276.11' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.25 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=276.00' (Free Discharge)

↑**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B9: Rain Garden

Inflow Area = 0.812 ac, 0.40% Impervious, Inflow Depth = 0.60" for 2-year event
 Inflow = 0.40 cfs @ 12.16 hrs, Volume= 0.041 af
 Outflow = 0.05 cfs @ 13.93 hrs, Volume= 0.041 af, Atten= 86%, Lag= 106.5 min
 Discarded = 0.05 cfs @ 13.93 hrs, Volume= 0.041 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 271.33' @ 13.93 hrs Surf.Area= 2,305 sf Storage= 585 cf

Plug-Flow detention time= 122.0 min calculated for 0.041 af (100% of inflow)
 Center-of-Mass det. time= 121.9 min (1,019.8 - 897.9)

Volume	Invert	Avail.Storage	Storage Description			
#1	271.00'	1,703 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
271.00	1,298	395.0	0	0	1,298	
271.70	3,783	433.0	1,703	1,703	3,819	

Device	Routing	Invert	Outlet Devices	
#1	Discarded	271.00'	1.020 in/hr Exfiltration over Surface area	
#2	Primary	271.40'	2.0" x 2.0" Horiz. Orifice/Grate X 36.00 C= 0.600 Limited to weir flow at low heads	

Discarded OutFlow Max=0.05 cfs @ 13.93 hrs HW=271.33' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=271.00' (Free Discharge)

↑**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond B9A: B9A

Inflow Area = 0.812 ac, 0.40% Impervious, Inflow Depth = 0.00" for 2-year event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

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Peak Elev= 269.00' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	269.00'	12.0" Round Culvert L= 150.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 269.00' / 267.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=269.00' (Free Discharge)↑**1=Culvert** (Controls 0.00 cfs)

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Type III 24-hr 10-year Rainfall=4.70"

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Summary for Subcatchment PDA-1: PDA-1

Runoff = 1.18 cfs @ 12.07 hrs, Volume= 0.087 af, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

Area (sf)	CN	Description
10,712	72	Woods/grass comb., Good, HSG C
9,898	49	50-75% Grass cover, Fair, HSG A
7,602	43	Woods/grass comb., Fair, HSG A
* 621	98	ex. roof
7,527	79	50-75% Grass cover, Fair, HSG C
36,360	62	Weighted Average
35,739		98.29% Pervious Area
621		1.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	30	0.0400	0.18		Sheet Flow, AB
					Grass: Short n= 0.150 P2= 3.20"
1.0	240	0.0600	3.94		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
3.8	270	Total			

Summary for Subcatchment PDA-10: Remaining NW land to Hill st.

Runoff = 2.85 cfs @ 12.23 hrs, Volume= 0.347 af, Depth= 0.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

Area (sf)	CN	Description
26,256	43	Woods/grass comb., Fair, HSG A
3,882	76	Woods/grass comb., Fair, HSG C
* 885	98	ex roof
9,905	39	>75% Grass cover, Good, HSG A
21,520	74	>75% Grass cover, Good, HSG C
69,434	30	Woods, Good, HSG A
24,449	70	Woods, Good, HSG C
60,851	77	Woods, Good, HSG D
217,182	55	Weighted Average
216,297		99.59% Pervious Area
885		0.41% Impervious Area

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Type III 24-hr 10-year Rainfall=4.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		Sheet Flow, AB
					Woods: Light underbrush n= 0.400 P2= 3.20"
2.8	400	0.0220	2.39		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
13.3	450	Total			

Summary for Subcatchment PDA-2: Flow to W. St Culvert

Runoff = 0.67 cfs @ 12.15 hrs, Volume= 0.084 af, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

Area (sf)	CN	Description
* 1,577	98	ex roof
* 6,027	98	ex drive
24,390	39	>75% Grass cover, Good, HSG A
12,331	74	>75% Grass cover, Good, HSG C
20,804	30	Woods, Good, HSG A
5,230	70	Woods, Good, HSG C
70,359	51	Weighted Average
62,755		89.19% Pervious Area
7,604		10.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	50	0.0360	0.19		Sheet Flow, AB
					Grass: Short n= 0.150 P2= 3.20"
2.1	485	0.0560	3.81		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
6.5	535	Total			

Summary for Subcatchment PDA-3: flow to isolated wets

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.001 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

Area (sf)	CN	Description
* 192	98	ex roof
28,475	39	>75% Grass cover, Good, HSG A
157,675	30	Woods, Good, HSG A
186,342	31	Weighted Average
186,150		99.90% Pervious Area
192		0.10% Impervious Area

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Type III 24-hr 10-year Rainfall=4.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.4	160	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
18.7	210	Total			

Summary for Subcatchment PDA-3A: PDA-3 rear lawn areas to Rain gardens

Runoff = 0.01 cfs @ 13.76 hrs, Volume= 0.007 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

Area (sf)	CN	Description
24,000	39	>75% Grass cover, Good, HSG A
24,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
0.5	65	0.0200	2.28		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
6.1	115	Total			

Summary for Subcatchment PDA-4: Remaining Flow to Swamp

Runoff = 4.57 cfs @ 12.17 hrs, Volume= 0.489 af, Depth= 0.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

Area (sf)	CN	Description
50,626	39	>75% Grass cover, Good, HSG A
1,238	80	>75% Grass cover, Good, HSG D
105,623	30	Woods, Good, HSG A
148,756	79	Woods, Fair, HSG D
306,243	55	Weighted Average
306,243		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0200	0.17		Sheet Flow, Range n= 0.130 P2= 3.20"
4.3	420	0.0100	1.61		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.3	470	Total			

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Type III 24-hr 10-year Rainfall=4.70"

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Summary for Subcatchment PDA-5:

Runoff = 1.16 cfs @ 12.14 hrs, Volume= 0.099 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

Area (sf)	CN	Description
9,845	43	Woods/grass comb., Fair, HSG A
25,390	74	>75% Grass cover, Good, HSG C
* 140	98	Ex. Roofs, HSG A
35,375	65	Weighted Average
35,235		99.60% Pervious Area
140		0.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		Sheet Flow, AB
					Woods: Light underbrush n= 0.400 P2= 3.20"
0.8	110	0.0200	2.28		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
8.7	160	Total			

Summary for Subcatchment PDA-6:

Runoff = 4.94 cfs @ 12.13 hrs, Volume= 0.414 af, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

Area (sf)	CN	Description
47,443	74	>75% Grass cover, Good, HSG C
37,511	98	Paved parking, HSG C
47,391	39	>75% Grass cover, Good, HSG A
7,348	30	Woods, Good, HSG A
1,947	70	Woods, Good, HSG C
141,640	66	Weighted Average
104,129		73.52% Pervious Area
37,511		26.48% Impervious Area

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Type III 24-hr 10-year Rainfall=4.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.9	127	0.0200	2.28		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
0.8	100	0.0100	2.03		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
1.2	475	0.0220	6.73	5.28	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
8.5	752	Total			

Summary for Subcatchment PDA-7:

Runoff = 3.53 cfs @ 12.17 hrs, Volume= 0.313 af, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

Area (sf)	CN	Description
30,825	98	Paved parking, HSG C
27,957	39	>75% Grass cover, Good, HSG A
27,692	74	>75% Grass cover, Good, HSG C
86,474	71	Weighted Average
55,649		64.35% Pervious Area
30,825		35.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
1.0	191	0.0400	3.22		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
1.5	480	0.0100	5.36	4.21	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
11.8	721	Total			

Summary for Subcatchment PDA-8:

Runoff = 2.25 cfs @ 12.29 hrs, Volume= 0.269 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

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Type III 24-hr 10-year Rainfall=4.70"

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Area (sf)	CN	Description
43,502	98	Paved parking, HSG A
67,683	39	>75% Grass cover, Good, HSG A
20,305	43	Woods/grass comb., Fair, HSG A
131,490	59	Weighted Average
87,988		66.92% Pervious Area
43,502		33.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	50	0.0120	0.06		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
1.8	239	0.0190	2.22		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
0.8	80	0.0070	1.70		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
0.2	47	0.0100	4.54	3.56	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
17.9	416	Total			

Summary for Subcatchment PDA-9:

Runoff = 0.02 cfs @ 14.79 hrs, Volume= 0.016 af, Depth= 0.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.70"

Area (sf)	CN	Description
2,689	96	Gravel surface, HSG A
* 1,035	98	ex roof
66,090	35	Brush, Fair, HSG A
69,814	38	Weighted Average
68,779		98.52% Pervious Area
1,035		1.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
4.5	430	0.0100	1.61		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
12.0	480	Total			

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Type III 24-hr 10-year Rainfall=4.70"

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Summary for Reach 1R: Drainage in Winthrop

Inflow Area = 4.898 ac, 17.94% Impervious, Inflow Depth = 0.62" for 10-year event
 Inflow = 2.73 cfs @ 12.51 hrs, Volume= 0.255 af
 Outflow = 2.73 cfs @ 12.51 hrs, Volume= 0.255 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach 5R: (new Reach)

Inflow Area = 1.603 ac, 1.48% Impervious, Inflow Depth = 0.12" for 10-year event
 Inflow = 0.02 cfs @ 14.79 hrs, Volume= 0.016 af
 Outflow = 0.02 cfs @ 14.82 hrs, Volume= 0.016 af, Atten= 0%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.93 fps, Min. Travel Time= 1.0 min
 Avg. Velocity= 1.64 fps, Avg. Travel Time= 1.2 min

Peak Storage= 1 cf @ 14.81 hrs

Average Depth at Peak Storage= 0.05'

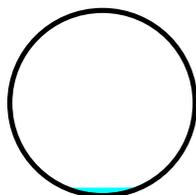
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.21 cfs

12.0" Round Pipe

n= 0.011 Concrete pipe, straight & clean

Length= 115.0' Slope= 0.0217 '/'

Inlet Invert= 279.50', Outlet Invert= 277.00'

**Summary for Reach DP1: (new Reach)**

Inflow Area = 6.514 ac, 16.17% Impervious, Inflow Depth = 0.60" for 10-year event
 Inflow = 3.00 cfs @ 12.47 hrs, Volume= 0.328 af
 Outflow = 3.00 cfs @ 12.47 hrs, Volume= 0.328 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP2: Stream to Hill Street

Inflow Area = 18.623 ac, 9.40% Impervious, Inflow Depth = 0.27" for 10-year event
 Inflow = 3.14 cfs @ 12.25 hrs, Volume= 0.413 af
 Outflow = 3.14 cfs @ 12.25 hrs, Volume= 0.413 af, Atten= 0%, Lag= 0.0 min

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Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP5: Isolated Wets

Inflow Area = 4.829 ac, 0.09% Impervious, Inflow Depth = 0.00" for 10-year event
 Inflow = 0.00 cfs @ 23.99 hrs, Volume= 0.001 af
 Outflow = 0.00 cfs @ 23.99 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Lots 20-24 rain gardens

Inflow Area = 0.551 ac, 0.00% Impervious, Inflow Depth = 0.14" for 10-year event
 Inflow = 0.01 cfs @ 13.76 hrs, Volume= 0.007 af
 Outflow = 0.01 cfs @ 13.85 hrs, Volume= 0.007 af, Atten= 0%, Lag= 5.0 min
 Discarded = 0.01 cfs @ 13.85 hrs, Volume= 0.007 af
 Primary = 0.00 cfs @ 13.85 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Peak Elev= 275.00' @ 13.85 hrs Surf.Area= 1,124 sf Storage= 3 cf

Plug-Flow detention time= 5.0 min calculated for 0.007 af (100% of inflow)

Center-of-Mass det. time= 5.0 min (1,039.3 - 1,034.3)

Volume	Invert	Avail.Storage	Storage Description			
#1	275.00'	2,492 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
275.00	1,123	708.0	0	0	1,123	
276.70	1,838	721.0	2,492	2,492	3,036	

Device	Routing	Invert	Outlet Devices
#1	Discarded	275.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	275.00'	6.0" Round Culvert L= 20.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 275.00' / 274.80' S= 0.0100 ' /' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.20 sf

Discarded OutFlow Max=0.06 cfs @ 13.85 hrs HW=275.00' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 13.85 hrs HW=275.00' (Free Discharge)

↑**2=Culvert** (Barrel Controls 0.00 cfs @ 0.15 fps)

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Summary for Pond 2P: Depression @ Partrige/Winthrop

Inflow Area = 6.514 ac, 16.17% Impervious, Inflow Depth = 0.62" for 10-year event
 Inflow = 3.08 cfs @ 12.48 hrs, Volume= 0.339 af
 Outflow = 3.10 cfs @ 12.47 hrs, Volume= 0.339 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.10 cfs @ 12.47 hrs, Volume= 0.011 af
 Primary = 3.00 cfs @ 12.47 hrs, Volume= 0.328 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 255.51' @ 12.47 hrs Surf.Area= 1,751 sf Storage= 26 cf

Plug-Flow detention time= 0.1 min calculated for 0.338 af (100% of inflow)
 Center-of-Mass det. time= 0.1 min (831.7 - 831.6)

Volume	Invert	Avail.Storage	Storage Description			
#1	255.50'	5,599 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
255.50	1,720	170.0	0	0	1,720	
257.00	6,210	300.0	5,599	5,599	6,595	

Device	Routing	Invert	Outlet Devices
#1	Discarded	255.50'	2.410 in/hr Exfiltration over Surface area
#2	Primary	254.20'	12.0" Round Culvert L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 254.20' / 254.00' S= 0.0200 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Discarded OutFlow Max=0.10 cfs @ 12.47 hrs HW=255.51' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.10 cfs)

Primary OutFlow Max=3.01 cfs @ 12.47 hrs HW=255.51' (Free Discharge)
 ↑2=Culvert (Inlet Controls 3.01 cfs @ 3.83 fps)

Summary for Pond 3P: Storage w/in Swamp/PVP

Inflow Area = 11.652 ac, 8.77% Impervious, Inflow Depth = 0.52" for 10-year event
 Inflow = 4.57 cfs @ 12.17 hrs, Volume= 0.505 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 274.55' @ 25.25 hrs Surf.Area= 55,110 sf Storage= 21,976 cf

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

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Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	53,729 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	27,000	1,100.0	0	0	27,000
275.00	86,000	1,890.0	53,729	53,729	214,976

Device	Routing	Invert	Outlet Devices
#1	Primary	274.75'	50.0' long x 50.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' (Free Discharge)

↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 5P: Storage @ Wets

Inflow Area = 4.898 ac, 17.94% Impervious, Inflow Depth = 0.91" for 10-year event
 Inflow = 3.07 cfs @ 12.36 hrs, Volume= 0.373 af
 Outflow = 2.85 cfs @ 12.51 hrs, Volume= 0.369 af, Atten= 7%, Lag= 9.1 min
 Discarded = 0.12 cfs @ 12.51 hrs, Volume= 0.114 af
 Primary = 2.73 cfs @ 12.51 hrs, Volume= 0.255 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 260.22' @ 12.51 hrs Surf.Area= 4,990 sf Storage= 3,223 cf

Plug-Flow detention time= 102.2 min calculated for 0.368 af (99% of inflow)
 Center-of-Mass det. time= 95.7 min (914.4 - 818.7)

Volume	Invert	Avail.Storage	Storage Description
#1	259.00'	8,718 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
259.00	850	120.0	0	0	850
261.00	9,400	360.0	8,718	8,718	10,030

Device	Routing	Invert	Outlet Devices
#1	Discarded	259.00'	1.020 in/hr Exfiltration over Surface area
#2	Primary	260.00'	10.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Discarded OutFlow Max=0.12 cfs @ 12.51 hrs HW=260.22' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=2.72 cfs @ 12.51 hrs HW=260.22' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 2.72 cfs @ 1.22 fps)

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Summary for Pond B1: Infil Basin 1

Inflow Area = 4.064 ac, 21.27% Impervious, Inflow Depth = 1.33" for 10-year event
 Inflow = 4.90 cfs @ 12.14 hrs, Volume= 0.450 af
 Outflow = 2.85 cfs @ 12.42 hrs, Volume= 0.450 af, Atten= 42%, Lag= 16.5 min
 Discarded = 0.23 cfs @ 12.42 hrs, Volume= 0.164 af
 Primary = 2.63 cfs @ 12.42 hrs, Volume= 0.286 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 263.12' @ 12.42 hrs Surf.Area= 4,079 sf Storage= 3,889 cf

Plug-Flow detention time= 24.3 min calculated for 0.449 af (100% of inflow)
 Center-of-Mass det. time= 24.3 min (881.6 - 857.2)

Volume	Invert	Avail.Storage	Storage Description			
#1	262.00'	20,805 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
262.00	2,901	298.0	0	0	2,901	
264.00	5,145	425.0	7,940	7,940	10,244	
266.00	7,813	463.0	12,865	20,805	13,072	

Device	Routing	Invert	Outlet Devices
#1	Discarded	262.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	262.00'	12.0" Round Culvert L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 262.00' / 261.80' S= 0.0067 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Discarded OutFlow Max=0.23 cfs @ 12.42 hrs HW=263.12' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.23 cfs)

Primary OutFlow Max=2.62 cfs @ 12.42 hrs HW=263.12' (Free Discharge)
 ↑2=Culvert (Barrel Controls 2.62 cfs @ 3.73 fps)

Summary for Pond B2: Infil. Basin 2

Inflow Area = 1.985 ac, 35.65% Impervious, Inflow Depth = 1.89" for 10-year event
 Inflow = 3.53 cfs @ 12.17 hrs, Volume= 0.313 af
 Outflow = 0.96 cfs @ 12.64 hrs, Volume= 0.313 af, Atten= 73%, Lag= 28.2 min
 Discarded = 0.53 cfs @ 12.64 hrs, Volume= 0.247 af
 Primary = 0.43 cfs @ 12.64 hrs, Volume= 0.066 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 276.72' @ 12.64 hrs Surf.Area= 2,784 sf Storage= 4,164 cf

Plug-Flow detention time= 50.0 min calculated for 0.313 af (100% of inflow)
 Center-of-Mass det. time= 49.9 min (903.7 - 853.8)

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Type III 24-hr 10-year Rainfall=4.70"

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Volume	Invert	Avail.Storage	Storage Description
#1	274.50'	12,934 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.50	1,036	247.0	0	0	1,036
276.00	2,212	275.0	2,381	2,381	2,263
278.00	3,976	313.0	6,102	8,483	4,136
279.00	4,943	332.0	4,451	12,934	5,163

Device	Routing	Invert	Outlet Devices
#1	Discarded	274.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	275.50'	4.0" Vert. Orifice/Grate C= 0.600
#3	Primary	277.20'	0.8' long x 1.80' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.7' Crest Height

Discarded OutFlow Max=0.53 cfs @ 12.64 hrs HW=276.71' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.53 cfs)

Primary OutFlow Max=0.43 cfs @ 12.64 hrs HW=276.71' (Free Discharge)

↑ **2=Orifice/Grate** (Orifice Controls 0.43 cfs @ 4.93 fps)

↑ **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B3: Infl. Basin 3

Inflow Area = 3.019 ac, 33.08% Impervious, Inflow Depth = 1.07" for 10-year event
 Inflow = 2.25 cfs @ 12.29 hrs, Volume= 0.269 af
 Outflow = 0.29 cfs @ 14.68 hrs, Volume= 0.269 af, Atten= 87%, Lag= 143.3 min
 Discarded = 0.29 cfs @ 14.68 hrs, Volume= 0.269 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 276.94' @ 14.68 hrs Surf.Area= 5,237 sf Storage= 4,525 cf

Plug-Flow detention time= 169.6 min calculated for 0.268 af (100% of inflow)

Center-of-Mass det. time= 169.4 min (1,064.0 - 894.6)

Volume	Invert	Avail.Storage	Storage Description
#1	276.00'	24,974 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
276.00	4,450	275.0	0	0	4,450
278.00	6,210	314.0	10,611	10,611	6,371
280.00	8,199	351.0	14,363	24,974	8,438

Device	Routing	Invert	Outlet Devices
#1	Discarded	276.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	278.50'	0.5' long x 0.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.5' Crest Height

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Type III 24-hr 10-year Rainfall=4.70"

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Discarded OutFlow Max=0.29 cfs @ 14.68 hrs HW=276.94' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.29 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=276.00' (Free Discharge)

↑2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond B9: Rain Garden

Inflow Area = 0.812 ac, 0.40% Impervious, Inflow Depth = 1.46" for 10-year event
 Inflow = 1.16 cfs @ 12.14 hrs, Volume= 0.099 af
 Outflow = 0.89 cfs @ 12.27 hrs, Volume= 0.099 af, Atten= 23%, Lag= 7.6 min
 Discarded = 0.06 cfs @ 12.27 hrs, Volume= 0.063 af
 Primary = 0.83 cfs @ 12.27 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 271.45' @ 12.27 hrs Surf.Area= 2,739 sf Storage= 885 cf

Plug-Flow detention time= 106.7 min calculated for 0.098 af (100% of inflow)
 Center-of-Mass det. time= 106.7 min (974.0 - 867.3)

Volume	Invert	Avail.Storage	Storage Description			
#1	271.00'	1,703 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
271.00	1,298	395.0	0	0	1,298	
271.70	3,783	433.0	1,703	1,703	3,819	

Device	Routing	Invert	Outlet Devices	
#1	Discarded	271.00'	1.020 in/hr Exfiltration over Surface area	
#2	Primary	271.40'	2.0" x 2.0" Horiz. Orifice/Grate X 36.00 C= 0.600 Limited to weir flow at low heads	

Discarded OutFlow Max=0.06 cfs @ 12.27 hrs HW=271.45' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.78 cfs @ 12.27 hrs HW=271.45' (Free Discharge)

↑2=Orifice/Grate (Weir Controls 0.78 cfs @ 0.70 fps)

Summary for Pond B9A: B9A

Inflow Area = 0.812 ac, 0.40% Impervious, Inflow Depth = 0.53" for 10-year event
 Inflow = 0.83 cfs @ 12.27 hrs, Volume= 0.036 af
 Outflow = 0.83 cfs @ 12.27 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.83 cfs @ 12.27 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

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Type III 24-hr 10-year Rainfall=4.70"

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Peak Elev= 269.45' @ 12.27 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	269.00'	12.0" Round Culvert L= 150.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 269.00' / 267.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.78 cfs @ 12.27 hrs HW=269.43' (Free Discharge)↑**1=Culvert** (Barrel Controls 0.78 cfs @ 3.52 fps)

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Type III 24-hr 25-year Rainfall=5.50"

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Summary for Subcatchment PDA-1: PDA-1

Runoff = 1.72 cfs @ 12.07 hrs, Volume= 0.122 af, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.50"

Area (sf)	CN	Description
10,712	72	Woods/grass comb., Good, HSG C
9,898	49	50-75% Grass cover, Fair, HSG A
7,602	43	Woods/grass comb., Fair, HSG A
* 621	98	ex. roof
7,527	79	50-75% Grass cover, Fair, HSG C
36,360	62	Weighted Average
35,739		98.29% Pervious Area
621		1.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	30	0.0400	0.18		Sheet Flow, AB
					Grass: Short n= 0.150 P2= 3.20"
1.0	240	0.0600	3.94		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
3.8	270	Total			

Summary for Subcatchment PDA-10: Remaining NW land to Hill st.

Runoff = 4.81 cfs @ 12.22 hrs, Volume= 0.515 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.50"

Area (sf)	CN	Description
26,256	43	Woods/grass comb., Fair, HSG A
3,882	76	Woods/grass comb., Fair, HSG C
* 885	98	ex roof
9,905	39	>75% Grass cover, Good, HSG A
21,520	74	>75% Grass cover, Good, HSG C
69,434	30	Woods, Good, HSG A
24,449	70	Woods, Good, HSG C
60,851	77	Woods, Good, HSG D
217,182	55	Weighted Average
216,297		99.59% Pervious Area
885		0.41% Impervious Area

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Type III 24-hr 25-year Rainfall=5.50"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		Sheet Flow, AB
					Woods: Light underbrush n= 0.400 P2= 3.20"
2.8	400	0.0220	2.39		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
13.3	450	Total			

Summary for Subcatchment PDA-2: Flow to W. St Culvert

Runoff = 1.34 cfs @ 12.12 hrs, Volume= 0.131 af, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.50"

Area (sf)	CN	Description
* 1,577	98	ex roof
* 6,027	98	ex drive
24,390	39	>75% Grass cover, Good, HSG A
12,331	74	>75% Grass cover, Good, HSG C
20,804	30	Woods, Good, HSG A
5,230	70	Woods, Good, HSG C
70,359	51	Weighted Average
62,755		89.19% Pervious Area
7,604		10.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	50	0.0360	0.19		Sheet Flow, AB
					Grass: Short n= 0.150 P2= 3.20"
2.1	485	0.0560	3.81		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
6.5	535	Total			

Summary for Subcatchment PDA-3: flow to isolated wets

Runoff = 0.02 cfs @ 17.04 hrs, Volume= 0.017 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.50"

Area (sf)	CN	Description
* 192	98	ex roof
28,475	39	>75% Grass cover, Good, HSG A
157,675	30	Woods, Good, HSG A
186,342	31	Weighted Average
186,150		99.90% Pervious Area
192		0.10% Impervious Area

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Type III 24-hr 25-year Rainfall=5.50"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.4	160	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
18.7	210	Total			

Summary for Subcatchment PDA-3A: PDA-3 rear lawn areas to Rain gardens

Runoff = 0.05 cfs @ 12.40 hrs, Volume= 0.014 af, Depth= 0.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.50"

Area (sf)	CN	Description
24,000	39	>75% Grass cover, Good, HSG A
24,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
0.5	65	0.0200	2.28		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
6.1	115	Total			

Summary for Subcatchment PDA-4: Remaining Flow to Swamp

Runoff = 7.64 cfs @ 12.16 hrs, Volume= 0.726 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.50"

Area (sf)	CN	Description
50,626	39	>75% Grass cover, Good, HSG A
1,238	80	>75% Grass cover, Good, HSG D
105,623	30	Woods, Good, HSG A
148,756	79	Woods, Fair, HSG D
306,243	55	Weighted Average
306,243		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0200	0.17		Sheet Flow, Range n= 0.130 P2= 3.20"
4.3	420	0.0100	1.61		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.3	470	Total			

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Type III 24-hr 25-year Rainfall=5.50"

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Summary for Subcatchment PDA-5:

Runoff = 1.64 cfs @ 12.13 hrs, Volume= 0.135 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.50"

Area (sf)	CN	Description
9,845	43	Woods/grass comb., Fair, HSG A
25,390	74	>75% Grass cover, Good, HSG C
* 140	98	Ex. Roofs, HSG A
35,375	65	Weighted Average
35,235		99.60% Pervious Area
140		0.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		Sheet Flow, AB
					Woods: Light underbrush n= 0.400 P2= 3.20"
0.8	110	0.0200	2.28		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
8.7	160	Total			

Summary for Subcatchment PDA-6:

Runoff = 6.89 cfs @ 12.13 hrs, Volume= 0.563 af, Depth= 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.50"

Area (sf)	CN	Description
47,443	74	>75% Grass cover, Good, HSG C
37,511	98	Paved parking, HSG C
47,391	39	>75% Grass cover, Good, HSG A
7,348	30	Woods, Good, HSG A
1,947	70	Woods, Good, HSG C
141,640	66	Weighted Average
104,129		73.52% Pervious Area
37,511		26.48% Impervious Area

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Type III 24-hr 25-year Rainfall=5.50"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.9	127	0.0200	2.28		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
0.8	100	0.0100	2.03		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
1.2	475	0.0220	6.73	5.28	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
8.5	752	Total			

Summary for Subcatchment PDA-7:

Runoff = 4.74 cfs @ 12.17 hrs, Volume= 0.414 af, Depth= 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.50"

Area (sf)	CN	Description
30,825	98	Paved parking, HSG C
27,957	39	>75% Grass cover, Good, HSG A
27,692	74	>75% Grass cover, Good, HSG C
86,474	71	Weighted Average
55,649		64.35% Pervious Area
30,825		35.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
1.0	191	0.0400	3.22		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
1.5	480	0.0100	5.36	4.21	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
11.8	721	Total			

Summary for Subcatchment PDA-8:

