DRAINAGE REPORT

Murphy's Farm
Dracut, MA 01826
Map 22 / Lot 53 &
Map 39 / Block 53 / Lots 1-24

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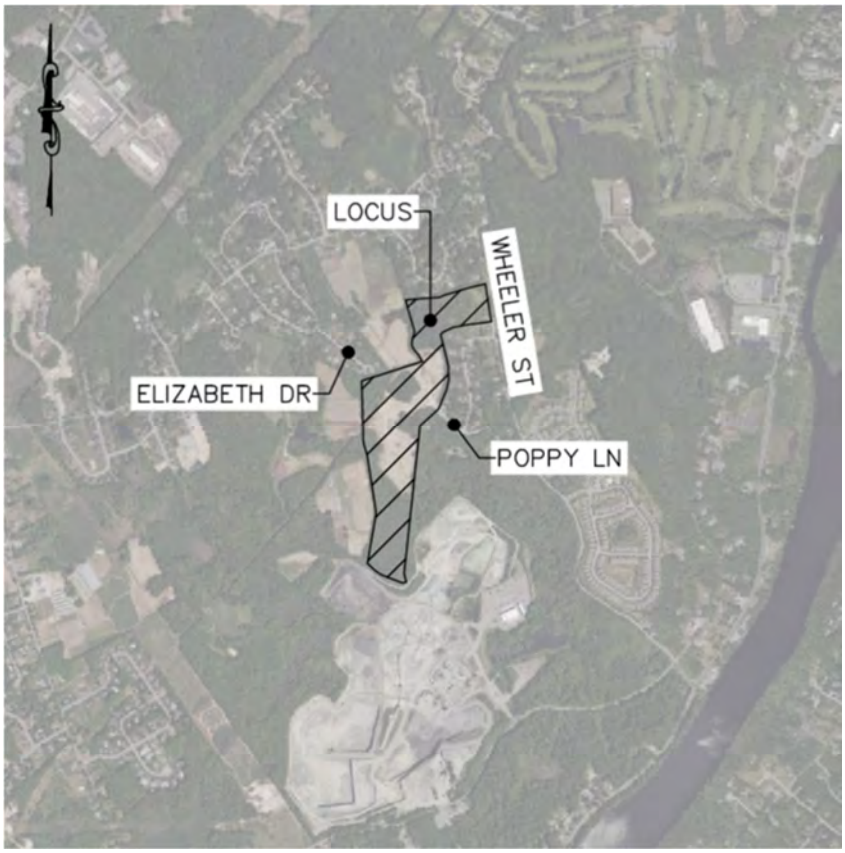


APPLICANT:

The Homes at Murphy's Farm, LLC
18 Cassimere Street
Andover, MA 01810

SUBMITTED TO:

Town of Dracut
11 Spring Park Ave.
Dracut, MA 01826

ISSUED:

April 22, 2024

CDCI FILE #: 23-10524

DRAINAGE REPORT

TAB 1

DRAINAGE REPORT

Murphy's Farm
Dracut, MA

PROJECT DESCRIPTION

The applicant proposes to develop Murphy's Farm (Map 22, Lot 53 & Map 39, Block 53, Lots 1-24) in Dracut, MA into a 40B development consisting of 47 Multi-Family Dwellings containing a total of 300 four-bedroom units, as well as three accessory buildings. The project consists of constructing ±6,650-FT of new roadway along with associated infrastructure including driveways, landscaping, snow storage, parks, drainage facilities, and utilities. The project plans illustrate the proposal in detail including zoning, easements, construction details, roadway profile and provisions for utilities. Drainage will be collected and routed through a series of best management practices sized to address the MADEP Stormwater Management Standards as well as the local stormwater regulations.

SITE DESCRIPTION

The total area of the project site is approximately 50.7-AC and is located within the Residential-1 (R-1) zoning district. The site is located on the easterly side of Dracut, between Poppy Lane and Elizabeth Drive. A portion of the property has frontage on Wheeler Street in Methuen, MA. On-site resource areas include bordering vegetated wetlands (BVW), and vernal pools, both with associated setbacks. Elevations vary, ranging from approximately 114-FT along the frontage of Wheeler Street to a high of approximately 178-FT near Elizabeth Drive, at the boundary shared with 489 Wheeler Road. The resource areas were delineated by Norse Environmental Services, and an ORAD was issued on January 26, 2016.

According to the Natural Resource Conservation Service Soil Survey for Essex County, Massachusetts, the on-site soils beyond the limit of the wetlands consist of the following soil types:

- Wareham Loamy Fine Sand Hydraulic Soil Group (HSG) A/D
- Swansea Muck, HSG B/D
- Freetown Muck, HSG B/D
- Hinkley Loamy San, HSG A
- Merrimac Fine Sandy Loam, HSG A
- Windsor Loamy Sand, HSG A
- Deerfield Loamy Fine Sand, HSG A
- Canton Fine Sandy Loam, HSG B
- Pits, gravel, Unranked
- Pits, quarry, Unranked
- Udorthents, Unranked

For the purposes of drainage calculations, portions of the Swansea Muck, Freetown Muck, Pits, and Udorthents map units were considered to be an HSG-A soil due to surrounding mapped soils, wetland delineation, and test pit results. Test pits were conducted by this office in December of 2023 and April of 2024 to determine soil texture and estimated seasonal high groundwater elevations. Test pit logs are provided under Tab 5 of this report. Finally, according to the Flood Insurance Rate Map for Essex County, Massachusetts Maps 25017C0163E and 25017C0161E, no part of this site is located within the 100-year base flood elevation.

SURFACE DRAINAGE

Pre-Development Condition

The pre-development condition consists of ten (10) watershed areas contributing to eight (8) design points. Design Point #1 (DP-1) receives runoff from EWA-1 and consists of overland flow through the northern wetland complex and into a culvert running across Wheeler Street. Design Point #2 (DP-2) receives runoff from DP-1, EWA-2A and EWA-2B and consists of overland flow directed towards and across Wheeler Street. Design Point #3 (DP-3) receives runoff from EWA-3 and consists of overland flow directed off-site, towards

#48 Rinzee Road. Design Point #4 (DP-4) receives runoff from EWA-4 and consists of overland flow directed towards Poppy Lane. Design Point #5 (DP-5) receives runoff from EWA-5A and EWA-5B and consists of overland flow directed towards the Wetland Series 'A'. Runoff from EWA-5A first ponds in Wetland Series 'J' prior to flowing through a culvert that discharges to Wetland Series 'A'. Design Point #6 (DP-6) receives runoff from EWA-6 and consists of overland flow directed towards Wetland Series 'B' and 'C'. Design Point #7 (DP-7) receives runoff from EWA-7 and consists of overland flow directed towards #4 Poppy Lane. Design Point #8 (DP-8) receives runoff from EWA-8 and consists of overland flow directed towards series 'D' and 'E' wetland complex. Contributing areas to the Design Points are detailed in the following Table 1.

TABLE 1: EXISTING WATERSHED DESIGN POINT DETAILS

DESIGN POINT	AREA NAME	AREA (Acres)	Tc (min.)	CN
DP-1	EWA-1	5.12	18.3	37
DP-2	EWA-2A	2.09	18.5	54
	EWA-2B	0.28	6.0	51
DP-3	EWA-3	2.75	15.0	30
DP-4	EWA-4	2.78	35.3	31
DP-5	EWA-5A	1.13	21.1	30
	EWA-5B	10.59	20.9	33
DP-6	EWA-6	2.27	21.2	30
DP-7	EWA-7	4.13	19.2	30
DP-8	EWA-8	19.82	37.4	30

Post-Development Condition

The proposed project includes the construction of 47 Multi-Family Dwellings containing a total of 300 four-bedroom units, as well as three accessory buildings. Other components include construction of a new ±6,650-FT roadway along with landscaping, snow storage, parks, drainage, utilities, and associated appurtenances. Drainage will be collected and routed through a series of best management practices sized to address the MADEP Stormwater Management Standards. Impervious area will include bituminous concrete pavement, porous pavement and rooftop areas, and totals 15.3-AC.

The post-development condition consists of twenty-four (24) watershed areas discharging to six (6) design points. A portion of the runoff from EWA-5B and EWA-8 no longer discharges onto the property, accounting for reduction of approximately 2.0-AC between Pre- and Post- calculations. DP-1 receives overland flow from PWA-1C, as well as flow from one infiltration basin (PWA-1A & PWA-1B). DP-2 receives overland flow from PWA-2A and PWA-2B. DP-3 & DP-4 do not receive runoff from the property. The total impervious area within Poppy Lane has been reduced due to the elimination of the existing cul-de-sac. DP-5 receives overland flow from PWA-5E & PWA-5A, as well as discharge from one infiltration basin (PWA-5B) and one detention basin (PWA-5G & PWA-5H). Runoff from PWA-5C, PWA-5D, and PWA-5F is fully stored and infiltrated within the proposed porous pavement. DP-6 receives overland flow from PWA-6A. Runoff from PWA-6B is fully stored and infiltrated within the proposed infiltration trench. Runoff from PWA-6C is fully stored and infiltrated within the proposed porous pavement. DP-7 receives overland flow from PWA-7. DP-8 receives overland flow from PWA-8A, PWA-8B, PWA-8C, and PWA-8F, as well as runoff from one infiltration basin (PWA-8E). Runoff from PWA-8D is fully stored and infiltrated within the proposed infiltration trench. Runoff from PWA-8G is fully stored and infiltrated within the proposed porous pavement.

The design points are summarized in Table 2 below.

TABLE 1: PROPOSED WATERSHED DESIGN POINT DETAILS

DESIGN POINT	AREA NAME	AREA (Acres)	Tc (min.)	CN
DP-1	PWA-1A	1.38	6.0	80
	PWA-1B	0.82	15.0	60
	PWA-1C	3.61	20.0	37
DP-2	PWA-2A	0.55	17.7	64
	PWA-2B	0.38	6.0	50
DP-3	----	----	----	----
DP-4	----	----	----	----
DP-5	PWA-5A	0.43	6.0	32
	PWA-5B	2.42	8.7	62
	PWA-5C	1.70	6.0	77
	PWA-5D	1.83	14.5	54
	PWA-5E	1.55	9.6	36
	PWA-5F	7.87	6.0	73
	PWA-5G	0.46	6.0	63
	PWA-5H	1.46	25.9	38
DP-6	PWA-6A	1.19	12.0	32
	PWA-6B	0.39	6.0	39
	PWA-6C	3.56	6.0	72
DP-7	PWA-7	0.18	9.2	30
DP-8	PWA-8A	3.11	26.6	34
	PWA-8B	2.70	17.1	31
	PWA-8C	0.75	6.0	36
	PWA-8D	0.68	6.0	39
	PWA-8E	1.25	18.2	35
	PWA-8F	0.86	12.9	34
	PWA-8G	9.78	6.0	70

Peak Discharge Comparison

As illustrated in the following tables, the impact of the proposed improvements has been mitigated through the use of best management practices including porous pavement, infiltration basins, detention basins, and infiltration trenches for up to and including the 100-year, 24-hour storm event.

Design Point #1

	2-YR (3.40-IN)	10-YR (5.40-IN)	25-YR (6.96-IN)	50-YR (8.09-IN)	100-YR (9.54-IN)
Pre-Development	0	0.2	1.0	2.4	4.9
Post-Development	0	0.2	0.9	2.0	3.8

Design Point #2

	2-YR (3.40-IN)	10-YR (5.40-IN)	25-YR (6.96-IN)	50-YR (8.09-IN)	100-YR (9.54-IN)
Pre-Development	0.2	1.6	3.3	4.6	6.5
Post-Development	0.2	0.9	1.6	2.4	3.0

DRAINAGE REPORT

Murphy's Farm
Dracut, MA

Design Point #3

	2-YR (3.40-IN)	10-YR (5.40-IN)	25-YR (6.96-IN)	50-YR (8.09-IN)	100-YR (9.54-IN)
Pre-Development	0	0	0.1	0.2	0.8
Post-Development	0	0	0	0	0

Design Point #4

	2-YR (3.40-IN)	10-YR (5.40-IN)	25-YR (6.96-IN)	50-YR (8.09-IN)	100-YR (9.54-IN)
Pre-Development	0	0	0.1	0.2	0.6
Post-Development	0	0	0	0	0

Design Point #5

	2-YR (3.40-IN)	10-YR (5.40-IN)	25-YR (6.96-IN)	50-YR (8.09-IN)	100-YR (9.54-IN)
Pre-Development	0	0.1	0.4	1.2	2.7
Post-Development	0	0	0.2	0.7	2.1

Design Point #6

	2-YR (3.40-IN)	10-YR (5.40-IN)	25-YR (6.96-IN)	50-YR (8.09-IN)	100-YR (9.54-IN)
Pre-Development	0	0	0.1	0.2	0.6
Post-Development	0	0	0.1	0.2	0.6

Design Point #7

	2-YR (3.40-IN)	10-YR (5.40-IN)	25-YR (6.96-IN)	50-YR (8.09-IN)	100-YR (9.54-IN)
Pre-Development	0	0	0.1	0.3	1.1
Post-Development	0	0	0	0.1	0.1

Design Point #8

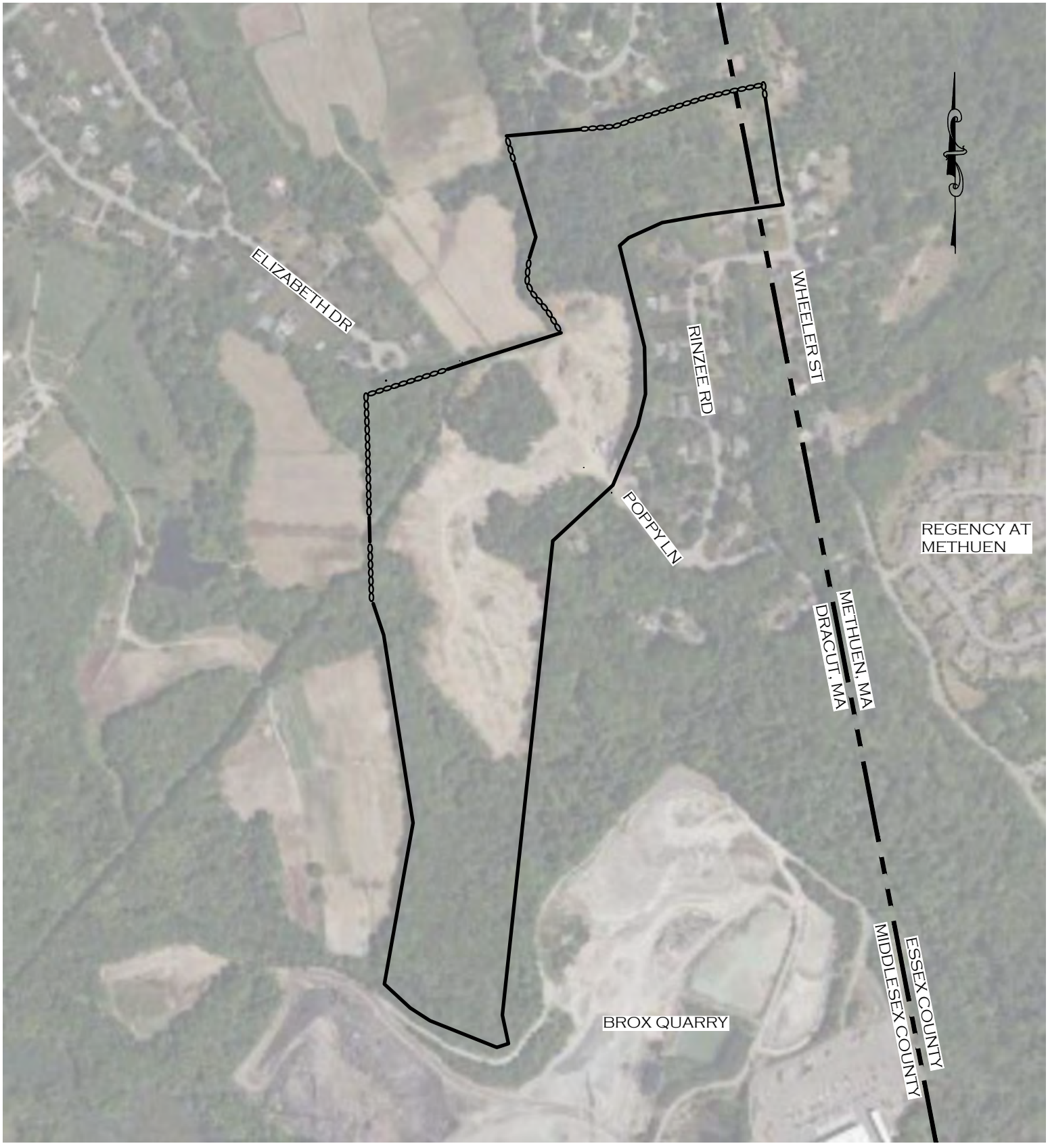
	2-YR (3.40-IN)	10-YR (5.40-IN)	25-YR (6.96-IN)	50-YR (8.09-IN)	100-YR (9.54-IN)
Pre-Development	0	0.1	0.5	1.5	4.2
Post-Development	0	0.1	0.5	1.3	3.3

METHODOLOGY

Drainage calculations were performed using the computer program HydroCAD by HydroCAD Software Solutions, LLC based upon Technical Release 20 (TR-20), developed by the NRCS. Drainage calculations were prepared for the 2-YR, 10-YR, 25-YR, 50-YR, and 100-YR Type D 24-hour storm events. Rainfall data

corresponds with NOAA Atlas 14. Curve numbers were generated using the information provided in TR-55 and the SCS Soils Survey.

TAB 2



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18 CASSIMERE STREET
ANDOVER, MA 01810

PREPARED FOR:
MURPHY'S FARM
DRACUT, MA 01826

FIGURE 1: ORTHO

PREPARED BY: TJS
SCALE: 1"=500'
CDCI FILE #: 23-10524
DATE: MARCH 29, 2024

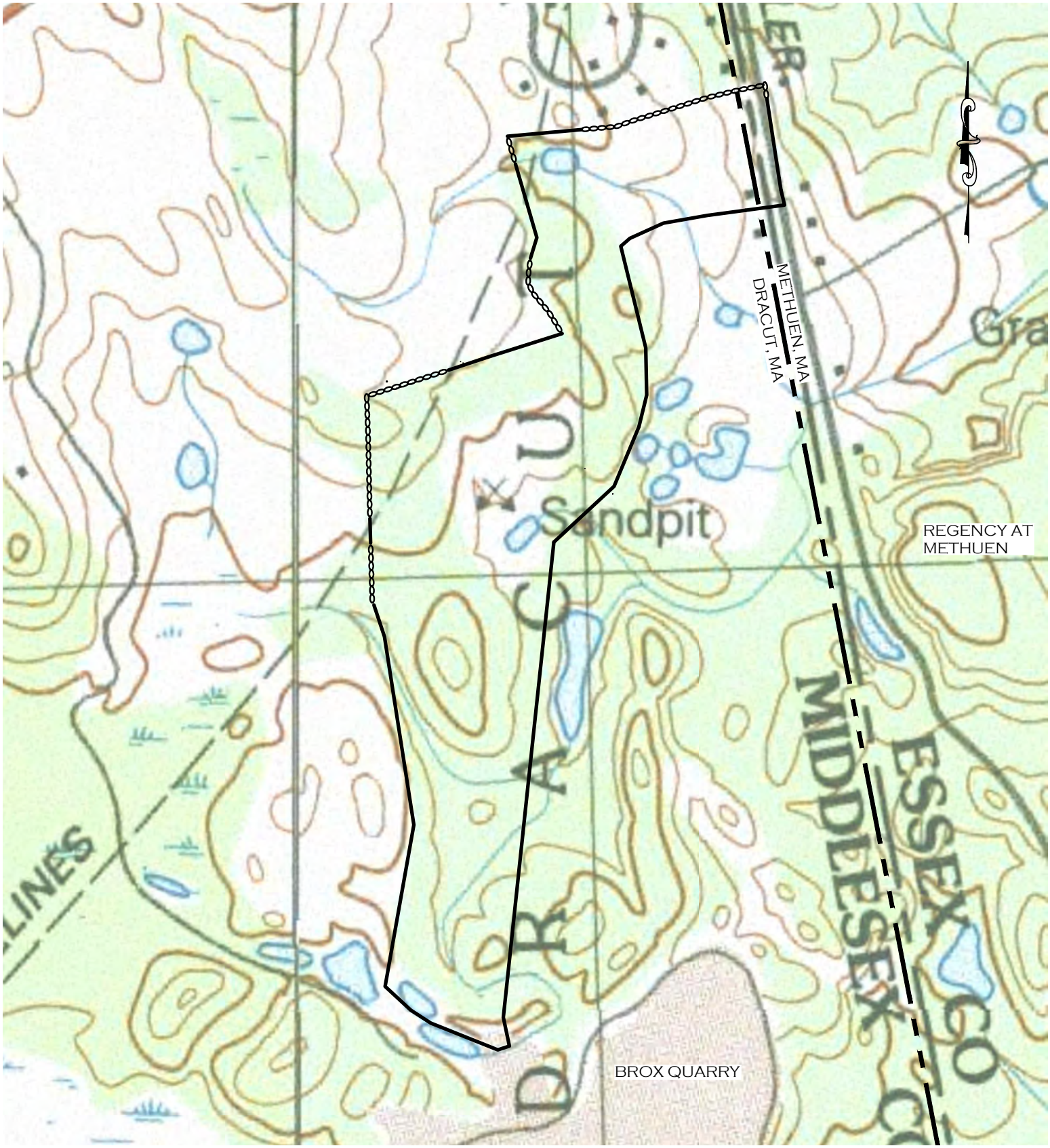

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FIGURE 2: USGS

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SCALE: 1"=500'
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DATE: MARCH 29, 2024

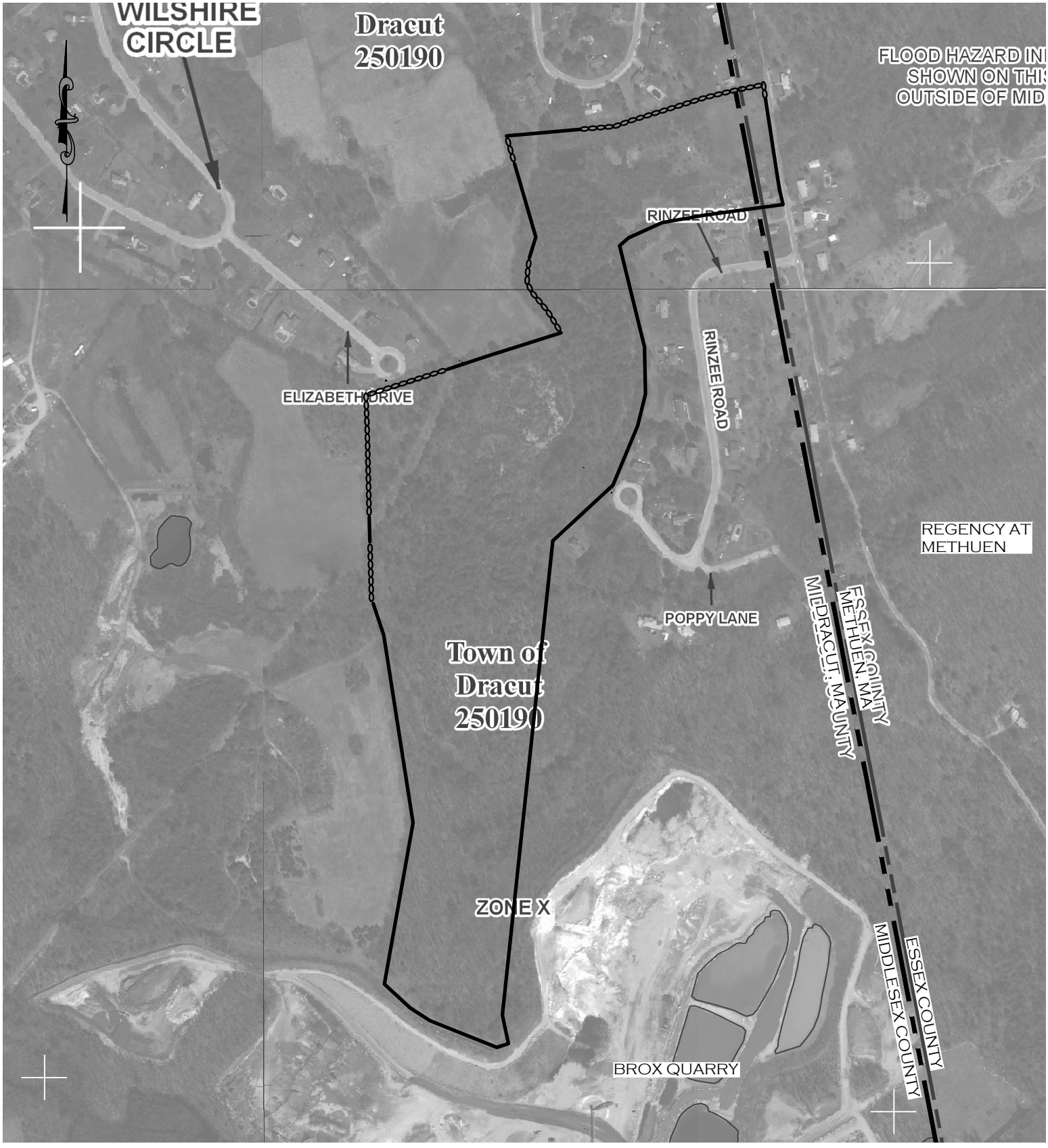

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FIGURE 3: FEMA

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SCALE: 1"=500'
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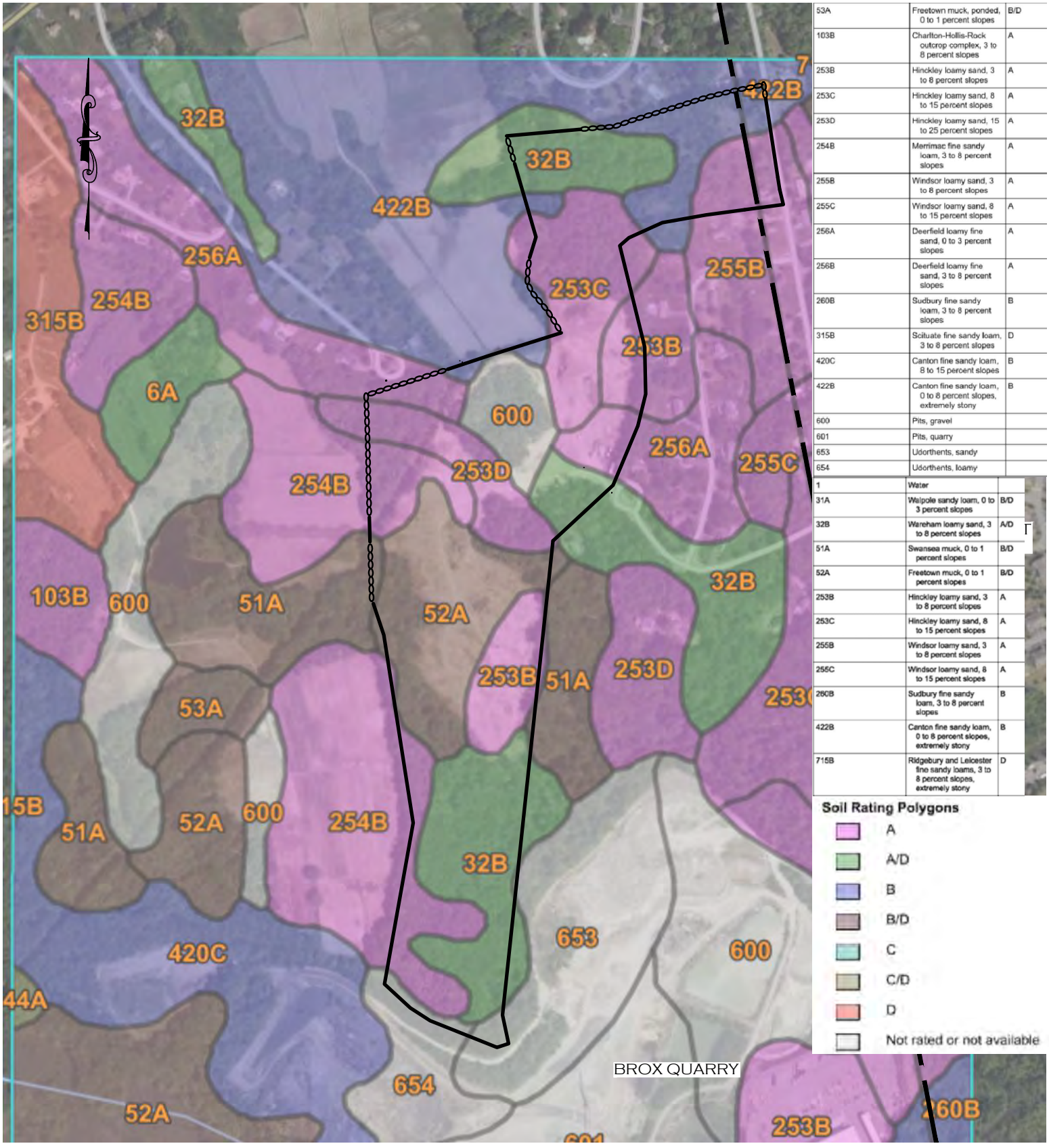

53A	Freetown muck, ponded, 0 to 1 percent slopes	B/D
103B	Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes	A
253B	Hinckley loamy sand, 3 to 8 percent slopes	A
253C	Hinckley loamy sand, 8 to 15 percent slopes	A
253D	Hinckley loamy sand, 15 to 25 percent slopes	A
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	A
255B	Windsor loamy sand, 3 to 8 percent slopes	A
255C	Windsor loamy sand, 8 to 15 percent slopes	A
256A	Deerfield loamy fine sand, 0 to 3 percent slopes	A
256B	Deerfield loamy fine sand, 3 to 8 percent slopes	A
260B	Sudbury fine sandy loam, 3 to 8 percent slopes	B
315B	Scituate fine sandy loam, 3 to 8 percent slopes	D
420C	Canton fine sandy loam, 8 to 15 percent slopes	B
422B	Canton fine sandy loam, 0 to 8 percent slopes, extremely stony	B
600	Pits, gravel	
601	Pits, quarry	
653	Udorthents, sandy	
654	Udorthents, loamy	
1	Water	
31A	Walpole sandy loam, 0 to 3 percent slopes	B/D
32B	Wareham loamy sand, 3 to 8 percent slopes	A/D
51A	Swansea muck, 0 to 1 percent slopes	B/D
52A	Freetown muck, 0 to 1 percent slopes	B/D
253B	Hinckley loamy sand, 3 to 8 percent slopes	A
253C	Hinckley loamy sand, 8 to 15 percent slopes	A
255B	Windsor loamy sand, 3 to 8 percent slopes	A
255C	Windsor loamy sand, 8 to 15 percent slopes	A
260B	Sudbury fine sandy loam, 3 to 8 percent slopes	B
422B	Canton fine sandy loam, 0 to 8 percent slopes, extremely stony	B
715B	Ridgebury and Leicester fine sandy loams, 3 to 8 percent slopes, extremely stony	D

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FIGURE 4: SOILS

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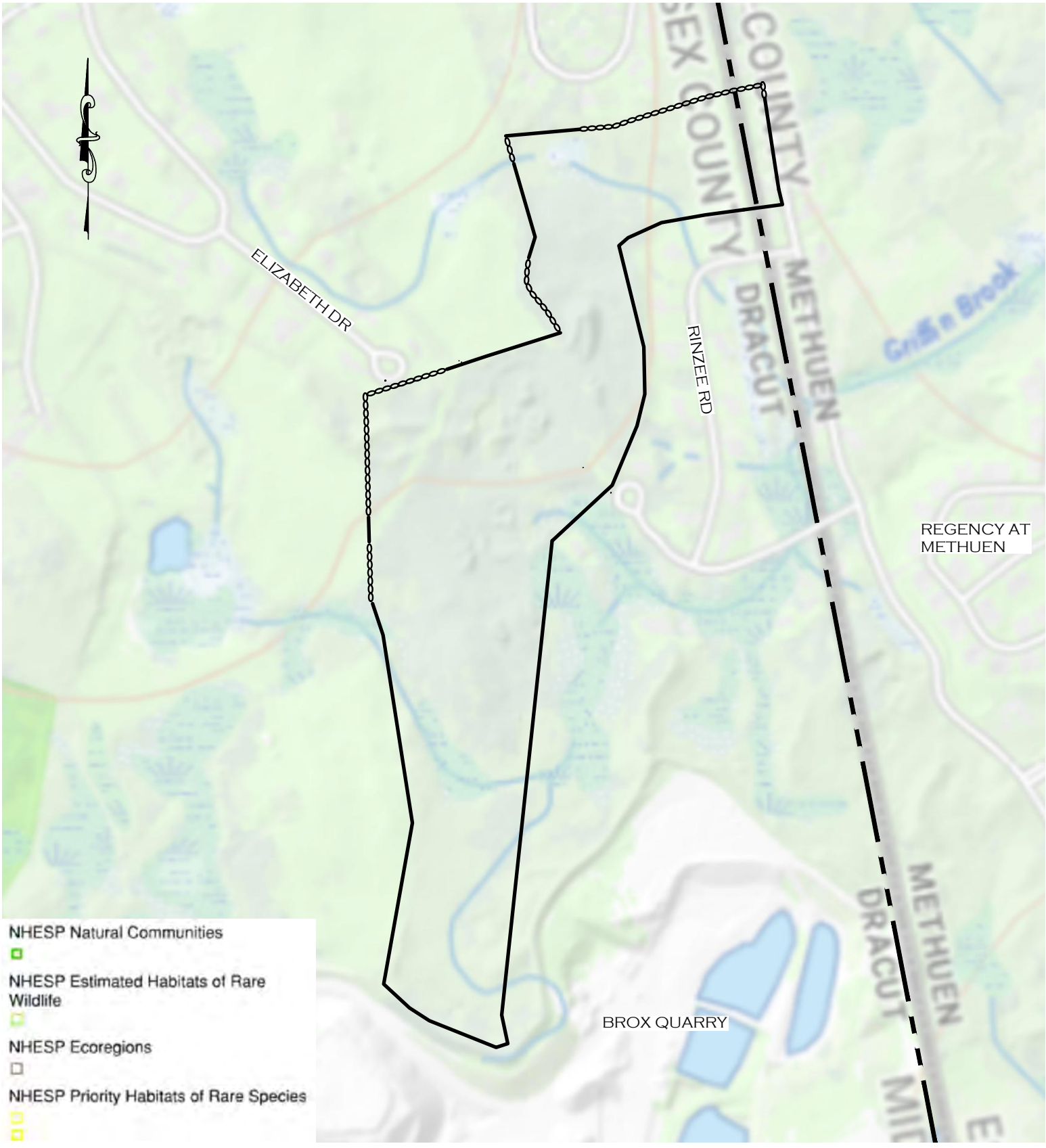

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FIGURE 5: NHESP

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SCALE: 1"=500'
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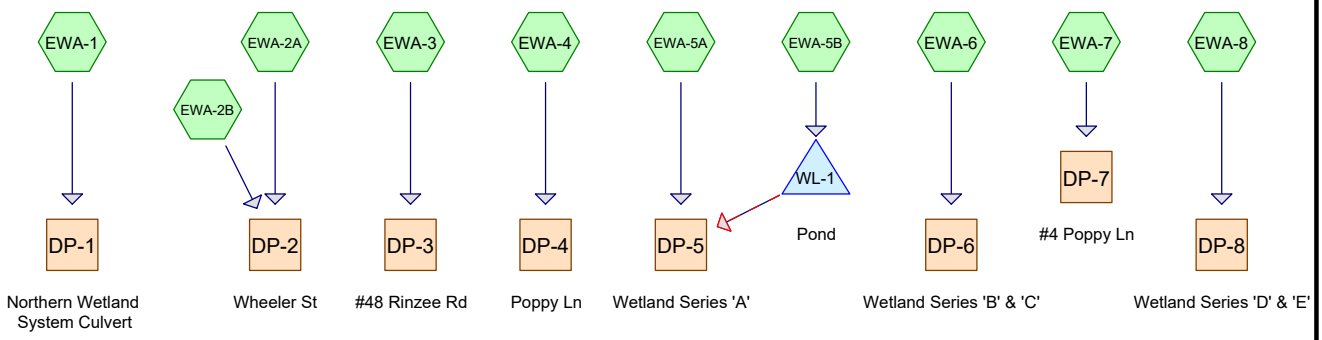
TAB 3



Subcat Reach Pond Link

Routing Diagram for 23-10524 - Pre
Prepared by Civil Design Consultants, Inc, Printed 4/22/2024
HydroCAD® 10.20-4b s/n 06435 © 2023 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Yr	NOAA 24-hr	D	Default	24.00	1	3.40	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.89	39	>75% Grass cover, Good, HSG A (EWA-1, EWA-2A, EWA-2B, EWA-5B)
1.02	61	>75% Grass cover, Good, HSG B (EWA-1, EWA-2A, EWA-5B)
0.03	98	Paved parking, HSG A (EWA-2B)
0.03	98	Roofs, HSG A (EWA-2B)
45.44	30	Woods, Good, HSG A (EWA-1, EWA-2A, EWA-2B, EWA-3, EWA-4, EWA-5A, EWA-5B, EWA-6, EWA-7, EWA-8)
2.55	55	Woods, Good, HSG B (EWA-1, EWA-2A, EWA-5B)
50.96	**32**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
47.39	HSG A	EWA-1, EWA-2A, EWA-2B, EWA-3, EWA-4, EWA-5A, EWA-5B, EWA-6, EWA-7, EWA-8
3.57	HSG B	EWA-1, EWA-2A, EWA-5B
0.00	HSG C	
0.00	HSG D	
0.00	Other	
50.96		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
1.89	1.02	0.00	0.00	0.00	2.91	>75% Grass cover, Good	EWA-1, EWA-2A, EWA-2B, EWA-5B
0.03	0.00	0.00	0.00	0.00	0.03	Paved parking	EWA-2B
0.03	0.00	0.00	0.00	0.00	0.03	Roofs	EWA-2B
45.44	2.55	0.00	0.00	0.00	47.99	Woods, Good	EWA-1, EWA-2A, EWA-2B, EWA-3, EWA-4, EWA-5A, EWA-5B, EWA-6, EWA-7, EWA-8
47.39	**3.57**	**0.00**	**0.00**	**0.00**	**50.96**	**TOTAL AREA**	

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	WL-1	137.05	136.05	145.0	0.0069	0.012	0.0	12.0	0.0	

Time span=5.00-32.00 hrs, dt=0.05 hrs, 541 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEWA-1: Runoff Area=5.12 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=397' Tc=18.3 min CN=37 Runoff=0.0 cfs 0.000 af

SubcatchmentEWA-2A: Runoff Area=2.09 ac 0.00% Impervious Runoff Depth=0.28"
Flow Length=515' Tc=18.5 min CN=54 Runoff=0.2 cfs 0.049 af

SubcatchmentEWA-2B: Runoff Area=0.28 ac 21.43% Impervious Runoff Depth=0.20"
Tc=6.0 min CN=51 Runoff=0.0 cfs 0.005 af

SubcatchmentEWA-3: Runoff Area=2.75 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=300' Tc=15.0 min CN=30 Runoff=0.0 cfs 0.000 af

SubcatchmentEWA-4: Runoff Area=120,993 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=788' Tc=35.3 min CN=30 Runoff=0.0 cfs 0.000 af

SubcatchmentEWA-5A: Runoff Area=1.13 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=323' Tc=21.1 min CN=30 Runoff=0.0 cfs 0.000 af

SubcatchmentEWA-5B: Runoff Area=10.59 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=715' Tc=20.9 min CN=33 Runoff=0.0 cfs 0.000 af

SubcatchmentEWA-6: Runoff Area=2.27 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=611' Tc=21.2 min CN=30 Runoff=0.0 cfs 0.000 af

SubcatchmentEWA-7: Runoff Area=4.13 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=456' Tc=19.2 min CN=30 Runoff=0.0 cfs 0.000 af

SubcatchmentEWA-8: Runoff Area=19.82 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=796' Tc=37.4 min CN=30 Runoff=0.0 cfs 0.000 af

Reach DP-1: Northern Wetland System Culvert Inflow=0.0 cfs 0.000 af
Outflow=0.0 cfs 0.000 af

Reach DP-2: Wheeler St Inflow=0.2 cfs 0.054 af
Outflow=0.2 cfs 0.054 af

Reach DP-3: #48 Rinzee Rd Inflow=0.0 cfs 0.000 af
Outflow=0.0 cfs 0.000 af

Reach DP-4: Poppy Ln Inflow=0.0 cfs 0.000 af
Outflow=0.0 cfs 0.000 af

Reach DP-5: Wetland Series 'A' Inflow=0.0 cfs 0.000 af
Outflow=0.0 cfs 0.000 af

Reach DP-6: Wetland Series 'B' & 'C' Inflow=0.0 cfs 0.000 af
Outflow=0.0 cfs 0.000 af

Reach DP-7: #4 Poppy Ln Inflow=0.0 cfs 0.000 af
Outflow=0.0 cfs 0.000 af

Reach DP-8: Wetland Series 'D' & 'E' Inflow=0.0 cfs 0.000 af
Outflow=0.0 cfs 0.000 af

Pond WL-1: Pond Peak Elev=136.00' Storage=0 cf Inflow=0.0 cfs 0.000 af
Primary=0.0 cfs 0.000 af Secondary=0.0 cfs 0.000 af Outflow=0.0 cfs 0.000 af

Total Runoff Area = 50.96 ac Runoff Volume = 0.054 af Average Runoff Depth = 0.01"
99.88% Pervious = 50.90 ac 0.12% Impervious = 0.06 ac

Summary for Subcatchment EWA-1:

[45] Hint: Runoff=Zero

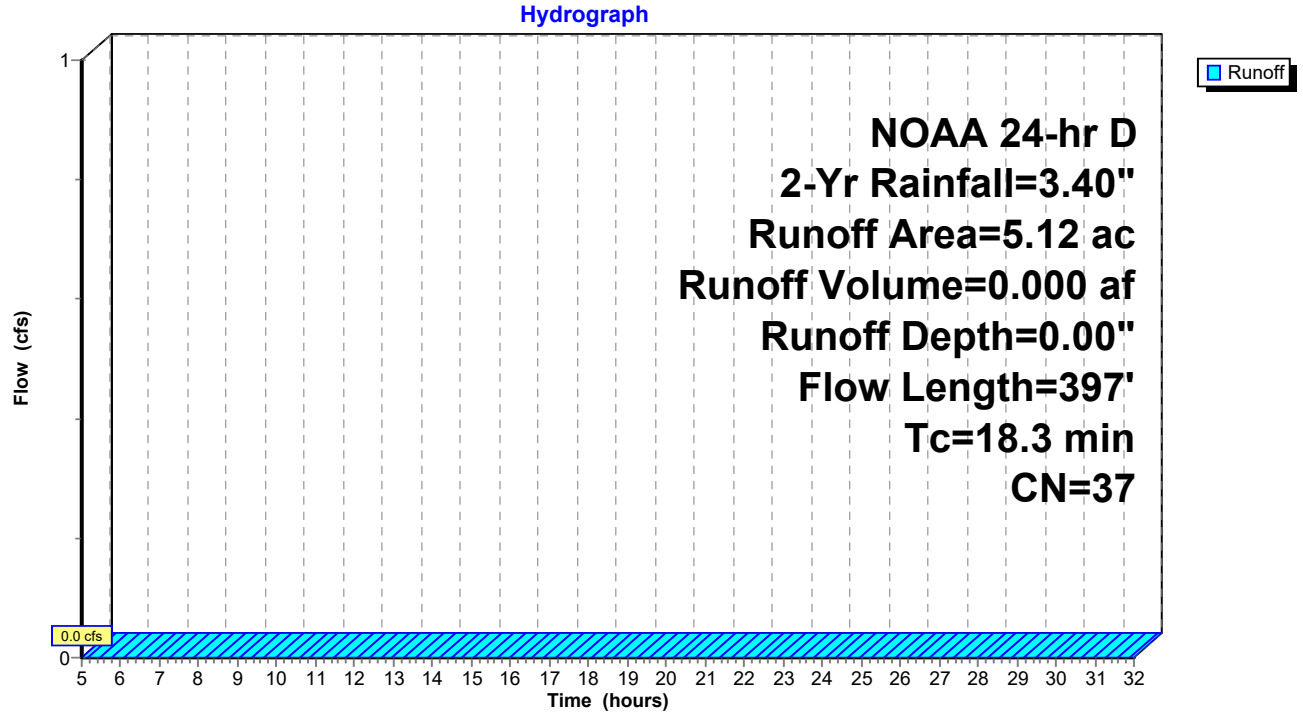
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach DP-1 : Northern Wetland System Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
0.34	61	>75% Grass cover, Good, HSG B
0.52	39	>75% Grass cover, Good, HSG A
3.50	30	Woods, Good, HSG A
0.76	55	Woods, Good, HSG B
5.12	37	Weighted Average
5.12		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0650	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
5.3	297	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.3	397	Total			

Subcatchment EWA-1:



Summary for Subcatchment EWA-2A:

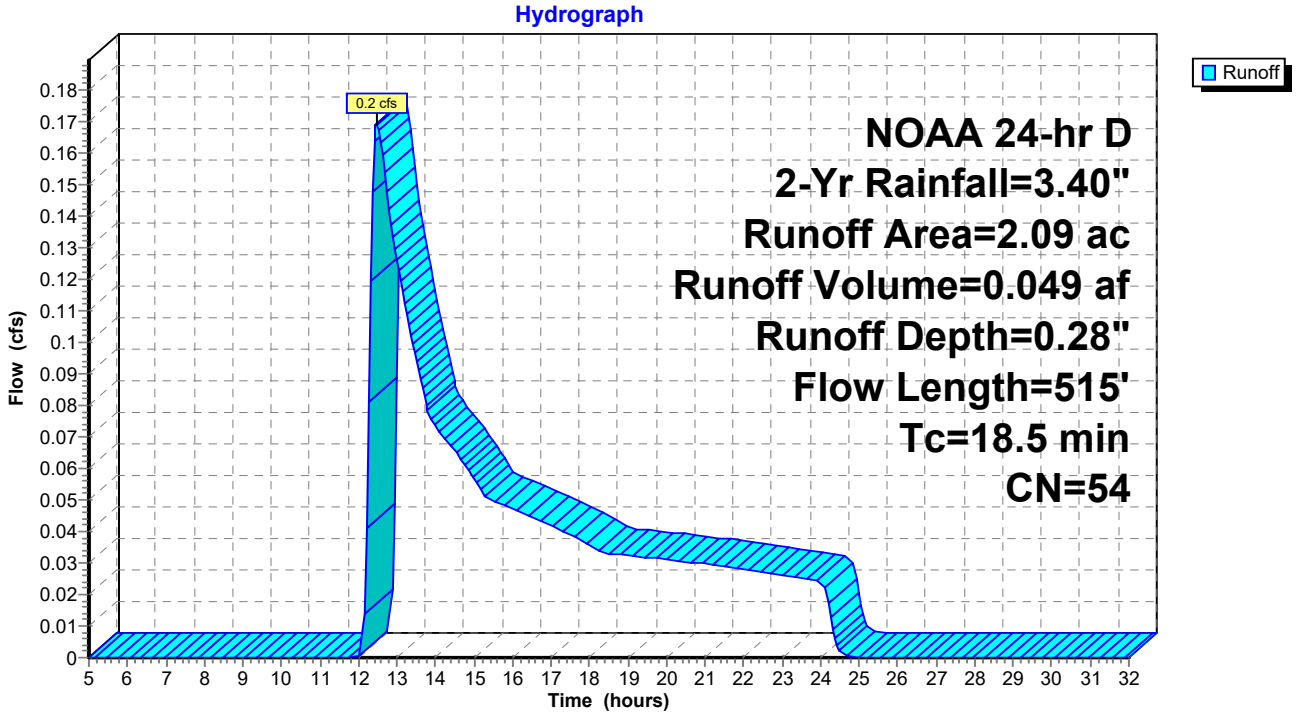
Runoff = 0.2 cfs @ 12.47 hrs, Volume= 0.049 af, Depth= 0.28"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
0.11	30	Woods, Good, HSG A
1.28	55	Woods, Good, HSG B
0.18	39	>75% Grass cover, Good, HSG A
0.52	61	>75% Grass cover, Good, HSG B
2.09	54	Weighted Average
2.09		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.6	215	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	200	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.5	515	Total			

Subcatchment EWA-2A:



Summary for Subcatchment EWA-2B:

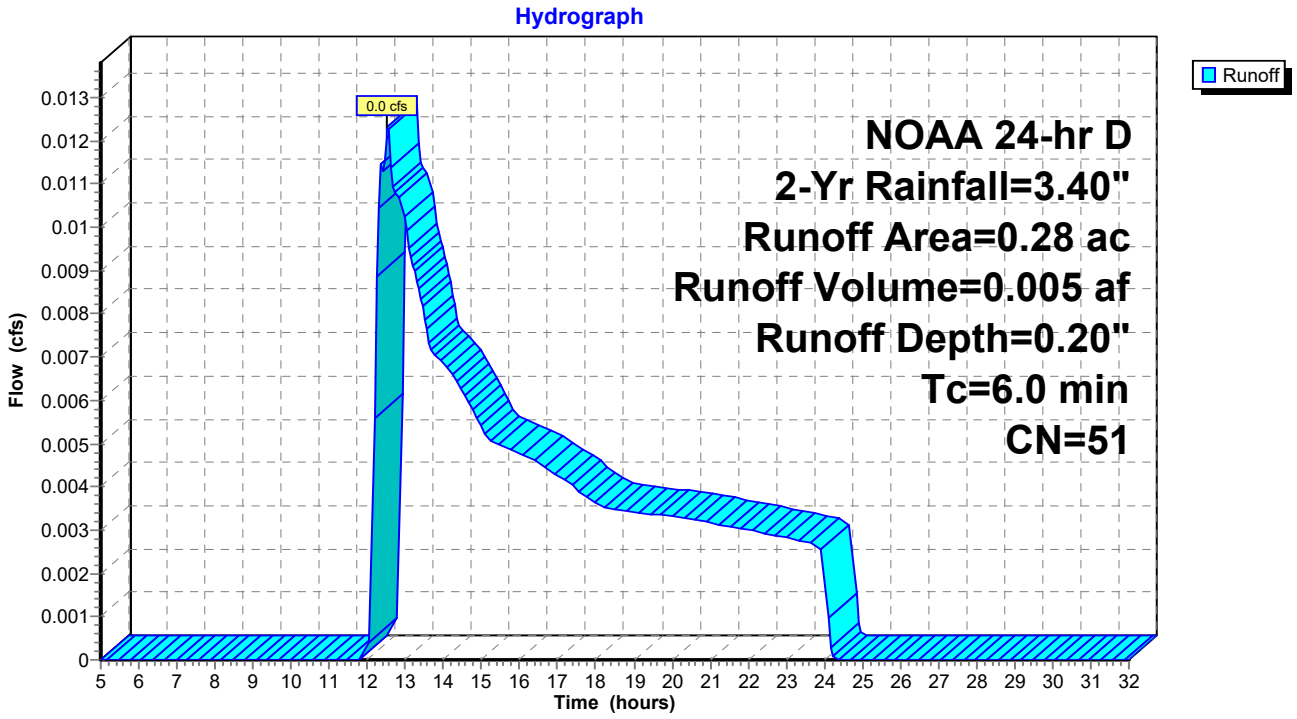
Runoff = 0.0 cfs @ 12.53 hrs, Volume= 0.005 af, Depth= 0.20"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
0.01	30	Woods, Good, HSG A
0.03	98	Roofs, HSG A
0.03	98	Paved parking, HSG A
0.21	39	>75% Grass cover, Good, HSG A
0.28	51	Weighted Average
0.22		78.57% Pervious Area
0.06		21.43% Impervious Area

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

Subcatchment EWA-2B:



Summary for Subcatchment EWA-3:

[45] Hint: Runoff=Zero

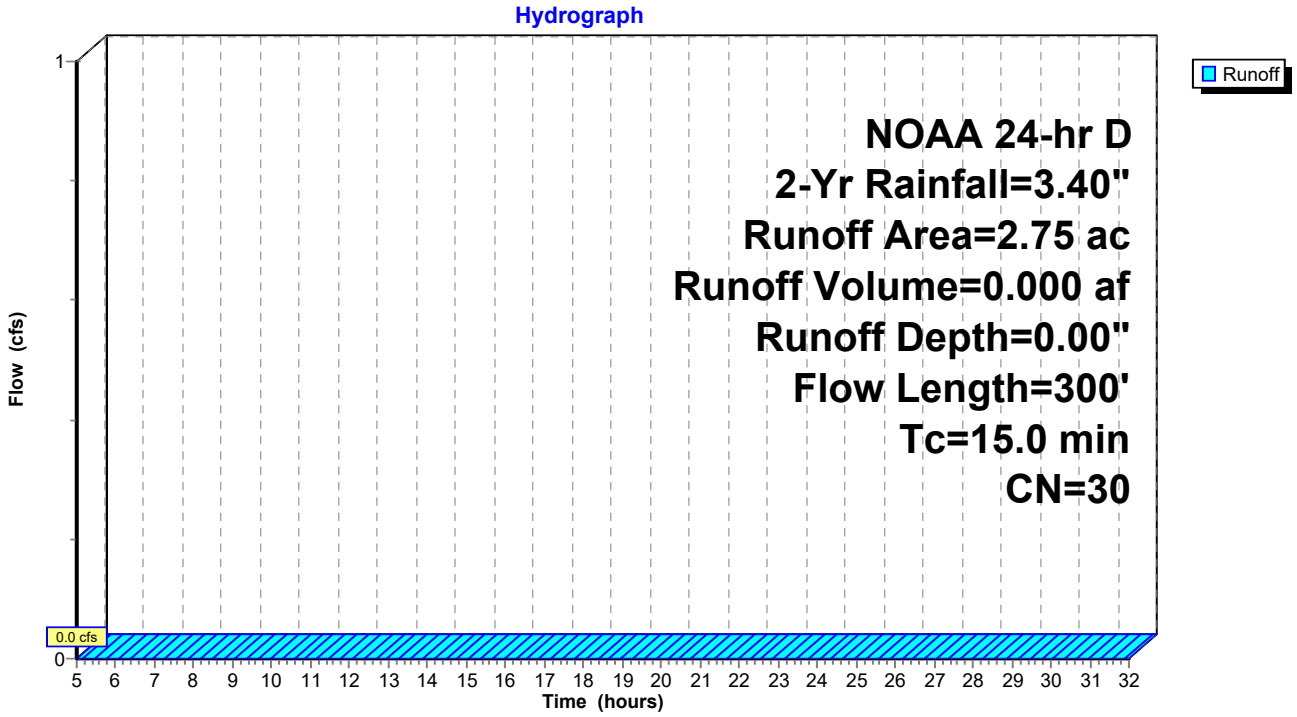
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach DP-3 : #48 Rinzee Rd

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
2.75	30	Woods, Good, HSG A
2.75		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0880	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.5	200	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.0	300	Total			

Subcatchment EWA-3:



Summary for Subcatchment EWA-4:

[45] Hint: Runoff=Zero

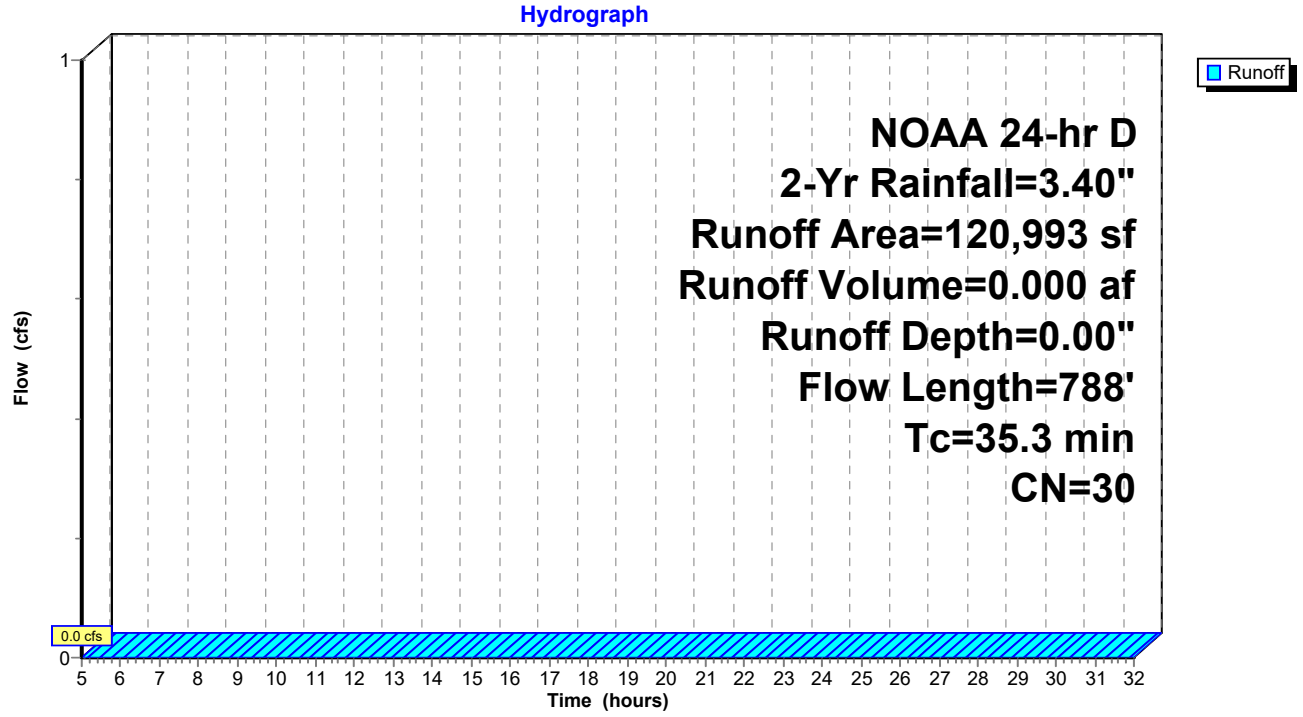
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach DP-4 : Poppy Ln

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (sf)	CN	Description
120,993	30	Woods, Good, HSG A
120,993		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	100	0.0410	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.8	200	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.8	276	0.0072	0.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	212	0.0190	0.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
35.3	788	Total			

Subcatchment EWA-4:



Summary for Subcatchment EWA-5A:

[45] Hint: Runoff=Zero

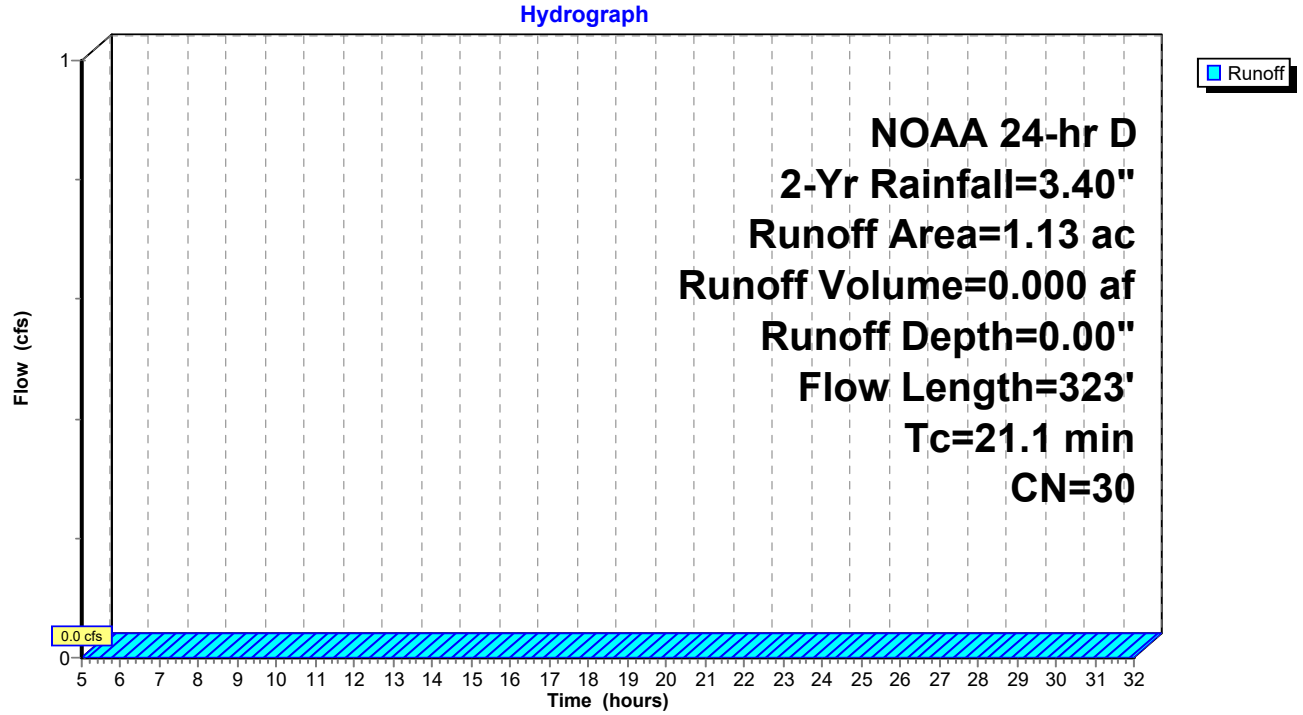
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach DP-5 : Wetland Series 'A'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
1.13	30	Woods, Good, HSG A
1.13		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0330	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
2.3	96	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	127	0.0620	1.24		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.1	323	Total			

Subcatchment EWA-5A:



Summary for Subcatchment EWA-5B:

