

Project Name | Northrop Grumman Solar**Date** | 6/6/2025**To / Contact info** | Camila Arenas, Brandon Ulvenes / Anoka County**Cc / Contact info** |**From / Contact info** | Kyle Crawford, PE; Alec Olson, EIT / EOR**Regarding** | Northrop Grumman Solar Right of Way (ROW) Drainage Report DRAFT

Draft Drainage Report for Northrop Grumman Solar

This memo contains the preliminary drainage and land cover calculations for drainage to the County right of way (ROW) areas of the Northrop Grumman Solar project.

Project Description

The Northrop Grumman Solar project is located southwest of the intersection of 245th Ave. NW and Nacre St. NW in St. Francis, Anoka County, MN. A 5.1 MW photovoltaic (PV) solar energy system will be constructed. Construction activities include the installation of temporary and permanent stormwater management BMPs, grading and construction of gravel access roads, development of equipment storage and maintenance areas, installation of solar arrays, construction of security fencing, and site restoration.

Existing and Proposed Conditions

Land Cover

The solar array, electrical equipment pad, and access drive will be constructed on land that is agricultural pasture/grassland in existing conditions. The project area is approximately 26.4 acres, with approximately 11.9 acres (16.1 total acres including offsite drainage area) that drains towards the County ROW. New impervious surfaces include equipment pads, a gravel access road, solar panels, and associated structural elements. All disturbed areas will be planted with native species following construction of the access road, equipment pads, and installation of solar panels. Land cover changes are outlined in Table 1 and Table 2. Curve numbers (CN) were obtained from the City of St. Francis Private Development Standards (Table 1).

Soils

A geotechnical investigation was conducted at the site on November 13th, 2024. Borehole B-1 showed 0.6 ft of topsoil, followed by clayey sand (SC) down to 6.5 ft of depth, then silty sand (SM) down to 9 ft of depth, followed by clayey sand (SC) down to 17 ft of depth, then silty sand (SM) down to 20 ft of depth. Borehole B-2 showed 0.5 ft of topsoil, then silty sand (SM) down to 2 ft of depth, followed by sandy lean clay (CL) down to 4 ft of depth, then silty sand (SM) down to 13 ft of depth, followed by sandy lean clay (CH) down to 20 ft of depth. Borehole B-3 showed 0.4 ft of topsoil, followed by clayey sand (SC) down to 4 ft of depth, then sandy lean clay (CL) down to 20 ft of depth. Borehole B-4 showed 0.5 ft of topsoil, then silty sand (SM) down to 4 ft of depth, followed by sandy lean clay (CL) down to 20 ft of depth.

The USDA Web Soil Survey assumes Hydrologic Soil Group (HSG) B, C, and B/D for the site. In modeling project areas, the soil classifications and boundaries from the USDA Web Soil Survey were used, with D soils assumed for dual soil type areas due to high groundwater in that area and the absence of artificial drainage onsite. The soil group boundaries and classifications were used in modeling the project and tributary areas. The depth to groundwater ranged from 6 inches in the HSG D areas, to 30 inches in the HSG C area, and more than 80 inches in the HSG B area. Groundwater was observed at 9 ft in borehole B-2 and 4 ft in borehole B-4. in borehole B-3 at about 9 feet of depth at the time of completion or shortly after completion of drilling operations. A copy of the geotechnical report is included in the appendices to this memo.

Table 1. Existing and proposed land covers for onsite areas that drain to the County ROW of Northrop Grumman Solar project, St. Francis, MN

Land Cover Type	HSG	CN Value	Area (Acres)	
			Existing	Proposed
Pasture/grassland/range	B	65	7.74	-
	C	77	1.68	-
	D	82	0.79	-
Wetland	-	98	0.84	0.84
Woods	B	60	0.12	-
	D	79	0.74	-
Equipment pad	-	98	-	0.02
Gravel	B	85	-	0.07
	D	91	-	0.001
Meadow	B	58	-	6.23
	C	71	-	1.23
	D	78	-	1.50
Unconnected solar panels	B	98	-	1.53
	C	98	-	0.46
	D	98	-	0.03
TOTAL			11.90	11.90
<i>% Impervious</i>			<i>7%</i>	<i>25%</i>

Table 2. Existing and proposed land covers for onsite and offsite areas that drain to the County ROW of Northrop
Grumman Solar project, St. Francis, MN

Land Cover Type	HSG	CN Value	Area (Acres)	
			Existing	Proposed
Pasture/grassland/range	B	65	9.01	1.27
	C	77	1.92	0.24
	D	82	1.25	0.46
Paved road, open ditches	-	93	0.53	0.53
Wetland	-	98	2.16	2.16
Woods	B	60	0.12	0.001
	D	79	1.16	0.42
Equipment pad	-	98	-	0.02
Gravel	B	85	-	0.07
	D	91	-	0.001
Meadow	B	58	-	6.23
	C	71	-	1.23
	D	78	-	1.50
Unconnected solar panels	B	98	-	1.53
	C	98	-	0.46
	D	98	-	0.03
TOTAL			16.15	16.15
<i>% Impervious</i>			<i>17%</i>	<i>30%</i>

Drainage

Stormwater runs off the site to the northwest, west, south, southeast, and northeast, where it discharges to three different wetlands offsite. Stormwater drains the County ROW on the north and east sides of the project, with a portion draining to the northwest, southeast, and to the wetland just northeast of the project boundary's northeast corner. Permitting for this wetland drainage is ongoing. The proposed design will maintain existing drainage patterns for the site. There are several wetlands and depressional areas onsite. After flowing through restored native vegetation, the existing depressional areas and wetlands will collect runoff from a portion of the solar panels and equipment pads, which have outlets that drain towards the County ROW, which is why they were included in this analysis. Runoff will meet stormwater standards before entering each wetland. Existing and proposed drainage areas are shown in Figure 1 and Figure 2.

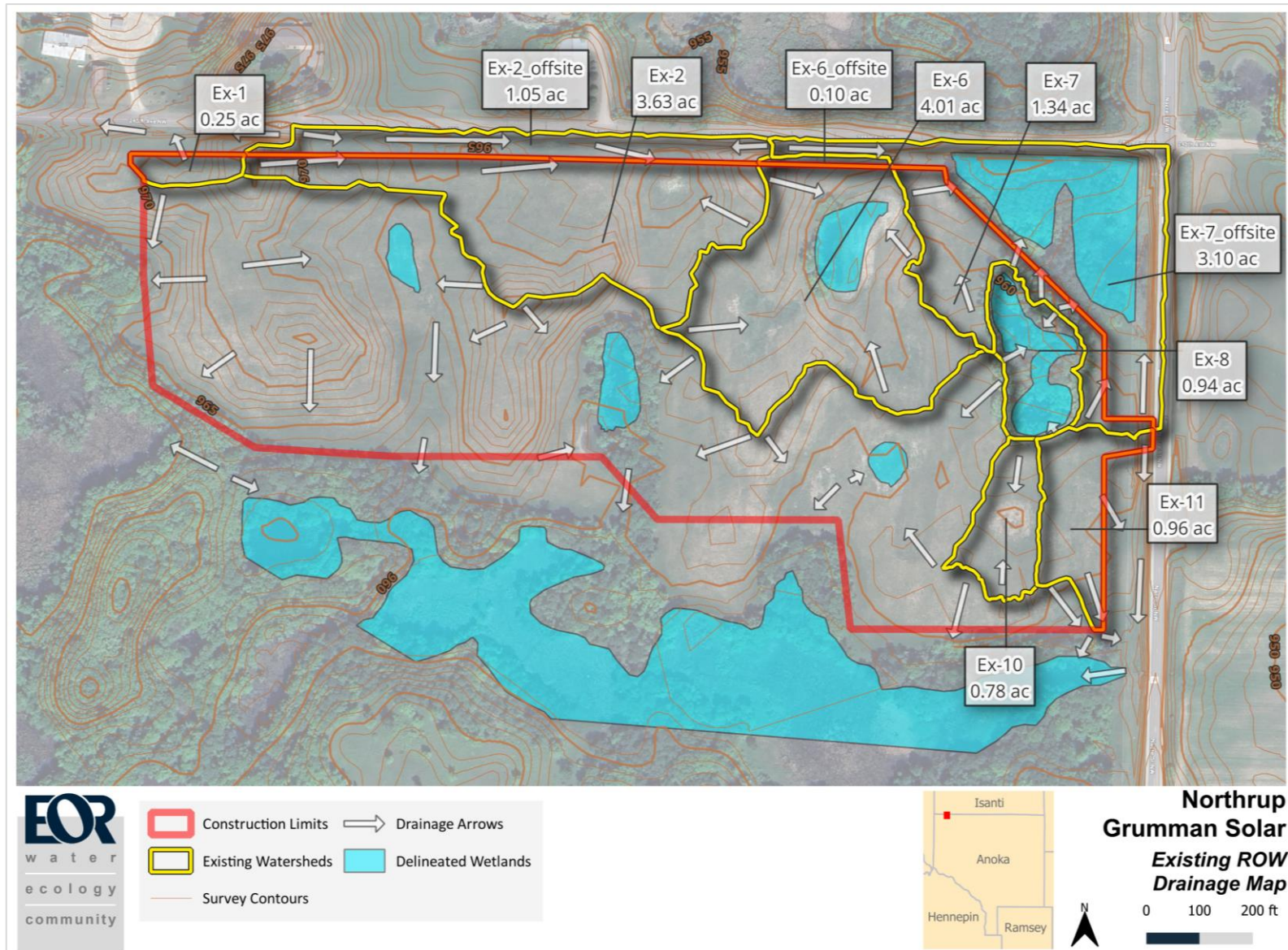


Figure 1. Northrup Grumman Solar existing watersheds that drain to the County ROW