Runoff = 3.45 cfs @ 12.27 hrs, Volume= 0.384 af, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.50"

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Type III 24-hr 25-year Rainfall=5.50"

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Area (sf)	CN	Description
43,502	98	Paved parking, HSG A
67,683	39	>75% Grass cover, Good, HSG A
20,305	43	Woods/grass comb., Fair, HSG A
131,490	59	Weighted Average
87,988		66.92% Pervious Area
43,502		33.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	50	0.0120	0.06		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
1.8	239	0.0190	2.22		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
0.8	80	0.0070	1.70		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
0.2	47	0.0100	4.54	3.56	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
17.9	416	Total			

Summary for Subcatchment PDA-9:

Runoff = 0.10 cfs @ 12.52 hrs, Volume= 0.036 af, Depth= 0.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.50"

Area (sf)	CN	Description
2,689	96	Gravel surface, HSG A
* 1,035	98	ex roof
66,090	35	Brush, Fair, HSG A
69,814	38	Weighted Average
68,779		98.52% Pervious Area
1,035		1.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
4.5	430	0.0100	1.61		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
12.0	480	Total			

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Type III 24-hr 25-year Rainfall=5.50"

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Summary for Reach 1R: Drainage in Winthrop

Inflow Area = 4.898 ac, 17.94% Impervious, Inflow Depth = 1.06" for 25-year event
 Inflow = 3.88 cfs @ 12.44 hrs, Volume= 0.431 af
 Outflow = 3.88 cfs @ 12.44 hrs, Volume= 0.431 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach 5R: (new Reach)

Inflow Area = 1.603 ac, 1.48% Impervious, Inflow Depth = 0.27" for 25-year event
 Inflow = 0.10 cfs @ 12.52 hrs, Volume= 0.036 af
 Outflow = 0.10 cfs @ 12.54 hrs, Volume= 0.036 af, Atten= 1%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.95 fps, Min. Travel Time= 0.6 min
 Avg. Velocity= 2.06 fps, Avg. Travel Time= 0.9 min

Peak Storage= 4 cf @ 12.53 hrs

Average Depth at Peak Storage= 0.09'

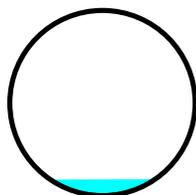
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.21 cfs

12.0" Round Pipe

n= 0.011 Concrete pipe, straight & clean

Length= 115.0' Slope= 0.0217 '/'

Inlet Invert= 279.50', Outlet Invert= 277.00'

**Summary for Reach DP1: (new Reach)**

Inflow Area = 6.514 ac, 16.17% Impervious, Inflow Depth = 1.00" for 25-year event
 Inflow = 3.73 cfs @ 12.64 hrs, Volume= 0.543 af
 Outflow = 3.73 cfs @ 12.64 hrs, Volume= 0.543 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP2: Stream to Hill Street

Inflow Area = 18.623 ac, 9.40% Impervious, Inflow Depth = 0.40" for 25-year event
 Inflow = 5.20 cfs @ 12.22 hrs, Volume= 0.624 af
 Outflow = 5.20 cfs @ 12.22 hrs, Volume= 0.624 af, Atten= 0%, Lag= 0.0 min

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Type III 24-hr 25-year Rainfall=5.50"

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Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP5: Isolated Wets

Inflow Area = 4.829 ac, 0.09% Impervious, Inflow Depth = 0.04" for 25-year event
 Inflow = 0.02 cfs @ 17.04 hrs, Volume= 0.017 af
 Outflow = 0.02 cfs @ 17.04 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Lots 20-24 rain gardens

Inflow Area = 0.551 ac, 0.00% Impervious, Inflow Depth = 0.31" for 25-year event
 Inflow = 0.05 cfs @ 12.40 hrs, Volume= 0.014 af
 Outflow = 0.05 cfs @ 12.49 hrs, Volume= 0.014 af, Atten= 9%, Lag= 5.0 min
 Discarded = 0.05 cfs @ 12.49 hrs, Volume= 0.014 af
 Primary = 0.00 cfs @ 12.49 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 275.01' @ 12.49 hrs Surf.Area= 1,128 sf Storage= 15 cf

Plug-Flow detention time= 5.0 min calculated for 0.014 af (100% of inflow)
 Center-of-Mass det. time= 5.0 min (985.9 - 980.9)

Volume	Invert	Avail.Storage	Storage Description			
#1	275.00'	2,492 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
275.00	1,123	708.0	0	0	1,123	
276.70	1,838	721.0	2,492	2,492	3,036	

Device	Routing	Invert	Outlet Devices
#1	Discarded	275.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	275.00'	6.0" Round Culvert L= 20.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 275.00' / 274.80' S= 0.0100 ' /' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.20 sf

Discarded OutFlow Max=0.06 cfs @ 12.49 hrs HW=275.01' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 12.49 hrs HW=275.01' (Free Discharge)
 ↑**2=Culvert** (Barrel Controls 0.00 cfs @ 0.39 fps)

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Type III 24-hr 25-year Rainfall=5.50"

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Summary for Pond 2P: Depression @ Partrige/Winthrop

Inflow Area = 6.514 ac, 16.17% Impervious, Inflow Depth = 1.03" for 25-year event
 Inflow = 4.58 cfs @ 12.40 hrs, Volume= 0.562 af
 Outflow = 3.88 cfs @ 12.64 hrs, Volume= 0.562 af, Atten= 15%, Lag= 14.2 min
 Discarded = 0.15 cfs @ 12.64 hrs, Volume= 0.019 af
 Primary = 3.73 cfs @ 12.64 hrs, Volume= 0.543 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 255.95' @ 12.64 hrs Surf.Area= 2,769 sf Storage= 996 cf

Plug-Flow detention time= 1.5 min calculated for 0.561 af (100% of inflow)
 Center-of-Mass det. time= 1.5 min (828.7 - 827.2)

Volume	Invert	Avail.Storage	Storage Description			
#1	255.50'	5,599 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
255.50	1,720	170.0	0	0	1,720	
257.00	6,210	300.0	5,599	5,599	6,595	

Device	Routing	Invert	Outlet Devices			
#1	Discarded	255.50'	2.410 in/hr Exfiltration over Surface area			
#2	Primary	254.20'	12.0" Round Culvert			
			L= 10.0' CPP, mitered to conform to fill, Ke= 0.700			
			Inlet / Outlet Invert= 254.20' / 254.00' S= 0.0200 '/' Cc= 0.900			
			n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf			

Discarded OutFlow Max=0.15 cfs @ 12.64 hrs HW=255.95' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.15 cfs)

Primary OutFlow Max=3.73 cfs @ 12.64 hrs HW=255.95' (Free Discharge)
 ↑2=Culvert (Inlet Controls 3.73 cfs @ 4.74 fps)

Summary for Pond 3P: Storage w/in Swamp/PVP

Inflow Area = 11.652 ac, 8.77% Impervious, Inflow Depth = 0.78" for 25-year event
 Inflow = 7.64 cfs @ 12.16 hrs, Volume= 0.762 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 274.73' @ 25.35 hrs Surf.Area= 66,832 sf Storage= 33,196 cf

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

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Type III 24-hr 25-year Rainfall=5.50"

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Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	53,729 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	27,000	1,100.0	0	0	27,000
275.00	86,000	1,890.0	53,729	53,729	214,976

Device	Routing	Invert	Outlet Devices
#1	Primary	274.75'	50.0' long x 50.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=274.00' (Free Discharge)

↑1=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 5P: Storage @ Wets

Inflow Area = 4.898 ac, 17.94% Impervious, Inflow Depth = 1.38" for 25-year event
 Inflow = 4.13 cfs @ 12.32 hrs, Volume= 0.562 af
 Outflow = 4.00 cfs @ 12.44 hrs, Volume= 0.555 af, Atten= 3%, Lag= 7.2 min
 Discarded = 0.12 cfs @ 12.44 hrs, Volume= 0.124 af
 Primary = 3.88 cfs @ 12.44 hrs, Volume= 0.431 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 260.28' @ 12.44 hrs Surf.Area= 5,272 sf Storage= 3,520 cf

Plug-Flow detention time= 74.2 min calculated for 0.554 af (98% of inflow)
 Center-of-Mass det. time= 67.3 min (886.6 - 819.3)

Volume	Invert	Avail.Storage	Storage Description
#1	259.00'	8,718 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
259.00	850	120.0	0	0	850
261.00	9,400	360.0	8,718	8,718	10,030

Device	Routing	Invert	Outlet Devices
#1	Discarded	259.00'	1.020 in/hr Exfiltration over Surface area
#2	Primary	260.00'	10.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Discarded OutFlow Max=0.12 cfs @ 12.44 hrs HW=260.28' (Free Discharge)

↑1=**Exfiltration** (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=3.87 cfs @ 12.44 hrs HW=260.28' (Free Discharge)

↑2=**Broad-Crested Rectangular Weir** (Weir Controls 3.87 cfs @ 1.37 fps)

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Type III 24-hr 25-year Rainfall=5.50"

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Summary for Pond B1: Infil Basin 1

Inflow Area = 4.064 ac, 21.27% Impervious, Inflow Depth = 1.85" for 25-year event
 Inflow = 8.09 cfs @ 12.15 hrs, Volume= 0.628 af
 Outflow = 3.74 cfs @ 12.43 hrs, Volume= 0.628 af, Atten= 54%, Lag= 16.6 min
 Discarded = 0.26 cfs @ 12.43 hrs, Volume= 0.188 af
 Primary = 3.49 cfs @ 12.43 hrs, Volume= 0.440 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 263.59' @ 12.43 hrs Surf.Area= 4,635 sf Storage= 5,944 cf

Plug-Flow detention time= 25.4 min calculated for 0.628 af (100% of inflow)
 Center-of-Mass det. time= 25.2 min (872.1 - 846.8)

Volume	Invert	Avail.Storage	Storage Description			
#1	262.00'	20,805 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
262.00	2,901	298.0	0	0	2,901	
264.00	5,145	425.0	7,940	7,940	10,244	
266.00	7,813	463.0	12,865	20,805	13,072	

Device	Routing	Invert	Outlet Devices
#1	Discarded	262.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	262.00'	12.0" Round Culvert L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 262.00' / 261.80' S= 0.0067 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Discarded OutFlow Max=0.26 cfs @ 12.43 hrs HW=263.59' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.26 cfs)

Primary OutFlow Max=3.48 cfs @ 12.43 hrs HW=263.59' (Free Discharge)
 ↑2=Culvert (Inlet Controls 3.48 cfs @ 4.43 fps)

Summary for Pond B2: Infil. Basin 2

Inflow Area = 1.985 ac, 35.65% Impervious, Inflow Depth = 2.50" for 25-year event
 Inflow = 4.74 cfs @ 12.17 hrs, Volume= 0.414 af
 Outflow = 1.22 cfs @ 12.65 hrs, Volume= 0.414 af, Atten= 74%, Lag= 28.6 min
 Discarded = 0.63 cfs @ 12.65 hrs, Volume= 0.304 af
 Primary = 0.60 cfs @ 12.65 hrs, Volume= 0.110 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 277.28' @ 12.65 hrs Surf.Area= 3,284 sf Storage= 5,882 cf

Plug-Flow detention time= 56.6 min calculated for 0.413 af (100% of inflow)
 Center-of-Mass det. time= 56.5 min (902.1 - 845.6)

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Type III 24-hr 25-year Rainfall=5.50"

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Volume	Invert	Avail.Storage	Storage Description
#1	274.50'	12,934 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.50	1,036	247.0	0	0	1,036
276.00	2,212	275.0	2,381	2,381	2,263
278.00	3,976	313.0	6,102	8,483	4,136
279.00	4,943	332.0	4,451	12,934	5,163

Device	Routing	Invert	Outlet Devices
#1	Discarded	274.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	275.50'	4.0" Vert. Orifice/Grate C= 0.600
#3	Primary	277.20'	0.8' long x 1.80' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.7' Crest Height

Discarded OutFlow Max=0.63 cfs @ 12.65 hrs HW=277.28' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.63 cfs)

Primary OutFlow Max=0.59 cfs @ 12.65 hrs HW=277.28' (Free Discharge)

↑**2=Orifice/Grate** (Orifice Controls 0.53 cfs @ 6.12 fps)

↑**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.06 cfs @ 0.94 fps)

Summary for Pond B3: Infl. Basin 3

Inflow Area = 3.019 ac, 33.08% Impervious, Inflow Depth = 1.53" for 25-year event
 Inflow = 3.45 cfs @ 12.27 hrs, Volume= 0.384 af
 Outflow = 0.32 cfs @ 15.46 hrs, Volume= 0.384 af, Atten= 91%, Lag= 191.1 min
 Discarded = 0.32 cfs @ 15.46 hrs, Volume= 0.384 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 277.54' @ 15.46 hrs Surf.Area= 5,778 sf Storage= 7,846 cf

Plug-Flow detention time= 280.7 min calculated for 0.384 af (100% of inflow)
 Center-of-Mass det. time= 280.7 min (1,163.2 - 882.5)

Volume	Invert	Avail.Storage	Storage Description
#1	276.00'	24,974 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
276.00	4,450	275.0	0	0	4,450
278.00	6,210	314.0	10,611	10,611	6,371
280.00	8,199	351.0	14,363	24,974	8,438

Device	Routing	Invert	Outlet Devices
#1	Discarded	276.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	278.50'	0.5' long x 0.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.5' Crest Height

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Type III 24-hr 25-year Rainfall=5.50"

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Discarded OutFlow Max=0.32 cfs @ 15.46 hrs HW=277.54' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.32 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=276.00' (Free Discharge)

↑**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B9: Rain Garden

Inflow Area = 0.812 ac, 0.40% Impervious, Inflow Depth = 1.99" for 25-year event
 Inflow = 1.64 cfs @ 12.13 hrs, Volume= 0.135 af
 Outflow = 1.42 cfs @ 12.20 hrs, Volume= 0.135 af, Atten= 13%, Lag= 3.8 min
 Discarded = 0.07 cfs @ 12.20 hrs, Volume= 0.070 af
 Primary = 1.36 cfs @ 12.20 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 271.48' @ 12.20 hrs Surf.Area= 2,860 sf Storage= 972 cf

Plug-Flow detention time= 89.7 min calculated for 0.135 af (100% of inflow)
 Center-of-Mass det. time= 89.8 min (947.4 - 857.6)

Volume	Invert	Avail.Storage	Storage Description			
#1	271.00'	1,703 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
271.00	1,298	395.0	0	0	1,298	
271.70	3,783	433.0	1,703	1,703	3,819	

Device	Routing	Invert	Outlet Devices
#1	Discarded	271.00'	1.020 in/hr Exfiltration over Surface area
#2	Primary	271.40'	2.0" x 2.0" Horiz. Orifice/Grate X 36.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.07 cfs @ 12.20 hrs HW=271.48' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=1.35 cfs @ 12.20 hrs HW=271.48' (Free Discharge)

↑**2=Orifice/Grate** (Orifice Controls 1.35 cfs @ 1.35 fps)

Summary for Pond B9A: B9A

Inflow Area = 0.812 ac, 0.40% Impervious, Inflow Depth = 0.96" for 25-year event
 Inflow = 1.36 cfs @ 12.20 hrs, Volume= 0.065 af
 Outflow = 1.36 cfs @ 12.20 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.36 cfs @ 12.20 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

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Peak Elev= 269.59' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	269.00'	12.0" Round Culvert L= 150.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 269.00' / 267.50' S= 0.0100 '/ Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.35 cfs @ 12.20 hrs HW=269.59' (Free Discharge)↑**1=Culvert** (Barrel Controls 1.35 cfs @ 4.05 fps)

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Type III 24-hr 100-year Rainfall=6.70"

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Summary for Subcatchment PDA-1: PDA-1

Runoff = 2.61 cfs @ 12.06 hrs, Volume= 0.180 af, Depth= 2.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=6.70"

Area (sf)	CN	Description
10,712	72	Woods/grass comb., Good, HSG C
9,898	49	50-75% Grass cover, Fair, HSG A
7,602	43	Woods/grass comb., Fair, HSG A
* 621	98	ex. roof
7,527	79	50-75% Grass cover, Fair, HSG C
36,360	62	Weighted Average
35,739		98.29% Pervious Area
621		1.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	30	0.0400	0.18		Sheet Flow, AB
					Grass: Short n= 0.150 P2= 3.20"
1.0	240	0.0600	3.94		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
3.8	270	Total			

Summary for Subcatchment PDA-10: Remaining NW land to Hill st.

Runoff = 8.15 cfs @ 12.21 hrs, Volume= 0.804 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=6.70"

Area (sf)	CN	Description
26,256	43	Woods/grass comb., Fair, HSG A
3,882	76	Woods/grass comb., Fair, HSG C
* 885	98	ex roof
9,905	39	>75% Grass cover, Good, HSG A
21,520	74	>75% Grass cover, Good, HSG C
69,434	30	Woods, Good, HSG A
24,449	70	Woods, Good, HSG C
60,851	77	Woods, Good, HSG D
217,182	55	Weighted Average
216,297		99.59% Pervious Area
885		0.41% Impervious Area

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Type III 24-hr 100-year Rainfall=6.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	50	0.0300	0.08		Sheet Flow, AB
					Woods: Light underbrush n= 0.400 P2= 3.20"
2.8	400	0.0220	2.39		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
13.3	450	Total			

Summary for Subcatchment PDA-2: Flow to W. St Culvert

Runoff = 2.53 cfs @ 12.11 hrs, Volume= 0.214 af, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=6.70"

Area (sf)	CN	Description
* 1,577	98	ex roof
* 6,027	98	ex drive
24,390	39	>75% Grass cover, Good, HSG A
12,331	74	>75% Grass cover, Good, HSG C
20,804	30	Woods, Good, HSG A
5,230	70	Woods, Good, HSG C
70,359	51	Weighted Average
62,755		89.19% Pervious Area
7,604		10.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	50	0.0360	0.19		Sheet Flow, AB
					Grass: Short n= 0.150 P2= 3.20"
2.1	485	0.0560	3.81		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
6.5	535	Total			

Summary for Subcatchment PDA-3: flow to isolated wets

Runoff = 0.12 cfs @ 13.96 hrs, Volume= 0.074 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=6.70"

Area (sf)	CN	Description
* 192	98	ex roof
28,475	39	>75% Grass cover, Good, HSG A
157,675	30	Woods, Good, HSG A
186,342	31	Weighted Average
186,150		99.90% Pervious Area
192		0.10% Impervious Area

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Type III 24-hr 100-year Rainfall=6.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.4	160	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
18.7	210	Total			

Summary for Subcatchment PDA-3A: PDA-3 rear lawn areas to Rain gardens

Runoff = 0.18 cfs @ 12.26 hrs, Volume= 0.030 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=6.70"

Area (sf)	CN	Description
24,000	39	>75% Grass cover, Good, HSG A
24,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
0.5	65	0.0200	2.28		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
6.1	115	Total			

Summary for Subcatchment PDA-4: Remaining Flow to Swamp

Runoff = 12.93 cfs @ 12.15 hrs, Volume= 1.134 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=6.70"

Area (sf)	CN	Description
50,626	39	>75% Grass cover, Good, HSG A
1,238	80	>75% Grass cover, Good, HSG D
105,623	30	Woods, Good, HSG A
148,756	79	Woods, Fair, HSG D
306,243	55	Weighted Average
306,243		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	50	0.0200	0.17		Sheet Flow, Range n= 0.130 P2= 3.20"
4.3	420	0.0100	1.61		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.3	470	Total			

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Type III 24-hr 100-year Rainfall=6.70"

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Summary for Subcatchment PDA-5:

Runoff = 2.41 cfs @ 12.13 hrs, Volume= 0.194 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=6.70"

Area (sf)	CN	Description
9,845	43	Woods/grass comb., Fair, HSG A
25,390	74	>75% Grass cover, Good, HSG C
* 140	98	Ex. Roofs, HSG A
35,375	65	Weighted Average
35,235		99.60% Pervious Area
140		0.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		Sheet Flow, AB
					Woods: Light underbrush n= 0.400 P2= 3.20"
0.8	110	0.0200	2.28		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
8.7	160	Total			

Summary for Subcatchment PDA-6:

Runoff = 10.05 cfs @ 12.13 hrs, Volume= 0.805 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=6.70"

Area (sf)	CN	Description
47,443	74	>75% Grass cover, Good, HSG C
37,511	98	Paved parking, HSG C
47,391	39	>75% Grass cover, Good, HSG A
7,348	30	Woods, Good, HSG A
1,947	70	Woods, Good, HSG C
141,640	66	Weighted Average
104,129		73.52% Pervious Area
37,511		26.48% Impervious Area

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Type III 24-hr 100-year Rainfall=6.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.9	127	0.0200	2.28		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
0.8	100	0.0100	2.03		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
1.2	475	0.0220	6.73	5.28	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
8.5	752	Total			

Summary for Subcatchment PDA-7:

Runoff = 6.63 cfs @ 12.17 hrs, Volume= 0.574 af, Depth= 3.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=6.70"

Area (sf)	CN	Description
30,825	98	Paved parking, HSG C
27,957	39	>75% Grass cover, Good, HSG A
27,692	74	>75% Grass cover, Good, HSG C
86,474	71	Weighted Average
55,649		64.35% Pervious Area
30,825		35.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
1.0	191	0.0400	3.22		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
1.5	480	0.0100	5.36	4.21	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.011 Concrete pipe, straight & clean
11.8	721	Total			

Summary for Subcatchment PDA-8:

Runoff = 5.45 cfs @ 12.27 hrs, Volume= 0.579 af, Depth= 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=6.70"

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Type III 24-hr 100-year Rainfall=6.70"

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Area (sf)	CN	Description
43,502	98	Paved parking, HSG A
67,683	39	>75% Grass cover, Good, HSG A
20,305	43	Woods/grass comb., Fair, HSG A
131,490	59	Weighted Average
87,988		66.92% Pervious Area
43,502		33.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	50	0.0120	0.06		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
1.8	239	0.0190	2.22		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
0.8	80	0.0070	1.70		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
0.2	47	0.0100	4.54	3.56	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
17.9	416	Total			

Summary for Subcatchment PDA-9:

Runoff = 0.41 cfs @ 12.40 hrs, Volume= 0.080 af, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-year Rainfall=6.70"

Area (sf)	CN	Description
2,689	96	Gravel surface, HSG A
* 1,035	98	ex roof
66,090	35	Brush, Fair, HSG A
69,814	38	Weighted Average
68,779		98.52% Pervious Area
1,035		1.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.20"
4.5	430	0.0100	1.61		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
12.0	480	Total			

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Type III 24-hr 100-year Rainfall=6.70"

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Summary for Reach 1R: Drainage in Winthrop

Inflow Area = 4.898 ac, 17.94% Impervious, Inflow Depth = 1.80" for 100-year event
 Inflow = 5.25 cfs @ 12.39 hrs, Volume= 0.735 af
 Outflow = 5.25 cfs @ 12.39 hrs, Volume= 0.735 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach 5R: (new Reach)

Inflow Area = 1.603 ac, 1.48% Impervious, Inflow Depth = 0.60" for 100-year event
 Inflow = 0.41 cfs @ 12.40 hrs, Volume= 0.080 af
 Outflow = 0.41 cfs @ 12.41 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Max. Velocity= 4.47 fps, Min. Travel Time= 0.4 min
 Avg. Velocity = 2.54 fps, Avg. Travel Time= 0.8 min

Peak Storage= 11 cf @ 12.40 hrs

Average Depth at Peak Storage= 0.17'

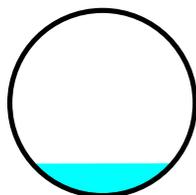
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.21 cfs

12.0" Round Pipe

n= 0.011 Concrete pipe, straight & clean

Length= 115.0' Slope= 0.0217 '/'

Inlet Invert= 279.50', Outlet Invert= 277.00'

**Summary for Reach DP1: (new Reach)**

Inflow Area = 6.514 ac, 16.17% Impervious, Inflow Depth = 1.67" for 100-year event
 Inflow = 4.68 cfs @ 12.76 hrs, Volume= 0.908 af
 Outflow = 4.68 cfs @ 12.76 hrs, Volume= 0.908 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP2: Stream to Hill Street

Inflow Area = 18.623 ac, 9.40% Impervious, Inflow Depth > 0.92" for 100-year event
 Inflow = 8.68 cfs @ 12.21 hrs, Volume= 1.429 af
 Outflow = 8.68 cfs @ 12.21 hrs, Volume= 1.429 af, Atten= 0%, Lag= 0.0 min

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Type III 24-hr 100-year Rainfall=6.70"

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Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Reach DP5: Isolated Wets

Inflow Area = 4.829 ac, 0.09% Impervious, Inflow Depth = 0.19" for 100-year event
 Inflow = 0.12 cfs @ 13.76 hrs, Volume= 0.076 af
 Outflow = 0.12 cfs @ 13.76 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Lots 20-24 rain gardens

Inflow Area = 0.551 ac, 0.00% Impervious, Inflow Depth = 0.66" for 100-year event
 Inflow = 0.18 cfs @ 12.26 hrs, Volume= 0.030 af
 Outflow = 0.10 cfs @ 12.55 hrs, Volume= 0.030 af, Atten= 43%, Lag= 17.7 min
 Discarded = 0.07 cfs @ 12.55 hrs, Volume= 0.028 af
 Primary = 0.04 cfs @ 12.55 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 275.12' @ 12.55 hrs Surf.Area= 1,167 sf Storage= 134 cf

Plug-Flow detention time= 10.0 min calculated for 0.030 af (100% of inflow)
 Center-of-Mass det. time= 10.0 min (948.1 - 938.1)

Volume	Invert	Avail.Storage	Storage Description			
#1	275.00'	2,492 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
275.00	1,123	708.0	0	0	1,123	
276.70	1,838	721.0	2,492	2,492	3,036	

Device	Routing	Invert	Outlet Devices
#1	Discarded	275.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	275.00'	6.0" Round Culvert L= 20.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 275.00' / 274.80' S= 0.0100 ' /' Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.20 sf

Discarded OutFlow Max=0.07 cfs @ 12.55 hrs HW=275.12' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.04 cfs @ 12.55 hrs HW=275.12' (Free Discharge)
 ↑**2=Culvert** (Barrel Controls 0.04 cfs @ 1.52 fps)

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Type III 24-hr 100-year Rainfall=6.70"

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Summary for Pond 2P: Depression @ Partrige/Winthrop

Inflow Area = 6.514 ac, 16.17% Impervious, Inflow Depth = 1.75" for 100-year event
 Inflow = 6.63 cfs @ 12.28 hrs, Volume= 0.949 af
 Outflow = 4.96 cfs @ 12.76 hrs, Volume= 0.949 af, Atten= 25%, Lag= 28.4 min
 Discarded = 0.28 cfs @ 12.76 hrs, Volume= 0.041 af
 Primary = 4.68 cfs @ 12.76 hrs, Volume= 0.908 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 256.67' @ 12.76 hrs Surf.Area= 4,973 sf Storage= 3,742 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 5.9 min (833.7 - 827.8)

Volume	Invert	Avail.Storage	Storage Description			
#1	255.50'	5,599 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
255.50	1,720	170.0	0	0	1,720	
257.00	6,210	300.0	5,599	5,599	6,595	

Device	Routing	Invert	Outlet Devices
#1	Discarded	255.50'	2.410 in/hr Exfiltration over Surface area
#2	Primary	254.20'	12.0" Round Culvert L= 10.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 254.20' / 254.00' S= 0.0200 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Discarded OutFlow Max=0.28 cfs @ 12.76 hrs HW=256.67' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=4.68 cfs @ 12.76 hrs HW=256.67' (Free Discharge)
 ↑2=Culvert (Inlet Controls 4.68 cfs @ 5.96 fps)

Summary for Pond 3P: Storage w/in Swamp/PVP

Inflow Area = 11.652 ac, 8.77% Impervious, Inflow Depth = 1.25" for 100-year event
 Inflow = 13.05 cfs @ 12.15 hrs, Volume= 1.214 af
 Outflow = 0.84 cfs @ 15.97 hrs, Volume= 0.421 af, Atten= 94%, Lag= 229.0 min
 Primary = 0.84 cfs @ 15.97 hrs, Volume= 0.421 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 274.78' @ 15.97 hrs Surf.Area= 70,422 sf Storage= 36,843 cf