[45] Hint: Runoff=Zero

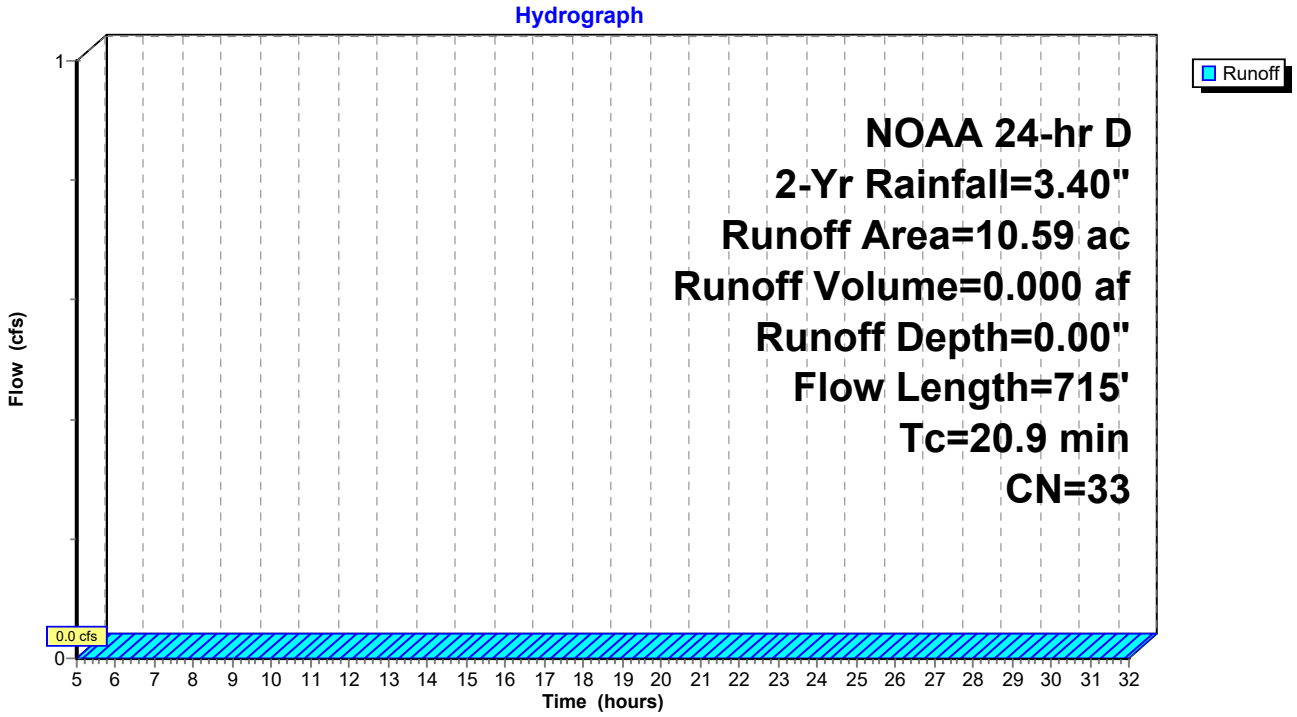
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond WL-1 : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
8.94	30	Woods, Good, HSG A
0.51	55	Woods, Good, HSG B
0.98	39	>75% Grass cover, Good, HSG A
0.16	61	>75% Grass cover, Good, HSG B
10.59	33	Weighted Average
10.59		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	69	0.1000	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
4.8	232	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	76	0.0520	1.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	168	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	170	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.9	715	Total			

Subcatchment EWA-5B:



Summary for Subcatchment EWA-6:

[45] Hint: Runoff=Zero

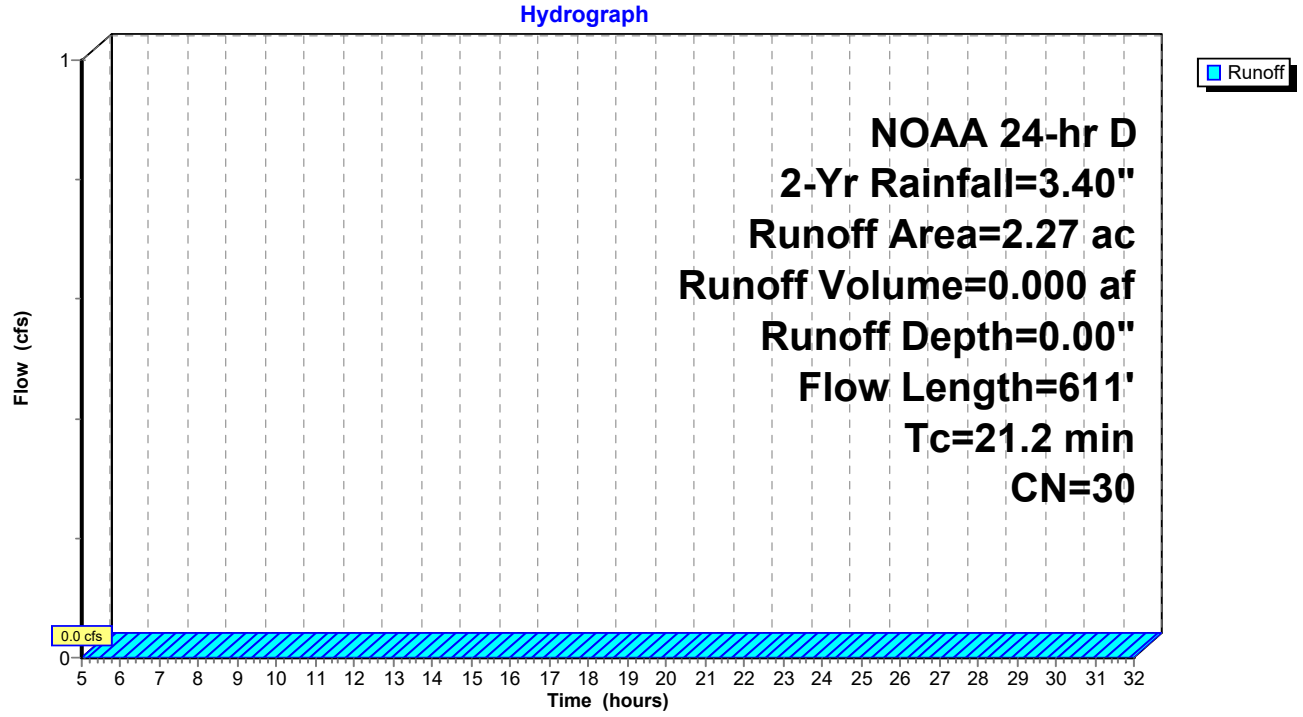
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach DP-6 : Wetland Series 'B' & 'C'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
2.27	30	Woods, Good, HSG A
2.27		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0660	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
4.8	232	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	204	0.0590	1.21		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	75	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.2	611	Total			

Subcatchment EWA-6:



Summary for Subcatchment EWA-7:

[45] Hint: Runoff=Zero

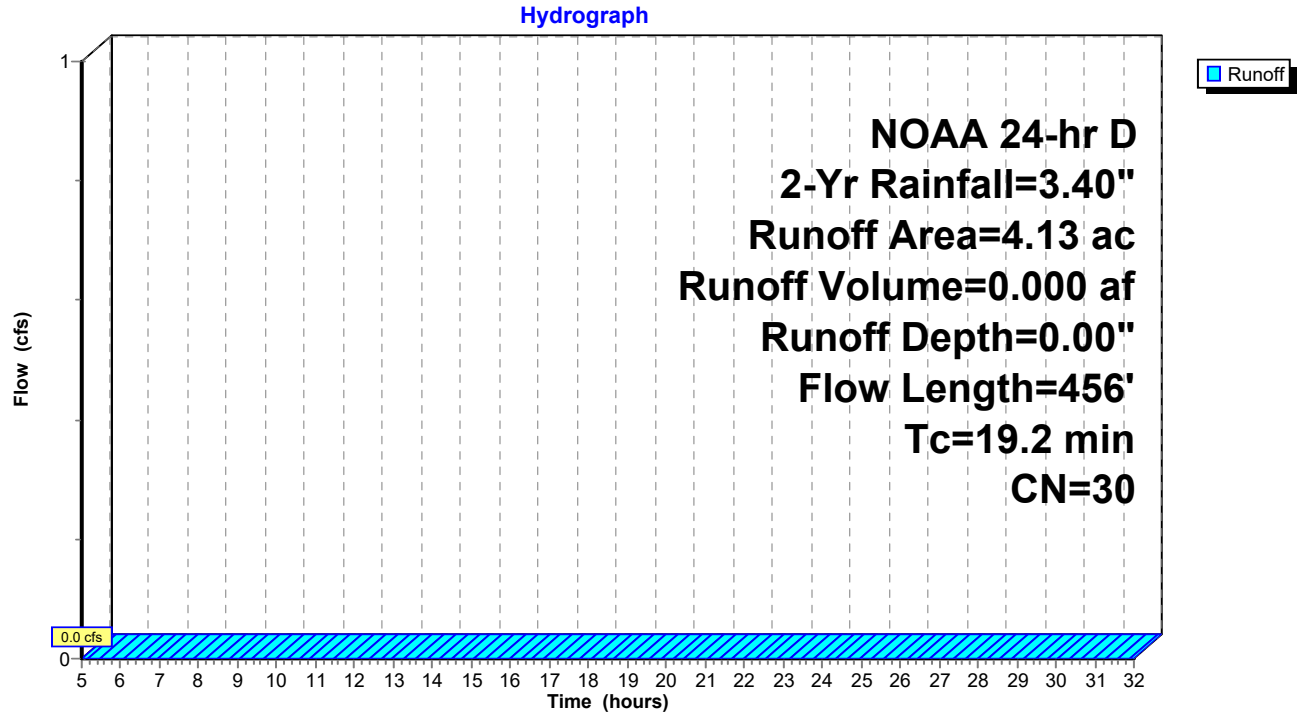
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach DP-7 : #4 Poppy Ln

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
4.13	30	Woods, Good, HSG A
4.13		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
5.8	356	0.0420	1.02		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.2	456	Total			

Subcatchment EWA-7:



Summary for Subcatchment EWA-8:

[45] Hint: Runoff=Zero

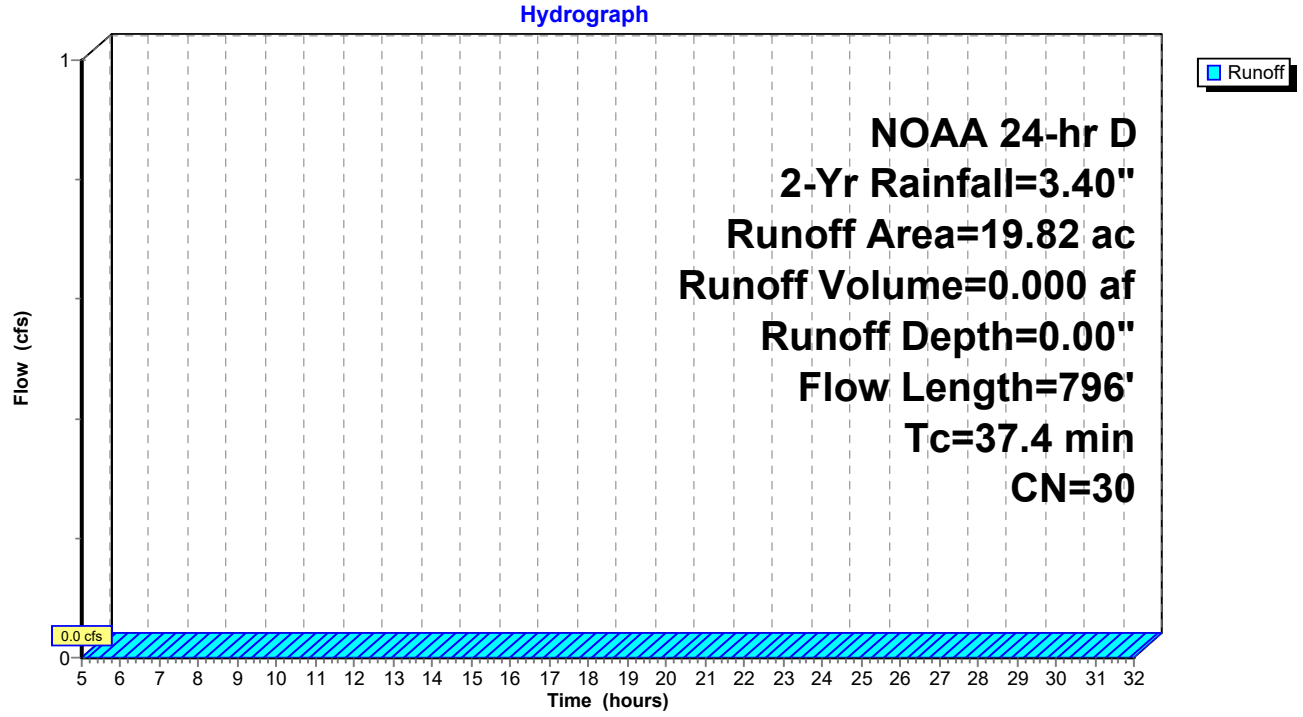
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
19.82	30	Woods, Good, HSG A
19.82		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.1400	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
2.7	155	0.0380	0.97		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.0	312	0.0064	0.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.1	229	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
37.4	796	Total			

Subcatchment EWA-8:



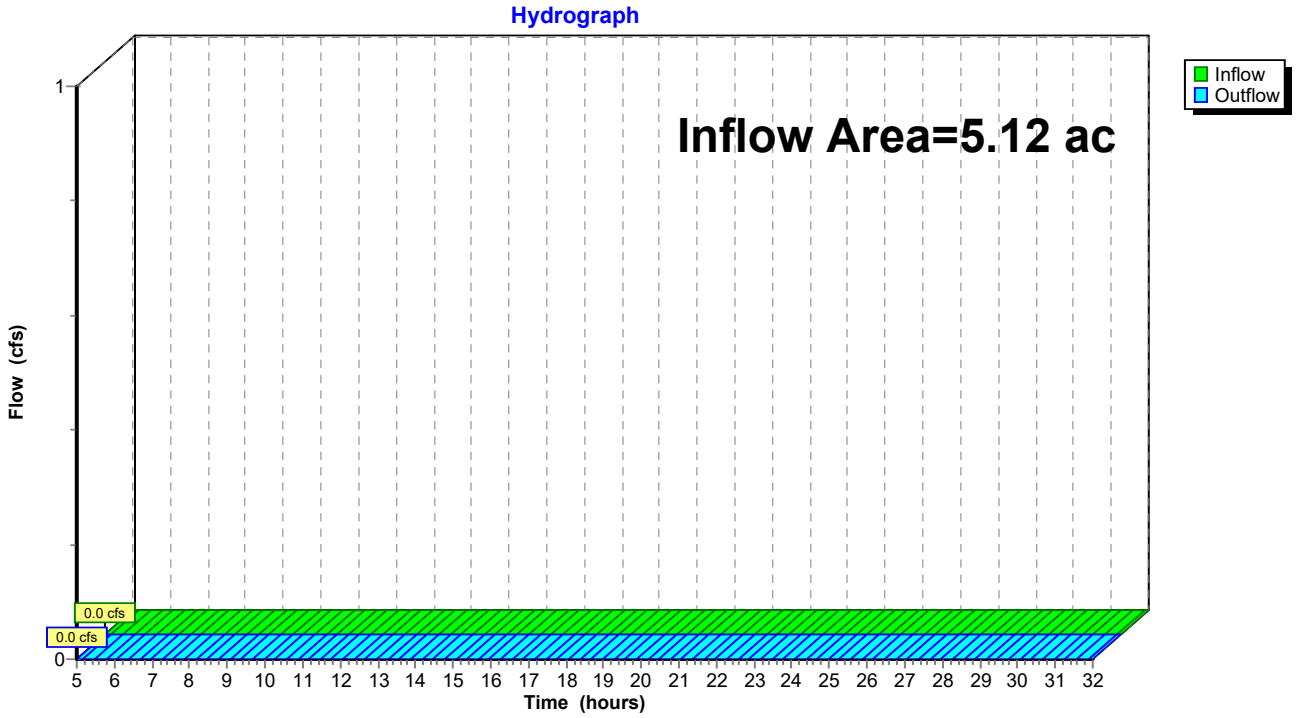
Summary for Reach DP-1: Northern Wetland System Culvert

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.12 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Reach DP-1: Northern Wetland System Culvert



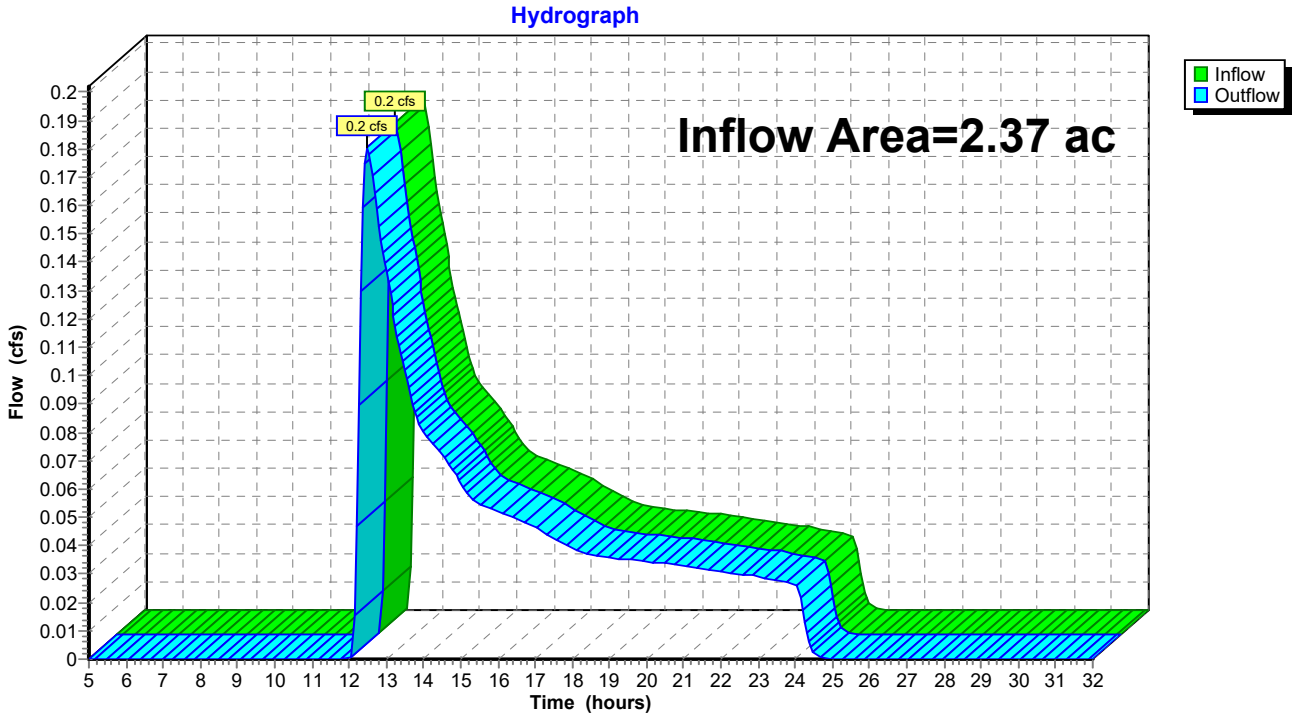
Summary for Reach DP-2: Wheeler St

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.37 ac, 2.53% Impervious, Inflow Depth = 0.27" for 2-Yr event
Inflow = 0.2 cfs @ 12.48 hrs, Volume= 0.054 af
Outflow = 0.2 cfs @ 12.48 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Reach DP-2: Wheeler St



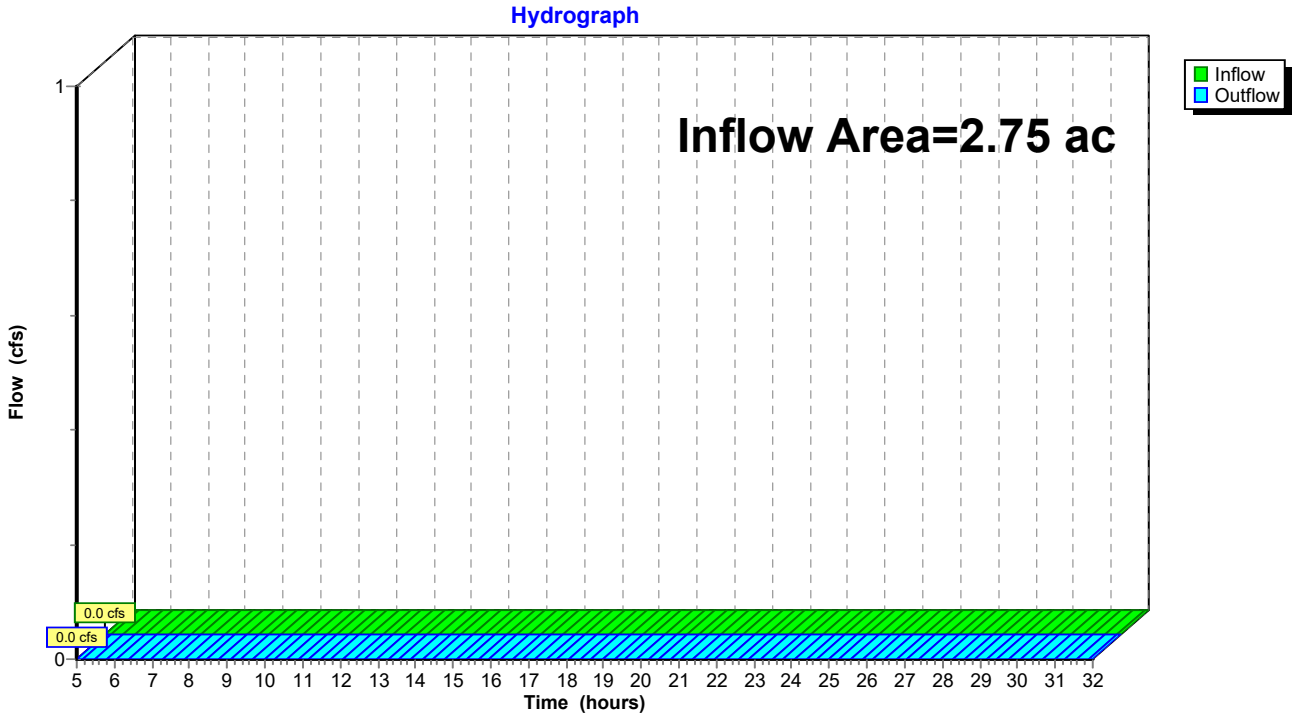
Summary for Reach DP-3: #48 Rinzee Rd

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.75 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Reach DP-3: #48 Rinzee Rd



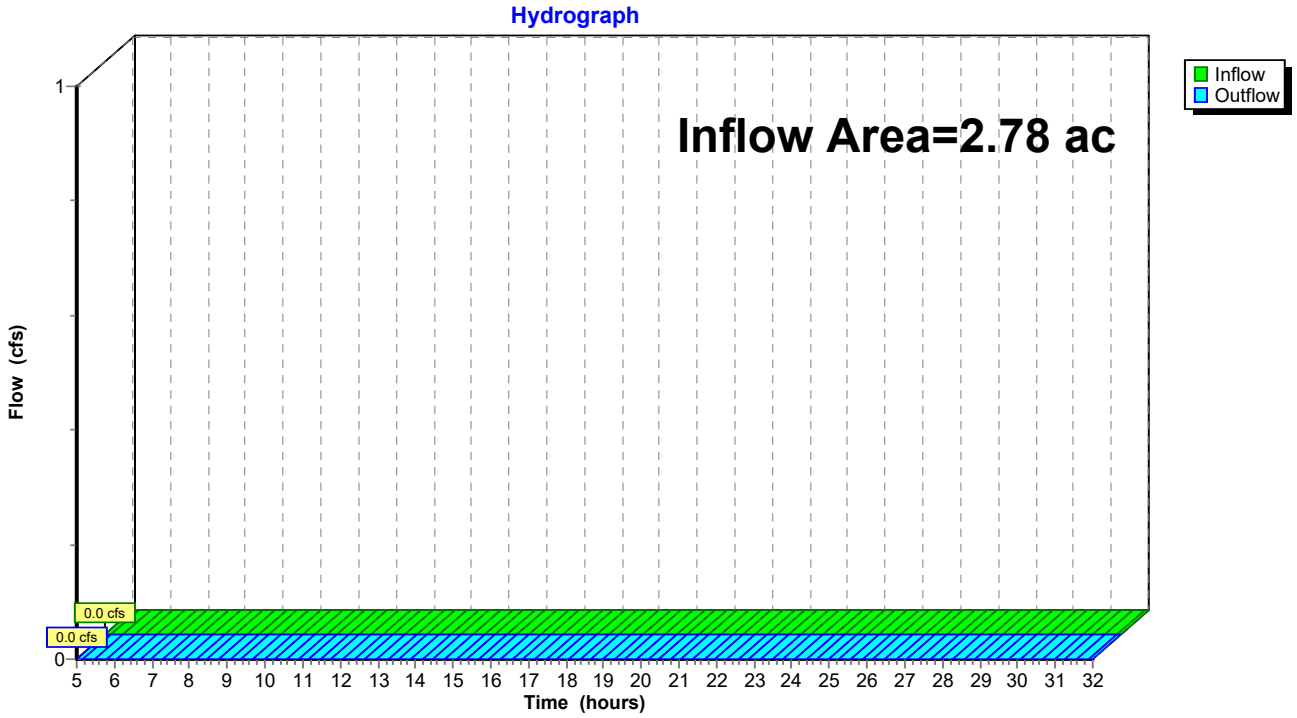
Summary for Reach DP-4: Poppy Ln

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.78 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Reach DP-4: Poppy Ln



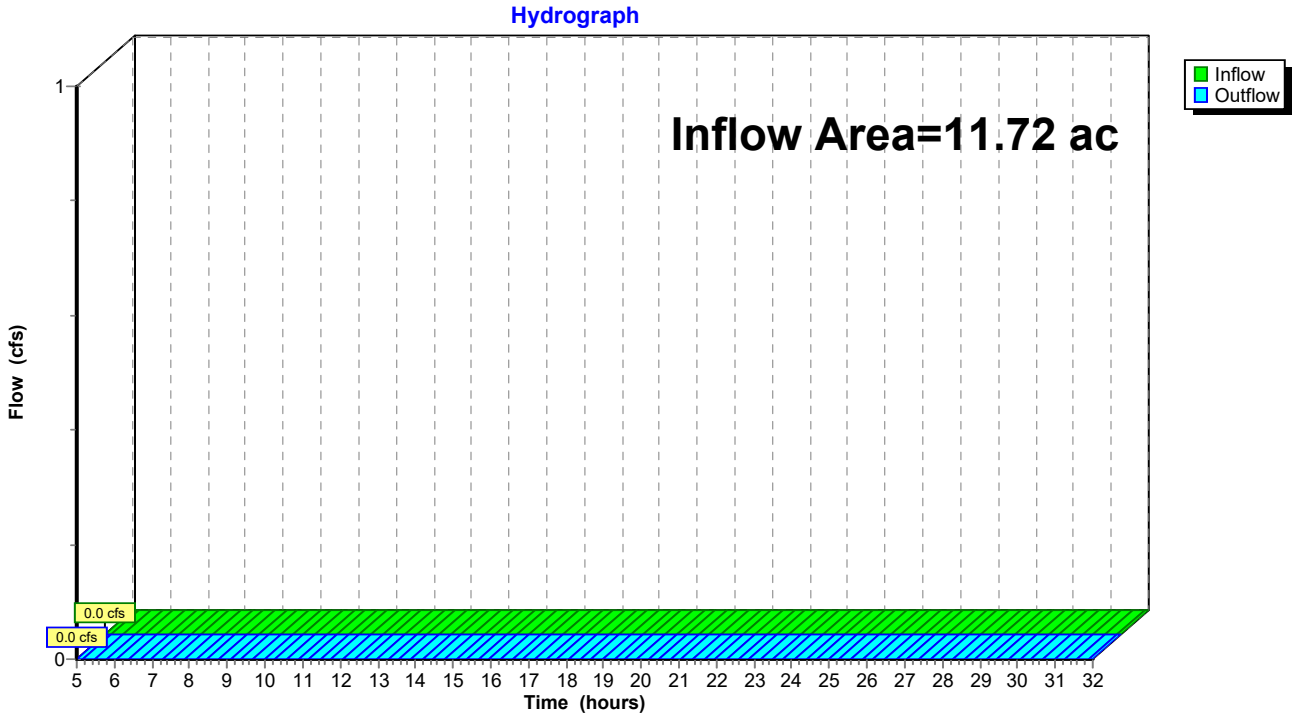
Summary for Reach DP-5: Wetland Series 'A'

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 11.72 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Reach DP-5: Wetland Series 'A'



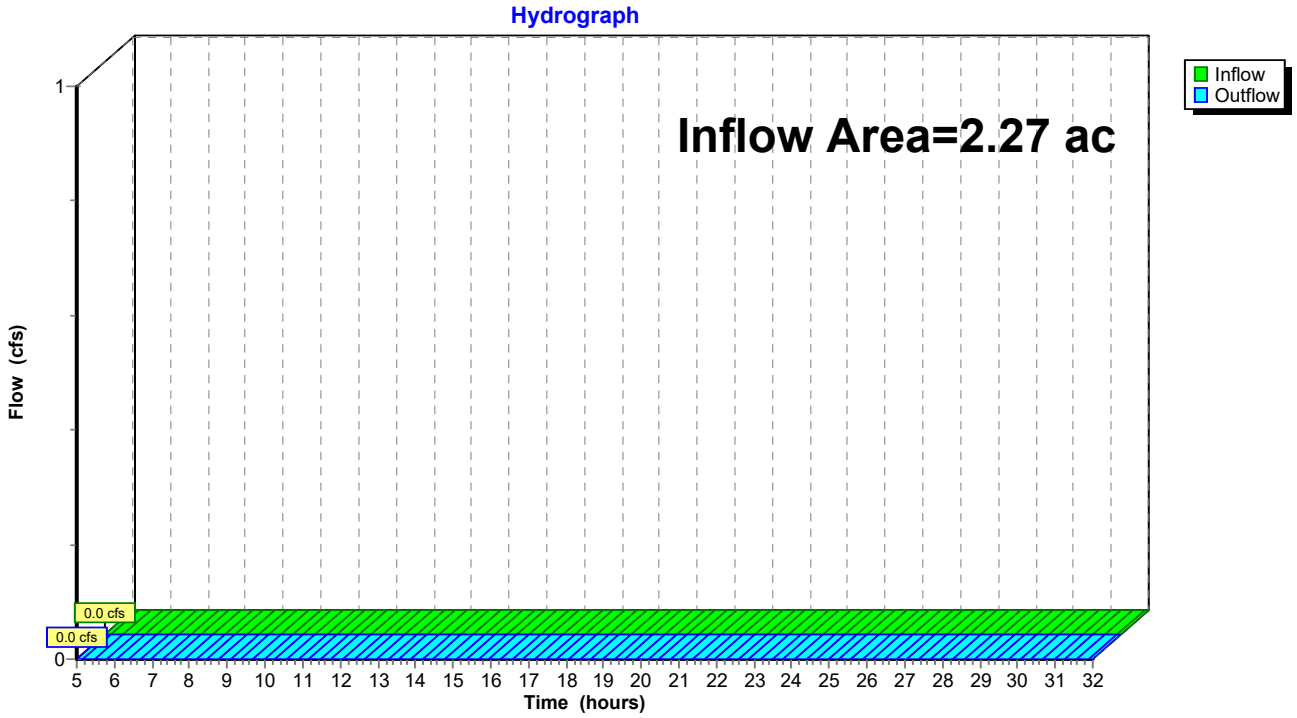
Summary for Reach DP-6: Wetland Series 'B' & 'C'

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.27 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Reach DP-6: Wetland Series 'B' & 'C'



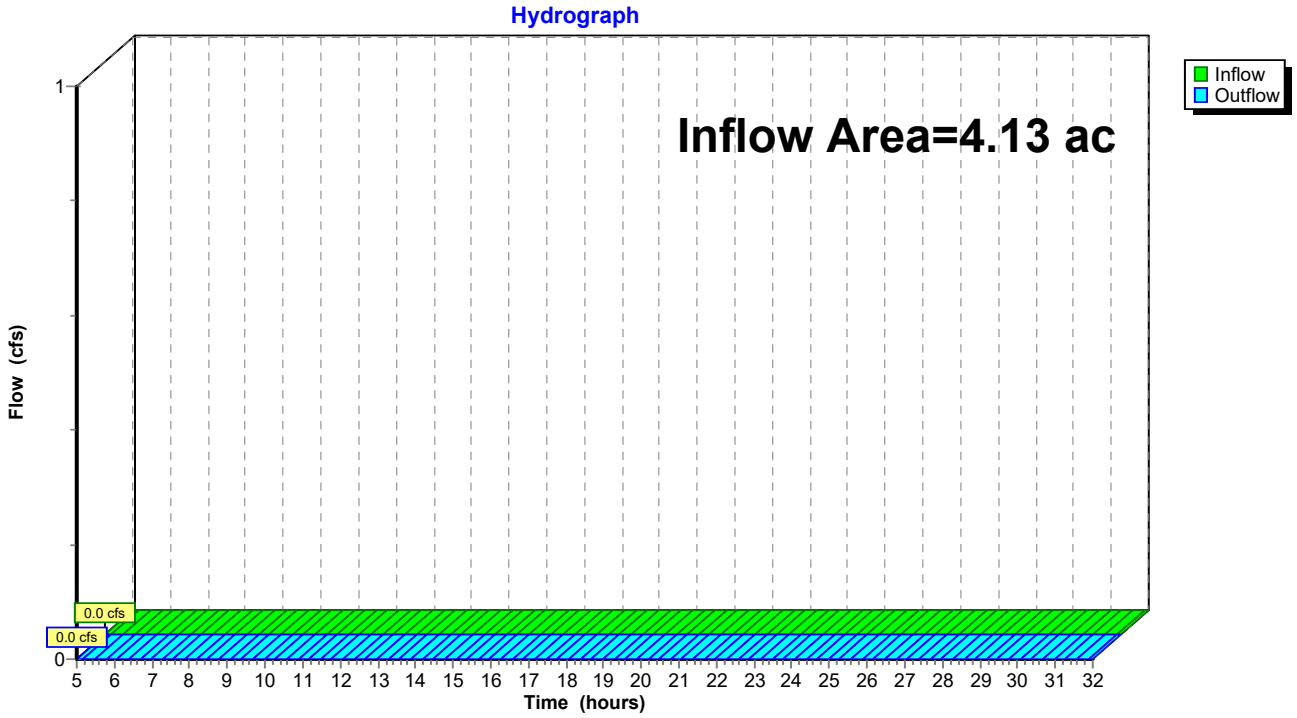
Summary for Reach DP-7: #4 Poppy Ln

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.13 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Reach DP-7: #4 Poppy Ln



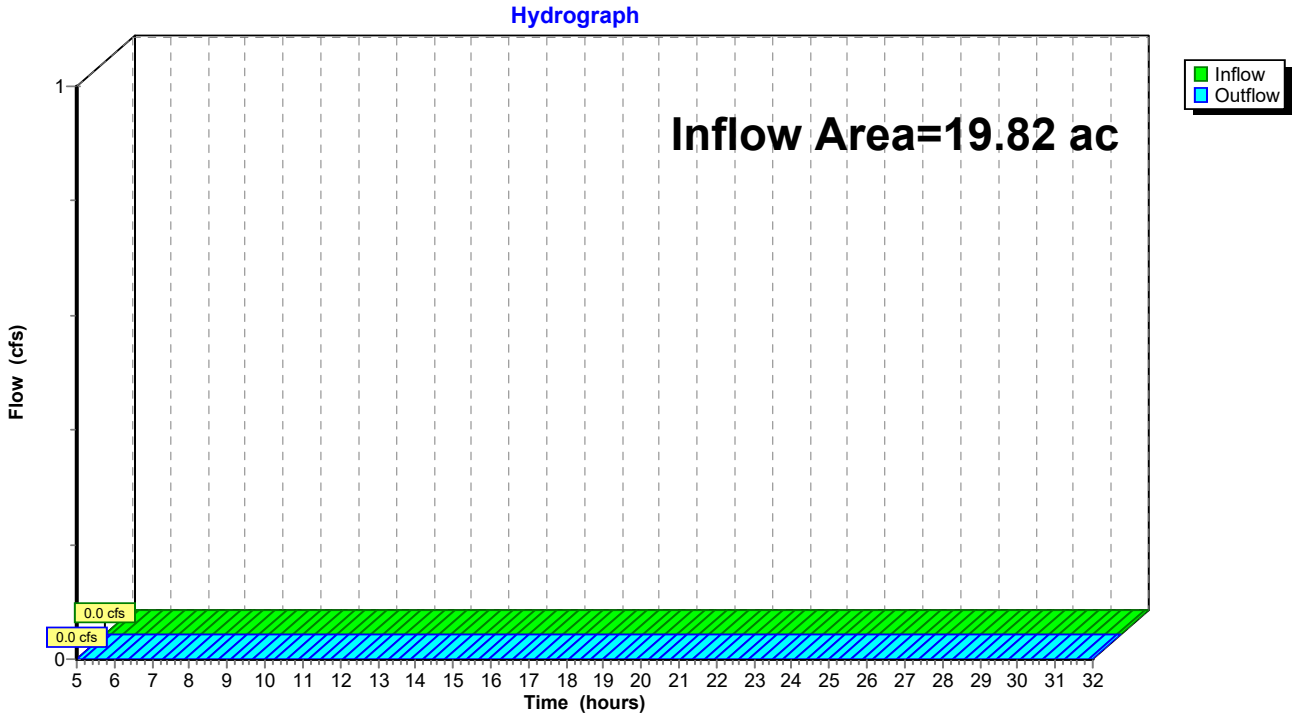
Summary for Reach DP-8: Wetland Series 'D' & 'E'

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 19.82 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Reach DP-8: Wetland Series 'D' & 'E'



Summary for Pond WL-1: Pond

Inflow Area = 10.59 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 136.00' @ 5.00 hrs Surf.Area= 219 sf Storage= 0 cf

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
#1	136.00'	127,590 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

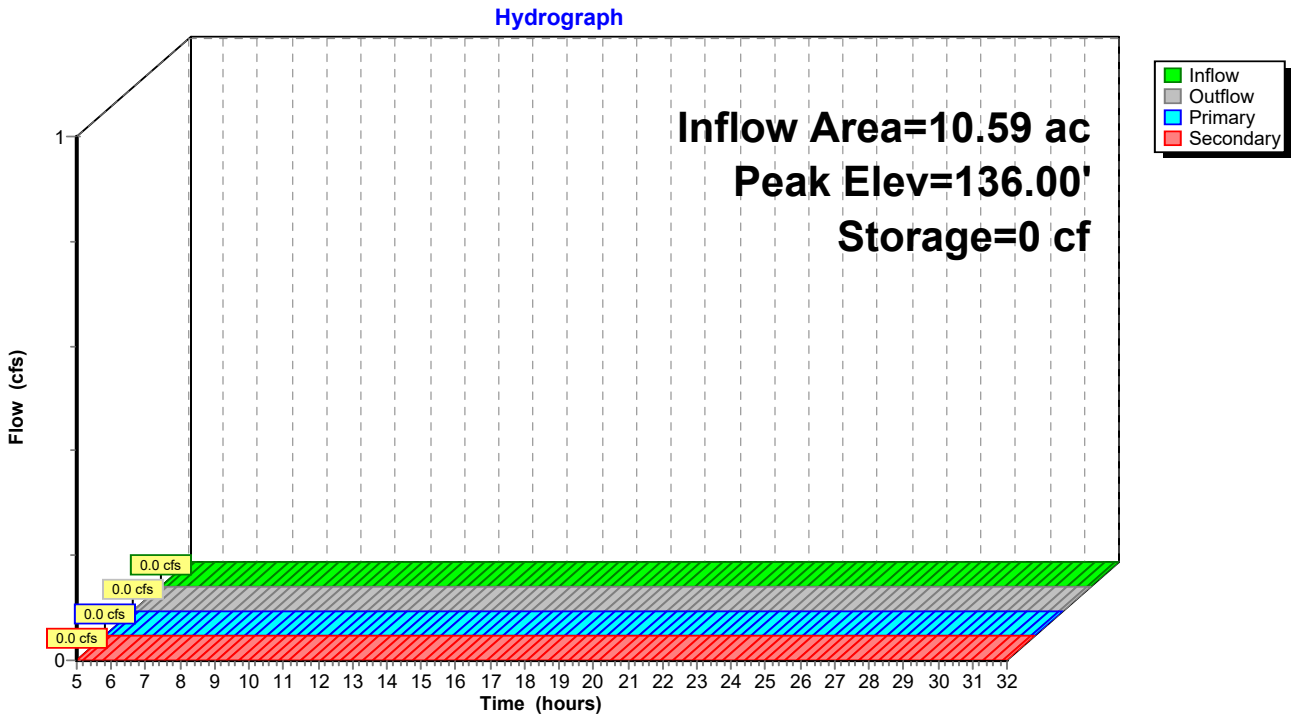
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
136.00	219	0	0
138.00	6,965	7,184	7,184
140.00	25,165	32,130	39,314
141.00	41,218	33,192	72,506
142.00	68,950	55,084	127,590

Device	Routing	Invert	Outlet Devices
#1	Primary	137.05'	**12.0" Round Culvert** L= 145.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 137.05' / 136.05' S= 0.0069 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Secondary	141.05'	**155.0' long x 35.0' 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=0.0 cfs @ 5.00 hrs HW=136.00' (Free Discharge)
└**1=Culvert** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=136.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond WL-1: Pond



Summary for Subcatchment EWA-1:

Runoff = 0.2 cfs @ 13.17 hrs, Volume= 0.089 af, Depth= 0.21"
Routed to Reach DP-1 : Northern Wetland System Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.34	61	>75% Grass cover, Good, HSG B
0.52	39	>75% Grass cover, Good, HSG A
3.50	30	Woods, Good, HSG A
0.76	55	Woods, Good, HSG B
5.12	37	Weighted Average
5.12		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0650	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
5.3	297	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.3	397	Total			

Summary for Subcatchment EWA-2A:

Runoff = 1.5 cfs @ 12.31 hrs, Volume= 0.195 af, Depth= 1.12"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.11	30	Woods, Good, HSG A
1.28	55	Woods, Good, HSG B
0.18	39	>75% Grass cover, Good, HSG A
0.52	61	>75% Grass cover, Good, HSG B
2.09	54	Weighted Average
2.09		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.6	215	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	200	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.5	515	Total			

Summary for Subcatchment EWA-2B:

Runoff = 0.2 cfs @ 12.15 hrs, Volume= 0.022 af, Depth= 0.92"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.01	30	Woods, Good, HSG A
0.03	98	Roofs, HSG A
0.03	98	Paved parking, HSG A
0.21	39	>75% Grass cover, Good, HSG A
0.28	51	Weighted Average
0.22		78.57% Pervious Area
0.06		21.43% Impervious Area

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

Summary for Subcatchment EWA-3:

Runoff = 0.0 cfs @ 23.00 hrs, Volume= 0.005 af, Depth= 0.02"
Routed to Reach DP-3 : #48 Rinzee Rd

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
2.75	30	Woods, Good, HSG A
2.75		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0880	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.5	200	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.0	300	Total			

Summary for Subcatchment EWA-4:

Runoff = 0.0 cfs @ 23.50 hrs, Volume= 0.005 af, Depth= 0.02"
Routed to Reach DP-4 : Poppy Ln

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (sf)	CN	Description
120,993	30	Woods, Good, HSG A
120,993		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	100	0.0410	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.8	200	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.8	276	0.0072	0.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	212	0.0190	0.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
35.3	788	Total			

Summary for Subcatchment EWA-5A:

Runoff = 0.0 cfs @ 23.27 hrs, Volume= 0.002 af, Depth= 0.02"
Routed to Reach DP-5 : Wetland Series 'A'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
1.13	30	Woods, Good, HSG A
1.13		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0330	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
2.3	96	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	127	0.0620	1.24		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.1	323	Total			

Summary for Subcatchment EWA-5B:

Runoff = 0.1 cfs @ 16.83 hrs, Volume= 0.073 af, Depth= 0.08"
Routed to Pond WL-1 : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
8.94	30	Woods, Good, HSG A
0.51	55	Woods, Good, HSG B
0.98	39	>75% Grass cover, Good, HSG A
0.16	61	>75% Grass cover, Good, HSG B
10.59	33	Weighted Average
10.59		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	69	0.1000	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
4.8	232	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	76	0.0520	1.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	168	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	170	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.9	715	Total			

Summary for Subcatchment EWA-6:

Runoff = 0.0 cfs @ 23.27 hrs, Volume= 0.004 af, Depth= 0.02"
Routed to Reach DP-6 : Wetland Series 'B' & 'C'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
2.27	30	Woods, Good, HSG A
2.27		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0660	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
4.8	232	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	204	0.0590	1.21		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	75	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.2	611	Total			

Summary for Subcatchment EWA-7:

Runoff = 0.0 cfs @ 23.26 hrs, Volume= 0.008 af, Depth= 0.02"
Routed to Reach DP-7 : #4 Poppy Ln

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
4.13	30	Woods, Good, HSG A
4.13		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
5.8	356	0.0420	1.02		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.2	456	Total			

Summary for Subcatchment EWA-8:

Runoff = 0.1 cfs @ 23.41 hrs, Volume= 0.037 af, Depth= 0.02"
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
19.82	30	Woods, Good, HSG A
19.82		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.1400	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
2.7	155	0.0380	0.97		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.0	312	0.0064	0.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.1	229	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
37.4	796	Total			

Summary for Reach DP-1: Northern Wetland System Culvert

Inflow Area = 5.12 ac, 0.00% Impervious, Inflow Depth = 0.21" for 10-Yr event
Inflow = 0.2 cfs @ 13.17 hrs, Volume= 0.089 af
Outflow = 0.2 cfs @ 13.17 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Wheeler St

Inflow Area = 2.37 ac, 2.53% Impervious, Inflow Depth = 1.10" for 10-Yr event
Inflow = 1.6 cfs @ 12.31 hrs, Volume= 0.216 af
Outflow = 1.6 cfs @ 12.31 hrs, Volume= 0.216 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-3: #48 Rinzee Rd

Inflow Area = 2.75 ac, 0.00% Impervious, Inflow Depth = 0.02" for 10-Yr event
Inflow = 0.0 cfs @ 23.00 hrs, Volume= 0.005 af
Outflow = 0.0 cfs @ 23.00 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-4: Poppy Ln

Inflow Area = 2.78 ac, 0.00% Impervious, Inflow Depth = 0.02" for 10-Yr event
Inflow = 0.0 cfs @ 23.50 hrs, Volume= 0.005 af
Outflow = 0.0 cfs @ 23.50 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-5: Wetland Series 'A'

Inflow Area = 11.72 ac, 0.00% Impervious, Inflow Depth > 0.03" for 10-Yr event
Inflow = 0.1 cfs @ 24.10 hrs, Volume= 0.025 af
Outflow = 0.1 cfs @ 24.10 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6: Wetland Series 'B' & 'C'

Inflow Area = 2.27 ac, 0.00% Impervious, Inflow Depth = 0.02" for 10-Yr event
Inflow = 0.0 cfs @ 23.27 hrs, Volume= 0.004 af
Outflow = 0.0 cfs @ 23.27 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7: #4 Poppy Ln

Inflow Area = 4.13 ac, 0.00% Impervious, Inflow Depth = 0.02" for 10-Yr event
Inflow = 0.0 cfs @ 23.26 hrs, Volume= 0.008 af
Outflow = 0.0 cfs @ 23.26 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-8: Wetland Series 'D' & 'E'

Inflow Area = 19.82 ac, 0.00% Impervious, Inflow Depth = 0.02" for 10-Yr event
Inflow = 0.1 cfs @ 23.41 hrs, Volume= 0.037 af
Outflow = 0.1 cfs @ 23.41 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Pond WL-1: Pond

Inflow Area = 10.59 ac, 0.00% Impervious, Inflow Depth = 0.08" for 10-Yr event
Inflow = 0.1 cfs @ 16.83 hrs, Volume= 0.073 af
Outflow = 0.1 cfs @ 24.14 hrs, Volume= 0.023 af, Atten= 25%, Lag= 438.7 min
Primary = 0.1 cfs @ 24.14 hrs, Volume= 0.023 af
Routed to Reach DP-5 : Wetland Series 'A'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 137.19' @ 24.14 hrs Surf.Area= 4,217 sf Storage= 2,628 cf

Plug-Flow detention time= 540.8 min calculated for 0.023 af (31% of inflow)
Center-of-Mass det. time= 329.4 min (1,470.4 - 1,141.0)

Volume	Invert	Avail.Storage	Storage Description
#1	136.00'	127,590 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
136.00	219	0	0
138.00	6,965	7,184	7,184
140.00	25,165	32,130	39,314
141.00	41,218	33,192	72,506
142.00	68,950	55,084	127,590

Device	Routing	Invert	Outlet Devices
#1	Primary	137.05'	**12.0" Round Culvert** L= 145.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 137.05' / 136.05' S= 0.0069 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Secondary	141.05'	**155.0' long x 35.0' 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=0.1 cfs @ 24.14 hrs HW=137.19' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.1 cfs @ 1.62 fps)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=136.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Subcatchment EWA-1:

Runoff = 1.0 cfs @ 12.44 hrs, Volume= 0.262 af, Depth= 0.61"
Routed to Reach DP-1 : Northern Wetland System Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.34	61	>75% Grass cover, Good, HSG B
0.52	39	>75% Grass cover, Good, HSG A
3.50	30	Woods, Good, HSG A
0.76	55	Woods, Good, HSG B
5.12	37	Weighted Average
5.12		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0650	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
5.3	297	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.3	397	Total			

Summary for Subcatchment EWA-2A:

Runoff = 3.0 cfs @ 12.30 hrs, Volume= 0.349 af, Depth= 2.01"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.11	30	Woods, Good, HSG A
1.28	55	Woods, Good, HSG B
0.18	39	>75% Grass cover, Good, HSG A
0.52	61	>75% Grass cover, Good, HSG B
2.09	54	Weighted Average
2.09		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.6	215	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	200	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.5	515	Total			

Summary for Subcatchment EWA-2B:

Runoff = 0.5 cfs @ 12.14 hrs, Volume= 0.040 af, Depth= 1.73"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.01	30	Woods, Good, HSG A
0.03	98	Roofs, HSG A
0.03	98	Paved parking, HSG A
0.21	39	>75% Grass cover, Good, HSG A
0.28	51	Weighted Average
0.22		78.57% Pervious Area
0.06		21.43% Impervious Area

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

Summary for Subcatchment EWA-3:

Runoff = 0.1 cfs @ 13.46 hrs, Volume= 0.047 af, Depth= 0.21"
Routed to Reach DP-3 : #48 Rinzee Rd

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
2.75	30	Woods, Good, HSG A
2.75		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0880	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.5	200	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.0	300	Total			

Summary for Subcatchment EWA-4:

Runoff = 0.1 cfs @ 14.48 hrs, Volume= 0.048 af, Depth= 0.21"
Routed to Reach DP-4 : Poppy Ln

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (sf)	CN	Description
120,993	30	Woods, Good, HSG A
120,993		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	100	0.0410	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.8	200	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.8	276	0.0072	0.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	212	0.0190	0.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
35.3	788	Total			

Summary for Subcatchment EWA-5A:

Runoff = 0.0 cfs @ 13.56 hrs, Volume= 0.019 af, Depth= 0.21"
Routed to Reach DP-5 : Wetland Series 'A'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
1.13	30	Woods, Good, HSG A
1.13		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0330	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
2.3	96	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	127	0.0620	1.24		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.1	323	Total			

Summary for Subcatchment EWA-5B:

Runoff = 0.7 cfs @ 13.00 hrs, Volume= 0.320 af, Depth= 0.36"
Routed to Pond WL-1 : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
8.94	30	Woods, Good, HSG A
0.51	55	Woods, Good, HSG B
0.98	39	>75% Grass cover, Good, HSG A
0.16	61	>75% Grass cover, Good, HSG B
10.59	33	Weighted Average
10.59		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	69	0.1000	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
4.8	232	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	76	0.0520	1.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	168	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	170	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.9	715	Total			

Summary for Subcatchment EWA-6:

Runoff = 0.1 cfs @ 13.56 hrs, Volume= 0.039 af, Depth= 0.21"
Routed to Reach DP-6 : Wetland Series 'B' & 'C'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
2.27	30	Woods, Good, HSG A
2.27		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0660	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
4.8	232	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	204	0.0590	1.21		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	75	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.2	611	Total			

Summary for Subcatchment EWA-7:

Runoff = 0.1 cfs @ 13.53 hrs, Volume= 0.071 af, Depth= 0.21"
Routed to Reach DP-7 : #4 Poppy Ln

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
4.13	30	Woods, Good, HSG A
4.13		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
5.8	356	0.0420	1.02		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.2	456	Total			

Summary for Subcatchment EWA-8:

Runoff = 0.5 cfs @ 14.51 hrs, Volume= 0.339 af, Depth= 0.21"
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
19.82	30	Woods, Good, HSG A
19.82		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.1400	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
2.7	155	0.0380	0.97		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.0	312	0.0064	0.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.1	229	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
37.4	796	Total			

Summary for Reach DP-1: Northern Wetland System Culvert

Inflow Area = 5.12 ac, 0.00% Impervious, Inflow Depth = 0.61" for 25-Yr event
Inflow = 1.0 cfs @ 12.44 hrs, Volume= 0.262 af
Outflow = 1.0 cfs @ 12.44 hrs, Volume= 0.262 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Wheeler St

Inflow Area = 2.37 ac, 2.53% Impervious, Inflow Depth = 1.97" for 25-Yr event
Inflow = 3.3 cfs @ 12.29 hrs, Volume= 0.390 af
Outflow = 3.3 cfs @ 12.29 hrs, Volume= 0.390 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-3: #48 Rinzee Rd

Inflow Area = 2.75 ac, 0.00% Impervious, Inflow Depth = 0.21" for 25-Yr event
Inflow = 0.1 cfs @ 13.46 hrs, Volume= 0.047 af
Outflow = 0.1 cfs @ 13.46 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-4: Poppy Ln

Inflow Area = 2.78 ac, 0.00% Impervious, Inflow Depth = 0.21" for 25-Yr event
Inflow = 0.1 cfs @ 14.48 hrs, Volume= 0.048 af
Outflow = 0.1 cfs @ 14.48 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-5: Wetland Series 'A'

Inflow Area = 11.72 ac, 0.00% Impervious, Inflow Depth > 0.30" for 25-Yr event
Inflow = 0.4 cfs @ 14.99 hrs, Volume= 0.288 af
Outflow = 0.4 cfs @ 14.99 hrs, Volume= 0.288 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6: Wetland Series 'B' & 'C'

Inflow Area = 2.27 ac, 0.00% Impervious, Inflow Depth = 0.21" for 25-Yr event
Inflow = 0.1 cfs @ 13.56 hrs, Volume= 0.039 af
Outflow = 0.1 cfs @ 13.56 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7: #4 Poppy Ln

Inflow Area = 4.13 ac, 0.00% Impervious, Inflow Depth = 0.21" for 25-Yr event
Inflow = 0.1 cfs @ 13.53 hrs, Volume= 0.071 af
Outflow = 0.1 cfs @ 13.53 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-8: Wetland Series 'D' & 'E'

Inflow Area = 19.82 ac, 0.00% Impervious, Inflow Depth = 0.21" for 25-Yr event
Inflow = 0.5 cfs @ 14.51 hrs, Volume= 0.339 af
Outflow = 0.5 cfs @ 14.51 hrs, Volume= 0.339 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Pond WL-1: Pond

Inflow Area = 10.59 ac, 0.00% Impervious, Inflow Depth = 0.36" for 25-Yr event
Inflow = 0.7 cfs @ 13.00 hrs, Volume= 0.320 af
Outflow = 0.4 cfs @ 15.01 hrs, Volume= 0.269 af, Atten= 42%, Lag= 120.7 min
Primary = 0.4 cfs @ 15.01 hrs, Volume= 0.269 af
Routed to Reach DP-5 : Wetland Series 'A'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 137.39' @ 15.01 hrs Surf.Area= 4,899 sf Storage= 3,551 cf

Plug-Flow detention time= 176.0 min calculated for 0.269 af (84% of inflow)
Center-of-Mass det. time= 112.0 min (1,137.3 - 1,025.3)

Volume	Invert	Avail.Storage	Storage Description
#1	136.00'	127,590 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
136.00	219	0	0
138.00	6,965	7,184	7,184
140.00	25,165	32,130	39,314
141.00	41,218	33,192	72,506
142.00	68,950	55,084	127,590

Device	Routing	Invert	Outlet Devices
#1	Primary	137.05'	**12.0" Round Culvert** L= 145.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 137.05' / 136.05' S= 0.0069 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Secondary	141.05'	**155.0' long x 35.0' 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=0.4 cfs @ 15.01 hrs HW=137.39' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.4 cfs @ 1.75 fps)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=136.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Subcatchment EWA-1:

Runoff = 2.4 cfs @ 12.36 hrs, Volume= 0.431 af, Depth= 1.01"
Routed to Reach DP-1 : Northern Wetland System Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.34	61	>75% Grass cover, Good, HSG B
0.52	39	>75% Grass cover, Good, HSG A
3.50	30	Woods, Good, HSG A
0.76	55	Woods, Good, HSG B
5.12	37	Weighted Average
5.12		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0650	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
5.3	297	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.3	397	Total			

Summary for Subcatchment EWA-2A:

Runoff = 4.3 cfs @ 12.29 hrs, Volume= 0.477 af, Depth= 2.74"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.11	30	Woods, Good, HSG A
1.28	55	Woods, Good, HSG B
0.18	39	>75% Grass cover, Good, HSG A
0.52	61	>75% Grass cover, Good, HSG B
2.09	54	Weighted Average
2.09		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.6	215	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	200	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.5	515	Total			

Summary for Subcatchment EWA-2B:

Runoff = 0.7 cfs @ 12.14 hrs, Volume= 0.056 af, Depth= 2.41"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.01	30	Woods, Good, HSG A
0.03	98	Roofs, HSG A
0.03	98	Paved parking, HSG A
0.21	39	>75% Grass cover, Good, HSG A
0.28	51	Weighted Average
0.22		78.57% Pervious Area
0.06		21.43% Impervious Area

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

Summary for Subcatchment EWA-3:

Runoff = 0.2 cfs @ 12.67 hrs, Volume= 0.100 af, Depth= 0.44"
Routed to Reach DP-3 : #48 Rinzee Rd

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
2.75	30	Woods, Good, HSG A
2.75		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0880	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.5	200	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.0	300	Total			

Summary for Subcatchment EWA-4:

Runoff = 0.2 cfs @ 13.22 hrs, Volume= 0.101 af, Depth= 0.44"
Routed to Reach DP-4 : Poppy Ln

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (sf)	CN	Description
120,993	30	Woods, Good, HSG A
120,993		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	100	0.0410	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.8	200	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.8	276	0.0072	0.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	212	0.0190	0.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
35.3	788	Total			

Summary for Subcatchment EWA-5A:

Runoff = 0.1 cfs @ 12.94 hrs, Volume= 0.041 af, Depth= 0.44"
Routed to Reach DP-5 : Wetland Series 'A'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
1.13	30	Woods, Good, HSG A
1.13		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0330	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
2.3	96	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	127	0.0620	1.24		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.1	323	Total			

Summary for Subcatchment EWA-5B:

Runoff = 2.0 cfs @ 12.54 hrs, Volume= 0.589 af, Depth= 0.67"
Routed to Pond WL-1 : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
8.94	30	Woods, Good, HSG A
0.51	55	Woods, Good, HSG B
0.98	39	>75% Grass cover, Good, HSG A
0.16	61	>75% Grass cover, Good, HSG B
10.59	33	Weighted Average
10.59		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	69	0.1000	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
4.8	232	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	76	0.0520	1.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	168	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	170	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.9	715	Total			

Summary for Subcatchment EWA-6:

Runoff = 0.2 cfs @ 12.95 hrs, Volume= 0.083 af, Depth= 0.44"
Routed to Reach DP-6 : Wetland Series 'B' & 'C'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
2.27	30	Woods, Good, HSG A
2.27		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0660	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
4.8	232	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	204	0.0590	1.21		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	75	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.2	611	Total			

Summary for Subcatchment EWA-7:

Runoff = 0.3 cfs @ 12.90 hrs, Volume= 0.151 af, Depth= 0.44"
Routed to Reach DP-7 : #4 Poppy Ln

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
4.13	30	Woods, Good, HSG A
4.13		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
5.8	356	0.0420	1.02		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.2	456	Total			

Summary for Subcatchment EWA-8:

Runoff = 1.5 cfs @ 13.26 hrs, Volume= 0.723 af, Depth= 0.44"
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
19.82	30	Woods, Good, HSG A
19.82		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.1400	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
2.7	155	0.0380	0.97		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.0	312	0.0064	0.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.1	229	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
37.4	796	Total			

Summary for Reach DP-1: Northern Wetland System Culvert

Inflow Area = 5.12 ac, 0.00% Impervious, Inflow Depth = 1.01" for 50-Yr event
Inflow = 2.4 cfs @ 12.36 hrs, Volume= 0.431 af
Outflow = 2.4 cfs @ 12.36 hrs, Volume= 0.431 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Wheeler St

Inflow Area = 2.37 ac, 2.53% Impervious, Inflow Depth = 2.70" for 50-Yr event
Inflow = 4.6 cfs @ 12.28 hrs, Volume= 0.533 af
Outflow = 4.6 cfs @ 12.28 hrs, Volume= 0.533 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-3: #48 Rinzee Rd

Inflow Area = 2.75 ac, 0.00% Impervious, Inflow Depth = 0.44" for 50-Yr event
Inflow = 0.2 cfs @ 12.67 hrs, Volume= 0.100 af
Outflow = 0.2 cfs @ 12.67 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-4: Poppy Ln

Inflow Area = 2.78 ac, 0.00% Impervious, Inflow Depth = 0.44" for 50-Yr event
Inflow = 0.2 cfs @ 13.22 hrs, Volume= 0.101 af
Outflow = 0.2 cfs @ 13.22 hrs, Volume= 0.101 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-5: Wetland Series 'A'

Inflow Area = 11.72 ac, 0.00% Impervious, Inflow Depth > 0.59" for 50-Yr event
Inflow = 1.2 cfs @ 13.55 hrs, Volume= 0.579 af
Outflow = 1.2 cfs @ 13.55 hrs, Volume= 0.579 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6: Wetland Series 'B' & 'C'

Inflow Area = 2.27 ac, 0.00% Impervious, Inflow Depth = 0.44" for 50-Yr event
Inflow = 0.2 cfs @ 12.95 hrs, Volume= 0.083 af
Outflow = 0.2 cfs @ 12.95 hrs, Volume= 0.083 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7: #4 Poppy Ln

Inflow Area = 4.13 ac, 0.00% Impervious, Inflow Depth = 0.44" for 50-Yr event
Inflow = 0.3 cfs @ 12.90 hrs, Volume= 0.151 af
Outflow = 0.3 cfs @ 12.90 hrs, Volume= 0.151 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-8: Wetland Series 'D' & 'E'

Inflow Area = 19.82 ac, 0.00% Impervious, Inflow Depth = 0.44" for 50-Yr event
Inflow = 1.5 cfs @ 13.26 hrs, Volume= 0.723 af
Outflow = 1.5 cfs @ 13.26 hrs, Volume= 0.723 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Pond WL-1: Pond