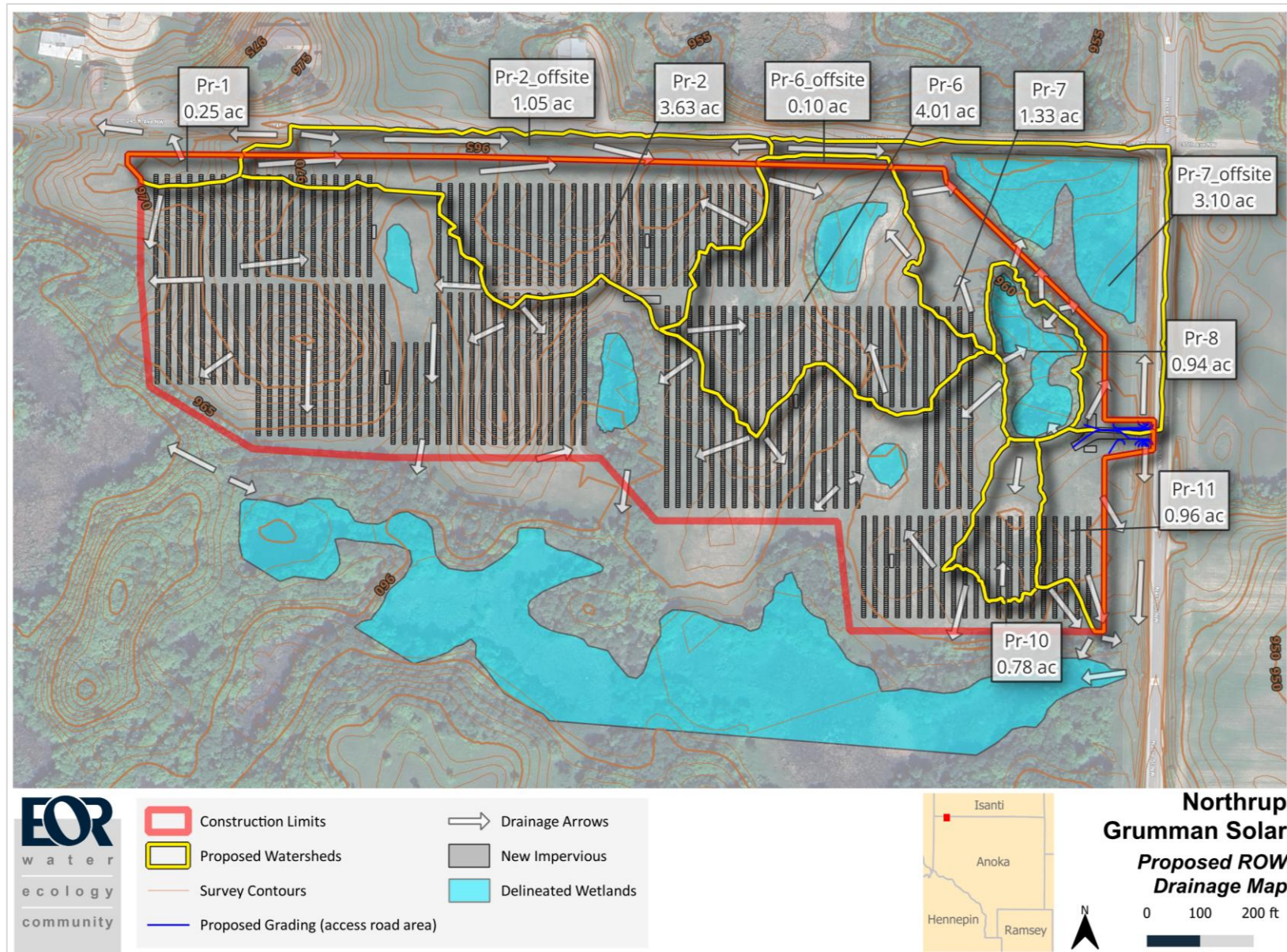


Figure 2. Northrup Grumman Solar proposed watersheds that drain to the County ROW

Proposed Stormwater Management

Permanent stormwater management BMPs include disconnection of impervious surfaces, use of existing depressional areas, and improved vegetative cover (agricultural crop to native perennials). The rationale for using the existing depressions includes the following:

- Utilizing the existing depressional areas will require less infrastructure when compared to filtration BMPs, preserving the rural character of the site.
- At the depths proposed, ponded water will not pose a threat to the solar array, electrical lines, or related equipment.
- Rainwater that runs off solar panels is clean, additional pollutant removal is not required.
- Through implementation of perennial cover the site will generate reduced runoff rates, volumes, and pollutant loads compared to existing conditions.
- There is a growing body of [recent research](#) indicating that perennial vegetation can be an effective stormwater management BMP for solar energy facilities.

Pretreatment

The Minnesota Pollution Control Agency (MPCA) allows use of existing depressional storage for stormwater capture and treatment for solar sites. Pretreatment for areas draining to the existing depressions is provided through disconnection of impervious surfaces and native vegetation. No untreated stormwater will leave the site since runoff from all proposed impervious surfaces is routed to pervious areas prior to being discharged off site.

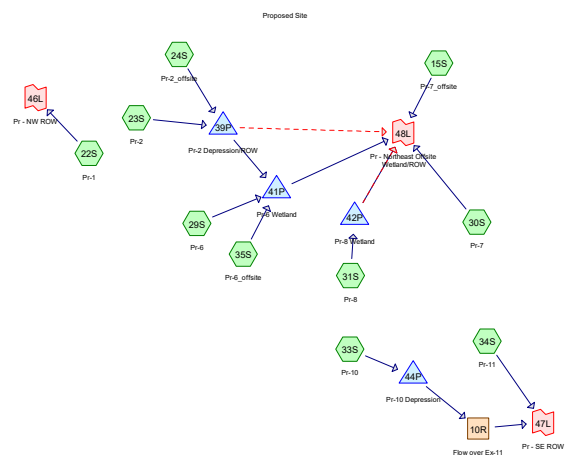
Stormwater Performance Standards

To demonstrate that proposed drainage to the County ROW is not increasing from existing conditions, existing and proposed runoff rates and site runoff volumes were estimated for the 2-, 10-, and 100-year 24-hour storms using precipitation frequency estimates with rainfall depths obtained from the City of St. Francis Private Development Standards. Runoff rates and volumes were modeled using HydroCAD version 10.20-5c software. Runoff rates and volumes to the County ROW under proposed conditions are expected to be reduced compared to existing conditions for all discharge points from the site, as shown in Table 3. Rainfall return period data and stormwater modeling reports are included in the appendices to this memo.

Table 3. Existing and proposed peak runoff rates and runoff volumes to the county ROW for Northrop Grumman Solar, St. Francis, MN

Rainfall Return Period (yr)	24 -hour Rainfall Depth (in)	Discharge Point	Runoff Rate (cfs)		Runoff Volume (ac-ft)	
			Existing	Proposed	Existing	Proposed
2	2.85	Northeast Wetland	10.54	10.01	0.50	0.48
		Northwest	0.18	0.08	0.01	0.01
		Southeast	0.67	0.53	0.04	0.04
10	4.22	Northeast Wetland	19.13	18.26	0.91	0.88
		Northwest	0.56	0.39	0.02	0.02
		Southeast	1.94	1.71	0.10	0.09
100	6.94	Northeast Wetland	36.92	35.48	2.46	2.35
		Northwest	1.52	1.26	0.06	0.05
		Southeast	5.11	4.75	0.30	0.28

Appendix



Prepared by Emmons & Olivier Resources, Printed 6/5/2025
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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	MSE 24-hr	3	Default	24.00	1	2.85	2
2	10-Year	MSE 24-hr	3	Default	24.00	1	4.22	2
3	100-Year	MSE 24-hr	3	Default	24.00	1	6.94	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.023	98	Equipment pad, HSG B (23S, 34S)
0.072	85	Gravel surface, HSG B (30S, 34S)
0.001	91	Gravel surface, HSG D (34S)
6.233	58	Meadow, HSG B (22S, 23S, 29S, 30S, 33S, 34S)
1.226	71	Meadow, HSG C (23S)
1.497	78	Meadow, HSG D (23S, 29S, 30S, 31S, 33S, 34S)
10.276	65	Pasture/grassland/range, HSG B (1S, 2S, 3S, 8S, 9S, 11S, 12S, 13S, 14S, 15S, 24S, 35S)
2.155	77	Pasture/grassland/range, HSG C (2S, 3S, 24S)
1.714	82	Pasture/grassland/range, HSG D (2S, 3S, 8S, 9S, 10S, 11S, 12S, 14S, 15S, 24S)
1.062	98	Paved road (3S, 11S, 15S, 24S)
1.527	98	Unconnected roofs, HSG B (22S, 23S, 29S, 30S, 33S, 34S)
0.457	98	Unconnected roofs, HSG C (23S)
0.029	98	Unconnected roofs, HSG D (23S, 29S, 30S)
4.324	98	Wetland (8S, 10S, 11S, 15S, 29S, 31S)
0.124	60	Woods, HSG B (2S, 8S, 9S, 11S, 15S)
1.572	79	Woods, HSG D (9S, 10S, 11S, 12S, 14S, 15S)
32.293	74	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
18.255	HSG B	1S, 2S, 3S, 8S, 9S, 11S, 12S, 13S, 14S, 15S, 22S, 23S, 24S, 29S, 30S, 33S, 34S, 35S
3.838	HSG C	2S, 3S, 23S, 24S
4.813	HSG D	2S, 3S, 8S, 9S, 10S, 11S, 12S, 14S, 15S, 23S, 24S, 29S, 30S, 31S, 33S, 34S
5.386	Other	3S, 8S, 10S, 11S, 15S, 24S, 29S, 31S
32.293		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.023	0.000	0.000	0.000	0.023	Equipment pad	23S, 34S
0.000	0.072	0.000	0.001	0.000	0.073	Gravel surface	30S, 34S
0.000	6.233	1.226	1.497	0.000	8.957	Meadow	22S, 23S, 29S, 30S, 31S, 33S, 34S
0.000	10.276	2.155	1.714	0.000	14.144	Pasture/grassland/range	1S, 2S, 3S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 24S, 35S
0.000	0.000	0.000	0.000	1.062	1.062	Paved road	3S, 11S, 15S, 24S
0.000	1.527	0.457	0.029	0.000	2.013	Unconnected roofs	22S, 23S, 29S, 30S, 33S, 34S
0.000	0.000	0.000	0.000	4.324	4.324	Wetland	8S, 10S, 11S, 15S, 29S, 31S
0.000	0.124	0.000	1.572	0.000	1.695	Woods	2S, 8S, 9S, 10S, 11S, 12S, 14S, 15S
0.000	18.255	3.838	4.813	5.386	32.293	TOTAL AREA	