Plug-Flow detention time= 422.1 min calculated for 0.421 af (35% of inflow)
 Center-of-Mass det. time= 273.7 min (1,151.1 - 877.4)

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Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	53,729 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	27,000	1,100.0	0	0	27,000
275.00	86,000	1,890.0	53,729	53,729	214,976

Device	Routing	Invert	Outlet Devices
#1	Primary	274.75'	50.0' long x 50.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.83 cfs @ 15.97 hrs HW=274.78' (Free Discharge)

↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.83 cfs @ 0.49 fps)

Summary for Pond 5P: Storage @ Wets

Inflow Area = 4.898 ac, 17.94% Impervious, Inflow Depth = 2.17" for 100-year event
 Inflow = 5.44 cfs @ 12.31 hrs, Volume= 0.885 af
 Outflow = 5.38 cfs @ 12.39 hrs, Volume= 0.872 af, Atten= 1%, Lag= 4.7 min
 Discarded = 0.13 cfs @ 12.39 hrs, Volume= 0.137 af
 Primary = 5.25 cfs @ 12.39 hrs, Volume= 0.735 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 260.34' @ 12.39 hrs Surf.Area= 5,580 sf Storage= 3,855 cf

Plug-Flow detention time= 53.1 min calculated for 0.872 af (99% of inflow)
 Center-of-Mass det. time= 45.0 min (869.5 - 824.6)

Volume	Invert	Avail.Storage	Storage Description
#1	259.00'	8,718 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
259.00	850	120.0	0	0	850
261.00	9,400	360.0	8,718	8,718	10,030

Device	Routing	Invert	Outlet Devices
#1	Discarded	259.00'	1.020 in/hr Exfiltration over Surface area
#2	Primary	260.00'	10.0' long x 12.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64

Discarded OutFlow Max=0.13 cfs @ 12.39 hrs HW=260.34' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=5.24 cfs @ 12.39 hrs HW=260.34' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 5.24 cfs @ 1.53 fps)

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Summary for Pond B1: Infil Basin 1

Inflow Area = 4.064 ac, 21.27% Impervious, Inflow Depth = 2.72" for 100-year event
 Inflow = 11.76 cfs @ 12.13 hrs, Volume= 0.920 af
 Outflow = 4.86 cfs @ 12.46 hrs, Volume= 0.920 af, Atten= 59%, Lag= 19.8 min
 Discarded = 0.31 cfs @ 12.46 hrs, Volume= 0.215 af
 Primary = 4.55 cfs @ 12.46 hrs, Volume= 0.705 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 264.36' @ 12.46 hrs Surf.Area= 5,579 sf Storage= 9,847 cf

Plug-Flow detention time= 27.9 min calculated for 0.919 af (100% of inflow)
 Center-of-Mass det. time= 27.9 min (864.2 - 836.3)

Volume	Invert	Avail.Storage	Storage Description			
#1	262.00'	20,805 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
262.00	2,901	298.0	0	0	2,901	
264.00	5,145	425.0	7,940	7,940	10,244	
266.00	7,813	463.0	12,865	20,805	13,072	

Device	Routing	Invert	Outlet Devices
#1	Discarded	262.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	262.00'	12.0" Round Culvert L= 30.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 262.00' / 261.80' S= 0.0067 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Discarded OutFlow Max=0.31 cfs @ 12.46 hrs HW=264.35' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.31 cfs)

Primary OutFlow Max=4.54 cfs @ 12.46 hrs HW=264.35' (Free Discharge)
 ↑2=Culvert (Inlet Controls 4.54 cfs @ 5.78 fps)

Summary for Pond B2: Infil. Basin 2

Inflow Area = 1.985 ac, 35.65% Impervious, Inflow Depth = 3.47" for 100-year event
 Inflow = 6.63 cfs @ 12.17 hrs, Volume= 0.574 af
 Outflow = 2.48 cfs @ 12.53 hrs, Volume= 0.574 af, Atten= 63%, Lag= 21.9 min
 Discarded = 0.73 cfs @ 12.53 hrs, Volume= 0.371 af
 Primary = 1.75 cfs @ 12.53 hrs, Volume= 0.203 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 277.83' @ 12.53 hrs Surf.Area= 3,805 sf Storage= 7,819 cf

Plug-Flow detention time= 56.1 min calculated for 0.574 af (100% of inflow)
 Center-of-Mass det. time= 56.1 min (892.1 - 836.0)

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Volume	Invert	Avail.Storage	Storage Description
#1	274.50'	12,934 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.50	1,036	247.0	0	0	1,036
276.00	2,212	275.0	2,381	2,381	2,263
278.00	3,976	313.0	6,102	8,483	4,136
279.00	4,943	332.0	4,451	12,934	5,163

Device	Routing	Invert	Outlet Devices
#1	Discarded	274.50'	8.270 in/hr Exfiltration over Surface area
#2	Primary	275.50'	4.0" Vert. Orifice/Grate C= 0.600
#3	Primary	277.20'	0.8' long x 1.80' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.7' Crest Height

Discarded OutFlow Max=0.73 cfs @ 12.53 hrs HW=277.83' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.73 cfs)

Primary OutFlow Max=1.74 cfs @ 12.53 hrs HW=277.83' (Free Discharge)

↑**2=Orifice/Grate** (Orifice Controls 0.62 cfs @ 7.08 fps)

↑**3=Sharp-Crested Rectangular Weir** (Weir Controls 1.13 cfs @ 2.66 fps)

Summary for Pond B3: Infl. Basin 3

Inflow Area = 3.019 ac, 33.08% Impervious, Inflow Depth = 2.30" for 100-year event
 Inflow = 5.45 cfs @ 12.27 hrs, Volume= 0.579 af
 Outflow = 0.37 cfs @ 16.03 hrs, Volume= 0.517 af, Atten= 93%, Lag= 225.7 min
 Discarded = 0.37 cfs @ 16.03 hrs, Volume= 0.517 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 278.48' @ 16.03 hrs Surf.Area= 6,663 sf Storage= 13,706 cf

Plug-Flow detention time= 408.8 min calculated for 0.517 af (89% of inflow)
 Center-of-Mass det. time= 357.3 min (1,226.9 - 869.6)

Volume	Invert	Avail.Storage	Storage Description
#1	276.00'	24,974 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
276.00	4,450	275.0	0	0	4,450
278.00	6,210	314.0	10,611	10,611	6,371
280.00	8,199	351.0	14,363	24,974	8,438

Device	Routing	Invert	Outlet Devices
#1	Discarded	276.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	278.50'	0.5' long x 0.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.5' Crest Height

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Discarded OutFlow Max=0.37 cfs @ 16.03 hrs HW=278.48' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.37 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=276.00' (Free Discharge)

↑**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B9: Rain Garden

Inflow Area = 0.812 ac, 0.40% Impervious, Inflow Depth = 2.87" for 100-year event
 Inflow = 2.41 cfs @ 12.13 hrs, Volume= 0.194 af
 Outflow = 1.97 cfs @ 12.21 hrs, Volume= 0.194 af, Atten= 18%, Lag= 4.8 min
 Discarded = 0.07 cfs @ 12.21 hrs, Volume= 0.079 af
 Primary = 1.90 cfs @ 12.21 hrs, Volume= 0.115 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 271.55' @ 12.21 hrs Surf.Area= 3,162 sf Storage= 1,200 cf

Plug-Flow detention time= 72.9 min calculated for 0.194 af (100% of inflow)
 Center-of-Mass det. time= 73.1 min (919.9 - 846.7)

Volume	Invert	Avail.Storage	Storage Description			
#1	271.00'	1,703 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
271.00	1,298	395.0	0	0	1,298	
271.70	3,783	433.0	1,703	1,703	3,819	

Device	Routing	Invert	Outlet Devices	
#1	Discarded	271.00'	1.020 in/hr Exfiltration over Surface area	
#2	Primary	271.40'	2.0" x 2.0" Horiz. Orifice/Grate X 36.00 C= 0.600 Limited to weir flow at low heads	

Discarded OutFlow Max=0.07 cfs @ 12.21 hrs HW=271.55' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=1.88 cfs @ 12.21 hrs HW=271.55' (Free Discharge)

↑**2=Orifice/Grate** (Orifice Controls 1.88 cfs @ 1.88 fps)

Summary for Pond B9A: B9A

Inflow Area = 0.812 ac, 0.40% Impervious, Inflow Depth = 1.71" for 100-year event
 Inflow = 1.90 cfs @ 12.21 hrs, Volume= 0.115 af
 Outflow = 1.90 cfs @ 12.21 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.90 cfs @ 12.21 hrs, Volume= 0.115 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

OE2675-Post-West-North 9.23.16

Type III 24-hr 100-year Rainfall=6.70"

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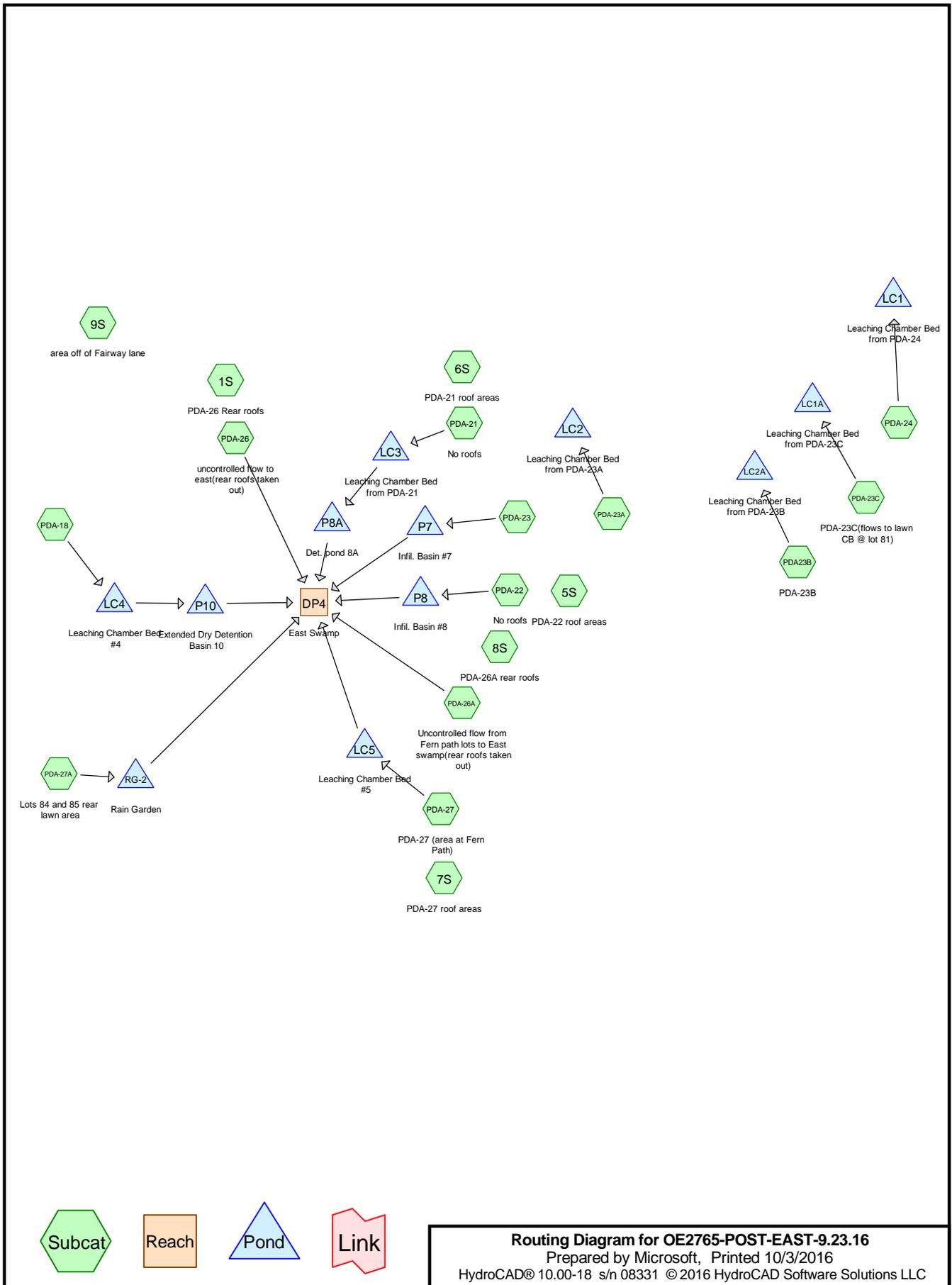
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Peak Elev= 269.72' @ 12.21 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	269.00'	12.0" Round Culvert L= 150.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 269.00' / 267.50' S= 0.0100 '/ Cc= 0.900 n= 0.013 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.88 cfs @ 12.21 hrs HW=269.72' (Free Discharge)↑**1=Culvert** (Barrel Controls 1.88 cfs @ 4.38 fps)



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.071	49	50-75% Grass cover, Fair, HSG A (PDA-23C)
7.024	39	>75% Grass cover, Good, HSG A (PDA-18, PDA-21, PDA-22, PDA-23, PDA-23A, PDA-23C, PDA-24, PDA-26, PDA23B)
1.557	74	>75% Grass cover, Good, HSG C (PDA-26, PDA-26A, PDA-27, PDA-27A)
0.154	80	>75% Grass cover, Good, HSG D (PDA-22, PDA-26)
0.653	98	Paved parking, HSG A (PDA-23, PDA-24)
0.894	98	Roads,drives,sidewalks (PDA-22, PDA-27)
1.964	98	Unconnected roofs, HSG A (1S, 5S, 6S, 7S, 8S, 9S, PDA-18, PDA-23, PDA-23A, PDA-24)
3.152	30	Woods, Good, HSG A (PDA-23A, PDA-23C, PDA-26, PDA23B)
3.653	70	Woods, Good, HSG C (PDA-26, PDA-26A)
1.069	77	Woods, Good, HSG D (PDA-26, PDA-26A)
0.991	98	roads,sidewalks, drives (PDA-18, PDA-21)
21.181	60	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
12.864	HSG A	1S, 5S, 6S, 7S, 8S, 9S, PDA-18, PDA-21, PDA-22, PDA-23, PDA-23A, PDA-23C, PDA-24, PDA-26, PDA23B
0.000	HSG B	
5.209	HSG C	PDA-26, PDA-26A, PDA-27, PDA-27A
1.223	HSG D	PDA-22, PDA-26, PDA-26A
1.885	Other	PDA-18, PDA-21, PDA-22, PDA-27
21.181		TOTAL AREA

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Summary for Subcatchment 1S: PDA-26 Rear roofs

Runoff = 2.88 cfs @ 12.00 hrs, Volume= 0.200 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
35,285	98	Unconnected roofs, HSG A
35,285		100.00% Impervious Area
35,285		100.00% Unconnected

Summary for Subcatchment 5S: PDA-22 roof areas

Runoff = 0.97 cfs @ 12.00 hrs, Volume= 0.068 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
11,944	98	Unconnected roofs, HSG A
11,944		100.00% Impervious Area
11,944		100.00% Unconnected

Summary for Subcatchment 6S: PDA-21 roof areas

Runoff = 0.82 cfs @ 12.00 hrs, Volume= 0.057 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
10,105	98	Unconnected roofs, HSG A
10,105		100.00% Impervious Area
10,105		100.00% Unconnected

Summary for Subcatchment 7S: PDA-27 roof areas

Runoff = 0.31 cfs @ 12.00 hrs, Volume= 0.021 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Area (sf)	CN	Description
3,768	98	Unconnected roofs, HSG A
3,768		100.00% Impervious Area
3,768		100.00% Unconnected

Summary for Subcatchment 8S: PDA-26A rear roofs

Runoff = 0.31 cfs @ 12.00 hrs, Volume= 0.021 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
3,768	98	Unconnected roofs, HSG A
3,768		100.00% Impervious Area
3,768		100.00% Unconnected

Summary for Subcatchment 9S: area off of Fairway lane

Runoff = 0.36 cfs @ 12.00 hrs, Volume= 0.025 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
4,446	98	Unconnected roofs, HSG A
4,446		100.00% Impervious Area
4,446		100.00% Unconnected

Summary for Subcatchment PDA-18:

Runoff = 1.02 cfs @ 12.12 hrs, Volume= 0.084 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
* 19,014	98	roads,sidewalks, drives
6,348	98	Unconnected roofs, HSG A
19,050	39	>75% Grass cover, Good, HSG A
44,412	73	Weighted Average
19,050		42.89% Pervious Area
25,362		57.11% Impervious Area
6,348		25.03% Unconnected

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
2.2	272	0.0100	2.03		Shallow Concentrated Flow, bc Paved Kv= 20.3 fps
7.8	322	Total			

Summary for Subcatchment PDA-21: No roofs

Runoff = 0.59 cfs @ 12.14 hrs, Volume= 0.060 af, Depth= 0.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
24,141	98	roads,sidewalks, drives
32,184	39	>75% Grass cover, Good, HSG A
56,325	64	Weighted Average
32,184		57.14% Pervious Area
24,141		42.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
0.4	53	0.0200	2.28		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
1.3	157	0.0100	2.03		Shallow Concentrated Flow, cd Paved Kv= 20.3 fps
7.3	260	Total			

Summary for Subcatchment PDA-22: No roofs

Runoff = 0.46 cfs @ 12.17 hrs, Volume= 0.062 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
27,746	98	Roads,drives,sidewalks
50,596	39	>75% Grass cover, Good, HSG A
1,327	80	>75% Grass cover, Good, HSG D
79,669	60	Weighted Average
51,923		65.17% Pervious Area
27,746		34.83% Impervious Area

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.2	26	0.0200	2.28		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
1.6	235	0.0150	2.49		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
0.9	225	0.0080	4.06	3.19	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
8.3	536	Total			

Summary for Subcatchment PDA-23:

Runoff = 1.17 cfs @ 12.11 hrs, Volume= 0.096 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
24,704	98	Paved parking, HSG A
31,458	39	>75% Grass cover, Good, HSG A
8,116	98	Unconnected roofs, HSG A
64,278	69	Weighted Average
31,458		48.94% Pervious Area
32,820		51.06% Impervious Area
8,116		24.73% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR55-MIN

Summary for Subcatchment PDA-23A:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Adj	Description
383	98		Unconnected roofs, HSG A
6,388	39		>75% Grass cover, Good, HSG A
10,506	30		Woods, Good, HSG A
17,277	35	34	Weighted Average, UI Adjusted
16,894			97.78% Pervious Area
383			2.22% Impervious Area
383			100.00% Unconnected

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, ab Woods: Light underbrush n= 0.400 P2= 3.20"
0.2	70	0.0900	4.83		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
7.7	120	Total			

Summary for Subcatchment PDA-23C: PDA-23C(flows to lawn CB @ lot 81)

Runoff = 0.00 cfs @ 23.98 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
3,100	49	50-75% Grass cover, Fair, HSG A
2,155	39	>75% Grass cover, Good, HSG A
3,433	30	Woods, Good, HSG A
8,688	39	Weighted Average
8,688		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, ab Woods: Light underbrush n= 0.400 P2= 3.20"
0.2	70	0.0900	4.83		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
7.7	120	Total			

Summary for Subcatchment PDA-24:

Runoff = 0.10 cfs @ 12.13 hrs, Volume= 0.012 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
3,720	98	Paved parking, HSG A
8,497	39	>75% Grass cover, Good, HSG A
1,395	98	Unconnected roofs, HSG A
13,612	61	Weighted Average
8,497		62.42% Pervious Area
5,115		37.58% Impervious Area
1,395		27.27% Unconnected

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR55-MIN

Summary for Subcatchment PDA-26: uncontrolled flow to east(rear roofs taken out)

Runoff = 0.03 cfs @ 15.77 hrs, Volume= 0.021 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
33,333	74	>75% Grass cover, Good, HSG C
153,798	39	>75% Grass cover, Good, HSG A
112,236	30	Woods, Good, HSG A
5,366	80	>75% Grass cover, Good, HSG D
19,695	77	Woods, Good, HSG D
25,769	70	Woods, Good, HSG C
350,197	44	Weighted Average
350,197		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		Sheet Flow, a
					Woods: Light underbrush n= 0.400 P2= 3.20"
3.8	450	0.0150	1.97		Shallow Concentrated Flow, b
					Unpaved Kv= 16.1 fps
10.9	500	Total			

Summary for Subcatchment PDA-26A: Uncontrolled flow from Fern path lots to East swamp(rear roofs taken out)

Runoff = 2.79 cfs @ 12.25 hrs, Volume= 0.301 af, Depth= 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
19,221	74	>75% Grass cover, Good, HSG C
133,339	70	Woods, Good, HSG C
26,877	77	Woods, Good, HSG D
179,437	71	Weighted Average
179,437		100.00% Pervious Area

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		Sheet Flow, a Woods: Light underbrush n= 0.400 P2= 3.20"
4.0	120	0.0100	0.50		Shallow Concentrated Flow, b Woodland Kv= 5.0 fps
16.3	170	Total			

Summary for Subcatchment PDA-27: PDA-27 (area at Fern Path)

Runoff = 0.99 cfs @ 12.09 hrs, Volume= 0.072 af, Depth= 2.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
11,194	98	Roads,drives,sidewalks
7,660	74	>75% Grass cover, Good, HSG C
18,854	88	Weighted Average
7,660		40.63% Pervious Area
11,194		59.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.3	35	0.0200	2.28		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
0.2	30	0.0100	2.03		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
6.1	115	Total			

Summary for Subcatchment PDA-27A: Lots 84 and 85 rear lawn area

Runoff = 0.20 cfs @ 12.08 hrs, Volume= 0.015 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
7,600	74	>75% Grass cover, Good, HSG C
7,600		100.00% Pervious Area

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.0600	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
0.9	90	0.0100	1.61		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
4.5	140	Total			

Summary for Subcatchment PDA23B: PDA-23B

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
1,845	39	>75% Grass cover, Good, HSG A
11,115	30	Woods, Good, HSG A
12,960	31	Weighted Average
12,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, ab Woods: Light underbrush n= 0.400 P2= 3.20"
0.2	70	0.0900	4.83		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
7.7	120	Total			

Summary for Reach DP4: East Swamp

Inflow Area = 18.383 ac, 15.14% Impervious, Inflow Depth = 0.25" for 2-Yr Storm event

Inflow = 2.95 cfs @ 12.27 hrs, Volume= 0.388 af

Outflow = 2.95 cfs @ 12.27 hrs, Volume= 0.388 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond LC1: Leaching Chamber Bed from PDA-24

Inflow Area = 0.312 ac, 37.58% Impervious, Inflow Depth = 0.44" for 2-Yr Storm event

Inflow = 0.10 cfs @ 12.13 hrs, Volume= 0.012 af

Outflow = 0.05 cfs @ 12.15 hrs, Volume= 0.012 af, Atten= 49%, Lag= 1.3 min

Discarded = 0.05 cfs @ 12.15 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2

Peak Elev= 268.06' @ 12.48 hrs Surf.Area= 0.021 ac Storage= 0.001 af

Plug-Flow detention time= 7.5 min calculated for 0.012 af (100% of inflow)

Center-of-Mass det. time= 7.7 min (922.5 - 914.8)

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Volume	Invert	Avail.Storage	Storage Description
#1A	268.00'	0.008 af	23.58'W x 38.00'L x 2.21'H Field A 0.045 af Overall - 0.025 af Embedded = 0.020 af x 40.0% Voids
#2A	268.00'	0.025 af	Cultec R-280HD x 25 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 5 rows
		0.033 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	268.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.05 cfs @ 12.15 hrs HW=268.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Summary for Pond LC1A: Leaching Chamber Bed from PDA-23C

Inflow Area = 0.199 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr Storm event
 Inflow = 0.00 cfs @ 23.98 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af, Atten= 3%, Lag= 1.7 min
 Discarded = 0.00 cfs @ 24.01 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 262.50' @ 24.01 hrs Surf.Area= 0.003 ac Storage= 0.000 af

Plug-Flow detention time= 5.3 min calculated for 0.000 af (100% of inflow)
 Center-of-Mass det. time= 5.3 min (1,403.4 - 1,398.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	262.50'	0.003 af	12.33'W x 12.00'L x 2.71'H Field A 0.009 af Overall - 0.002 af Embedded = 0.007 af x 40.0% Voids
#2A	262.50'	0.002 af	Cultec R-280HD x 2 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 2 rows
		0.005 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	262.50'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.01 cfs @ 24.01 hrs HW=262.50' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

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Summary for Pond LC2: Leaching Chamber Bed from PDA-23A

Inflow Area = 0.397 ac, 2.22% Impervious, Inflow Depth = 0.00" for 2-Yr Storm event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 262.50' @ 0.00 hrs Surf.Area= 0.004 ac Storage= 0.000 af

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

Volume	Invert	Avail.Storage	Storage Description
#1A	262.50'	0.002 af	10.33'W x 17.00'L x 2.21'H Field A 0.009 af Overall - 0.004 af Embedded = 0.005 af x 40.0% Voids
#2A	262.50'	0.004 af	Cultec R-280HD x 4 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 2 rows
		0.006 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	262.50'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=262.50' (Free Discharge)

↑**1=Exfiltration** (Passes 0.00 cfs of 0.01 cfs potential flow)

Summary for Pond LC2A: Leaching Chamber Bed from PDA-23B

Inflow Area = 0.298 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr Storm event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 263.20' @ 0.00 hrs Surf.Area= 0.002 ac Storage= 0.000 af

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

Volume	Invert	Avail.Storage	Storage Description
#1A	263.20'	0.001 af	8.00'W x 13.00'L x 1.54'H Field A 0.004 af Overall - 0.001 af Embedded = 0.002 af x 40.0% Voids
#2A	263.20'	0.001 af	Cultec R-150XLHD x 2 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows

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0.002 af Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	263.20'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=263.20' (Free Discharge)

↑**1=Exfiltration** (Passes 0.00 cfs of 0.01 cfs potential flow)

Summary for Pond LC3: Leaching Chamber Bed from PDA-21

Inflow Area = 1.293 ac, 42.86% Impervious, Inflow Depth = 0.56" for 2-Yr Storm event
 Inflow = 0.59 cfs @ 12.14 hrs, Volume= 0.060 af
 Outflow = 0.11 cfs @ 12.05 hrs, Volume= 0.060 af, Atten= 82%, Lag= 0.0 min
 Discarded = 0.11 cfs @ 12.05 hrs, Volume= 0.060 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 271.53' @ 13.06 hrs Surf.Area= 0.045 ac Storage= 0.015 af

Plug-Flow detention time= 52.2 min calculated for 0.060 af (100% of inflow)
Center-of-Mass det. time= 51.9 min (952.9 - 901.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	271.10'	0.030 af	11.33'W x 172.00'L x 2.71'H Field A 0.121 af Overall - 0.047 af Embedded = 0.074 af x 40.0% Voids
#2A	271.10'	0.047 af	Cultec R-280HD x 48 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 2 rows
		0.077 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	271.10'	2.410 in/hr Exfiltration over Surface area
#2	Primary	273.30'	6.0" Round Culvert X 4.00 L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 273.30' / 273.20' S= 0.0100 ' / Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.11 cfs @ 12.05 hrs HW=271.14' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=271.10' (Free Discharge)

↑**2=Culvert** (Controls 0.00 cfs)

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Summary for Pond LC4: Leaching Chamber Bed #4

Inflow Area = 1.020 ac, 57.11% Impervious, Inflow Depth = 0.98" for 2-Yr Storm event
 Inflow = 1.02 cfs @ 12.12 hrs, Volume= 0.084 af
 Outflow = 0.98 cfs @ 12.16 hrs, Volume= 0.082 af, Atten= 3%, Lag= 2.3 min
 Discarded = 0.01 cfs @ 11.40 hrs, Volume= 0.022 af
 Primary = 0.97 cfs @ 12.16 hrs, Volume= 0.060 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 271.72' @ 12.16 hrs Surf.Area= 0.013 ac Storage= 0.011 af