Inflow Area = 10.59 ac, 0.00% Impervious, Inflow Depth = 0.67" for 50-Yr event
Inflow = 2.0 cfs @ 12.54 hrs, Volume= 0.589 af
Outflow = 1.1 cfs @ 13.58 hrs, Volume= 0.538 af, Atten= 44%, Lag= 62.4 min
Primary = 1.1 cfs @ 13.58 hrs, Volume= 0.538 af
Routed to Reach DP-5 : Wetland Series 'A'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 137.64' @ 13.58 hrs Surf.Area= 5,738 sf Storage= 4,874 cf

Plug-Flow detention time= 112.1 min calculated for 0.537 af (91% of inflow)
Center-of-Mass det. time= 74.0 min (1,060.1 - 986.1)

Volume	Invert	Avail.Storage	Storage Description
#1	136.00'	127,590 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
136.00	219	0	0
138.00	6,965	7,184	7,184
140.00	25,165	32,130	39,314
141.00	41,218	33,192	72,506
142.00	68,950	55,084	127,590

Device	Routing	Invert	Outlet Devices
#1	Primary	137.05'	**12.0" Round Culvert** L= 145.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 137.05' / 136.05' S= 0.0069 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Secondary	141.05'	**155.0' long x 35.0' 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=1.1 cfs @ 13.58 hrs HW=137.64' (Free Discharge)
└**1=Culvert** (Inlet Controls 1.1 cfs @ 2.30 fps)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=136.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Subcatchment EWA-1:

Runoff = 4.9 cfs @ 12.32 hrs, Volume= 0.693 af, Depth= 1.62"
Routed to Reach DP-1 : Northern Wetland System Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.34	61	>75% Grass cover, Good, HSG B
0.52	39	>75% Grass cover, Good, HSG A
3.50	30	Woods, Good, HSG A
0.76	55	Woods, Good, HSG B
5.12	37	Weighted Average
5.12		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0650	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
5.3	297	0.0350	0.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.3	397	Total			

Summary for Subcatchment EWA-2A:

Runoff = 6.0 cfs @ 12.29 hrs, Volume= 0.654 af, Depth= 3.75"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.11	30	Woods, Good, HSG A
1.28	55	Woods, Good, HSG B
0.18	39	>75% Grass cover, Good, HSG A
0.52	61	>75% Grass cover, Good, HSG B
2.09	54	Weighted Average
2.09		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.6	215	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.5	200	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.5	515	Total			

Summary for Subcatchment EWA-2B:

Runoff = 1.1 cfs @ 12.14 hrs, Volume= 0.079 af, Depth= 3.37"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.01	30	Woods, Good, HSG A
0.03	98	Roofs, HSG A
0.03	98	Paved parking, HSG A
0.21	39	>75% Grass cover, Good, HSG A
0.28	51	Weighted Average
0.22		78.57% Pervious Area
0.06		21.43% Impervious Area

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

Summary for Subcatchment EWA-3:

Runoff = 0.8 cfs @ 12.37 hrs, Volume= 0.193 af, Depth= 0.84"
Routed to Reach DP-3 : #48 Rinzee Rd

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
2.75	30	Woods, Good, HSG A
2.75		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0880	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.5	200	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.0	300	Total			

Summary for Subcatchment EWA-4:

Runoff = 0.6 cfs @ 12.78 hrs, Volume= 0.195 af, Depth= 0.84"
Routed to Reach DP-4 : Poppy Ln

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (sf)	CN	Description
120,993	30	Woods, Good, HSG A
120,993		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	100	0.0410	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.8	200	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.8	276	0.0072	0.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	212	0.0190	0.69		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
35.3	788	Total			

Summary for Subcatchment EWA-5A:

Runoff = 0.3 cfs @ 12.50 hrs, Volume= 0.079 af, Depth= 0.84"
Routed to Reach DP-5 : Wetland Series 'A'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
1.13	30	Woods, Good, HSG A
1.13		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	100	0.0330	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
2.3	96	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	127	0.0620	1.24		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.1	323	Total			

Summary for Subcatchment EWA-5B:

Runoff = 5.2 cfs @ 12.41 hrs, Volume= 1.028 af, Depth= 1.16"
Routed to Pond WL-1 : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
8.94	30	Woods, Good, HSG A
0.51	55	Woods, Good, HSG B
0.98	39	>75% Grass cover, Good, HSG A
0.16	61	>75% Grass cover, Good, HSG B
10.59	33	Weighted Average
10.59		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	69	0.1000	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
4.8	232	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	76	0.0520	1.14		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	168	0.0120	0.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.8	170	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.9	715	Total			

Summary for Subcatchment EWA-6:

Runoff = 0.6 cfs @ 12.50 hrs, Volume= 0.159 af, Depth= 0.84"
Routed to Reach DP-6 : Wetland Series 'B' & 'C'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
2.27	30	Woods, Good, HSG A
2.27		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	100	0.0660	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
4.8	232	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.8	204	0.0590	1.21		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	75	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.2	611	Total			

Summary for Subcatchment EWA-7:

Runoff = 1.1 cfs @ 12.46 hrs, Volume= 0.290 af, Depth= 0.84"
Routed to Reach DP-7 : #4 Poppy Ln

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
4.13	30	Woods, Good, HSG A
4.13		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
5.8	356	0.0420	1.02		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
19.2	456	Total			

Summary for Subcatchment EWA-8:

Runoff = 4.2 cfs @ 12.81 hrs, Volume= 1.391 af, Depth= 0.84"
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
19.82	30	Woods, Good, HSG A
19.82		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.1400	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
2.7	155	0.0380	0.97		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.0	312	0.0064	0.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.1	229	0.0040	0.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
37.4	796	Total			

Summary for Reach DP-1: Northern Wetland System Culvert

Inflow Area = 5.12 ac, 0.00% Impervious, Inflow Depth = 1.62" for 100-Yr event
Inflow = 4.9 cfs @ 12.32 hrs, Volume= 0.693 af
Outflow = 4.9 cfs @ 12.32 hrs, Volume= 0.693 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Wheeler St

Inflow Area = 2.37 ac, 2.53% Impervious, Inflow Depth = 3.71" for 100-Yr event
Inflow = 6.5 cfs @ 12.27 hrs, Volume= 0.733 af
Outflow = 6.5 cfs @ 12.27 hrs, Volume= 0.733 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-3: #48 Rinzee Rd

Inflow Area = 2.75 ac, 0.00% Impervious, Inflow Depth = 0.84" for 100-Yr event
Inflow = 0.8 cfs @ 12.37 hrs, Volume= 0.193 af
Outflow = 0.8 cfs @ 12.37 hrs, Volume= 0.193 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-4: Poppy Ln

Inflow Area = 2.78 ac, 0.00% Impervious, Inflow Depth = 0.84" for 100-Yr event
Inflow = 0.6 cfs @ 12.78 hrs, Volume= 0.195 af
Outflow = 0.6 cfs @ 12.78 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-5: Wetland Series 'A'

Inflow Area = 11.72 ac, 0.00% Impervious, Inflow Depth > 1.08" for 100-Yr event
Inflow = 2.7 cfs @ 13.11 hrs, Volume= 1.056 af
Outflow = 2.7 cfs @ 13.11 hrs, Volume= 1.056 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6: Wetland Series 'B' & 'C'

Inflow Area = 2.27 ac, 0.00% Impervious, Inflow Depth = 0.84" for 100-Yr event
Inflow = 0.6 cfs @ 12.50 hrs, Volume= 0.159 af
Outflow = 0.6 cfs @ 12.50 hrs, Volume= 0.159 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7: #4 Poppy Ln

Inflow Area = 4.13 ac, 0.00% Impervious, Inflow Depth = 0.84" for 100-Yr event
Inflow = 1.1 cfs @ 12.46 hrs, Volume= 0.290 af
Outflow = 1.1 cfs @ 12.46 hrs, Volume= 0.290 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-8: Wetland Series 'D' & 'E'

Inflow Area = 19.82 ac, 0.00% Impervious, Inflow Depth = 0.84" for 100-Yr event
Inflow = 4.2 cfs @ 12.81 hrs, Volume= 1.391 af
Outflow = 4.2 cfs @ 12.81 hrs, Volume= 1.391 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Pond WL-1: Pond

Inflow Area = 10.59 ac, 0.00% Impervious, Inflow Depth = 1.16" for 100-Yr event
Inflow = 5.2 cfs @ 12.41 hrs, Volume= 1.028 af
Outflow = 2.5 cfs @ 13.17 hrs, Volume= 0.977 af, Atten= 53%, Lag= 45.9 min
Primary = 2.5 cfs @ 13.17 hrs, Volume= 0.977 af
Routed to Reach DP-5 : Wetland Series 'A'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 138.10' @ 13.17 hrs Surf.Area= 7,868 sf Storage= 7,920 cf

Plug-Flow detention time= 79.1 min calculated for 0.977 af (95% of inflow)
Center-of-Mass det. time= 55.0 min (1,010.7 - 955.7)

Volume	Invert	Avail.Storage	Storage Description
#1	136.00'	127,590 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
136.00	219	0	0
138.00	6,965	7,184	7,184
140.00	25,165	32,130	39,314
141.00	41,218	33,192	72,506
142.00	68,950	55,084	127,590

Device	Routing	Invert	Outlet Devices
#1	Primary	137.05'	**12.0" Round Culvert** L= 145.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 137.05' / 136.05' S= 0.0069 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Secondary	141.05'	**155.0' long x 35.0' 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=2.5 cfs @ 13.17 hrs HW=138.10' (Free Discharge)
└**1=Culvert** (Inlet Controls 2.5 cfs @ 3.15 fps)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=136.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

TAB 4

Subcat Reach Pond Link

Routing Diagram for 23-10524 - Post For Printing
Prepared by Civil Design Consultants, Inc, Printed 4/22/2024
HydroCAD® 10.20-4b s/n 06435 © 2023 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Yr	NOAA 24-hr	D	Default	24.00	1	3.40	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
18.40	39	>75% Grass cover, Good, HSG A (PWA-1A, PWA-1B, PWA-1C, PWA-2B, PWA-5A, PWA-5B, PWA-5C, PWA-5D, PWA-5E, PWA-5F, PWA-5G, PWA-5H, PWA-6A, PWA-6B, PWA-6C, PWA-8A, PWA-8B, PWA-8C, PWA-8D, PWA-8E, PWA-8F, PWA-8G)
1.53	61	>75% Grass cover, Good, HSG B (PWA-1A, PWA-1B, PWA-1C, PWA-2A, PWA-5E, PWA-5F)
0.23	98	Paved parking, HSG A (PWA-2B, PWA-5G)
0.71	98	Paved parking, HSG B (PWA-1A, PWA-2A)
0.74	98	Paved roads w/curbs & sewers, HSG A (PWA-5B)
8.80	98	Porous Pavement, HSG A (PWA-5C, PWA-5D, PWA-5F, PWA-6C, PWA-8G)
5.10	98	Roofs, HSG A (PWA-1A, PWA-1B, PWA-5B, PWA-5C, PWA-5D, PWA-5F, PWA-6C, PWA-8G)
0.06	98	Unconnected pavement, HSG A (PWA-2B)
12.14	30	Woods, Good, HSG A (PWA-1A, PWA-1B, PWA-1C, PWA-5A, PWA-5D, PWA-5E, PWA-5F, PWA-5H, PWA-6A, PWA-7, PWA-8A, PWA-8B, PWA-8C, PWA-8E, PWA-8F, PWA-8G)
1.20	55	Woods, Good, HSG B (PWA-1A, PWA-1C, PWA-2A, PWA-5E, PWA-5F)
48.91	**57**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
45.47	HSG A	PWA-1A, PWA-1B, PWA-1C, PWA-2B, PWA-5A, PWA-5B, PWA-5C, PWA-5D, PWA-5E, PWA-5F, PWA-5G, PWA-5H, PWA-6A, PWA-6B, PWA-6C, PWA-7, PWA-8A, PWA-8B, PWA-8C, PWA-8D, PWA-8E, PWA-8F, PWA-8G
3.44	HSG B	PWA-1A, PWA-1B, PWA-1C, PWA-2A, PWA-5E, PWA-5F
0.00	HSG C	
0.00	HSG D	
0.00	Other	
48.91		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
18.40	1.53	0.00	0.00	0.00	19.93	>75% Grass cover, Good	PWA-1A, PWA-1B, PWA-1C, PWA-2A, PWA-2B, PWA-5A, PWA-5B, PWA-5C, PWA-5D, PWA-5E, PWA-5F, PWA-5G, PWA-5H, PWA-6A, PWA-6B, PWA-6C, PWA-8A, PWA-8B, PWA-8C, PWA-8D, PWA-8E, PWA-8F, PWA-8G
0.23	0.71	0.00	0.00	0.00	0.94	Paved parking	PWA-1A, PWA-2A, PWA-2B, PWA-5G
0.74	0.00	0.00	0.00	0.00	0.74	Paved roads w/curbs & sewers	PWA-5B
8.80	0.00	0.00	0.00	0.00	8.80	Porous Pavement	PWA-5C, PWA-5D, PWA-5F, PWA-6C, PWA-8G
5.10	0.00	0.00	0.00	0.00	5.10	Roofs	PWA-1A, PWA-1B, PWA-5B, PWA-5C, PWA-5D, PWA-5F, PWA-6C, PWA-8G

Ground Covers (selected nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.06	0.00	0.00	0.00	0.00	0.06	Unconnected pavement	PWA-2B
12.14	1.20	0.00	0.00	0.00	13.34	Woods, Good	PWA-1A, PWA-1B, PWA-1C, PWA-2A, PWA-5A, PWA-5D, PWA-5E, PWA-5F, PWA-5H, PWA-6A, PWA-7, PWA-8A, PWA-8B, PWA-8C, PWA-8E, PWA-8F, PWA-8G
45.47	**3.44**	**0.00**	**0.00**	**0.00**	**48.91**	**TOTAL AREA**	

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	DB-1	130.50	130.37	26.0	0.0050	0.013	0.0	8.0	0.0	
2	IB-1	137.00	136.84	31.0	0.0052	0.013	0.0	8.0	0.0	
3	IB-3	120.00	119.50	100.0	0.0050	0.013	0.0	12.0	0.0	
4	WL-1	137.05	136.05	145.0	0.0069	0.012	0.0	12.0	0.0	

Time span=5.00-32.00 hrs, dt=0.05 hrs, 541 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPWA-1A: Runoff Area=1.38 ac 57.97% Impervious Runoff Depth=1.56"
Tc=6.0 min CN=80 Runoff=2.4 cfs 0.179 af

SubcatchmentPWA-1B: Runoff Area=35,542 sf 21.54% Impervious Runoff Depth=0.49"
Tc=15.0 min CN=60 Runoff=0.2 cfs 0.033 af

SubcatchmentPWA-1C: Runoff Area=3.61 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=177' Tc=20.0 min CN=37 Runoff=0.0 cfs 0.000 af

SubcatchmentPWA-2A: Runoff Area=0.55 ac 16.36% Impervious Runoff Depth=0.66"
Flow Length=350' Tc=17.7 min CN=64 Runoff=0.2 cfs 0.030 af

SubcatchmentPWA-2B: Runoff Area=0.38 ac 26.32% Impervious Runoff Depth=0.17"
Tc=6.0 min UI Adjusted CN=50 Runoff=0.0 cfs 0.005 af

SubcatchmentPWA-5A: Runoff Area=0.43 ac 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=32 Runoff=0.0 cfs 0.000 af

SubcatchmentPWA-5B: Runoff Area=2.42 ac 39.26% Impervious Runoff Depth=0.57"
Flow Length=705' Tc=8.7 min CN=62 Runoff=1.1 cfs 0.115 af

SubcatchmentPWA-5C: Runoff Area=1.70 ac 64.71% Impervious Runoff Depth=1.36"
Tc=6.0 min CN=77 Runoff=2.6 cfs 0.192 af

SubcatchmentPWA-5D: Runoff Area=1.83 ac 32.24% Impervious Runoff Depth=0.28"
Flow Length=394' Tc=14.5 min CN=54 Runoff=0.2 cfs 0.043 af

SubcatchmentPWA-5E: Runoff Area=1.55 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=230' Tc=9.6 min CN=36 Runoff=0.0 cfs 0.000 af

SubcatchmentPWA-5F: Runoff Area=7.87 ac 54.76% Impervious Runoff Depth=1.11"
Tc=6.0 min CN=73 Runoff=9.7 cfs 0.730 af

SubcatchmentPWA-5G: Runoff Area=0.46 ac 41.30% Impervious Runoff Depth=0.61"
Tc=6.0 min CN=63 Runoff=0.3 cfs 0.023 af

SubcatchmentPWA-5H: Runoff Area=1.46 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=1,000' Tc=25.9 min CN=38 Runoff=0.0 cfs 0.000 af

SubcatchmentPWA-6A: Runoff Area=1.19 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=100' Slope=0.0800 '/' Tc=12.0 min CN=32 Runoff=0.0 cfs 0.000 af

SubcatchmentPWA-6B: Runoff Area=0.39 ac 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=39 Runoff=0.0 cfs 0.000 af

SubcatchmentPWA-6C: Runoff Area=3.56 ac 55.90% Impervious Runoff Depth=1.06"
Tc=6.0 min CN=72 Runoff=4.1 cfs 0.313 af

SubcatchmentPWA-7: Runoff Area=0.18 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=80' Slope=0.1000 '/' Tc=9.2 min CN=30 Runoff=0.0 cfs 0.000 af

SubcatchmentPWA-8A: Runoff Area=3.11 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=430' Tc=26.6 min CN=34 Runoff=0.0 cfs 0.000 af

SubcatchmentPWA-8B: Runoff Area=2.70 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=370' Slope=0.0600 '/' Tc=17.1 min CN=31 Runoff=0.0 cfs 0.000 af

SubcatchmentPWA-8C: Runoff Area=0.75 ac 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=36 Runoff=0.0 cfs 0.000 af

SubcatchmentPWA-8D: Runoff Area=0.68 ac 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=39 Runoff=0.0 cfs 0.000 af

SubcatchmentPWA-8E: Runoff Area=54,586 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=430' Tc=18.2 min CN=35 Runoff=0.0 cfs 0.000 af

SubcatchmentPWA-8F: Runoff Area=0.86 ac 0.00% Impervious Runoff Depth=0.00"
Flow Length=350' Tc=12.9 min CN=34 Runoff=0.0 cfs 0.000 af

SubcatchmentPWA-8G: Runoff Area=9.78 ac 54.60% Impervious Runoff Depth=0.95"
Tc=6.0 min CN=70 Runoff=10.0 cfs 0.772 af

Reach CR-1: Culvert Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.0 cfs 0.000 af
n=0.030 L=65.0' S=0.0154 '/' Capacity=958.5 cfs Outflow=0.0 cfs 0.000 af

Reach DP-1: Northern Wetlands Culvert Inflow=0.0 cfs 0.034 af
Outflow=0.0 cfs 0.034 af

Reach DP-2: Wheeler St Inflow=0.2 cfs 0.035 af
Outflow=0.2 cfs 0.035 af

Reach DP-3: #48 Rinzee Rd

Reach DP-4: Poppy Ln

Reach DP-5: Wetland Series 'A' Inflow=0.0 cfs 0.023 af
Outflow=0.0 cfs 0.023 af

Reach DP-6: Wetland Series 'B' & 'C' Inflow=0.0 cfs 0.000 af
Outflow=0.0 cfs 0.000 af

Reach DP-7: #4 Poppy Ln Inflow=0.0 cfs 0.000 af
Outflow=0.0 cfs 0.000 af

Reach DP-8: Wetland Series 'D' & 'E' Inflow=0.0 cfs 0.000 af
Outflow=0.0 cfs 0.000 af

Pond DB-1: Peak Elev=132.11' Storage=429 cf Inflow=0.3 cfs 0.024 af
Primary=0.0 cfs 0.023 af Secondary=0.0 cfs 0.000 af Outflow=0.0 cfs 0.023 af

Pond IB-1: Peak Elev=137.16' Storage=811 cf Inflow=1.1 cfs 0.115 af
Discarded=0.3 cfs 0.115 af Primary=0.0 cfs 0.000 af Secondary=0.0 cfs 0.000 af Outflow=0.3 cfs 0.115 af

Pond IB-2: Peak Elev=139.00' Storage=0 cf Inflow=0.0 cfs 0.000 af
Discarded=0.0 cfs 0.000 af Primary=0.0 cfs 0.000 af Outflow=0.0 cfs 0.000 af

Pond IB-3: Peak Elev=123.08' Storage=5,579 cf Inflow=2.5 cfs 0.212 af
Discarded=0.1 cfs 0.114 af Primary=0.0 cfs 0.034 af Secondary=0.0 cfs 0.000 af Outflow=0.1 cfs 0.149 af

Pond IT-1: Peak Elev=138.00' Storage=0 cf Inflow=0.0 cfs 0.000 af
Outflow=0.0 cfs 0.000 af

Pond IT-2: Peak Elev=141.00' Storage=0 cf Inflow=0.0 cfs 0.000 af
Discarded=0.0 cfs 0.000 af Primary=0.0 cfs 0.000 af Outflow=0.0 cfs 0.000 af

Pond P-5C: Peak Elev=8.33' Storage=40 cf Inflow=2.6 cfs 0.192 af
Outflow=2.6 cfs 0.192 af

Pond P-5D: Peak Elev=8.33' Storage=8 cf Inflow=0.2 cfs 0.043 af
Outflow=0.2 cfs 0.043 af

Pond P-5F: Peak Elev=8.33' Storage=151 cf Inflow=9.7 cfs 0.730 af
Outflow=9.6 cfs 0.730 af

Pond P-6C: Peak Elev=8.33' Storage=64 cf Inflow=4.1 cfs 0.313 af
Outflow=4.1 cfs 0.313 af

Pond P-8G: Peak Elev=8.42' Storage=4,099 cf Inflow=10.0 cfs 0.772 af
Outflow=3.5 cfs 0.771 af

Pond WL-1: Wetland Series 'J' Peak Elev=136.00' Storage=0 cf Inflow=0.0 cfs 0.000 af
Primary=0.0 cfs 0.000 af Secondary=0.0 cfs 0.000 af Outflow=0.0 cfs 0.000 af

Total Runoff Area = 48.91 ac Runoff Volume = 2.437 af Average Runoff Depth = 0.60"
68.03% Pervious = 33.27 ac 31.97% Impervious = 15.64 ac

Summary for Subcatchment PWA-1A:

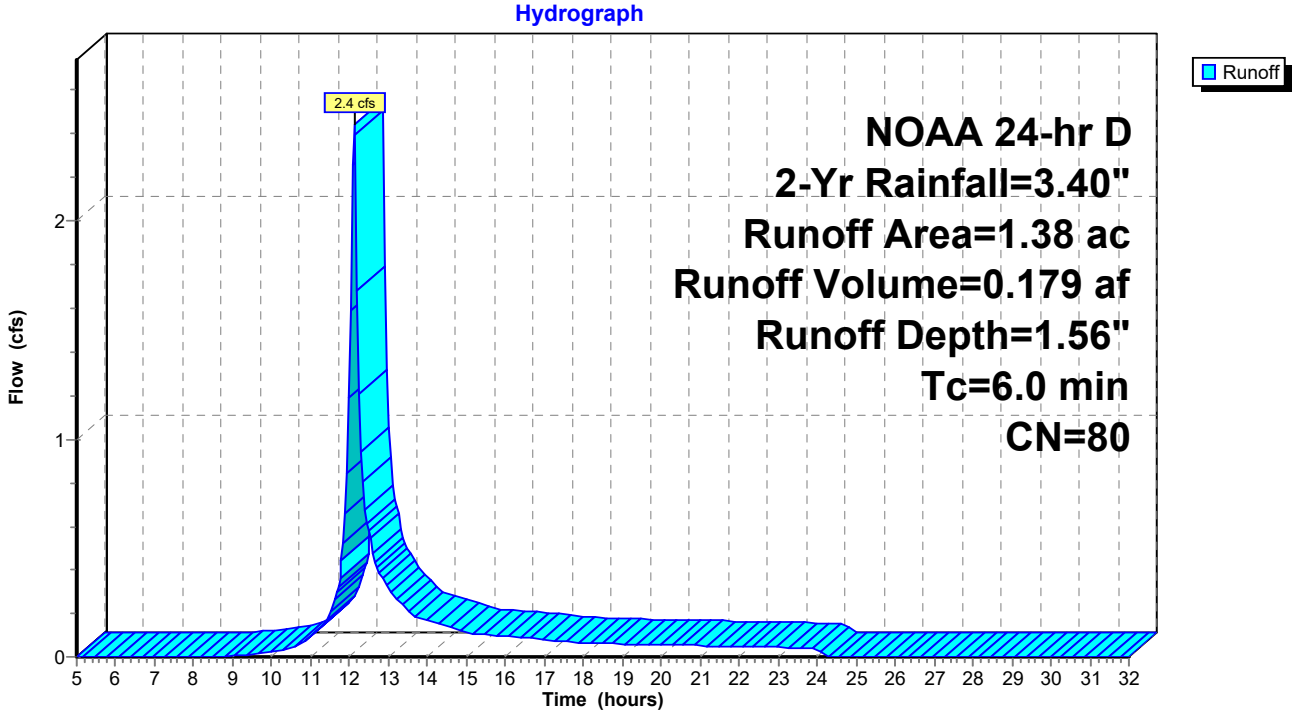
Runoff = 2.4 cfs @ 12.13 hrs, Volume= 0.179 af, Depth= 1.56"
Routed to Pond IB-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
0.04	30	Woods, Good, HSG A
0.04	55	Woods, Good, HSG B
0.09	39	>75% Grass cover, Good, HSG A
0.41	61	>75% Grass cover, Good, HSG B
0.62	98	Paved parking, HSG B
0.18	98	Roofs, HSG A
1.38	80	Weighted Average
0.58		42.03% Pervious Area
0.80		57.97% Impervious Area

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

Subcatchment PWA-1A:



Summary for Subcatchment PWA-1B:

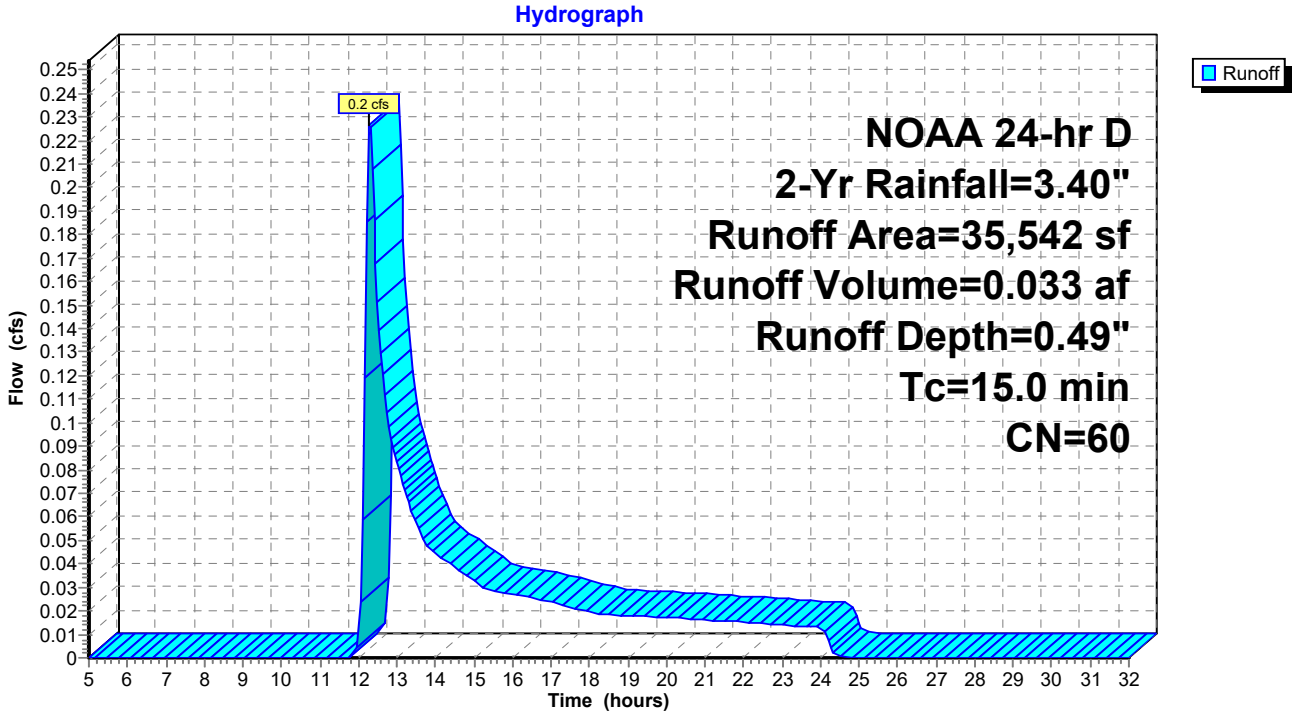
Runoff = 0.2 cfs @ 12.28 hrs, Volume= 0.033 af, Depth= 0.49"
Routed to Pond IB-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (sf)	CN	Description
7,656	98	Roofs, HSG A
11,663	39	>75% Grass cover, Good, HSG A
14,502	61	>75% Grass cover, Good, HSG B
1,721	30	Woods, Good, HSG A
35,542	60	Weighted Average
27,886		78.46% Pervious Area
7,656		21.54% Impervious Area

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

Subcatchment PWA-1B:



Summary for Subcatchment PWA-1C:

[45] Hint: Runoff=Zero

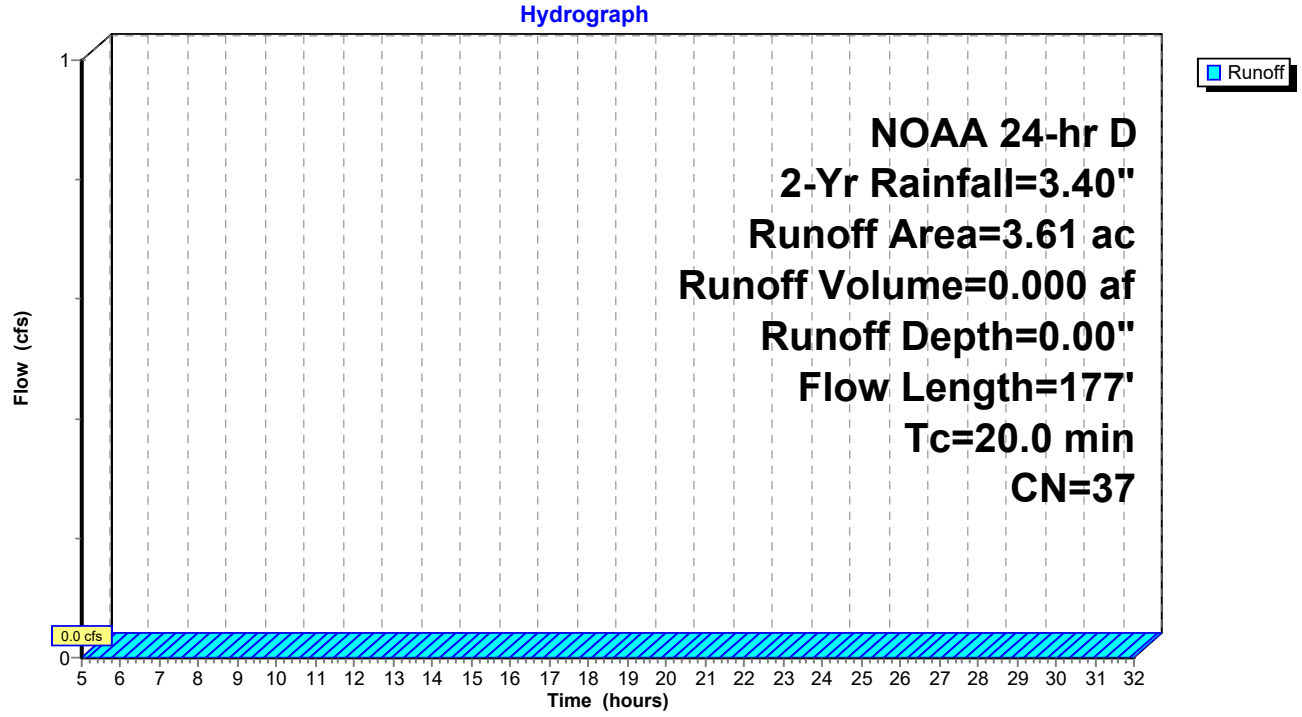
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach DP-1 : Northern Wetlands Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
2.33	30	Woods, Good, HSG A
0.14	61	>75% Grass cover, Good, HSG B
0.42	39	>75% Grass cover, Good, HSG A
0.72	55	Woods, Good, HSG B
3.61	37	Weighted Average
3.61		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.9	77	0.0780	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.0	177	Total			

Subcatchment PWA-1C:



Summary for Subcatchment PWA-2A:

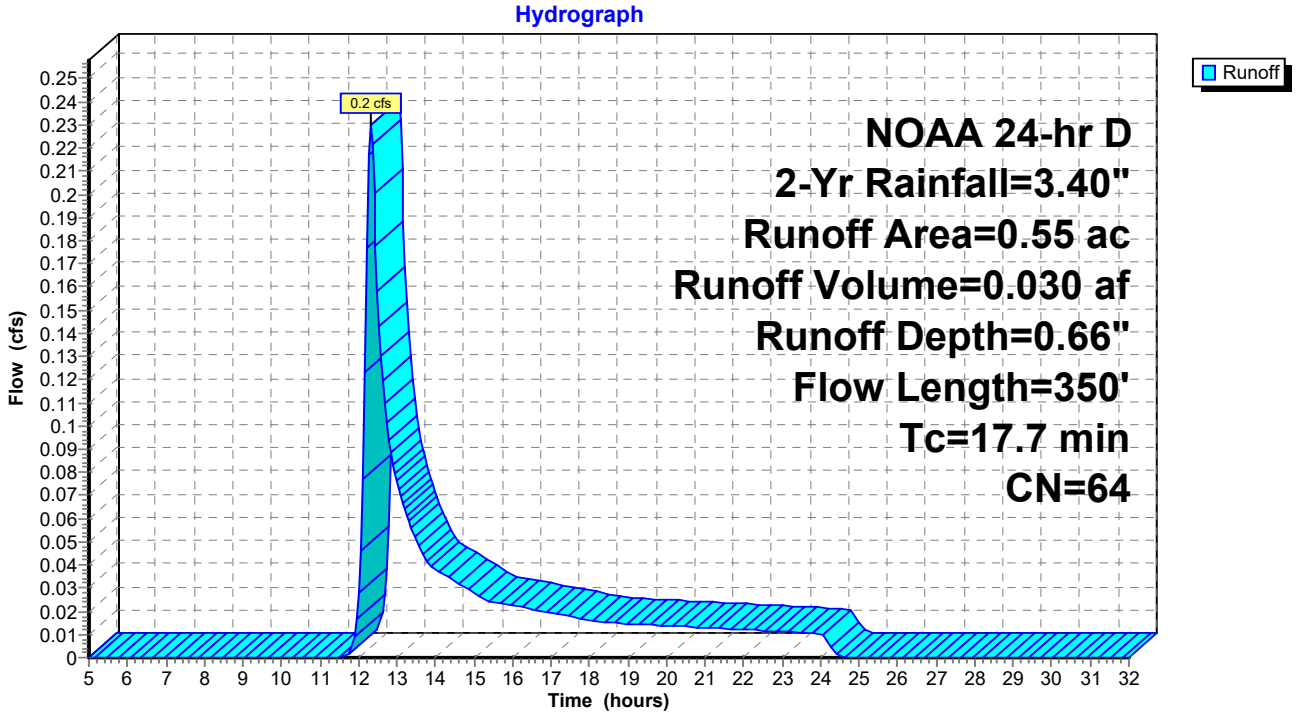
Runoff = 0.2 cfs @ 12.30 hrs, Volume= 0.030 af, Depth= 0.66"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
0.09	98	Paved parking, HSG B
0.17	61	>75% Grass cover, Good, HSG B
0.29	55	Woods, Good, HSG B
0.55	64	Weighted Average
0.46		83.64% Pervious Area
0.09		16.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
1.6	150	0.0960	1.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	100	0.1000	6.42		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
17.7	350	Total			

Subcatchment PWA-2A:



Summary for Subcatchment PWA-2B:

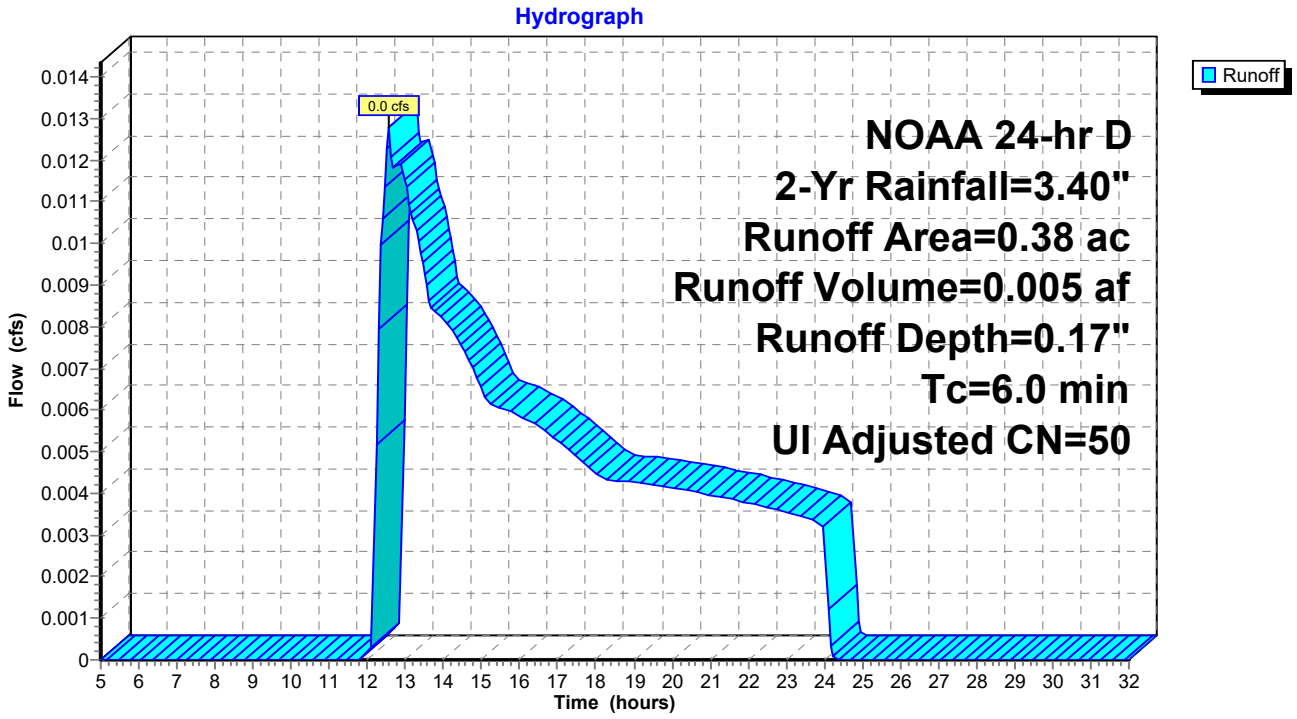
Runoff = 0.0 cfs @ 12.55 hrs, Volume= 0.005 af, Depth= 0.17"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Adj	Description
0.06	98		Unconnected pavement, HSG A
0.04	98		Paved parking, HSG A
0.28	39		>75% Grass cover, Good, HSG A
0.38	55	50	Weighted Average, UI Adjusted
0.28			73.68% Pervious Area
0.10			26.32% Impervious Area
0.06			60.00% Unconnected

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

Subcatchment PWA-2B:



Summary for Subcatchment PWA-5A:

[45] Hint: Runoff=Zero

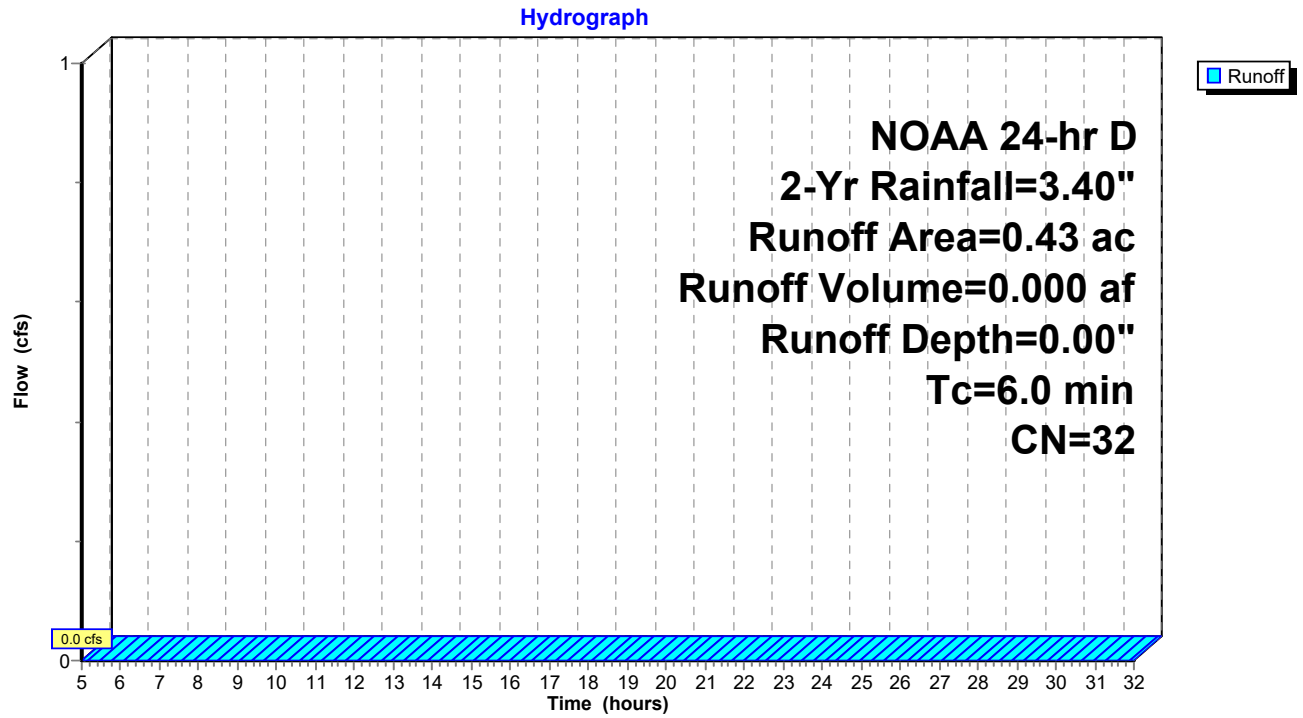
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach DP-5 : Wetland Series 'A'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
0.32	30	Woods, Good, HSG A
0.11	39	>75% Grass cover, Good, HSG A
0.43	32	Weighted Average
0.43		100.00% Pervious Area

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

Subcatchment PWA-5A:



Summary for Subcatchment PWA-5B:

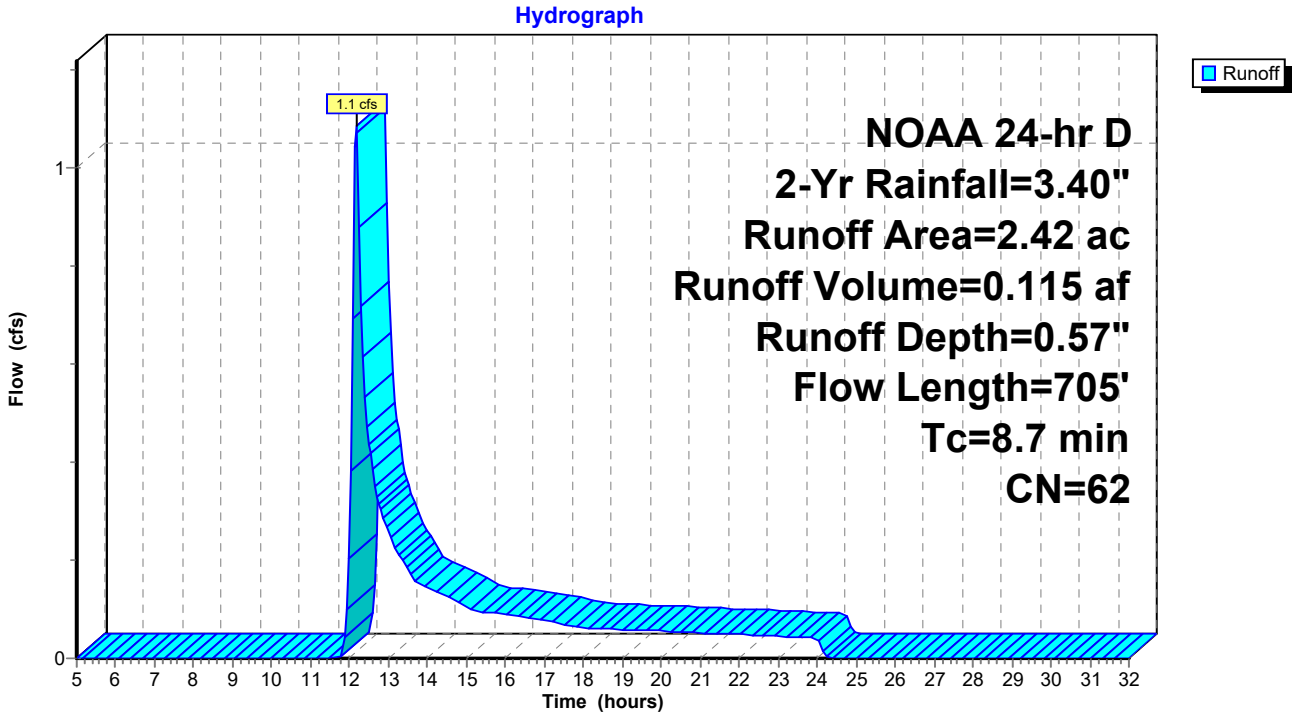
Runoff = 1.1 cfs @ 12.18 hrs, Volume= 0.115 af, Depth= 0.57"
Routed to Pond IB-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
1.47	39	>75% Grass cover, Good, HSG A
0.21	98	Roofs, HSG A
0.74	98	Paved roads w/curbs & sewers, HSG A
2.42	62	Weighted Average
1.47		60.74% Pervious Area
0.95		39.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0360	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.3	60	0.0400	3.00		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.1	265	0.0750	4.11		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.0	330	0.0150	1.84		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.7	705	Total			

Subcatchment PWA-5B:



Summary for Subcatchment PWA-5C:

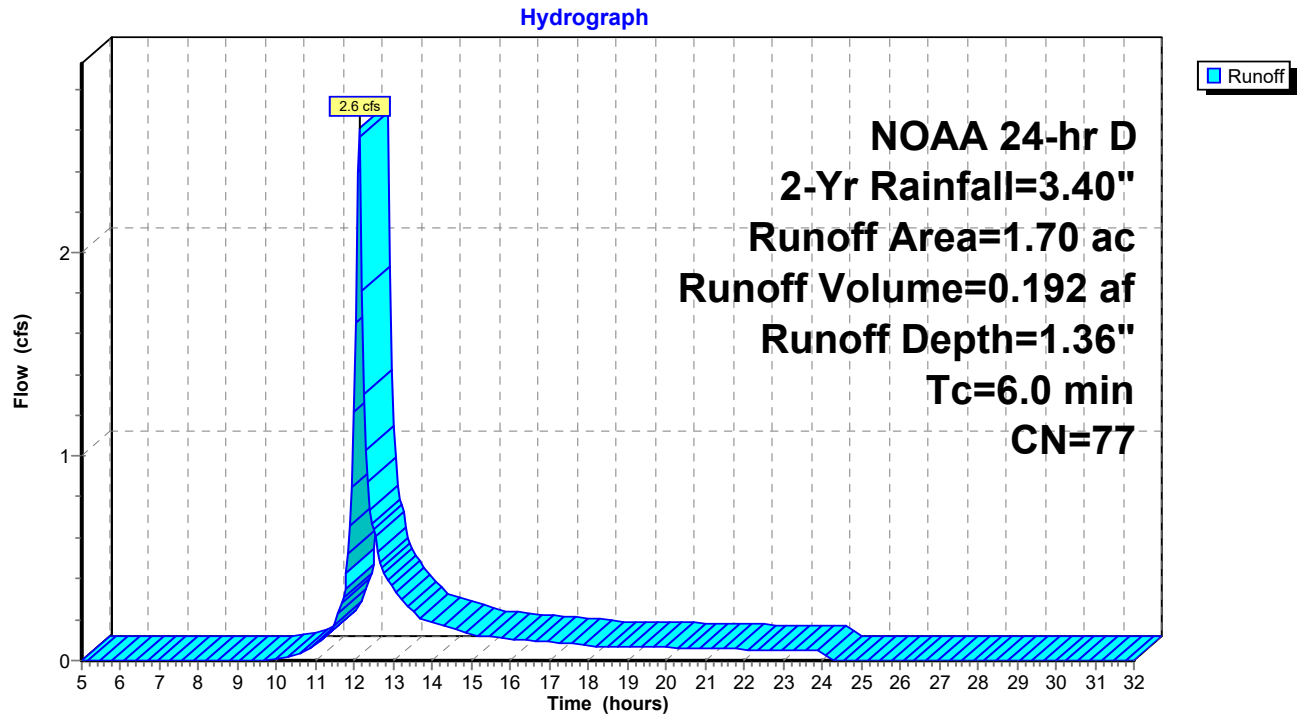
Runoff = 2.6 cfs @ 12.13 hrs, Volume= 0.192 af, Depth= 1.36"
Routed to Pond P-5C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

	Area (ac)	CN	Description
	0.60	39	>75% Grass cover, Good, HSG A
	0.43	98	Roofs, HSG A
*	0.67	98	Porous Pavement, HSG A
	1.70	77	Weighted Average
	0.60		35.29% Pervious Area
	1.10		64.71% Impervious Area

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

Subcatchment PWA-5C:



Summary for Subcatchment PWA-5D:

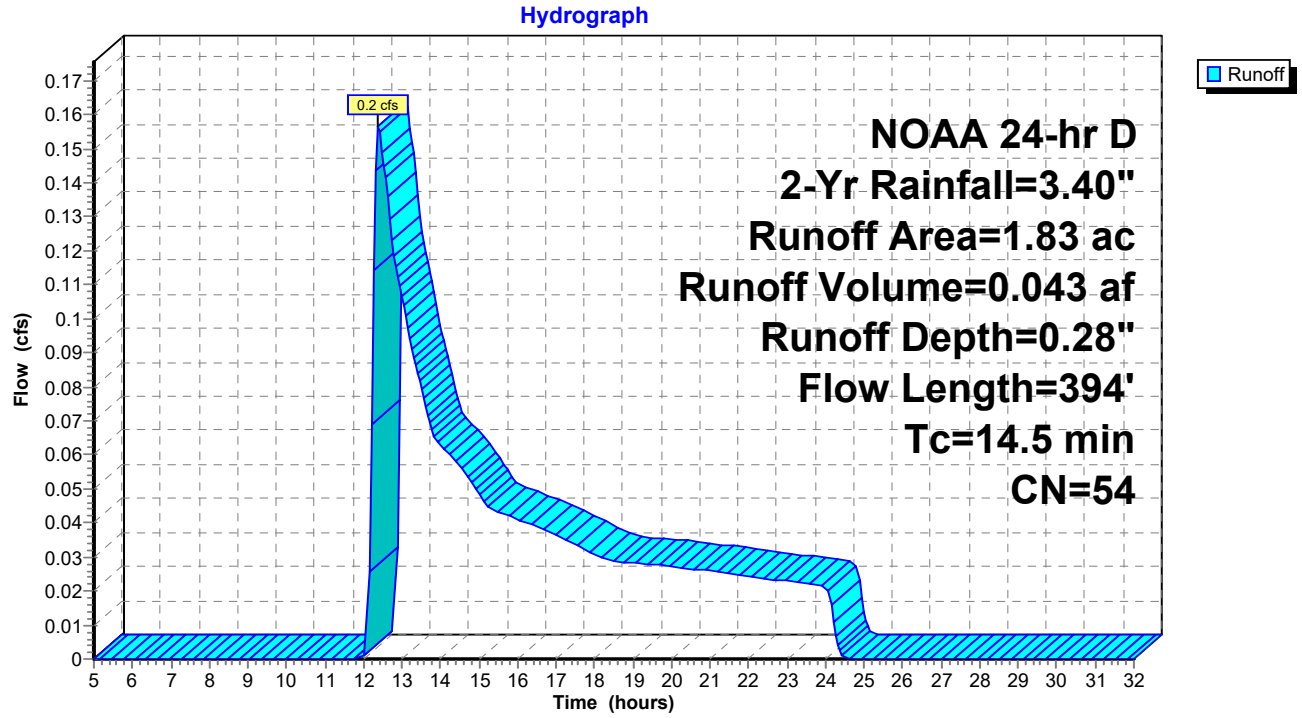
Runoff = 0.2 cfs @ 12.39 hrs, Volume= 0.043 af, Depth= 0.28"
Routed to Pond P-5D :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

	Area (ac)	CN	Description
	0.38	39	>75% Grass cover, Good, HSG A
	0.86	30	Woods, Good, HSG A
	0.20	98	Roofs, HSG A
*	0.39	98	Porous Pavement, HSG A
	1.83	54	Weighted Average
	1.24		67.76% Pervious Area
	0.59		32.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	69	0.1000	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
4.7	225	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	100	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.5	394	Total			

Subcatchment PWA-5D:



Summary for Subcatchment PWA-5E:

[45] Hint: Runoff=Zero

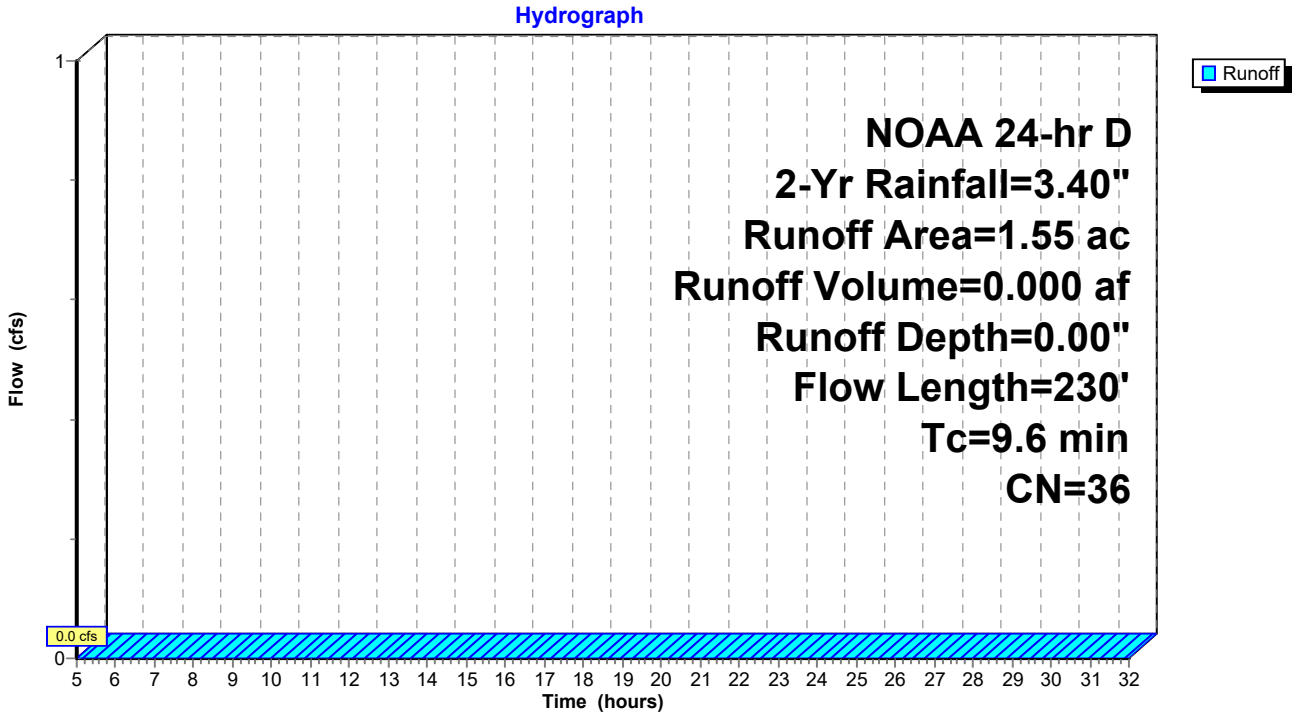
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond WL-1 : Wetland Series 'J'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
0.81	39	>75% Grass cover, Good, HSG A
0.06	61	>75% Grass cover, Good, HSG B
0.67	30	Woods, Good, HSG A
0.01	55	Woods, Good, HSG B
1.55	36	Weighted Average
1.55		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.3	30	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.9	110	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	40	0.3700	4.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.6	230	Total			

Subcatchment PWA-5E:



Summary for Subcatchment PWA-5F:

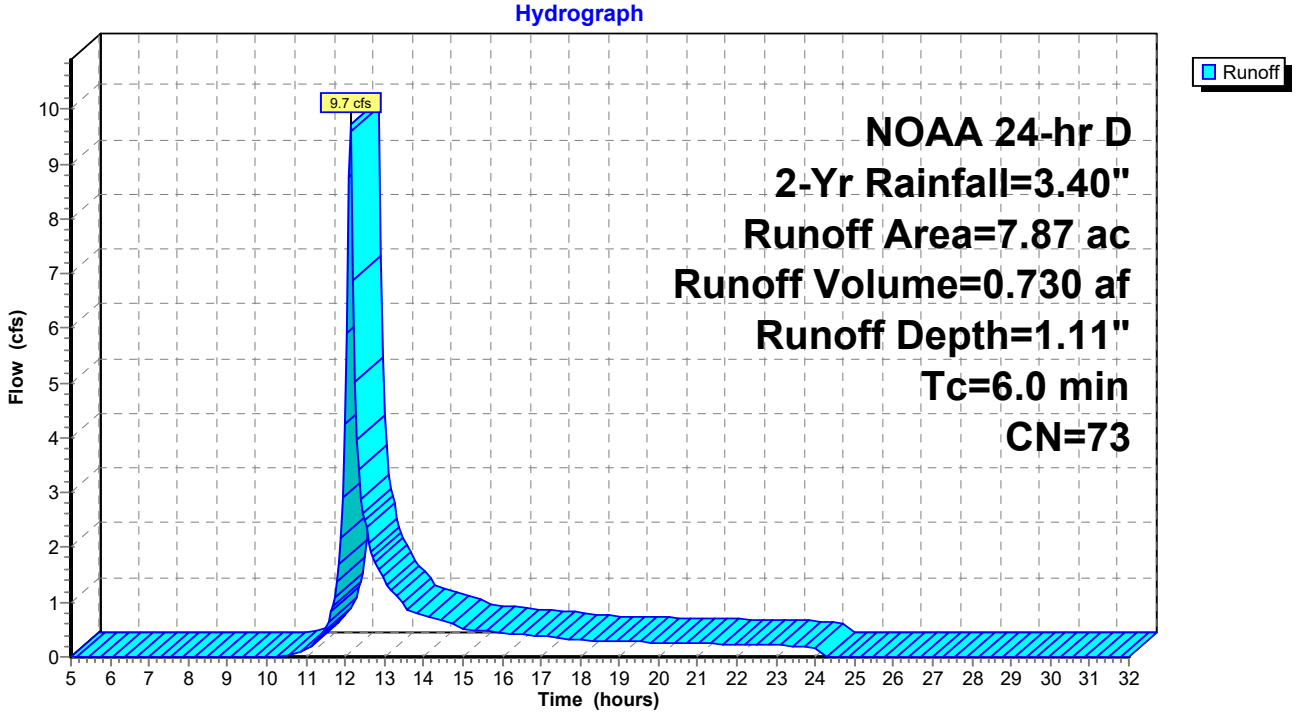
Runoff = 9.7 cfs @ 12.14 hrs, Volume= 0.730 af, Depth= 1.11"
Routed to Pond P-5F :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

	Area (ac)	CN	Description
	2.88	39	>75% Grass cover, Good, HSG A
	0.12	30	Woods, Good, HSG A
	1.59	98	Roofs, HSG A
*	2.72	98	Porous Pavement, HSG A
	0.42	61	>75% Grass cover, Good, HSG B
	0.14	55	Woods, Good, HSG B
	7.87	73	Weighted Average
	3.56		45.24% Pervious Area
	4.31		54.76% Impervious Area

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

Subcatchment PWA-5F:



Summary for Subcatchment PWA-5G:

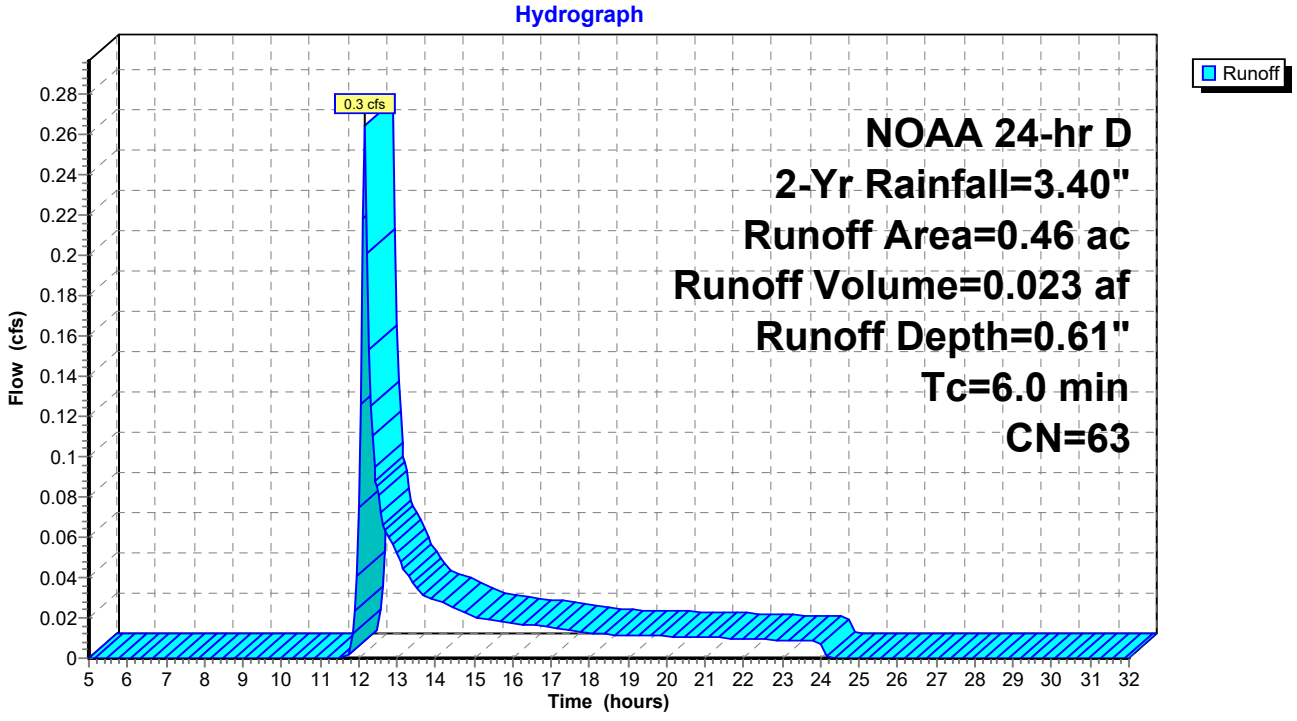
Runoff = 0.3 cfs @ 12.15 hrs, Volume= 0.023 af, Depth= 0.61"
Routed to Pond DB-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
0.27	39	>75% Grass cover, Good, HSG A
0.19	98	Paved parking, HSG A
0.46	63	Weighted Average
0.27		58.70% Pervious Area
0.19		41.30% Impervious Area