Time span=0.00-500.00 hrs, dt=0.01 hrs, 50001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Ex-1	Runoff Area=10,988 sf 0.00% Impervious Runoff Depth=0.44" Flow Length=137' Slope=0.0431 '/' Tc=4.8 min CN=65 Runoff=0.18 cfs 0.009 af
Subcatchment 2S: Ex-2	Runoff Area=158,203 sf 0.00% Impervious Runoff Depth=0.68" Flow Length=448' Slope=0.0297 '/' Tc=12.6 min CN=71 Runoff=3.11 cfs 0.204 af
Subcatchment 3S: Ex-2_offsite	Runoff Area=45,720 sf 17.58% Impervious Runoff Depth=0.86" Flow Length=689' Slope=0.0254 '/' Tc=17.2 min CN=75 Runoff=1.04 cfs 0.076 af
Subcatchment 8S: Ex-6	Runoff Area=174,708 sf 8.35% Impervious Runoff Depth=0.55" Flow Length=346' Slope=0.0254 '/' Tc=12.0 min CN=68 Runoff=2.68 cfs 0.184 af
Subcatchment 9S: Ex-7	Runoff Area=58,257 sf 0.00% Impervious Runoff Depth=0.72" Flow Length=274' Slope=0.0262 '/' Tc=8.8 min CN=72 Runoff=1.48 cfs 0.080 af
Subcatchment 10S: Ex-8	Runoff Area=40,750 sf 53.55% Impervious Runoff Depth=1.76" Tc=1.2 min CN=89 Runoff=3.49 cfs 0.138 af
Subcatchment 11S: Ex-7_offsite	Runoff Area=134,831 sf 54.05% Impervious Runoff Depth=1.61" Flow Length=349' Slope=0.0330 '/' Tc=5.9 min CN=87 Runoff=9.26 cfs 0.415 af
Subcatchment 12S: Ex-10	Runoff Area=33,911 sf 0.00% Impervious Runoff Depth=0.59" Flow Length=167' Slope=0.0242 '/' Tc=6.7 min CN=69 Runoff=0.75 cfs 0.038 af
Subcatchment 13S: Ex-6_offsite	Runoff Area=4,310 sf 0.00% Impervious Runoff Depth=0.44" Flow Length=137' Slope=0.0253 '/' Tc=6.2 min CN=65 Runoff=0.06 cfs 0.004 af
Subcatchment 14S: Ex-11	Runoff Area=41,655 sf 0.00% Impervious Runoff Depth=0.51" Flow Length=215' Slope=0.0224 '/' Tc=9.0 min CN=67 Runoff=0.67 cfs 0.041 af
Subcatchment 15S: Pr-7_offsite	Runoff Area=134,831 sf 54.05% Impervious Runoff Depth=1.61" Flow Length=349' Slope=0.0330 '/' Tc=5.9 min CN=87 Runoff=9.26 cfs 0.415 af
Subcatchment 22S: Pr-1	Runoff Area=10,988 sf 8.88% Impervious Runoff Depth=0.28" Flow Length=137' Slope=0.0431 '/' Tc=5.1 min UI Adjusted CN=60 Runoff=0.08 cfs 0.006 af
Subcatchment 23S: Pr-2	Runoff Area=158,203 sf 23.77% Impervious Runoff Depth=0.59" Flow Length=448' Slope=0.0297 '/' Tc=11.9 min UI Adjusted CN=69 Runoff=2.68 cfs 0.179 af
Subcatchment 24S: Pr-2_offsite	Runoff Area=45,720 sf 17.58% Impervious Runoff Depth=0.86" Flow Length=689' Slope=0.0255 '/' Tc=17.2 min CN=75 Runoff=1.04 cfs 0.076 af
Subcatchment 29S: Pr-6	Runoff Area=174,708 sf 29.31% Impervious Runoff Depth=0.47" Flow Length=346' Slope=0.0254 '/' Tc=11.4 min UI Adjusted CN=66 Runoff=2.21 cfs 0.159 af
Subcatchment 30S: Pr-7	Runoff Area=58,015 sf 1.95% Impervious Runoff Depth=0.55" Flow Length=274' Slope=0.0267 '/' Tc=9.7 min CN=68 Runoff=0.99 cfs 0.061 af

Subcatchment 31S: Pr-8 Runoff Area=40,750 sf 53.55% Impervious Runoff Depth=1.76"
 Tc=1.2 min CN=89 Runoff=3.49 cfs 0.138 af

Subcatchment 33S: Pr-10 Runoff Area=33,911 sf 20.49% Impervious Runoff Depth=0.55"
 Flow Length=167' Slope=0.0242 '/' Tc=6.3 min UI Adjusted CN=68 Runoff=0.70 cfs 0.036 af

Subcatchment 34S: Pr-11 Runoff Area=41,897 sf 12.94% Impervious Runoff Depth=0.44"
 Flow Length=215' Slope=0.0219 '/' Tc=9.1 min UI Adjusted CN=65 Runoff=0.53 cfs 0.035 af

Subcatchment 35S: Pr-6_offsite Runoff Area=4,310 sf 0.00% Impervious Runoff Depth=0.44"
 Flow Length=137' Slope=0.0253 '/' Tc=6.2 min CN=65 Runoff=0.06 cfs 0.004 af

Reach 9R: Flow over Ex-11 Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
 n=0.035 L=120.0' S=0.0094 '/' Capacity=715.26 cfs Outflow=0.00 cfs 0.000 af

Reach 10R: Flow over Ex-11 Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
 n=0.035 L=120.0' S=0.0094 '/' Capacity=715.26 cfs Outflow=0.00 cfs 0.000 af

Pond 9P: Ex-2 Depression/ROW Peak Elev=959.65' Storage=8,521 cf Inflow=4.07 cfs 0.280 af
 Discarded=0.11 cfs 0.280 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.280 af

Pond 12P: Ex-6 Wetland Peak Elev=957.46' Storage=7,392 cf Inflow=2.72 cfs 0.188 af
 Discarded=0.02 cfs 0.188 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.188 af

Pond 13P: Ex-8 Wetland Peak Elev=954.89' Storage=5,347 cf Inflow=3.49 cfs 0.138 af
 Discarded=0.02 cfs 0.138 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.138 af

Pond 15P: Ex-10 Depression Peak Elev=960.07' Storage=922 cf Inflow=0.75 cfs 0.038 af
 Discarded=0.03 cfs 0.038 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.038 af

Pond 39P: Pr-2 Depression/ROW Peak Elev=959.57' Storage=7,658 cf Inflow=3.63 cfs 0.254 af
 Discarded=0.10 cfs 0.254 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.254 af

Pond 41P: Pr-6 Wetland Peak Elev=957.39' Storage=6,350 cf Inflow=2.25 cfs 0.162 af
 Discarded=0.02 cfs 0.162 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.162 af

Pond 42P: Pr-8 Wetland Peak Elev=954.89' Storage=5,347 cf Inflow=3.49 cfs 0.138 af
 Discarded=0.02 cfs 0.138 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.138 af

Pond 44P: Pr-10 Depression Peak Elev=960.04' Storage=842 cf Inflow=0.70 cfs 0.036 af
 Discarded=0.03 cfs 0.036 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.036 af

Link 15L: Ex - NW ROW Inflow=0.18 cfs 0.009 af
 Primary=0.18 cfs 0.009 af

Link 16L: Ex - SE ROW Inflow=0.67 cfs 0.041 af
 Primary=0.67 cfs 0.041 af

Link 17L: Ex - Northeast Offsite Wetland/ROW Inflow=10.54 cfs 0.495 af
 Primary=10.54 cfs 0.495 af

Link 46L: Pr - NW ROW

Inflow=0.08 cfs 0.006 af
Primary=0.08 cfs 0.006 af

Link 47L: Pr - SE ROW

Inflow=0.53 cfs 0.035 af
Primary=0.53 cfs 0.035 af

Link 48L: Pr - Northeast Offsite Wetland/ROW

Inflow=10.01 cfs 0.476 af
Primary=10.01 cfs 0.476 af

Total Runoff Area = 32.293 ac Runoff Volume = 2.296 af Average Runoff Depth = 0.85"
77.01% Pervious = 24.870 ac 22.99% Impervious = 7.423 ac

Summary for Subcatchment 1S: Ex-1

Runoff = 0.18 cfs @ 12.13 hrs, Volume= 0.009 af, Depth= 0.44"
 Routed to Link 15L : Ex - NW ROW

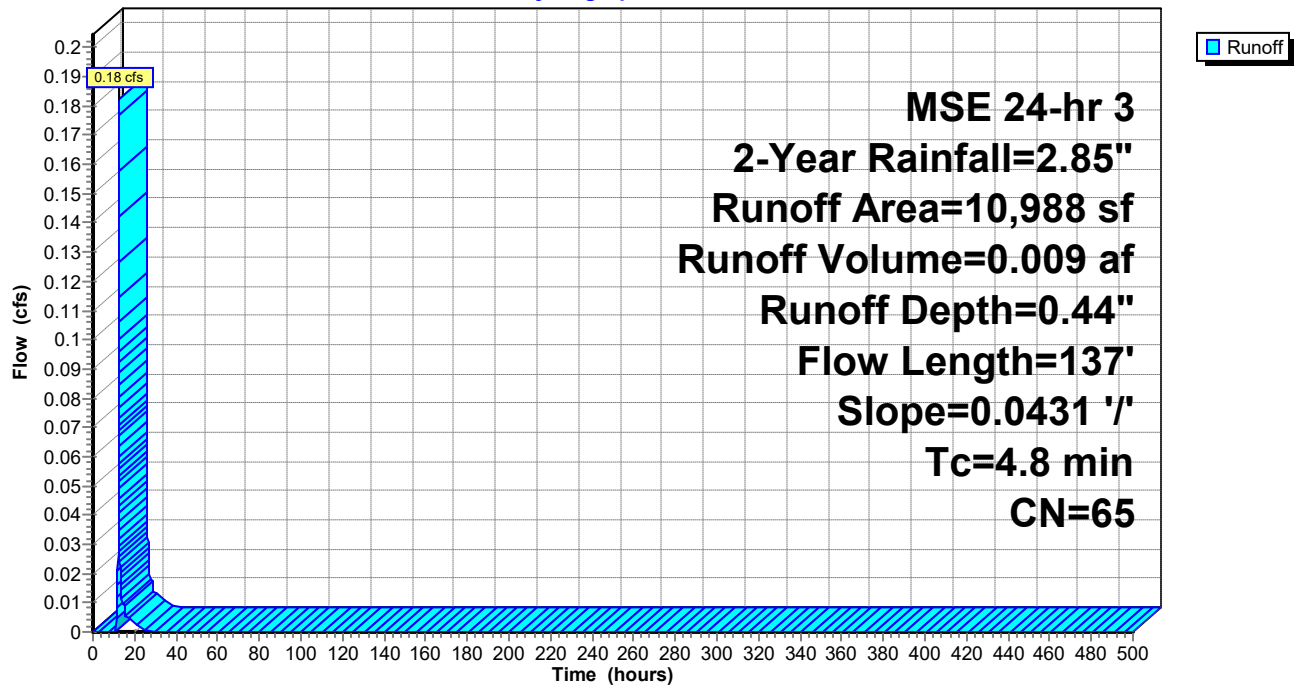
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

Area (sf)	CN	Description
* 10,988	65	Pasture/grassland/range, HSG B
10,988	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	137	0.0431	0.48		Lag/CN Method,

Subcatchment 1S: Ex-1

Hydrograph



Summary for Subcatchment 2S: Ex-2

Runoff = 3.11 cfs @ 12.22 hrs, Volume= 0.204 af, Depth= 0.68"
 Routed to Pond 9P : Ex-2 Depression/ROW