Plug-Flow detention time= 92.1 min calculated for 0.082 af (98% of inflow)
 Center-of-Mass det. time= 81.3 min (948.4 - 867.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	270.50'	0.008 af	16.50'W x 35.50'L x 2.04'H Field A 0.027 af Overall - 0.008 af Embedded = 0.020 af x 40.0% Voids
#2A	270.50'	0.008 af	Cultec R-150XLHD x 12 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		0.016 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	270.50'	1.020 in/hr Exfiltration over Surface area
#2	Primary	271.40'	8.0" Round Culvert X 3.00 L= 50.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 271.40' / 270.90' S= 0.0100 '/ Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.01 cfs @ 11.40 hrs HW=270.52' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)**Primary OutFlow** Max=0.94 cfs @ 12.16 hrs HW=271.72' (Free Discharge)↑**2=Culvert** (Inlet Controls 0.94 cfs @ 1.91 fps)**Summary for Pond LC5: Leaching Chamber Bed #5**

Inflow Area = 0.433 ac, 59.37% Impervious, Inflow Depth = 2.00" for 2-Yr Storm event
 Inflow = 0.99 cfs @ 12.09 hrs, Volume= 0.072 af
 Outflow = 0.37 cfs @ 12.37 hrs, Volume= 0.072 af, Atten= 62%, Lag= 16.4 min
 Discarded = 0.18 cfs @ 11.75 hrs, Volume= 0.068 af
 Primary = 0.19 cfs @ 12.37 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 273.17' @ 12.37 hrs Surf.Area= 0.021 ac Storage= 0.017 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)

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Center-of-Mass det. time= 22.0 min (837.1 - 815.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	272.00'	0.012 af	16.50'W x 56.00'L x 2.04'H Field A 0.043 af Overall - 0.013 af Embedded = 0.031 af x 40.0% Voids
#2A	272.00'	0.013 af	Cultec R-150XLHD x 20 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		0.025 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	272.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	273.00'	8.0" Round Culvert X 2.00 L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 273.00' / 272.50' S= 0.0200 ' / Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.18 cfs @ 11.75 hrs HW=272.02' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=0.19 cfs @ 12.37 hrs HW=273.17' (Free Discharge)

↑**2=Culvert** (Inlet Controls 0.19 cfs @ 1.39 fps)

Summary for Pond P10: Extended Dry Detention Basin 10

Inflow Area = 1.020 ac, 57.11% Impervious, Inflow Depth = 0.71" for 2-Yr Storm event
 Inflow = 0.97 cfs @ 12.16 hrs, Volume= 0.060 af
 Outflow = 0.10 cfs @ 13.45 hrs, Volume= 0.060 af, Atten= 89%, Lag= 77.3 min
 Primary = 0.10 cfs @ 13.45 hrs, Volume= 0.060 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 270.54' @ 13.45 hrs Surf.Area= 1,538 sf Storage= 1,077 cf

Plug-Flow detention time= 125.5 min calculated for 0.060 af (100% of inflow)
 Center-of-Mass det. time= 125.3 min (970.8 - 845.4)

Volume	Invert	Avail.Storage	Storage Description			
#1	269.50'	10,457 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
269.50	211	55.0	0	0	211	
270.00	1,238	189.0	327	327	2,814	
272.00	2,508	231.0	3,672	3,999	4,279	
274.00	4,009	269.0	6,459	10,457	5,871	

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Device	Routing	Invert	Outlet Devices
#1	Primary	269.50'	2.0" Vert. Orifice/Grate C= 0.600
#2	Primary	272.80'	10.0' long x 1.20' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 3.3' Crest Height

Primary OutFlow Max=0.10 cfs @ 13.45 hrs HW=270.54' (Free Discharge)

- ↑1=Orifice/Grate (Orifice Controls 0.10 cfs @ 4.71 fps)
- ↑2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond P7: Infil. Basin #7

Inflow Area = 1.476 ac, 51.06% Impervious, Inflow Depth = 0.78" for 2-Yr Storm event
 Inflow = 1.17 cfs @ 12.11 hrs, Volume= 0.096 af
 Outflow = 0.16 cfs @ 13.07 hrs, Volume= 0.096 af, Atten= 87%, Lag= 58.0 min
 Discarded = 0.16 cfs @ 13.07 hrs, Volume= 0.096 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 263.00' @ 13.07 hrs Surf.Area= 2,823 sf Storage= 1,323 cf

Plug-Flow detention time= 79.8 min calculated for 0.096 af (100% of inflow)
 Center-of-Mass det. time= 79.5 min (958.9 - 879.4)

Volume	Invert	Avail.Storage	Storage Description		
#1	262.50'	16,498 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
262.50	2,486	229.0	0	0	2,486
264.50	3,969	267.0	6,397	6,397	4,066
266.50	6,215	321.0	10,100	16,498	6,660

Device	Routing	Invert	Outlet Devices
#1	Discarded	262.50'	2.410 in/hr Exfiltration over Surface area
#2	Primary	265.50'	5.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.16 cfs @ 13.07 hrs HW=263.00' (Free Discharge)

- ↑1=Exfiltration (Exfiltration Controls 0.16 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=262.50' (Free Discharge)

- ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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Summary for Pond P8: Infil. Basin #8

Inflow Area = 1.829 ac, 34.83% Impervious, Inflow Depth = 0.41" for 2-Yr Storm event
 Inflow = 0.46 cfs @ 12.17 hrs, Volume= 0.062 af
 Outflow = 0.18 cfs @ 12.64 hrs, Volume= 0.062 af, Atten= 61%, Lag= 28.1 min
 Discarded = 0.18 cfs @ 12.64 hrs, Volume= 0.062 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 265.47' @ 12.64 hrs Surf.Area= 933 sf Storage= 385 cf

Plug-Flow detention time= 13.5 min calculated for 0.062 af (100% of inflow)
 Center-of-Mass det. time= 13.4 min (935.9 - 922.5)

Volume	Invert	Avail.Storage	Storage Description			
#1	265.00'	4,577 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
265.00	705	153.0	0	0	705	
266.00	1,227	188.0	954	954	1,670	
268.00	2,468	226.0	3,623	4,577	2,989	

Device	Routing	Invert	Outlet Devices
#1	Discarded	265.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	265.75'	6.0" Vert. Orifice/Grate C= 0.600
#3	Primary	267.00'	10.0' long x 1.00' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.0' Crest Height
#4	Primary	266.50'	2.0' long x 0.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 1.5' Crest Height

Discarded OutFlow Max=0.18 cfs @ 12.64 hrs HW=265.47' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=265.00' (Free Discharge)

↑ **2=Orifice/Grate** (Controls 0.00 cfs)

↑ **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

↑ **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond P8A: Det. pond 8A

Inflow Area = 1.293 ac, 42.86% Impervious, Inflow Depth = 0.00" for 2-Yr Storm event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 270.20' @ 0.00 hrs Surf.Area= 50 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

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Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description			
#1	270.20'	4,282 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
270.20	50	50.0	0	0	50	
271.00	384	254.0	153	153	4,987	
272.00	1,049	270.0	689	842	5,703	
274.00	2,494	302.0	3,440	4,282	7,268	

Device	Routing	Invert	Outlet Devices
#1	Primary	273.00'	10.0' long x 1.00' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.0' Crest Height
#2	Primary	270.20'	3.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=270.20' (Free Discharge)

1=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

2=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond RG-2: Rain Garden

Inflow Area = 0.174 ac, 0.00% Impervious, Inflow Depth = 1.04" for 2-Yr Storm event
 Inflow = 0.20 cfs @ 12.08 hrs, Volume= 0.015 af
 Outflow = 0.18 cfs @ 12.11 hrs, Volume= 0.015 af, Atten= 12%, Lag= 2.1 min
 Discarded = 0.18 cfs @ 12.11 hrs, Volume= 0.015 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Peak Elev= 271.01' @ 12.11 hrs Surf.Area= 941 sf Storage= 10 cf

Plug-Flow detention time= 0.6 min calculated for 0.015 af (100% of inflow)

Center-of-Mass det. time= 0.6 min (861.3 - 860.7)

Volume	Invert	Avail.Storage	Storage Description			
#1	271.00'	746 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
271.00	937	118.0	0	0	937	
271.70	1,199	131.0	746	746	1,209	

Device	Routing	Invert	Outlet Devices
#1	Discarded	271.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	271.50'	3.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

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Discarded OutFlow Max=0.18 cfs @ 12.11 hrs HW=271.01' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=271.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 1S: PDA-26 Rear roofs

Runoff = 4.26 cfs @ 12.00 hrs, Volume= 0.301 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
35,285	98	Unconnected roofs, HSG A
35,285		100.00% Impervious Area
35,285		100.00% Unconnected

Summary for Subcatchment 5S: PDA-22 roof areas

Runoff = 1.44 cfs @ 12.00 hrs, Volume= 0.102 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
11,944	98	Unconnected roofs, HSG A
11,944		100.00% Impervious Area
11,944		100.00% Unconnected

Summary for Subcatchment 6S: PDA-21 roof areas

Runoff = 1.22 cfs @ 12.00 hrs, Volume= 0.086 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
10,105	98	Unconnected roofs, HSG A
10,105		100.00% Impervious Area
10,105		100.00% Unconnected

Summary for Subcatchment 7S: PDA-27 roof areas

Runoff = 0.45 cfs @ 12.00 hrs, Volume= 0.032 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Area (sf)	CN	Description
3,768	98	Unconnected roofs, HSG A
3,768		100.00% Impervious Area
3,768		100.00% Unconnected

Summary for Subcatchment 8S: PDA-26A rear roofs

Runoff = 0.45 cfs @ 12.00 hrs, Volume= 0.032 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
3,768	98	Unconnected roofs, HSG A
3,768		100.00% Impervious Area
3,768		100.00% Unconnected

Summary for Subcatchment 9S: area off of Fairway lane

Runoff = 0.54 cfs @ 12.00 hrs, Volume= 0.038 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
4,446	98	Unconnected roofs, HSG A
4,446		100.00% Impervious Area
4,446		100.00% Unconnected

Summary for Subcatchment PDA-18:

Runoff = 2.24 cfs @ 12.12 hrs, Volume= 0.174 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
* 19,014	98	roads,sidewalks, drives
6,348	98	Unconnected roofs, HSG A
19,050	39	>75% Grass cover, Good, HSG A
44,412	73	Weighted Average
19,050		42.89% Pervious Area
25,362		57.11% Impervious Area
6,348		25.03% Unconnected

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
2.2	272	0.0100	2.03		Shallow Concentrated Flow, bc Paved Kv= 20.3 fps
7.8	322	Total			

Summary for Subcatchment PDA-21: No roofs

Runoff = 1.84 cfs @ 12.12 hrs, Volume= 0.150 af, Depth= 1.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
24,141	98	roads,sidewalks, drives
32,184	39	>75% Grass cover, Good, HSG A
56,325	64	Weighted Average
32,184		57.14% Pervious Area
24,141		42.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
0.4	53	0.0200	2.28		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
1.3	157	0.0100	2.03		Shallow Concentrated Flow, cd Paved Kv= 20.3 fps
7.3	260	Total			

Summary for Subcatchment PDA-22: No roofs

Runoff = 1.90 cfs @ 12.14 hrs, Volume= 0.172 af, Depth= 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
27,746	98	Roads,drives,sidewalks
50,596	39	>75% Grass cover, Good, HSG A
1,327	80	>75% Grass cover, Good, HSG D
79,669	60	Weighted Average
51,923		65.17% Pervious Area
27,746		34.83% Impervious Area

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 Type III 24-hr 10-Yr Storm Rainfall=4.70"
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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.2	26	0.0200	2.28		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
1.6	235	0.0150	2.49		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
0.9	225	0.0080	4.06	3.19	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
8.3	536	Total			

Summary for Subcatchment PDA-23:

Runoff = 2.88 cfs @ 12.10 hrs, Volume= 0.214 af, Depth= 1.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
24,704	98	Paved parking, HSG A
31,458	39	>75% Grass cover, Good, HSG A
8,116	98	Unconnected roofs, HSG A
64,278	69	Weighted Average
31,458		48.94% Pervious Area
32,820		51.06% Impervious Area
8,116		24.73% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR55-MIN

Summary for Subcatchment PDA-23A:

Runoff = 0.00 cfs @ 17.15 hrs, Volume= 0.001 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Adj	Description
383	98		Unconnected roofs, HSG A
6,388	39		>75% Grass cover, Good, HSG A
10,506	30		Woods, Good, HSG A
17,277	35	34	Weighted Average, UI Adjusted
16,894			97.78% Pervious Area
383			2.22% Impervious Area
383			100.00% Unconnected

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, ab Woods: Light underbrush n= 0.400 P2= 3.20"
0.2	70	0.0900	4.83		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
7.7	120	Total			

Summary for Subcatchment PDA-23C: PDA-23C(flows to lawn CB @ lot 81)

Runoff = 0.00 cfs @ 13.79 hrs, Volume= 0.002 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
3,100	49	50-75% Grass cover, Fair, HSG A
2,155	39	>75% Grass cover, Good, HSG A
3,433	30	Woods, Good, HSG A
8,688	39	Weighted Average
8,688		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, ab Woods: Light underbrush n= 0.400 P2= 3.20"
0.2	70	0.0900	4.83		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
7.7	120	Total			

Summary for Subcatchment PDA-24:

Runoff = 0.38 cfs @ 12.10 hrs, Volume= 0.031 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
3,720	98	Paved parking, HSG A
8,497	39	>75% Grass cover, Good, HSG A
1,395	98	Unconnected roofs, HSG A
13,612	61	Weighted Average
8,497		62.42% Pervious Area
5,115		37.58% Impervious Area
1,395		27.27% Unconnected

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR55-MIN

Summary for Subcatchment PDA-26: uncontrolled flow to east(rear roofs taken out)

Runoff = 0.86 cfs @ 12.45 hrs, Volume= 0.209 af, Depth= 0.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
33,333	74	>75% Grass cover, Good, HSG C
153,798	39	>75% Grass cover, Good, HSG A
112,236	30	Woods, Good, HSG A
5,366	80	>75% Grass cover, Good, HSG D
19,695	77	Woods, Good, HSG D
25,769	70	Woods, Good, HSG C
350,197	44	Weighted Average
350,197		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		Sheet Flow, a
					Woods: Light underbrush n= 0.400 P2= 3.20"
3.8	450	0.0150	1.97		Shallow Concentrated Flow, b
					Unpaved Kv= 16.1 fps
10.9	500	Total			

Summary for Subcatchment PDA-26A: Uncontrolled flow from Fern path lots to East swamp(rear roofs taken out)

Runoff = 6.49 cfs @ 12.24 hrs, Volume= 0.650 af, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
19,221	74	>75% Grass cover, Good, HSG C
133,339	70	Woods, Good, HSG C
26,877	77	Woods, Good, HSG D
179,437	71	Weighted Average
179,437		100.00% Pervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		Sheet Flow, a Woods: Light underbrush n= 0.400 P2= 3.20"
4.0	120	0.0100	0.50		Shallow Concentrated Flow, b Woodland Kv= 5.0 fps
16.3	170	Total			

Summary for Subcatchment PDA-27: PDA-27 (area at Fern Path)

Runoff = 1.64 cfs @ 12.09 hrs, Volume= 0.122 af, Depth= 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
11,194	98	Roads,drives,sidewalks
7,660	74	>75% Grass cover, Good, HSG C
18,854	88	Weighted Average
7,660		40.63% Pervious Area
11,194		59.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.3	35	0.0200	2.28		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
0.2	30	0.0100	2.03		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
6.1	115	Total			

Summary for Subcatchment PDA-27A: Lots 84 and 85 rear lawn area

Runoff = 0.44 cfs @ 12.07 hrs, Volume= 0.031 af, Depth= 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
7,600	74	>75% Grass cover, Good, HSG C
7,600		100.00% Pervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.0600	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
0.9	90	0.0100	1.61		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
4.5	140	Total			

Summary for Subcatchment PDA23B: PDA-23B

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
1,845	39	>75% Grass cover, Good, HSG A
11,115	30	Woods, Good, HSG A
12,960	31	Weighted Average
12,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, ab Woods: Light underbrush n= 0.400 P2= 3.20"
0.2	70	0.0900	4.83		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
7.7	120	Total			

Summary for Reach DP4: East Swamp

Inflow Area = 18.383 ac, 15.14% Impervious, Inflow Depth = 0.71" for 10-Yr Storm event

Inflow = 8.28 cfs @ 12.25 hrs, Volume= 1.082 af

Outflow = 8.28 cfs @ 12.25 hrs, Volume= 1.082 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond LC1: Leaching Chamber Bed from PDA-24

Inflow Area = 0.312 ac, 37.58% Impervious, Inflow Depth = 1.19" for 10-Yr Storm event

Inflow = 0.38 cfs @ 12.10 hrs, Volume= 0.031 af

Outflow = 0.05 cfs @ 11.90 hrs, Volume= 0.031 af, Atten= 87%, Lag= 0.0 min

Discarded = 0.05 cfs @ 11.90 hrs, Volume= 0.031 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2

Peak Elev= 268.56' @ 13.09 hrs Surf.Area= 0.021 ac Storage= 0.010 af

Plug-Flow detention time= 75.8 min calculated for 0.031 af (100% of inflow)

Center-of-Mass det. time= 75.8 min (952.7 - 876.9)

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Volume	Invert	Avail.Storage	Storage Description
#1A	268.00'	0.008 af	23.58'W x 38.00'L x 2.21'H Field A 0.045 af Overall - 0.025 af Embedded = 0.020 af x 40.0% Voids
#2A	268.00'	0.025 af	Cultec R-280HD x 25 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 5 rows
		0.033 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	268.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.05 cfs @ 11.90 hrs HW=268.02' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Summary for Pond LC1A: Leaching Chamber Bed from PDA-23C

Inflow Area = 0.199 ac, 0.00% Impervious, Inflow Depth = 0.14" for 10-Yr Storm event
 Inflow = 0.00 cfs @ 13.79 hrs, Volume= 0.002 af
 Outflow = 0.00 cfs @ 13.88 hrs, Volume= 0.002 af, Atten= 0%, Lag= 5.4 min
 Discarded = 0.00 cfs @ 13.88 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 262.51' @ 13.88 hrs Surf.Area= 0.003 ac Storage= 0.000 af

Plug-Flow detention time= 5.3 min calculated for 0.002 af (100% of inflow)
 Center-of-Mass det. time= 5.3 min (1,041.0 - 1,035.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	262.50'	0.003 af	12.33'W x 12.00'L x 2.71'H Field A 0.009 af Overall - 0.002 af Embedded = 0.007 af x 40.0% Voids
#2A	262.50'	0.002 af	Cultec R-280HD x 2 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 2 rows
		0.005 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	262.50'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.01 cfs @ 13.88 hrs HW=262.51' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

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Summary for Pond LC2: Leaching Chamber Bed from PDA-23A

Inflow Area = 0.397 ac, 2.22% Impervious, Inflow Depth = 0.03" for 10-Yr Storm event
 Inflow = 0.00 cfs @ 17.15 hrs, Volume= 0.001 af
 Outflow = 0.00 cfs @ 17.24 hrs, Volume= 0.001 af, Atten= 0%, Lag= 5.3 min
 Discarded = 0.00 cfs @ 17.24 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 262.50' @ 17.24 hrs Surf.Area= 0.004 ac Storage= 0.000 af

Plug-Flow detention time= 5.4 min calculated for 0.001 af (100% of inflow)
 Center-of-Mass det. time= 5.3 min (1,174.2 - 1,168.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	262.50'	0.002 af	10.33'W x 17.00'L x 2.21'H Field A 0.009 af Overall - 0.004 af Embedded = 0.005 af x 40.0% Voids
#2A	262.50'	0.004 af	Cultec R-280HD x 4 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 2 rows
		0.006 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	262.50'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.01 cfs @ 17.24 hrs HW=262.50' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)**Summary for Pond LC2A: Leaching Chamber Bed from PDA-23B**

Inflow Area = 0.298 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-Yr Storm event
 Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 263.20' @ 24.00 hrs Surf.Area= 0.002 ac Storage= 0.000 af

Plug-Flow detention time= 3.3 min calculated for 0.000 af (100% of inflow)
 Center-of-Mass det. time= 3.3 min (1,343.6 - 1,340.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	263.20'	0.001 af	8.00'W x 13.00'L x 1.54'H Field A 0.004 af Overall - 0.001 af Embedded = 0.002 af x 40.0% Voids
#2A	263.20'	0.001 af	Cultec R-150XLHD x 2 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows

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0.002 af Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	263.20'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.01 cfs @ 24.00 hrs HW=263.20' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Summary for Pond LC3: Leaching Chamber Bed from PDA-21

Inflow Area = 1.293 ac, 42.86% Impervious, Inflow Depth = 1.39" for 10-Yr Storm event
 Inflow = 1.84 cfs @ 12.12 hrs, Volume= 0.150 af
 Outflow = 0.17 cfs @ 14.05 hrs, Volume= 0.150 af, Atten= 91%, Lag= 116.2 min
 Discarded = 0.11 cfs @ 11.75 hrs, Volume= 0.144 af
 Primary = 0.06 cfs @ 14.05 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 273.37' @ 14.05 hrs Surf.Area= 0.045 ac Storage= 0.069 af

Plug-Flow detention time= 290.8 min calculated for 0.149 af (100% of inflow)
Center-of-Mass det. time= 290.7 min (1,159.6 - 868.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	271.10'	0.030 af	11.33'W x 172.00'L x 2.71'H Field A 0.121 af Overall - 0.047 af Embedded = 0.074 af x 40.0% Voids
#2A	271.10'	0.047 af	Cultec R-280HD x 48 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 2 rows
		0.077 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	271.10'	2.410 in/hr Exfiltration over Surface area
#2	Primary	273.30'	6.0" Round Culvert X 4.00 L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 273.30' / 273.20' S= 0.0100 ' / Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.11 cfs @ 11.75 hrs HW=271.13' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.06 cfs @ 14.05 hrs HW=273.37' (Free Discharge)

↑**2=Culvert** (Barrel Controls 0.06 cfs @ 1.27 fps)

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Summary for Pond LC4: Leaching Chamber Bed #4

Inflow Area = 1.020 ac, 57.11% Impervious, Inflow Depth = 2.05" for 10-Yr Storm event
 Inflow = 2.24 cfs @ 12.12 hrs, Volume= 0.174 af
 Outflow = 2.16 cfs @ 12.13 hrs, Volume= 0.172 af, Atten= 4%, Lag= 0.8 min
 Discarded = 0.01 cfs @ 10.15 hrs, Volume= 0.023 af
 Primary = 2.15 cfs @ 12.13 hrs, Volume= 0.149 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 271.92' @ 12.13 hrs Surf.Area= 0.013 ac Storage= 0.012 af

Plug-Flow detention time= 47.3 min calculated for 0.172 af (99% of inflow)
 Center-of-Mass det. time= 41.2 min (886.0 - 844.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	270.50'	0.008 af	16.50'W x 35.50'L x 2.04'H Field A 0.027 af Overall - 0.008 af Embedded = 0.020 af x 40.0% Voids
#2A	270.50'	0.008 af	Cultec R-150XLHD x 12 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		0.016 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	270.50'	1.020 in/hr Exfiltration over Surface area
#2	Primary	271.40'	8.0" Round Culvert X 3.00 L= 50.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 271.40' / 270.90' S= 0.0100 '/ Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.01 cfs @ 10.15 hrs HW=270.52' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)**Primary OutFlow** Max=2.11 cfs @ 12.13 hrs HW=271.91' (Free Discharge)↑**2=Culvert** (Inlet Controls 2.11 cfs @ 2.44 fps)**Summary for Pond LC5: Leaching Chamber Bed #5**

Inflow Area = 0.433 ac, 59.37% Impervious, Inflow Depth = 3.38" for 10-Yr Storm event
 Inflow = 1.64 cfs @ 12.09 hrs, Volume= 0.122 af
 Outflow = 1.38 cfs @ 12.15 hrs, Volume= 0.122 af, Atten= 16%, Lag= 3.9 min
 Discarded = 0.18 cfs @ 11.60 hrs, Volume= 0.094 af
 Primary = 1.21 cfs @ 12.15 hrs, Volume= 0.028 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 273.47' @ 12.16 hrs Surf.Area= 0.021 ac Storage= 0.020 af

Plug-Flow detention time= 20.0 min calculated for 0.122 af (100% of inflow)

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Center-of-Mass det. time= 19.4 min (819.7 - 800.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	272.00'	0.012 af	16.50'W x 56.00'L x 2.04'H Field A 0.043 af Overall - 0.013 af Embedded = 0.031 af x 40.0% Voids
#2A	272.00'	0.013 af	Cultec R-150XLHD x 20 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		0.025 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	272.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	273.00'	8.0" Round Culvert X 2.00 L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 273.00' / 272.50' S= 0.0200 ' / Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.18 cfs @ 11.60 hrs HW=272.02' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=1.18 cfs @ 12.15 hrs HW=273.46' (Free Discharge)

↑ **2=Culvert** (Inlet Controls 1.18 cfs @ 2.31 fps)

Summary for Pond P10: Extended Dry Detention Basin 10

Inflow Area = 1.020 ac, 57.11% Impervious, Inflow Depth = 1.76" for 10-Yr Storm event
 Inflow = 2.15 cfs @ 12.13 hrs, Volume= 0.149 af
 Outflow = 0.15 cfs @ 14.14 hrs, Volume= 0.149 af, Atten= 93%, Lag= 120.6 min
 Primary = 0.15 cfs @ 14.14 hrs, Volume= 0.149 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 271.75' @ 14.14 hrs Surf.Area= 2,324 sf Storage= 3,392 cf

Plug-Flow detention time= 266.3 min calculated for 0.149 af (100% of inflow)
 Center-of-Mass det. time= 266.2 min (1,104.3 - 838.0)

Volume	Invert	Avail.Storage	Storage Description			
#1	269.50'	10,457 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
269.50	211	55.0	0	0	211	
270.00	1,238	189.0	327	327	2,814	
272.00	2,508	231.0	3,672	3,999	4,279	
274.00	4,009	269.0	6,459	10,457	5,871	

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Device	Routing	Invert	Outlet Devices
#1	Primary	269.50'	2.0" Vert. Orifice/Grate C= 0.600
#2	Primary	272.80'	10.0' long x 1.20' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 3.3' Crest Height

Primary OutFlow Max=0.15 cfs @ 14.14 hrs HW=271.75' (Free Discharge)↑ **1=Orifice/Grate** (Orifice Controls 0.15 cfs @ 7.09 fps)↑ **2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)**Summary for Pond P7: Infil. Basin #7**

Inflow Area = 1.476 ac, 51.06% Impervious, Inflow Depth = 1.74" for 10-Yr Storm event
 Inflow = 2.88 cfs @ 12.10 hrs, Volume= 0.214 af
 Outflow = 0.20 cfs @ 14.54 hrs, Volume= 0.214 af, Atten= 93%, Lag= 146.5 min
 Discarded = 0.20 cfs @ 14.54 hrs, Volume= 0.214 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 263.95' @ 14.54 hrs Surf.Area= 3,527 sf Storage= 4,336 cf

Plug-Flow detention time= 249.5 min calculated for 0.214 af (100% of inflow)

Center-of-Mass det. time= 249.3 min (1,103.1 - 853.7)

Volume	Invert	Avail.Storage	Storage Description			
#1	262.50'	16,498 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
262.50	2,486	229.0	0	0	2,486	
264.50	3,969	267.0	6,397	6,397	4,066	
266.50	6,215	321.0	10,100	16,498	6,660	

Device	Routing	Invert	Outlet Devices
#1	Discarded	262.50'	2.410 in/hr Exfiltration over Surface area
#2	Primary	265.50'	5.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.20 cfs @ 14.54 hrs HW=263.95' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 0.20 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=262.50' (Free Discharge)↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Summary for Pond P8: Infil. Basin #8

Inflow Area = 1.829 ac, 34.83% Impervious, Inflow Depth = 1.13" for 10-Yr Storm event
 Inflow = 1.90 cfs @ 12.14 hrs, Volume= 0.172 af
 Outflow = 0.87 cfs @ 12.46 hrs, Volume= 0.172 af, Atten= 54%, Lag= 19.3 min
 Discarded = 0.28 cfs @ 12.46 hrs, Volume= 0.132 af
 Primary = 0.60 cfs @ 12.46 hrs, Volume= 0.041 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 266.40' @ 12.46 hrs Surf.Area= 1,441 sf Storage= 1,489 cf