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

Subcatchment PWA-5G:



Summary for Subcatchment PWA-5H:

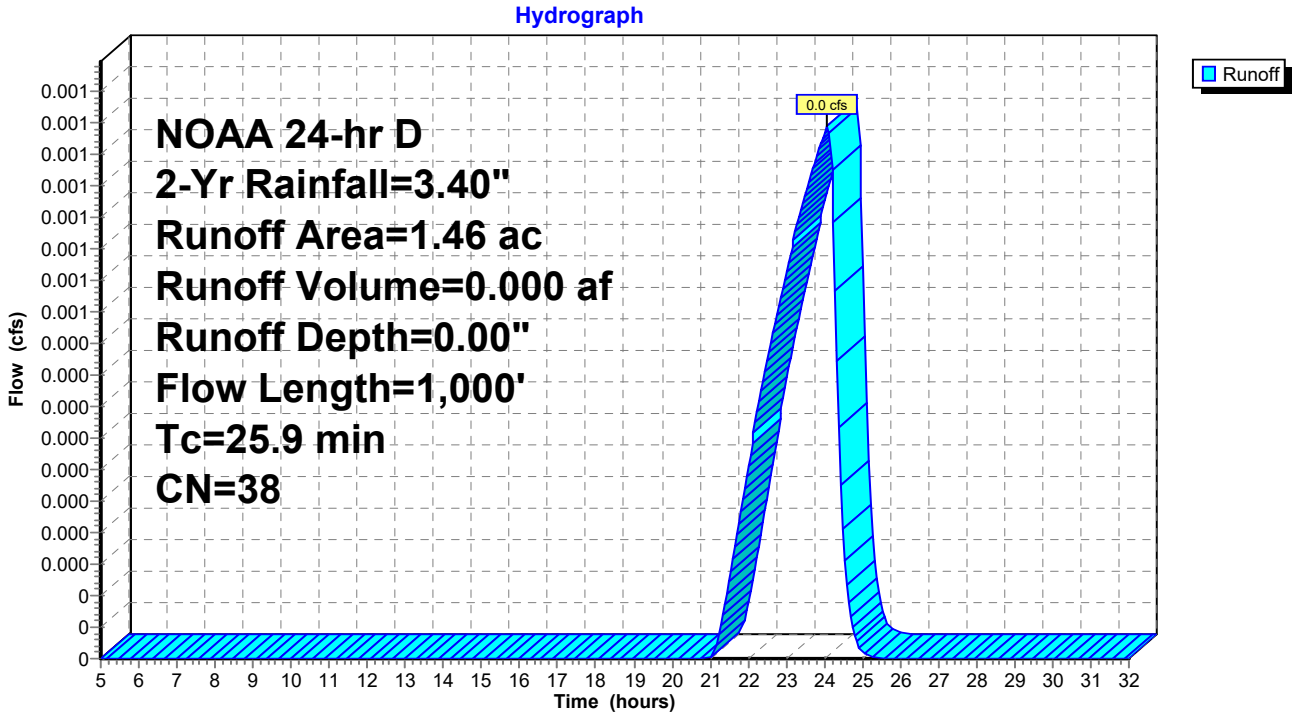
Runoff = 0.0 cfs @ 24.08 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond DB-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
0.14	30	Woods, Good, HSG A
1.32	39	>75% Grass cover, Good, HSG A
1.46	38	Weighted Average
1.46		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
16.4	900	0.0170	0.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
25.9	1,000	Total			

Subcatchment PWA-5H:



Summary for Subcatchment PWA-6A:

[45] Hint: Runoff=Zero

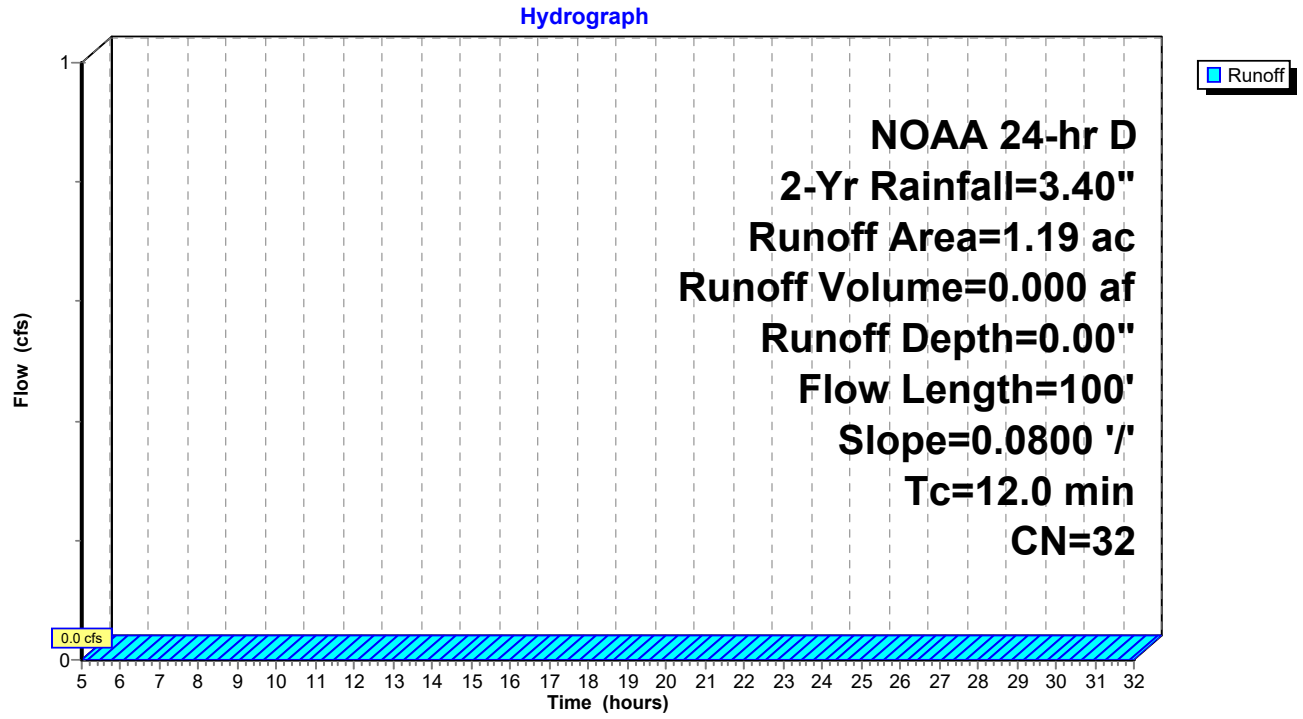
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach DP-6 : Wetland Series 'B' & 'C'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
0.20	39	>75% Grass cover, Good, HSG A
0.99	30	Woods, Good, HSG A
1.19	32	Weighted Average
1.19		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"

Subcatchment PWA-6A:



Summary for Subcatchment PWA-6B:

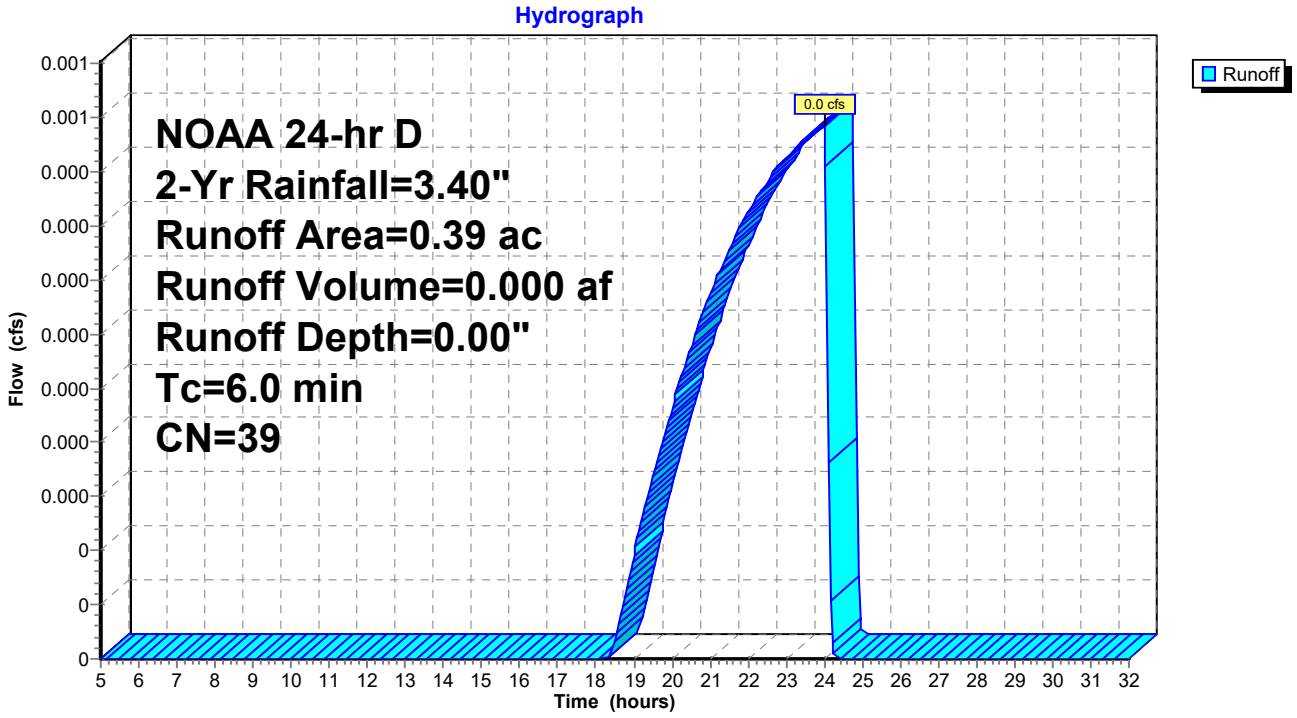
Runoff = 0.0 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond IT-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
0.39	39	>75% Grass cover, Good, HSG A
0.39		100.00% Pervious Area

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

Subcatchment PWA-6B:



Summary for Subcatchment PWA-6C:

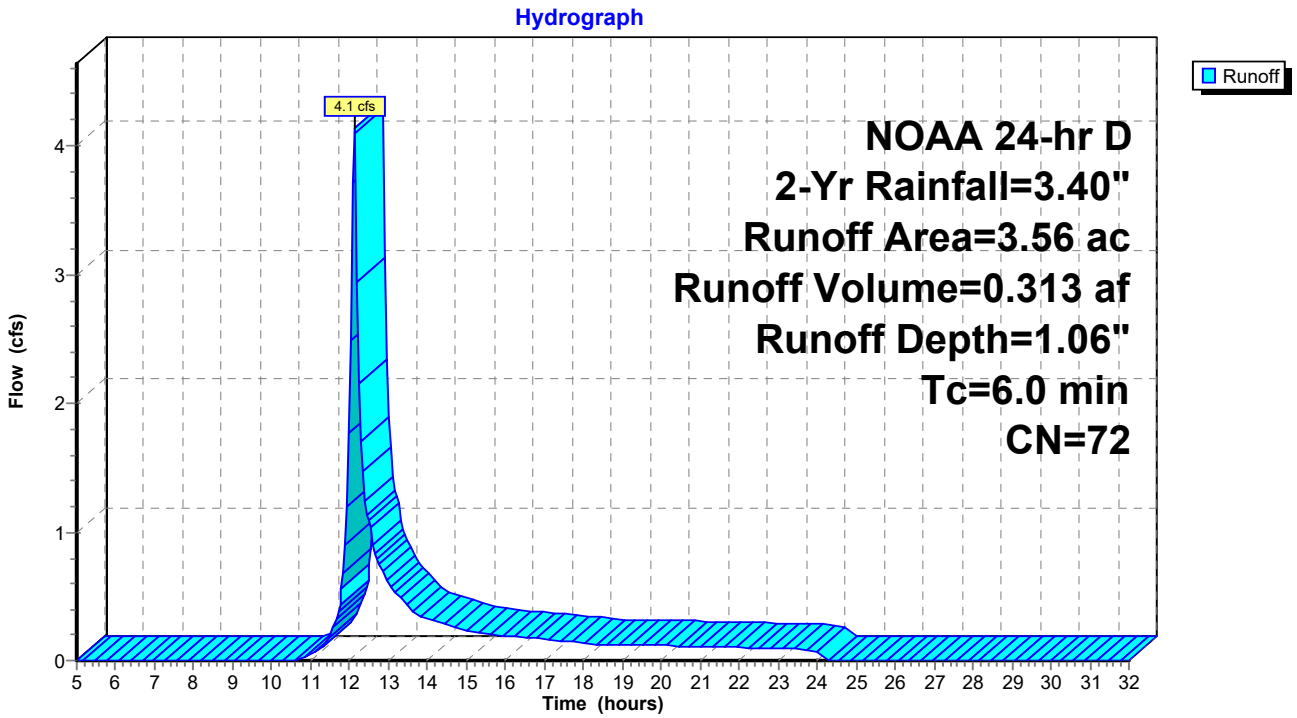
Runoff = 4.1 cfs @ 12.14 hrs, Volume= 0.313 af, Depth= 1.06"
Routed to Pond P-6C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

	Area (ac)	CN	Description
	1.57	39	>75% Grass cover, Good, HSG A
	0.70	98	Roofs, HSG A
*	1.29	98	Porous Pavement, HSG A
	3.56	72	Weighted Average
	1.57		44.10% Pervious Area
	1.99		55.90% Impervious Area

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

Subcatchment PWA-6C:



Summary for Subcatchment PWA-7:

[45] Hint: Runoff=Zero

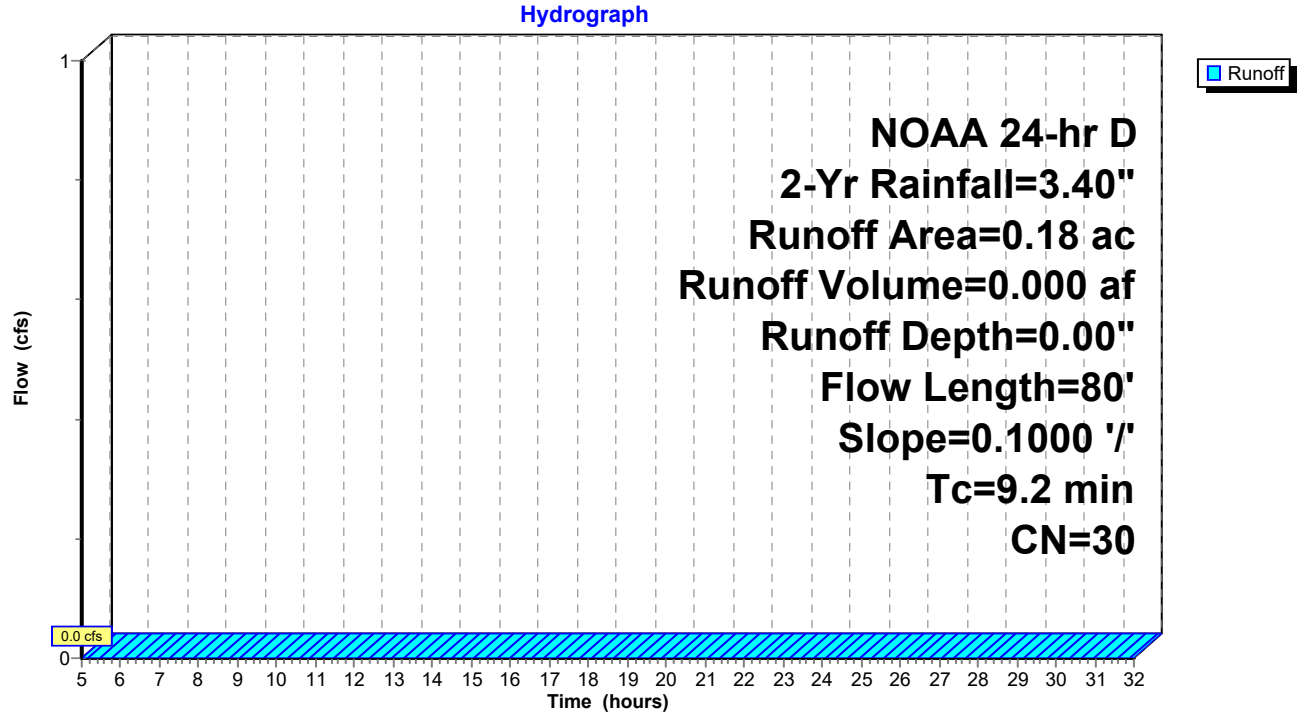
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach DP-7 : #4 Poppy Ln

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
0.18	30	Woods, Good, HSG A
0.18		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	80	0.1000	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"

Subcatchment PWA-7:



Summary for Subcatchment PWA-8A:

[45] Hint: Runoff=Zero

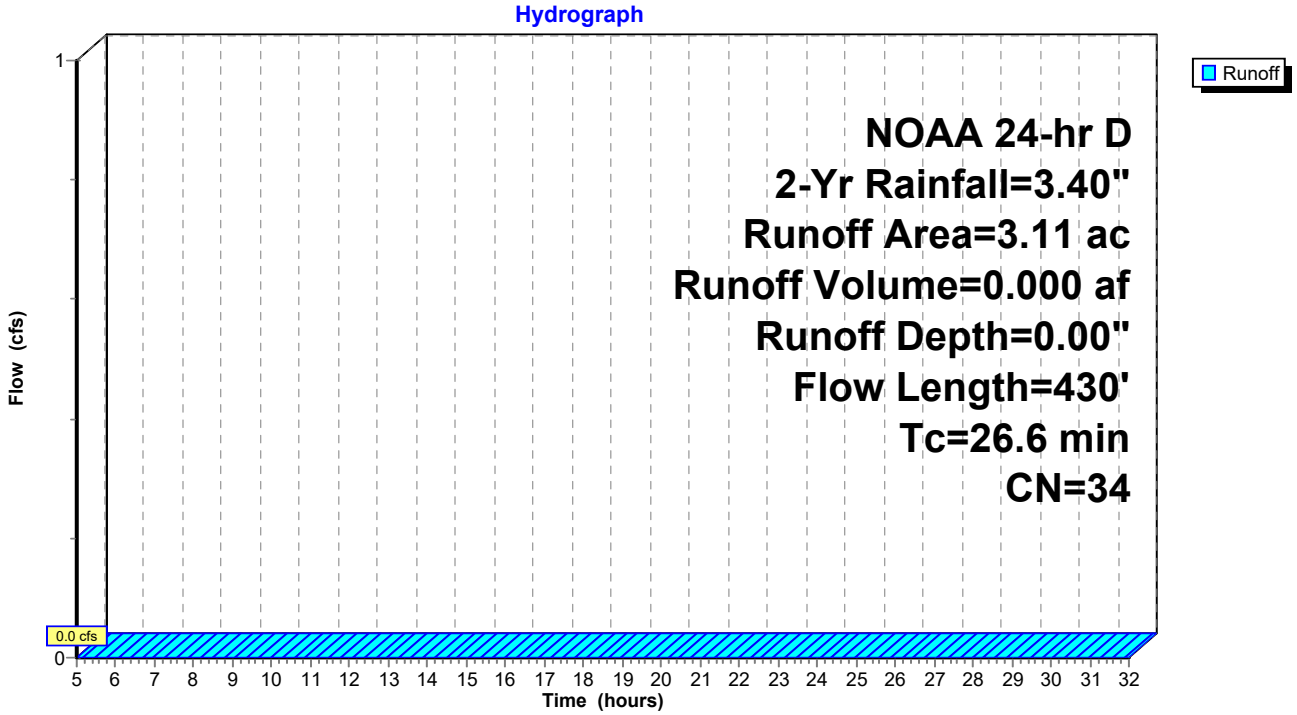
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach CR-1 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
1.86	30	Woods, Good, HSG A
1.25	39	>75% Grass cover, Good, HSG A
3.11	34	Weighted Average
3.11		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
5.8	330	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
26.6	430	Total			

Subcatchment PWA-8A:



Summary for Subcatchment PWA-8B:

[45] Hint: Runoff=Zero

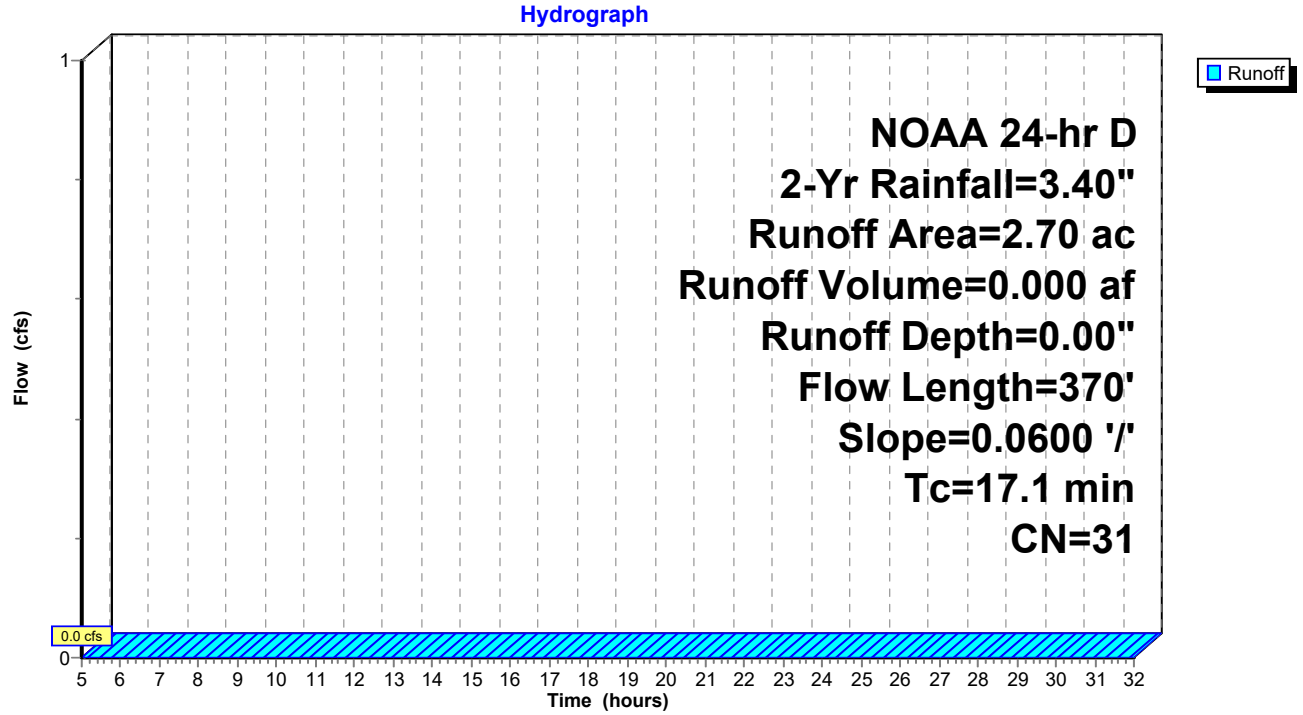
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach CR-1 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
0.43	39	>75% Grass cover, Good, HSG A
2.27	30	Woods, Good, HSG A
2.70	31	Weighted Average
2.70		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.7	270	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.1	370	Total			

Subcatchment PWA-8B:



Summary for Subcatchment PWA-8C:

[45] Hint: Runoff=Zero

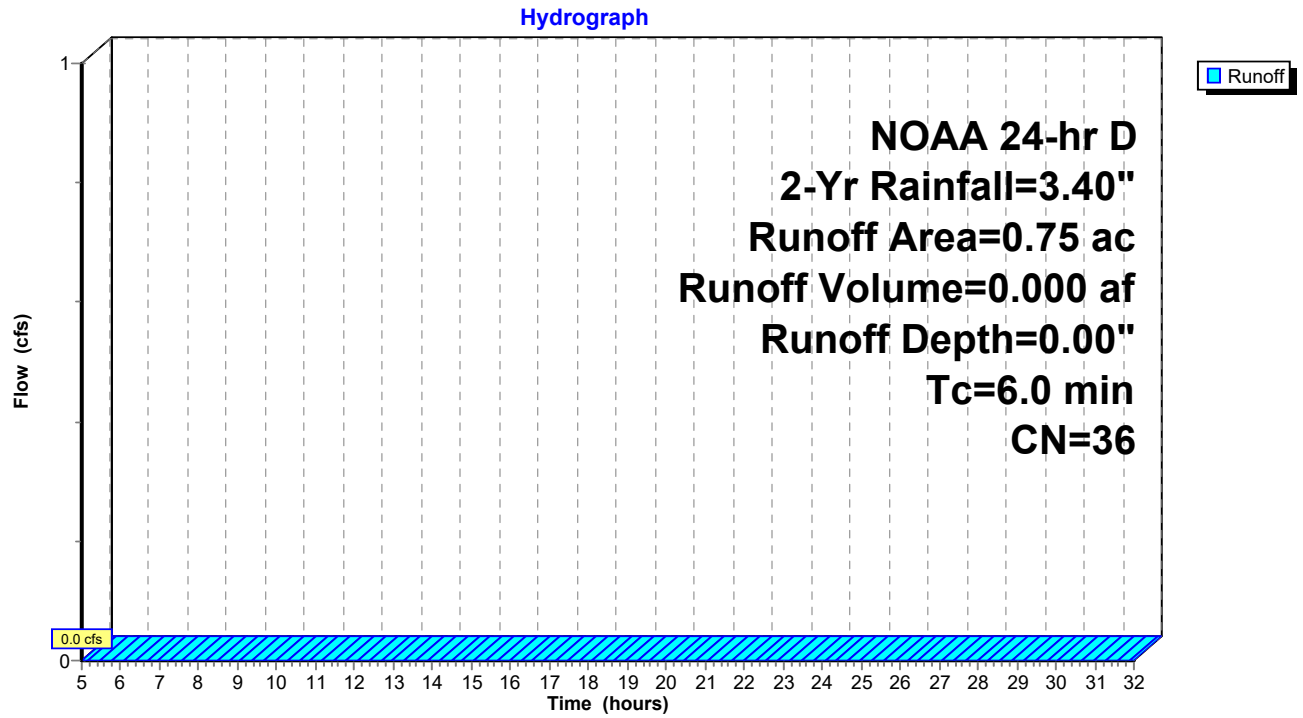
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
0.24	30	Woods, Good, HSG A
0.51	39	>75% Grass cover, Good, HSG A
0.75	36	Weighted Average
0.75		100.00% Pervious Area

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

Subcatchment PWA-8C:



Summary for Subcatchment PWA-8D:

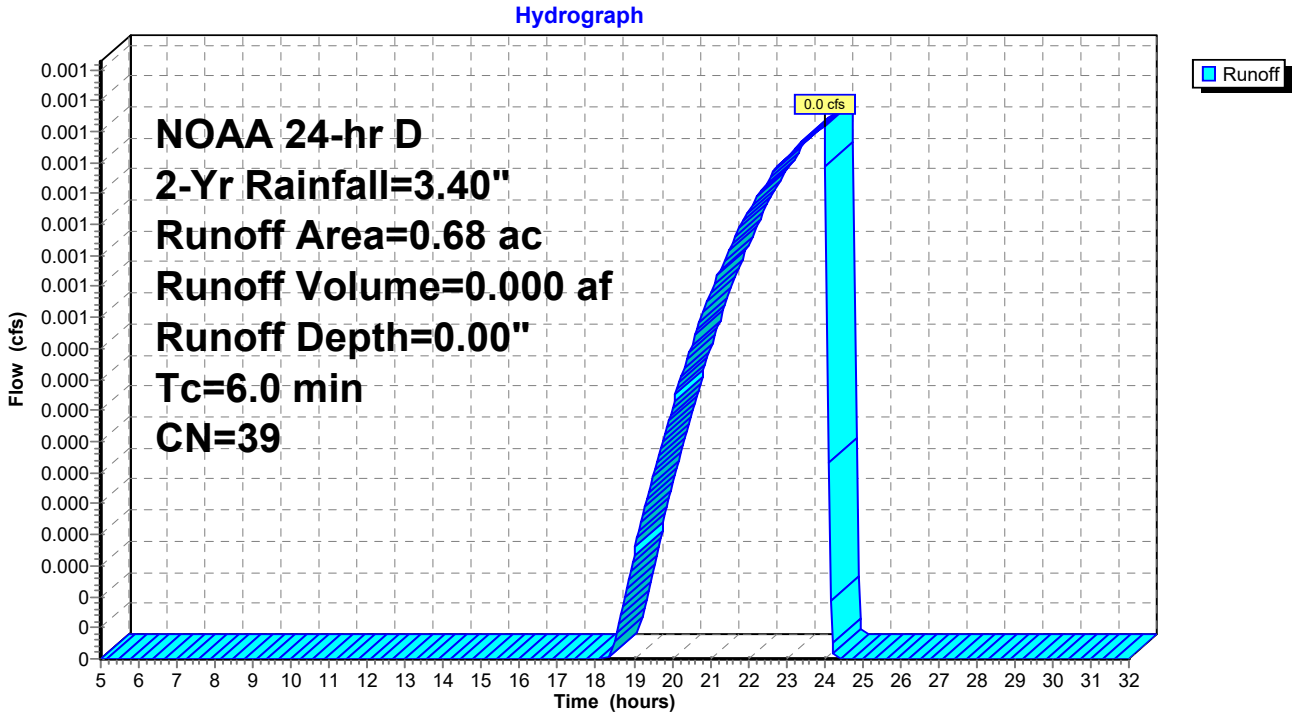
Runoff = 0.0 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond IT-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
0.68	39	>75% Grass cover, Good, HSG A
0.68		100.00% Pervious Area

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

Subcatchment PWA-8D:



Summary for Subcatchment PWA-8E:

[45] Hint: Runoff=Zero

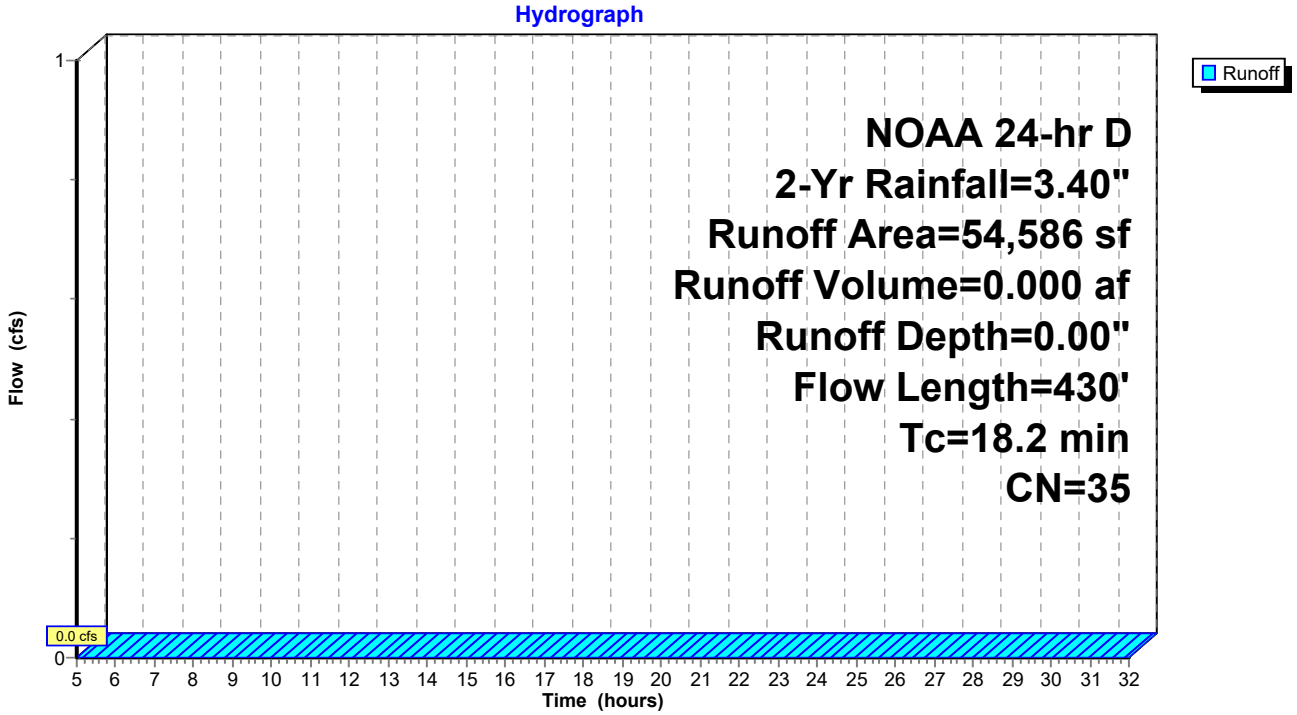
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond IB-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (sf)	CN	Description
30,573	39	>75% Grass cover, Good, HSG A
24,013	30	Woods, Good, HSG A
54,586	35	Weighted Average
54,586		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0150	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
7.5	330	0.0110	0.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.2	430	Total			

Subcatchment PWA-8E:



Summary for Subcatchment PWA-8F:

[45] Hint: Runoff=Zero

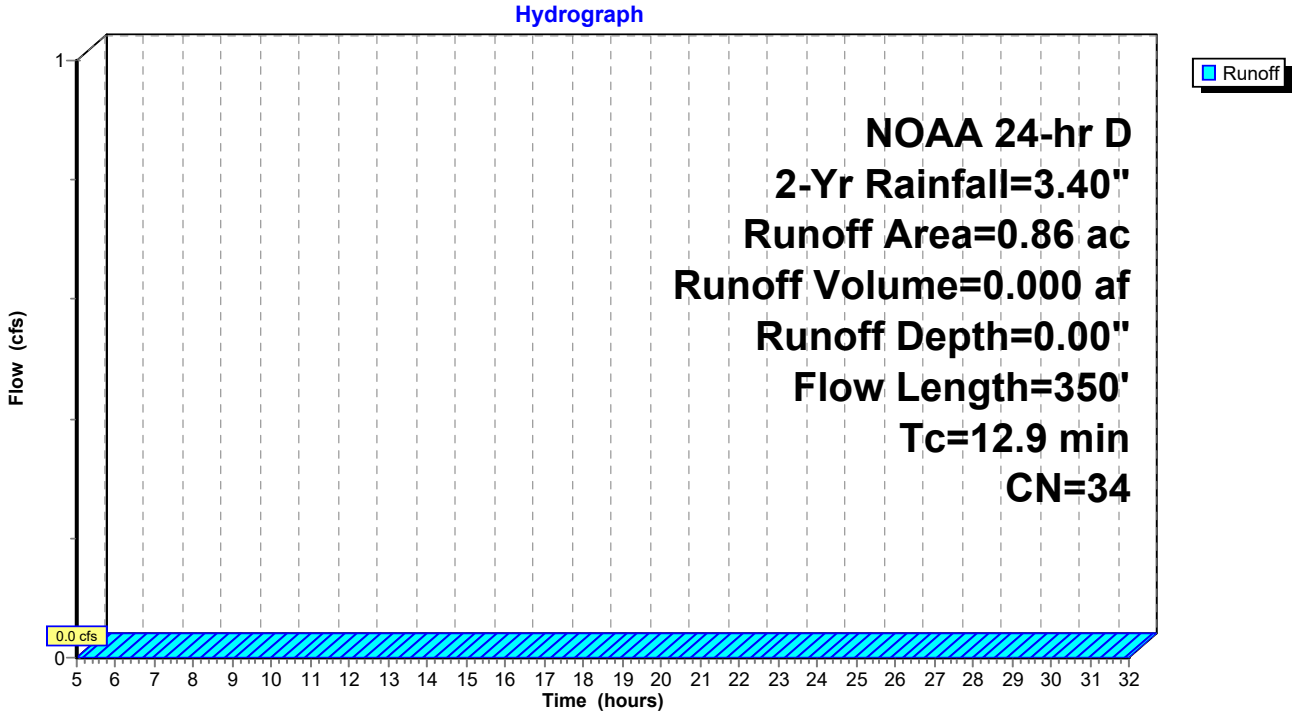
Runoff = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

Area (ac)	CN	Description
0.45	30	Woods, Good, HSG A
0.41	39	>75% Grass cover, Good, HSG A
0.86	34	Weighted Average
0.86		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0250	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
4.2	250	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.9	350	Total			

Subcatchment PWA-8F:



Summary for Subcatchment PWA-8G:

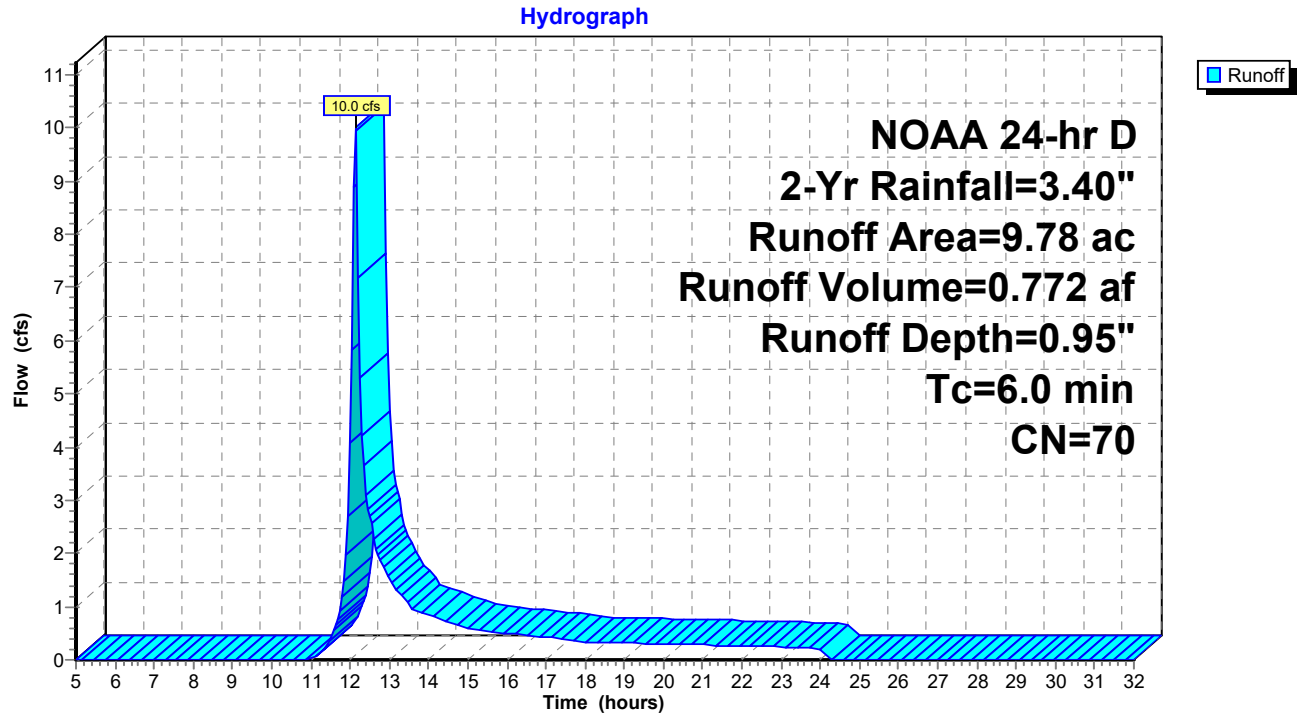
Runoff = 10.0 cfs @ 12.14 hrs, Volume= 0.772 af, Depth= 0.95"
Routed to Pond P-8G :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Yr Rainfall=3.40"

	Area (ac)	CN	Description
	1.08	30	Woods, Good, HSG A
	3.36	39	>75% Grass cover, Good, HSG A
	1.61	98	Roofs, HSG A
*	3.73	98	Porous Pavement, HSG A
	9.78	70	Weighted Average
	4.44		45.40% Pervious Area
	5.34		54.60% Impervious Area

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

Subcatchment PWA-8G:



Summary for Reach CR-1: Culvert

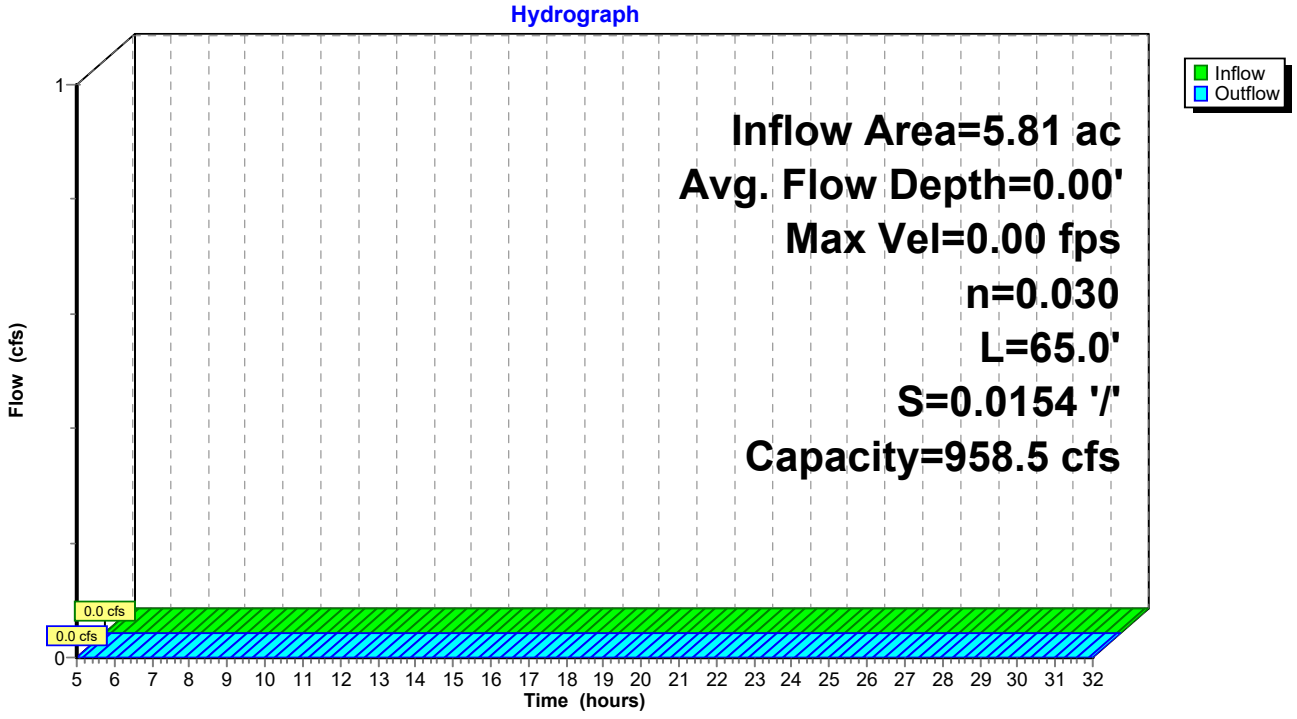
Inflow Area = 5.81 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 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 @ 5.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 5.00' Flow Area= 75.0 sf, Capacity= 958.5 cfs

15.00' x 5.00' deep channel, n= 0.030 Stream, clean & straight
Length= 65.0' Slope= 0.0154 '/'
Inlet Invert= 134.00', Outlet Invert= 133.00'

Reach CR-1: Culvert



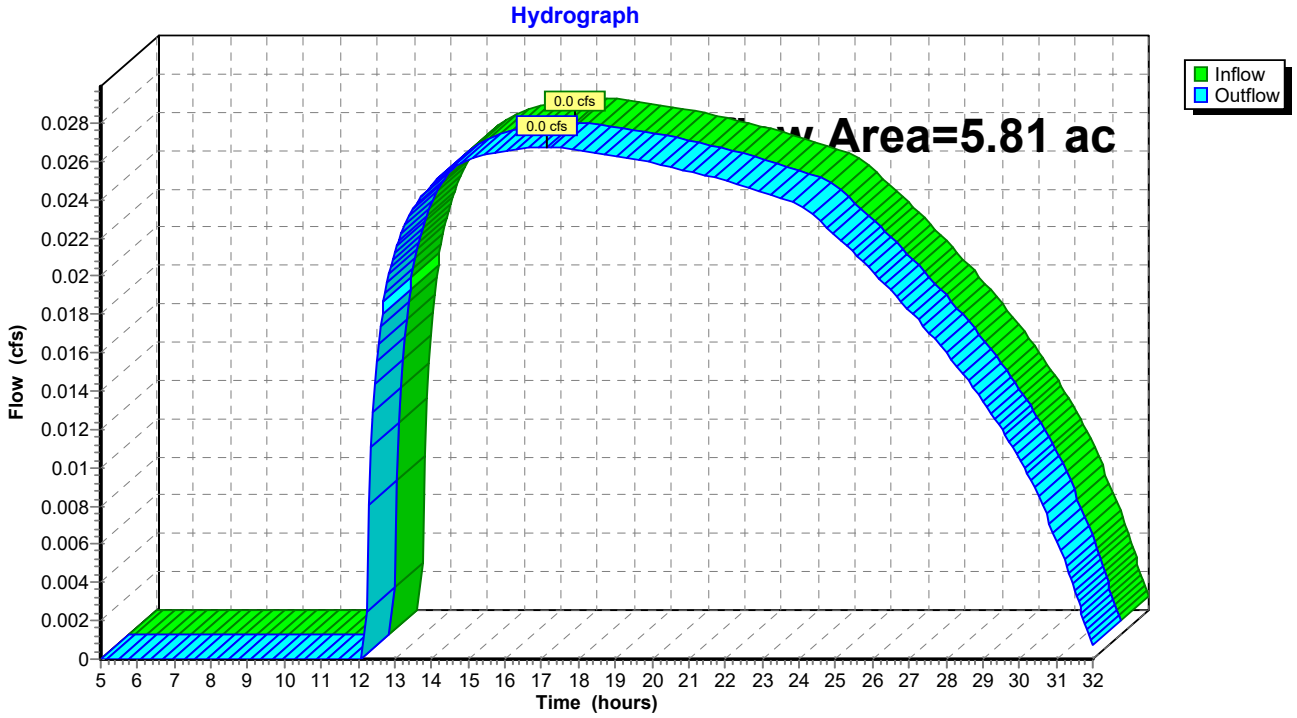
Summary for Reach DP-1: Northern Wetlands Culvert

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 5.81 ac, 16.81% Impervious, Inflow Depth > 0.07" for 2-Yr event
Inflow = 0.0 cfs @ 17.13 hrs, Volume= 0.034 af
Outflow = 0.0 cfs @ 17.13 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Reach DP-1: Northern Wetlands Culvert



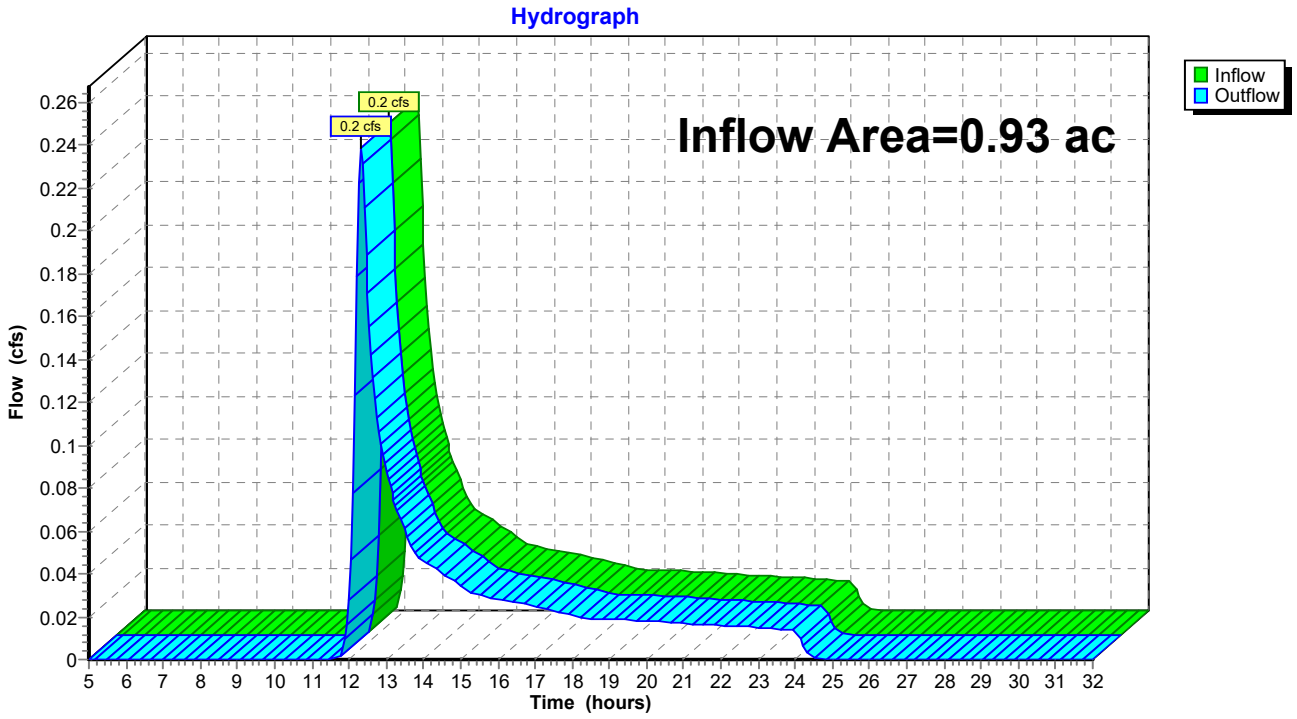
Summary for Reach DP-2: Wheeler St

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.93 ac, 20.43% Impervious, Inflow Depth = 0.46" for 2-Yr event
Inflow = 0.2 cfs @ 12.31 hrs, Volume= 0.035 af
Outflow = 0.2 cfs @ 12.31 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1R

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Reach DP-2: Wheeler St



Summary for Reach DP-3: #48 Rinzee Rd

[40] Hint: Not Described (Outflow=Inflow)

Summary for Reach DP-4: Poppy Ln

[40] Hint: Not Described (Outflow=Inflow)

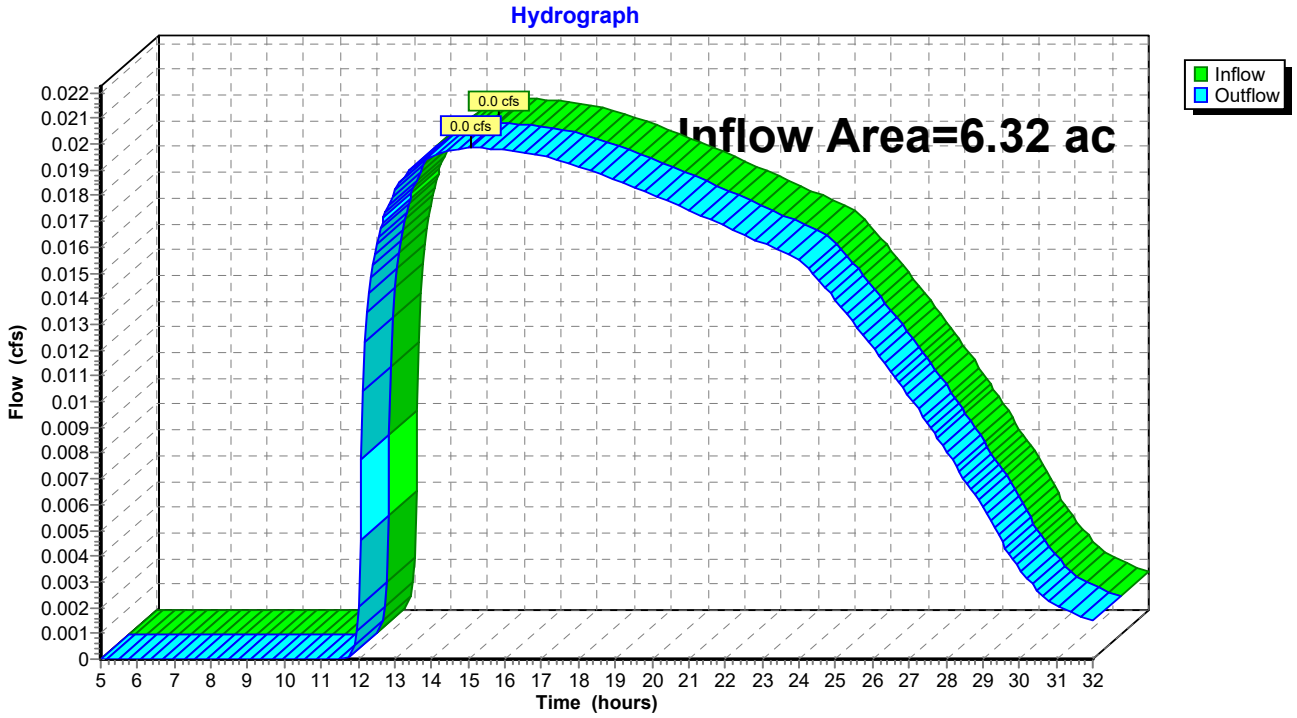
Summary for Reach DP-5: Wetland Series 'A'

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 6.32 ac, 18.04% Impervious, Inflow Depth > 0.04" for 2-Yr event
Inflow = 0.0 cfs @ 15.09 hrs, Volume= 0.023 af
Outflow = 0.0 cfs @ 15.09 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Reach DP-5: Wetland Series 'A'



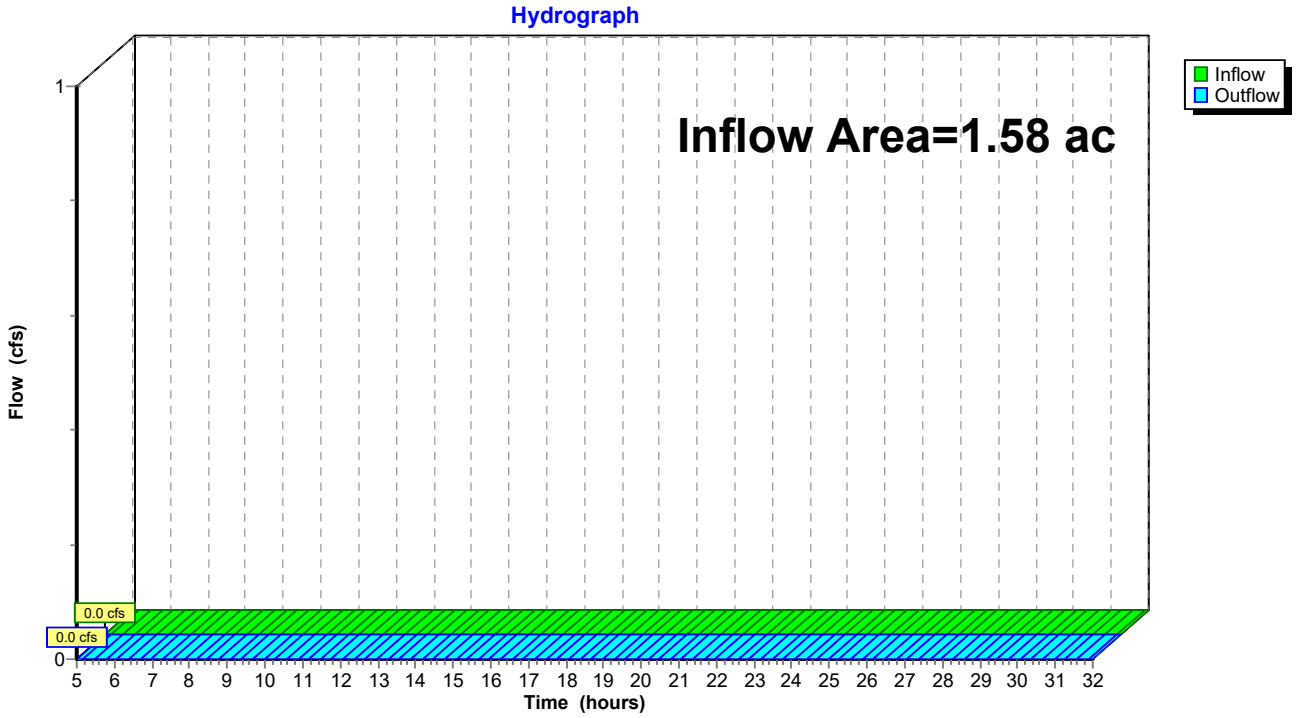
Summary for Reach DP-6: Wetland Series 'B' & 'C'

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.58 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Reach DP-6: Wetland Series 'B' & 'C'



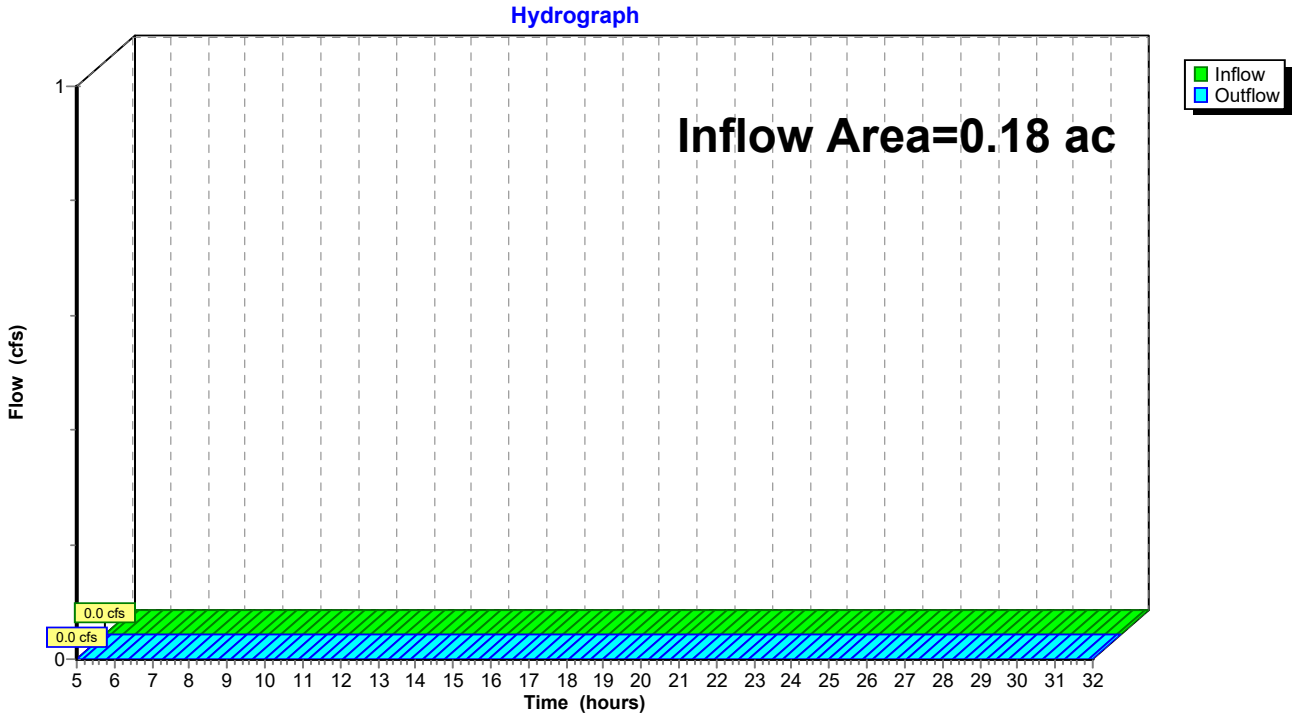
Summary for Reach DP-7: #4 Poppy Ln

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.18 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Reach DP-7: #4 Poppy Ln



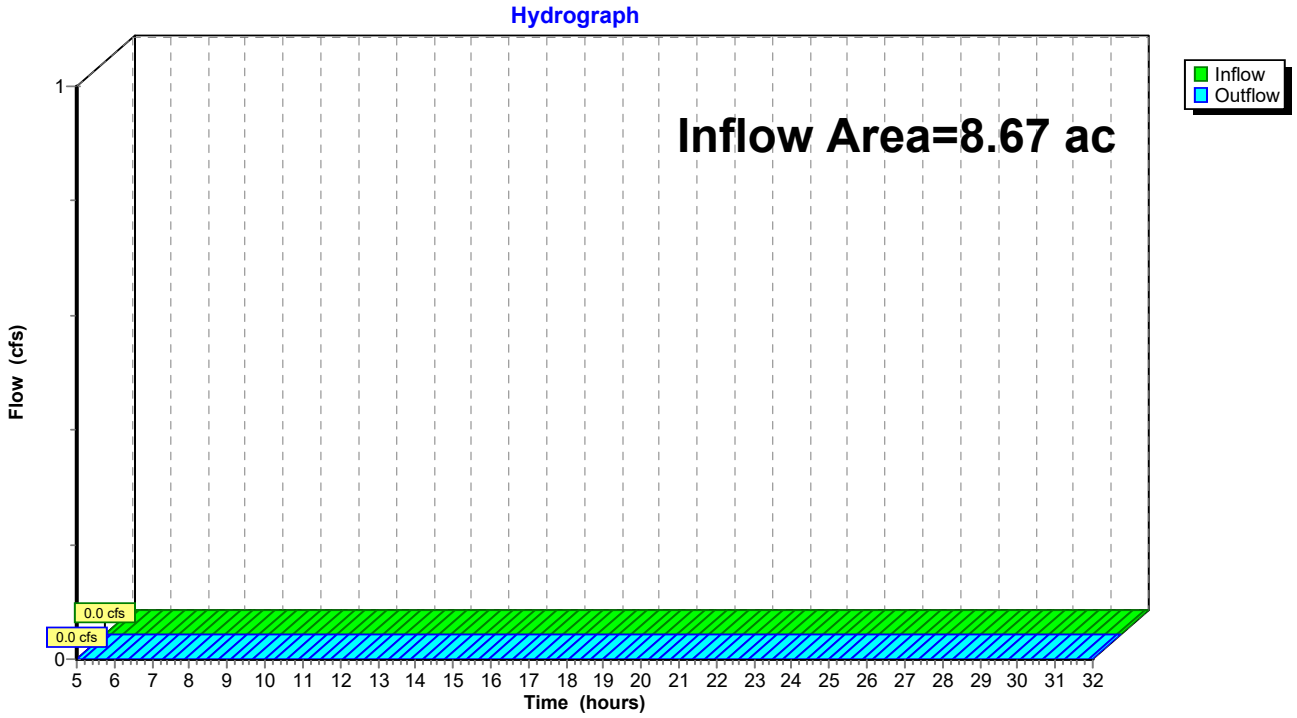
Summary for Reach DP-8: Wetland Series 'D' & 'E'