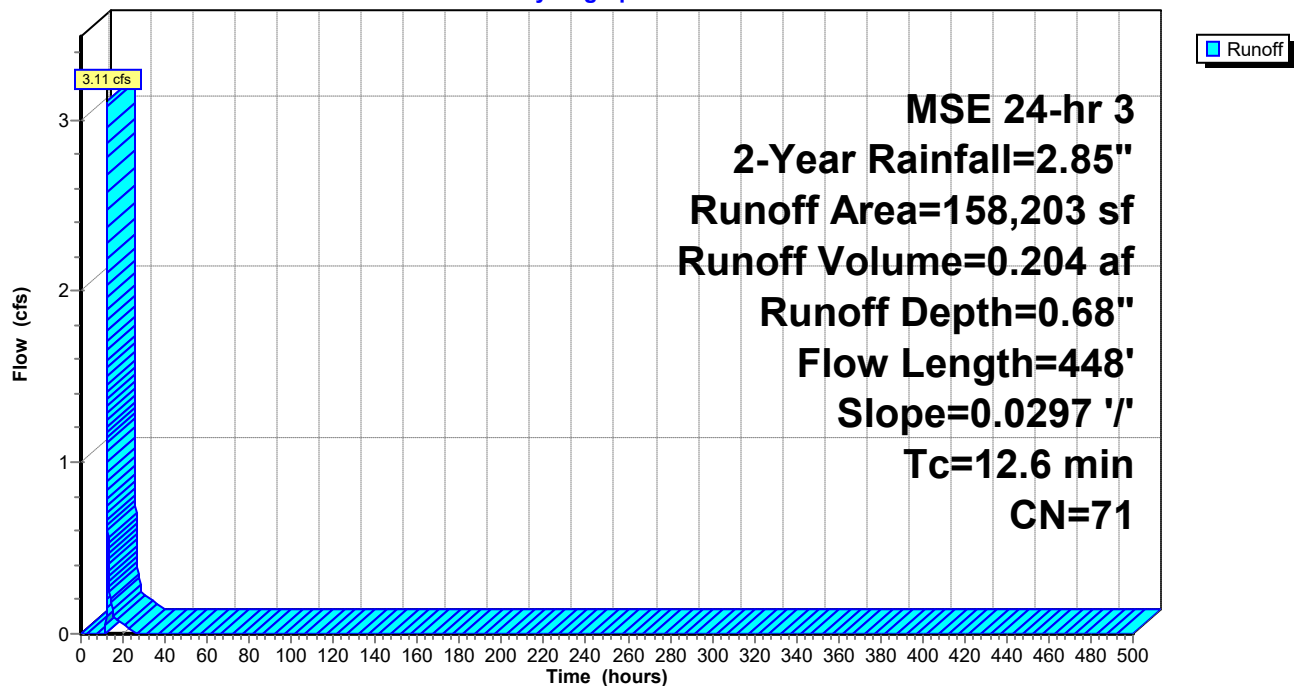
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Description
*	79,495	65	Pasture/grassland/range, HSG B
*	73,332	77	Pasture/grassland/range, HSG C
*	5,091	82	Pasture/grassland/range, HSG D
*	285	60	Woods, HSG B
	158,203	71	Weighted Average
	158,203	71	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	448	0.0297	0.59		Lag/CN Method,

Subcatchment 2S: Ex-2

Hydrograph



Summary for Subcatchment 3S: Ex-2_offsite

Runoff = 1.04 cfs @ 12.28 hrs, Volume= 0.076 af, Depth= 0.86"
 Routed to Pond 9P : Ex-2 Depression/ROW

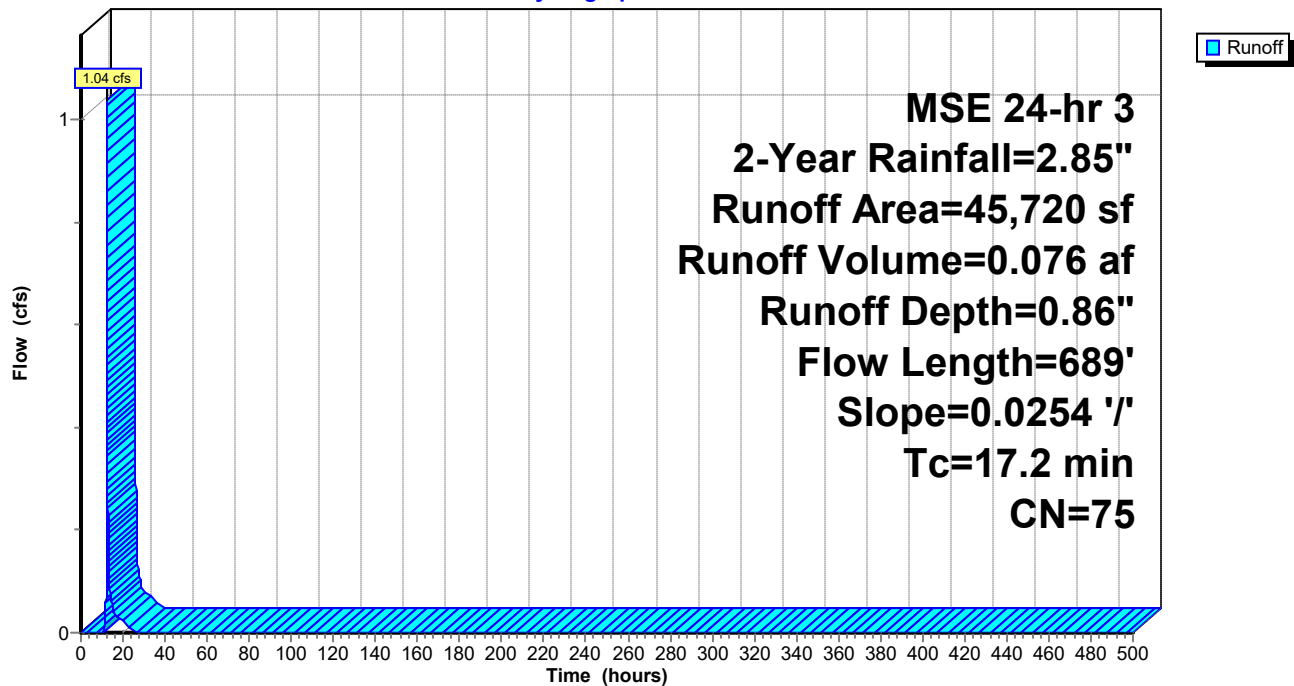
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Description
*	12,116	65	Pasture/grassland/range, HSG B
*	4,797	77	Pasture/grassland/range, HSG C
*	1,486	82	Pasture/grassland/range, HSG D
*	12,181	65	Pasture/grassland/range, HSG B
*	5,469	77	Pasture/grassland/range, HSG C
*	1,635	82	Pasture/grassland/range, HSG D
*	8,036	98	Paved road
	45,720	75	Weighted Average
	37,684	70	82.42% Pervious Area
	8,036	98	17.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	689	0.0254	0.67		Lag/CN Method,

Subcatchment 3S: Ex-2_offsite

Hydrograph



Summary for Subcatchment 8S: Ex-6

Runoff = 2.68 cfs @ 12.22 hrs, Volume= 0.184 af, Depth= 0.55"
 Routed to Pond 12P : Ex-6 Wetland

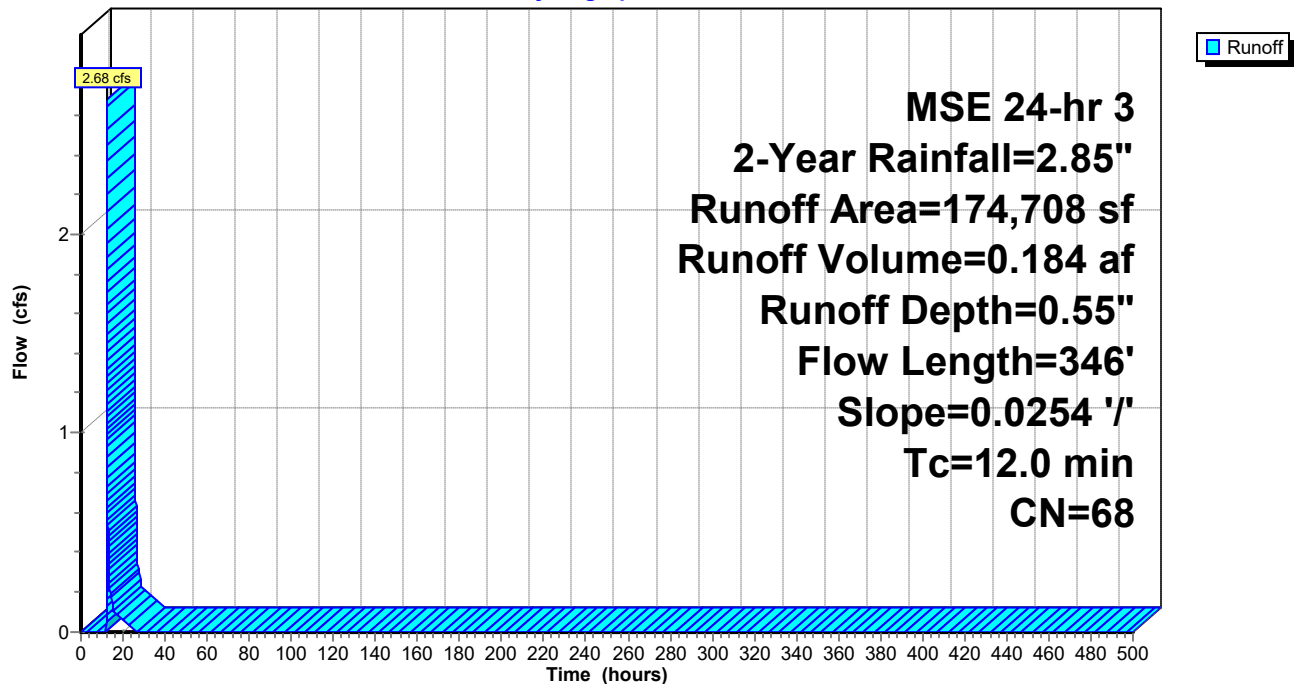
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Description
*	155,017	65	Pasture/grassland/range, HSG B
*	1,076	82	Pasture/grassland/range, HSG D
*	14,586	98	Wetland
*	4,029	60	Woods, HSG B
	174,708	68	Weighted Average
	160,122	65	91.65% Pervious Area
	14,586	98	8.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	346	0.0254	0.48		Lag/CN Method,

Subcatchment 8S: Ex-6

Hydrograph



Summary for Subcatchment 9S: Ex-7

Runoff = 1.48 cfs @ 12.17 hrs, Volume= 0.080 af, Depth= 0.72"

Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW

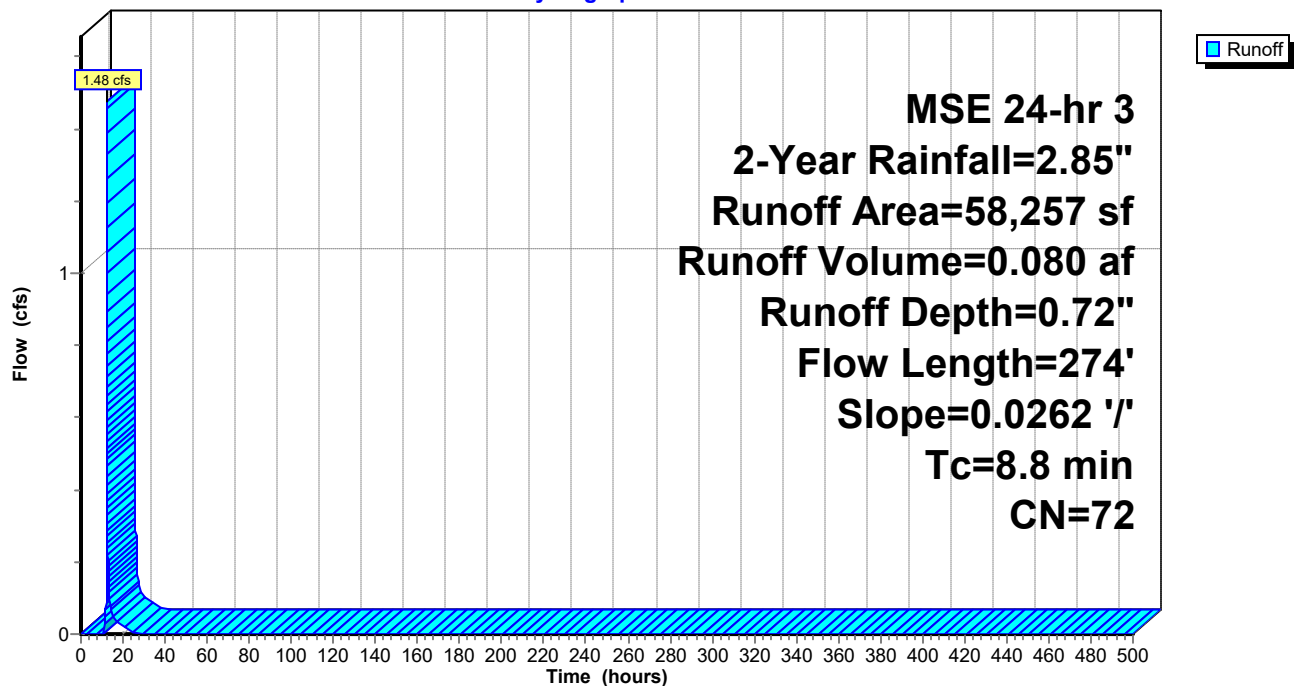
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Description
*	29,314	65	Pasture/grassland/range, HSG B
*	15,465	82	Pasture/grassland/range, HSG D
*	804	65	Pasture/grassland/range, HSG B
*	974	60	Woods, HSG B
*	11,700	79	Woods, HSG D
	58,257	72	Weighted Average
	58,257	72	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	274	0.0262	0.52		Lag/CN Method,