Plug-Flow detention time= 30.5 min calculated for 0.172 af (100% of inflow)
 Center-of-Mass det. time= 30.5 min (912.8 - 882.3)

Volume	Invert	Avail.Storage	Storage Description			
#1	265.00'	4,577 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
265.00	705	153.0	0	0	705	
266.00	1,227	188.0	954	954	1,670	
268.00	2,468	226.0	3,623	4,577	2,989	

Device	Routing	Invert	Outlet Devices
#1	Discarded	265.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	265.75'	6.0" Vert. Orifice/Grate C= 0.600
#3	Primary	267.00'	10.0' long x 1.00' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.0' Crest Height
#4	Primary	266.50'	2.0' long x 0.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 1.5' Crest Height

Discarded OutFlow Max=0.28 cfs @ 12.46 hrs HW=266.40' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.60 cfs @ 12.46 hrs HW=266.40' (Free Discharge)

↑ **2=Orifice/Grate** (Orifice Controls 0.60 cfs @ 3.04 fps)

↑ **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

↑ **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond P8A: Det. pond 8A

Inflow Area = 1.293 ac, 42.86% Impervious, Inflow Depth = 0.06" for 10-Yr Storm event
 Inflow = 0.06 cfs @ 14.05 hrs, Volume= 0.006 af
 Outflow = 0.06 cfs @ 14.12 hrs, Volume= 0.006 af, Atten= 1%, Lag= 4.2 min
 Primary = 0.06 cfs @ 14.12 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 270.39' @ 14.12 hrs Surf.Area= 100 sf Storage= 14 cf

Plug-Flow detention time= 4.7 min calculated for 0.006 af (100% of inflow)

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Center-of-Mass det. time= 4.5 min (876.9 - 872.4)

Volume	Invert	Avail.Storage	Storage Description			
#1	270.20'	4,282 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
270.20	50	50.0	0	0	50	
271.00	384	254.0	153	153	4,987	
272.00	1,049	270.0	689	842	5,703	
274.00	2,494	302.0	3,440	4,282	7,268	

Device	Routing	Invert	Outlet Devices
#1	Primary	273.00'	10.0' long x 1.00' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.0' Crest Height
#2	Primary	270.20'	3.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.06 cfs @ 14.12 hrs HW=270.39' (Free Discharge)

1=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

2=Orifice/Grate (Orifice Controls 0.06 cfs @ 1.47 fps)

Summary for Pond RG-2: Rain Garden

Inflow Area = 0.174 ac, 0.00% Impervious, Inflow Depth = 2.13" for 10-Yr Storm event
 Inflow = 0.44 cfs @ 12.07 hrs, Volume= 0.031 af
 Outflow = 0.19 cfs @ 12.29 hrs, Volume= 0.031 af, Atten= 57%, Lag= 13.3 min
 Discarded = 0.19 cfs @ 12.29 hrs, Volume= 0.031 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Peak Elev= 271.15' @ 12.29 hrs Surf.Area= 991 sf Storage= 147 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 3.7 min (842.9 - 839.1)

Volume	Invert	Avail.Storage	Storage Description			
#1	271.00'	746 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
271.00	937	118.0	0	0	937	
271.70	1,199	131.0	746	746	1,209	

Device	Routing	Invert	Outlet Devices
#1	Discarded	271.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	271.50'	3.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

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Discarded OutFlow Max=0.19 cfs @ 12.29 hrs HW=271.15' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=271.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 1S: PDA-26 Rear roofs

Runoff = 6.09 cfs @ 12.00 hrs, Volume= 0.436 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
35,285	98	Unconnected roofs, HSG A
35,285		100.00% Impervious Area
35,285		100.00% Unconnected

Summary for Subcatchment 5S: PDA-22 roof areas

Runoff = 2.06 cfs @ 12.00 hrs, Volume= 0.148 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
11,944	98	Unconnected roofs, HSG A
11,944		100.00% Impervious Area
11,944		100.00% Unconnected

Summary for Subcatchment 6S: PDA-21 roof areas

Runoff = 1.74 cfs @ 12.00 hrs, Volume= 0.125 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
10,105	98	Unconnected roofs, HSG A
10,105		100.00% Impervious Area
10,105		100.00% Unconnected

Summary for Subcatchment 7S: PDA-27 roof areas

Runoff = 0.65 cfs @ 12.00 hrs, Volume= 0.047 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Area (sf)	CN	Description
3,768	98	Unconnected roofs, HSG A
3,768		100.00% Impervious Area
3,768		100.00% Unconnected

Summary for Subcatchment 8S: PDA-26A rear roofs

Runoff = 0.65 cfs @ 12.00 hrs, Volume= 0.047 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
3,768	98	Unconnected roofs, HSG A
3,768		100.00% Impervious Area
3,768		100.00% Unconnected

Summary for Subcatchment 9S: area off of Fairway lane

Runoff = 0.77 cfs @ 12.00 hrs, Volume= 0.055 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
4,446	98	Unconnected roofs, HSG A
4,446		100.00% Impervious Area
4,446		100.00% Unconnected

Summary for Subcatchment PDA-18:

Runoff = 4.08 cfs @ 12.11 hrs, Volume= 0.312 af, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
* 19,014	98	roads,sidewalks, drives
6,348	98	Unconnected roofs, HSG A
19,050	39	>75% Grass cover, Good, HSG A
44,412	73	Weighted Average
19,050		42.89% Pervious Area
25,362		57.11% Impervious Area
6,348		25.03% Unconnected

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
2.2	272	0.0100	2.03		Shallow Concentrated Flow, bc Paved Kv= 20.3 fps
7.8	322	Total			

Summary for Subcatchment PDA-21: No roofs

Runoff = 3.91 cfs @ 12.11 hrs, Volume= 0.299 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
24,141	98	roads,sidewalks, drives
32,184	39	>75% Grass cover, Good, HSG A
56,325	64	Weighted Average
32,184		57.14% Pervious Area
24,141		42.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
0.4	53	0.0200	2.28		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
1.3	157	0.0100	2.03		Shallow Concentrated Flow, cd Paved Kv= 20.3 fps
7.3	260	Total			

Summary for Subcatchment PDA-22: No roofs

Runoff = 4.45 cfs @ 12.13 hrs, Volume= 0.365 af, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
27,746	98	Roads,drives,sidewalks
50,596	39	>75% Grass cover, Good, HSG A
1,327	80	>75% Grass cover, Good, HSG D
79,669	60	Weighted Average
51,923		65.17% Pervious Area
27,746		34.83% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.2	26	0.0200	2.28		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
1.6	235	0.0150	2.49		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
0.9	225	0.0080	4.06	3.19	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
8.3	536	Total			

Summary for Subcatchment PDA-23:

Runoff = 5.53 cfs @ 12.09 hrs, Volume= 0.402 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
24,704	98	Paved parking, HSG A
31,458	39	>75% Grass cover, Good, HSG A
8,116	98	Unconnected roofs, HSG A
64,278	69	Weighted Average
31,458		48.94% Pervious Area
32,820		51.06% Impervious Area
8,116		24.73% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR55-MIN

Summary for Subcatchment PDA-23A:

Runoff = 0.04 cfs @ 12.44 hrs, Volume= 0.012 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Adj	Description
383	98		Unconnected roofs, HSG A
6,388	39		>75% Grass cover, Good, HSG A
10,506	30		Woods, Good, HSG A
17,277	35	34	Weighted Average, UI Adjusted
16,894			97.78% Pervious Area
383			2.22% Impervious Area
383			100.00% Unconnected

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, ab
					Woods: Light underbrush n= 0.400 P2= 3.20"
0.2	70	0.0900	4.83		Shallow Concentrated Flow, bc
					Unpaved Kv= 16.1 fps
7.7	120	Total			

Summary for Subcatchment PDA-23C: PDA-23C(flows to lawn CB @ lot 81)

Runoff = 0.06 cfs @ 12.29 hrs, Volume= 0.011 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
3,100	49	50-75% Grass cover, Fair, HSG A
2,155	39	>75% Grass cover, Good, HSG A
3,433	30	Woods, Good, HSG A
8,688	39	Weighted Average
8,688		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, ab
					Woods: Light underbrush n= 0.400 P2= 3.20"
0.2	70	0.0900	4.83		Shallow Concentrated Flow, bc
					Unpaved Kv= 16.1 fps
7.7	120	Total			

Summary for Subcatchment PDA-24:

Runoff = 0.87 cfs @ 12.10 hrs, Volume= 0.065 af, Depth= 2.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
3,720	98	Paved parking, HSG A
8,497	39	>75% Grass cover, Good, HSG A
1,395	98	Unconnected roofs, HSG A
13,612	61	Weighted Average
8,497		62.42% Pervious Area
5,115		37.58% Impervious Area
1,395		27.27% Unconnected

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR55-MIN

Summary for Subcatchment PDA-26: uncontrolled flow to east(rear roofs taken out)

Runoff = 5.45 cfs @ 12.21 hrs, Volume= 0.685 af, Depth= 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
33,333	74	>75% Grass cover, Good, HSG C
153,798	39	>75% Grass cover, Good, HSG A
112,236	30	Woods, Good, HSG A
5,366	80	>75% Grass cover, Good, HSG D
19,695	77	Woods, Good, HSG D
25,769	70	Woods, Good, HSG C
350,197	44	Weighted Average
350,197		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		Sheet Flow, a
					Woods: Light underbrush n= 0.400 P2= 3.20"
3.8	450	0.0150	1.97		Shallow Concentrated Flow, b
					Unpaved Kv= 16.1 fps
10.9	500	Total			

Summary for Subcatchment PDA-26A: Uncontrolled flow from Fern path lots to East swamp(rear roofs taken out)

Runoff = 12.18 cfs @ 12.23 hrs, Volume= 1.192 af, Depth= 3.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
19,221	74	>75% Grass cover, Good, HSG C
133,339	70	Woods, Good, HSG C
26,877	77	Woods, Good, HSG D
179,437	71	Weighted Average
179,437		100.00% Pervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		Sheet Flow, a Woods: Light underbrush n= 0.400 P2= 3.20"
4.0	120	0.0100	0.50		Shallow Concentrated Flow, b Woodland Kv= 5.0 fps
16.3	170	Total			

Summary for Subcatchment PDA-27: PDA-27 (area at Fern Path)

Runoff = 2.52 cfs @ 12.09 hrs, Volume= 0.191 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
11,194	98	Roads,drives,sidewalks
7,660	74	>75% Grass cover, Good, HSG C
18,854	88	Weighted Average
7,660		40.63% Pervious Area
11,194		59.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.3	35	0.0200	2.28		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
0.2	30	0.0100	2.03		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
6.1	115	Total			

Summary for Subcatchment PDA-27A: Lots 84 and 85 rear lawn area

Runoff = 0.79 cfs @ 12.07 hrs, Volume= 0.055 af, Depth= 3.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
7,600	74	>75% Grass cover, Good, HSG C
7,600		100.00% Pervious Area

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.0600	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
0.9	90	0.0100	1.61		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
4.5	140	Total			

Summary for Subcatchment PDA23B: PDA-23B

Runoff = 0.01 cfs @ 13.78 hrs, Volume= 0.005 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
1,845	39	>75% Grass cover, Good, HSG A
11,115	30	Woods, Good, HSG A
12,960	31	Weighted Average
12,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, ab Woods: Light underbrush n= 0.400 P2= 3.20"
0.2	70	0.0900	4.83		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
7.7	120	Total			

Summary for Reach DP4: East Swamp

Inflow Area = 18.383 ac, 15.14% Impervious, Inflow Depth > 1.63" for 100-Yr Storm event

Inflow = 22.67 cfs @ 12.21 hrs, Volume= 2.504 af

Outflow = 22.67 cfs @ 12.21 hrs, Volume= 2.504 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond LC1: Leaching Chamber Bed from PDA-24

Inflow Area = 0.312 ac, 37.58% Impervious, Inflow Depth = 2.49" for 100-Yr Storm event

Inflow = 0.87 cfs @ 12.10 hrs, Volume= 0.065 af

Outflow = 0.05 cfs @ 11.65 hrs, Volume= 0.065 af, Atten= 94%, Lag= 0.0 min

Discarded = 0.05 cfs @ 11.65 hrs, Volume= 0.065 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2

Peak Elev= 270.01' @ 15.20 hrs Surf.Area= 0.021 ac Storage= 0.031 af

Plug-Flow detention time= 289.6 min calculated for 0.065 af (100% of inflow)

Center-of-Mass det. time= 289.4 min (1,143.1 - 853.6)

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Volume	Invert	Avail.Storage	Storage Description
#1A	268.00'	0.008 af	23.58'W x 38.00'L x 2.21'H Field A 0.045 af Overall - 0.025 af Embedded = 0.020 af x 40.0% Voids
#2A	268.00'	0.025 af	Cultec R-280HD x 25 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 5 rows
		0.033 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	268.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.05 cfs @ 11.65 hrs HW=268.02' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)**Summary for Pond LC1A: Leaching Chamber Bed from PDA-23C**

Inflow Area = 0.199 ac, 0.00% Impervious, Inflow Depth = 0.66" for 100-Yr Storm event
 Inflow = 0.06 cfs @ 12.29 hrs, Volume= 0.011 af
 Outflow = 0.01 cfs @ 12.10 hrs, Volume= 0.011 af, Atten= 87%, Lag= 0.0 min
 Discarded = 0.01 cfs @ 12.10 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 264.76' @ 17.15 hrs Surf.Area= 0.003 ac Storage= 0.004 af

Plug-Flow detention time= 269.4 min calculated for 0.011 af (100% of inflow)
 Center-of-Mass det. time= 269.5 min (1,209.1 - 939.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	262.50'	0.003 af	12.33'W x 12.00'L x 2.71'H Field A 0.009 af Overall - 0.002 af Embedded = 0.007 af x 40.0% Voids
#2A	262.50'	0.002 af	Cultec R-280HD x 2 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 2 rows
		0.005 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	262.50'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.01 cfs @ 12.10 hrs HW=262.54' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

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Summary for Pond LC2: Leaching Chamber Bed from PDA-23A

Inflow Area = 0.397 ac, 2.22% Impervious, Inflow Depth = 0.36" for 100-Yr Storm event
 Inflow = 0.04 cfs @ 12.44 hrs, Volume= 0.012 af
 Outflow = 0.01 cfs @ 12.30 hrs, Volume= 0.012 af, Atten= 76%, Lag= 0.0 min
 Discarded = 0.01 cfs @ 12.30 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 263.66' @ 17.65 hrs Surf.Area= 0.004 ac Storage= 0.004 af

Plug-Flow detention time= 183.7 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 183.6 min (1,171.2 - 987.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	262.50'	0.002 af	10.33'W x 17.00'L x 2.21'H Field A 0.009 af Overall - 0.004 af Embedded = 0.005 af x 40.0% Voids
#2A	262.50'	0.004 af	Cultec R-280HD x 4 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 2 rows
		0.006 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	262.50'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.01 cfs @ 12.30 hrs HW=262.53' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Summary for Pond LC2A: Leaching Chamber Bed from PDA-23B

Inflow Area = 0.298 ac, 0.00% Impervious, Inflow Depth = 0.21" for 100-Yr Storm event
 Inflow = 0.01 cfs @ 13.78 hrs, Volume= 0.005 af
 Outflow = 0.01 cfs @ 12.75 hrs, Volume= 0.005 af, Atten= 31%, Lag= 0.0 min
 Discarded = 0.01 cfs @ 12.75 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 263.56' @ 16.89 hrs Surf.Area= 0.002 ac Storage= 0.001 af

Plug-Flow detention time= 39.9 min calculated for 0.005 af (100% of inflow)
 Center-of-Mass det. time= 39.9 min (1,074.9 - 1,035.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	263.20'	0.001 af	8.00'W x 13.00'L x 1.54'H Field A 0.004 af Overall - 0.001 af Embedded = 0.002 af x 40.0% Voids
#2A	263.20'	0.001 af	Cultec R-150XLHD x 2 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows

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0.002 af Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	263.20'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.01 cfs @ 12.75 hrs HW=263.22' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Summary for Pond LC3: Leaching Chamber Bed from PDA-21

Inflow Area =	1.293 ac, 42.86% Impervious, Inflow Depth = 2.78" for 100-Yr Storm event
Inflow =	3.91 cfs @ 12.11 hrs, Volume= 0.299 af
Outflow =	1.86 cfs @ 12.31 hrs, Volume= 0.294 af, Atten= 52%, Lag= 12.0 min
Discarded =	0.11 cfs @ 11.20 hrs, Volume= 0.173 af
Primary =	1.75 cfs @ 12.31 hrs, Volume= 0.120 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 273.81' @ 12.31 hrs Surf.Area= 0.045 ac Storage= 0.077 af

Plug-Flow detention time= 206.6 min calculated for 0.294 af (98% of inflow)
Center-of-Mass det. time= 196.3 min (1,044.1 - 847.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	271.10'	0.030 af	11.33'W x 172.00'L x 2.71'H Field A 0.121 af Overall - 0.047 af Embedded = 0.074 af x 40.0% Voids
#2A	271.10'	0.047 af	Cultec R-280HD x 48 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 2 rows
		0.077 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	271.10'	2.410 in/hr Exfiltration over Surface area
#2	Primary	273.30'	6.0" Round Culvert X 4.00 L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 273.30' / 273.20' S= 0.0100 ' / Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.11 cfs @ 11.20 hrs HW=271.13' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=1.74 cfs @ 12.31 hrs HW=273.80' (Free Discharge)

↑**2=Culvert** (Barrel Controls 1.74 cfs @ 2.74 fps)

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Summary for Pond LC4: Leaching Chamber Bed #4

Inflow Area = 1.020 ac, 57.11% Impervious, Inflow Depth = 3.68" for 100-Yr Storm event
 Inflow = 4.08 cfs @ 12.11 hrs, Volume= 0.312 af
 Outflow = 3.91 cfs @ 12.13 hrs, Volume= 0.311 af, Atten= 4%, Lag= 1.2 min
 Discarded = 0.01 cfs @ 8.80 hrs, Volume= 0.025 af
 Primary = 3.90 cfs @ 12.13 hrs, Volume= 0.286 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 272.33' @ 12.13 hrs Surf.Area= 0.013 ac Storage= 0.014 af

Plug-Flow detention time= 28.5 min calculated for 0.310 af (99% of inflow)
 Center-of-Mass det. time= 25.4 min (853.2 - 827.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	270.50'	0.008 af	16.50"W x 35.50"L x 2.04'H Field A 0.027 af Overall - 0.008 af Embedded = 0.020 af x 40.0% Voids
#2A	270.50'	0.008 af	Cultec R-150XLHD x 12 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		0.016 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	270.50'	1.020 in/hr Exfiltration over Surface area
#2	Primary	271.40'	8.0" Round Culvert X 3.00 L= 50.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 271.40' / 270.90' S= 0.0100 '/ Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.01 cfs @ 8.80 hrs HW=270.52' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)**Primary OutFlow** Max=3.82 cfs @ 12.13 hrs HW=272.31' (Free Discharge)↑**2=Culvert** (Inlet Controls 3.82 cfs @ 3.65 fps)**Summary for Pond LC5: Leaching Chamber Bed #5**

Inflow Area = 0.433 ac, 59.37% Impervious, Inflow Depth = 5.30" for 100-Yr Storm event
 Inflow = 2.52 cfs @ 12.09 hrs, Volume= 0.191 af
 Outflow = 2.33 cfs @ 12.12 hrs, Volume= 0.191 af, Atten= 8%, Lag= 1.7 min
 Discarded = 0.18 cfs @ 11.20 hrs, Volume= 0.127 af
 Primary = 2.15 cfs @ 12.12 hrs, Volume= 0.064 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 273.74' @ 12.12 hrs Surf.Area= 0.021 ac Storage= 0.022 af

Plug-Flow detention time= 18.2 min calculated for 0.191 af (100% of inflow)

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Center-of-Mass det. time= 18.3 min (806.2 - 787.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	272.00'	0.012 af	16.50'W x 56.00'L x 2.04'H Field A 0.043 af Overall - 0.013 af Embedded = 0.031 af x 40.0% Voids
#2A	272.00'	0.013 af	Cultec R-150XLHD x 20 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
		0.025 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	272.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	273.00'	8.0" Round Culvert X 2.00 L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 273.00' / 272.50' S= 0.0200 ' / Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.18 cfs @ 11.20 hrs HW=272.02' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=2.10 cfs @ 12.12 hrs HW=273.72' (Free Discharge)
 ↑ **2=Culvert** (Inlet Controls 2.10 cfs @ 3.01 fps)

Summary for Pond P10: Extended Dry Detention Basin 10

Inflow Area = 1.020 ac, 57.11% Impervious, Inflow Depth = 3.37" for 100-Yr Storm event
 Inflow = 3.90 cfs @ 12.13 hrs, Volume= 0.286 af
 Outflow = 0.55 cfs @ 12.81 hrs, Volume= 0.272 af, Atten= 86%, Lag= 40.8 min
 Primary = 0.55 cfs @ 12.81 hrs, Volume= 0.272 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 272.85' @ 12.81 hrs Surf.Area= 3,101 sf Storage= 6,369 cf

Plug-Flow detention time= 350.6 min calculated for 0.271 af (95% of inflow)
 Center-of-Mass det. time= 324.2 min (1,151.4 - 827.2)

Volume	Invert	Avail.Storage	Storage Description			
#1	269.50'	10,457 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
269.50	211	55.0	0	0	211	
270.00	1,238	189.0	327	327	2,814	
272.00	2,508	231.0	3,672	3,999	4,279	
274.00	4,009	269.0	6,459	10,457	5,871	

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Device	Routing	Invert	Outlet Devices
#1	Primary	269.50'	2.0" Vert. Orifice/Grate C= 0.600
#2	Primary	272.80'	10.0' long x 1.20' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 3.3' Crest Height

Primary OutFlow Max=0.52 cfs @ 12.81 hrs HW=272.85' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 0.19 cfs @ 8.70 fps)

↑ **2=Sharp-Crested Rectangular Weir** (Weir Controls 0.33 cfs @ 0.71 fps)

Summary for Pond P7: Infil. Basin #7

Inflow Area = 1.476 ac, 51.06% Impervious, Inflow Depth = 3.27" for 100-Yr Storm event
 Inflow = 5.53 cfs @ 12.09 hrs, Volume= 0.402 af
 Outflow = 0.26 cfs @ 15.36 hrs, Volume= 0.360 af, Atten= 95%, Lag= 195.7 min
 Discarded = 0.26 cfs @ 15.36 hrs, Volume= 0.360 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 265.25' @ 15.36 hrs Surf.Area= 4,748 sf Storage= 9,645 cf

Plug-Flow detention time= 403.4 min calculated for 0.360 af (90% of inflow)
 Center-of-Mass det. time= 353.2 min (1,188.4 - 835.2)

Volume	Invert	Avail.Storage	Storage Description		
#1	262.50'	16,498 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
262.50	2,486	229.0	0	0	2,486
264.50	3,969	267.0	6,397	6,397	4,066
266.50	6,215	321.0	10,100	16,498	6,660

Device	Routing	Invert	Outlet Devices
#1	Discarded	262.50'	2.410 in/hr Exfiltration over Surface area
#2	Primary	265.50'	5.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.26 cfs @ 15.36 hrs HW=265.25' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.26 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=262.50' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Summary for Pond P8: Infil. Basin #8

Inflow Area = 1.829 ac, 34.83% Impervious, Inflow Depth = 2.39" for 100-Yr Storm event
 Inflow = 4.45 cfs @ 12.13 hrs, Volume= 0.365 af
 Outflow = 3.52 cfs @ 12.22 hrs, Volume= 0.365 af, Atten= 21%, Lag= 5.6 min
 Discarded = 0.34 cfs @ 12.22 hrs, Volume= 0.194 af
 Primary = 3.17 cfs @ 12.22 hrs, Volume= 0.171 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 266.99' @ 12.22 hrs Surf.Area= 1,789 sf Storage= 2,442 cf

Plug-Flow detention time= 26.8 min calculated for 0.364 af (100% of inflow)
 Center-of-Mass det. time= 26.8 min (885.0 - 858.2)

Volume	Invert	Avail.Storage	Storage Description		
#1	265.00'	4,577 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
265.00	705	153.0	0	0	705
266.00	1,227	188.0	954	954	1,670
268.00	2,468	226.0	3,623	4,577	2,989

Device	Routing	Invert	Outlet Devices
#1	Discarded	265.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	265.75'	6.0" Vert. Orifice/Grate C= 0.600
#3	Primary	267.00'	10.0' long x 1.00' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.0' Crest Height
#4	Primary	266.50'	2.0' long x 0.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 1.5' Crest Height

Discarded OutFlow Max=0.34 cfs @ 12.22 hrs HW=266.98' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.34 cfs)

Primary OutFlow Max=3.09 cfs @ 12.22 hrs HW=266.98' (Free Discharge)

↑ **2=Orifice/Grate** (Orifice Controls 0.94 cfs @ 4.77 fps)

↑ **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

↑ **4=Sharp-Crested Rectangular Weir** (Weir Controls 2.16 cfs @ 2.36 fps)

Summary for Pond P8A: Det. pond 8A

Inflow Area = 1.293 ac, 42.86% Impervious, Inflow Depth = 1.12" for 100-Yr Storm event
 Inflow = 1.75 cfs @ 12.31 hrs, Volume= 0.120 af
 Outflow = 0.38 cfs @ 13.03 hrs, Volume= 0.120 af, Atten= 78%, Lag= 42.9 min
 Primary = 0.38 cfs @ 13.03 hrs, Volume= 0.120 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 272.90' @ 13.03 hrs Surf.Area= 1,625 sf Storage= 2,040 cf

Plug-Flow detention time= 61.3 min calculated for 0.120 af (100% of inflow)

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Center-of-Mass det. time= 61.2 min (858.1 - 796.9)

Volume	Invert	Avail.Storage	Storage Description			
#1	270.20'	4,282 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
270.20	50	50.0	0	0	50	
271.00	384	254.0	153	153	4,987	
272.00	1,049	270.0	689	842	5,703	
274.00	2,494	302.0	3,440	4,282	7,268	

Device	Routing	Invert	Outlet Devices
#1	Primary	273.00'	10.0' long x 1.00' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.0' Crest Height
#2	Primary	270.20'	3.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.38 cfs @ 13.03 hrs HW=272.90' (Free Discharge)

1=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

2=Orifice/Grate (Orifice Controls 0.38 cfs @ 7.73 fps)

Summary for Pond RG-2: Rain Garden

Inflow Area = 0.174 ac, 0.00% Impervious, Inflow Depth = 3.78" for 100-Yr Storm event
 Inflow = 0.79 cfs @ 12.07 hrs, Volume= 0.055 af
 Outflow = 0.21 cfs @ 12.44 hrs, Volume= 0.055 af, Atten= 73%, Lag= 22.2 min
 Discarded = 0.21 cfs @ 12.44 hrs, Volume= 0.055 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 271.48' @ 12.44 hrs Surf.Area= 1,114 sf Storage= 493 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 12.8 min (835.2 - 822.5)

Volume	Invert	Avail.Storage	Storage Description			
#1	271.00'	746 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
271.00	937	118.0	0	0	937	
271.70	1,199	131.0	746	746	1,209	