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.67 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Reach DP-8: Wetland Series 'D' & 'E'



Summary for Pond DB-1:

Inflow Area = 1.92 ac, 9.90% Impervious, Inflow Depth = 0.15" for 2-Yr event
Inflow = 0.3 cfs @ 12.15 hrs, Volume= 0.024 af
Outflow = 0.0 cfs @ 15.09 hrs, Volume= 0.023 af, Atten= 93%, Lag= 176.5 min
Primary = 0.0 cfs @ 15.09 hrs, Volume= 0.023 af
Routed to Reach DP-5 : Wetland Series 'A'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 132.11' @ 15.09 hrs Surf.Area= 907 sf Storage= 429 cf

Plug-Flow detention time= 285.3 min calculated for 0.023 af (98% of inflow)
Center-of-Mass det. time= 277.9 min (1,195.2 - 917.2)

Volume	Invert	Avail.Storage	Storage Description
#1	131.50'	9,029 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

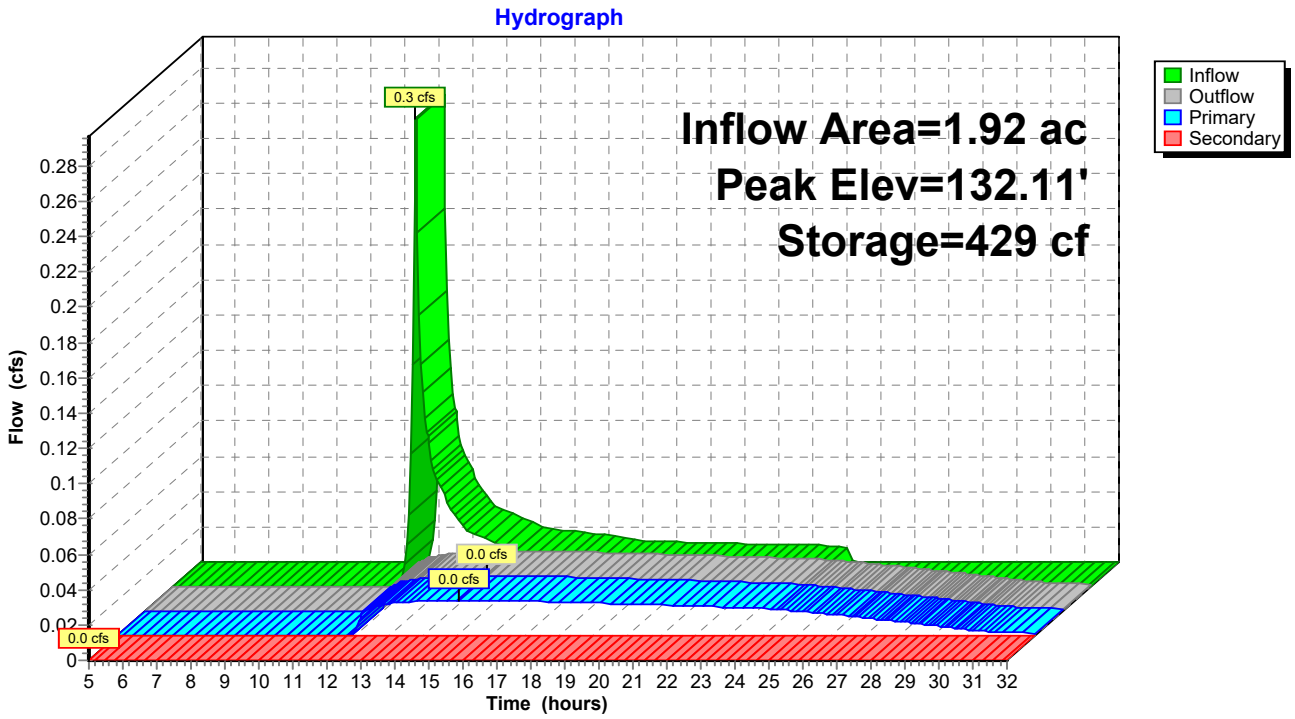
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
131.50	484	0	0
132.00	834	330	330
134.00	2,118	2,952	3,282
136.00	3,629	5,747	9,029

Device	Routing	Invert	Outlet Devices
#1	Primary	130.50'	**8.0" Round Culvert** L= 26.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 130.50' / 130.37' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	131.50'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	134.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	135.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.0 cfs @ 15.09 hrs HW=132.11' (Free Discharge)
└**1=Culvert** (Passes 0.0 cfs of 1.5 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.0 cfs @ 3.64 fps)
└**3=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=131.50' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond DB-1:


Hydrograph
Inflow Area=1.92 ac
Peak Elev=132.11'
Storage=429 cf
Inflow
Outflow
Primary
Secondary
0.3 cfs
0.0 cfs
0.0 cfs
0.0 cfs
Flow (cfs)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
0.22
0.24
0.26
0.28
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
Time (hours)

Summary for Pond IB-1:

Inflow Area = 2.42 ac, 39.26% Impervious, Inflow Depth = 0.57" for 2-Yr event
Inflow = 1.1 cfs @ 12.18 hrs, Volume= 0.115 af
Outflow = 0.3 cfs @ 12.73 hrs, Volume= 0.115 af, Atten= 71%, Lag= 32.7 min
Discarded = 0.3 cfs @ 12.73 hrs, Volume= 0.115 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Pond WL-1 : Wetland Series 'J'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Pond WL-1 : Wetland Series 'J'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 137.16' @ 12.73 hrs Surf.Area= 5,724 sf Storage= 811 cf

Plug-Flow detention time= 20.1 min calculated for 0.115 af (100% of inflow)
Center-of-Mass det. time= 20.2 min (942.0 - 921.8)

Volume	Invert	Avail.Storage	Storage Description
#1	137.00'	36,093 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.00	4,494	0	0
138.00	12,238	8,366	8,366
140.00	15,489	27,727	36,093

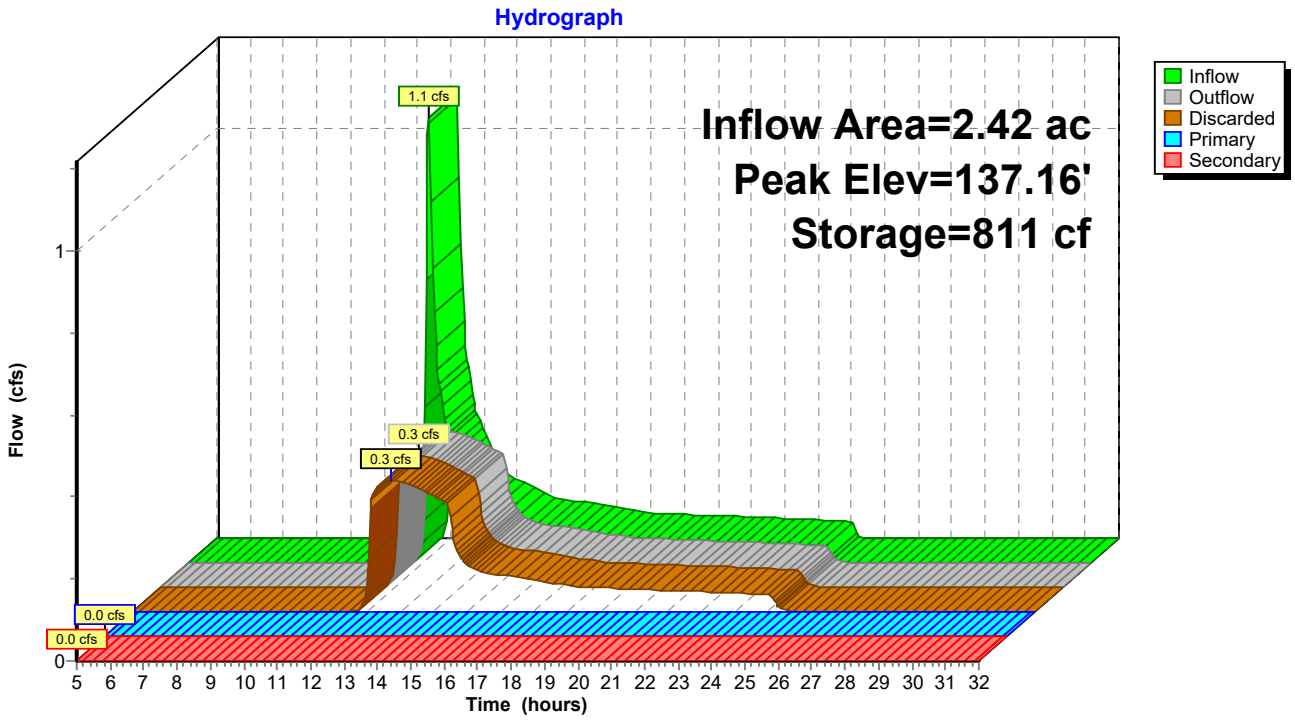
Device	Routing	Invert	Outlet Devices
#1	Discarded	137.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	137.00'	**8.0" Round Culvert** L= 31.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 137.00' / 136.84' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#3	Device 2	137.50'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	138.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	138.50'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Secondary	139.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.3 cfs @ 12.73 hrs HW=137.16' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.3 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=137.00' (Free Discharge)
└**2=Culvert** (Controls 0.0 cfs)
  └**3=Orifice/Grate** (Controls 0.0 cfs)
  └**4=Orifice/Grate** (Controls 0.0 cfs)
  └**5=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=137.00' (Free Discharge)
└**6=Broad-Crested Rectangular Weir**(Controls 0.0 cfs)

Pond IB-1:



Summary for Pond IB-2:

Inflow Area = 1.25 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 139.00' @ 5.00 hrs Surf.Area= 420 sf Storage= 0 cf

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
#1	139.00'	3,105 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

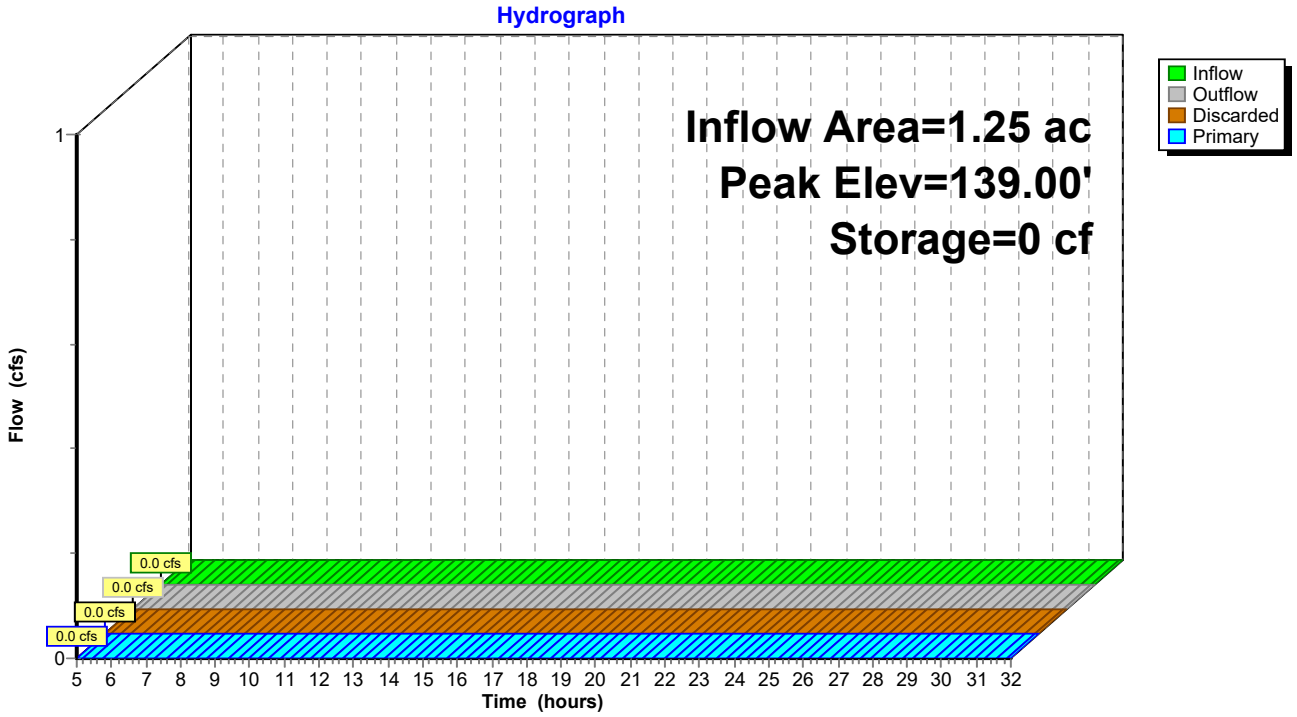
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
139.00	420	0	0
140.00	796	608	608
142.00	1,701	2,497	3,105

Device	Routing	Invert	Outlet Devices
#1	Discarded	139.00'	**1.020 in/hr Exfiltration over Surface area**
#2	Primary	141.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.0 cfs @ 5.00 hrs HW=139.00' (Free Discharge)
↑—**1=Exfiltration** (Passes 0.0 cfs of 0.0 cfs potential flow)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=139.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond IB-2:


Hydrograph
Inflow Area=1.25 ac
Peak Elev=139.00'
Storage=0 cf
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)
0.0 cfs
0.0 cfs
0.0 cfs
0.0 cfs
0
1
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

Summary for Pond IB-3:

Inflow Area = 2.20 ac, 44.43% Impervious, Inflow Depth = 1.16" for 2-Yr event
Inflow = 2.5 cfs @ 12.14 hrs, Volume= 0.212 af
Outflow = 0.1 cfs @ 17.13 hrs, Volume= 0.149 af, Atten= 96%, Lag= 299.4 min
Discarded = 0.1 cfs @ 17.13 hrs, Volume= 0.114 af
Primary = 0.0 cfs @ 17.13 hrs, Volume= 0.034 af
Routed to Reach DP-1 : Northern Wetlands Culvert
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-1 : Northern Wetlands Culvert

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 123.08' @ 17.13 hrs Surf.Area= 3,140 sf Storage= 5,579 cf

Plug-Flow detention time= 515.0 min calculated for 0.148 af (70% of inflow)
Center-of-Mass det. time= 403.6 min (1,267.9 - 864.3)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	36,346 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
120.00	747	0	0	747
122.00	2,130	2,759	2,759	2,154
124.00	4,161	6,179	8,938	4,223
126.00	6,876	10,924	19,862	6,988
128.00	9,689	16,485	36,346	9,873

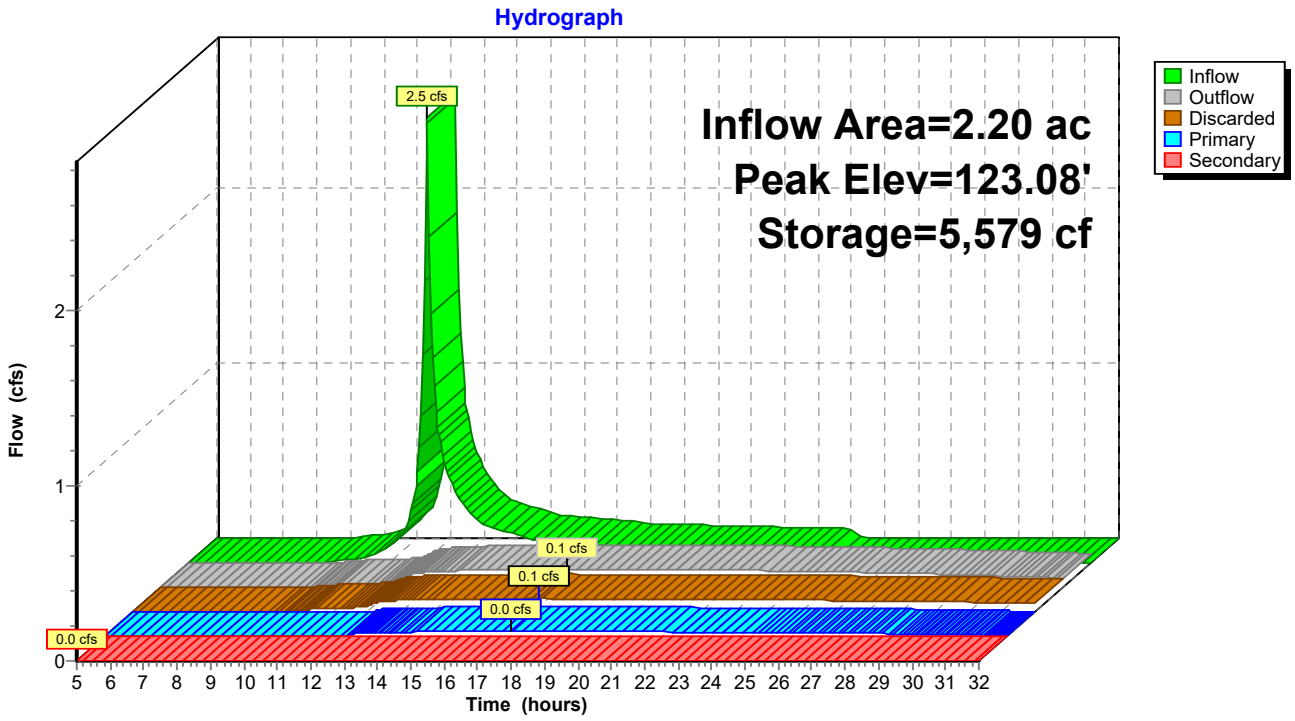
Device	Routing	Invert	Outlet Devices
#1	Primary	120.00'	**12.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 120.00' / 119.50' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	122.00'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	125.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	126.50'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Discarded	120.00'	**1.020 in/hr Exfiltration over Wetted area**
#6	Secondary	127.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.1 cfs @ 17.13 hrs HW=123.08' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 17.13 hrs HW=123.08' (Free Discharge)
└**1=Culvert** (Passes 0.0 cfs of 4.5 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 0.0 cfs @ 4.90 fps)
  └**3=Orifice/Grate** (Controls 0.0 cfs)
  └**4=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=120.00' (Free Discharge)
└**6=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond IB-3:



Summary for Pond IT-1:

Inflow Area = 0.68 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr event
Inflow = 0.0 cfs @ 24.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.0 cfs @ 24.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 138.00' @ 24.00 hrs Surf.Area= 1,454 sf Storage= 0 cf

Plug-Flow detention time= 0.7 min calculated for 0.000 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (1,318.6 - 1,317.9)

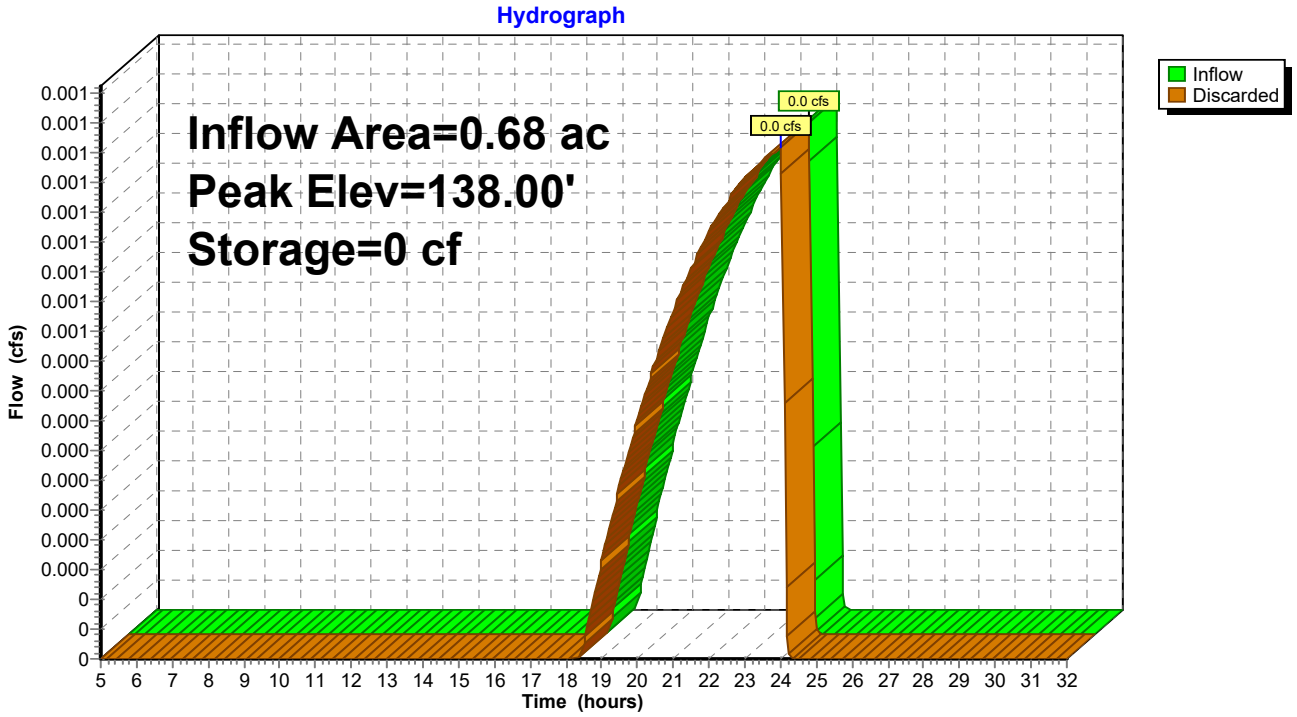
Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	1,163 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
138.00	1,454	0.0	0	0
140.00	1,454	40.0	1,163	1,163

Device	Routing	Invert	Outlet Devices
#1	Discarded	138.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.3 cfs @ 24.00 hrs HW=138.00' (Free Discharge)
↳**1=Exfiltration** (Exfiltration Controls 0.3 cfs)

Pond IT-1:



Summary for Pond IT-2:

[92] Warning: Device #2 is above defined storage

Inflow Area = 0.39 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr event
Inflow = 0.0 cfs @ 24.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.0 cfs @ 24.00 hrs, Volume= 0.000 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-6 : Wetland Series 'B' & 'C'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 141.00' @ 24.00 hrs Surf.Area= 520 sf Storage= 0 cf

Plug-Flow detention time= 1.1 min calculated for 0.000 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (1,319.0 - 1,317.9)

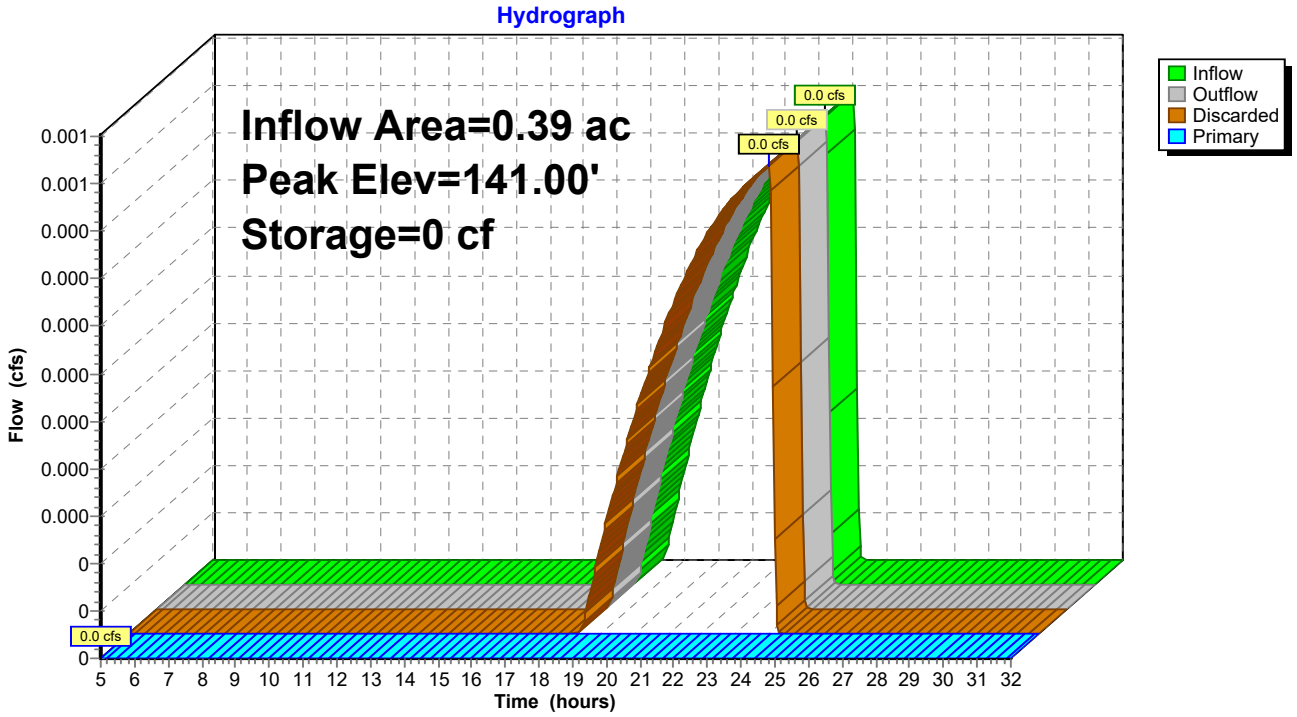
Volume	Invert	Avail.Storage	Storage Description
#1	141.00'	583 cf	**4.00'W x 130.00'L x 3.00'H Prismatoid** 1,560 cf Overall - 102 cf Embedded = 1,458 cf x 40.0% Voids
#2	141.50'	102 cf	**12.0" Round Pipe Storage** Inside #1 L= 130.0'
		685 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	141.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	144.00'	**130.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.1 cfs @ 24.00 hrs HW=141.00' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=141.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Pond IT-2:


Hydrograph
Inflow Area=0.39 ac
Peak Elev=141.00'
Storage=0 cf
Inflow
Outflow
Discarded
Primary
0.0 cfs
0.0 cfs
0.0 cfs
0.0 cfs
Flow (cfs)
0.001
0.001
0.000
0.000
0.000
0.000
0.000
0.000
0
0
0
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
Time (hours)

Summary for Pond P-5C:

Inflow Area = 1.70 ac, 64.71% Impervious, Inflow Depth = 1.36" for 2-Yr event
Inflow = 2.6 cfs @ 12.13 hrs, Volume= 0.192 af
Outflow = 2.6 cfs @ 12.14 hrs, Volume= 0.192 af, Atten= 1%, Lag= 0.2 min
Discarded = 2.6 cfs @ 12.14 hrs, Volume= 0.192 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.33' @ 12.14 hrs Surf.Area= 28,680 sf Storage= 40 cf

Plug-Flow detention time= 0.3 min calculated for 0.192 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (861.1 - 860.8)

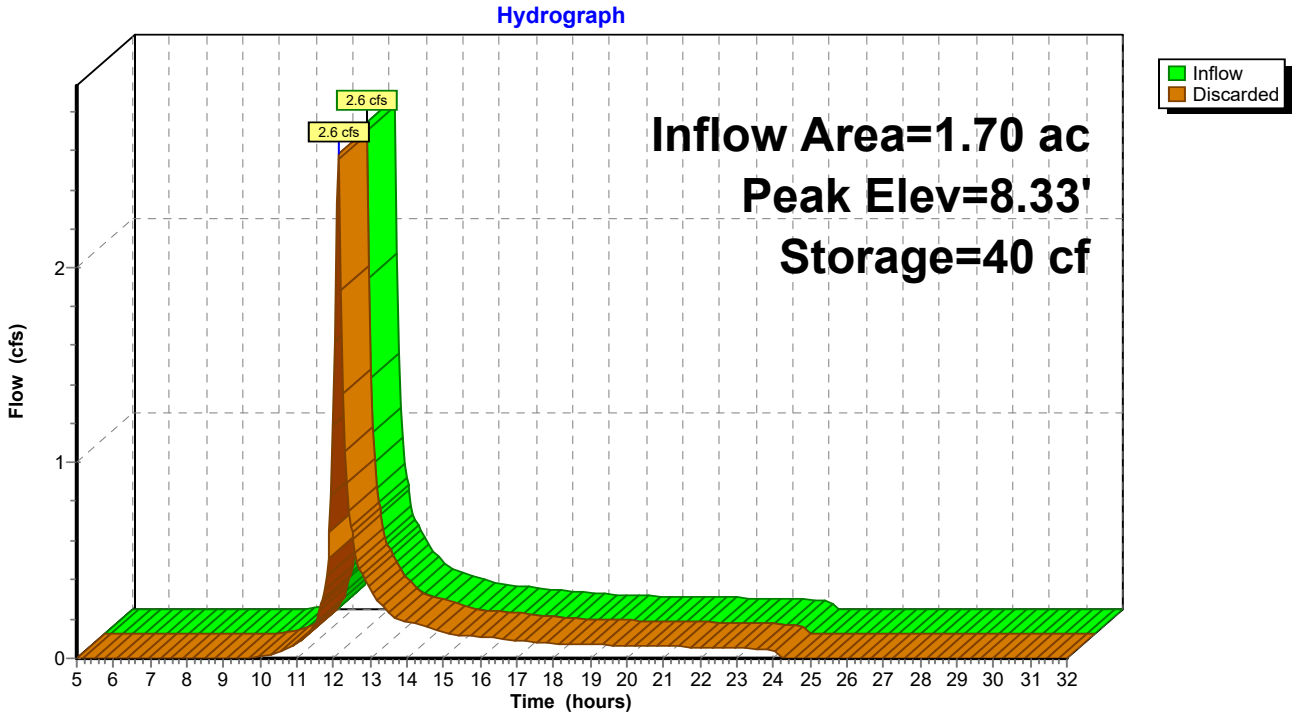
Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	18,929 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	28,680	0.0	0	0
8.34	28,680	30.0	86	86
10.42	28,680	30.0	17,896	17,982
10.75	28,680	10.0	946	18,929

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=5.5 cfs @ 12.14 hrs HW=8.33' (Free Discharge)
1=Exfiltration (Exfiltration Controls 5.5 cfs)

Pond P-5C:


Hydrograph
Inflow
Discarded
2.6 cfs
2.6 cfs
Inflow Area=1.70 ac
Peak Elev=8.33'
Storage=40 cf
Flow (cfs)
0
1
2
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
Time (hours)

Summary for Pond P-5D:

Inflow Area = 1.83 ac, 32.24% Impervious, Inflow Depth = 0.28" for 2-Yr event
Inflow = 0.2 cfs @ 12.39 hrs, Volume= 0.043 af
Outflow = 0.2 cfs @ 12.41 hrs, Volume= 0.043 af, Atten= 0%, Lag= 1.3 min
Discarded = 0.2 cfs @ 12.41 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.33' @ 12.41 hrs Surf.Area= 16,837 sf Storage= 8 cf

Plug-Flow detention time= 0.9 min calculated for 0.043 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (980.7 - 979.8)

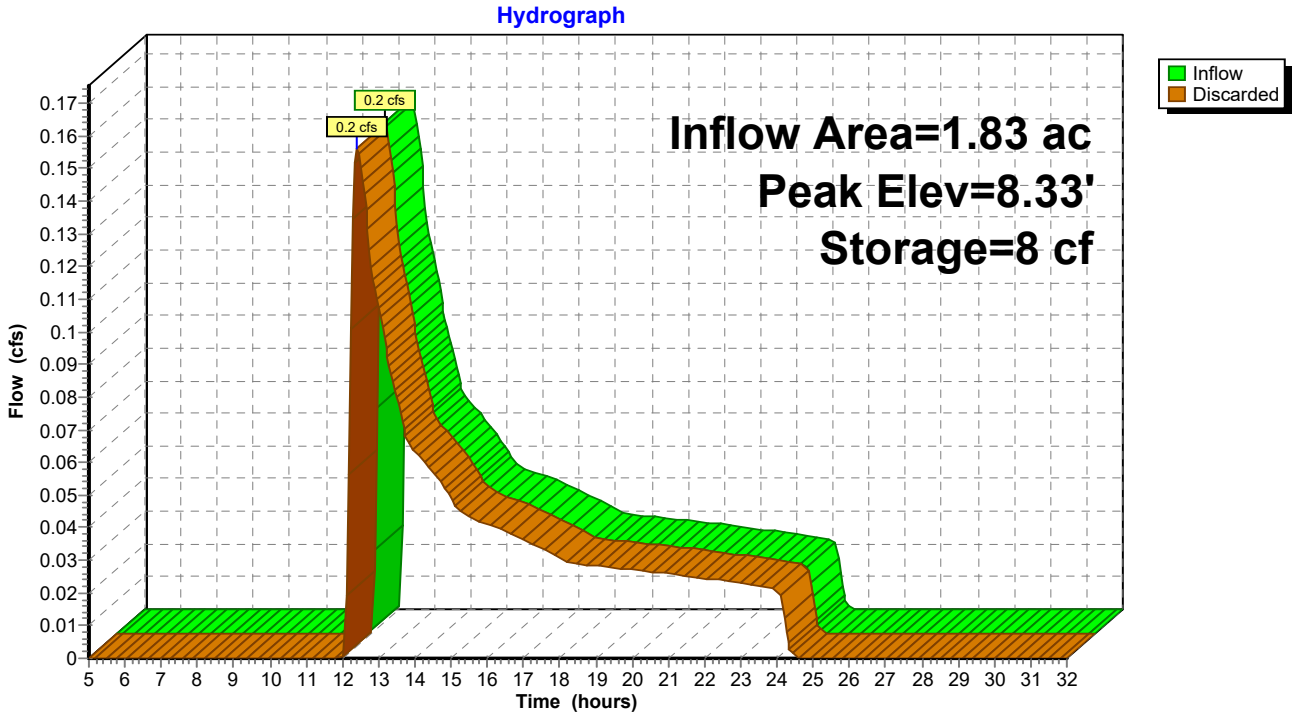
Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	11,112 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	16,837	0.0	0	0
8.34	16,837	30.0	51	51
10.42	16,837	30.0	10,506	10,557
10.75	16,837	10.0	556	11,112

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.9 cfs @ 12.41 hrs HW=8.33' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.9 cfs)

Pond P-5D:


Hydrograph
Inflow
Discarded
Inflow Area=1.83 ac
Peak Elev=8.33'
Storage=8 cf
0.2 cfs
0.2 cfs
Flow (cfs)
Time (hours)

Summary for Pond P-5F:

Inflow Area = 7.87 ac, 54.76% Impervious, Inflow Depth = 1.11" for 2-Yr event
Inflow = 9.7 cfs @ 12.14 hrs, Volume= 0.730 af
Outflow = 9.6 cfs @ 12.14 hrs, Volume= 0.730 af, Atten= 1%, Lag= 0.2 min
Discarded = 9.6 cfs @ 12.14 hrs, Volume= 0.730 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.33' @ 12.14 hrs Surf.Area= 109,500 sf Storage= 151 cf

Plug-Flow detention time= 0.3 min calculated for 0.729 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (874.8 - 874.5)

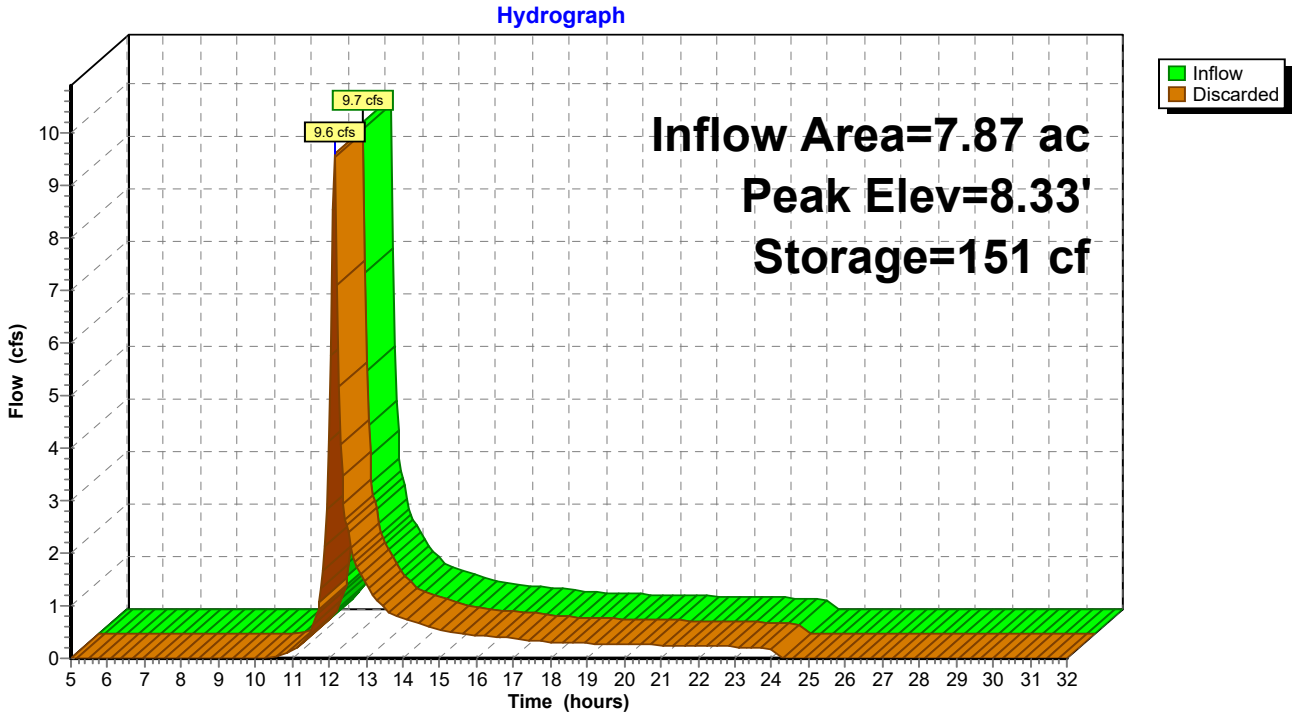
Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	72,270 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	109,500	0.0	0	0
8.34	109,500	30.0	328	328
10.42	109,500	30.0	68,328	68,657
10.75	109,500	10.0	3,614	72,270

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=21.0 cfs @ 12.14 hrs HW=8.33' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 21.0 cfs)

Pond P-5F:


Hydrograph
Inflow
Discarded
9.7 cfs
9.6 cfs
Inflow Area=7.87 ac
Peak Elev=8.33'
Storage=151 cf
Flow (cfs)
0
1
2
3
4
5
6
7
8
9
10
Time (hours)
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

Summary for Pond P-6C:

Inflow Area = 3.56 ac, 55.90% Impervious, Inflow Depth = 1.06" for 2-Yr event
Inflow = 4.1 cfs @ 12.14 hrs, Volume= 0.313 af
Outflow = 4.1 cfs @ 12.14 hrs, Volume= 0.313 af, Atten= 1%, Lag= 0.2 min
Discarded = 4.1 cfs @ 12.14 hrs, Volume= 0.313 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.33' @ 12.14 hrs Surf.Area= 50,137 sf Storage= 64 cf

Plug-Flow detention time= 0.3 min calculated for 0.313 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (878.3 - 878.0)

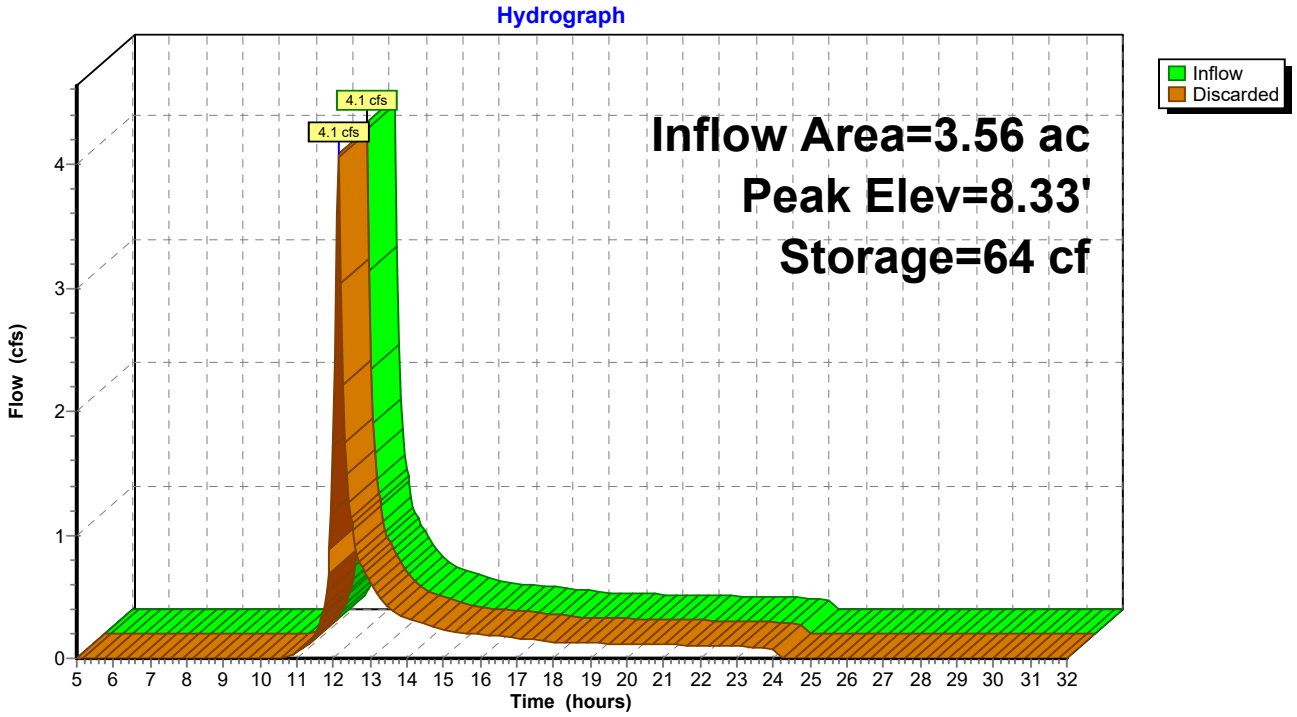
Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	33,090 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	50,137	0.0	0	0
8.34	50,137	30.0	150	150
10.42	50,137	30.0	31,285	31,436
10.75	50,137	10.0	1,655	33,090

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=9.6 cfs @ 12.14 hrs HW=8.33' (Free Discharge)
1=Exfiltration (Exfiltration Controls 9.6 cfs)

Pond P-6C:


Hydrograph
Inflow
Discarded
4.1 cfs
4.1 cfs
Inflow Area=3.56 ac
Peak Elev=8.33'
Storage=64 cf
Flow (cfs)
0
1
2
3
4
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
Time (hours)

Summary for Pond P-8G:

Inflow Area = 9.78 ac, 54.60% Impervious, Inflow Depth = 0.95" for 2-Yr event
Inflow = 10.0 cfs @ 12.14 hrs, Volume= 0.772 af
Outflow = 3.5 cfs @ 12.05 hrs, Volume= 0.771 af, Atten= 65%, Lag= 0.0 min
Discarded = 3.5 cfs @ 12.05 hrs, Volume= 0.771 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.42' @ 12.36 hrs Surf.Area= 150,055 sf Storage= 4,099 cf

Plug-Flow detention time= 6.8 min calculated for 0.770 af (100% of inflow)
Center-of-Mass det. time= 6.4 min (891.7 - 885.2)

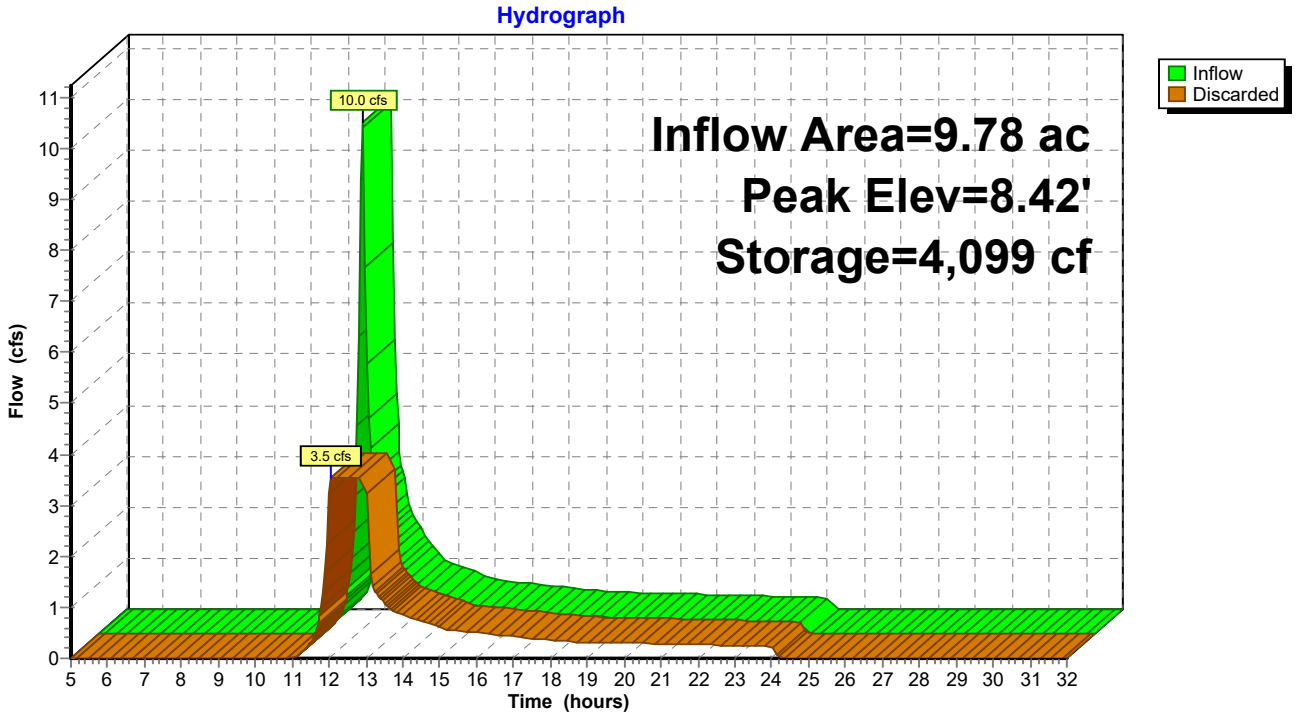
Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	99,036 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	150,055	0.0	0	0
8.34	150,055	30.0	450	450
10.42	150,055	30.0	93,634	94,084
10.75	150,055	10.0	4,952	99,036

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=3.5 cfs @ 12.05 hrs HW=8.34' (Free Discharge)
1=Exfiltration (Exfiltration Controls 3.5 cfs)

Pond P-8G:


Hydrograph
Inflow
Discarded
Inflow Area=9.78 ac
Peak Elev=8.42'
Storage=4,099 cf
10.0 cfs
3.5 cfs
Flow (cfs)
Time (hours)
0 1 2 3 4 5 6 7 8 9 10 11
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

Summary for Pond WL-1: Wetland Series 'J'

Inflow Area = 3.97 ac, 23.93% Impervious, Inflow Depth = 0.00" for 2-Yr event
Inflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 136.00' @ 5.00 hrs Surf.Area= 219 sf Storage= 0 cf

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
#1	136.00'	127,590 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

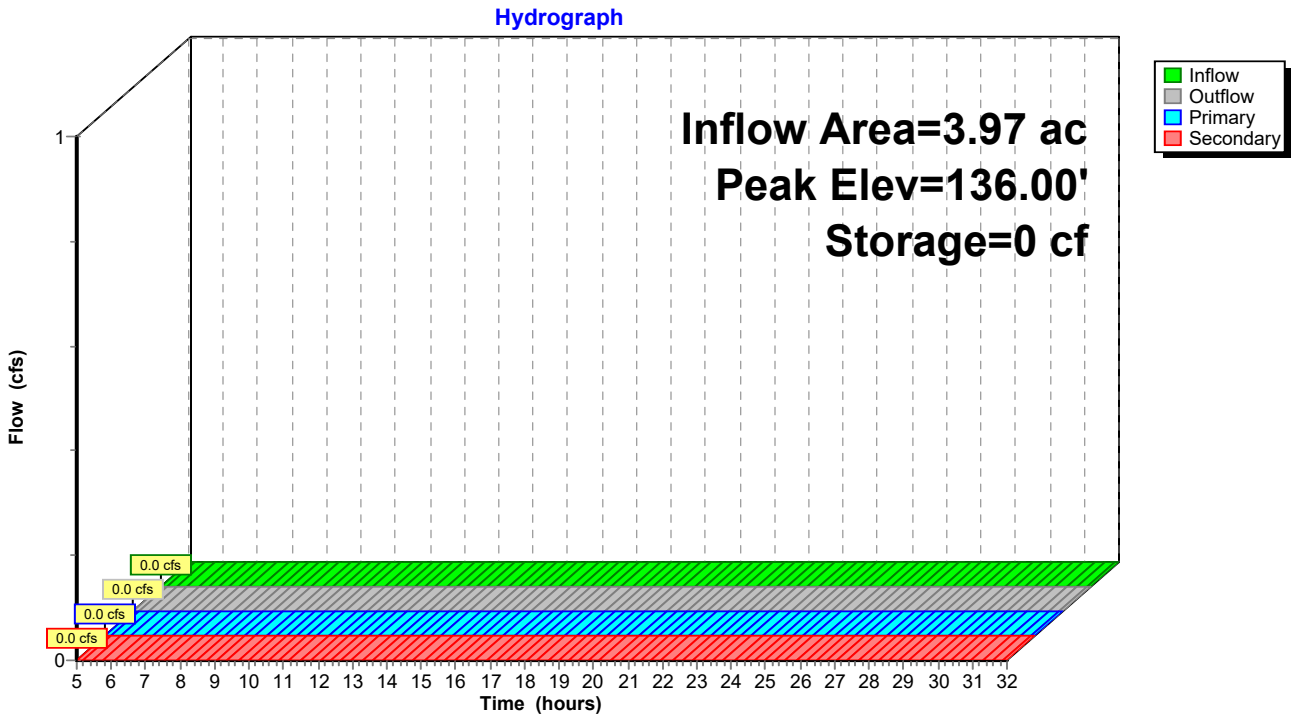
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
136.00	219	0	0
138.00	6,965	7,184	7,184
140.00	25,165	32,130	39,314
141.00	41,218	33,192	72,506
142.00	68,950	55,084	127,590

Device	Routing	Invert	Outlet Devices
#1	Primary	137.05'	**12.0" Round Culvert** L= 145.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 137.05' / 136.05' S= 0.0069 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Secondary	141.05'	**155.0' long x 35.0' 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=0.0 cfs @ 5.00 hrs HW=136.00' (Free Discharge)
1=Culvert (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=136.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.0 cfs)

Pond WL-1: Wetland Series 'J'



Summary for Subcatchment PWA-1A:

Runoff = 5.1 cfs @ 12.13 hrs, Volume= 0.373 af, Depth= 3.24"
Routed to Pond IB-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.04	30	Woods, Good, HSG A
0.04	55	Woods, Good, HSG B
0.09	39	>75% Grass cover, Good, HSG A
0.41	61	>75% Grass cover, Good, HSG B
0.62	98	Paved parking, HSG B
0.18	98	Roofs, HSG A
1.38	80	Weighted Average
0.58		42.03% Pervious Area
0.80		57.97% Impervious Area

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

Summary for Subcatchment PWA-1B:

Runoff = 1.0 cfs @ 12.25 hrs, Volume= 0.105 af, Depth= 1.54"
Routed to Pond IB-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (sf)	CN	Description
7,656	98	Roofs, HSG A
11,663	39	>75% Grass cover, Good, HSG A
14,502	61	>75% Grass cover, Good, HSG B
1,721	30	Woods, Good, HSG A
35,542	60	Weighted Average
27,886		78.46% Pervious Area
7,656		21.54% Impervious Area

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

Summary for Subcatchment PWA-1C:

Runoff = 0.1 cfs @ 13.22 hrs, Volume= 0.063 af, Depth= 0.21"
Routed to Reach DP-1 : Northern Wetlands Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
2.33	30	Woods, Good, HSG A
0.14	61	>75% Grass cover, Good, HSG B
0.42	39	>75% Grass cover, Good, HSG A
0.72	55	Woods, Good, HSG B
3.61	37	Weighted Average
3.61		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.9	77	0.0780	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.0	177	Total			

Summary for Subcatchment PWA-2A:

Runoff = 0.8 cfs @ 12.28 hrs, Volume= 0.085 af, Depth= 1.85"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.09	98	Paved parking, HSG B
0.17	61	>75% Grass cover, Good, HSG B
0.29	55	Woods, Good, HSG B
0.55	64	Weighted Average
0.46		83.64% Pervious Area
0.09		16.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
1.6	150	0.0960	1.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	100	0.1000	6.42		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
17.7	350	Total			

Summary for Subcatchment PWA-2B:

Runoff = 0.3 cfs @ 12.15 hrs, Volume= 0.027 af, Depth= 0.86"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Adj	Description
0.06	98		Unconnected pavement, HSG A
0.04	98		Paved parking, HSG A
0.28	39		>75% Grass cover, Good, HSG A
0.38	55	50	Weighted Average, UI Adjusted
0.28			73.68% Pervious Area
0.10			26.32% Impervious Area
0.06			60.00% Unconnected

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

Summary for Subcatchment PWA-5A:

Runoff = 0.0 cfs @ 20.64 hrs, Volume= 0.002 af, Depth= 0.06"
Routed to Reach DP-5 : Wetland Series 'A'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.32	30	Woods, Good, HSG A
0.11	39	>75% Grass cover, Good, HSG A
0.43	32	Weighted Average
0.43		100.00% Pervious Area

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

Summary for Subcatchment PWA-5B:

Runoff = 4.1 cfs @ 12.17 hrs, Volume= 0.341 af, Depth= 1.69"
Routed to Pond IB-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
1.47	39	>75% Grass cover, Good, HSG A
0.21	98	Roofs, HSG A
0.74	98	Paved roads w/curbs & sewers, HSG A
2.42	62	Weighted Average
1.47		60.74% Pervious Area
0.95		39.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0360	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.3	60	0.0400	3.00		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.1	265	0.0750	4.11		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.0	330	0.0150	1.84		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.7	705	Total			

Summary for Subcatchment PWA-5C:

Runoff = 5.7 cfs @ 12.13 hrs, Volume= 0.419 af, Depth= 2.96"
Routed to Pond P-5C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.60	39	>75% Grass cover, Good, HSG A
0.43	98	Roofs, HSG A
* 0.67	98	Porous Pavement, HSG A
1.70	77	Weighted Average
0.60		35.29% Pervious Area
1.10		64.71% Impervious Area

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

Summary for Subcatchment PWA-5D:

Runoff = 1.5 cfs @ 12.25 hrs, Volume= 0.171 af, Depth= 1.12"
Routed to Pond P-5D :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.38	39	>75% Grass cover, Good, HSG A
0.86	30	Woods, Good, HSG A
0.20	98	Roofs, HSG A
* 0.39	98	Porous Pavement, HSG A
1.83	54	Weighted Average
1.24		67.76% Pervious Area
0.59		32.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	69	0.1000	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
4.7	225	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	100	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.5	394	Total			

Summary for Subcatchment PWA-5E:

Runoff = 0.0 cfs @ 13.31 hrs, Volume= 0.022 af, Depth= 0.17"
Routed to Pond WL-1 : Wetland Series 'J'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.81	39	>75% Grass cover, Good, HSG A
0.06	61	>75% Grass cover, Good, HSG B
0.67	30	Woods, Good, HSG A
0.01	55	Woods, Good, HSG B
1.55	36	Weighted Average
1.55		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.3	30	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.9	110	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	40	0.3700	4.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.6	230	Total			

Summary for Subcatchment PWA-5F:

Runoff = 23.3 cfs @ 12.13 hrs, Volume= 1.704 af, Depth= 2.60"
Routed to Pond P-5F :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

	Area (ac)	CN	Description
	2.88	39	>75% Grass cover, Good, HSG A
	0.12	30	Woods, Good, HSG A
	1.59	98	Roofs, HSG A
*	2.72	98	Porous Pavement, HSG A
	0.42	61	>75% Grass cover, Good, HSG B
	0.14	55	Woods, Good, HSG B
	7.87	73	Weighted Average
	3.56		45.24% Pervious Area
	4.31		54.76% Impervious Area

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

Summary for Subcatchment PWA-5G:

Runoff = 0.9 cfs @ 12.14 hrs, Volume= 0.068 af, Depth= 1.77"
Routed to Pond DB-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.27	39	>75% Grass cover, Good, HSG A
0.19	98	Paved parking, HSG A
0.46	63	Weighted Average
0.27		58.70% Pervious Area
0.19		41.30% Impervious Area

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

Summary for Subcatchment PWA-5H:

Runoff = 0.1 cfs @ 13.19 hrs, Volume= 0.030 af, Depth= 0.25"
Routed to Pond DB-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.14	30	Woods, Good, HSG A
1.32	39	>75% Grass cover, Good, HSG A
1.46	38	Weighted Average
1.46		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
16.4	900	0.0170	0.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
25.9	1,000	Total			

Summary for Subcatchment PWA-6A:

Runoff = 0.0 cfs @ 20.72 hrs, Volume= 0.006 af, Depth= 0.06"
Routed to Reach DP-6 : Wetland Series 'B' & 'C'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.20	39	>75% Grass cover, Good, HSG A
0.99	30	Woods, Good, HSG A
1.19	32	Weighted Average
1.19		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"

Summary for Subcatchment PWA-6B:

Runoff = 0.0 cfs @ 12.54 hrs, Volume= 0.009 af, Depth= 0.29"
Routed to Pond IT-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.39	39	>75% Grass cover, Good, HSG A
0.39		100.00% Pervious Area

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

Summary for Subcatchment PWA-6C:

Runoff = 10.2 cfs @ 12.13 hrs, Volume= 0.745 af, Depth= 2.51"
Routed to Pond P-6C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

	Area (ac)	CN	Description
	1.57	39	>75% Grass cover, Good, HSG A
	0.70	98	Roofs, HSG A
*	1.29	98	Porous Pavement, HSG A
	3.56	72	Weighted Average
	1.57		44.10% Pervious Area
	1.99		55.90% Impervious Area

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

Summary for Subcatchment PWA-7:

Runoff = 0.0 cfs @ 22.94 hrs, Volume= 0.000 af, Depth= 0.02"
Routed to Reach DP-7 : #4 Poppy Ln

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.18	30	Woods, Good, HSG A
0.18		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	80	0.1000	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"

Summary for Subcatchment PWA-8A:

Runoff = 0.0 cfs @ 14.83 hrs, Volume= 0.029 af, Depth= 0.11"
Routed to Reach CR-1 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
1.86	30	Woods, Good, HSG A
1.25	39	>75% Grass cover, Good, HSG A
3.11	34	Weighted Average
3.11		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
5.8	330	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
26.6	430	Total			

Summary for Subcatchment PWA-8B:

Runoff = 0.0 cfs @ 22.09 hrs, Volume= 0.009 af, Depth= 0.04"
Routed to Reach CR-1 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.43	39	>75% Grass cover, Good, HSG A
2.27	30	Woods, Good, HSG A
2.70	31	Weighted Average
2.70		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.7	270	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.1	370	Total			

Summary for Subcatchment PWA-8C:

Runoff = 0.0 cfs @ 13.25 hrs, Volume= 0.011 af, Depth= 0.17"
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.24	30	Woods, Good, HSG A
0.51	39	>75% Grass cover, Good, HSG A
0.75	36	Weighted Average
0.75		100.00% Pervious Area

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

Summary for Subcatchment PWA-8D:

Runoff = 0.0 cfs @ 12.54 hrs, Volume= 0.016 af, Depth= 0.29"
Routed to Pond IT-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.68	39	>75% Grass cover, Good, HSG A
0.68		100.00% Pervious Area

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

Summary for Subcatchment PWA-8E:

Runoff = 0.0 cfs @ 14.44 hrs, Volume= 0.015 af, Depth= 0.14"
Routed to Pond IB-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (sf)	CN	Description
30,573	39	>75% Grass cover, Good, HSG A
24,013	30	Woods, Good, HSG A
54,586	35	Weighted Average
54,586		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0150	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
7.5	330	0.0110	0.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.2	430	Total			

Summary for Subcatchment PWA-8F:

Runoff = 0.0 cfs @ 14.62 hrs, Volume= 0.008 af, Depth= 0.11"
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

Area (ac)	CN	Description
0.45	30	Woods, Good, HSG A
0.41	39	>75% Grass cover, Good, HSG A
0.86	34	Weighted Average
0.86		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0250	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
4.2	250	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.9	350	Total			

Summary for Subcatchment PWA-8G:

Runoff = 26.0 cfs @ 12.13 hrs, Volume= 1.905 af, Depth= 2.34"
Routed to Pond P-8G :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Yr Rainfall=5.40"

	Area (ac)	CN	Description
	1.08	30	Woods, Good, HSG A
	3.36	39	>75% Grass cover, Good, HSG A
	1.61	98	Roofs, HSG A
*	3.73	98	Porous Pavement, HSG A
	9.78	70	Weighted Average
	4.44		45.40% Pervious Area
	5.34		54.60% Impervious Area

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

Summary for Reach CR-1: Culvert

Inflow Area = 5.81 ac, 0.00% Impervious, Inflow Depth = 0.08" for 10-Yr event
Inflow = 0.0 cfs @ 17.01 hrs, Volume= 0.037 af
Outflow = 0.0 cfs @ 17.05 hrs, Volume= 0.037 af, Atten= 0%, Lag= 2.5 min
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.83 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.83 fps, Avg. Travel Time= 1.3 min

Peak Storage= 4 cf @ 17.03 hrs
Average Depth at Peak Storage= 0.00' , Surface Width= 15.00'
Bank-Full Depth= 5.00' Flow Area= 75.0 sf, Capacity= 958.5 cfs

15.00' x 5.00' deep channel, n= 0.030 Stream, clean & straight
Length= 65.0' Slope= 0.0154 '/'
Inlet Invert= 134.00', Outlet Invert= 133.00'

Summary for Reach DP-1: Northern Wetlands Culvert

Inflow Area = 5.81 ac, 16.81% Impervious, Inflow Depth > 0.28" for 10-Yr event
Inflow = 0.2 cfs @ 13.24 hrs, Volume= 0.134 af
Outflow = 0.2 cfs @ 13.24 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Wheeler St