Subcatchment 9S: Ex-7

Hydrograph



Summary for Subcatchment 10S: Ex-8

calculated tc with lag/CN method was less than $2 \cdot dt = 1.2$ min, so set to 1.2 min

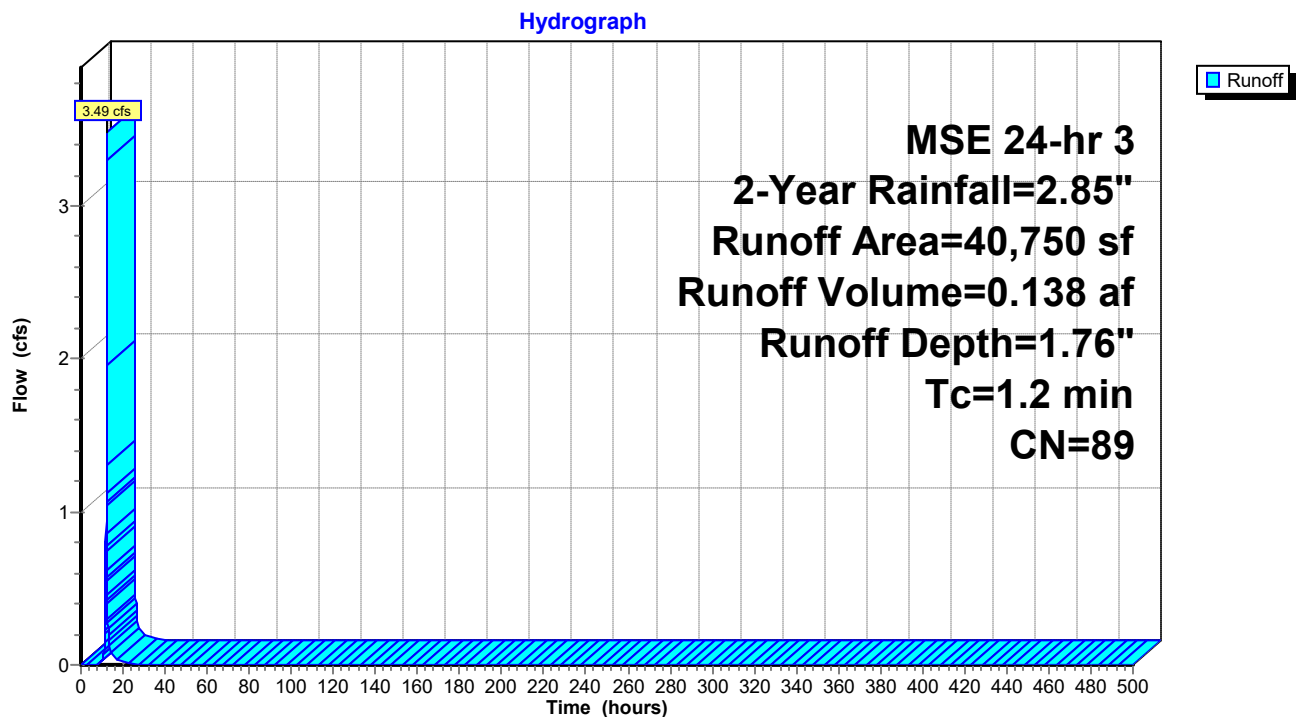
Runoff = 3.49 cfs @ 12.10 hrs, Volume= 0.138 af, Depth= 1.76"
 Routed to Pond 13P : Ex-8 Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Description
*	95	82	Pasture/grassland/range, HSG D
*	21,821	98	Wetland
*	18,834	79	Woods, HSG D
	40,750	89	Weighted Average
	18,929	79	46.45% Pervious Area
	21,821	98	53.55% Impervious Area

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

Subcatchment 10S: Ex-8



Summary for Subcatchment 11S: Ex-7_offsite

Runoff = 9.26 cfs @ 12.13 hrs, Volume= 0.415 af, Depth= 1.61"
 Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW

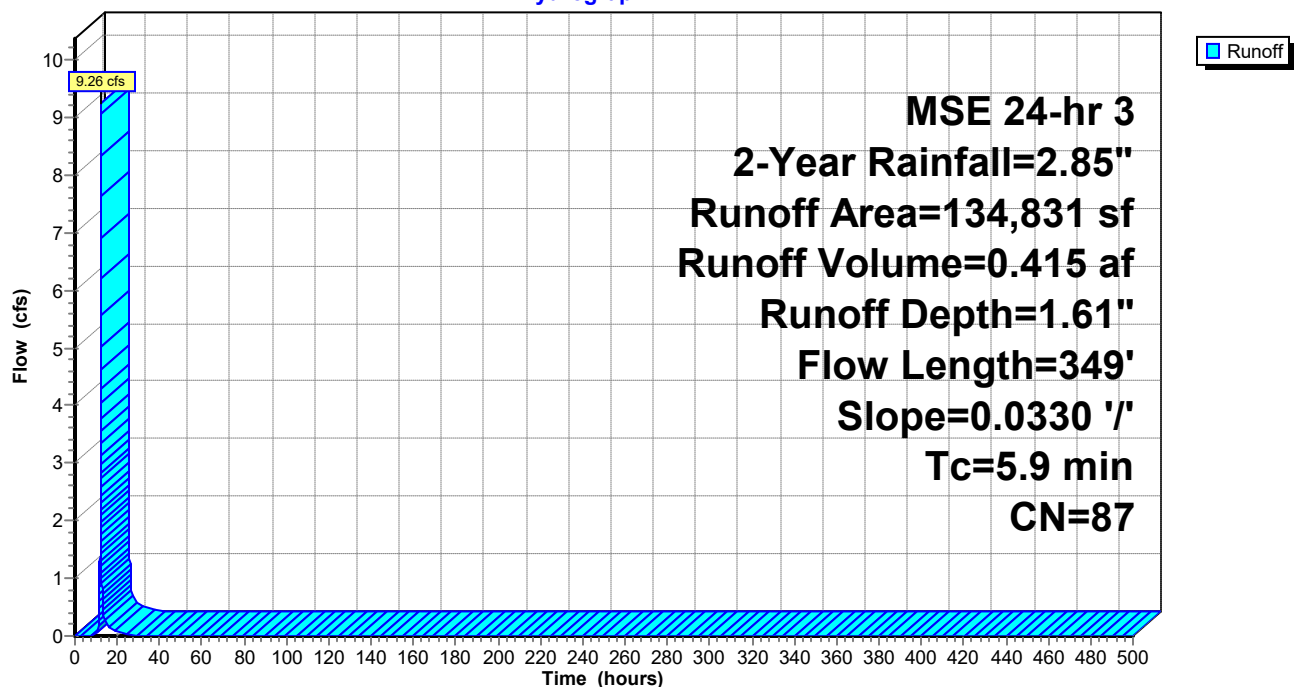
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Description
*	11,289	65	Pasture/grassland/range, HSG B
*	2,488	82	Pasture/grassland/range, HSG D
*	15,448	65	Pasture/grassland/range, HSG B
*	14,603	82	Pasture/grassland/range, HSG D
*	48	60	Woods, HSG B
*	18,084	79	Woods, HSG D
*	57,777	98	Wetland
*	15,094	98	Paved road
	134,831	87	Weighted Average
	61,960	74	45.95% Pervious Area
	72,871	98	54.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	349	0.0330	0.98		Lag/CN Method,

Subcatchment 11S: Ex-7_offsite

Hydrograph



Summary for Subcatchment 12S: Ex-10

Runoff = 0.75 cfs @ 12.15 hrs, Volume= 0.038 af, Depth= 0.59"
 Routed to Pond 15P : Ex-10 Depression

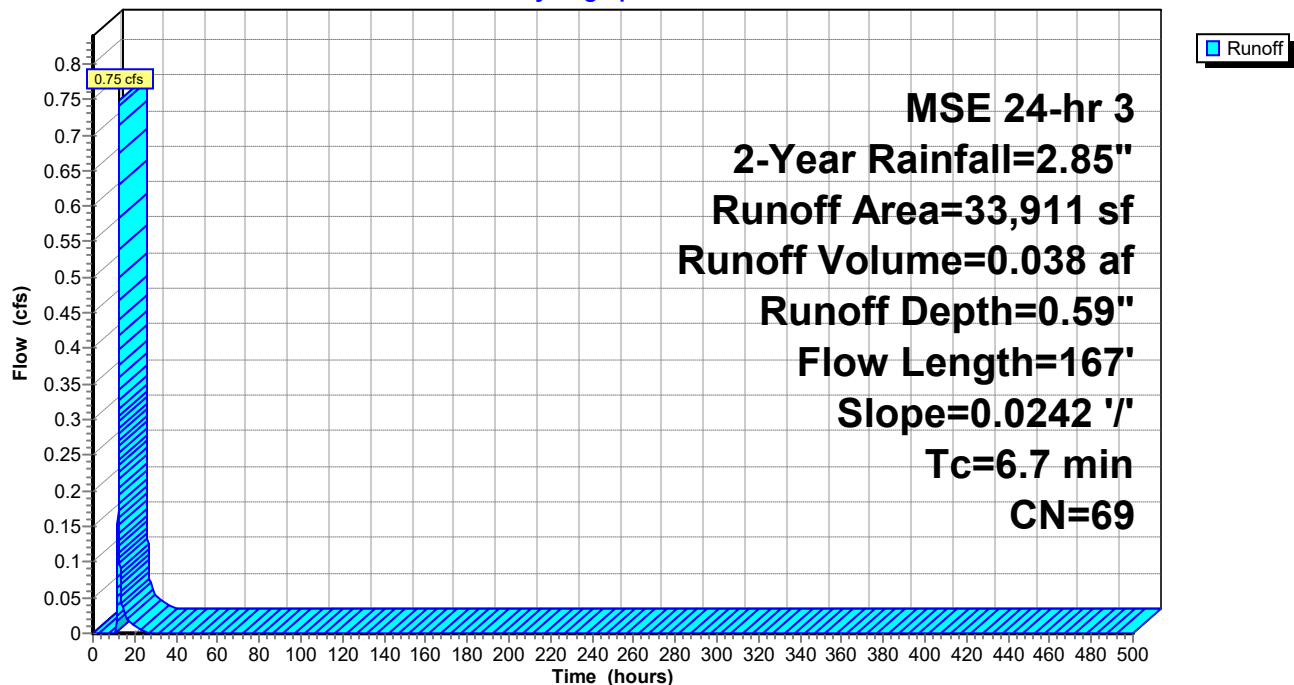
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Description
*	25,024	65	Pasture/grassland/range, HSG B
*	8,310	82	Pasture/grassland/range, HSG D
*	577	79	Woods, HSG D
	33,911	69	Weighted Average
	33,911	69	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	167	0.0242	0.42		Lag/CN Method,