Device	Routing	Invert	Outlet Devices
#1	Discarded	271.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	271.50'	3.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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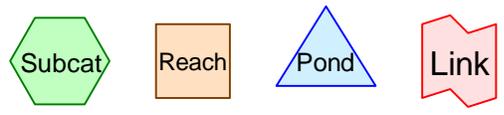
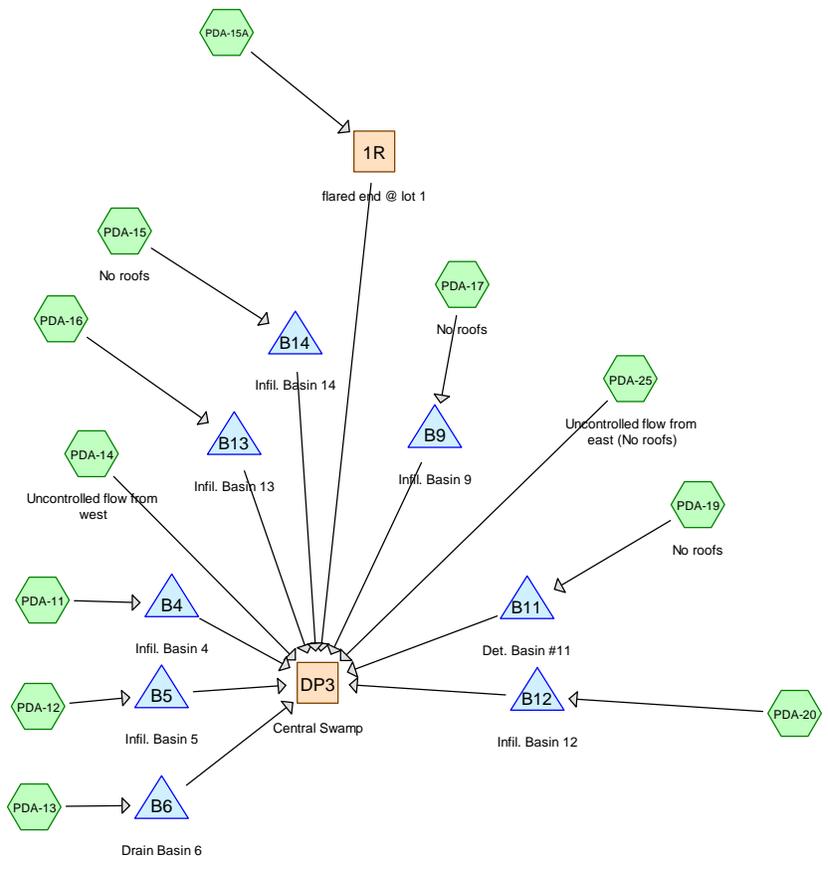
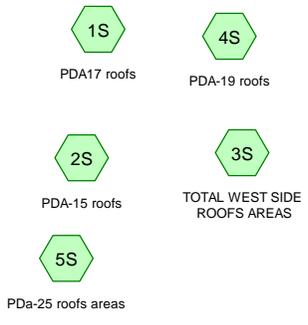
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Discarded OutFlow Max=0.21 cfs @ 12.44 hrs HW=271.48' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.21 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=271.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)



Routing Diagram for OE2765-POST-CENTRAL-9.23.16
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.898	51	1 acre lots, 20% imp, HSG A (PDA-25)
0.206	84	1 acre lots, 20% imp, HSG D (PDA-25)
8.390	39	>75% Grass cover, Good, HSG A (PDA-11, PDA-12, PDA-13, PDA-14, PDA-15A, PDA-17, PDA-19, PDA-25)
2.228	74	>75% Grass cover, Good, HSG C (PDA-14, PDA-15, PDA-16, PDA-20, PDA-25)
1.667	80	>75% Grass cover, Good, HSG D (PDA-13, PDA-15, PDA-16, PDA-19, PDA-25)
0.073	98	Lot 12 long drive (PDA-25)
2.062	98	Paved parking, HSG A (PDA-11, PDA-12, PDA-13, PDA-14)
0.149	98	Unconnected pavement, HSG A (2S)
4.426	98	Unconnected roofs, HSG A (1S, 3S, 4S, 5S, PDA-15A, PDA-16, PDA-20)
7.469	30	Woods, Good, HSG A (PDA-11, PDA-12, PDA-13, PDA-14, PDA-15A, PDA-25)
0.746	70	Woods, Good, HSG C (PDA-14, PDA-25)
2.763	77	Woods, Good, HSG D (PDA-14, PDA-25)
0.060	98	ex roof (PDA-14)
0.044	98	ex. drive (PDA-14)
0.041	98	ex. drives (PDA-15A)
2.071	98	roads,sidewalks, drives (PDA-15, PDA-16, PDA-17, PDA-19, PDA-20)
0.713	30	wetland HSG A (PDA-25)
2.564	60	wetland, HSG D (PDA-25)
37.569	61	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
25.107	HSG A	1S, 2S, 3S, 4S, 5S, PDA-11, PDA-12, PDA-13, PDA-14, PDA-15A, PDA-16, PDA-17, PDA-19, PDA-20, PDA-25
0.000	HSG B	
2.974	HSG C	PDA-14, PDA-15, PDA-16, PDA-20, PDA-25
7.200	HSG D	PDA-13, PDA-14, PDA-15, PDA-16, PDA-19, PDA-25
2.289	Other	PDA-14, PDA-15, PDA-15A, PDA-16, PDA-17, PDA-19, PDA-20, PDA-25
37.569		TOTAL AREA

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Summary for Subcatchment 1S: PDA17 roofs

Runoff = 0.26 cfs @ 12.00 hrs, Volume= 0.018 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
3,178	98	Unconnected roofs, HSG A
3,178		100.00% Impervious Area
3,178		100.00% Unconnected

Summary for Subcatchment 2S: PDA-15 roofs

Runoff = 0.53 cfs @ 12.00 hrs, Volume= 0.037 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
6,474	98	Unconnected pavement, HSG A
6,474		100.00% Impervious Area
6,474		100.00% Unconnected

Summary for Subcatchment 3S: TOTAL WEST SIDE ROOFS AREAS

Runoff = 12.01 cfs @ 12.00 hrs, Volume= 0.835 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
147,166	98	Unconnected roofs, HSG A
147,166		100.00% Impervious Area
147,166		100.00% Unconnected

Summary for Subcatchment 4S: PDA-19 roofs

Runoff = 0.55 cfs @ 12.00 hrs, Volume= 0.038 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Area (sf)	CN	Description
6,689	98	Unconnected roofs, HSG A
6,689		100.00% Impervious Area
6,689		100.00% Unconnected

Summary for Subcatchment 5S: PDA-25 roofs areas

Runoff = 2.07 cfs @ 12.00 hrs, Volume= 0.144 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
25,306	98	Unconnected roofs, HSG A
25,306		100.00% Impervious Area
25,306		100.00% Unconnected

Summary for Subcatchment PDA-11:

Runoff = 0.09 cfs @ 12.57 hrs, Volume= 0.034 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
28,960	98	Paved parking, HSG A
50,743	39	>75% Grass cover, Good, HSG A
37,306	30	Woods, Good, HSG A
117,009	51	Weighted Average
88,049		75.25% Pervious Area
28,960		24.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		Sheet Flow, AB
					Woods: Light underbrush n= 0.400 P2= 3.20"
2.0	198	0.0100	1.61		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
14.3	248	Total			

Summary for Subcatchment PDA-12:

Runoff = 0.44 cfs @ 12.17 hrs, Volume= 0.053 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Area (sf)	CN	Description
22,225	98	Paved parking, HSG A
34,722	39	>75% Grass cover, Good, HSG A
116	30	Woods, Good, HSG A
57,063	62	Weighted Average
34,838		61.05% Pervious Area
22,225		38.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0100	0.11		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.7	128	0.0200	2.87		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.8	334	0.0250	7.17	5.63	Pipe Channel, CD 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
8.9	512	Total			

Summary for Subcatchment PDA-13:

Runoff = 0.46 cfs @ 12.33 hrs, Volume= 0.078 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
35,494	98	Paved parking, HSG A
59,056	39	>75% Grass cover, Good, HSG A
8,562	80	>75% Grass cover, Good, HSG D
16,475	30	Woods, Good, HSG A
119,587	58	Weighted Average
84,093		70.32% Pervious Area
35,494		29.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0080	0.10		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.7	99	0.0200	2.28		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
2.0	262	0.0120	2.22		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
0.2	49	0.0100	4.54	3.56	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
11.0	460	Total			

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Summary for Subcatchment PDA-14: Uncontrolled flow from west

Runoff = 0.05 cfs @ 15.49 hrs, Volume= 0.030 af, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
* 2,604	98	ex roof
3,144	98	Paved parking, HSG A
* 1,928	98	ex. drive
89,823	39	>75% Grass cover, Good, HSG A
5,470	74	>75% Grass cover, Good, HSG C
172,955	30	Woods, Good, HSG A
3,247	70	Woods, Good, HSG C
74,983	77	Woods, Good, HSG D
354,154	45	Weighted Average
346,478		97.83% Pervious Area
7,676		2.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	50	0.0260	0.08		Sheet Flow, ab
					Woods: Light underbrush n= 0.400 P2= 3.20"
3.1	187	0.0400	1.00		Shallow Concentrated Flow, bc
					Woodland Kv= 5.0 fps
14.2	237	Total			

Summary for Subcatchment PDA-15: No roofs

Runoff = 2.56 cfs @ 12.10 hrs, Volume= 0.194 af, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
* 25,837	98	roads,sidewalks, drives
2,650	74	>75% Grass cover, Good, HSG C
18,372	80	>75% Grass cover, Good, HSG D
46,859	90	Weighted Average
21,022		44.86% Pervious Area
25,837		55.14% Impervious Area

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
1.6	267	0.0200	2.87		Shallow Concentrated Flow, bc Paved Kv= 20.3 fps
7.2	317	Total			

Summary for Subcatchment PDA-15A:

Runoff = 0.00 cfs @ 14.56 hrs, Volume= 0.002 af, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Adj	Description
* 1,780	98		ex. drives
840	98		Unconnected roofs, HSG A
7,761	39		>75% Grass cover, Good, HSG A
1,680	30		Woods, Good, HSG A
12,061	51	48	Weighted Average, UI Adjusted
9,441			78.28% Pervious Area
2,620			21.72% Impervious Area
840			32.06% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
0.2	35	0.0200	2.87		Shallow Concentrated Flow, bc Paved Kv= 20.3 fps
0.2	45	0.0700	4.26		Shallow Concentrated Flow, cd Unpaved Kv= 16.1 fps
6.0	130	Total			

Summary for Subcatchment PDA-16:

Runoff = 1.31 cfs @ 12.11 hrs, Volume= 0.099 af, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Area (sf)	CN	Description
*	9,236	98 roads,sidewalks, drives
	3,154	98 Unconnected roofs, HSG A
	8,394	74 >75% Grass cover, Good, HSG C
	7,308	80 >75% Grass cover, Good, HSG D
	28,092	86 Weighted Average
	15,702	55.89% Pervious Area
	12,390	44.11% Impervious Area
	3,154	25.46% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
1.3	122	0.0100	1.61		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
0.4	100	0.0100	4.54	3.56	Pipe Channel, de 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
7.3	272	Total			

Summary for Subcatchment PDA-17: No roofs

Runoff = 1.05 cfs @ 12.10 hrs, Volume= 0.081 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
*	24,458	98 roads,sidewalks, drives
	18,543	39 >75% Grass cover, Good, HSG A
	43,001	73 Weighted Average
	18,543	43.12% Pervious Area
	24,458	56.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
0.2	24	0.0200	2.28		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
0.2	50	0.0100	4.54	3.56	Pipe Channel, cd 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	124	Total			

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Summary for Subcatchment PDA-19: No roofs

Runoff = 0.90 cfs @ 12.09 hrs, Volume= 0.068 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
* 16,193	98	roads,sidewalks, drives
12,479	39	>75% Grass cover, Good, HSG A
5,442	80	>75% Grass cover, Good, HSG D
34,114	74	Weighted Average
17,921		52.53% Pervious Area
16,193		47.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	32	0.0200	0.14		Sheet Flow, ab
					Grass: Short n= 0.150 P2= 3.20"
1.6	200	0.0100	2.03		Shallow Concentrated Flow, bc
					Paved Kv= 20.3 fps
5.5	232	Total			

Summary for Subcatchment PDA-20:

Runoff = 2.00 cfs @ 12.11 hrs, Volume= 0.150 af, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
* 14,500	98	roads,sidewalks, drives
6,475	98	Unconnected roofs, HSG A
23,572	74	>75% Grass cover, Good, HSG C
44,547	85	Weighted Average
23,572		52.91% Pervious Area
20,975		47.09% Impervious Area
6,475		30.87% Unconnected

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
0.1	14	0.0200	2.28		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
1.0	147	0.0150	2.49		Shallow Concentrated Flow, cd Paved Kv= 20.3 fps
0.4	100	0.0100	4.54	3.56	Pipe Channel, de 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
7.1	311	Total			

Summary for Subcatchment PDA-25: Uncontrolled flow from east (No roofs)

Runoff = 1.13 cfs @ 12.39 hrs, Volume= 0.253 af, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.20"

Area (sf)	CN	Description
* 3,160	98	Lot 12 long drive
92,345	39	>75% Grass cover, Good, HSG A
56,970	74	>75% Grass cover, Good, HSG C
32,918	80	>75% Grass cover, Good, HSG D
96,821	30	Woods, Good, HSG A
29,256	70	Woods, Good, HSG C
45,367	77	Woods, Good, HSG D
82,670	51	1 acre lots, 20% imp, HSG A
8,962	84	1 acre lots, 20% imp, HSG D
* 31,051	30	wetland HSG A
* 111,700	60	wetland, HSG D
591,220	54	Weighted Average
569,734		96.37% Pervious Area
21,486		3.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.20		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
3.6	210	0.0370	0.96		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.9	260	Total			

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Type III 24-hr 2-Yr Storm Rainfall=3.20"

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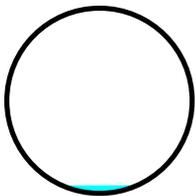
Summary for Reach 1R: flared end @ lot 1

Inflow Area = 0.277 ac, 21.72% Impervious, Inflow Depth = 0.09" for 2-Yr Storm event
 Inflow = 0.00 cfs @ 14.56 hrs, Volume= 0.002 af
 Outflow = 0.00 cfs @ 14.63 hrs, Volume= 0.002 af, Atten= 0%, Lag= 4.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Max. Velocity= 1.12 fps, Min. Travel Time= 2.6 min
 Avg. Velocity = 0.95 fps, Avg. Travel Time= 3.1 min

Peak Storage= 1 cf @ 14.59 hrs
 Average Depth at Peak Storage= 0.02'
 Bank-Full Depth= 0.50' Flow Area= 0.2 sf, Capacity= 0.92 cfs

6.0" Round Pipe
 n= 0.011 PVC, smooth interior
 Length= 175.0' Slope= 0.0194 '/'
 Inlet Invert= 275.60', Outlet Invert= 272.21'

**Summary for Reach DP3: Central Swamp**

Inflow Area = 33.235 ac, 15.08% Impervious, Inflow Depth = 0.13" for 2-Yr Storm event
 Inflow = 1.40 cfs @ 12.39 hrs, Volume= 0.352 af
 Outflow = 1.40 cfs @ 12.39 hrs, Volume= 0.352 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond B11: Det. Basin #11

Inflow Area = 0.783 ac, 47.47% Impervious, Inflow Depth = 1.04" for 2-Yr Storm event
 Inflow = 0.90 cfs @ 12.09 hrs, Volume= 0.068 af
 Outflow = 0.27 cfs @ 12.48 hrs, Volume= 0.068 af, Atten= 70%, Lag= 22.9 min
 Primary = 0.27 cfs @ 12.48 hrs, Volume= 0.068 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 270.46' @ 12.48 hrs Surf.Area= 811 sf Storage= 662 cf

Plug-Flow detention time= 20.2 min calculated for 0.068 af (100% of inflow)
 Center-of-Mass det. time= 20.2 min (881.8 - 861.6)

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Volume	Invert	Avail.Storage	Storage Description
#1	269.00'	6,978 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
269.00	112	75.0	0	0	112
270.00	620	157.0	332	332	1,630
272.00	1,629	198.0	2,169	2,501	2,842
274.00	2,909	250.0	4,477	6,978	4,749

Device	Routing	Invert	Outlet Devices
#1	Primary	269.00'	3.0" Vert. Orifice/Grate C= 0.600
#2	Primary	273.00'	10.0' long x 1.00' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 4.0' Crest Height

Primary OutFlow Max=0.27 cfs @ 12.48 hrs HW=270.46' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.27 cfs @ 5.57 fps)
- 2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond B12: Infil. Basin 12

Inflow Area = 1.023 ac, 47.09% Impervious, Inflow Depth = 1.76" for 2-Yr Storm event
 Inflow = 2.00 cfs @ 12.11 hrs, Volume= 0.150 af
 Outflow = 0.48 cfs @ 12.53 hrs, Volume= 0.150 af, Atten= 76%, Lag= 25.5 min
 Discarded = 0.48 cfs @ 12.53 hrs, Volume= 0.150 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 269.70' @ 12.53 hrs Surf.Area= 2,492 sf Storage= 1,631 cf

Plug-Flow detention time= 22.2 min calculated for 0.150 af (100% of inflow)
 Center-of-Mass det. time= 22.2 min (849.3 - 827.1)

Volume	Invert	Avail.Storage	Storage Description
#1	269.00'	15,513 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
269.00	2,158	188.0	0	0	2,158
272.00	3,754	238.0	8,758	8,758	3,969
273.50	5,297	276.0	6,755	15,513	5,571

Device	Routing	Invert	Outlet Devices
#1	Discarded	269.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	272.50'	5.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

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Discarded OutFlow Max=0.48 cfs @ 12.53 hrs HW=269.70' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.48 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=269.00' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond B13: Infil. Basin 13

Inflow Area = 0.645 ac, 44.11% Impervious, Inflow Depth = 1.84" for 2-Yr Storm event
 Inflow = 1.31 cfs @ 12.11 hrs, Volume= 0.099 af
 Outflow = 0.09 cfs @ 13.91 hrs, Volume= 0.098 af, Atten= 93%, Lag= 108.4 min
 Discarded = 0.09 cfs @ 13.91 hrs, Volume= 0.098 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 272.32' @ 13.91 hrs Surf.Area= 1,650 sf Storage= 2,182 cf

Plug-Flow detention time= 295.2 min calculated for 0.098 af (100% of inflow)
 Center-of-Mass det. time= 294.4 min (1,118.1 - 823.7)

Volume	Invert	Avail.Storage	Storage Description			
#1	270.00'	11,504 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
270.00	366	113.0	0	0	366	
272.00	1,434	243.0	1,683	1,683	4,066	
274.00	3,007	281.0	4,345	6,028	5,735	
275.50	4,335	309.0	5,476	11,504	7,122	

Device	Routing	Invert	Outlet Devices								
#1	Discarded	270.00'	2.410 in/hr Exfiltration over Surface area								
#2	Primary	274.50'	5.0' long x 20.0' breadth Broad-Crested Rectangular Weir								
			Head (feet)	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60
			Coef. (English)	2.68	2.70	2.70	2.64	2.63	2.64	2.64	2.63

Discarded OutFlow Max=0.09 cfs @ 13.91 hrs HW=272.32' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=270.00' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond B14: Infil. Basin 14

Inflow Area = 1.076 ac, 55.14% Impervious, Inflow Depth = 2.17" for 2-Yr Storm event
 Inflow = 2.56 cfs @ 12.10 hrs, Volume= 0.194 af
 Outflow = 0.24 cfs @ 13.04 hrs, Volume= 0.194 af, Atten= 90%, Lag= 56.3 min
 Discarded = 0.24 cfs @ 13.04 hrs, Volume= 0.194 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

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Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 272.84' @ 13.04 hrs Surf.Area= 4,381 sf Storage= 3,379 cf

Plug-Flow detention time= 121.2 min calculated for 0.194 af (100% of inflow)
 Center-of-Mass det. time= 121.0 min (929.0 - 808.0)

Volume	Invert	Avail.Storage	Storage Description
#1	272.00'	16,881 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
272.00	3,708	265.0	0	0	3,708
274.00	5,411	302.0	9,066	9,066	5,471
275.00	6,348	322.0	5,873	14,939	6,512
275.30	6,600	329.0	1,942	16,881	6,888

Device	Routing	Invert	Outlet Devices
#1	Primary	273.00'	2.0" Vert. Orifice/Grate C= 0.600
#2	Discarded	272.00'	2.410 in/hr Exfiltration over Surface area
#3	Primary	274.30'	5.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.24 cfs @ 13.04 hrs HW=272.84' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=272.00' (Free Discharge)
 ↳ **1=Orifice/Grate** (Controls 0.00 cfs)
 ↳ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B4: Infil. Basin 4

Inflow Area = 2.686 ac, 24.75% Impervious, Inflow Depth = 0.15" for 2-Yr Storm event
 Inflow = 0.09 cfs @ 12.57 hrs, Volume= 0.034 af
 Outflow = 0.07 cfs @ 12.90 hrs, Volume= 0.034 af, Atten= 20%, Lag= 19.8 min
 Discarded = 0.07 cfs @ 12.90 hrs, Volume= 0.034 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 272.01' @ 12.90 hrs Surf.Area= 5,908 sf Storage= 49 cf

Plug-Flow detention time= 11.9 min calculated for 0.034 af (100% of inflow)
 Center-of-Mass det. time= 11.9 min (1,016.3 - 1,004.4)

Volume	Invert	Avail.Storage	Storage Description
#1	272.00'	33,794 cf	Custom Stage Data (Irregular) Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
272.00	5,898	402.0	0	0	5,898
274.00	8,427	440.0	14,250	14,250	8,580
276.00	11,182	478.0	19,544	33,794	11,504

Device	Routing	Invert	Outlet Devices
#1	Discarded	272.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	274.00'	5.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.33 cfs @ 12.90 hrs HW=272.01' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.33 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=272.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B5: Infil. Basin 5

Inflow Area = 1.310 ac, 38.95% Impervious, Inflow Depth = 0.48" for 2-Yr Storm event
 Inflow = 0.44 cfs @ 12.17 hrs, Volume= 0.053 af
 Outflow = 0.20 cfs @ 12.56 hrs, Volume= 0.053 af, Atten= 54%, Lag= 23.2 min
 Discarded = 0.20 cfs @ 12.56 hrs, Volume= 0.053 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 271.08' @ 12.56 hrs Surf.Area= 3,669 sf Storage= 303 cf

Plug-Flow detention time= 14.2 min calculated for 0.052 af (100% of inflow)
 Center-of-Mass det. time= 14.3 min (926.5 - 912.2)

Volume	Invert	Avail.Storage	Storage Description
#1	271.00'	21,026 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
271.00	3,608	247.5	0	0	3,608
273.00	5,223	286.6	8,781	8,781	5,354
275.00	7,068	326.3	12,245	21,026	7,385

Device	Routing	Invert	Outlet Devices
#1	Discarded	271.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	273.00'	3.0" Vert. Orifice/Grate C= 0.600
#3	Primary	274.30'	10.0' long x 0.70' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 3.3' Crest Height

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Discarded OutFlow Max=0.20 cfs @ 12.56 hrs HW=271.08' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.20 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=271.00' (Free Discharge)

↑ **2=Orifice/Grate** (Controls 0.00 cfs)

↑ **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B6: Drain Basin 6

Inflow Area = 2.745 ac, 29.68% Impervious, Inflow Depth = 0.34" for 2-Yr Storm event
 Inflow = 0.46 cfs @ 12.33 hrs, Volume= 0.078 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 267.96' @ 24.65 hrs Surf.Area= 4,008 sf Storage= 3,400 cf

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

Volume	Invert	Avail.Storage	Storage Description			
#1	267.00'	20,349 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
267.00	3,092	309.1	0	0	3,092	
268.00	4,048	328.0	3,559	3,559	4,102	
270.00	6,129	365.7	10,105	13,665	6,295	
271.00	7,255	384.6	6,684	20,349	7,485	

Device	Routing	Invert	Outlet Devices	
#1	Primary	268.50'	3.0" Vert. Orifice/Grate C= 0.600	
#2	Primary	270.00'	10.0' long x 1.00' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 3.0' Crest Height	

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=267.00' (Free Discharge)

↑ **1=Orifice/Grate** (Controls 0.00 cfs)

↑ **2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B9: Infil. Basin 9

Inflow Area = 0.987 ac, 56.88% Impervious, Inflow Depth = 0.98" for 2-Yr Storm event
 Inflow = 1.05 cfs @ 12.10 hrs, Volume= 0.081 af
 Outflow = 0.05 cfs @ 16.04 hrs, Volume= 0.070 af, Atten= 95%, Lag= 236.4 min
 Discarded = 0.05 cfs @ 16.04 hrs, Volume= 0.070 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

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Peak Elev= 272.76' @ 16.04 hrs Surf.Area= 2,126 sf Storage= 1,963 cf

Plug-Flow detention time= 431.1 min calculated for 0.070 af (86% of inflow)

Center-of-Mass det. time= 368.5 min (1,233.9 - 865.4)

Volume	Invert	Avail.Storage	Storage Description
#1	271.50'	8,612 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
271.50	611	129.0	0	0	611
272.00	1,643	217.0	543	543	3,036
274.00	3,057	254.0	4,627	5,170	4,500
275.00	3,842	232.0	3,442	8,612	5,385

Device	Routing	Invert	Outlet Devices
#1	Discarded	271.50'	1.020 in/hr Exfiltration over Surface area
#2	Primary	273.50'	2.0" Vert. Orifice/Grate C= 0.600
#3	Primary	273.80'	10.0' long x 1.20' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.3' Crest Height

Discarded OutFlow Max=0.05 cfs @ 16.04 hrs HW=272.76' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 0.05 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=271.50' (Free Discharge)↑ **2=Orifice/Grate** (Controls 0.00 cfs)↑ **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Summary for Subcatchment 1S: PDA17 roofs

Runoff = 0.38 cfs @ 12.00 hrs, Volume= 0.027 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
3,178	98	Unconnected roofs, HSG A
3,178		100.00% Impervious Area
3,178		100.00% Unconnected

Summary for Subcatchment 2S: PDA-15 roofs

Runoff = 0.78 cfs @ 12.00 hrs, Volume= 0.055 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
6,474	98	Unconnected pavement, HSG A
6,474		100.00% Impervious Area
6,474		100.00% Unconnected

Summary for Subcatchment 3S: TOTAL WEST SIDE ROOFS AREAS

Runoff = 17.76 cfs @ 12.00 hrs, Volume= 1.257 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
147,166	98	Unconnected roofs, HSG A
147,166		100.00% Impervious Area
147,166		100.00% Unconnected

Summary for Subcatchment 4S: PDA-19 roofs

Runoff = 0.81 cfs @ 12.00 hrs, Volume= 0.057 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Area (sf)	CN	Description
6,689	98	Unconnected roofs, HSG A
6,689		100.00% Impervious Area
6,689		100.00% Unconnected

Summary for Subcatchment 5S: PDA-25 roofs areas

Runoff = 3.05 cfs @ 12.00 hrs, Volume= 0.216 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
25,306	98	Unconnected roofs, HSG A
25,306		100.00% Impervious Area
25,306		100.00% Unconnected

Summary for Subcatchment PDA-11:

Runoff = 0.92 cfs @ 12.31 hrs, Volume= 0.140 af, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
28,960	98	Paved parking, HSG A
50,743	39	>75% Grass cover, Good, HSG A
37,306	30	Woods, Good, HSG A
117,009	51	Weighted Average
88,049		75.25% Pervious Area
28,960		24.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		Sheet Flow, AB
					Woods: Light underbrush n= 0.400 P2= 3.20"
2.0	198	0.0100	1.61		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
14.3	248	Total			

Summary for Subcatchment PDA-12:

Runoff = 1.55 cfs @ 12.15 hrs, Volume= 0.137 af, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Area (sf)	CN	Description
22,225	98	Paved parking, HSG A
34,722	39	>75% Grass cover, Good, HSG A
116	30	Woods, Good, HSG A
57,063	62	Weighted Average
34,838		61.05% Pervious Area
22,225		38.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0100	0.11		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.7	128	0.0200	2.87		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.8	334	0.0250	7.17	5.63	Pipe Channel, CD 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
8.9	512	Total			

Summary for Subcatchment PDA-13:

Runoff = 2.23 cfs @ 12.18 hrs, Volume= 0.231 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
35,494	98	Paved parking, HSG A
59,056	39	>75% Grass cover, Good, HSG A
8,562	80	>75% Grass cover, Good, HSG D
16,475	30	Woods, Good, HSG A
119,587	58	Weighted Average
84,093		70.32% Pervious Area
35,494		29.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0080	0.10		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.7	99	0.0200	2.28		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
2.0	262	0.0120	2.22		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
0.2	49	0.0100	4.54	3.56	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
11.0	460	Total			