Inflow Area = 0.93 ac, 20.43% Impervious, Inflow Depth = 1.44" for 10-Yr event
Inflow = 0.9 cfs @ 12.26 hrs, Volume= 0.112 af
Outflow = 0.9 cfs @ 12.26 hrs, Volume= 0.112 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1R

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-3: #48 Rinzee Rd

Summary for Reach DP-4: Poppy Ln

Summary for Reach DP-5: Wetland Series 'A'

Inflow Area = 6.32 ac, 18.04% Impervious, Inflow Depth > 0.12" for 10-Yr event
Inflow = 0.0 cfs @ 22.24 hrs, Volume= 0.062 af
Outflow = 0.0 cfs @ 22.24 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6: Wetland Series 'B' & 'C'

Inflow Area = 1.58 ac, 0.00% Impervious, Inflow Depth = 0.04" for 10-Yr event
Inflow = 0.0 cfs @ 20.72 hrs, Volume= 0.006 af
Outflow = 0.0 cfs @ 20.72 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7: #4 Poppy Ln

Inflow Area = 0.18 ac, 0.00% Impervious, Inflow Depth = 0.02" for 10-Yr event
Inflow = 0.0 cfs @ 22.94 hrs, Volume= 0.000 af
Outflow = 0.0 cfs @ 22.94 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-8: Wetland Series 'D' & 'E'

Inflow Area = 8.67 ac, 0.00% Impervious, Inflow Depth = 0.08" for 10-Yr event
Inflow = 0.1 cfs @ 16.74 hrs, Volume= 0.056 af
Outflow = 0.1 cfs @ 16.74 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Pond DB-1:

Inflow Area = 1.92 ac, 9.90% Impervious, Inflow Depth = 0.61" for 10-Yr event
Inflow = 0.9 cfs @ 12.14 hrs, Volume= 0.098 af
Outflow = 0.0 cfs @ 23.76 hrs, Volume= 0.060 af, Atten= 96%, Lag= 697.5 min
Primary = 0.0 cfs @ 23.76 hrs, Volume= 0.060 af
Routed to Reach DP-5 : Wetland Series 'A'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 133.68' @ 23.76 hrs Surf.Area= 1,914 sf Storage= 2,640 cf

Plug-Flow detention time= 539.5 min calculated for 0.060 af (61% of inflow)
Center-of-Mass det. time= 393.3 min (1,319.2 - 925.8)

Volume	Invert	Avail.Storage	Storage Description
#1	131.50'	9,029 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
131.50	484	0	0
132.00	834	330	330
134.00	2,118	2,952	3,282
136.00	3,629	5,747	9,029

Device	Routing	Invert	Outlet Devices
#1	Primary	130.50'	**8.0" Round Culvert** L= 26.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 130.50' / 130.37' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	131.50'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	134.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	135.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.0 cfs @ 23.76 hrs HW=133.68' (Free Discharge)
└**1=Culvert** (Passes 0.0 cfs of 2.2 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.0 cfs @ 7.04 fps)
  └**3=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=131.50' (Free Discharge)
└**4=Broad-Crested Rectangular Weir**(Controls 0.0 cfs)

Summary for Pond IB-1:

Inflow Area = 2.42 ac, 39.26% Impervious, Inflow Depth = 1.69" for 10-Yr event
Inflow = 4.1 cfs @ 12.17 hrs, Volume= 0.341 af
Outflow = 0.6 cfs @ 13.20 hrs, Volume= 0.341 af, Atten= 86%, Lag= 62.2 min
Discarded = 0.5 cfs @ 13.20 hrs, Volume= 0.336 af
Primary = 0.0 cfs @ 13.20 hrs, Volume= 0.006 af
  Routed to Pond WL-1 : Wetland Series 'J'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
  Routed to Pond WL-1 : Wetland Series 'J'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 137.69' @ 13.20 hrs Surf.Area= 9,813 sf Storage= 4,913 cf

Plug-Flow detention time= 87.9 min calculated for 0.340 af (100% of inflow)
Center-of-Mass det. time= 87.8 min (967.8 - 880.0)

Volume	Invert	Avail.Storage	Storage Description
#1	137.00'	36,093 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.00	4,494	0	0
138.00	12,238	8,366	8,366
140.00	15,489	27,727	36,093

Device	Routing	Invert	Outlet Devices
#1	Discarded	137.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	137.00'	**8.0" Round Culvert** L= 31.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 137.00' / 136.84' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#3	Device 2	137.50'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	138.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	138.50'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Secondary	139.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.5 cfs @ 13.20 hrs HW=137.69' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.5 cfs)

Primary OutFlow Max=0.0 cfs @ 13.20 hrs HW=137.69' (Free Discharge)
└**2=Culvert** (Passes 0.0 cfs of 0.7 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.0 cfs @ 1.55 fps)
  ├**4=Orifice/Grate** (Controls 0.0 cfs)
  └**5=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=137.00' (Free Discharge)
└**6=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond IB-2:

Inflow Area = 1.25 ac, 0.00% Impervious, Inflow Depth = 0.14" for 10-Yr event
Inflow = 0.0 cfs @ 14.44 hrs, Volume= 0.015 af
Outflow = 0.0 cfs @ 23.14 hrs, Volume= 0.015 af, Atten= 38%, Lag= 522.3 min
Discarded = 0.0 cfs @ 23.14 hrs, Volume= 0.015 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 139.32' @ 23.14 hrs Surf.Area= 539 sf Storage= 152 cf

Plug-Flow detention time= 146.1 min calculated for 0.015 af (100% of inflow)
Center-of-Mass det. time= 146.3 min (1,233.9 - 1,087.6)

Volume	Invert	Avail.Storage	Storage Description
#1	139.00'	3,105 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
139.00	420	0	0
140.00	796	608	608
142.00	1,701	2,497	3,105

Device	Routing	Invert	Outlet Devices
#1	Discarded	139.00'	**1.020 in/hr Exfiltration over Surface area**
#2	Primary	141.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.0 cfs @ 23.14 hrs HW=139.32' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=139.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir**(Controls 0.0 cfs)

Summary for Pond IB-3:

Inflow Area = 2.20 ac, 44.43% Impervious, Inflow Depth = 2.61" for 10-Yr event
Inflow = 5.7 cfs @ 12.14 hrs, Volume= 0.478 af
Outflow = 0.2 cfs @ 17.65 hrs, Volume= 0.279 af, Atten= 97%, Lag= 330.8 min
Discarded = 0.1 cfs @ 17.65 hrs, Volume= 0.208 af
Primary = 0.0 cfs @ 17.65 hrs, Volume= 0.071 af
Routed to Reach DP-1 : Northern Wetlands Culvert
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-1 : Northern Wetlands Culvert

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 125.03' @ 17.65 hrs Surf.Area= 5,480 sf Storage= 13,907 cf

Plug-Flow detention time= 564.0 min calculated for 0.279 af (58% of inflow)
Center-of-Mass det. time= 441.5 min (1,282.8 - 841.4)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	36,346 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
120.00	747	0	0	747
122.00	2,130	2,759	2,759	2,154
124.00	4,161	6,179	8,938	4,223
126.00	6,876	10,924	19,862	6,988
128.00	9,689	16,485	36,346	9,873

Device	Routing	Invert	Outlet Devices
#1	Primary	120.00'	**12.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 120.00' / 119.50' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	122.00'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	125.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	126.50'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

#5	Discarded	120.00'	**1.020 in/hr Exfiltration over Wetted area**
#6	Secondary	127.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.1 cfs @ 17.65 hrs HW=125.03' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 17.65 hrs HW=125.03' (Free Discharge)
└**1=Culvert** (Passes 0.0 cfs of 6.0 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.0 cfs @ 8.33 fps)
  ├**3=Orifice/Grate** (Orifice Controls 0.0 cfs @ 0.63 fps)
  └**4=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=120.00' (Free Discharge)
└**6=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond IT-1:

Inflow Area = 0.68 ac, 0.00% Impervious, Inflow Depth = 0.29" for 10-Yr event
Inflow = 0.0 cfs @ 12.54 hrs, Volume= 0.016 af
Outflow = 0.0 cfs @ 12.55 hrs, Volume= 0.016 af, Atten= 1%, Lag= 0.6 min
Discarded = 0.0 cfs @ 12.55 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 138.00' @ 12.55 hrs Surf.Area= 1,454 sf Storage= 2 cf

Plug-Flow detention time= 0.7 min calculated for 0.016 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (1,010.0 - 1,009.3)

Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	1,163 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
138.00	1,454	0.0	0	0
140.00	1,454	40.0	1,163	1,163

Device	Routing	Invert	Outlet Devices
#1	Discarded	138.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.3 cfs @ 12.55 hrs HW=138.00' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.3 cfs)

Summary for Pond IT-2:

Inflow Area = 0.39 ac, 0.00% Impervious, Inflow Depth = 0.29" for 10-Yr event
Inflow = 0.0 cfs @ 12.54 hrs, Volume= 0.009 af
Outflow = 0.0 cfs @ 12.55 hrs, Volume= 0.009 af, Atten= 1%, Lag= 0.7 min
Discarded = 0.0 cfs @ 12.55 hrs, Volume= 0.009 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-6 : Wetland Series 'B' & 'C'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 141.01' @ 12.55 hrs Surf.Area= 520 sf Storage= 1 cf

Plug-Flow detention time= 1.0 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (1,010.4 - 1,009.3)

Volume	Invert	Avail.Storage	Storage Description
#1	141.00'	583 cf	**4.00'W x 130.00'L x 3.00'H Prismatoid** 1,560 cf Overall - 102 cf Embedded = 1,458 cf x 40.0% Voids
#2	141.50'	102 cf	**12.0" Round Pipe Storage** Inside #1 L= 130.0'
		685 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	141.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	144.00'	**130.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.1 cfs @ 12.55 hrs HW=141.01' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=141.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond P-5C:

Inflow Area = 1.70 ac, 64.71% Impervious, Inflow Depth = 2.96" for 10-Yr event
Inflow = 5.7 cfs @ 12.13 hrs, Volume= 0.419 af
Outflow = 5.6 cfs @ 12.13 hrs, Volume= 0.419 af, Atten= 2%, Lag= 0.1 min
Discarded = 5.6 cfs @ 12.13 hrs, Volume= 0.419 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.34' @ 12.14 hrs Surf.Area= 28,680 sf Storage= 91 cf

Plug-Flow detention time= 0.7 min calculated for 0.418 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (836.1 - 835.7)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	18,929 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	28,680	0.0	0	0
8.34	28,680	30.0	86	86
10.42	28,680	30.0	17,896	17,982
10.75	28,680	10.0	946	18,929

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=5.5 cfs @ 12.13 hrs HW=8.34' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 5.5 cfs)

Summary for Pond P-5D:

Inflow Area = 1.83 ac, 32.24% Impervious, Inflow Depth = 1.12" for 10-Yr event
Inflow = 1.5 cfs @ 12.25 hrs, Volume= 0.171 af
Outflow = 0.9 cfs @ 12.20 hrs, Volume= 0.171 af, Atten= 37%, Lag= 0.0 min
Discarded = 0.9 cfs @ 12.20 hrs, Volume= 0.171 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.41' @ 12.45 hrs Surf.Area= 16,837 sf Storage= 384 cf

Plug-Flow detention time= 1.8 min calculated for 0.170 af (100% of inflow)
Center-of-Mass det. time= 1.9 min (914.7 - 912.7)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	11,112 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	16,837	0.0	0	0
8.34	16,837	30.0	51	51
10.42	16,837	30.0	10,506	10,557
10.75	16,837	10.0	556	11,112

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.9 cfs @ 12.20 hrs HW=8.35' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.9 cfs)

Summary for Pond P-5F:

Inflow Area = 7.87 ac, 54.76% Impervious, Inflow Depth = 2.60" for 10-Yr event
Inflow = 23.3 cfs @ 12.13 hrs, Volume= 1.704 af
Outflow = 21.7 cfs @ 12.13 hrs, Volume= 1.709 af, Atten= 7%, Lag= 0.0 min
Discarded = 21.7 cfs @ 12.13 hrs, Volume= 1.709 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.35' @ 12.15 hrs Surf.Area= 109,500 sf Storage= 556 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	72,270 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	109,500	0.0	0	0
8.34	109,500	30.0	328	328
10.42	109,500	30.0	68,328	68,657
10.75	109,500	10.0	3,614	72,270

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=21.0 cfs @ 12.13 hrs HW=8.34' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 21.0 cfs)

Summary for Pond P-6C:

Inflow Area = 3.56 ac, 55.90% Impervious, Inflow Depth = 2.51" for 10-Yr event
Inflow = 10.2 cfs @ 12.13 hrs, Volume= 0.745 af
Outflow = 9.8 cfs @ 12.13 hrs, Volume= 0.743 af, Atten= 4%, Lag= 0.0 min
Discarded = 9.8 cfs @ 12.13 hrs, Volume= 0.743 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.34' @ 12.14 hrs Surf.Area= 50,137 sf Storage= 176 cf

Plug-Flow detention time= 1.9 min calculated for 0.742 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (850.0 - 849.4)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	33,090 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	50,137	0.0	0	0
8.34	50,137	30.0	150	150
10.42	50,137	30.0	31,285	31,436
10.75	50,137	10.0	1,655	33,090

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=9.6 cfs @ 12.13 hrs HW=8.34' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 9.6 cfs)

Summary for Pond P-8G:

Inflow Area = 9.78 ac, 54.60% Impervious, Inflow Depth = 2.34" for 10-Yr event
Inflow = 26.0 cfs @ 12.13 hrs, Volume= 1.905 af
Outflow = 3.5 cfs @ 11.80 hrs, Volume= 1.904 af, Atten= 86%, Lag= 0.0 min
Discarded = 3.5 cfs @ 11.80 hrs, Volume= 1.904 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.85' @ 12.98 hrs Surf.Area= 150,055 sf Storage= 23,596 cf

Plug-Flow detention time= 48.6 min calculated for 1.901 af (100% of inflow)
Center-of-Mass det. time= 48.3 min (903.2 - 854.8)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	99,036 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	150,055	0.0	0	0
8.34	150,055	30.0	450	450
10.42	150,055	30.0	93,634	94,084
10.75	150,055	10.0	4,952	99,036

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=3.5 cfs @ 11.80 hrs HW=8.34' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 3.5 cfs)

Summary for Pond WL-1: Wetland Series 'J'

Inflow Area = 3.97 ac, 23.93% Impervious, Inflow Depth = 0.08" for 10-Yr event
Inflow = 0.1 cfs @ 13.27 hrs, Volume= 0.028 af
Outflow = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 136.79' @ 24.60 hrs Surf.Area= 2,871 sf Storage= 1,215 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	136.00'	127,590 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
136.00	219	0	0
138.00	6,965	7,184	7,184
140.00	25,165	32,130	39,314
141.00	41,218	33,192	72,506
142.00	68,950	55,084	127,590

Device	Routing	Invert	Outlet Devices
#1	Primary	137.05'	**12.0" Round Culvert** L= 145.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 137.05' / 136.05' S= 0.0069 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Secondary	141.05'	**155.0' long x 35.0' 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=0.0 cfs @ 5.00 hrs HW=136.00' (Free Discharge)
↑—**1=Culvert** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=136.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Subcatchment PWA-1A:

Runoff = 7.2 cfs @ 12.13 hrs, Volume= 0.536 af, Depth= 4.66"
Routed to Pond IB-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.04	30	Woods, Good, HSG A
0.04	55	Woods, Good, HSG B
0.09	39	>75% Grass cover, Good, HSG A
0.41	61	>75% Grass cover, Good, HSG B
0.62	98	Paved parking, HSG B
0.18	98	Roofs, HSG A
1.38	80	Weighted Average
0.58		42.03% Pervious Area
0.80		57.97% Impervious Area

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

Summary for Subcatchment PWA-1B:

Runoff = 1.8 cfs @ 12.24 hrs, Volume= 0.175 af, Depth= 2.58"
Routed to Pond IB-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (sf)	CN	Description
7,656	98	Roofs, HSG A
11,663	39	>75% Grass cover, Good, HSG A
14,502	61	>75% Grass cover, Good, HSG B
1,721	30	Woods, Good, HSG A
35,542	60	Weighted Average
27,886		78.46% Pervious Area
7,656		21.54% Impervious Area

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

Summary for Subcatchment PWA-1C:

Runoff = 0.7 cfs @ 12.47 hrs, Volume= 0.185 af, Depth= 0.61"
Routed to Reach DP-1 : Northern Wetlands Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
2.33	30	Woods, Good, HSG A
0.14	61	>75% Grass cover, Good, HSG B
0.42	39	>75% Grass cover, Good, HSG A
0.72	55	Woods, Good, HSG B
3.61	37	Weighted Average
3.61		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.9	77	0.0780	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.0	177	Total			

Summary for Subcatchment PWA-2A:

Runoff = 1.3 cfs @ 12.27 hrs, Volume= 0.136 af, Depth= 2.97"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.09	98	Paved parking, HSG B
0.17	61	>75% Grass cover, Good, HSG B
0.29	55	Woods, Good, HSG B
0.55	64	Weighted Average
0.46		83.64% Pervious Area
0.09		16.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
1.6	150	0.0960	1.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	100	0.1000	6.42		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
17.7	350	Total			

Summary for Subcatchment PWA-2B:

Runoff = 0.7 cfs @ 12.14 hrs, Volume= 0.052 af, Depth= 1.64"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Adj	Description
0.06	98		Unconnected pavement, HSG A
0.04	98		Paved parking, HSG A
0.28	39		>75% Grass cover, Good, HSG A
0.38	55	50	Weighted Average, UI Adjusted
0.28			73.68% Pervious Area
0.10			26.32% Impervious Area
0.06			60.00% Unconnected

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

Summary for Subcatchment PWA-5A:

Runoff = 0.0 cfs @ 12.85 hrs, Volume= 0.011 af, Depth= 0.31"
Routed to Reach DP-5 : Wetland Series 'A'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.32	30	Woods, Good, HSG A
0.11	39	>75% Grass cover, Good, HSG A
0.43	32	Weighted Average
0.43		100.00% Pervious Area

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

Summary for Subcatchment PWA-5B:

Runoff = 6.9 cfs @ 12.16 hrs, Volume= 0.559 af, Depth= 2.77"
Routed to Pond IB-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
1.47	39	>75% Grass cover, Good, HSG A
0.21	98	Roofs, HSG A
0.74	98	Paved roads w/curbs & sewers, HSG A
2.42	62	Weighted Average
1.47		60.74% Pervious Area
0.95		39.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0360	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.3	60	0.0400	3.00		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.1	265	0.0750	4.11		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.0	330	0.0150	1.84		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.7	705	Total			

Summary for Subcatchment PWA-5C:

Runoff = 8.3 cfs @ 12.13 hrs, Volume= 0.613 af, Depth= 4.33"
Routed to Pond P-5C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.60	39	>75% Grass cover, Good, HSG A
0.43	98	Roofs, HSG A
* 0.67	98	Porous Pavement, HSG A
1.70	77	Weighted Average
0.60		35.29% Pervious Area
1.10		64.71% Impervious Area

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

Summary for Subcatchment PWA-5D:

Runoff = 3.0 cfs @ 12.24 hrs, Volume= 0.306 af, Depth= 2.01"
Routed to Pond P-5D :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.38	39	>75% Grass cover, Good, HSG A
0.86	30	Woods, Good, HSG A
0.20	98	Roofs, HSG A
* 0.39	98	Porous Pavement, HSG A
1.83	54	Weighted Average
1.24		67.76% Pervious Area
0.59		32.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	69	0.1000	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
4.7	225	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	100	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.5	394	Total			

Summary for Subcatchment PWA-5E:

Runoff = 0.3 cfs @ 12.32 hrs, Volume= 0.071 af, Depth= 0.55"
Routed to Pond WL-1 : Wetland Series 'J'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.81	39	>75% Grass cover, Good, HSG A
0.06	61	>75% Grass cover, Good, HSG B
0.67	30	Woods, Good, HSG A
0.01	55	Woods, Good, HSG B
1.55	36	Weighted Average
1.55		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.3	30	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.9	110	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	40	0.3700	4.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.6	230	Total			

Summary for Subcatchment PWA-5F:

Runoff = 34.8 cfs @ 12.13 hrs, Volume= 2.558 af, Depth= 3.90"
Routed to Pond P-5F :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

	Area (ac)	CN	Description
	2.88	39	>75% Grass cover, Good, HSG A
	0.12	30	Woods, Good, HSG A
	1.59	98	Roofs, HSG A
*	2.72	98	Porous Pavement, HSG A
	0.42	61	>75% Grass cover, Good, HSG B
	0.14	55	Woods, Good, HSG B
	7.87	73	Weighted Average
	3.56		45.24% Pervious Area
	4.31		54.76% Impervious Area

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

Summary for Subcatchment PWA-5G:

Runoff = 1.5 cfs @ 12.13 hrs, Volume= 0.110 af, Depth= 2.87"
Routed to Pond DB-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.27	39	>75% Grass cover, Good, HSG A
0.19	98	Paved parking, HSG A
0.46	63	Weighted Average
0.27		58.70% Pervious Area
0.19		41.30% Impervious Area

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

Summary for Subcatchment PWA-5H:

Runoff = 0.3 cfs @ 12.55 hrs, Volume= 0.083 af, Depth= 0.68"
Routed to Pond DB-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.14	30	Woods, Good, HSG A
1.32	39	>75% Grass cover, Good, HSG A
1.46	38	Weighted Average
1.46		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
16.4	900	0.0170	0.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
25.9	1,000	Total			

Summary for Subcatchment PWA-6A:

Runoff = 0.1 cfs @ 12.99 hrs, Volume= 0.030 af, Depth= 0.31"
Routed to Reach DP-6 : Wetland Series 'B' & 'C'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.20	39	>75% Grass cover, Good, HSG A
0.99	30	Woods, Good, HSG A
1.19	32	Weighted Average
1.19		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"

Summary for Subcatchment PWA-6B:

Runoff = 0.2 cfs @ 12.16 hrs, Volume= 0.025 af, Depth= 0.75"
Routed to Pond IT-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.39	39	>75% Grass cover, Good, HSG A
0.39		100.00% Pervious Area

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

Summary for Subcatchment PWA-6C:

Runoff = 15.4 cfs @ 12.13 hrs, Volume= 1.126 af, Depth= 3.80"
Routed to Pond P-6C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

	Area (ac)	CN	Description
	1.57	39	>75% Grass cover, Good, HSG A
	0.70	98	Roofs, HSG A
*	1.29	98	Porous Pavement, HSG A
	3.56	72	Weighted Average
	1.57		44.10% Pervious Area
	1.99		55.90% Impervious Area

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

Summary for Subcatchment PWA-7:

Runoff = 0.0 cfs @ 13.37 hrs, Volume= 0.003 af, Depth= 0.21"
Routed to Reach DP-7 : #4 Poppy Ln

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.18	30	Woods, Good, HSG A
0.18		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	80	0.1000	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"

Summary for Subcatchment PWA-8A:

Runoff = 0.3 cfs @ 12.90 hrs, Volume= 0.109 af, Depth= 0.42"
Routed to Reach CR-1 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
1.86	30	Woods, Good, HSG A
1.25	39	>75% Grass cover, Good, HSG A
3.11	34	Weighted Average
3.11		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
5.8	330	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
26.6	430	Total			

Summary for Subcatchment PWA-8B:

Runoff = 0.1 cfs @ 13.21 hrs, Volume= 0.057 af, Depth= 0.25"
Routed to Reach CR-1 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.43	39	>75% Grass cover, Good, HSG A
2.27	30	Woods, Good, HSG A
2.70	31	Weighted Average
2.70		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.7	270	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.1	370	Total			

Summary for Subcatchment PWA-8C:

Runoff = 0.1 cfs @ 12.22 hrs, Volume= 0.034 af, Depth= 0.55"
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.24	30	Woods, Good, HSG A
0.51	39	>75% Grass cover, Good, HSG A
0.75	36	Weighted Average
0.75		100.00% Pervious Area

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

Summary for Subcatchment PWA-8D:

Runoff = 0.3 cfs @ 12.16 hrs, Volume= 0.043 af, Depth= 0.75"
Routed to Pond IT-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.68	39	>75% Grass cover, Good, HSG A
0.68		100.00% Pervious Area

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

Summary for Subcatchment PWA-8E:

Runoff = 0.1 cfs @ 12.62 hrs, Volume= 0.050 af, Depth= 0.48"
Routed to Pond IB-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (sf)	CN	Description
30,573	39	>75% Grass cover, Good, HSG A
24,013	30	Woods, Good, HSG A
54,586	35	Weighted Average
54,586		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0150	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
7.5	330	0.0110	0.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.2	430	Total			

Summary for Subcatchment PWA-8F:

Runoff = 0.1 cfs @ 12.60 hrs, Volume= 0.030 af, Depth= 0.42"
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

Area (ac)	CN	Description
0.45	30	Woods, Good, HSG A
0.41	39	>75% Grass cover, Good, HSG A
0.86	34	Weighted Average
0.86		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0250	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
4.2	250	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.9	350	Total			

Summary for Subcatchment PWA-8G:

Runoff = 39.9 cfs @ 12.13 hrs, Volume= 2.922 af, Depth= 3.59"
Routed to Pond P-8G :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Yr Rainfall=6.96"

	Area (ac)	CN	Description
	1.08	30	Woods, Good, HSG A
	3.36	39	>75% Grass cover, Good, HSG A
	1.61	98	Roofs, HSG A
*	3.73	98	Porous Pavement, HSG A
	9.78	70	Weighted Average
	4.44		45.40% Pervious Area
	5.34		54.60% Impervious Area

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

Summary for Reach CR-1: Culvert

Inflow Area = 5.81 ac, 0.00% Impervious, Inflow Depth = 0.34" for 25-Yr event
Inflow = 0.4 cfs @ 13.06 hrs, Volume= 0.166 af
Outflow = 0.4 cfs @ 13.10 hrs, Volume= 0.166 af, Atten= 0%, Lag= 2.5 min
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.83 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.83 fps, Avg. Travel Time= 1.3 min

Peak Storage= 28 cf @ 13.08 hrs
Average Depth at Peak Storage= 0.03' , Surface Width= 15.00'
Bank-Full Depth= 5.00' Flow Area= 75.0 sf, Capacity= 958.5 cfs

15.00' x 5.00' deep channel, n= 0.030 Stream, clean & straight
Length= 65.0' Slope= 0.0154 '/'
Inlet Invert= 134.00', Outlet Invert= 133.00'

Summary for Reach DP-1: Northern Wetlands Culvert

Inflow Area = 5.81 ac, 16.81% Impervious, Inflow Depth > 0.91" for 25-Yr event
Inflow = 0.9 cfs @ 12.66 hrs, Volume= 0.441 af
Outflow = 0.9 cfs @ 12.66 hrs, Volume= 0.441 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Wheeler St

Inflow Area = 0.93 ac, 20.43% Impervious, Inflow Depth = 2.43" for 25-Yr event
Inflow = 1.6 cfs @ 12.23 hrs, Volume= 0.188 af
Outflow = 1.6 cfs @ 12.23 hrs, Volume= 0.188 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1R

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-3: #48 Rinzee Rd

Summary for Reach DP-4: Poppy Ln

Summary for Reach DP-5: Wetland Series 'A'

Inflow Area = 6.32 ac, 18.04% Impervious, Inflow Depth > 0.38" for 25-Yr event
Inflow = 0.2 cfs @ 14.16 hrs, Volume= 0.201 af
Outflow = 0.2 cfs @ 14.16 hrs, Volume= 0.201 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6: Wetland Series 'B' & 'C'

Inflow Area = 1.58 ac, 0.00% Impervious, Inflow Depth = 0.23" for 25-Yr event
Inflow = 0.1 cfs @ 12.99 hrs, Volume= 0.030 af
Outflow = 0.1 cfs @ 12.99 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7: #4 Poppy Ln

Inflow Area = 0.18 ac, 0.00% Impervious, Inflow Depth = 0.21" for 25-Yr event
Inflow = 0.0 cfs @ 13.37 hrs, Volume= 0.003 af
Outflow = 0.0 cfs @ 13.37 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-8: Wetland Series 'D' & 'E'

Inflow Area = 8.67 ac, 0.00% Impervious, Inflow Depth = 0.32" for 25-Yr event
Inflow = 0.5 cfs @ 12.97 hrs, Volume= 0.231 af
Outflow = 0.5 cfs @ 12.97 hrs, Volume= 0.231 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Pond DB-1:

Inflow Area = 1.92 ac, 9.90% Impervious, Inflow Depth = 1.21" for 25-Yr event
Inflow = 1.5 cfs @ 12.14 hrs, Volume= 0.193 af
Outflow = 0.2 cfs @ 14.18 hrs, Volume= 0.140 af, Atten= 85%, Lag= 122.6 min
Primary = 0.2 cfs @ 14.18 hrs, Volume= 0.140 af
Routed to Reach DP-5 : Wetland Series 'A'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 134.23' @ 14.18 hrs Surf.Area= 2,293 sf Storage= 3,792 cf

Plug-Flow detention time= 368.3 min calculated for 0.140 af (72% of inflow)
Center-of-Mass det. time= 253.7 min (1,163.1 - 909.4)

Volume	Invert	Avail.Storage	Storage Description
#1	131.50'	9,029 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
131.50	484	0	0
132.00	834	330	330
134.00	2,118	2,952	3,282
136.00	3,629	5,747	9,029

Device	Routing	Invert	Outlet Devices
#1	Primary	130.50'	**8.0" Round Culvert** L= 26.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 130.50' / 130.37' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	131.50'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	134.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	135.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.2 cfs @ 14.18 hrs HW=134.23' (Free Discharge)
└─**1=Culvert** (Passes 0.2 cfs of 2.4 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.0 cfs @ 7.90 fps)
  └─**3=Orifice/Grate** (Orifice Controls 0.2 cfs @ 1.64 fps)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=131.50' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond IB-1:

Inflow Area = 2.42 ac, 39.26% Impervious, Inflow Depth = 2.77" for 25-Yr event
Inflow = 6.9 cfs @ 12.16 hrs, Volume= 0.559 af
Outflow = 0.8 cfs @ 13.38 hrs, Volume= 0.559 af, Atten= 89%, Lag= 73.0 min
Discarded = 0.7 cfs @ 13.38 hrs, Volume= 0.528 af
Primary = 0.1 cfs @ 13.38 hrs, Volume= 0.031 af
Routed to Pond WL-1 : Wetland Series 'J'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Pond WL-1 : Wetland Series 'J'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 138.09' @ 13.38 hrs Surf.Area= 12,381 sf Storage= 9,448 cf

Plug-Flow detention time= 134.8 min calculated for 0.558 af (100% of inflow)
Center-of-Mass det. time= 134.6 min (998.1 - 863.4)

Volume	Invert	Avail.Storage	Storage Description
#1	137.00'	36,093 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.00	4,494	0	0
138.00	12,238	8,366	8,366
140.00	15,489	27,727	36,093

Device	Routing	Invert	Outlet Devices
#1	Discarded	137.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	137.00'	**8.0" Round Culvert** L= 31.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 137.00' / 136.84' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#3	Device 2	137.50'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	138.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	138.50'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Secondary	139.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.7 cfs @ 13.38 hrs HW=138.09' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.7 cfs)

Primary OutFlow Max=0.1 cfs @ 13.38 hrs HW=138.09' (Free Discharge)
└**2=Culvert** (Passes 0.1 cfs of 1.1 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.1 cfs @ 3.42 fps)
  ├**4=Orifice/Grate** (Orifice Controls 0.0 cfs @ 1.01 fps)
  └**5=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=137.00' (Free Discharge)
└**6=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond IB-2:

Inflow Area = 1.25 ac, 0.00% Impervious, Inflow Depth = 0.48" for 25-Yr event
Inflow = 0.1 cfs @ 12.62 hrs, Volume= 0.050 af
Outflow = 0.0 cfs @ 24.09 hrs, Volume= 0.037 af, Atten= 82%, Lag= 688.2 min
Discarded = 0.0 cfs @ 24.09 hrs, Volume= 0.037 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 140.64' @ 24.09 hrs Surf.Area= 1,087 sf Storage= 1,214 cf

Plug-Flow detention time= 448.6 min calculated for 0.037 af (73% of inflow)
Center-of-Mass det. time= 339.9 min (1,337.8 - 997.9)

Volume	Invert	Avail.Storage	Storage Description
#1	139.00'	3,105 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
139.00	420	0	0
140.00	796	608	608
142.00	1,701	2,497	3,105

Device	Routing	Invert	Outlet Devices
#1	Discarded	139.00'	**1.020 in/hr Exfiltration over Surface area**
#2	Primary	141.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.0 cfs @ 24.09 hrs HW=140.64' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=139.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond IB-3:

Inflow Area = 2.20 ac, 44.43% Impervious, Inflow Depth = 3.88" for 25-Yr event
Inflow = 8.4 cfs @ 12.14 hrs, Volume= 0.711 af
Outflow = 0.5 cfs @ 14.40 hrs, Volume= 0.491 af, Atten= 94%, Lag= 136.0 min
Discarded = 0.2 cfs @ 14.40 hrs, Volume= 0.234 af
Primary = 0.4 cfs @ 14.40 hrs, Volume= 0.257 af
Routed to Reach DP-1 : Northern Wetlands Culvert
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-1 : Northern Wetlands Culvert

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 125.76' @ 14.40 hrs Surf.Area= 6,513 sf Storage= 18,249 cf

Plug-Flow detention time= 436.9 min calculated for 0.491 af (69% of inflow)
Center-of-Mass det. time= 329.8 min (1,160.0 - 830.2)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	36,346 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
120.00	747	0	0	747
122.00	2,130	2,759	2,759	2,154
124.00	4,161	6,179	8,938	4,223
126.00	6,876	10,924	19,862	6,988
128.00	9,689	16,485	36,346	9,873

Device	Routing	Invert	Outlet Devices
#1	Primary	120.00'	**12.0" Round Culvert**
			L= 100.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 120.00' / 119.50' S= 0.0050 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	122.00'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	125.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	126.50'	**12.0" Horiz. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads

#5	Discarded	120.00'	**1.020 in/hr Exfiltration over Wetted area**
#6	Secondary	127.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.2 cfs @ 14.40 hrs HW=125.76' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.2 cfs)

Primary OutFlow Max=0.4 cfs @ 14.40 hrs HW=125.76' (Free Discharge)
└**1=Culvert** (Passes 0.4 cfs of 6.4 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.1 cfs @ 9.28 fps)
  ├**3=Orifice/Grate** (Orifice Controls 0.3 cfs @ 3.71 fps)
  └**4=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=120.00' (Free Discharge)
└**6=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond IT-1:

Inflow Area = 0.68 ac, 0.00% Impervious, Inflow Depth = 0.75" for 25-Yr event
Inflow = 0.3 cfs @ 12.16 hrs, Volume= 0.043 af
Outflow = 0.3 cfs @ 12.18 hrs, Volume= 0.043 af, Atten= 7%, Lag= 0.7 min
Discarded = 0.3 cfs @ 12.18 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 138.03' @ 12.19 hrs Surf.Area= 1,454 sf Storage= 15 cf

Plug-Flow detention time= 0.7 min calculated for 0.043 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (951.6 - 950.9)

Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	1,163 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
138.00	1,454	0.0	0	0
140.00	1,454	40.0	1,163	1,163

Device	Routing	Invert	Outlet Devices
#1	Discarded	138.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.3 cfs @ 12.18 hrs HW=138.02' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.3 cfs)

Summary for Pond IT-2:

Inflow Area = 0.39 ac, 0.00% Impervious, Inflow Depth = 0.75" for 25-Yr event
Inflow = 0.2 cfs @ 12.16 hrs, Volume= 0.025 af
Outflow = 0.1 cfs @ 12.15 hrs, Volume= 0.025 af, Atten= 45%, Lag= 0.0 min
Discarded = 0.1 cfs @ 12.15 hrs, Volume= 0.025 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-6 : Wetland Series 'B' & 'C'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 141.19' @ 12.37 hrs Surf.Area= 520 sf Storage= 40 cf

Plug-Flow detention time= 1.6 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 1.8 min (952.7 - 950.9)

Volume	Invert	Avail.Storage	Storage Description
#1	141.00'	583 cf	**4.00'W x 130.00'L x 3.00'H Prismatoid** 1,560 cf Overall - 102 cf Embedded = 1,458 cf x 40.0% Voids
#2	141.50'	102 cf	**12.0" Round Pipe Storage** Inside #1 L= 130.0'
		685 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	141.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	144.00'	**130.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.1 cfs @ 12.15 hrs HW=141.06' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=141.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond P-5C:

Inflow Area = 1.70 ac, 64.71% Impervious, Inflow Depth = 4.33" for 25-Yr event
Inflow = 8.3 cfs @ 12.13 hrs, Volume= 0.613 af
Outflow = 5.5 cfs @ 12.05 hrs, Volume= 0.613 af, Atten= 34%, Lag= 0.0 min
Discarded = 5.5 cfs @ 12.05 hrs, Volume= 0.613 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.44' @ 12.21 hrs Surf.Area= 28,680 sf Storage= 984 cf

Plug-Flow detention time= 1.6 min calculated for 0.611 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (824.4 - 823.7)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	18,929 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	28,680	0.0	0	0
8.34	28,680	30.0	86	86
10.42	28,680	30.0	17,896	17,982
10.75	28,680	10.0	946	18,929

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=5.5 cfs @ 12.05 hrs HW=8.34' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 5.5 cfs)

Summary for Pond P-5D:

Inflow Area = 1.83 ac, 32.24% Impervious, Inflow Depth = 2.01" for 25-Yr event
Inflow = 3.0 cfs @ 12.24 hrs, Volume= 0.306 af
Outflow = 0.9 cfs @ 12.05 hrs, Volume= 0.306 af, Atten= 68%, Lag= 0.0 min
Discarded = 0.9 cfs @ 12.05 hrs, Volume= 0.306 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.78' @ 12.73 hrs Surf.Area= 16,837 sf Storage= 2,254 cf

Plug-Flow detention time= 14.7 min calculated for 0.305 af (100% of inflow)
Center-of-Mass det. time= 14.0 min (904.9 - 890.9)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	11,112 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	16,837	0.0	0	0
8.34	16,837	30.0	51	51
10.42	16,837	30.0	10,506	10,557
10.75	16,837	10.0	556	11,112

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.9 cfs @ 12.05 hrs HW=8.34' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.9 cfs)

Summary for Pond P-5F:

Inflow Area = 7.87 ac, 54.76% Impervious, Inflow Depth = 3.90" for 25-Yr event
Inflow = 34.8 cfs @ 12.13 hrs, Volume= 2.558 af
Outflow = 21.0 cfs @ 12.05 hrs, Volume= 2.573 af, Atten= 40%, Lag= 0.0 min
Discarded = 21.0 cfs @ 12.05 hrs, Volume= 2.573 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.50' @ 12.22 hrs Surf.Area= 109,500 sf Storage= 5,431 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.3 min (834.1 - 833.8)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	72,270 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	109,500	0.0	0	0
8.34	109,500	30.0	328	328
10.42	109,500	30.0	68,328	68,657
10.75	109,500	10.0	3,614	72,270

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=21.0 cfs @ 12.05 hrs HW=8.34' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 21.0 cfs)

Summary for Pond P-6C:

Inflow Area = 3.56 ac, 55.90% Impervious, Inflow Depth = 3.80" for 25-Yr event
Inflow = 15.4 cfs @ 12.13 hrs, Volume= 1.126 af
Outflow = 9.6 cfs @ 12.05 hrs, Volume= 1.117 af, Atten= 37%, Lag= 0.0 min
Discarded = 9.6 cfs @ 12.05 hrs, Volume= 1.117 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.47' @ 12.22 hrs Surf.Area= 50,137 sf Storage= 2,159 cf

Plug-Flow detention time= 6.3 min calculated for 1.117 af (99% of inflow)
Center-of-Mass det. time= 1.5 min (837.7 - 836.2)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	33,090 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	50,137	0.0	0	0
8.34	50,137	30.0	150	150
10.42	50,137	30.0	31,285	31,436
10.75	50,137	10.0	1,655	33,090

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=9.6 cfs @ 12.05 hrs HW=8.34' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 9.6 cfs)

Summary for Pond P-8G:

Inflow Area = 9.78 ac, 54.60% Impervious, Inflow Depth = 3.59" for 25-Yr event
Inflow = 39.9 cfs @ 12.13 hrs, Volume= 2.922 af
Outflow = 3.5 cfs @ 11.55 hrs, Volume= 2.922 af, Atten= 91%, Lag= 0.0 min
Discarded = 3.5 cfs @ 11.55 hrs, Volume= 2.922 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 9.37' @ 13.41 hrs Surf.Area= 150,055 sf Storage= 46,693 cf

Plug-Flow detention time= 109.1 min calculated for 2.917 af (100% of inflow)
Center-of-Mass det. time= 109.0 min (950.2 - 841.1)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	99,036 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	150,055	0.0	0	0
8.34	150,055	30.0	450	450
10.42	150,055	30.0	93,634	94,084
10.75	150,055	10.0	4,952	99,036

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=3.5 cfs @ 11.55 hrs HW=8.34' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 3.5 cfs)

Summary for Pond WL-1: Wetland Series 'J'

Inflow Area = 3.97 ac, 23.93% Impervious, Inflow Depth = 0.31" for 25-Yr event
Inflow = 0.3 cfs @ 12.34 hrs, Volume= 0.101 af
Outflow = 0.1 cfs @ 17.35 hrs, Volume= 0.051 af, Atten= 70%, Lag= 300.8 min
Primary = 0.1 cfs @ 17.35 hrs, Volume= 0.051 af
Routed to Reach DP-5 : Wetland Series 'A'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 137.21' @ 17.35 hrs Surf.Area= 4,290 sf Storage= 2,721 cf

Plug-Flow detention time= 406.4 min calculated for 0.051 af (50% of inflow)
Center-of-Mass det. time= 259.0 min (1,209.6 - 950.6)

Volume	Invert	Avail.Storage	Storage Description
#1	136.00'	127,590 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
136.00	219	0	0
138.00	6,965	7,184	7,184
140.00	25,165	32,130	39,314
141.00	41,218	33,192	72,506
142.00	68,950	55,084	127,590

Device	Routing	Invert	Outlet Devices
#1	Primary	137.05'	**12.0" Round Culvert** L= 145.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 137.05' / 136.05' S= 0.0069 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Secondary	141.05'	**155.0' long x 35.0' 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=0.1 cfs @ 17.35 hrs HW=137.21' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.1 cfs @ 1.77 fps)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=136.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Subcatchment PWA-1A:

Runoff = 8.7 cfs @ 12.13 hrs, Volume= 0.657 af, Depth> 5.71"
Routed to Pond IB-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.04	30	Woods, Good, HSG A
0.04	55	Woods, Good, HSG B
0.09	39	>75% Grass cover, Good, HSG A
0.41	61	>75% Grass cover, Good, HSG B
0.62	98	Paved parking, HSG B
0.18	98	Roofs, HSG A
1.38	80	Weighted Average
0.58		42.03% Pervious Area
0.80		57.97% Impervious Area

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

Summary for Subcatchment PWA-1B:

Runoff = 2.4 cfs @ 12.24 hrs, Volume= 0.231 af, Depth= 3.40"
Routed to Pond IB-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (sf)	CN	Description
7,656	98	Roofs, HSG A
11,663	39	>75% Grass cover, Good, HSG A
14,502	61	>75% Grass cover, Good, HSG B
1,721	30	Woods, Good, HSG A
35,542	60	Weighted Average
27,886		78.46% Pervious Area
7,656		21.54% Impervious Area

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

Summary for Subcatchment PWA-1C:

Runoff = 1.6 cfs @ 12.39 hrs, Volume= 0.304 af, Depth= 1.01"
Routed to Reach DP-1 : Northern Wetlands Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
2.33	30	Woods, Good, HSG A
0.14	61	>75% Grass cover, Good, HSG B
0.42	39	>75% Grass cover, Good, HSG A
0.72	55	Woods, Good, HSG B
3.61	37	Weighted Average
3.61		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.9	77	0.0780	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.0	177	Total			

Summary for Subcatchment PWA-2A:

Runoff = 1.7 cfs @ 12.27 hrs, Volume= 0.177 af, Depth= 3.85"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.09	98	Paved parking, HSG B
0.17	61	>75% Grass cover, Good, HSG B
0.29	55	Woods, Good, HSG B
0.55	64	Weighted Average
0.46		83.64% Pervious Area
0.09		16.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
1.6	150	0.0960	1.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	100	0.1000	6.42		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
17.7	350	Total			

Summary for Subcatchment PWA-2B:

Runoff = 1.0 cfs @ 12.14 hrs, Volume= 0.073 af, Depth= 2.31"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Adj	Description
0.06	98		Unconnected pavement, HSG A
0.04	98		Paved parking, HSG A
0.28	39		>75% Grass cover, Good, HSG A
0.38	55	50	Weighted Average, UI Adjusted
0.28			73.68% Pervious Area
0.10			26.32% Impervious Area
0.06			60.00% Unconnected

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

Summary for Subcatchment PWA-5A:

Runoff = 0.1 cfs @ 12.27 hrs, Volume= 0.021 af, Depth= 0.59"
Routed to Reach DP-5 : Wetland Series 'A'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.32	30	Woods, Good, HSG A
0.11	39	>75% Grass cover, Good, HSG A
0.43	32	Weighted Average
0.43		100.00% Pervious Area

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

Summary for Subcatchment PWA-5B:

Runoff = 9.1 cfs @ 12.16 hrs, Volume= 0.731 af, Depth= 3.63"
Routed to Pond IB-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
1.47	39	>75% Grass cover, Good, HSG A
0.21	98	Roofs, HSG A
0.74	98	Paved roads w/curbs & sewers, HSG A
2.42	62	Weighted Average
1.47		60.74% Pervious Area
0.95		39.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0360	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.3	60	0.0400	3.00		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.1	265	0.0750	4.11		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.0	330	0.0150	1.84		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.7	705	Total			

Summary for Subcatchment PWA-5C:

Runoff = 10.2 cfs @ 12.13 hrs, Volume= 0.759 af, Depth= 5.36"
Routed to Pond P-5C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.60	39	>75% Grass cover, Good, HSG A
0.43	98	Roofs, HSG A
* 0.67	98	Porous Pavement, HSG A
1.70	77	Weighted Average
0.60		35.29% Pervious Area
1.10		64.71% Impervious Area

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

Summary for Subcatchment PWA-5D:

Runoff = 4.2 cfs @ 12.24 hrs, Volume= 0.417 af, Depth= 2.74"
Routed to Pond P-5D :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.38	39	>75% Grass cover, Good, HSG A
0.86	30	Woods, Good, HSG A
0.20	98	Roofs, HSG A
* 0.39	98	Porous Pavement, HSG A
1.83	54	Weighted Average
1.24		67.76% Pervious Area
0.59		32.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	69	0.1000	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
4.7	225	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	100	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.5	394	Total			

Summary for Subcatchment PWA-5E:

Runoff = 0.8 cfs @ 12.22 hrs, Volume= 0.119 af, Depth= 0.92"
Routed to Pond WL-1 : Wetland Series 'J'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.81	39	>75% Grass cover, Good, HSG A
0.06	61	>75% Grass cover, Good, HSG B
0.67	30	Woods, Good, HSG A
0.01	55	Woods, Good, HSG B
1.55	36	Weighted Average
1.55		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.3	30	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.9	110	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	40	0.3700	4.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.6	230	Total			

Summary for Subcatchment PWA-5F:

Runoff = 43.4 cfs @ 12.13 hrs, Volume= 3.207 af, Depth= 4.89"
Routed to Pond P-5F :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

	Area (ac)	CN	Description
	2.88	39	>75% Grass cover, Good, HSG A
	0.12	30	Woods, Good, HSG A
	1.59	98	Roofs, HSG A
*	2.72	98	Porous Pavement, HSG A
	0.42	61	>75% Grass cover, Good, HSG B
	0.14	55	Woods, Good, HSG B
	7.87	73	Weighted Average
	3.56		45.24% Pervious Area
	4.31		54.76% Impervious Area

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

Summary for Subcatchment PWA-5G:

Runoff = 2.0 cfs @ 12.13 hrs, Volume= 0.143 af, Depth= 3.74"
Routed to Pond DB-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.27	39	>75% Grass cover, Good, HSG A
0.19	98	Paved parking, HSG A
0.46	63	Weighted Average
0.27		58.70% Pervious Area
0.19		41.30% Impervious Area

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

Summary for Subcatchment PWA-5H:

Runoff = 0.7 cfs @ 12.47 hrs, Volume= 0.134 af, Depth= 1.10"
Routed to Pond DB-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.14	30	Woods, Good, HSG A
1.32	39	>75% Grass cover, Good, HSG A
1.46	38	Weighted Average
1.46		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
16.4	900	0.0170	0.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
25.9	1,000	Total			

Summary for Subcatchment PWA-6A:

Runoff = 0.2 cfs @ 12.41 hrs, Volume= 0.058 af, Depth= 0.59"
Routed to Reach DP-6 : Wetland Series 'B' & 'C'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.20	39	>75% Grass cover, Good, HSG A
0.99	30	Woods, Good, HSG A
1.19	32	Weighted Average
1.19		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"

Summary for Subcatchment PWA-6B:

Runoff = 0.4 cfs @ 12.15 hrs, Volume= 0.039 af, Depth= 1.19"
Routed to Pond IT-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.39	39	>75% Grass cover, Good, HSG A
0.39		100.00% Pervious Area

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

Summary for Subcatchment PWA-6C:

Runoff = 19.2 cfs @ 12.13 hrs, Volume= 1.416 af, Depth= 4.77"
Routed to Pond P-6C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

	Area (ac)	CN	Description
	1.57	39	>75% Grass cover, Good, HSG A
	0.70	98	Roofs, HSG A
*	1.29	98	Porous Pavement, HSG A
	3.56	72	Weighted Average
	1.57		44.10% Pervious Area
	1.99		55.90% Impervious Area

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

Summary for Subcatchment PWA-7:

Runoff = 0.0 cfs @ 12.57 hrs, Volume= 0.007 af, Depth= 0.44"
Routed to Reach DP-7 : #4 Poppy Ln

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.18	30	Woods, Good, HSG A
0.18		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	80	0.1000	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"

Summary for Subcatchment PWA-8A:

Runoff = 0.7 cfs @ 12.58 hrs, Volume= 0.194 af, Depth= 0.75"
Routed to Reach CR-1 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
1.86	30	Woods, Good, HSG A
1.25	39	>75% Grass cover, Good, HSG A
3.11	34	Weighted Average
3.11		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
5.8	330	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
26.6	430	Total			

Summary for Subcatchment PWA-8B:

Runoff = 0.3 cfs @ 12.65 hrs, Volume= 0.115 af, Depth= 0.51"
Routed to Reach CR-1 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.43	39	>75% Grass cover, Good, HSG A
2.27	30	Woods, Good, HSG A
2.70	31	Weighted Average
2.70		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.7	270	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.1	370	Total			

Summary for Subcatchment PWA-8C:

Runoff = 0.5 cfs @ 12.16 hrs, Volume= 0.058 af, Depth= 0.92"
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.24	30	Woods, Good, HSG A
0.51	39	>75% Grass cover, Good, HSG A
0.75	36	Weighted Average
0.75		100.00% Pervious Area

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

Summary for Subcatchment PWA-8D:

Runoff = 0.7 cfs @ 12.15 hrs, Volume= 0.068 af, Depth= 1.19"
Routed to Pond IT-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.68	39	>75% Grass cover, Good, HSG A
0.68		100.00% Pervious Area

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

Summary for Subcatchment PWA-8E:

Runoff = 0.4 cfs @ 12.39 hrs, Volume= 0.087 af, Depth= 0.83"
Routed to Pond IB-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (sf)	CN	Description
30,573	39	>75% Grass cover, Good, HSG A
24,013	30	Woods, Good, HSG A
54,586	35	Weighted Average
54,586		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0150	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
7.5	330	0.0110	0.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.2	430	Total			

Summary for Subcatchment PWA-8F:

Runoff = 0.2 cfs @ 12.31 hrs, Volume= 0.054 af, Depth= 0.75"
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

Area (ac)	CN	Description
0.45	30	Woods, Good, HSG A
0.41	39	>75% Grass cover, Good, HSG A
0.86	34	Weighted Average
0.86		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0250	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
4.2	250	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.9	350	Total			

Summary for Subcatchment PWA-8G:

Runoff = 50.4 cfs @ 12.13 hrs, Volume= 3.702 af, Depth= 4.54"
Routed to Pond P-8G :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 50-Yr Rainfall=8.09"

	Area (ac)	CN	Description
	1.08	30	Woods, Good, HSG A
	3.36	39	>75% Grass cover, Good, HSG A
	1.61	98	Roofs, HSG A
*	3.73	98	Porous Pavement, HSG A
	9.78	70	Weighted Average
	4.44		45.40% Pervious Area
	5.34		54.60% Impervious Area

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

Summary for Reach CR-1: Culvert

Inflow Area = 5.81 ac, 0.00% Impervious, Inflow Depth = 0.64" for 50-Yr event
Inflow = 1.0 cfs @ 12.61 hrs, Volume= 0.309 af
Outflow = 1.0 cfs @ 12.64 hrs, Volume= 0.309 af, Atten= 0%, Lag= 1.7 min
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.04 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 0.84 fps, Avg. Travel Time= 1.3 min

Peak Storage= 62 cf @ 12.62 hrs
Average Depth at Peak Storage= 0.06' , Surface Width= 15.00'
Bank-Full Depth= 5.00' Flow Area= 75.0 sf, Capacity= 958.5 cfs

15.00' x 5.00' deep channel, n= 0.030 Stream, clean & straight
Length= 65.0' Slope= 0.0154 '/'
Inlet Invert= 134.00', Outlet Invert= 133.00'

Summary for Reach DP-1: Northern Wetlands Culvert

Inflow Area = 5.81 ac, 16.81% Impervious, Inflow Depth > 1.46" for 50-Yr event
Inflow = 2.0 cfs @ 12.40 hrs, Volume= 0.707 af
Outflow = 2.0 cfs @ 12.40 hrs, Volume= 0.707 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Wheeler St

Inflow Area = 0.93 ac, 20.43% Impervious, Inflow Depth = 3.22" for 50-Yr event
Inflow = 2.2 cfs @ 12.21 hrs, Volume= 0.250 af
Outflow = 2.2 cfs @ 12.21 hrs, Volume= 0.250 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1R

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-3: #48 Rinzee Rd

Summary for Reach DP-4: Poppy Ln

Summary for Reach DP-5: Wetland Series 'A'

Inflow Area = 6.32 ac, 18.04% Impervious, Inflow Depth > 0.76" for 50-Yr event
Inflow = 0.7 cfs @ 13.94 hrs, Volume= 0.401 af
Outflow = 0.7 cfs @ 13.94 hrs, Volume= 0.401 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6: Wetland Series 'B' & 'C'

Inflow Area = 1.58 ac, 0.00% Impervious, Inflow Depth = 0.44" for 50-Yr event
Inflow = 0.2 cfs @ 12.41 hrs, Volume= 0.058 af
Outflow = 0.2 cfs @ 12.41 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7: #4 Poppy Ln

Inflow Area = 0.18 ac, 0.00% Impervious, Inflow Depth = 0.44" for 50-Yr event
Inflow = 0.0 cfs @ 12.57 hrs, Volume= 0.007 af
Outflow = 0.0 cfs @ 12.57 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-8: Wetland Series 'D' & 'E'

Inflow Area = 8.67 ac, 0.00% Impervious, Inflow Depth = 0.61" for 50-Yr event
Inflow = 1.3 cfs @ 12.57 hrs, Volume= 0.442 af
Outflow = 1.3 cfs @ 12.57 hrs, Volume= 0.442 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Pond DB-1:

Inflow Area = 1.92 ac, 9.90% Impervious, Inflow Depth = 1.73" for 50-Yr event
Inflow = 2.0 cfs @ 12.14 hrs, Volume= 0.277 af
Outflow = 0.6 cfs @ 13.11 hrs, Volume= 0.223 af, Atten= 71%, Lag= 58.5 min
Primary = 0.6 cfs @ 13.11 hrs, Volume= 0.223 af
Routed to Reach DP-5 : Wetland Series 'A'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 134.44' @ 13.11 hrs Surf.Area= 2,447 sf Storage= 4,277 cf

Plug-Flow detention time= 259.2 min calculated for 0.223 af (80% of inflow)
Center-of-Mass det. time= 171.1 min (1,070.5 - 899.4)

Volume	Invert	Avail.Storage	Storage Description
#1	131.50'	9,029 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
131.50	484	0	0
132.00	834	330	330
134.00	2,118	2,952	3,282
136.00	3,629	5,747	9,029

Device	Routing	Invert	Outlet Devices
#1	Primary	130.50'	**8.0" Round Culvert** L= 26.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 130.50' / 130.37' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	131.50'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	134.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	135.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.6 cfs @ 13.11 hrs HW=134.44' (Free Discharge)
└─**1=Culvert** (Passes 0.6 cfs of 2.5 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.0 cfs @ 8.19 fps)
  └─**3=Orifice/Grate** (Orifice Controls 0.5 cfs @ 2.25 fps)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=131.50' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond IB-1:

Inflow Area = 2.42 ac, 39.26% Impervious, Inflow Depth = 3.63" for 50-Yr event
Inflow = 9.1 cfs @ 12.16 hrs, Volume= 0.731 af
Outflow = 1.0 cfs @ 13.36 hrs, Volume= 0.731 af, Atten= 89%, Lag= 72.0 min
Discarded = 0.7 cfs @ 13.36 hrs, Volume= 0.643 af
Primary = 0.3 cfs @ 13.36 hrs, Volume= 0.088 af
Routed to Pond WL-1 : Wetland Series 'J'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Pond WL-1 : Wetland Series 'J'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 138.37' @ 13.36 hrs Surf.Area= 12,846 sf Storage= 13,060 cf

Plug-Flow detention time= 159.7 min calculated for 0.731 af (100% of inflow)
Center-of-Mass det. time= 159.5 min (1,014.2 - 854.7)

Volume	Invert	Avail.Storage	Storage Description
#1	137.00'	36,093 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.00	4,494	0	0
138.00	12,238	8,366	8,366
140.00	15,489	27,727	36,093

Device	Routing	Invert	Outlet Devices
#1	Discarded	137.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	137.00'	**8.0" Round Culvert** L= 31.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 137.00' / 136.84' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#3	Device 2	137.50'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	138.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	138.50'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Secondary	139.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.7 cfs @ 13.36 hrs HW=138.37' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.7 cfs)

Primary OutFlow Max=0.3 cfs @ 13.36 hrs HW=138.37' (Free Discharge)
└**2=Culvert** (Passes 0.3 cfs of 1.4 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.1 cfs @ 4.28 fps)
  ├**4=Orifice/Grate** (Orifice Controls 0.2 cfs @ 2.19 fps)
  └**5=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=137.00' (Free Discharge)
└**6=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond IB-2:

Inflow Area = 1.25 ac, 0.00% Impervious, Inflow Depth = 0.83" for 50-Yr event
Inflow = 0.4 cfs @ 12.39 hrs, Volume= 0.087 af
Outflow = 0.1 cfs @ 15.24 hrs, Volume= 0.066 af, Atten= 78%, Lag= 170.9 min
Discarded = 0.0 cfs @ 15.24 hrs, Volume= 0.045 af
Primary = 0.1 cfs @ 15.24 hrs, Volume= 0.021 af
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 141.03' @ 15.24 hrs Surf.Area= 1,261 sf Storage= 1,664 cf

Plug-Flow detention time= 383.0 min calculated for 0.066 af (76% of inflow)
Center-of-Mass det. time= 282.6 min (1,248.6 - 965.9)

Volume	Invert	Avail.Storage	Storage Description
#1	139.00'	3,105 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
139.00	420	0	0
140.00	796	608	608
142.00	1,701	2,497	3,105

Device	Routing	Invert	Outlet Devices
#1	Discarded	139.00'	**1.020 in/hr Exfiltration over Surface area**
#2	Primary	141.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.0 cfs @ 15.24 hrs HW=141.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.1 cfs @ 15.24 hrs HW=141.03' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.1 cfs @ 0.38 fps)

Summary for Pond IB-3:

Inflow Area = 2.20 ac, 44.43% Impervious, Inflow Depth > 4.85" for 50-Yr event
Inflow = 10.4 cfs @ 12.14 hrs, Volume= 0.888 af
Outflow = 0.7 cfs @ 14.18 hrs, Volume= 0.658 af, Atten= 93%, Lag= 122.8 min
Discarded = 0.2 cfs @ 14.18 hrs, Volume= 0.255 af
Primary = 0.5 cfs @ 14.18 hrs, Volume= 0.403 af
Routed to Reach DP-1 : Northern Wetlands Culvert
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-1 : Northern Wetlands Culvert

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 126.37' @ 14.18 hrs Surf.Area= 7,362 sf Storage= 22,505 cf

Plug-Flow detention time= 409.4 min calculated for 0.658 af (74% of inflow)
Center-of-Mass det. time= 312.0 min (1,136.0 - 824.0)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	36,346 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
120.00	747	0	0	747
122.00	2,130	2,759	2,759	2,154
124.00	4,161	6,179	8,938	4,223
126.00	6,876	10,924	19,862	6,988
128.00	9,689	16,485	36,346	9,873

Device	Routing	Invert	Outlet Devices
#1	Primary	120.00'	**12.0" Round Culvert**
			L= 100.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 120.00' / 119.50' S= 0.0050 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	122.00'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	125.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	126.50'	**12.0" Horiz. Orifice/Grate** C= 0.600
			Limited to weir flow at low heads

#5	Discarded	120.00'	**1.020 in/hr Exfiltration over Wetted area**
#6	Secondary	127.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.2 cfs @ 14.18 hrs HW=126.37' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.2 cfs)

Primary OutFlow Max=0.5 cfs @ 14.18 hrs HW=126.37' (Free Discharge)
└**1=Culvert** (Passes 0.5 cfs of 6.8 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.1 cfs @ 10.02 fps)
  ├**3=Orifice/Grate** (Orifice Controls 0.5 cfs @ 5.28 fps)
  └**4=Orifice/Grate** (Controls 0.0 cfs)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=120.00' (Free Discharge)
└**6=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond IT-1:

Inflow Area = 0.68 ac, 0.00% Impervious, Inflow Depth = 1.19" for 50-Yr event
Inflow = 0.7 cfs @ 12.15 hrs, Volume= 0.068 af
Outflow = 0.3 cfs @ 12.10 hrs, Volume= 0.068 af, Atten= 59%, Lag= 0.0 min
Discarded = 0.3 cfs @ 12.10 hrs, Volume= 0.068 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 138.38' @ 12.40 hrs Surf.Area= 1,454 sf Storage= 220 cf