Subcatchment 12S: Ex-10

Hydrograph



Summary for Subcatchment 13S: Ex-6_offsite

Runoff = 0.06 cfs @ 12.15 hrs, Volume= 0.004 af, Depth= 0.44"
 Routed to Pond 12P : Ex-6 Wetland

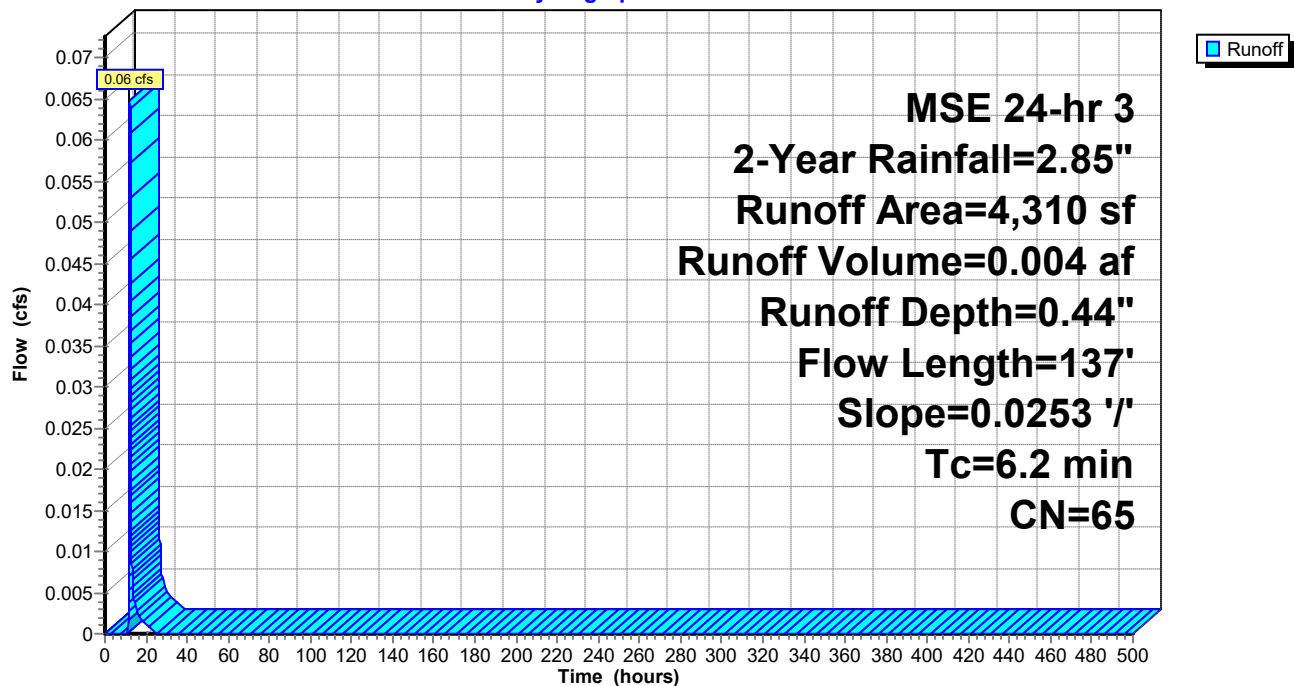
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Description
*	3,760	65	Pasture/grassland/range, HSG B
*	550	65	Pasture/grassland/range, HSG B
	4,310	65	Weighted Average
	4,310	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	137	0.0253	0.37		Lag/CN Method,

Subcatchment 13S: Ex-6_offsite

Hydrograph



Summary for Subcatchment 14S: Ex-11

Runoff = 0.67 cfs @ 12.18 hrs, Volume= 0.041 af, Depth= 0.51"
 Routed to Link 16L : Ex - SE ROW

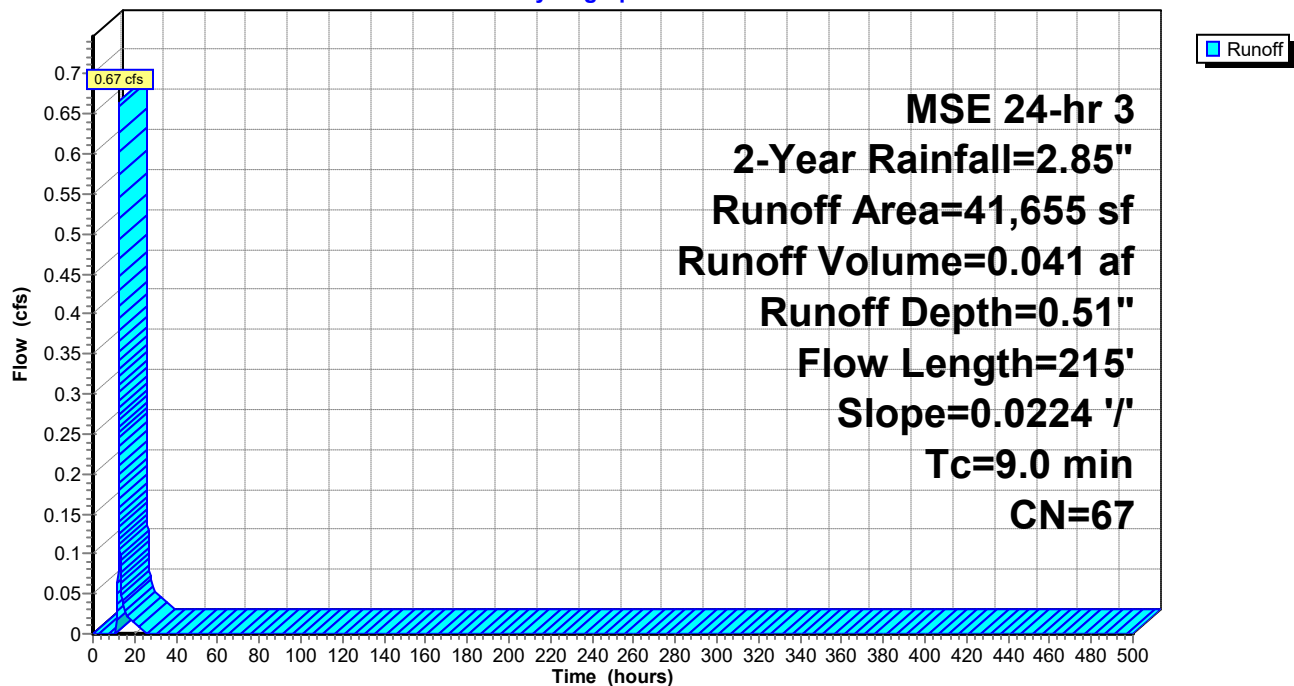
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Description
*	35,137	65	Pasture/grassland/range, HSG B
*	4,197	82	Pasture/grassland/range, HSG D
*	1,142	65	Pasture/grassland/range, HSG B
*	1,179	79	Woods, HSG D
	41,655	67	Weighted Average
	41,655	67	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	215	0.0224	0.40		Lag/CN Method,

Subcatchment 14S: Ex-11

Hydrograph



Summary for Subcatchment 15S: Pr-7_offsite

Runoff = 9.26 cfs @ 12.13 hrs, Volume= 0.415 af, Depth= 1.61"

Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW

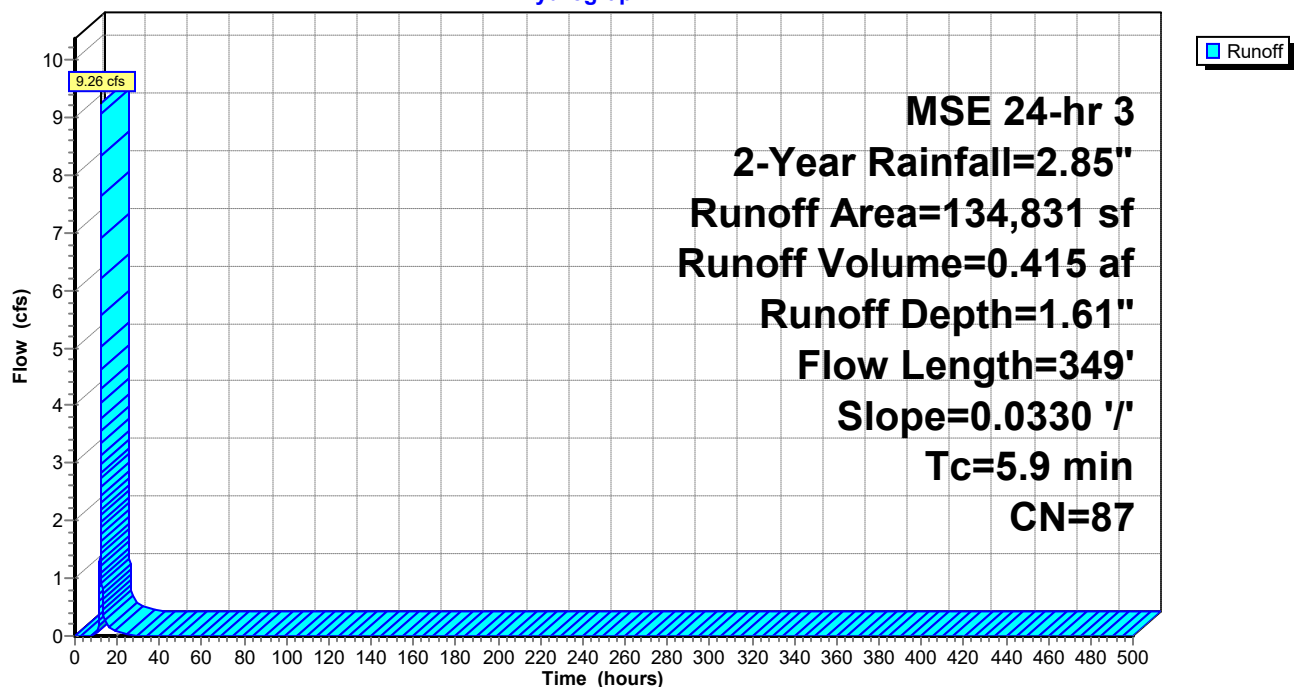
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Description
*	11,289	65	Pasture/grassland/range, HSG B
*	2,488	82	Pasture/grassland/range, HSG D
*	15,448	65	Pasture/grassland/range, HSG B
*	14,603	82	Pasture/grassland/range, HSG D
*	48	60	Woods, HSG B
*	18,084	79	Woods, HSG D
*	57,777	98	Wetland
*	15,094	98	Paved road
	134,831	87	Weighted Average
	61,960	74	45.95% Pervious Area
	72,871	98	54.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	349	0.0330	0.98		Lag/CN Method,