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Summary for Subcatchment PDA-14: Uncontrolled flow from west

Runoff = 1.04 cfs @ 12.47 hrs, Volume= 0.238 af, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
* 2,604	98	ex roof
3,144	98	Paved parking, HSG A
* 1,928	98	ex. drive
89,823	39	>75% Grass cover, Good, HSG A
5,470	74	>75% Grass cover, Good, HSG C
172,955	30	Woods, Good, HSG A
3,247	70	Woods, Good, HSG C
74,983	77	Woods, Good, HSG D
354,154	45	Weighted Average
346,478		97.83% Pervious Area
7,676		2.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	50	0.0260	0.08		Sheet Flow, ab
					Woods: Light underbrush n= 0.400 P2= 3.20"
3.1	187	0.0400	1.00		Shallow Concentrated Flow, bc
					Woodland Kv= 5.0 fps
14.2	237	Total			

Summary for Subcatchment PDA-15: No roofs

Runoff = 4.15 cfs @ 12.10 hrs, Volume= 0.322 af, Depth= 3.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
* 25,837	98	roads,sidewalks, drives
2,650	74	>75% Grass cover, Good, HSG C
18,372	80	>75% Grass cover, Good, HSG D
46,859	90	Weighted Average
21,022		44.86% Pervious Area
25,837		55.14% Impervious Area

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
1.6	267	0.0200	2.87		Shallow Concentrated Flow, bc Paved Kv= 20.3 fps
7.2	317	Total			

Summary for Subcatchment PDA-15A:

Runoff = 0.07 cfs @ 12.15 hrs, Volume= 0.011 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Adj	Description
* 1,780	98		ex. drives
840	98		Unconnected roofs, HSG A
7,761	39		>75% Grass cover, Good, HSG A
1,680	30		Woods, Good, HSG A
12,061	51	48	Weighted Average, UI Adjusted
9,441			78.28% Pervious Area
2,620			21.72% Impervious Area
840			32.06% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
0.2	35	0.0200	2.87		Shallow Concentrated Flow, bc Paved Kv= 20.3 fps
0.2	45	0.0700	4.26		Shallow Concentrated Flow, cd Unpaved Kv= 16.1 fps
6.0	130	Total			

Summary for Subcatchment PDA-16:

Runoff = 2.25 cfs @ 12.11 hrs, Volume= 0.171 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Area (sf)	CN	Description
*	9,236	98 roads,sidewalks, drives
	3,154	98 Unconnected roofs, HSG A
	8,394	74 >75% Grass cover, Good, HSG C
	7,308	80 >75% Grass cover, Good, HSG D
	28,092	86 Weighted Average
	15,702	55.89% Pervious Area
	12,390	44.11% Impervious Area
	3,154	25.46% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
1.3	122	0.0100	1.61		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
0.4	100	0.0100	4.54	3.56	Pipe Channel, de 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
7.3	272	Total			

Summary for Subcatchment PDA-17: No roofs

Runoff = 2.30 cfs @ 12.10 hrs, Volume= 0.168 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
*	24,458	98 roads,sidewalks, drives
	18,543	39 >75% Grass cover, Good, HSG A
	43,001	73 Weighted Average
	18,543	43.12% Pervious Area
	24,458	56.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
0.2	24	0.0200	2.28		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
0.2	50	0.0100	4.54	3.56	Pipe Channel, cd 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	124	Total			

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Summary for Subcatchment PDA-19: No roofs

Runoff = 1.92 cfs @ 12.09 hrs, Volume= 0.139 af, Depth= 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
* 16,193	98	roads,sidewalks, drives
12,479	39	>75% Grass cover, Good, HSG A
5,442	80	>75% Grass cover, Good, HSG D
34,114	74	Weighted Average
17,921		52.53% Pervious Area
16,193		47.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	32	0.0200	0.14		Sheet Flow, ab
					Grass: Short n= 0.150 P2= 3.20"
1.6	200	0.0100	2.03		Shallow Concentrated Flow, bc
					Paved Kv= 20.3 fps
5.5	232	Total			

Summary for Subcatchment PDA-20:

Runoff = 3.50 cfs @ 12.10 hrs, Volume= 0.263 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
* 14,500	98	roads,sidewalks, drives
6,475	98	Unconnected roofs, HSG A
23,572	74	>75% Grass cover, Good, HSG C
44,547	85	Weighted Average
23,572		52.91% Pervious Area
20,975		47.09% Impervious Area
6,475		30.87% Unconnected

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
0.1	14	0.0200	2.28		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
1.0	147	0.0150	2.49		Shallow Concentrated Flow, cd Paved Kv= 20.3 fps
0.4	100	0.0100	4.54	3.56	Pipe Channel, de 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
7.1	311	Total			

Summary for Subcatchment PDA-25: Uncontrolled flow from east (No roofs)

Runoff = 8.22 cfs @ 12.15 hrs, Volume= 0.882 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.70"

Area (sf)	CN	Description
* 3,160	98	Lot 12 long drive
92,345	39	>75% Grass cover, Good, HSG A
56,970	74	>75% Grass cover, Good, HSG C
32,918	80	>75% Grass cover, Good, HSG D
96,821	30	Woods, Good, HSG A
29,256	70	Woods, Good, HSG C
45,367	77	Woods, Good, HSG D
82,670	51	1 acre lots, 20% imp, HSG A
8,962	84	1 acre lots, 20% imp, HSG D
* 31,051	30	wetland HSG A
* 111,700	60	wetland, HSG D
591,220	54	Weighted Average
569,734		96.37% Pervious Area
21,486		3.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.20		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
3.6	210	0.0370	0.96		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.9	260	Total			

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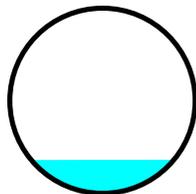
Summary for Reach 1R: flared end @ lot 1

Inflow Area = 0.277 ac, 21.72% Impervious, Inflow Depth = 0.48" for 10-Yr Storm event
 Inflow = 0.07 cfs @ 12.15 hrs, Volume= 0.011 af
 Outflow = 0.07 cfs @ 12.20 hrs, Volume= 0.011 af, Atten= 1%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.72 fps, Min. Travel Time= 1.1 min
 Avg. Velocity = 1.48 fps, Avg. Travel Time= 2.0 min

Peak Storage= 4 cf @ 12.20 hrs
 Average Depth at Peak Storage= 0.09'
 Bank-Full Depth= 0.50' Flow Area= 0.2 sf, Capacity= 0.92 cfs

6.0" Round Pipe
 n= 0.011 PVC, smooth interior
 Length= 175.0' Slope= 0.0194 '/'
 Inlet Invert= 275.60', Outlet Invert= 272.21'

**Summary for Reach DP3: Central Swamp**

Inflow Area = 33.235 ac, 15.08% Impervious, Inflow Depth > 0.51" for 10-Yr Storm event
 Inflow = 8.74 cfs @ 12.16 hrs, Volume= 1.399 af
 Outflow = 8.74 cfs @ 12.16 hrs, Volume= 1.399 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond B11: Det. Basin #11

Inflow Area = 0.783 ac, 47.47% Impervious, Inflow Depth = 2.13" for 10-Yr Storm event
 Inflow = 1.92 cfs @ 12.09 hrs, Volume= 0.139 af
 Outflow = 0.37 cfs @ 12.56 hrs, Volume= 0.139 af, Atten= 81%, Lag= 28.2 min
 Primary = 0.37 cfs @ 12.56 hrs, Volume= 0.139 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 271.59' @ 12.56 hrs Surf.Area= 1,382 sf Storage= 1,881 cf

Plug-Flow detention time= 43.2 min calculated for 0.139 af (100% of inflow)
 Center-of-Mass det. time= 43.2 min (883.2 - 840.1)

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Volume	Invert	Avail.Storage	Storage Description
#1	269.00'	6,978 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
269.00	112	75.0	0	0	112
270.00	620	157.0	332	332	1,630
272.00	1,629	198.0	2,169	2,501	2,842
274.00	2,909	250.0	4,477	6,978	4,749

Device	Routing	Invert	Outlet Devices
#1	Primary	269.00'	3.0" Vert. Orifice/Grate C= 0.600
#2	Primary	273.00'	10.0' long x 1.00' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 4.0' Crest Height

Primary OutFlow Max=0.37 cfs @ 12.56 hrs HW=271.59' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.37 cfs @ 7.55 fps)
- 2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond B12: Infil. Basin 12

Inflow Area = 1.023 ac, 47.09% Impervious, Inflow Depth = 3.09" for 10-Yr Storm event
 Inflow = 3.50 cfs @ 12.10 hrs, Volume= 0.263 af
 Outflow = 0.55 cfs @ 12.62 hrs, Volume= 0.263 af, Atten= 84%, Lag= 31.1 min
 Discarded = 0.55 cfs @ 12.62 hrs, Volume= 0.263 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 270.48' @ 12.62 hrs Surf.Area= 2,890 sf Storage= 3,718 cf

Plug-Flow detention time= 51.0 min calculated for 0.263 af (100% of inflow)
 Center-of-Mass det. time= 50.9 min (861.9 - 811.0)

Volume	Invert	Avail.Storage	Storage Description
#1	269.00'	15,513 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
269.00	2,158	188.0	0	0	2,158
272.00	3,754	238.0	8,758	8,758	3,969
273.50	5,297	276.0	6,755	15,513	5,571

Device	Routing	Invert	Outlet Devices
#1	Discarded	269.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	272.50'	5.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

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Discarded OutFlow Max=0.55 cfs @ 12.62 hrs HW=270.48' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.55 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=269.00' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond B13: Infil. Basin 13

Inflow Area = 0.645 ac, 44.11% Impervious, Inflow Depth = 3.19" for 10-Yr Storm event
 Inflow = 2.25 cfs @ 12.11 hrs, Volume= 0.171 af
 Outflow = 0.13 cfs @ 14.16 hrs, Volume= 0.158 af, Atten= 94%, Lag= 123.5 min
 Discarded = 0.13 cfs @ 14.16 hrs, Volume= 0.158 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 273.30' @ 14.16 hrs Surf.Area= 2,391 sf Storage= 4,143 cf

Plug-Flow detention time= 370.9 min calculated for 0.158 af (92% of inflow)
 Center-of-Mass det. time= 331.6 min (1,139.7 - 808.0)

Volume	Invert	Avail.Storage	Storage Description			
#1	270.00'	11,504 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
270.00	366	113.0	0	0	366	
272.00	1,434	243.0	1,683	1,683	4,066	
274.00	3,007	281.0	4,345	6,028	5,735	
275.50	4,335	309.0	5,476	11,504	7,122	

Device	Routing	Invert	Outlet Devices								
#1	Discarded	270.00'	2.410 in/hr Exfiltration over Surface area								
#2	Primary	274.50'	5.0' long x 20.0' breadth Broad-Crested Rectangular Weir								
			Head (feet)	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60
			Coef. (English)	2.68	2.70	2.70	2.64	2.63	2.64	2.64	2.63

Discarded OutFlow Max=0.13 cfs @ 14.16 hrs HW=273.30' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=270.00' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond B14: Infil. Basin 14

Inflow Area = 1.076 ac, 55.14% Impervious, Inflow Depth = 3.59" for 10-Yr Storm event
 Inflow = 4.15 cfs @ 12.10 hrs, Volume= 0.322 af
 Outflow = 0.34 cfs @ 13.23 hrs, Volume= 0.322 af, Atten= 92%, Lag= 67.5 min
 Discarded = 0.27 cfs @ 13.23 hrs, Volume= 0.302 af
 Primary = 0.06 cfs @ 13.23 hrs, Volume= 0.020 af

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Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 273.44' @ 13.23 hrs Surf.Area= 4,903 sf Storage= 6,187 cf

Plug-Flow detention time= 192.3 min calculated for 0.321 af (100% of inflow)
 Center-of-Mass det. time= 192.1 min (986.0 - 794.0)

Volume	Invert	Avail.Storage	Storage Description
#1	272.00'	16,881 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
272.00	3,708	265.0	0	0	3,708
274.00	5,411	302.0	9,066	9,066	5,471
275.00	6,348	322.0	5,873	14,939	6,512
275.30	6,600	329.0	1,942	16,881	6,888

Device	Routing	Invert	Outlet Devices
#1	Primary	273.00'	2.0" Vert. Orifice/Grate C= 0.600
#2	Discarded	272.00'	2.410 in/hr Exfiltration over Surface area
#3	Primary	274.30'	5.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.27 cfs @ 13.23 hrs HW=273.44' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.27 cfs)

Primary OutFlow Max=0.06 cfs @ 13.23 hrs HW=273.44' (Free Discharge)
 ↳ **1=Orifice/Grate** (Orifice Controls 0.06 cfs @ 2.88 fps)
 ↳ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B4: Infil. Basin 4

Inflow Area = 2.686 ac, 24.75% Impervious, Inflow Depth = 0.62" for 10-Yr Storm event
 Inflow = 0.92 cfs @ 12.31 hrs, Volume= 0.140 af
 Outflow = 0.34 cfs @ 12.89 hrs, Volume= 0.140 af, Atten= 63%, Lag= 34.9 min
 Discarded = 0.34 cfs @ 12.89 hrs, Volume= 0.140 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 272.17' @ 12.89 hrs Surf.Area= 6,090 sf Storage= 993 cf

Plug-Flow detention time= 23.4 min calculated for 0.139 af (100% of inflow)
 Center-of-Mass det. time= 23.4 min (948.9 - 925.5)

Volume	Invert	Avail.Storage	Storage Description
#1	272.00'	33,794 cf	Custom Stage Data (Irregular) Listed below (Recalc)

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
272.00	5,898	402.0	0	0	5,898
274.00	8,427	440.0	14,250	14,250	8,580
276.00	11,182	478.0	19,544	33,794	11,504

Device	Routing	Invert	Outlet Devices
#1	Discarded	272.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	274.00'	5.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.34 cfs @ 12.89 hrs HW=272.17' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.34 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=272.00' (Free Discharge)↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)**Summary for Pond B5: Infil. Basin 5**

Inflow Area = 1.310 ac, 38.95% Impervious, Inflow Depth = 1.26" for 10-Yr Storm event
 Inflow = 1.55 cfs @ 12.15 hrs, Volume= 0.137 af
 Outflow = 0.22 cfs @ 13.11 hrs, Volume= 0.137 af, Atten= 86%, Lag= 58.1 min
 Discarded = 0.22 cfs @ 13.11 hrs, Volume= 0.137 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 271.51' @ 13.11 hrs Surf.Area= 3,995 sf Storage= 1,953 cf

Plug-Flow detention time= 82.3 min calculated for 0.137 af (100% of inflow)
 Center-of-Mass det. time= 82.2 min (958.7 - 876.4)

Volume	Invert	Avail.Storage	Storage Description
#1	271.00'	21,026 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
271.00	3,608	247.5	0	0	3,608
273.00	5,223	286.6	8,781	8,781	5,354
275.00	7,068	326.3	12,245	21,026	7,385

Device	Routing	Invert	Outlet Devices
#1	Discarded	271.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	273.00'	3.0" Vert. Orifice/Grate C= 0.600
#3	Primary	274.30'	10.0' long x 0.70' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 3.3' Crest Height

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Discarded OutFlow Max=0.22 cfs @ 13.11 hrs HW=271.51' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.22 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=271.00' (Free Discharge)

↑ **2=Orifice/Grate** (Controls 0.00 cfs)

↑ **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B6: Drain Basin 6

Inflow Area = 2.745 ac, 29.68% Impervious, Inflow Depth = 1.01" for 10-Yr Storm event
 Inflow = 2.23 cfs @ 12.18 hrs, Volume= 0.231 af
 Outflow = 0.10 cfs @ 18.09 hrs, Volume= 0.091 af, Atten= 95%, Lag= 354.5 min
 Primary = 0.10 cfs @ 18.09 hrs, Volume= 0.091 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 268.82' @ 18.09 hrs Surf.Area= 4,852 sf Storage= 7,214 cf

Plug-Flow detention time= 509.2 min calculated for 0.091 af (39% of inflow)
 Center-of-Mass det. time= 356.9 min (1,248.7 - 891.8)

Volume	Invert	Avail.Storage	Storage Description			
#1	267.00'	20,349 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
267.00	3,092	309.1	0	0	3,092	
268.00	4,048	328.0	3,559	3,559	4,102	
270.00	6,129	365.7	10,105	13,665	6,295	
271.00	7,255	384.6	6,684	20,349	7,485	

Device	Routing	Invert	Outlet Devices	
#1	Primary	268.50'	3.0" Vert. Orifice/Grate C= 0.600	
#2	Primary	270.00'	10.0' long x 1.00' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 3.0' Crest Height	

Primary OutFlow Max=0.11 cfs @ 18.09 hrs HW=268.82' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 0.11 cfs @ 2.14 fps)

↑ **2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B9: Infil. Basin 9

Inflow Area = 0.987 ac, 56.88% Impervious, Inflow Depth = 2.05" for 10-Yr Storm event
 Inflow = 2.30 cfs @ 12.10 hrs, Volume= 0.168 af
 Outflow = 0.11 cfs @ 15.53 hrs, Volume= 0.115 af, Atten= 95%, Lag= 205.8 min
 Discarded = 0.07 cfs @ 15.53 hrs, Volume= 0.096 af
 Primary = 0.04 cfs @ 15.53 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

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Type III 24-hr 10-Yr Storm Rainfall=4.70"

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Peak Elev= 273.75' @ 15.53 hrs Surf.Area= 2,856 sf Storage= 4,430 cf

Plug-Flow detention time= 444.5 min calculated for 0.115 af (68% of inflow)

Center-of-Mass det. time= 341.4 min (1,184.5 - 843.1)

Volume	Invert	Avail.Storage	Storage Description			
#1	271.50'	8,612 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
271.50	611	129.0	0	0	611	
272.00	1,643	217.0	543	543	3,036	
274.00	3,057	254.0	4,627	5,170	4,500	
275.00	3,842	232.0	3,442	8,612	5,385	

Device	Routing	Invert	Outlet Devices
#1	Discarded	271.50'	1.020 in/hr Exfiltration over Surface area
#2	Primary	273.50'	2.0" Vert. Orifice/Grate C= 0.600
#3	Primary	273.80'	10.0' long x 1.20' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.3' Crest Height

Discarded OutFlow Max=0.07 cfs @ 15.53 hrs HW=273.75' (Free Discharge)└─**1=Exfiltration** (Exfiltration Controls 0.07 cfs)**Primary OutFlow** Max=0.04 cfs @ 15.53 hrs HW=273.75' (Free Discharge)└─**2=Orifice/Grate** (Orifice Controls 0.04 cfs @ 1.96 fps)└─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Summary for Subcatchment 1S: PDA17 roofs

Runoff = 0.55 cfs @ 12.00 hrs, Volume= 0.039 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
3,178	98	Unconnected roofs, HSG A
3,178		100.00% Impervious Area
3,178		100.00% Unconnected

Summary for Subcatchment 2S: PDA-15 roofs

Runoff = 1.12 cfs @ 12.00 hrs, Volume= 0.080 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
6,474	98	Unconnected pavement, HSG A
6,474		100.00% Impervious Area
6,474		100.00% Unconnected

Summary for Subcatchment 3S: TOTAL WEST SIDE ROOFS AREAS

Runoff = 25.40 cfs @ 12.00 hrs, Volume= 1.819 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
147,166	98	Unconnected roofs, HSG A
147,166		100.00% Impervious Area
147,166		100.00% Unconnected

Summary for Subcatchment 4S: PDA-19 roofs

Runoff = 1.15 cfs @ 12.00 hrs, Volume= 0.083 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Area (sf)	CN	Description
6,689	98	Unconnected roofs, HSG A
6,689		100.00% Impervious Area
6,689		100.00% Unconnected

Summary for Subcatchment 5S: PDA-25 roofs areas

Runoff = 4.37 cfs @ 12.00 hrs, Volume= 0.313 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
25,306	98	Unconnected roofs, HSG A
25,306		100.00% Impervious Area
25,306		100.00% Unconnected

Summary for Subcatchment PDA-11:

Runoff = 3.27 cfs @ 12.23 hrs, Volume= 0.355 af, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
28,960	98	Paved parking, HSG A
50,743	39	>75% Grass cover, Good, HSG A
37,306	30	Woods, Good, HSG A
117,009	51	Weighted Average
88,049		75.25% Pervious Area
28,960		24.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	50	0.0200	0.07		Sheet Flow, AB
					Woods: Light underbrush n= 0.400 P2= 3.20"
2.0	198	0.0100	1.61		Shallow Concentrated Flow, BC
					Unpaved Kv= 16.1 fps
14.3	248	Total			

Summary for Subcatchment PDA-12:

Runoff = 3.43 cfs @ 12.14 hrs, Volume= 0.282 af, Depth= 2.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Area (sf)	CN	Description
22,225	98	Paved parking, HSG A
34,722	39	>75% Grass cover, Good, HSG A
116	30	Woods, Good, HSG A
57,063	62	Weighted Average
34,838		61.05% Pervious Area
22,225		38.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0100	0.11		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.7	128	0.0200	2.87		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.8	334	0.0250	7.17	5.63	Pipe Channel, CD 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
8.9	512	Total			

Summary for Subcatchment PDA-13:

Runoff = 5.65 cfs @ 12.17 hrs, Volume= 0.505 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
35,494	98	Paved parking, HSG A
59,056	39	>75% Grass cover, Good, HSG A
8,562	80	>75% Grass cover, Good, HSG D
16,475	30	Woods, Good, HSG A
119,587	58	Weighted Average
84,093		70.32% Pervious Area
35,494		29.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0080	0.10		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.7	99	0.0200	2.28		Shallow Concentrated Flow, BC Unpaved Kv= 16.1 fps
2.0	262	0.0120	2.22		Shallow Concentrated Flow, CD Paved Kv= 20.3 fps
0.2	49	0.0100	4.54	3.56	Pipe Channel, DE 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
11.0	460	Total			

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Summary for Subcatchment PDA-14: Uncontrolled flow from west

Runoff = 5.73 cfs @ 12.26 hrs, Volume= 0.745 af, Depth= 1.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
* 2,604	98	ex roof
3,144	98	Paved parking, HSG A
* 1,928	98	ex. drive
89,823	39	>75% Grass cover, Good, HSG A
5,470	74	>75% Grass cover, Good, HSG C
172,955	30	Woods, Good, HSG A
3,247	70	Woods, Good, HSG C
74,983	77	Woods, Good, HSG D
354,154	45	Weighted Average
346,478		97.83% Pervious Area
7,676		2.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	50	0.0260	0.08		Sheet Flow, ab
					Woods: Light underbrush n= 0.400 P2= 3.20"
3.1	187	0.0400	1.00		Shallow Concentrated Flow, bc
					Woodland Kv= 5.0 fps
14.2	237	Total			

Summary for Subcatchment PDA-15: No roofs

Runoff = 6.25 cfs @ 12.10 hrs, Volume= 0.496 af, Depth= 5.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
* 25,837	98	roads, sidewalks, drives
2,650	74	>75% Grass cover, Good, HSG C
18,372	80	>75% Grass cover, Good, HSG D
46,859	90	Weighted Average
21,022		44.86% Pervious Area
25,837		55.14% Impervious Area

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
1.6	267	0.0200	2.87		Shallow Concentrated Flow, bc Paved Kv= 20.3 fps
7.2	317	Total			

Summary for Subcatchment PDA-15A:

Runoff = 0.35 cfs @ 12.11 hrs, Volume= 0.031 af, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Adj	Description
* 1,780	98		ex. drives
840	98		Unconnected roofs, HSG A
7,761	39		>75% Grass cover, Good, HSG A
1,680	30		Woods, Good, HSG A
12,061	51	48	Weighted Average, UI Adjusted
9,441			78.28% Pervious Area
2,620			21.72% Impervious Area
840			32.06% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
0.2	35	0.0200	2.87		Shallow Concentrated Flow, bc Paved Kv= 20.3 fps
0.2	45	0.0700	4.26		Shallow Concentrated Flow, cd Unpaved Kv= 16.1 fps
6.0	130	Total			

Summary for Subcatchment PDA-16:

Runoff = 3.52 cfs @ 12.10 hrs, Volume= 0.273 af, Depth= 5.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Area (sf)	CN	Description
*	9,236	98 roads,sidewalks, drives
	3,154	98 Unconnected roofs, HSG A
	8,394	74 >75% Grass cover, Good, HSG C
	7,308	80 >75% Grass cover, Good, HSG D
	28,092	86 Weighted Average
	15,702	55.89% Pervious Area
	12,390	44.11% Impervious Area
	3,154	25.46% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
1.3	122	0.0100	1.61		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
0.4	100	0.0100	4.54	3.56	Pipe Channel, de 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
7.3	272	Total			

Summary for Subcatchment PDA-17: No roofs

Runoff = 4.17 cfs @ 12.09 hrs, Volume= 0.303 af, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
*	24,458	98 roads,sidewalks, drives
	18,543	39 >75% Grass cover, Good, HSG A
	43,001	73 Weighted Average
	18,543	43.12% Pervious Area
	24,458	56.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
0.2	24	0.0200	2.28		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
0.2	50	0.0100	4.54	3.56	Pipe Channel, cd 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	124	Total			

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Summary for Subcatchment PDA-19: No roofs

Runoff = 3.44 cfs @ 12.09 hrs, Volume= 0.247 af, Depth= 3.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
* 16,193	98	roads,sidewalks, drives
12,479	39	>75% Grass cover, Good, HSG A
5,442	80	>75% Grass cover, Good, HSG D
34,114	74	Weighted Average
17,921		52.53% Pervious Area
16,193		47.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	32	0.0200	0.14		Sheet Flow, ab
					Grass: Short n= 0.150 P2= 3.20"
1.6	200	0.0100	2.03		Shallow Concentrated Flow, bc
					Paved Kv= 20.3 fps
5.5	232	Total			

Summary for Subcatchment PDA-20:

Runoff = 5.52 cfs @ 12.10 hrs, Volume= 0.423 af, Depth= 4.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
* 14,500	98	roads,sidewalks, drives
6,475	98	Unconnected roofs, HSG A
23,572	74	>75% Grass cover, Good, HSG C
44,547	85	Weighted Average
23,572		52.91% Pervious Area
20,975		47.09% Impervious Area
6,475		30.87% Unconnected

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, ab Grass: Short n= 0.150 P2= 3.20"
0.1	14	0.0200	2.28		Shallow Concentrated Flow, bc Unpaved Kv= 16.1 fps
1.0	147	0.0150	2.49		Shallow Concentrated Flow, cd Paved Kv= 20.3 fps
0.4	100	0.0100	4.54	3.56	Pipe Channel, de 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
7.1	311	Total			

Summary for Subcatchment PDA-25: Uncontrolled flow from east (No roofs)

Runoff = 24.35 cfs @ 12.13 hrs, Volume= 2.089 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Yr Storm Rainfall=6.70"

Area (sf)	CN	Description
* 3,160	98	Lot 12 long drive
92,345	39	>75% Grass cover, Good, HSG A
56,970	74	>75% Grass cover, Good, HSG C
32,918	80	>75% Grass cover, Good, HSG D
96,821	30	Woods, Good, HSG A
29,256	70	Woods, Good, HSG C
45,367	77	Woods, Good, HSG D
82,670	51	1 acre lots, 20% imp, HSG A
8,962	84	1 acre lots, 20% imp, HSG D
* 31,051	30	wetland HSG A
* 111,700	60	wetland, HSG D
591,220	54	Weighted Average
569,734		96.37% Pervious Area
21,486		3.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.20		Sheet Flow, Grass: Short n= 0.150 P2= 3.20"
3.6	210	0.0370	0.96		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.9	260	Total			

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Type III 24-hr 100-Yr Storm Rainfall=6.70"

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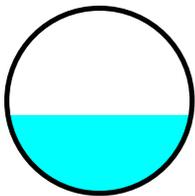
Summary for Reach 1R: flared end @ lot 1