Plug-Flow detention time= 3.4 min calculated for 0.068 af (100% of inflow)
Center-of-Mass det. time= 3.4 min (931.5 - 928.1)

Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	1,163 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
138.00	1,454	0.0	0	0
140.00	1,454	40.0	1,163	1,163

Device	Routing	Invert	Outlet Devices
#1	Discarded	138.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.3 cfs @ 12.10 hrs HW=138.06' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.3 cfs)

Summary for Pond IT-2:

Inflow Area = 0.39 ac, 0.00% Impervious, Inflow Depth = 1.19" for 50-Yr event
Inflow = 0.4 cfs @ 12.15 hrs, Volume= 0.039 af
Outflow = 0.1 cfs @ 12.05 hrs, Volume= 0.039 af, Atten= 75%, Lag= 0.0 min
Discarded = 0.1 cfs @ 12.05 hrs, Volume= 0.039 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-6 : Wetland Series 'B' & 'C'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 141.99' @ 12.81 hrs Surf.Area= 520 sf Storage= 237 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 14.2 min (942.3 - 928.1)

Volume	Invert	Avail.Storage	Storage Description
#1	141.00'	583 cf	**4.00'W x 130.00'L x 3.00'H Prismatoid** 1,560 cf Overall - 102 cf Embedded = 1,458 cf x 40.0% Voids
#2	141.50'	102 cf	**12.0" Round Pipe Storage** Inside #1 L= 130.0'
		685 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	141.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	144.00'	**130.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.1 cfs @ 12.05 hrs HW=141.04' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=141.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond P-5C:

Inflow Area = 1.70 ac, 64.71% Impervious, Inflow Depth = 5.36" for 50-Yr event
Inflow = 10.2 cfs @ 12.13 hrs, Volume= 0.759 af
Outflow = 5.5 cfs @ 12.05 hrs, Volume= 0.754 af, Atten= 46%, Lag= 0.0 min
Discarded = 5.5 cfs @ 12.05 hrs, Volume= 0.754 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.57' @ 12.23 hrs Surf.Area= 28,680 sf Storage= 2,054 cf

Plug-Flow detention time= 5.5 min calculated for 0.753 af (99% of inflow)
Center-of-Mass det. time= 1.6 min (818.6 - 816.9)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	18,929 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	28,680	0.0	0	0
8.34	28,680	30.0	86	86
10.42	28,680	30.0	17,896	17,982
10.75	28,680	10.0	946	18,929

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=5.5 cfs @ 12.05 hrs HW=8.35' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 5.5 cfs)

Summary for Pond P-5D:

Inflow Area = 1.83 ac, 32.24% Impervious, Inflow Depth = 2.74" for 50-Yr event
Inflow = 4.2 cfs @ 12.24 hrs, Volume= 0.417 af
Outflow = 0.9 cfs @ 12.00 hrs, Volume= 0.418 af, Atten= 77%, Lag= 0.0 min
Discarded = 0.9 cfs @ 12.00 hrs, Volume= 0.418 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 9.17' @ 12.97 hrs Surf.Area= 16,837 sf Storage= 4,258 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 30.6 min (910.8 - 880.2)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	11,112 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	16,837	0.0	0	0
8.34	16,837	30.0	51	51
10.42	16,837	30.0	10,506	10,557
10.75	16,837	10.0	556	11,112

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.9 cfs @ 12.00 hrs HW=8.35' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.9 cfs)

Summary for Pond P-5F:

Inflow Area = 7.87 ac, 54.76% Impervious, Inflow Depth = 4.89" for 50-Yr event
Inflow = 43.4 cfs @ 12.13 hrs, Volume= 3.207 af
Outflow = 21.0 cfs @ 12.00 hrs, Volume= 3.179 af, Atten= 52%, Lag= 0.0 min
Discarded = 21.0 cfs @ 12.00 hrs, Volume= 3.179 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.66' @ 12.25 hrs Surf.Area= 109,500 sf Storage= 10,906 cf

Plug-Flow detention time= 7.7 min calculated for 3.173 af (99% of inflow)
Center-of-Mass det. time= 2.4 min (829.0 - 826.6)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	72,270 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	109,500	0.0	0	0
8.34	109,500	30.0	328	328
10.42	109,500	30.0	68,328	68,657
10.75	109,500	10.0	3,614	72,270

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=21.0 cfs @ 12.00 hrs HW=8.34' (Free Discharge)
1=Exfiltration (Exfiltration Controls 21.0 cfs)

Summary for Pond P-6C:

Inflow Area = 3.56 ac, 55.90% Impervious, Inflow Depth = 4.77" for 50-Yr event
Inflow = 19.2 cfs @ 12.13 hrs, Volume= 1.416 af
Outflow = 9.6 cfs @ 12.00 hrs, Volume= 1.425 af, Atten= 50%, Lag= 0.0 min
Discarded = 9.6 cfs @ 12.00 hrs, Volume= 1.425 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.63' @ 12.25 hrs Surf.Area= 50,137 sf Storage= 4,514 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.1 min (830.0 - 829.0)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	33,090 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	50,137	0.0	0	0
8.34	50,137	30.0	150	150
10.42	50,137	30.0	31,285	31,436
10.75	50,137	10.0	1,655	33,090

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=9.6 cfs @ 12.00 hrs HW=8.34' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 9.6 cfs)

Summary for Pond P-8G:

Inflow Area = 9.78 ac, 54.60% Impervious, Inflow Depth = 4.54" for 50-Yr event
Inflow = 50.4 cfs @ 12.13 hrs, Volume= 3.702 af
Outflow = 3.5 cfs @ 11.30 hrs, Volume= 3.701 af, Atten= 93%, Lag= 0.0 min
Discarded = 3.5 cfs @ 11.30 hrs, Volume= 3.701 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 9.80' @ 13.65 hrs Surf.Area= 150,055 sf Storage= 66,229 cf

Plug-Flow detention time= 165.9 min calculated for 3.701 af (100% of inflow)
Center-of-Mass det. time= 165.8 min (999.4 - 833.6)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	99,036 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	150,055	0.0	0	0
8.34	150,055	30.0	450	450
10.42	150,055	30.0	93,634	94,084
10.75	150,055	10.0	4,952	99,036

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=3.5 cfs @ 11.30 hrs HW=8.34' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 3.5 cfs)

Summary for Pond WL-1: Wetland Series 'J'

Inflow Area = 3.97 ac, 23.93% Impervious, Inflow Depth = 0.63" for 50-Yr event
Inflow = 0.8 cfs @ 12.22 hrs, Volume= 0.207 af
Outflow = 0.4 cfs @ 14.68 hrs, Volume= 0.157 af, Atten= 57%, Lag= 147.8 min
Primary = 0.4 cfs @ 14.68 hrs, Volume= 0.157 af
Routed to Reach DP-5 : Wetland Series 'A'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 137.37' @ 14.68 hrs Surf.Area= 4,827 sf Storage= 3,446 cf

Plug-Flow detention time= 215.8 min calculated for 0.157 af (76% of inflow)
Center-of-Mass det. time= 131.2 min (1,054.4 - 923.2)

Volume	Invert	Avail.Storage	Storage Description
#1	136.00'	127,590 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
136.00	219	0	0
138.00	6,965	7,184	7,184
140.00	25,165	32,130	39,314
141.00	41,218	33,192	72,506
142.00	68,950	55,084	127,590

Device	Routing	Invert	Outlet Devices
#1	Primary	137.05'	**12.0" Round Culvert** L= 145.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 137.05' / 136.05' S= 0.0069 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Secondary	141.05'	**155.0' long x 35.0' 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=0.4 cfs @ 14.68 hrs HW=137.37' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.4 cfs @ 1.69 fps)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=136.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Subcatchment PWA-1A:

Runoff = 10.6 cfs @ 12.13 hrs, Volume= 0.814 af, Depth> 7.07"
Routed to Pond IB-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.04	30	Woods, Good, HSG A
0.04	55	Woods, Good, HSG B
0.09	39	>75% Grass cover, Good, HSG A
0.41	61	>75% Grass cover, Good, HSG B
0.62	98	Paved parking, HSG B
0.18	98	Roofs, HSG A
1.38	80	Weighted Average
0.58		42.03% Pervious Area
0.80		57.97% Impervious Area

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

Summary for Subcatchment PWA-1B:

Runoff = 3.2 cfs @ 12.24 hrs, Volume= 0.308 af, Depth= 4.53"
Routed to Pond IB-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (sf)	CN	Description
7,656	98	Roofs, HSG A
11,663	39	>75% Grass cover, Good, HSG A
14,502	61	>75% Grass cover, Good, HSG B
1,721	30	Woods, Good, HSG A
35,542	60	Weighted Average
27,886		78.46% Pervious Area
7,656		21.54% Impervious Area

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

Summary for Subcatchment PWA-1C:

Runoff = 3.3 cfs @ 12.35 hrs, Volume= 0.489 af, Depth= 1.62"
Routed to Reach DP-1 : Northern Wetlands Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
2.33	30	Woods, Good, HSG A
0.14	61	>75% Grass cover, Good, HSG B
0.42	39	>75% Grass cover, Good, HSG A
0.72	55	Woods, Good, HSG B
3.61	37	Weighted Average
3.61		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.1	100	0.0250	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
0.9	77	0.0780	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.0	177	Total			

Summary for Subcatchment PWA-2A:

Runoff = 2.2 cfs @ 12.27 hrs, Volume= 0.231 af, Depth= 5.04"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.09	98	Paved parking, HSG B
0.17	61	>75% Grass cover, Good, HSG B
0.29	55	Woods, Good, HSG B
0.55	64	Weighted Average
0.46		83.64% Pervious Area
0.09		16.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	100	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
1.6	150	0.0960	1.55		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	100	0.1000	6.42		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
17.7	350	Total			

Summary for Subcatchment PWA-2B:

Runoff = 1.4 cfs @ 12.14 hrs, Volume= 0.103 af, Depth= 3.24"
Routed to Reach DP-2 : Wheeler St

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Adj	Description
0.06	98		Unconnected pavement, HSG A
0.04	98		Paved parking, HSG A
0.28	39		>75% Grass cover, Good, HSG A
0.38	55	50	Weighted Average, UI Adjusted
0.28			73.68% Pervious Area
0.10			26.32% Impervious Area
0.06			60.00% Unconnected

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

Summary for Subcatchment PWA-5A:

Runoff = 0.3 cfs @ 12.16 hrs, Volume= 0.038 af, Depth= 1.05"
Routed to Reach DP-5 : Wetland Series 'A'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.32	30	Woods, Good, HSG A
0.11	39	>75% Grass cover, Good, HSG A
0.43	32	Weighted Average
0.43		100.00% Pervious Area

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

Summary for Subcatchment PWA-5B:

Runoff = 12.1 cfs @ 12.16 hrs, Volume= 0.965 af, Depth= 4.79"
Routed to Pond IB-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
1.47	39	>75% Grass cover, Good, HSG A
0.21	98	Roofs, HSG A
0.74	98	Paved roads w/curbs & sewers, HSG A
2.42	62	Weighted Average
1.47		60.74% Pervious Area
0.95		39.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0360	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.3	60	0.0400	3.00		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.1	265	0.0750	4.11		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.0	330	0.0150	1.84		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.7	705	Total			

Summary for Subcatchment PWA-5C:

Runoff = 12.6 cfs @ 12.13 hrs, Volume= 0.950 af, Depth> 6.70"
Routed to Pond P-5C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.60	39	>75% Grass cover, Good, HSG A
0.43	98	Roofs, HSG A
* 0.67	98	Porous Pavement, HSG A
1.70	77	Weighted Average
0.60		35.29% Pervious Area
1.10		64.71% Impervious Area

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

Summary for Subcatchment PWA-5D:

Runoff = 5.8 cfs @ 12.24 hrs, Volume= 0.573 af, Depth= 3.75"
Routed to Pond P-5D :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.38	39	>75% Grass cover, Good, HSG A
0.86	30	Woods, Good, HSG A
0.20	98	Roofs, HSG A
* 0.39	98	Porous Pavement, HSG A
1.83	54	Weighted Average
1.24		67.76% Pervious Area
0.59		32.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	69	0.1000	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
4.7	225	0.0260	0.81		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.7	100	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.5	394	Total			

Summary for Subcatchment PWA-5E:

Runoff = 1.7 cfs @ 12.20 hrs, Volume= 0.195 af, Depth= 1.51"
Routed to Pond WL-1 : Wetland Series 'J'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.81	39	>75% Grass cover, Good, HSG A
0.06	61	>75% Grass cover, Good, HSG B
0.67	30	Woods, Good, HSG A
0.01	55	Woods, Good, HSG B
1.55	36	Weighted Average
1.55		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	50	0.0100	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.3	30	0.0600	1.71		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.9	110	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	40	0.3700	4.26		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.6	230	Total			

Summary for Subcatchment PWA-5F:

Runoff = 54.5 cfs @ 12.13 hrs, Volume= 4.064 af, Depth= 6.20"
Routed to Pond P-5F :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

	Area (ac)	CN	Description
	2.88	39	>75% Grass cover, Good, HSG A
	0.12	30	Woods, Good, HSG A
	1.59	98	Roofs, HSG A
*	2.72	98	Porous Pavement, HSG A
	0.42	61	>75% Grass cover, Good, HSG B
	0.14	55	Woods, Good, HSG B
	7.87	73	Weighted Average
	3.56		45.24% Pervious Area
	4.31		54.76% Impervious Area

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

Summary for Subcatchment PWA-5G:

Runoff = 2.6 cfs @ 12.13 hrs, Volume= 0.188 af, Depth= 4.91"
Routed to Pond DB-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.27	39	>75% Grass cover, Good, HSG A
0.19	98	Paved parking, HSG A
0.46	63	Weighted Average
0.27		58.70% Pervious Area
0.19		41.30% Impervious Area

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

Summary for Subcatchment PWA-5H:

Runoff = 1.3 cfs @ 12.43 hrs, Volume= 0.212 af, Depth= 1.74"
Routed to Pond DB-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.14	30	Woods, Good, HSG A
1.32	39	>75% Grass cover, Good, HSG A
1.46	38	Weighted Average
1.46		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	100	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
16.4	900	0.0170	0.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
25.9	1,000	Total			

Summary for Subcatchment PWA-6A:

Runoff = 0.6 cfs @ 12.26 hrs, Volume= 0.105 af, Depth= 1.05"
Routed to Reach DP-6 : Wetland Series 'B' & 'C'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.20	39	>75% Grass cover, Good, HSG A
0.99	30	Woods, Good, HSG A
1.19	32	Weighted Average
1.19		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"

Summary for Subcatchment PWA-6B:

Runoff = 0.7 cfs @ 12.14 hrs, Volume= 0.061 af, Depth= 1.86"
Routed to Pond IT-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.39	39	>75% Grass cover, Good, HSG A
0.39		100.00% Pervious Area

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

Summary for Subcatchment PWA-6C:

Runoff = 24.2 cfs @ 12.13 hrs, Volume= 1.800 af, Depth= 6.07"
Routed to Pond P-6C :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

	Area (ac)	CN	Description
	1.57	39	>75% Grass cover, Good, HSG A
	0.70	98	Roofs, HSG A
*	1.29	98	Porous Pavement, HSG A
	3.56	72	Weighted Average
	1.57		44.10% Pervious Area
	1.99		55.90% Impervious Area

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

Summary for Subcatchment PWA-7:

Runoff = 0.1 cfs @ 12.25 hrs, Volume= 0.013 af, Depth= 0.84"
Routed to Reach DP-7 : #4 Poppy Ln

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.18	30	Woods, Good, HSG A
0.18		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	80	0.1000	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"

Summary for Subcatchment PWA-8A:

Runoff = 1.6 cfs @ 12.49 hrs, Volume= 0.331 af, Depth= 1.28"
Routed to Reach CR-1 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
1.86	30	Woods, Good, HSG A
1.25	39	>75% Grass cover, Good, HSG A
3.11	34	Weighted Average
3.11		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
5.8	330	0.0360	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
26.6	430	Total			

Summary for Subcatchment PWA-8B:

Runoff = 0.9 cfs @ 12.37 hrs, Volume= 0.213 af, Depth= 0.95"
Routed to Reach CR-1 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.43	39	>75% Grass cover, Good, HSG A
2.27	30	Woods, Good, HSG A
2.70	31	Weighted Average
2.70		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	100	0.0600	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"
3.7	270	0.0600	1.22		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.1	370	Total			

Summary for Subcatchment PWA-8C:

Runoff = 1.0 cfs @ 12.15 hrs, Volume= 0.094 af, Depth= 1.51"
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.24	30	Woods, Good, HSG A
0.51	39	>75% Grass cover, Good, HSG A
0.75	36	Weighted Average
0.75		100.00% Pervious Area

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

Summary for Subcatchment PWA-8D:

Runoff = 1.2 cfs @ 12.14 hrs, Volume= 0.106 af, Depth= 1.86"
Routed to Pond IT-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.68	39	>75% Grass cover, Good, HSG A
0.68		100.00% Pervious Area

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

Summary for Subcatchment PWA-8E:

Runoff = 0.9 cfs @ 12.33 hrs, Volume= 0.145 af, Depth= 1.39"
Routed to Pond IB-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (sf)	CN	Description
30,573	39	>75% Grass cover, Good, HSG A
24,013	30	Woods, Good, HSG A
54,586	35	Weighted Average
54,586		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.0150	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
7.5	330	0.0110	0.73		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
18.2	430	Total			

Summary for Subcatchment PWA-8F:

Runoff = 0.6 cfs @ 12.26 hrs, Volume= 0.092 af, Depth= 1.28"
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

Area (ac)	CN	Description
0.45	30	Woods, Good, HSG A
0.41	39	>75% Grass cover, Good, HSG A
0.86	34	Weighted Average
0.86		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.0250	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
4.2	250	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.9	350	Total			

Summary for Subcatchment PWA-8G:

Runoff = 64.1 cfs @ 12.13 hrs, Volume= 4.738 af, Depth= 5.81"
Routed to Pond P-8G :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Yr Rainfall=9.54"

	Area (ac)	CN	Description
	1.08	30	Woods, Good, HSG A
	3.36	39	>75% Grass cover, Good, HSG A
	1.61	98	Roofs, HSG A
*	3.73	98	Porous Pavement, HSG A
	9.78	70	Weighted Average
	4.44		45.40% Pervious Area
	5.34		54.60% Impervious Area

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

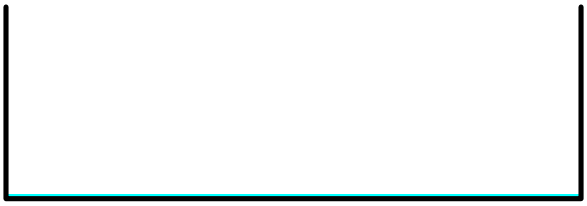
Summary for Reach CR-1: Culvert

Inflow Area = 5.81 ac, 0.00% Impervious, Inflow Depth = 1.12" for 100-Yr event
Inflow = 2.5 cfs @ 12.46 hrs, Volume= 0.544 af
Outflow = 2.5 cfs @ 12.48 hrs, Volume= 0.544 af, Atten= 0%, Lag= 1.2 min
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.46 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 0.88 fps, Avg. Travel Time= 1.2 min

Peak Storage= 112 cf @ 12.47 hrs
Average Depth at Peak Storage= 0.11' , Surface Width= 15.00'
Bank-Full Depth= 5.00' Flow Area= 75.0 sf, Capacity= 958.5 cfs

15.00' x 5.00' deep channel, n= 0.030 Stream, clean & straight
Length= 65.0' Slope= 0.0154 '/'
Inlet Invert= 134.00', Outlet Invert= 133.00'



Summary for Reach DP-1: Northern Wetlands Culvert

Inflow Area = 5.81 ac, 16.81% Impervious, Inflow Depth > 2.28" for 100-Yr event
Inflow = 3.8 cfs @ 12.35 hrs, Volume= 1.101 af
Outflow = 3.8 cfs @ 12.35 hrs, Volume= 1.101 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Wheeler St

Inflow Area = 0.93 ac, 20.43% Impervious, Inflow Depth = 4.31" for 100-Yr event
Inflow = 3.0 cfs @ 12.17 hrs, Volume= 0.334 af
Outflow = 3.0 cfs @ 12.17 hrs, Volume= 0.334 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1R

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-3: #48 Rinzee Rd

Summary for Reach DP-4: Poppy Ln

Summary for Reach DP-5: Wetland Series 'A'

Inflow Area = 6.32 ac, 18.04% Impervious, Inflow Depth > 1.41" for 100-Yr event
Inflow = 2.1 cfs @ 13.27 hrs, Volume= 0.743 af
Outflow = 2.1 cfs @ 13.27 hrs, Volume= 0.743 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6: Wetland Series 'B' & 'C'

Inflow Area = 1.58 ac, 0.00% Impervious, Inflow Depth = 0.79" for 100-Yr event
Inflow = 0.6 cfs @ 12.26 hrs, Volume= 0.105 af
Outflow = 0.6 cfs @ 12.26 hrs, Volume= 0.105 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7: #4 Poppy Ln

Inflow Area = 0.18 ac, 0.00% Impervious, Inflow Depth = 0.84" for 100-Yr event
Inflow = 0.1 cfs @ 12.25 hrs, Volume= 0.013 af
Outflow = 0.1 cfs @ 12.25 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Reach DP-8: Wetland Series 'D' & 'E'

Inflow Area = 8.67 ac, 0.00% Impervious, Inflow Depth = 1.12" for 100-Yr event
Inflow = 3.3 cfs @ 12.45 hrs, Volume= 0.807 af
Outflow = 3.3 cfs @ 12.45 hrs, Volume= 0.807 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs

Summary for Pond DB-1:

Inflow Area = 1.92 ac, 9.90% Impervious, Inflow Depth = 2.50" for 100-Yr event
Inflow = 2.9 cfs @ 12.14 hrs, Volume= 0.401 af
Outflow = 1.2 cfs @ 12.82 hrs, Volume= 0.346 af, Atten= 59%, Lag= 40.5 min
Primary = 1.2 cfs @ 12.82 hrs, Volume= 0.346 af
Routed to Reach DP-5 : Wetland Series 'A'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 134.78' @ 12.82 hrs Surf.Area= 2,711 sf Storage= 5,176 cf

Plug-Flow detention time= 184.8 min calculated for 0.345 af (86% of inflow)
Center-of-Mass det. time= 119.7 min (1,008.8 - 889.1)

Volume	Invert	Avail.Storage	Storage Description
#1	131.50'	9,029 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
131.50	484	0	0
132.00	834	330	330
134.00	2,118	2,952	3,282
136.00	3,629	5,747	9,029

Device	Routing	Invert	Outlet Devices
#1	Primary	130.50'	**8.0" Round Culvert** L= 26.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 130.50' / 130.37' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	131.50'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	134.00'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	135.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=1.2 cfs @ 12.82 hrs HW=134.78' (Free Discharge)
└**1=Culvert** (Passes 1.2 cfs of 2.6 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 0.0 cfs @ 8.67 fps)
  └**3=Orifice/Grate** (Orifice Controls 1.1 cfs @ 3.23 fps)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=131.50' (Free Discharge)
└**4=Broad-Crested Rectangular Weir**(Controls 0.0 cfs)

Summary for Pond IB-1:

Inflow Area = 2.42 ac, 39.26% Impervious, Inflow Depth = 4.79" for 100-Yr event
Inflow = 12.1 cfs @ 12.16 hrs, Volume= 0.965 af
Outflow = 1.7 cfs @ 13.02 hrs, Volume= 0.965 af, Atten= 86%, Lag= 51.8 min
Discarded = 0.7 cfs @ 13.02 hrs, Volume= 0.749 af
Primary = 1.0 cfs @ 13.02 hrs, Volume= 0.216 af
Routed to Pond WL-1 : Wetland Series 'J'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Pond WL-1 : Wetland Series 'J'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 138.69' @ 13.02 hrs Surf.Area= 13,352 sf Storage= 17,136 cf

Plug-Flow detention time= 168.2 min calculated for 0.965 af (100% of inflow)
Center-of-Mass det. time= 168.0 min (1,013.8 - 845.8)

Volume	Invert	Avail.Storage	Storage Description
#1	137.00'	36,093 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
137.00	4,494	0	0
138.00	12,238	8,366	8,366
140.00	15,489	27,727	36,093

Device	Routing	Invert	Outlet Devices
#1	Discarded	137.00'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	137.00'	**8.0" Round Culvert** L= 31.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 137.00' / 136.84' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#3	Device 2	137.50'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 2	138.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 2	138.50'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Secondary	139.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.7 cfs @ 13.02 hrs HW=138.69' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.7 cfs)

Primary OutFlow Max=1.0 cfs @ 13.02 hrs HW=138.69' (Free Discharge)
└**2=Culvert** (Passes 1.0 cfs of 1.5 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.1 cfs @ 5.05 fps)
  ├**4=Orifice/Grate** (Orifice Controls 0.3 cfs @ 3.47 fps)
  └**5=Orifice/Grate** (Weir Controls 0.5 cfs @ 1.41 fps)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=137.00' (Free Discharge)
└**6=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond IB-2:

Inflow Area = 1.25 ac, 0.00% Impervious, Inflow Depth = 1.39" for 100-Yr event
Inflow = 0.9 cfs @ 12.33 hrs, Volume= 0.145 af
Outflow = 0.4 cfs @ 13.05 hrs, Volume= 0.124 af, Atten= 60%, Lag= 42.8 min
Discarded = 0.0 cfs @ 13.05 hrs, Volume= 0.046 af
Primary = 0.3 cfs @ 13.05 hrs, Volume= 0.078 af
Routed to Reach DP-8 : Wetland Series 'D' & 'E'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 141.09' @ 13.05 hrs Surf.Area= 1,291 sf Storage= 1,749 cf

Plug-Flow detention time= 227.3 min calculated for 0.124 af (85% of inflow)
Center-of-Mass det. time= 161.4 min (1,101.7 - 940.3)

Volume	Invert	Avail.Storage	Storage Description
#1	139.00'	3,105 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
139.00	420	0	0
140.00	796	608	608
142.00	1,701	2,497	3,105

Device	Routing	Invert	Outlet Devices
#1	Discarded	139.00'	**1.020 in/hr Exfiltration over Surface area**
#2	Primary	141.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.0 cfs @ 13.05 hrs HW=141.09' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.3 cfs @ 13.05 hrs HW=141.09' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 0.3 cfs @ 0.72 fps)

Summary for Pond IB-3:

Inflow Area = 2.20 ac, 44.43% Impervious, Inflow Depth > 6.13" for 100-Yr event
Inflow = 13.0 cfs @ 12.14 hrs, Volume= 1.121 af
Outflow = 2.1 cfs @ 12.86 hrs, Volume= 0.882 af, Atten= 84%, Lag= 43.6 min
Discarded = 0.2 cfs @ 12.86 hrs, Volume= 0.270 af
Primary = 1.9 cfs @ 12.86 hrs, Volume= 0.613 af
Routed to Reach DP-1 : Northern Wetlands Culvert
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-1 : Northern Wetlands Culvert

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 126.75' @ 12.86 hrs Surf.Area= 7,878 sf Storage= 25,408 cf

Plug-Flow detention time= 352.3 min calculated for 0.880 af (79% of inflow)
Center-of-Mass det. time= 266.4 min (1,084.1 - 817.7)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	36,346 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
120.00	747	0	0	747
122.00	2,130	2,759	2,759	2,154
124.00	4,161	6,179	8,938	4,223
126.00	6,876	10,924	19,862	6,988
128.00	9,689	16,485	36,346	9,873

Device	Routing	Invert	Outlet Devices
#1	Primary	120.00'	**12.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 120.00' / 119.50' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	122.00'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	125.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	126.50'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

#5	Discarded	120.00'	**1.020 in/hr Exfiltration over Wetted area**
#6	Secondary	127.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.2 cfs @ 12.86 hrs HW=126.75' (Free Discharge)
└**5=Exfiltration** (Exfiltration Controls 0.2 cfs)

Primary OutFlow Max=1.9 cfs @ 12.86 hrs HW=126.75' (Free Discharge)
└**1=Culvert** (Passes 1.9 cfs of 7.0 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.1 cfs @ 10.45 fps)
  ├**3=Orifice/Grate** (Orifice Controls 0.5 cfs @ 6.06 fps)
  └**4=Orifice/Grate** (Weir Controls 1.3 cfs @ 1.64 fps)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=120.00' (Free Discharge)
└**6=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond IT-1:

Inflow Area = 0.68 ac, 0.00% Impervious, Inflow Depth = 1.86" for 100-Yr event
Inflow = 1.2 cfs @ 12.14 hrs, Volume= 0.106 af
Outflow = 0.3 cfs @ 12.00 hrs, Volume= 0.106 af, Atten= 78%, Lag= 0.0 min
Discarded = 0.3 cfs @ 12.00 hrs, Volume= 0.106 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 139.34' @ 12.72 hrs Surf.Area= 1,454 sf Storage= 781 cf

Plug-Flow detention time= 17.3 min calculated for 0.105 af (100% of inflow)
Center-of-Mass det. time= 17.2 min (926.0 - 908.8)

Volume	Invert	Avail.Storage	Storage Description
#1	138.00'	1,163 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
138.00	1,454	0.0	0	0
140.00	1,454	40.0	1,163	1,163

Device	Routing	Invert	Outlet Devices
#1	Discarded	138.00'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.3 cfs @ 12.00 hrs HW=138.04' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.3 cfs)

Summary for Pond IT-2:

Inflow Area = 0.39 ac, 0.00% Impervious, Inflow Depth = 1.86" for 100-Yr event
Inflow = 0.7 cfs @ 12.14 hrs, Volume= 0.061 af
Outflow = 0.1 cfs @ 11.95 hrs, Volume= 0.061 af, Atten= 86%, Lag= 0.0 min
Discarded = 0.1 cfs @ 11.95 hrs, Volume= 0.061 af
Primary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-6 : Wetland Series 'B' & 'C'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 143.96' @ 13.36 hrs Surf.Area= 520 sf Storage= 678 cf

Plug-Flow detention time= 54.4 min calculated for 0.061 af (100% of inflow)
Center-of-Mass det. time= 54.0 min (962.8 - 908.8)

Volume	Invert	Avail.Storage	Storage Description
#1	141.00'	583 cf	**4.00'W x 130.00'L x 3.00'H Prismatoid** 1,560 cf Overall - 102 cf Embedded = 1,458 cf x 40.0% Voids
#2	141.50'	102 cf	**12.0" Round Pipe Storage** Inside #1 L= 130.0'
		685 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	141.00'	**8.270 in/hr Exfiltration over Surface area**
#2	Primary	144.00'	**130.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.1 cfs @ 11.95 hrs HW=141.04' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.1 cfs)

Primary OutFlow Max=0.0 cfs @ 5.00 hrs HW=141.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond P-5C:

Inflow Area = 1.70 ac, 64.71% Impervious, Inflow Depth > 6.70" for 100-Yr event
Inflow = 12.6 cfs @ 12.13 hrs, Volume= 0.950 af
Outflow = 5.5 cfs @ 12.00 hrs, Volume= 0.941 af, Atten= 56%, Lag= 0.0 min
Discarded = 5.5 cfs @ 12.00 hrs, Volume= 0.941 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.77' @ 12.27 hrs Surf.Area= 28,680 sf Storage= 3,796 cf

Plug-Flow detention time= 8.2 min calculated for 0.940 af (99% of inflow)
Center-of-Mass det. time= 2.9 min (812.8 - 809.9)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	18,929 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	28,680	0.0	0	0
8.34	28,680	30.0	86	86
10.42	28,680	30.0	17,896	17,982
10.75	28,680	10.0	946	18,929

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=5.5 cfs @ 12.00 hrs HW=8.35' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 5.5 cfs)

Summary for Pond P-5D:

Inflow Area = 1.83 ac, 32.24% Impervious, Inflow Depth = 3.75" for 100-Yr event
Inflow = 5.8 cfs @ 12.24 hrs, Volume= 0.573 af
Outflow = 0.9 cfs @ 11.85 hrs, Volume= 0.573 af, Atten= 84%, Lag= 0.0 min
Discarded = 0.9 cfs @ 11.85 hrs, Volume= 0.573 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 9.82' @ 13.27 hrs Surf.Area= 16,837 sf Storage= 7,508 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 61.0 min (930.7 - 869.7)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	11,112 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	16,837	0.0	0	0
8.34	16,837	30.0	51	51
10.42	16,837	30.0	10,506	10,557
10.75	16,837	10.0	556	11,112

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.9 cfs @ 11.85 hrs HW=8.34' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.9 cfs)

Summary for Pond P-5F:

Inflow Area = 7.87 ac, 54.76% Impervious, Inflow Depth = 6.20" for 100-Yr event
Inflow = 54.5 cfs @ 12.13 hrs, Volume= 4.064 af
Outflow = 21.0 cfs @ 12.00 hrs, Volume= 4.069 af, Atten= 62%, Lag= 0.0 min
Discarded = 21.0 cfs @ 12.00 hrs, Volume= 4.069 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.92' @ 12.30 hrs Surf.Area= 109,500 sf Storage= 19,512 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 3.5 min (822.6 - 819.1)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	72,270 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	109,500	0.0	0	0
8.34	109,500	30.0	328	328
10.42	109,500	30.0	68,328	68,657
10.75	109,500	10.0	3,614	72,270

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=21.0 cfs @ 12.00 hrs HW=8.36' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 21.0 cfs)

Summary for Pond P-6C:

Inflow Area = 3.56 ac, 55.90% Impervious, Inflow Depth = 6.07" for 100-Yr event
Inflow = 24.2 cfs @ 12.13 hrs, Volume= 1.800 af
Outflow = 9.6 cfs @ 12.00 hrs, Volume= 1.808 af, Atten= 60%, Lag= 0.0 min
Discarded = 9.6 cfs @ 12.00 hrs, Volume= 1.808 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 8.88' @ 12.29 hrs Surf.Area= 50,137 sf Storage= 8,312 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 3.0 min (824.4 - 821.3)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	33,090 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	50,137	0.0	0	0
8.34	50,137	30.0	150	150
10.42	50,137	30.0	31,285	31,436
10.75	50,137	10.0	1,655	33,090

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=9.6 cfs @ 12.00 hrs HW=8.36' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 9.6 cfs)

Summary for Pond P-8G:

Inflow Area = 9.78 ac, 54.60% Impervious, Inflow Depth = 5.81" for 100-Yr event
Inflow = 64.1 cfs @ 12.13 hrs, Volume= 4.738 af
Outflow = 3.5 cfs @ 11.05 hrs, Volume= 4.737 af, Atten= 94%, Lag= 0.0 min
Discarded = 3.5 cfs @ 11.05 hrs, Volume= 4.737 af

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 10.43' @ 14.30 hrs Surf.Area= 150,055 sf Storage= 94,293 cf

Plug-Flow detention time= 250.8 min calculated for 4.728 af (100% of inflow)
Center-of-Mass det. time= 250.4 min (1,076.2 - 825.8)

Volume	Invert	Avail.Storage	Storage Description
#1	8.33'	99,036 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
8.33	150,055	0.0	0	0
8.34	150,055	30.0	450	450
10.42	150,055	30.0	93,634	94,084
10.75	150,055	10.0	4,952	99,036

Device	Routing	Invert	Outlet Devices
#1	Discarded	8.33'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=3.5 cfs @ 11.05 hrs HW=8.34' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 3.5 cfs)

Summary for Pond WL-1: Wetland Series 'J'

Inflow Area = 3.97 ac, 23.93% Impervious, Inflow Depth = 1.24" for 100-Yr event
Inflow = 1.9 cfs @ 12.21 hrs, Volume= 0.410 af
Outflow = 1.1 cfs @ 13.57 hrs, Volume= 0.360 af, Atten= 43%, Lag= 81.4 min
Primary = 1.1 cfs @ 13.57 hrs, Volume= 0.360 af
Routed to Reach DP-5 : Wetland Series 'A'
Secondary = 0.0 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach DP-5 : Wetland Series 'A'

Routing by Stor-Ind method, Time Span= 5.00-32.00 hrs, dt= 0.05 hrs
Peak Elev= 137.63' @ 13.57 hrs Surf.Area= 5,710 sf Storage= 4,826 cf

Plug-Flow detention time= 130.4 min calculated for 0.360 af (88% of inflow)
Center-of-Mass det. time= 79.6 min (980.8 - 901.3)

Volume	Invert	Avail.Storage	Storage Description
#1	136.00'	127,590 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
136.00	219	0	0
138.00	6,965	7,184	7,184
140.00	25,165	32,130	39,314
141.00	41,218	33,192	72,506
142.00	68,950	55,084	127,590

Device	Routing	Invert	Outlet Devices
#1	Primary	137.05'	**12.0" Round Culvert** L= 145.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 137.05' / 136.05' S= 0.0069 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Secondary	141.05'	**155.0' long x 35.0' 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=1.1 cfs @ 13.57 hrs HW=137.63' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 1.1 cfs @ 2.28 fps)

Secondary OutFlow Max=0.0 cfs @ 5.00 hrs HW=136.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

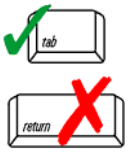
TAB 5

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

[1] The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

[2] For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

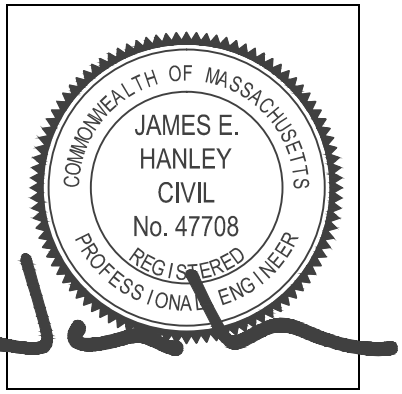
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



April 22, 2024

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

☒ New development

☐ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☐ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
  - ☐ Credit 1
  - ☐ Credit 2
  - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☒ Other (describe): Porous Pavement

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☒ Soil Analysis provided.

☒ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☒ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☒ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☒ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☒ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☒ The BMP is sized (and calculations provided) based on:

- ☒ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☐ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☐ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☐ Description and delineation of public safety features;
- ☒ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☐ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☐ An Illicit Discharge Compliance Statement is attached;

☒ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

Project: Murphy's Farm
Location: Dracut, MA
Client: The Homes at Murphy's Farm LLC

Project Number: 23-10524
Prepared By: Thomas Schomburg, EIT
Date: April 19, 2024

STORMWATER MANAGEMENT STANDARDS CALCULATIONS

Standard 1: Velocity & Rip-Rap Apron Sizing and Gradation Calculations

Outlet:	Q_{10}: (CFS)	Velocity (FPS)	Req'd	D_o: (FT)	L_A: (FT)	W_1: (FT)	W_2: (FT)	T_W: (FT)	d_{50}: (FT)
PFES-1	0.03	0.9	No	0.67	4.8	2.0	6.8	0.335	0.00
PFES-3	0.04	1.2	No	0.67	4.8	2.0	6.8	0.335	0.00
PFES-3	0.05	1.2	No	1	7.1	3.0	10.1	0.5	0.00

Conclusion: No point-source discharges require outlet protection during the 10 year storm event. The Stormwater Management System conforms to Standard 1.

Standard 2: Peak Discharge Summary (CFS)

Design Point 1	2-Year (3.40-IN)	10-Year (5.40-IN)	25-Year (6.96-IN)	50-Year (8.09-IN)	100-Year (9.54-IN)
Pre-Development Conditions:	0.0	0.2	1.0	2.4	4.9
Post Development Conditions:	0.0	0.2	0.9	2.0	3.8

Design Point 2	2-Year (3.40-IN)	10-Year (5.40-IN)	25-Year (6.96-IN)	50-Year (8.09-IN)	100-Year (9.54-IN)
Pre-Development Conditions:	0.2	1.6	3.3	4.6	6.5
Post Development Conditions:	0.2	1.0	2.1	3.8	6.4

Design Point 3	2-Year (3.40-IN)	10-Year (5.40-IN)	25-Year (6.96-IN)	50-Year (8.09-IN)	100-Year (9.54-IN)
Pre-Development Conditions:	0.0	0.0	0.1	0.2	0.8
Post Development Conditions:	0.0	0.0	0.0	0.0	0.0

Design Point 4	2-Year (3.40-IN)	10-Year (5.40-IN)	25-Year (6.96-IN)	50-Year (8.09-IN)	100-Year (9.54-IN)
Pre-Development Conditions:	0.0	0.0	0.1	0.2	0.6
Post Development Conditions:	0.0	0.0	0.0	0.0	0.0

Design Point 5	2-Year (3.40-IN)	10-Year (5.40-IN)	25-Year (6.96-IN)	50-Year (8.09-IN)	100-Year (9.54-IN)
Pre-Development Conditions:	0.0	0.1	0.4	1.2	2.7
Post Development Conditions:	0.0	0.0	0.2	0.7	2.1

Design Point 6	2-Year (3.40-IN)	10-Year (5.40-IN)	25-Year (6.96-IN)	50-Year (8.09-IN)	100-Year (9.54-IN)
Pre-Development Conditions:	0.0	0.0	0.1	0.2	0.6
Post Development Conditions:	0.0	0.0	0.1	0.2	0.6

Design Point 7	2-Year (3.40-IN)	10-Year (5.40-IN)	25-Year (6.96-IN)	50-Year (8.09-IN)	100-Year (9.54-IN)
Pre-Development Conditions:	0.0	0.0	0.1	0.3	1.1
Post Development Conditions:	0.0	0.0	0.0	0.1	0.1
Design Point 8	**2-Year (3.40-IN)**	**10-Year (5.40-IN)**	**25-Year (6.96-IN)**	**50-Year (8.09-IN)**	**100-Year (9.54-IN)**
Pre-Development Conditions:	0.0	0.1	0.5	1.5	4.2
Post Development Conditions:	0.0	0.1	0.5	1.3	3.3

Conclusion: The Stormwater Management System conforms to Standard 2.

Standard 3: Recharge Calculations (Static Method)

Infiltration Basin 1

Hydrologic Soils Group:	A	B	C	D		
Total Proposed Impervious Area:	0.95	0.00	0.00	0.00	0.95	
Target Factor:	0.60	0.35	0.25	0.10		
Required Recharge Volume:	2,069	0	0	0	2,069	CF
Volume Below Lowest Outlet:					3,215	CF
Elevation of Lowest Invert:					137.50	
Determine Drawdown Time						
Saturated Hydraulic Conductivity (Rawls Rate):					2.41	IN/HR
Bottom Area of Infiltration Basin:					4,494	SF
Drawdown Time:					3.6	HRS

Infiltration Basin 2

Hydrologic Soils Group:	A	B	C	D		
Total Proposed Impervious Area:	0.00	0.00	0.00	0.00	0.00	
Target Factor:	0.60	0.35	0.25	0.10		
Required Recharge Volume:	0	0	0	0	0	CF
Volume Below Lowest Outlet:					1,630	CF
Elevation of Lowest Invert:					141.00	
Determine Drawdown Time						
Saturated Hydraulic Conductivity (Rawls Rate):					2.41	IN/HR
Bottom Area of Infiltration Basin:					420	SF
Drawdown Time:					19.3	HRS

Infiltration Basin 3

Hydrologic Soils Group:	A	B	C	D		
Total Proposed Impervious Area:	0.36	0.62	0.00	0.00	0.98	
Target Factor:	0.60	0.35	0.25	0.10		
Required Recharge Volume:	784	788	0	0	1,572	CF
Volume Below Lowest Outlet:					2,759	CF
Elevation of Lowest Invert:					122.00	

Determine Drawdown Time

Saturated Hydraulic Conductivity (Rawls Rate):	1.02	IN/HR
Bottom Area of Infiltration Basin:	747	SF
Drawdown Time:	43.5	HRS

Porous Pavement (Subcatchment 5C)

Hydrologic Soils Group:	A	B	C	D		
Total Proposed Impervious Area:	1.10	0.00	0.00	0.00	1.10	
Target Factor:	0.60	0.35	0.25	0.10		
Required Recharge Volume:	2,396	0	0	0	2,396	CF

Volume Below Lowest Outlet:	18,871	CF
Elevation of Lowest Invert:	N/A	

Determine Drawdown Time

Saturated Hydraulic Conductivity (Rawls Rate):	8.27	IN/HR
Bottom Area of Infiltration Basin:	28,680	SF
Drawdown Time:	1.0	HRS

Porous Pavement (Subcatchment 5D)

Hydrologic Soils Group:	A	B	C	D		
Total Proposed Impervious Area:	0.59	0.00	0.00	0.00	0.59	
Target Factor:	0.60	0.35	0.25	0.10		
Required Recharge Volume:	1,285	0	0	0	1,285	CF

Volume Below Lowest Outlet:	11,079	CF
Elevation of Lowest Invert:	N/A	

Determine Drawdown Time

Saturated Hydraulic Conductivity (Rawls Rate):	8.27	IN/HR
Bottom Area of Infiltration Basin:	16,837	SF
Drawdown Time:	1.0	HRS

Porous Pavement (Subcatchment 5F)

Hydrologic Soils Group:	A	B	C	D		
Total Proposed Impervious Area:	4.31	0.00	0.00	0.00	4.31	
Target Factor:	0.60	0.35	0.25	0.10		
Required Recharge Volume:	9,387	0	0	0	9,387	CF

Volume Below Lowest Outlet:	72,051	CF
Elevation of Lowest Invert:	N/A	

Determine Drawdown Time

Saturated Hydraulic Conductivity (Rawls Rate):	8.27	IN/HR
Bottom Area of Infiltration Basin:	109,500	SF
Drawdown Time:	1.0	HRS

Porous Pavement (Subcatchment 6C)

Hydrologic Soils Group:	A	B	C	D		
Total Proposed Impervious Area:	1.99	0.00	0.00	0.00	1.99	
Target Factor:	0.60	0.35	0.25	0.10		
Required Recharge Volume:	4,334	0	0	0	4,334	CF

Volume Below Lowest Outlet:	32,990	CF
Elevation of Lowest Invert:	N/A	

Determine Drawdown Time

Saturated Hydraulic Conductivity (Rawls Rate):	8.27	IN/HR
Bottom Area of Infiltration Basin:	50,137	SF
Drawdown Time:	1.0	HRS

Porous Pavement (Subcatchment 8G)

Hydrologic Soils Group:	A	B	C	D		
Total Proposed Impervious Area:	5.34	0.00	0.00	0.00	5.34	
Target Factor:	0.60	0.35	0.25	0.10		
Required Recharge Volume:	11,631	0	0	0	11,631	CF

Volume Below Lowest Outlet:	98,736	CF
Elevation of Lowest Invert:	N/A	

Determine Drawdown Time

Saturated Hydraulic Conductivity (Rawls Rate):	8.27	IN/HR
Bottom Area of Infiltration Basin:	150,055	SF
Drawdown Time:	1.0	HRS

Capture Area Adjustment

Increase in Site Impervious:	16.56	Ac.
Impervious Draining to Basins:	15.26	Ac.
Adjusted Recharge Volume:	35,457	CF
Recharge Volume Provided:	239,701	CF
Percentage of Impervious Draining to Basins	92%	

Conclusion: The volume provided below the lowest invert in the infiltration basin exceed the minimum recharge volume required. In addition, the basin drains within 72-HRS to comply with DEP regulations. The Stormwater Management System conforms to Standard 3.

Standard 4: Water Quality Volume Calculations

Infiltration Basin 1

Water Quality Depth:	0.5	IN
Total Proposed Impervious Area:	0.95	Acres
Required Water Quality Volume:	1,724	CF
Provided Water Quality Volume:	3,215	CF

Infiltration Basin 2

N/A - No impervious surfaces drainaing to IB-2.

Infiltration Basin 3

Water Quality Depth:	0.5	IN
Total Proposed Impervious Area:	0.98	Acres
Required Water Quality Volume:	1,779	CF
Provided Water Quality Volume:	2,759	CF

Porous Pavement (Subcatchment 5C)

Water Quality Depth:	1.0	IN
Total Proposed Impervious Area:	1.10	Acres
Required Water Quality Volume:	3,993	CF
Provided Water Quality Volume:	18,871	CF

Porous Pavement (Subcatchment 5D)

Water Quality Depth:	1.0	IN
Total Proposed Impervious Area:	0.59	Acres
Required Water Quality Volume:	2,142	CF
Provided Water Quality Volume:	11,079	CF

Porous Pavement (Subcatchment 5F)

Water Quality Depth:	1.0	IN
Total Proposed Impervious Area:	4.31	Acres
Required Water Quality Volume:	15,645	CF
Provided Water Quality Volume:	72,051	CF

Porous Pavement (Subcatchment 6C)

Water Quality Depth:	1.0	IN
Total Proposed Impervious Area:	1.99	Acres
Required Water Quality Volume:	7,224	CF
Provided Water Quality Volume:	32,990	CF

Porous Pavement (Subcatchment 8G)

Water Quality Depth:	1.0	IN
Total Proposed Impervious Area:	5.34	Acres
Required Water Quality Volume:	19,384	CF
Provided Water Quality Volume:	98,736	CF

TSS Removal Rate Calculations

Treatment Provided at Discharge From Infiltration Basin 1

	TSS Removal Rate	Starting TSS Load	Amount Removed	Remaining Load
Sediment Forebay & Infiltration Basin:	80%	1	0.8	0.2
TSS Removed at Discharge from Pond:				80.0%

Treatment Provided From Infiltration Basin 3

	TSS Removal Rate	Starting TSS Load	Amount Removed	Remaining Load
Stormceptor:	80%	1.00	0.80	0.20
Infiltration Basin:	80%	0.20	0.16	0.04
TSS Removed through Infiltration Basin:				96.0%

Treatment Provided at Discharge From Porous Pavement

	TSS Removal Rate	Starting TSS Load	Amount Removed	Remaining Load
Porous Pavement:	80%	1	0.8	0.2
TSS Removed from Porous Pavement:				80.0%

Conclusion: The volume provided below the lowest invert in the infiltration basins and porous pavement sections exceeds the Water Quality Volume and TSS Removal Rate is greater than 80%. The Stormwater Management System conforms to Standard 4.

Standard 5: Land Uses With Higher Potential Pollutant Loads

Conclusion: The proposed use is not considered a Land Use with Higher Potential Pollutant Loads. This Standard is NOT Applicable.

Standard 6: Critical Areas

Conclusion: The proposal is not located within a Critical Area. This Standard is NOT Applicable.

Standard 7: Redevelopment

Conclusion: The development does not meet the criteria for redevelopment.

Standard 8: Construction Period Controls

Conclusion: The project is covered by a NPDES Construction General Permit. No SWPPP has been prepared at this time but will be prepared prior to the start of construction. A Construction Period Pollution Prevention Plan has been prepared and provided. The Stormwater Management System Conforms to Standard 8.

Standard 9: Operations and Maintenance Plan

Conclusion: An Operations and Maintenance Plan has been prepared and provided with this summary. The Stormwater Management System Conforms to Standard 9.

Standard 10: Illicit Discharges to Drainage System

Conclusion: All off-site discharges are comprised entirely of stormwater. The Stormwater Management System Conforms to Standard 10.

Project:	Murphy's Farm	Project Number:	23-10524
Location:	Dracut, MA	Prepared By:	Thomas Schomburg, E
Client:	The Homes at Murphy's Farm LLC	Date:	April 19, 2024

FOREBAY SIZING CALCULATIONS

Infiltration Basin 1

Watershed Characteristics

Impervious Area (Ai):	0.95	Acres
Required (0.1-IN x Ai):	345	CF
Sediment Forebay Volume:	398	CF
	OK	

Stage / Storage Tables

Sediment Forebay:	Elevation	Surface Area (SF)	Incremental Storage (CF)	Total Storage (CF)
	138.5	398	398	0
	139.5	398	398	398

NOAA Atlas 14, Volume 10, Version 3
Location name: Town of Dracut, Massachusetts, USA*
Latitude: 42.6854°, Longitude: -71.2468°
Elevation: 142 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.313** (0.247-0.389)	**0.372** (0.294-0.464)	**0.469** (0.369-0.587)	**0.550** (0.430-0.692)	**0.661** (0.499-0.867)	**0.745** (0.550-0.997)	**0.833** (0.595-1.15)	**0.930** (0.629-1.32)	**1.07** (0.693-1.56)	**1.18** (0.747-1.76)
10-min	**0.443** (0.350-0.552)	**0.527** (0.416-0.657)	**0.665** (0.523-0.832)	**0.779** (0.609-0.980)	**0.937** (0.707-1.23)	**1.06** (0.780-1.41)	**1.18** (0.843-1.63)	**1.32** (0.891-1.86)	**1.51** (0.982-2.22)	**1.67** (1.06-2.50)
15-min	**0.521** (0.412-0.649)	**0.620** (0.489-0.773)	**0.782** (0.615-0.979)	**0.917** (0.717-1.15)	**1.10** (0.832-1.44)	**1.24** (0.917-1.66)	**1.39** (0.992-1.92)	**1.55** (1.05-2.20)	**1.78** (1.16-2.61)	**1.97** (1.24-2.94)
30-min	**0.716** (0.566-0.893)	**0.853** (0.673-1.06)	**1.08** (0.846-1.35)	**1.26** (0.986-1.59)	**1.52** (1.14-1.99)	**1.71** (1.26-2.29)	**1.91** (1.36-2.64)	**2.13** (1.44-3.02)	**2.45** (1.59-3.59)	**2.71** (1.71-4.04)
60-min	**0.912** (0.721-1.14)	**1.09** (0.857-1.35)	**1.37** (1.08-1.72)	**1.61** (1.26-2.02)	**1.93** (1.46-2.53)	**2.18** (1.61-2.91)	**2.43** (1.74-3.37)	**2.72** (1.84-3.85)	**3.12** (2.03-4.57)	**3.45** (2.18-5.15)
2-hr	**1.16** (0.924-1.44)	**1.40** (1.11-1.73)	**1.78** (1.41-2.22)	**2.10** (1.66-2.63)	**2.55** (1.94-3.33)	**2.87** (2.14-3.85)	**3.23** (2.34-4.50)	**3.65** (2.48-5.15)	**4.30** (2.80-6.26)	**4.85** (3.08-7.20)
3-hr	**1.34** (1.07-1.65)	**1.62** (1.29-2.00)	**2.07** (1.65-2.57)	**2.46** (1.94-3.06)	**2.98** (2.28-3.89)	**3.36** (2.52-4.50)	**3.79** (2.77-5.28)	**4.31** (2.93-6.05)	**5.12** (3.34-7.43)	**5.82** (3.70-8.60)
6-hr	**1.70** (1.37-2.08)	**2.07** (1.66-2.54)	**2.67** (2.14-3.29)	**3.17** (2.52-3.92)	**3.86** (2.98-5.02)	**4.36** (3.30-5.81)	**4.92** (3.62-6.84)	**5.61** (3.83-7.84)	**6.70** (4.38-9.67)	**7.66** (4.88-11.2)
12-hr	**2.13** (1.73-2.60)	**2.61** (2.11-3.18)	**3.38** (2.73-4.14)	**4.02** (3.22-4.94)	**4.90** (3.80-6.33)	**5.55** (4.22-7.34)	**6.26** (4.63-8.64)	**7.14** (4.90-9.91)	**8.51** (5.58-12.2)	**9.69** (6.20-14.2)
24-hr	**2.53** (2.07-3.06)	**3.12** (2.55-3.78)	**4.10** (3.33-4.98)	**4.90** (3.96-6.00)	**6.02** (4.70-7.73)	**6.83** (5.23-8.99)	**7.73** (5.75-10.6)	**8.84** (6.09-12.2)	**10.6** (6.97-15.1)	**12.1** (7.77-17.6)
2-day	**2.84** (2.34-3.42)	**3.56** (2.93-4.29)	**4.74** (3.89-5.73)	**5.73** (4.66-6.96)	**7.08** (5.57-9.06)	**8.06** (6.22-10.6)	**9.16** (6.88-12.6)	**10.6** (7.29-14.5)	**12.8** (8.45-18.1)	**14.8** (9.50-21.3)
3-day	**3.11** (2.58-3.73)	**3.89** (3.21-4.66)	**5.15** (4.24-6.20)	**6.20** (5.07-7.51)	**7.65** (6.05-9.76)	**8.70** (6.74-11.4)	**9.88** (7.44-13.5)	**11.4** (7.88-15.5)	**13.8** (9.13-19.5)	**15.9** (10.3-22.9)
4-day	**3.38** (2.80-4.04)	**4.18** (3.46-5.00)	**5.48** (4.53-6.58)	**6.56** (5.38-7.92)	**8.05** (6.39-10.2)	**9.14** (7.10-11.9)	**10.4** (7.81-14.1)	**11.9** (8.26-16.2)	**14.4** (9.53-20.2)	**16.6** (10.7-23.7)
7-day	**4.10** (3.43-4.88)	**4.94** (4.12-5.88)	**6.29** (5.23-7.52)	**7.42** (6.12-8.91)	**8.97** (7.14-11.3)	**10.1** (7.87-13.1)	**11.4** (8.58-15.3)	**12.9** (9.02-17.5)	**15.5** (10.3-21.6)	**17.7** (11.4-25.2)
10-day	**4.77** (4.00-5.66)	**5.62** (4.72-6.68)	**7.02** (5.86-8.36)	**8.18** (6.78-9.79)	**9.77** (7.81-12.3)	**10.9** (8.54-14.1)	**12.2** (9.24-16.4)	**13.8** (9.66-18.6)	**16.3** (10.9-22.7)	**18.4** (11.9-26.2)
20-day	**6.68** (5.66-7.87)	**7.62** (6.44-8.99)	**9.16** (7.71-10.8)	**10.4** (8.72-12.4)	**12.2** (9.78-15.1)	**13.5** (10.6-17.1)	**14.9** (11.2-19.5)	**16.5** (11.6-22.0)	**18.7** (12.5-25.8)	**20.5** (13.3-28.9)
30-day	**8.28** (7.04-9.72)	**9.30** (7.89-10.9)	**11.0** (9.26-12.9)	**12.3** (10.3-14.6)	**14.2** (11.4-17.5)	**15.7** (12.2-19.6)	**17.2** (12.8-22.1)	**18.7** (13.2-24.9)	**20.7** (13.9-28.5)	**22.3** (14.5-31.4)
45-day	**10.3** (8.81-12.1)	**11.4** (9.73-13.4)	**13.2** (11.2-15.5)	**14.7** (12.4-17.4)	**16.8** (13.5-20.4)	**18.4** (14.4-22.8)	**19.9** (14.9-25.4)	**21.4** (15.2-28.4)	**23.4** (15.8-32.0)	**24.8** (16.2-34.7)
60-day	**12.0** (10.3-14.0)	**13.2** (11.3-15.4)	**15.1** (12.9-17.7)	**16.7** (14.1-19.7)	**18.9** (15.3-22.9)	**20.6** (16.2-25.5)	**22.3** (16.6-28.2)	**23.8** (16.9-31.4)	**25.6** (17.4-35.0)	**26.9** (17.6-37.6)

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

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

Please refer to NOAA Atlas 14 document for more information.