Subcatchment 15S: Pr-7_offsite

Hydrograph



Summary for Subcatchment 22S: Pr-1

Runoff = 0.08 cfs @ 12.15 hrs, Volume= 0.006 af, Depth= 0.28"
 Routed to Link 46L : Pr - NW ROW

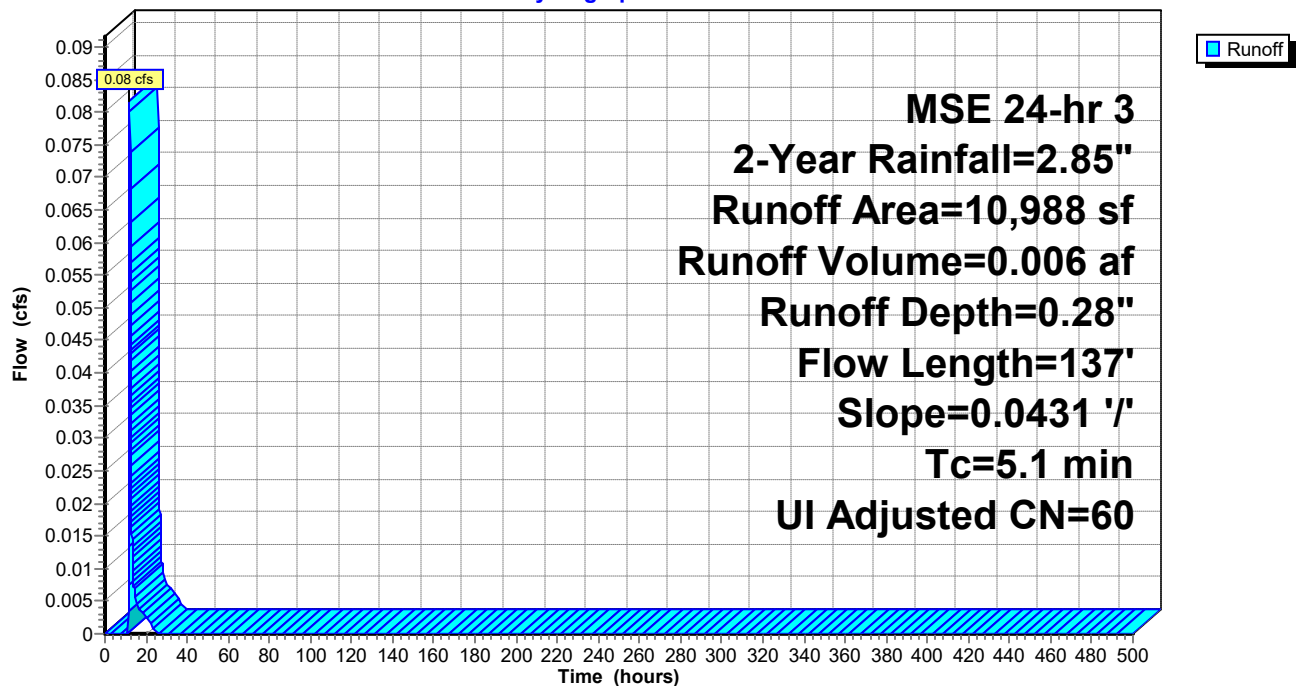
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Adj	Description
*	10,012	58		Meadow, HSG B
	976	98		Unconnected roofs, HSG B
	10,988	62	60	Weighted Average, UI Adjusted
	10,012	58	58	91.12% Pervious Area
	976	98	98	8.88% Impervious Area
	976			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	137	0.0431	0.44		Lag/CN Method,

Subcatchment 22S: Pr-1

Hydrograph



Summary for Subcatchment 23S: Pr-2

Runoff = 2.68 cfs @ 12.22 hrs, Volume= 0.179 af, Depth= 0.59"
 Routed to Pond 39P : Pr-2 Depression/ROW

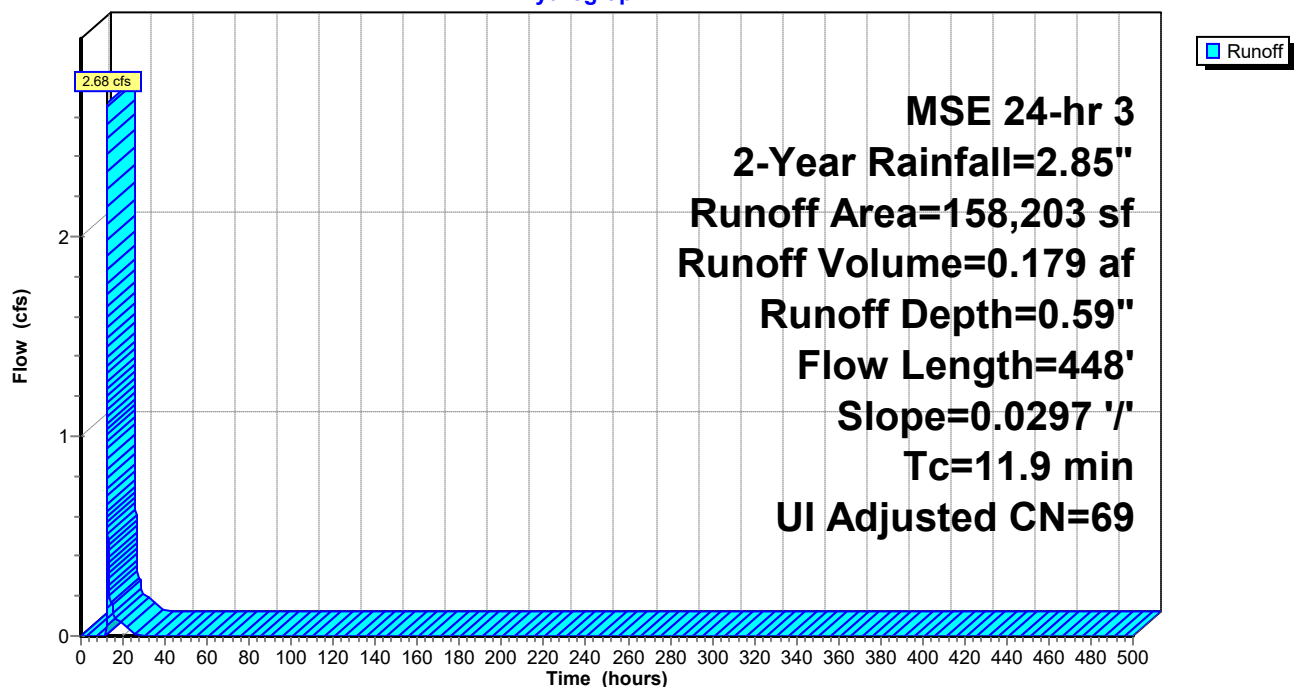
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Adj	Description
*	62,278	58		Meadow, HSG B
*	53,419	71		Meadow, HSG C
*	4,896	78		Meadow, HSG D
	16,746	98		Unconnected roofs, HSG B
	19,913	98		Unconnected roofs, HSG C
	195	98		Unconnected roofs, HSG D
*	756	98		Equipment pad, HSG B
	158,203	73	69	Weighted Average, UI Adjusted
	120,593	65	65	76.23% Pervious Area
	37,610	98	98	23.77% Impervious Area
	36,854			97.99% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	448	0.0297	0.63		Lag/CN Method,

Subcatchment 23S: Pr-2

Hydrograph



Summary for Subcatchment 24S: Pr-2_offsite

Runoff = 1.04 cfs @ 12.28 hrs, Volume= 0.076 af, Depth= 0.86"
 Routed to Pond 39P : Pr-2 Depression/ROW

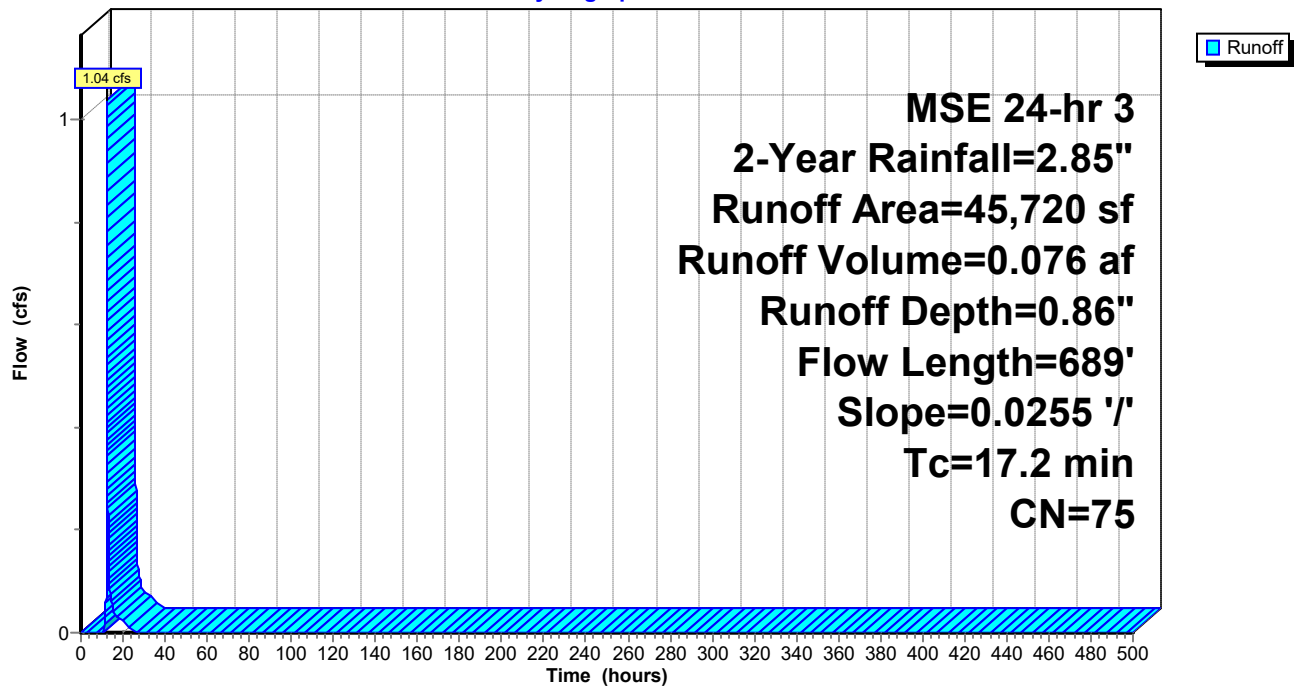
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Description
*	12,116	65	Pasture/grassland/range, HSG B
*	4,797	77	Pasture/grassland/range, HSG C
*	1,486	82	Pasture/grassland/range, HSG D
*	12,181	65	Pasture/grassland/range, HSG B
*	5,469	77	Pasture/grassland/range, HSG C
*	1,635	82	Pasture/grassland/range, HSG D
*	8,036	98	Paved road
	45,720	75	Weighted Average
	37,684	70	82.42% Pervious Area
	8,036	98	17.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	689	0.0255	0.67		Lag/CN Method,