Inflow Area = 0.277 ac, 21.72% Impervious, Inflow Depth = 1.34" for 100-Yr Storm event
 Inflow = 0.35 cfs @ 12.11 hrs, Volume= 0.031 af
 Outflow = 0.33 cfs @ 12.14 hrs, Volume= 0.031 af, Atten= 5%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Max. Velocity= 4.33 fps, Min. Travel Time= 0.7 min
 Avg. Velocity = 1.90 fps, Avg. Travel Time= 1.5 min

Peak Storage= 14 cf @ 12.12 hrs
 Average Depth at Peak Storage= 0.21'
 Bank-Full Depth= 0.50' Flow Area= 0.2 sf, Capacity= 0.92 cfs

6.0" Round Pipe
 n= 0.011 PVC, smooth interior
 Length= 175.0' Slope= 0.0194 '/'
 Inlet Invert= 275.60', Outlet Invert= 272.21'

**Summary for Reach DP3: Central Swamp**

Inflow Area = 33.235 ac, 15.08% Impervious, Inflow Depth > 1.32" for 100-Yr Storm event
 Inflow = 29.06 cfs @ 12.15 hrs, Volume= 3.652 af
 Outflow = 29.06 cfs @ 12.15 hrs, Volume= 3.652 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Summary for Pond B11: Det. Basin #11

Inflow Area = 0.783 ac, 47.47% Impervious, Inflow Depth = 3.78" for 100-Yr Storm event
 Inflow = 3.44 cfs @ 12.09 hrs, Volume= 0.247 af
 Outflow = 0.45 cfs @ 12.70 hrs, Volume= 0.247 af, Atten= 87%, Lag= 36.9 min
 Primary = 0.45 cfs @ 12.70 hrs, Volume= 0.247 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 272.81' @ 12.70 hrs Surf.Area= 2,102 sf Storage= 4,005 cf

Plug-Flow detention time= 81.4 min calculated for 0.247 af (100% of inflow)
 Center-of-Mass det. time= 81.1 min (904.5 - 823.4)

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Volume	Invert	Avail.Storage	Storage Description
#1	269.00'	6,978 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
269.00	112	75.0	0	0	112
270.00	620	157.0	332	332	1,630
272.00	1,629	198.0	2,169	2,501	2,842
274.00	2,909	250.0	4,477	6,978	4,749

Device	Routing	Invert	Outlet Devices
#1	Primary	269.00'	3.0" Vert. Orifice/Grate C= 0.600
#2	Primary	273.00'	10.0' long x 1.00' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 4.0' Crest Height

Primary OutFlow Max=0.45 cfs @ 12.70 hrs HW=272.81' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.45 cfs @ 9.24 fps)
- 2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond B12: Infil. Basin 12

Inflow Area = 1.023 ac, 47.09% Impervious, Inflow Depth = 4.97" for 100-Yr Storm event
 Inflow = 5.52 cfs @ 12.10 hrs, Volume= 0.423 af
 Outflow = 0.66 cfs @ 12.78 hrs, Volume= 0.423 af, Atten= 88%, Lag= 40.9 min
 Discarded = 0.66 cfs @ 12.78 hrs, Volume= 0.423 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 271.46' @ 12.78 hrs Surf.Area= 3,436 sf Storage= 6,825 cf

Plug-Flow detention time= 88.4 min calculated for 0.423 af (100% of inflow)
 Center-of-Mass det. time= 88.3 min (885.9 - 797.7)

Volume	Invert	Avail.Storage	Storage Description
#1	269.00'	15,513 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
269.00	2,158	188.0	0	0	2,158
272.00	3,754	238.0	8,758	8,758	3,969
273.50	5,297	276.0	6,755	15,513	5,571

Device	Routing	Invert	Outlet Devices
#1	Discarded	269.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	272.50'	5.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

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Discarded OutFlow Max=0.66 cfs @ 12.78 hrs HW=271.46' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.66 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=269.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B13: Infil. Basin 13

Inflow Area = 0.645 ac, 44.11% Impervious, Inflow Depth = 5.08" for 100-Yr Storm event
 Inflow = 3.52 cfs @ 12.10 hrs, Volume= 0.273 af
 Outflow = 0.18 cfs @ 14.52 hrs, Volume= 0.233 af, Atten= 95%, Lag= 145.1 min
 Discarded = 0.18 cfs @ 14.52 hrs, Volume= 0.233 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 274.31' @ 14.52 hrs Surf.Area= 3,264 sf Storage= 7,010 cf

Plug-Flow detention time= 418.7 min calculated for 0.233 af (85% of inflow)
 Center-of-Mass det. time= 355.5 min (1,150.4 - 795.0)

Volume	Invert	Avail.Storage	Storage Description			
#1	270.00'	11,504 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
270.00	366	113.0	0	0	366	
272.00	1,434	243.0	1,683	1,683	4,066	
274.00	3,007	281.0	4,345	6,028	5,735	
275.50	4,335	309.0	5,476	11,504	7,122	

Device	Routing	Invert	Outlet Devices									
#1	Discarded	270.00'	2.410 in/hr Exfiltration over Surface area									
#2	Primary	274.50'	5.0' long x 20.0' breadth Broad-Crested Rectangular Weir									
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60									
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63									

Discarded OutFlow Max=0.18 cfs @ 14.52 hrs HW=274.31' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=270.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B14: Infil. Basin 14

Inflow Area = 1.076 ac, 55.14% Impervious, Inflow Depth = 5.53" for 100-Yr Storm event
 Inflow = 6.25 cfs @ 12.10 hrs, Volume= 0.496 af
 Outflow = 0.43 cfs @ 13.62 hrs, Volume= 0.496 af, Atten= 93%, Lag= 90.8 min
 Discarded = 0.31 cfs @ 13.62 hrs, Volume= 0.427 af
 Primary = 0.11 cfs @ 13.62 hrs, Volume= 0.068 af

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Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 274.25' @ 13.62 hrs Surf.Area= 5,640 sf Storage= 10,456 cf

Plug-Flow detention time= 264.0 min calculated for 0.496 af (100% of inflow)
 Center-of-Mass det. time= 263.9 min (1,046.3 - 782.3)

Volume	Invert	Avail.Storage	Storage Description
#1	272.00'	16,881 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
272.00	3,708	265.0	0	0	3,708
274.00	5,411	302.0	9,066	9,066	5,471
275.00	6,348	322.0	5,873	14,939	6,512
275.30	6,600	329.0	1,942	16,881	6,888

Device	Routing	Invert	Outlet Devices
#1	Primary	273.00'	2.0" Vert. Orifice/Grate C= 0.600
#2	Discarded	272.00'	2.410 in/hr Exfiltration over Surface area
#3	Primary	274.30'	5.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.31 cfs @ 13.62 hrs HW=274.25' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.31 cfs)

Primary OutFlow Max=0.11 cfs @ 13.62 hrs HW=274.25' (Free Discharge)
 ↳ **1=Orifice/Grate** (Orifice Controls 0.11 cfs @ 5.20 fps)
 ↳ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B4: Infil. Basin 4

Inflow Area = 2.686 ac, 24.75% Impervious, Inflow Depth = 1.59" for 100-Yr Storm event
 Inflow = 3.27 cfs @ 12.23 hrs, Volume= 0.355 af
 Outflow = 0.39 cfs @ 14.50 hrs, Volume= 0.355 af, Atten= 88%, Lag= 136.1 min
 Discarded = 0.39 cfs @ 14.50 hrs, Volume= 0.355 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 272.93' @ 14.50 hrs Surf.Area= 7,022 sf Storage= 6,023 cf

Plug-Flow detention time= 168.0 min calculated for 0.355 af (100% of inflow)
 Center-of-Mass det. time= 167.8 min (1,056.6 - 888.8)

Volume	Invert	Avail.Storage	Storage Description
#1	272.00'	33,794 cf	Custom Stage Data (Irregular) Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
272.00	5,898	402.0	0	0	5,898
274.00	8,427	440.0	14,250	14,250	8,580
276.00	11,182	478.0	19,544	33,794	11,504

Device	Routing	Invert	Outlet Devices
#1	Discarded	272.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	274.00'	5.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.39 cfs @ 14.50 hrs HW=272.93' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.39 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=272.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B5: Infil. Basin 5

Inflow Area = 1.310 ac, 38.95% Impervious, Inflow Depth = 2.58" for 100-Yr Storm event
 Inflow = 3.43 cfs @ 12.14 hrs, Volume= 0.282 af
 Outflow = 0.26 cfs @ 14.49 hrs, Volume= 0.282 af, Atten= 92%, Lag= 140.9 min
 Discarded = 0.26 cfs @ 14.49 hrs, Volume= 0.282 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 272.37' @ 14.49 hrs Surf.Area= 4,681 sf Storage= 5,658 cf

Plug-Flow detention time= 238.9 min calculated for 0.282 af (100% of inflow)
 Center-of-Mass det. time= 238.7 min (1,092.7 - 853.9)

Volume	Invert	Avail.Storage	Storage Description
#1	271.00'	21,026 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
271.00	3,608	247.5	0	0	3,608
273.00	5,223	286.6	8,781	8,781	5,354
275.00	7,068	326.3	12,245	21,026	7,385

Device	Routing	Invert	Outlet Devices
#1	Discarded	271.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	273.00'	3.0" Vert. Orifice/Grate C= 0.600
#3	Primary	274.30'	10.0' long x 0.70' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 3.3' Crest Height

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Discarded OutFlow Max=0.26 cfs @ 14.49 hrs HW=272.37' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.26 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=271.00' (Free Discharge)

↑ **2=Orifice/Grate** (Controls 0.00 cfs)

↑ **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B6: Drain Basin 6

Inflow Area = 2.745 ac, 29.68% Impervious, Inflow Depth = 2.21" for 100-Yr Storm event
 Inflow = 5.65 cfs @ 12.17 hrs, Volume= 0.505 af
 Outflow = 0.29 cfs @ 16.32 hrs, Volume= 0.335 af, Atten= 95%, Lag= 249.3 min
 Primary = 0.29 cfs @ 16.32 hrs, Volume= 0.335 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 270.00' @ 16.32 hrs Surf.Area= 6,131 sf Storage= 13,677 cf

Plug-Flow detention time= 468.5 min calculated for 0.335 af (66% of inflow)
 Center-of-Mass det. time= 357.7 min (1,223.5 - 865.7)

Volume	Invert	Avail.Storage	Storage Description			
#1	267.00'	20,349 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
267.00	3,092	309.1	0	0	3,092	
268.00	4,048	328.0	3,559	3,559	4,102	
270.00	6,129	365.7	10,105	13,665	6,295	
271.00	7,255	384.6	6,684	20,349	7,485	

Device	Routing	Invert	Outlet Devices	
#1	Primary	268.50'	3.0" Vert. Orifice/Grate C= 0.600	
#2	Primary	270.00'	10.0' long x 1.00' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 3.0' Crest Height	

Primary OutFlow Max=0.28 cfs @ 16.32 hrs HW=270.00' (Free Discharge)

↑ **1=Orifice/Grate** (Orifice Controls 0.28 cfs @ 5.65 fps)

↑ **2=Sharp-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.15 fps)

Summary for Pond B9: Infil. Basin 9

Inflow Area = 0.987 ac, 56.88% Impervious, Inflow Depth = 3.68" for 100-Yr Storm event
 Inflow = 4.17 cfs @ 12.09 hrs, Volume= 0.303 af
 Outflow = 1.94 cfs @ 12.30 hrs, Volume= 0.242 af, Atten= 54%, Lag= 12.5 min
 Discarded = 0.07 cfs @ 12.30 hrs, Volume= 0.104 af
 Primary = 1.87 cfs @ 12.30 hrs, Volume= 0.138 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

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Peak Elev= 273.94' @ 12.30 hrs Surf.Area= 3,012 sf Storage= 5,001 cf

Plug-Flow detention time= 253.9 min calculated for 0.241 af (80% of inflow)

Center-of-Mass det. time= 177.0 min (1,003.1 - 826.1)

Volume	Invert	Avail.Storage	Storage Description
#1	271.50'	8,612 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
271.50	611	129.0	0	0	611
272.00	1,643	217.0	543	543	3,036
274.00	3,057	254.0	4,627	5,170	4,500
275.00	3,842	232.0	3,442	8,612	5,385

Device	Routing	Invert	Outlet Devices
#1	Discarded	271.50'	1.020 in/hr Exfiltration over Surface area
#2	Primary	273.50'	2.0" Vert. Orifice/Grate C= 0.600
#3	Primary	273.80'	10.0' long x 1.20' rise Sharp-Crested Rectangular Weir 2 End Contraction(s) 2.3' Crest Height

Discarded OutFlow Max=0.07 cfs @ 12.30 hrs HW=273.94' (Free Discharge)

- └─1=Exfiltration (Exfiltration Controls 0.07 cfs)

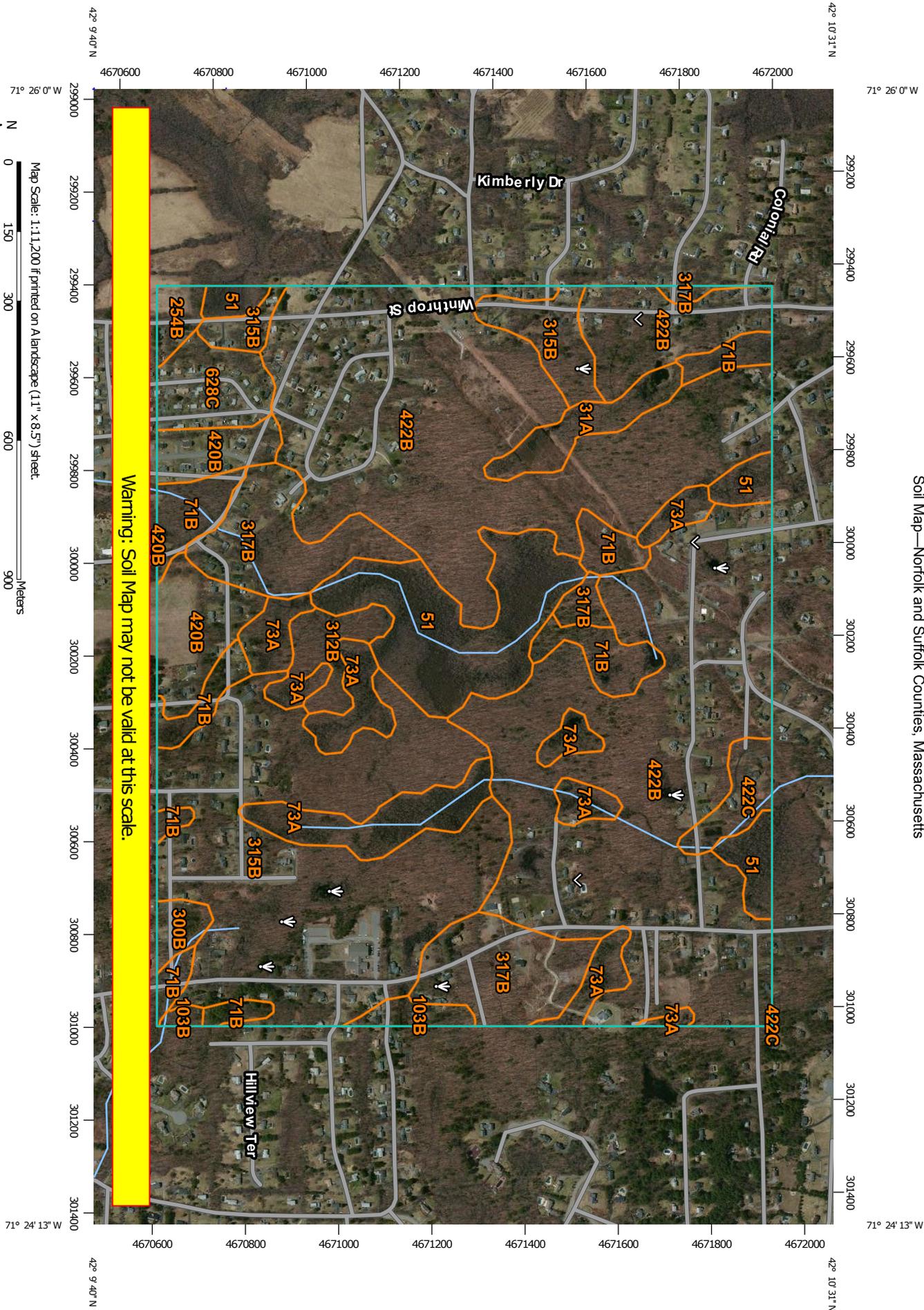
Primary OutFlow Max=1.86 cfs @ 12.30 hrs HW=273.94' (Free Discharge)

- └─2=Orifice/Grate (Orifice Controls 0.06 cfs @ 2.89 fps)

- └─3=Sharp-Crested Rectangular Weir (Weir Controls 1.80 cfs @ 1.25 fps)

Appendix B
NRCS SOIL INFORMATION

Soil Map—Norfolk and Suffolk Counties, Massachusetts



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



Map Scale: 1:11,200 if printed on A-landscape (11" x 8.5") sheet.
0 150 300 600 900 Meters
0 500 1000 2000 3000 Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edgetics: UTM Zone 19N WGS84



Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

	Area of Interest (AOI)		Spoil Area
	Area of Interest (AOI)		Stony Spot
	Soils		Very Stony Spot
	Soil Map Unit Polygons		Wet Spot
	Soil Map Unit Lines		Other
	Soil Map Unit Points		Special Line Features
Special Point Features			
	Blowout	Water Features	
	Borrow Pit		Streams and Canals
	Clay Spot	Transportation	
	Closed Depression		Rails
	Gravel Pit		Interstate Highways
	Gravelly Spot		US Routes
	Landfill		Major Roads
	Lava Flow		Local Roads
	Marsh or swamp	Background	
	Mine or Quarry		Aerial Photography
	Miscellaneous Water		
	Perennial Water		
	Rock Outcrop		
	Saline Spot		
	Sandy Spot		
	Severely Eroded Spot		
	Sinkhole		
	Slide or Slip		
	Sodic Spot		

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

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: <http://websoilsurvey.nrcs.usda.gov>
 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: Norfolk and Suffolk Counties, Massachusetts
 Survey Area Data: Version 11, Sep 28, 2015

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

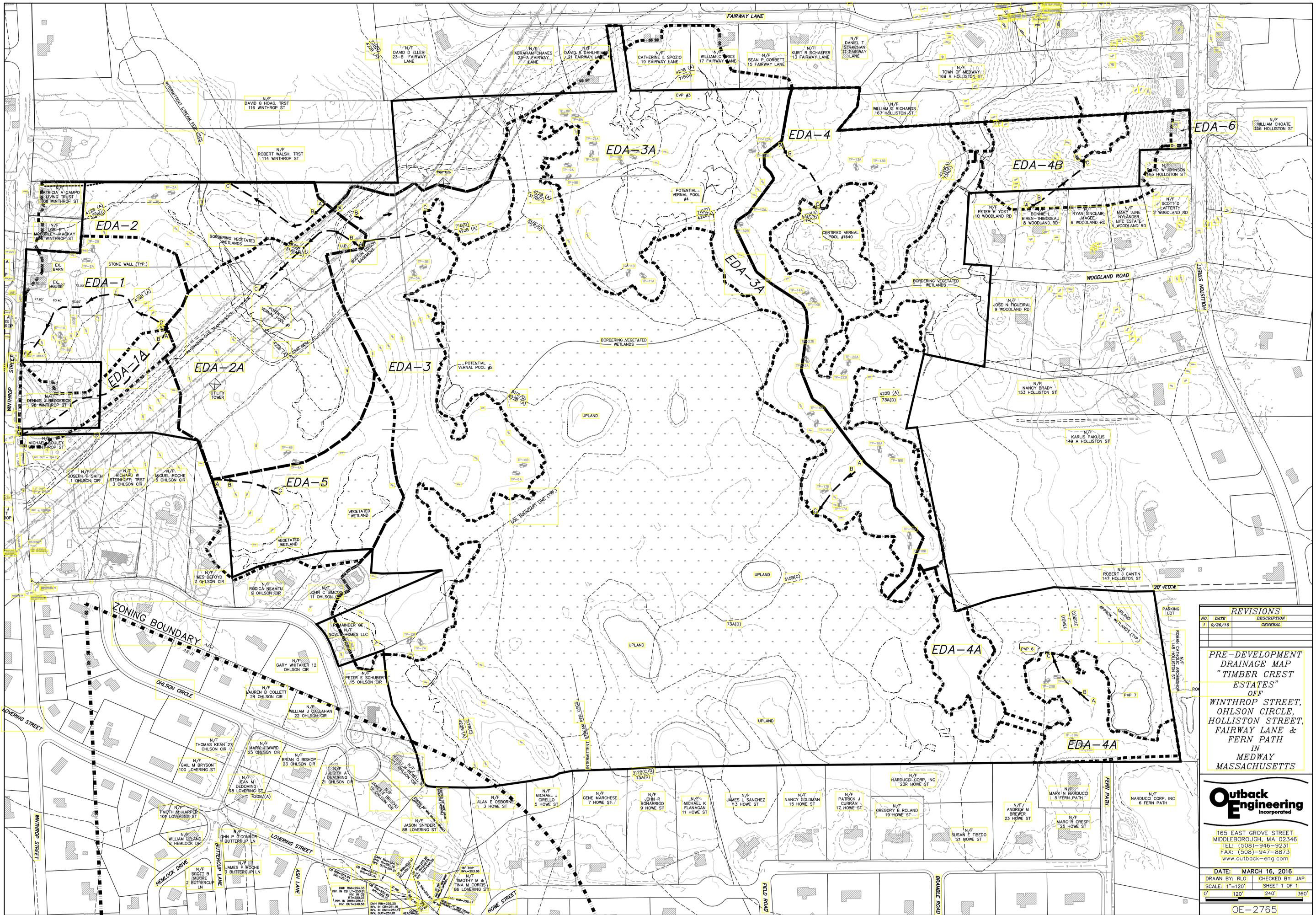
Date(s) aerial images were photographed: Apr 8, 2011—Apr 9, 2011

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

Norfolk and Suffolk Counties, Massachusetts (MA616)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
31A	Walpole sandy loam, 0 to 3 percent slopes	7.9	1.5%
51	Swansea muck, 0 to 1 percent slopes	37.6	7.2%
71B	Ridgebury fine sandy loam, 2 to 8 percent slopes, extremely stony	25.8	4.9%
73A	Whitman fine sandy loam, 0 to 5 percent slopes, extremely stony	33.8	6.5%
103B	Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes	3.9	0.7%
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	3.2	0.6%
300B	Montauk fine sandy loam, 3 to 8 percent slopes	3.1	0.6%
312B	Woodbridge fine sandy loam, 0 to 8 percent slopes, extremely stony	6.6	1.3%
315B	Scituate fine sandy loam, 3 to 8 percent slopes	101.3	19.4%
317B	Scituate fine sandy loam, 3 to 8 percent slopes, extremely stony	36.8	7.0%
420B	Canton fine sandy loam, 3 to 8 percent slopes	18.5	3.5%
422B	Canton fine sandy loam, 3 to 8 percent slopes, extremely stony	227.9	43.6%
422C	Canton fine sandy loam, 8 to 15 percent slopes, extremely stony	5.9	1.1%
628C	Canton-Urban land complex, 3 to 15 percent slopes	10.2	1.9%
Totals for Area of Interest		522.4	100.0%

Appendix C
PRE- AND POST-DEVELOPMENT DRAINAGE MAPS



REVISIONS		
NO.	DATE	DESCRIPTION
1	9/26/16	GENERAL

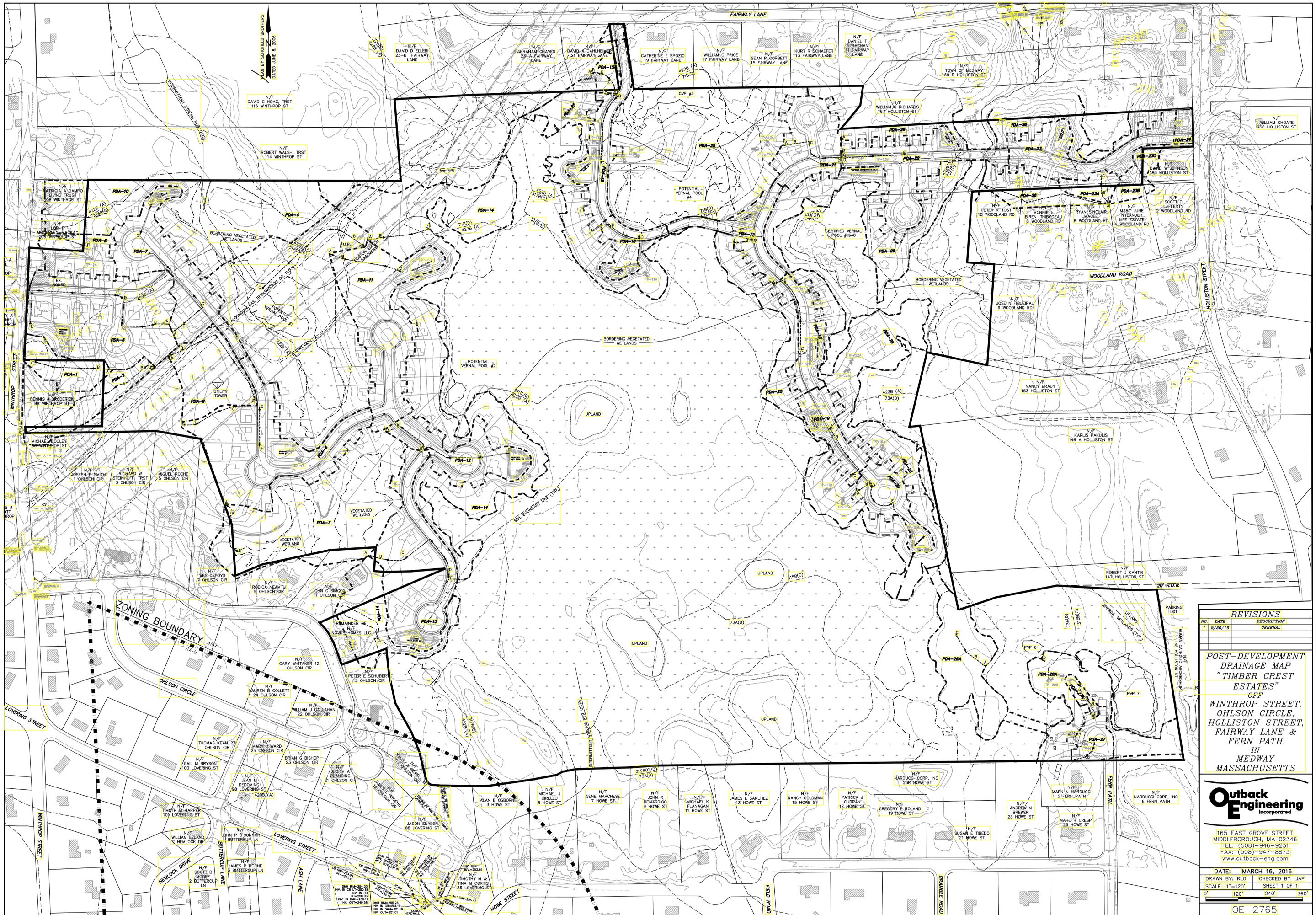
PRE-DEVELOPMENT
DRAINAGE MAP
"TIMBER CREST
ESTATES"
OFF
WINTHROP STREET,
OHLSON STREET,
FAIRWAY LANE &
FERN PATH
IN
MEDWAY
MASSACHUSETTS

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www.outback-eng.com

DATE: MARCH 16, 2016
DRAWN BY: RLG CHECKED BY: JAP
SCALE: 1"=120' SHEET 1 OF 1
0' 120' 240' 360'

OE-2765



PLAN BY SCOTFIELD BROTHERS
DATED JUNE 8, 2006

REVISIONS		
NO.	DATE	DESCRIPTION
1	9/26/16	GENERAL

POST-DEVELOPMENT
DRAINAGE MAP
"TIMBER CREST
ESTATES"
OFF
WINTHROP STREET,
OHLSON CIRCLE,
HOLLISTON STREET,
FAIRWAY LANE &
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IN
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