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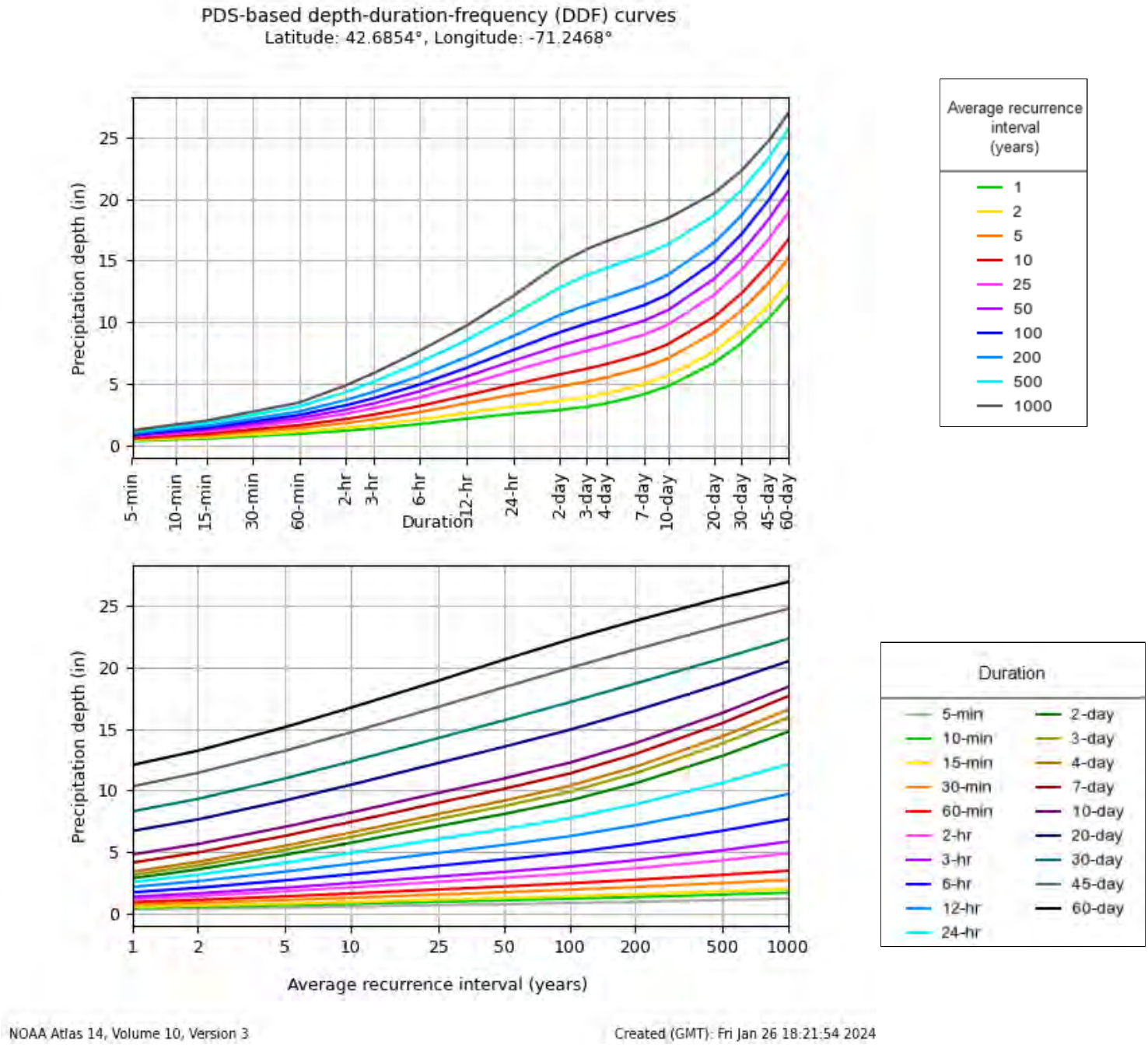
PF graphical



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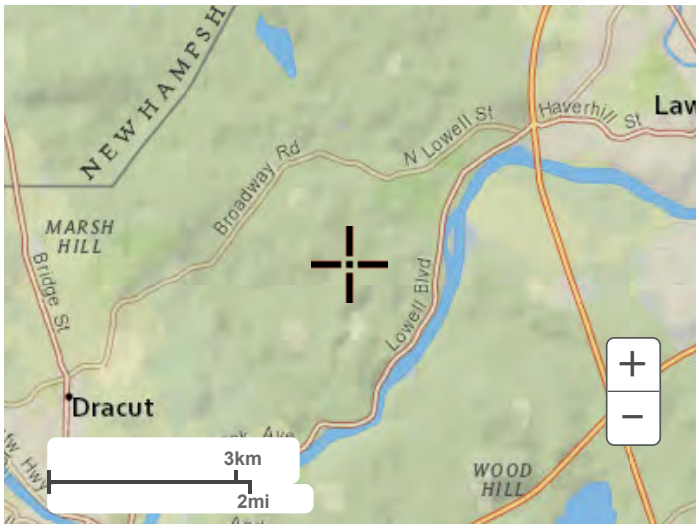
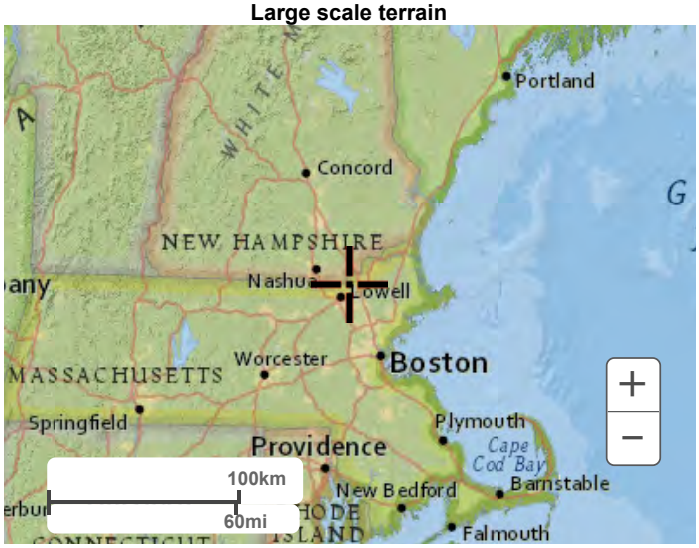
Maps & aerials

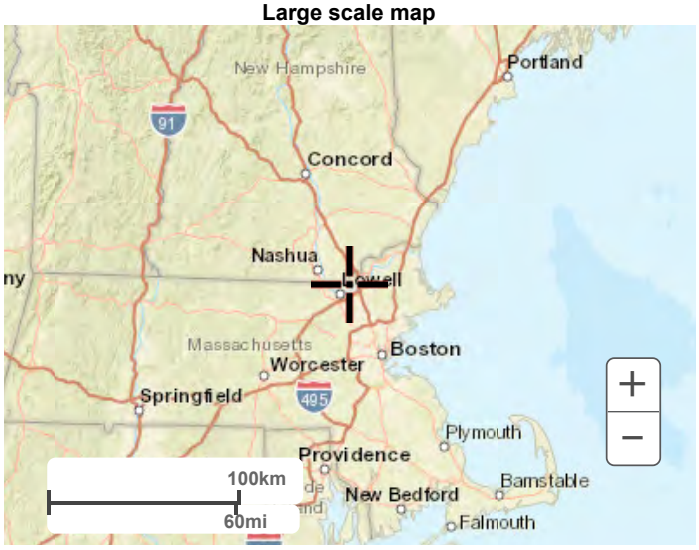
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial

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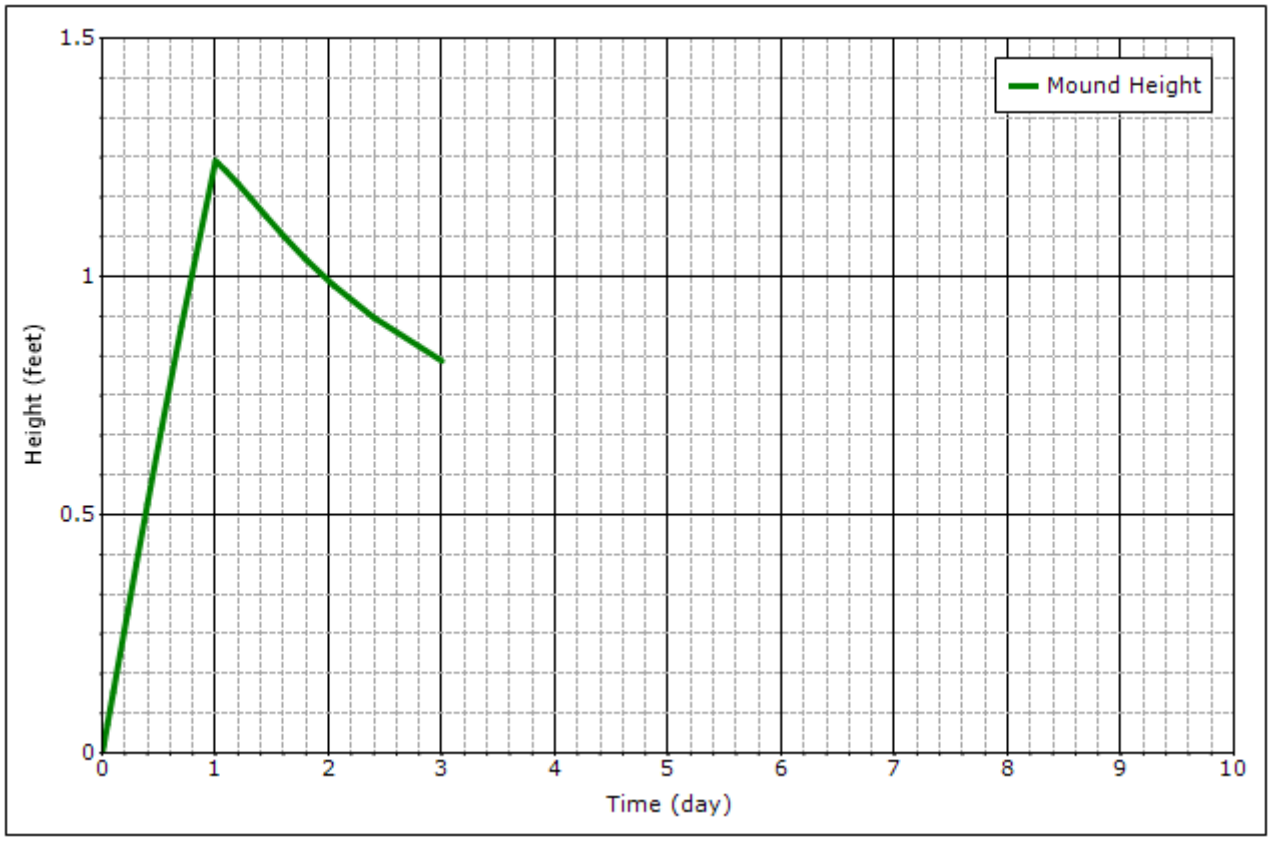
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Groundwater Mounding Analysis (Hantush Method using Glover's Solution)



Company: Civil Design
Project: Consultants, Inc.
Murphy's Farm - IB-1
Analyst: Thomas Schomburg, EIT
Date: 04/23/2024

Recharge Basin Dimensions

Length (w): 180 ft
Width (l): 55 ft
Bottom Area: 9,900 ft²
SHGW Separation: 2 ft

Recharge Rate Calculations

Duration (t): 1 d
Volume (V): 3,215 ft³
Rate (R): 0.33 ft/d
Total Simulation Time: 3 d

Aquifer Characteristics

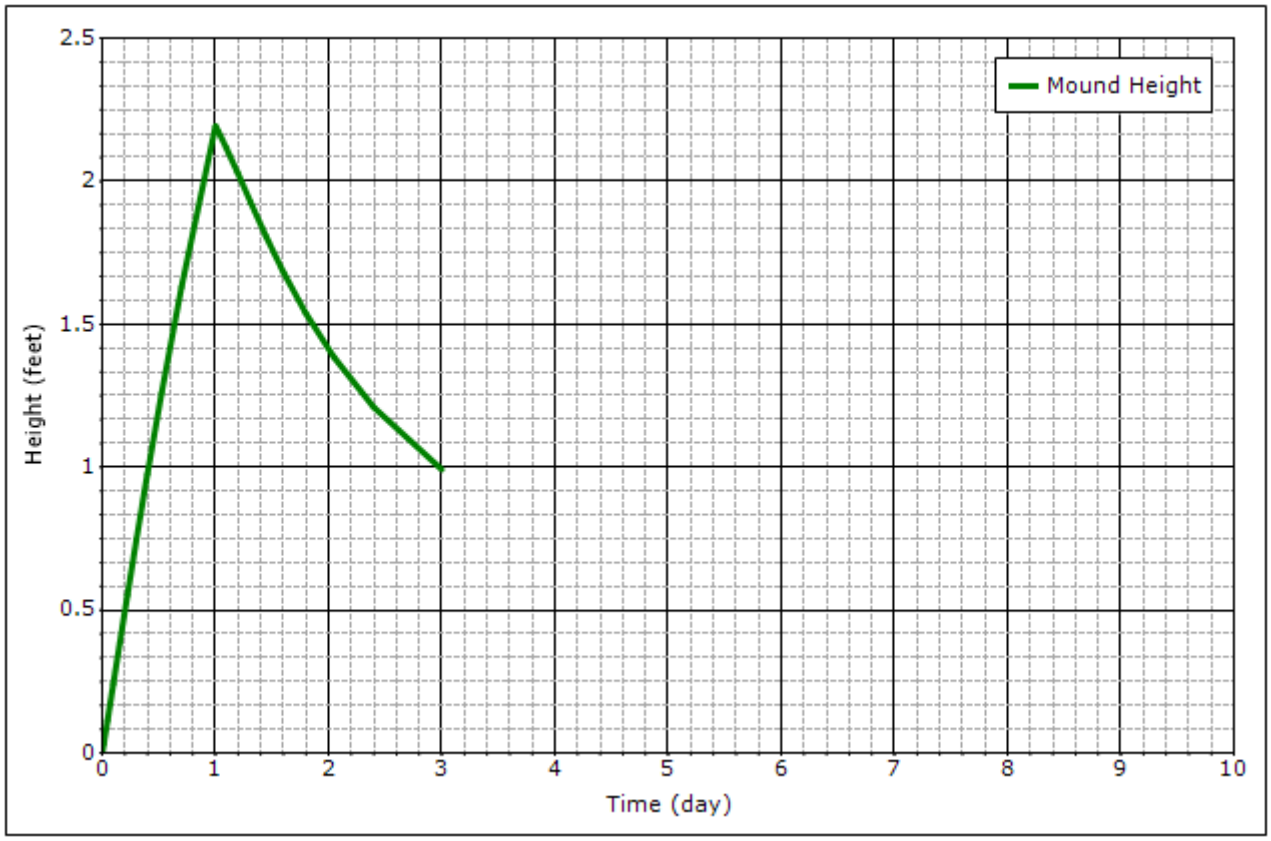
Hydraulic Conductivity (Kh): 24.1 ft/d
Drainable Porosity(Sy): 0.25
Saturated Thickness (h): 2 ft

Plot Geometry

X-Coordinate: 0 ft
Y-Coordinate: 0 ft
Left Side Plot Distance (Dl): 0 ft
Right Side Plot Distance (Dr): 0 ft
Plot Angle From Y-Axis (Φ): 0
Constant Head Boundary: No

Time (d)	Height (ft)
0.00	0.0000
0.01	0.0174
0.05	0.0605
0.10	0.1279
0.15	0.2045
0.22	0.2928
0.30	0.3967
0.40	0.5222
0.52	0.6807
0.70	0.8960
1.00	1.2424
1.03	1.2366
1.09	1.2217
1.19	1.1960
1.31	1.1646
1.44	1.1276
1.60	1.0852
1.80	1.0368
2.05	0.9812
2.40	0.9143
3.00	0.8230

Groundwater Mounding Analysis (Hantush Method using Glover's Solution)



Company: Civil Design
Project: Consultants, Inc.
Murphy's Farm - IB-3
Analyst: Thomas Schomburg, EIT
Date: 04/23/2024

Recharge Basin Dimensions

Length (w): 90 ft
Width (l): 60 ft
Bottom Area: 5,400 ft²
SHGW Separation: 2.3 ft

Recharge Rate Calculations

Duration (t): 1 d
Volume (V): 2,759 ft³
Rate (R): 0.5 ft/d
Total Simulation Time: 3 d

Aquifer Characteristics

Hydraulic Conductivity (Kh): 10.2 ft/d
Drainable Porosity(Sy): 0.2
Saturated Thickness (h): 6.5 ft

Plot Geometry

X-Coordinate: 0 ft
Y-Coordinate: 0 ft
Left Side Plot Distance (Dl): 0 ft
Right Side Plot Distance (Dr): 0 ft
Plot Angle From Y-Axis (Φ): 0
Constant Head Boundary: No

Time (d)	Height (ft)
0.00	0.0000
0.01	0.0330
0.05	0.1145
0.10	0.2422
0.15	0.3871
0.22	0.5530
0.30	0.7464
0.40	0.9760
0.52	1.2588
0.70	1.6295
1.00	2.1929
1.03	2.1725
1.09	2.1197
1.19	2.0311
1.31	1.9270
1.44	1.8096
1.60	1.6803
1.80	1.5395
2.05	1.3849
2.40	1.2098
3.00	0.9918

Murphy's Farm

Proposed Peak Discharge Rates (Closed Drainage Design)

PCB-1

Cover Type	Area (ac)	C Value	C*A
Impervious	0.08	0.90	0.07
Lawn/Grass	1.57	0.20	0.31
Total	**1.65**	N/A	**0.39**

Composite C= ***0.23***

Q (cfs)
2.32

PCB-2

Cover Type	Area (ac)	C Value	C*A
Impervious	0.09	0.90	0.08
Lawn/Grass	0.05	0.20	0.01
Total	**0.14**	N/A	**0.09**

Composite C= ***0.65***

Q (cfs)
0.55

PDMH-1

Cover Type	Area (ac)	C Value	C*A
Impervious	0.17	0.90	0.15
Lawn/Grass	1.62	0.20	0.32
Total	**1.79**	N/A	**0.48**

Composite C= ***0.27***

Q (cfs)
2.86

PCB-3

Cover Type	Area (ac)	C Value	C*A
Impervious	0.19	0.90	0.17
Lawn/Grass	0.16	0.20	0.03
Total	**0.35**	N/A	**0.20**

Composite C= ***0.58***

Q (cfs)
1.22

PCB-4

Cover Type	Area (ac)	C Value	C*A
Impervious	0.62	0.90	0.56
Lawn/Grass	0.40	0.20	0.08
Total	**1.02**	N/A	**0.64**

Composite C= ***0.63***

Q (cfs)
3.83

PDMH-2

Cover Type	Area (ac)	C Value	C*A
Impervious	0.81	0.90	0.73
Lawn/Grass	0.56	0.20	0.11
Total	**1.37**	N/A	**0.84**

Composite C= ***0.61***

Q (cfs)
5.05

Closed Drainage System Calculations

Location: Murphy's Farm, Dracut, MA
Client: The Homes at Murphy's Farm LLC
Subject: Closed Drainage System Calculations

Proj. No. 23-10524
Date 4/22/2024
Comp. TWS
Check

Design Parameters
10 Year Storm
18 "Min. Pipe Size

Location in Massachusetts 1 (1-Boston, 2-Barnstable, 3-Worcester, 4-Springfield, 5-Pittsfield)
Manning's roughness coefficient 0.013

Rainfall Data is For Boston

LOCATION		RAINFALL CONCENTRATION PERIOD IN MINUTES		COMBINED RUNOFF COEFF.	TRIBUTARY AREA IN ACRES		C x A		RAINFALL INTENSITY (i)	PEAK FLOW	PIPE								PROFILE			
FROM DRAINAGE NO.	TO DRAINAGE NO.	PIPE	TOTAL	C	INC	TOTAL	INC	TOTAL	IN/HR	CFS	SIZE IN	n VALUE	SLOPE FT/FT	LENGTH FT	FULL CAPACITY CFS	FULL VELOCITY FT/S	PEAK FLOW CONDITIONS VELOCITY FT/S	d/D	INVERT ELEVATION UPPER END	INVERT ELEVATION LOWER END	RIM ELEVATION & DEPTH OF COVER UPPER RIM	RIM ELEVATION & DEPTH OF COVER DEPTH
PCB-1	PDMH-1		5.00	0.23	1.650	1.650	0.38	0.38	5.40	2.05	16	0.013	0.005	21	5.55	4.0	3.7	0.42	131.45	131.34	135.07	2.09
PCB-2	PDMH-1		5.00	0.65	0.140	0.140	0.09	0.09	5.40	0.49	12	0.013	0.005	18	2.52	3.2	2.4	0.29	131.43	131.34	134.88	2.25
PDMH-1	**PFES-2**	**0.12**	**5.10**			**1.790**	**0.00**	**0.47**	**5.40**	**2.54**	**16**	**0.013**	**0.005**	**47**	**5.48**	**3.9**	**3.8**	**0.47**	**131.24**	**131.00**	**135.53**	**2.76**
PCB-3	PDMH-2		5.00	0.58	0.350	0.350	0.20	0.20	5.40	1.10	12	0.013	0.005	32	2.52	3.2	3.1	0.46	122.83	122.67	126.94	2.91
PCB-4	PDMH-2		5.00	0.63	1.020	1.020	0.64	0.64	5.40	3.47	18	0.013	0.005	15	7.17	4.1	4.0	0.49	122.74	122.67	126.99	2.55
PDMH-2	**PFES-4**	**0.06**	**5.17**			**1.370**	**0.00**	**0.85**	**5.40**	**4.57**	**18**	**0.013**	**0.008**	**72**	**9.34**	**5.3**	**5.2**	**0.49**	**122.57**	**122.00**	**126.01**	**1.74**

LONG TERM OPERATIONS AND MAINTENANCE PROGRAM

April 2024

This Long-Term Operations and Maintenance Program Plan has been prepared in accordance with the Stormwater Management Policy issued by the Department of Environmental Protection (DEP) for the proposed multi-family residential development located at Murphy's Farm in Dracut, MA. Upon a period beginning twelve months after the completion of the roadway, all structural BMP's shall be inspected twice annually, once in April and once in November. The inspection shall be performed as indicated below:

Street Sweeping

Street sweeping can be an effective method to reduce pollutant loading in runoff generated from pavement. Street sweeping shall be performed quarterly, using a high efficiency vacuum sweeper or regenerative air sweeper, with sweeping scheduled primarily in the spring and fall.

Snow Storage / Removal

Snow plowed from the proposed roadway will be placed or disposed of in accordance with the policy developed by DEP. Under no circumstances shall snow plowed or removed from the road be stockpiled within wetland resource areas. If conditions arise where snow storage areas are at capacity the Operator is required to remove and dispose of snow off site in conformance with all local, state and federal regulations.

Catch Basins

Catch basins shall be inspected and/or cleaned at least four times per year and at the end of the foliage and snow removal seasons. Sediment shall be removed four times per year or whenever the depth of the deposits is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the basin. Sediment shall be removed and disposed of with a truck-mounted vacuum unit or other appropriate apparatus. The sediment will be disposed of at an approved offsite location in accordance with all applicable local, state, and federal regulations.

Drainage Outfalls

The outlets of the storm water management system will be inspected biannually. Any evidence of erosion or other damage will be reported to the appropriate town representative and repaired as soon as possible. Any sediment should be removed from the outlet structures.

Sediment Forebay

Sediments and associated pollutants are removed only when sediment forebays are actually cleaned out, so regular maintenance is essential. Frequently removing accumulated sediments will make it less likely that sediments will be re-suspended. At a minimum, inspect sediment forebays monthly and clean them out at least four times per year. Stabilize the floor and sidewalls of the sediment forebay before making it operational, otherwise the practice will discharge excess amounts of suspended sediments. When mowing grasses, keep the grass height no greater than 6 inches. Set mower blades no lower than 3 to 4 inches. Check for signs of riling and gullying and repair as needed. After removing the sediment, replace any vegetation damaged during the clean-out by either reseeding or resodding. When reseeding, incorporate practices such as hydroseeding with a tackifier, blanket, or similar practice to ensure that no scour occurs in the forebay while the seeds germinate and develop roots.

Porous Pavement

Frequent cleaning and maintenance of porous pavement is critical to maintain proper function of the system. No winter sanding of porous pavement is permitted. It is also recommended to minimize application of salt for ice control and to never reseal or repave with impermeable materials. The permeable pavement should be inspected annually for deterioration or spalling. The surface should be cleaned at a minimum of twice per year using a vacuum sweeper (power washing may be required beforehand to dislodge trapped particles). Major clogging may necessitate replacement of pavement surface, and possibly filter course and sub-base course.

Infiltration/Detention Basin

Infiltration basins are prone to clogging and failure, so it is imperative to develop and implement aggressive maintenance plans and schedules. Installing the required pretreatment BMPs will significantly reduce maintenance requirements for the basin. Inspections and preventive maintenance must be performed at least twice a year.

Once the basin is in use, inspect it after every major storm for the first few months to ensure it is stabilized and functioning properly and if necessary, take corrective action. Note how long water remains standing in the basin after a storm; standing water within the basin 48 to 72 hours after a storm indicates that the infiltration capacity may have been overestimated. If the ponding is due to clogging, immediately address the reasons for the clogging (such as upland sediment erosion, excessive compaction of soils, or low spots).

Thereafter, inspect the infiltration basin at least twice per year. Important items to check during the inspection include:

- Signs of differential settlement,
- Cracking,
- Erosion,
- Leakage in the embankments,
- Tree growth on the embankments,
- Condition of riprap,
- Operation of the drawdown device,
- Sediment accumulation and
- The health of the turf.

At least twice a year, mow the buffer area, side slopes, and basin bottom. Remove grass clippings and accumulated organic matter to prevent an impervious organic mat from forming. Remove trash and debris at the same time. Use deep tilling to break up clogged surfaces and revegetate immediately. Remove sediment from the basin as necessary but wait until the floor of the basin is thoroughly dry. Use light equipment to remove the top layer to not compact the underlying soil. Deeply till the remaining soil and revegetate as soon as possible. Inspect and clean pretreatment devices associated with basins at least twice a year, and ideally every other month.

Stormceptor

Inspection and Maintenance is fundamental to the long-term performance of a Stormceptor oil/grit separator system. Stormceptors should be inspected post construction, prior to the discharge of any stormwater. Additional inspections should occur every 6 months for the first year to determine the sediment accumulation rate. After the first year, inspections should occur based on first-year observations or local requirements, whichever is stricter. Cleanings should be performed with a standard vacuum truck.

Mosquito Control Plan

Mosquito pupae and larvae need at least four days of ponded water to emerge as adults. Ensure that Infiltration Basin maintenance is performed as required so that the period of infiltration is less than 72 hours per DEP requirements.

Owner:
The Homes At Murphy's Farm, LLC
(c/o Kevin O'Brien)
18 Cassimere Street
Andover, MA 01810

Applicant / Responsible Party (During Construction):
The Homes At Murphy's Farm, LLC
(c/o Kevin O'Brien)
18 Cassimere Street
Andover, MA 01810

Responsible Party (After Construction):
A Homeowners Association shall be created and shall be responsible for the maintenance of the stormwater basins, catch basins, and stormceptors.

Construction Period Pollution Prevention Plan:
A Stormwater Pollution Prevention Plan (SWPPP) will be prepared prior to construction to address the project's NPDES obligations with the EPA. The SWPPP will address the requirements of the Construction Period Pollution Prevention Plan.

System Map:
See *Comprehensive Permit Site Plan for Murphy's Farm* for the location of all stormwater management facilities.

Estimated Operations and Maintenance Budget
It is anticipated that the stormwater management system will require an annual budget of $7,500 to maintain.

Regular Inspection and Maintenance Guidance for Permeable Pavements

Regular inspection and maintenance is critical to the effective operation of permeable pavement. It is the responsibility of the owner to maintain the pavement in accordance with the minimum design standards. This page provides guidance on maintenance activities that are typically required for these systems, along with the suggested frequency for each activity. Individual systems may have more, or less, frequent maintenance needs, depending on a variety of factors including the occurrence of large storm events, seasonal changes, and traffic conditions.

ACTIVITIES

Visual inspections are an integral part of system maintenance. This includes monitoring pavement to ensure water drainage, debris accumulation, and surface deterioration.

ACTIVITY	FREQUENCY
CLOGGING AND SYSTEM PERFORMANCE	
Adjacent vegetated areas show no signs of erosion and run-on to permeable pavement. **Remedy:** Repair or replace any damaged structural parts.	Whenever vacuuming adjacent permeable pavements
Adjacent non-permeable sections of pavement are clean of debris to prevent debris tracking. **Remedy:** Vacuuming adjacent pavement non-permeable pavement can be effective at minimizing run-on.	
Check for standing water remaining on the surface of the pavement after a precipitation event within 30 minutes. **Remedy:** Use of a power washer or compressed air blower at an angle of 30 degrees or less can be effective, particularly in combination with a vacuum or vacuum sweeper.	1-2 times per year, more frequently for high-use sites or sites with higher potential for run-on
Check for debris accumulation, particularly in the winter. **Remedy:** Loose debris such as leaves or trash can be removed using a power/leaf blower or gutter broom. Fall and spring cleanup should be accompanied by pavement vacuuming.	
Accumulation of sediment and organic debris on the pavement surface. **Remedy:** Regular use of a vacuum sweeper can remove sediment and organic debris. The sweeper may be fitted with water jets.	
PAVEMENT CONDITION	
Check for accumulation of snow or other stockpiles of materials such as sand/salt, mulch, soil, yard waste, etc. Stockpiling of these materials on permeable pavements can lead to premature clogging. **Remedy:** Remove stockpile if possible and check for clogging in storage area.	As Needed
Damage to pavement **Remedy:** Repairs should be repaired as they are identified	

TEST PIT LOGS

Address: Murhpy's Farm, Dracut, MA
Date: 12/7/2023
S.E.: William Hall
Witness: Tina Rivard

Note: Areas where test pits were performed have been stripped of top and subsoil.

CDCI-1

Depth	Horizon	Color	Texture
0-120	C	10YR5/4	Coarse Sand

Many cobbles and stones
Not mottling observed
No water observed

CDCI-2

Depth	Horizon	Color	Texture
0-132	C	10YR5/4	Coarse Sand

Many cobbles and stones
Not mottling observed
No water observed

CDCI-3

Depth	Horizon	Color	Texture
0-156	C	10YR5/4	Coarse Sand

Many cobbles and stones
Not mottling observed
No water observed

CDCI-4

Depth	Horizon	Color	Texture
0-120	C	10YR5/4	Coarse Sand

Many cobbles and stones
Not mottling observed
No water observed

CDCI-5

Depth	Horizon	Color	Texture
0-126	C	10YR5/4	Coarse Sand

Many cobbles and stones
Not mottling observed
No water observed

CDCI-6

Depth	Horizon	Color	Texture
0-24	Fill	-----	-----
24-80	C	10YR5/4	Coarse Sand

Many cobbles and stones
Not mottling observed
No water observed
Ledge encountered at 80"

CDCI-7

Depth	Horizon	Color	Texture
0-72	Sandy Fill	-----	-----

Not mottling observed
No water observed
Ledge encountered at 72"

CDCI-8

Depth	Horizon	Color	Texture
0-80	C1	10YR5/4	Coarse Sand
80-144	C2	10YR6/3	Loamy Sand

Many cobbles and stones in C1 layer
Not mottling observed
No water observed

CDCI-9

Depth	Horizon	Color	Texture
0-102	C1	10YR5/4	Coarse Sand
102-144	C2	10YR6/3	Loamy Sand

Many cobbles and stones in C1 layer
Not mottling observed
No water observed

CDCI-10

Depth	Horizon	Color	Texture
0-84	C1	10YR5/4	Coarse Sand
84-136	C2	10YR6/3	F. Loamy Sand

Many cobbles and stones in C1 layer
Mottling @ 72"
Weeping @ 84"

Address: Murhpy's Farm, Dracut, MA
Date: 12/7/2023
S.E.: William Hall
Witness: Tina Rivard

Note: Areas where test pits were performed have been stripped of top and subsoil.

CDCI-11

Depth	Horizon	Color	Texture
0-90	C1	10YR5/4	Coarse Sand
90-166	C2	10YR6/3	F. Loamy Sand

Many cobbles and stones in C1 layer
Mottling @ 128"
Weeping @ 160"

CDCI-12

Depth	Horizon	Color	Texture
0-80	C1	10YR5/4	Coarse Sand
80-144	C2	10YR6/3	F. Loamy Sand

Many cobbles and stones in C1 layer
Mottling @ 112"
Weeping @ 144"

Address: Murphy's Farm, Dracut, MA
Date: 4/3/2024
S.E.: Thomas Schomburg
Witness: N/a

Note: Test pits CDCI-14 - CDCI-23 performed in areas that have been stripped of top and subsoil. Soil has begun to weather.

CDCI-13

Depth	Horizon	Color	Texture
0-16	A	10YR3/2	Sandy Loam
16-36	B	10YR5/6	Sandy Loam
36-80	C	10YR5/3	Sandy Loam

Mottling @ 32"
Water @ 40"

CDCI-14

Depth	Horizon	Color	Texture
0-16	A	10YR3/2	Sandy Loam
16-32	B	10YR5/6	Sandy Loam
32-108	C	10YR5/3	Sandy Loam

Mottling @ 30"
Water @ 30"

CDCI-15

Depth	Horizon	Color	Texture
0-12	A	10YR3/2	Sandy Loam
12-32	B	10YR5/6	Sandy Loam
32-96	C	10YR5/3	Sandy Loam

Mottling @ 30"
Water @ 30"

CDCI-16

Depth	Horizon	Color	Texture
0-48	FILL	-----	-----
48-80	C	10YR5/3	Loamy Sand

Mottling @ 56"
Water @ 72"
Ledge @ 80"

CDCI-17

Depth	Horizon	Color	Texture
0-16	B	10YR5/6	Fine Sand
16-80	C	10YR5/3	Fine Sand
80-108	C2	10YR5/3	Gravelly Sand

Many cobbles and stones in C Layer
C2 Layer primarily gravel
Mottling @ 24"
Water @ 80"

CDCI-18

Depth	Horizon	Color	Texture
0-24	B	10YR5/6	Sand
24-104	C	10YR5/3	Gravelly Sand

Many cobbles and stones in C Layer
Mottling @ 80"
No water observed

CDCI-19

Depth	Horizon	Color	Texture
0-12	B	10YR5/6	Sand
12-120	C	10YR5/3	Gravelly Sand

Many cobbles and stones in C Layer
Mottling @ 60"
Water @ 90"

CDCI-20

Depth	Horizon	Color	Texture
0-12	B	10YR5/6	Sand
12-102	C	10YR5/6	Gravelly Sand
102-138	2C	10YR5/3	F. Loamy Sand

Many cobbles and stones in C Layer
Mottling @ 102"
No water observed

Address: Murphy's Farm, Dracut, MA
Date: 4/3/2024
S.E.: Thomas Schomburg
Witness: N/a
Note: Test pits CDCI-14 - CDCI-23 performed in areas that have been stripped of top and subsoil. Soil has begun to weather.

CDCI-21

Depth	Horizon	Color	Texture
0-24	B	10YR5/6	Sand
24-48	C	10YR5/6	Gravelly Sand
48-80	2C	10YR5/3	F. Loamy Sand

Many cobbles and stones in C Layer
No mottling observed
No water observed
Ledge encountered at 80"

CDCI-22

Depth	Horizon	Color	Texture
0-16	B	10YR5/6	Sand
16-60	C	10YR5/6	Gravelly Sand
60-80	2C	10YR5/3	F. Loamy Sand

Many cobbles and stones in C Layer
No mottling observed
No water observed
Ledge encountered at 80"

CDCI-23

Depth	Horizon	Color	Texture
0-16	B	10YR5/6	Sand
16-54	C	10YR5/6	Gravelly Sand

Many cobbles and stones in C Layer
No mottling observed
No water observed
Ledge encountered at 54"

CDCI-24

Depth	Horizon	Color	Texture
0-8	A	10YR3/2	Sand
8-16	B	10YR5/6	Sand
16-60	C	10YR5/6	Gravelly Sand
60-72	2C	10YR5/3	F. Loamy Sand

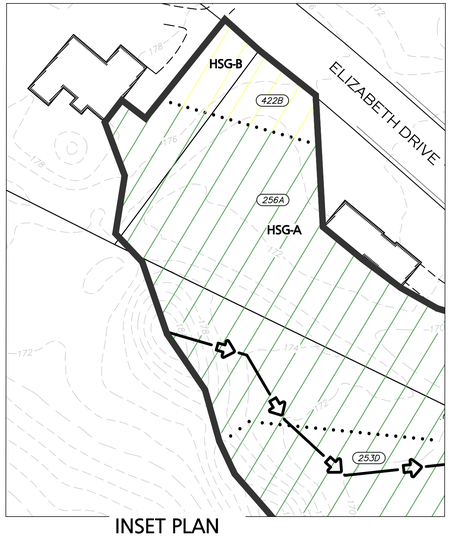
Many cobbles and stones in C Layer
Mottling @ 32"
Water @ 72"
Ledge encountered at 72"

LEGEND

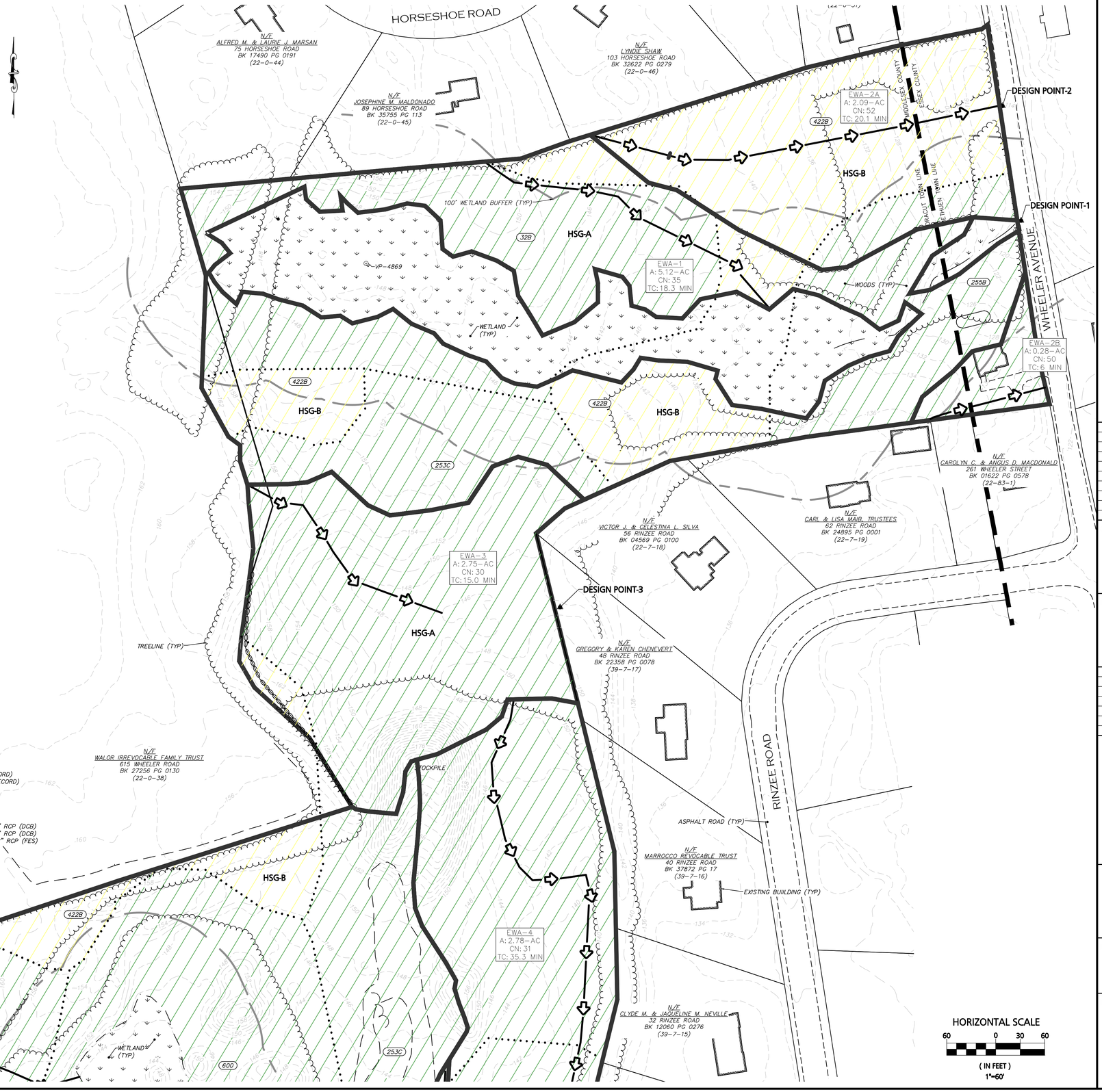
PROPERTY LINE	
ABUTTERS PROPERTY LINE	
EXISTING EDGE OF PAVEMENT	
LIMIT OF BORDERING VEGETATED WETLAND (BVW)	
WETLAND FLAG	WF 8D
WETLAND	
50 FT BUFFER ZONE TO BVW	
100 FT BUFFER ZONE TO BVW	
EXISTING CONTOUR	
EXISTING WATERSHED BOUNDARY	
EXISTING TC	
HYDROLOGIC SOILS GROUP A	
HYDROLOGIC SOILS GROUP B	
HYDROLOGIC SOILS GROUP C	
HYDROLOGIC SOILS GROUP D	

SOILS SUMMARY:

SYMBOL	DESCRIPTION	HSG
32B	WAREHAM LFS, 0–5% SLOPES	A/D
51A	SWANSEA MUCK, 0–1% SLOPES	B/D
52A	FREETOWN MUCK, 0–1% SLOPES	B/D
253B	HINKLEY LS, 3–8% SLOPES	A
253C	HINKLEY LS, 8–15% SLOPES	A
253D	HINKLEY LS, 15–25% SLOPES	A
254B	MERRIMAC FSL, 3–8% SLOPES	A
255B	WINDSOR LS, 3–8% SLOPES	A
255C	WINDSOR LS, 8–15% SLOPES	A
256A	DEERFIELD LFS, 0–3% SLOPES	A
420C	CANTON FSL, 8–15% SLOPES	B
422B	CANTON FSL, 0–8% SLOPES	B
600	PITS, GRAVEL	N/A
601	PITS, QUARRY	N/A
653	UDORTHENTS, SANDY	N/A
654	UDORTHENTS, LOAMY	N/A



INSET PLAN



HORIZONTAL SCALE
60 0 30 60
(IN FEET)
1"=60'

DATE	DESCRIPTION
REVISIONS	

OWNER / APPLICANT:

THE HOMES AT MURPHY'S FARM LLC
18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM
DRACUT, MA 01826

DATE ISSUED:	MARCH 12, 2024
PROJECT #:	23-10524
PREPARED BY:	MAC

03/12/24

PROFESSIONAL ENGINEER FOR CIVIL DESIGN CONSULTANTS, INC.

DRAWING TITLE:
EXISTING WATERSHED PLAN

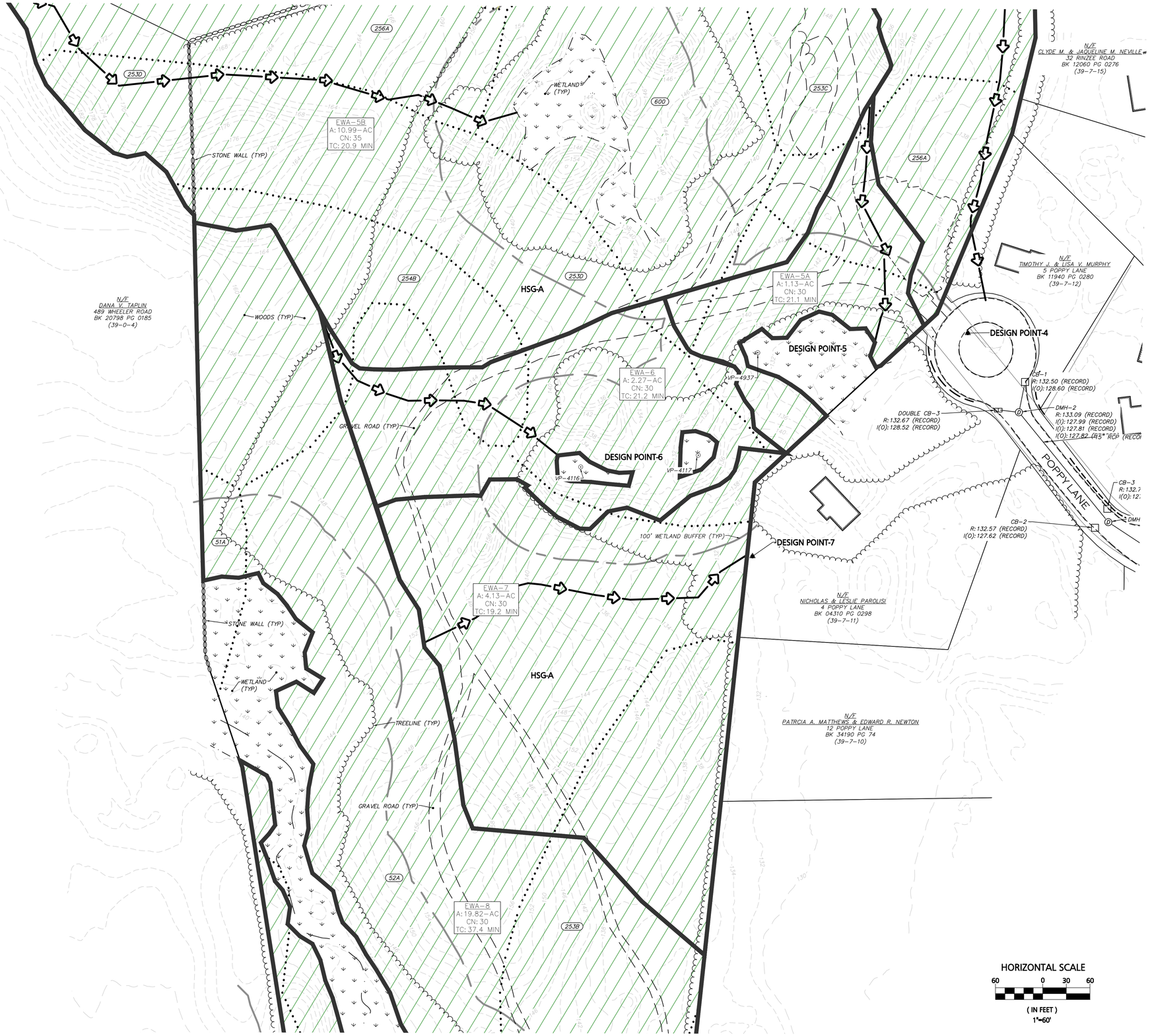
DRAWING #:
EWP-1

LEGEND

PROPERTY LINE	
ABUTTERS PROPERTY LINE	
EXISTING EDGE OF PAVEMENT	
LIMIT OF BORDERING VEGETATED WETLAND (BVW)	
WETLAND FLAG	WF 8D
WETLAND	
50 FT BUFFER ZONE TO BVW	
100 FT BUFFER ZONE TO BVW	
EXISTING CONTOUR	
EXISTING WATERSHED BOUNDARY	
EXISTING TC	
HYDROLOGIC SOILS GROUP A	
HYDROLOGIC SOILS GROUP B	
HYDROLOGIC SOILS GROUP C	
HYDROLOGIC SOILS GROUP D	

SOILS SUMMARY:

SYMBOL	DESCRIPTION	HSG
32B	WAREHAM LFS, 0–5% SLOPES	A/D
51A	SWANSEA MUCK, 0–1% SLOPES	B/D
52A	FREETOWN MUCK, 0–1% SLOPES	B/D
253B	HINKLEY LS, 3–8% SLOPES	A
253C	HINKLEY LS, 8–15% SLOPES	A
253D	HINKLEY LS, 15–25% SLOPES	A
254B	MERRIMAC FSL, 3–8% SLOPES	A
255B	WINDSOR LS, 3–8% SLOPES	A
255C	WINDSOR LS, 8–15% SLOPES	A
256A	DEERFIELD LFS, 0–3% SLOPES	A
420C	CANTON FSL, 8–15% SLOPES	B
422B	CANTON FSL, 0–8% SLOPES	B
600	PITS, GRAVEL	N/A
601	PITS, QUARRY	N/A
653	UDORTHENTS, SANDY	N/A
654	UDORTHENTS, LOAMY	N/A



HORIZONTAL SCALE

60 0 30 60

(IN FEET)

1"=60'

DATE	DESCRIPTION
REVISIONS	

OWNER / APPLICANT:

THE HOMES AT MURPHY'S FARM LLC

18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM

DRACUT, MA 01826

DATE ISSUED:	MARCH 12, 2024
PROJECT #:	23-10524
PREPARED BY:	MAC

03/12/24

PROFESSIONAL ENGINEER FOR CIVIL DESIGN CONSULTANTS, INC.

DRAWING TITLE:

EXISTING WATERSHED PLAN

DRAWING #:

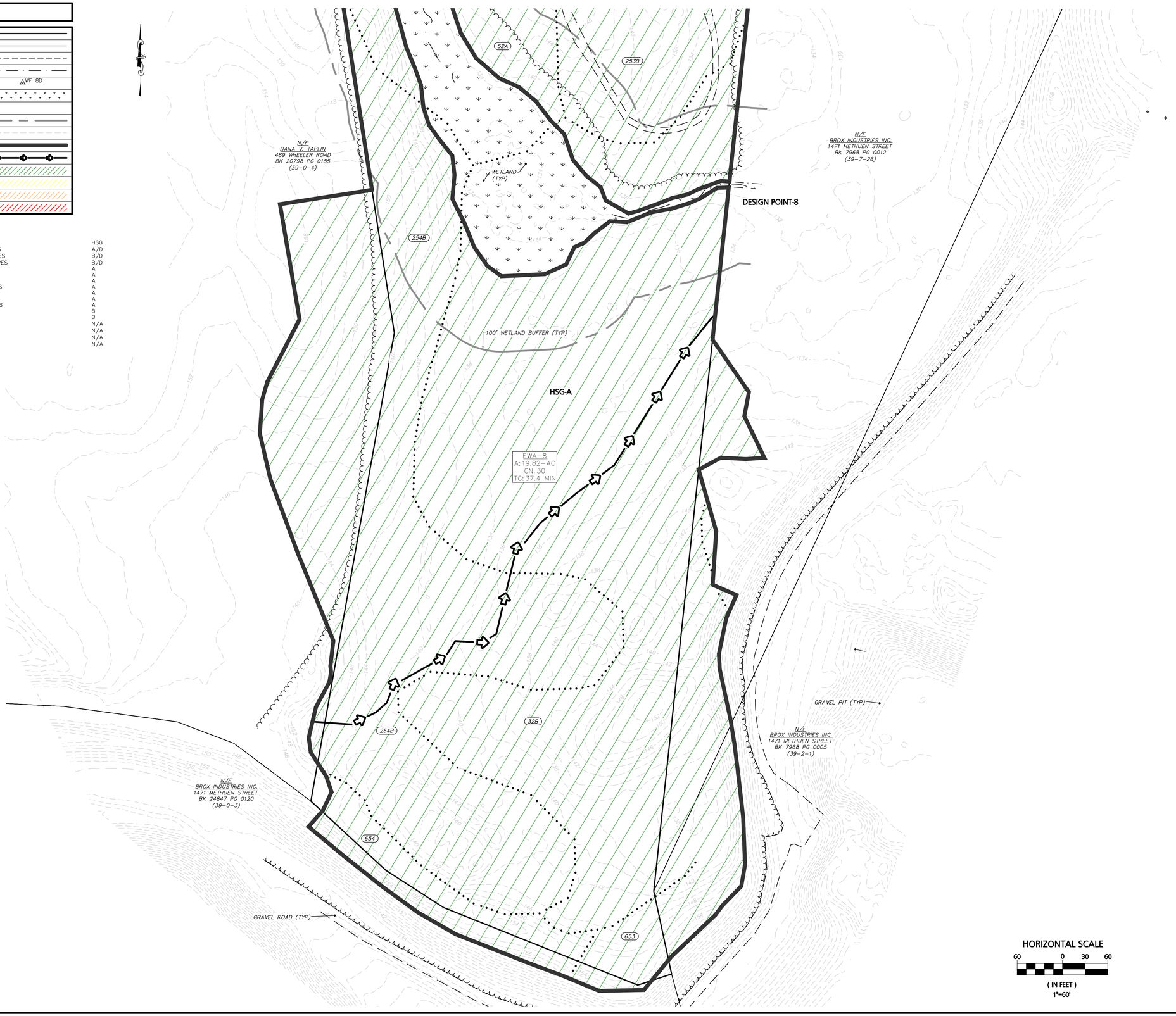
EWP-2

LEGEND

PROPERTY LINE	
ABUTTERS PROPERTY LINE	
EXISTING EDGE OF PAVEMENT	
LIMIT OF BORDERING VEGETATED WETLAND (BVW)	
WETLAND FLAG	WF 8D
WETLAND	
50 FT BUFFER ZONE TO BVW	
100 FT BUFFER ZONE TO BVW	
EXISTING CONTOUR	
EXISTING WATERSHED BOUNDARY	
EXISTING TC	
HYDROLOGIC SOILS GROUP A	
HYDROLOGIC SOILS GROUP B	
HYDROLOGIC SOILS GROUP C	
HYDROLOGIC SOILS GROUP D	

SOILS SUMMARY:

SYMBOL	DESCRIPTION	HSG
32B	WAREHAM LFS, 0–5% SLOPES	A/D
51A	SWANSEA MUCK, 0–1% SLOPES	B/D
52A	FREETOWN MUCK, 0–1% SLOPES	B/D
253B	HINKLEY LS, 3–8% SLOPES	A
253C	HINKLEY LS, 8–15% SLOPES	A
253D	HINKLEY LS, 15–25% SLOPES	A
254B	MERRIMAC FSL, 3–8% SLOPES	A
255B	WINDSOR LS, 3–8% SLOPES	A
255C	WINDSOR LS, 8–15% SLOPES	A
256A	DEERFIELD LFS, 0–3% SLOPES	A
420C	CANTON FSL, 8–15% SLOPES	B
422B	CANTON FSL, 0–8% SLOPES	B
600	PITS, GRAVEL	N/A
601	PITS, QUARRY	N/A
653	UDORTHENTS, SANDY	N/A
654	UDORTHENTS, LOAMY	N/A



HORIZONTAL SCALE

60 0 30 60

(IN FEET)

1"=60'

DATE	DESCRIPTION
REVISIONS	

OWNER / APPLICANT:

THE HOMES AT MURPHY'S FARM LLC

18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM

DRACUT, MA 01826

DATE ISSUED:	MARCH 12, 2024
PROJECT #:	23-10524
PREPARED BY:	MAC

03/12/24

PROFESSIONAL ENGINEER FOR CIVIL DESIGN CONSULTANTS, INC.

DRAWING TITLE:

EXISTING WATERSHED PLAN

DRAWING #:

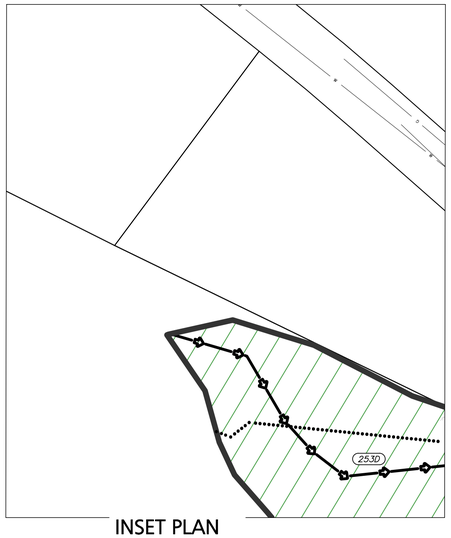
EWP-3

LEGEND

PROPERTY LINE	
PROPOSED BUILDING	
PROPOSED POROUS PAVEMENT	
PROPOSED BIT. CONC.	
EXISTING CONTOUR	
PROPOSED CONTOUR	148
PROPOSED RETAINING WALL	
PROPOSED WATERSHED BOUNDARY	
PROPOSED TC	
HYDROLOGIC SOILS GROUP A	
HYDROLOGIC SOILS GROUP B	

SOILS SUMMARY:

SYMBOL	DESCRIPTION	HSG
32B	WAREHAM LFS, 0–5% SLOPES	A/D
51A	SWANSEA MUCK, 0–1% SLOPES	B/D
52A	FREETOWN MUCK, 0–1% SLOPES	B/D
253B	HINKLEY LS, 3–8% SLOPES	A
253C	HINKLEY LS, 8–15% SLOPES	A
253D	HINKLEY LS, 15–25% SLOPES	A
254B	MERRIMAC FSL, 3–8% SLOPES	A
255B	WINDSOR LS, 3–8% SLOPES	A
255C	WINDSOR LS, 8–15% SLOPES	A
256A	DEERFIELD LFS, 0–3% SLOPES	A
420C	CANTON FSL, 8–15% SLOPES	B
422B	CANTON FSL, 0–8% SLOPES	B
600	PITS, GRAVEL	N/A
601	PITS, QUARRY	N/A
653	UDORTHENTS, SANDY	N/A
654	UDORTHENTS, LOAMY	N/A



INSET PLAN

SEE INSET PLAN FOR CONTINUATION

PWA–1A
A: 1.38–AC
CN: 80
TC: 6 MIN

PWA–1B
A: 0.82–AC
CN: 61
TC: 20.5 MIN

PWA–1C
A: 3.61–AC
CN: 37
TC: 20 MIN

PWA–2A
A: 0.55–AC
CN: 64
TC: 17.7 MIN

PWA–2B
A: 0.37–AC
CN: 53
TC: 6 MIN

PWA–5D
A: 1.83–AC
CN: 54
TC: 14.5 MIN

PWA–5E
A: 1.55–AC
CN: 36
TC: 9.6 MIN

PWA–5F
A: 7.87–AC
CN: 73
TC: 6 MIN

PWA–5H
A: 1.46–AC
CN: 38
TC: 25.9 MIN

HSG-A

HSG-B

INFILTRATION BASIN IB–3

DESIGN POINT-1

DESIGN POINT-2

DESIGN POINT-3

100' WETLAND BUFFER

HORIZONTAL SCALE

60 0 30 60

(IN FEET)

1"=60'

DATE	DESCRIPTION
REVISIONS	

OWNER / APPLICANT:

THE HOMES AT MURPHY'S FARM LLC

18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM

DRACUT, MA 01826

DATE ISSUED:	APRIL 19, 2024
PROJECT #:	23-10524
PREPARED BY:	TWS

05/12/24

PROFESSIONAL ENGINEER FOR CIVIL DESIGN CONSULTANTS, INC.

CIVIL DESIGN CONSULTANTS, INC.
344 North Main Street | Andover - MA 01810
(978) 475-0520 | www.civildc.com

DRAWING TITLE:

PROPOSED WATERSHED PLAN

DRAWING #:

PWP-1

LEGEND

PROPERTY LINE	
PROPOSED BUILDING	
PROPOSED POROUS PAVEMENT	
PROPOSED BIT. CONC.	
EXISTING CONTOUR	
PROPOSED CONTOUR	148
PROPOSED RETAINING WALL	
PROPOSED WATERSHED BOUNDARY	
PROPOSED TC	
HYDROLOGIC SOILS GROUP A	
HYDROLOGIC SOILS GROUP B	

SOILS SUMMARY:

SYMBOL	DESCRIPTION	HSG
32B	WAREHAM LFS, 0–5% SLOPES	A/D
51A	SWANSEA MUCK, 0–1% SLOPES	B/D
52A	FREETOWN MUCK, 0–1% SLOPES	B/D
253B	HINKLEY LS, 3–8% SLOPES	A
253C	HINKLEY LS, 8–15% SLOPES	A
253D	HINKLEY LS, 15–25% SLOPES	A
254B	MERRIMAC FSL, 3–8% SLOPES	A
255B	WINDSOR LS, 3–8% SLOPES	A
255C	WINDSOR LS, 8–15% SLOPES	A
256A	DEERFIELD LFS, 0–3% SLOPES	A
420C	CANTON FSL, 8–15% SLOPES	B
422B	CANTON FSL, 0–8% SLOPES	B
600	PITS, GRAVEL	N/A
601	PITS, QUARRY	N/A
653	UDORTHENTS, SANDY	N/A
654	UDORTHENTS, LOAMY	N/A

DATE	DESCRIPTION
REVISIONS	

OWNER / APPLICANT:

THE HOMES AT MURPHY'S FARM LLC

18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

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344 North Main Street | Andover - MA 01810
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DRAWING TITLE:

PROPOSED WATERSHED PLAN

DRAWING #:

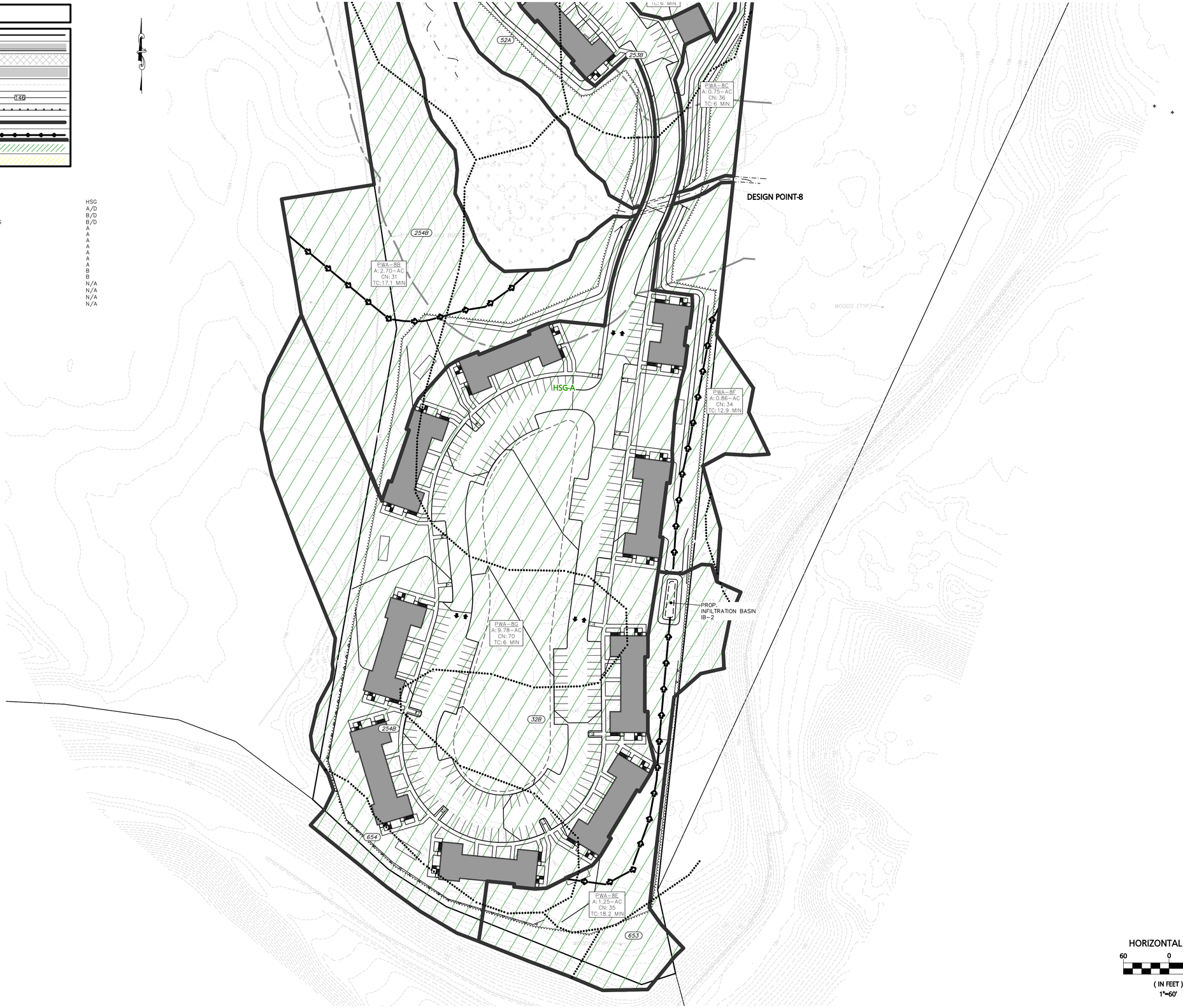
PWP-2

LEGEND

PROPERTY LINE	
PROPOSED BUILDING	
PROPOSED POROUS PAVEMENT	
PROPOSED BIT. CONC.	
EXISTING CONTOUR	
PROPOSED CONTOUR	146
PROPOSED RETAINING WALL	
PROPOSED WATERSHED BOUNDARY	
PROPOSED TC	
HYDROLOGIC SOILS GROUP A	
HYDROLOGIC SOILS GROUP B	

SOILS SUMMARY:

SYMBOL	DESCRIPTION	HSG
32B	WAREHAM LFS, 0–5% SLOPES	A/D
51A	SWANSEA MUCK, 0–1% SLOPES	B/D
52A	FRESTOWN MUCK, 0–1% SLOPES	B/D
253B	HINKLEY LS, 3–8% SLOPES	A
253C	HINKLEY LS, 8–15% SLOPES	A
253D	HINKLEY LS, 15–25% SLOPES	A
254B	MERRIMAC FSL, 3–8% SLOPES	A
255B	WINDSOR LS, 3–8% SLOPES	A
255C	WINDSOR LS, 8–15% SLOPES	A
256A	DEERFIELD LFS, 0–3% SLOPES	A
420C	CANTON FSL, 8–15% SLOPES	B
422B	CANTON FSL, 0–8% SLOPES	B
600	PITS, GRAVEL	N/A
601	PITS, QUARRY	N/A
653	UDORTHENTS, SANDY	N/A
654	UDORTHENTS, LOAMY	N/A



HORIZONTAL SCALE

60 0 30 60

(IN FEET)

1"=60'

DATE	DESCRIPTION
REVISIONS	

OWNER / APPLICANT:

THE HOMES AT MURPHY'S FARM LLC

18 CASSIMERE STREET
ANDOVER, MA 01810

PROJECT:

MURPHY'S FARM

DRACUT, MA 01826

DATE ISSUED:	APRIL 19, 2024
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DRAWING TITLE:

PROPOSED WATERSHED PLAN

DRAWING #:

PWP-3