Subcatchment 24S: Pr-2_offsite

Hydrograph



Summary for Subcatchment 29S: Pr-6

Runoff = 2.21 cfs @ 12.22 hrs, Volume= 0.159 af, Depth= 0.47"
 Routed to Pond 41P : Pr-6 Wetland

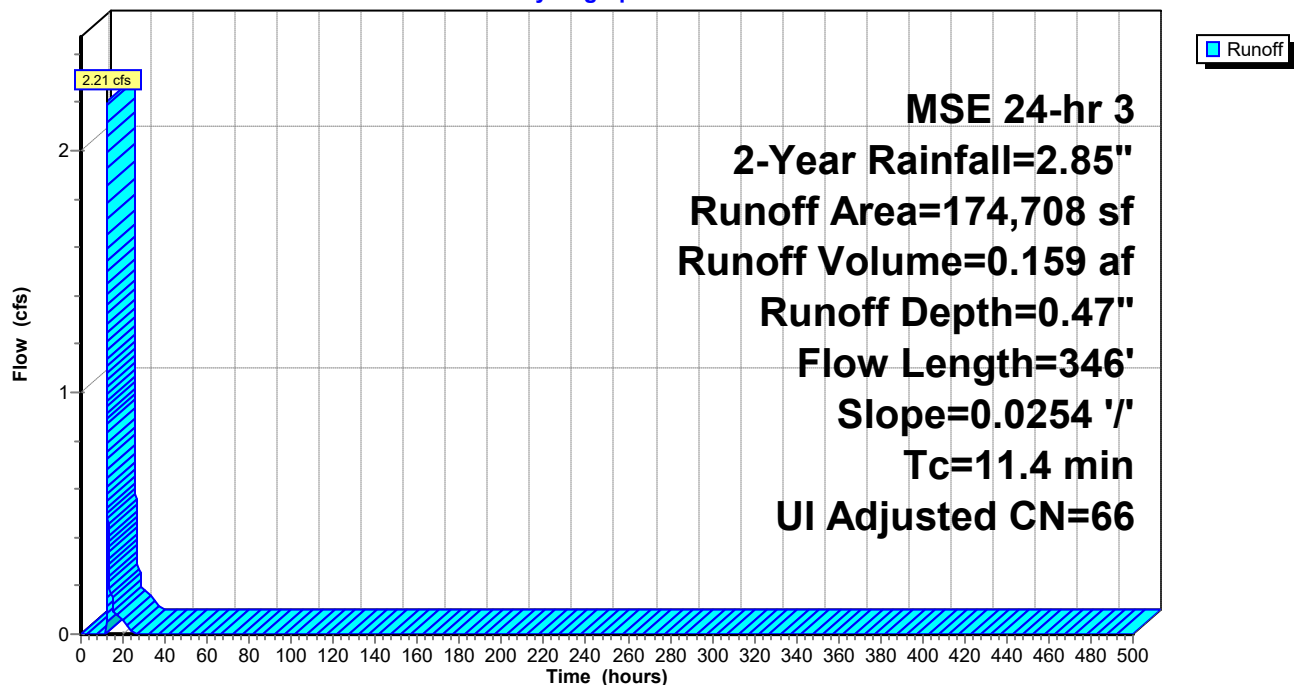
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Adj	Description
*	122,744	58		Meadow, HSG B
*	751	78		Meadow, HSG D
*	14,586	98		Wetland
	36,303	98		Unconnected roofs, HSG B
	324	98		Unconnected roofs, HSG D
	174,708	70	66	Weighted Average, UI Adjusted
	123,495	58	58	70.69% Pervious Area
	51,213	98	98	29.31% Impervious Area
	36,627			71.52% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	346	0.0254	0.51		Lag/CN Method,

Subcatchment 29S: Pr-6

Hydrograph



Summary for Subcatchment 30S: Pr-7

Runoff = 0.99 cfs @ 12.19 hrs, Volume= 0.061 af, Depth= 0.55"

Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW

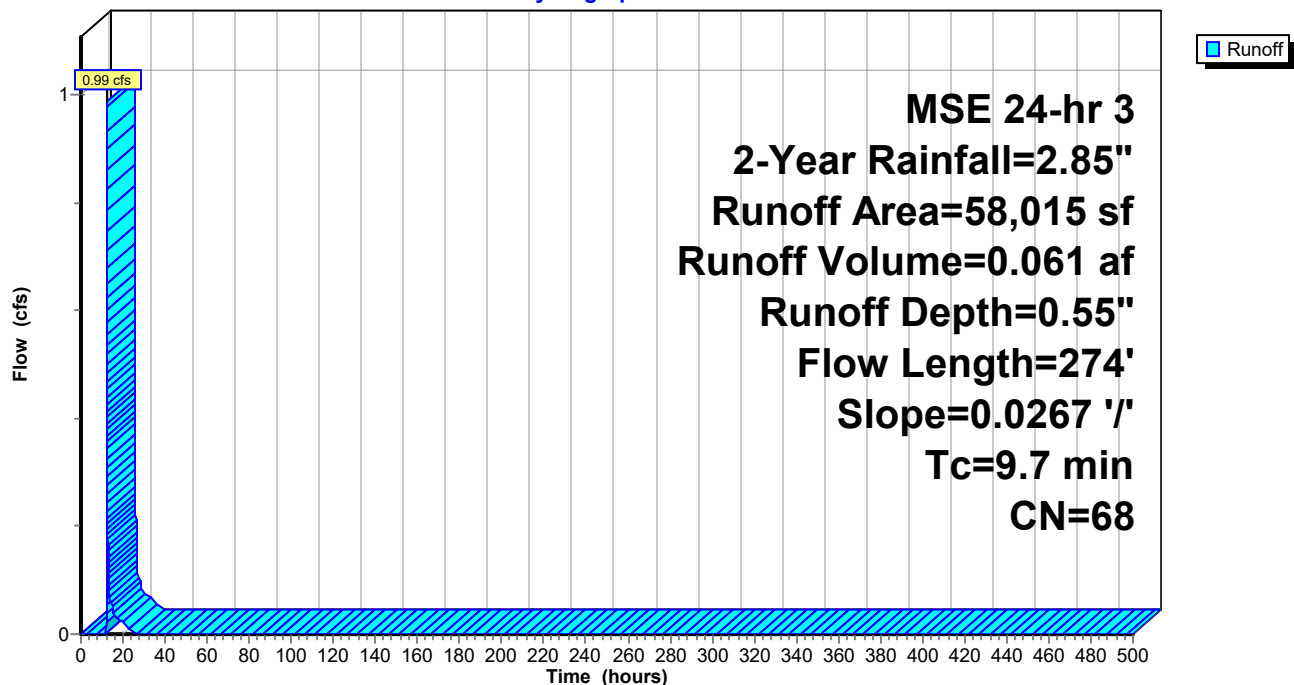
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Description
*	29,742	58	Meadow, HSG B
*	26,427	78	Meadow, HSG D
	394	98	Unconnected roofs, HSG B
	739	98	Unconnected roofs, HSG D
*	713	85	Gravel surface, HSG B
	58,015	68	Weighted Average
	56,882	68	98.05% Pervious Area
	1,133	98	1.95% Impervious Area
	1,133		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	274	0.0267	0.47		Lag/CN Method,

Subcatchment 30S: Pr-7

Hydrograph



Summary for Subcatchment 31S: Pr-8

calculated tc with lag/CN method was less than $2 \cdot dt = 1.2$ min, so set to 1.2 min

Runoff = 3.49 cfs @ 12.10 hrs, Volume= 0.138 af, Depth= 1.76"
 Routed to Pond 42P : Pr-8 Wetland

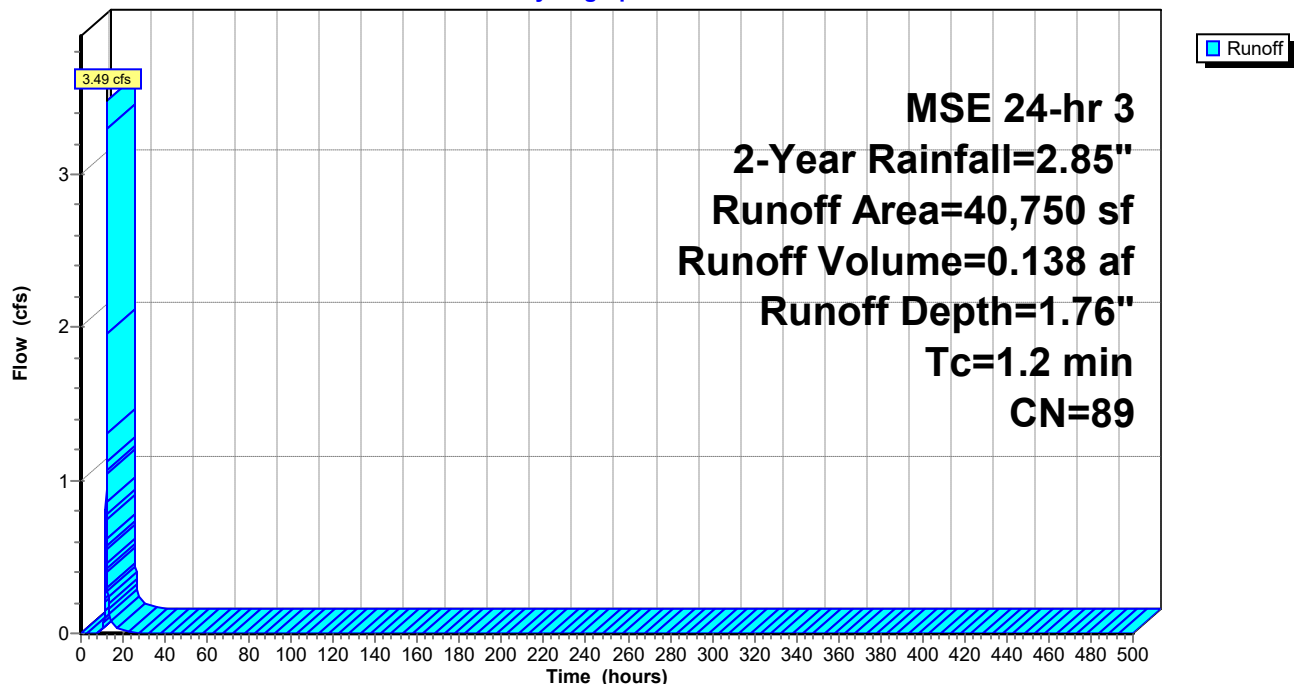
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Description
*	18,929	78	Meadow, HSG D
*	21,821	98	Wetland
	40,750	89	Weighted Average
	18,929	78	46.45% Pervious Area
	21,821	98	53.55% Impervious Area

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

Subcatchment 31S: Pr-8

Hydrograph



Summary for Subcatchment 33S: Pr-10

Runoff = 0.70 cfs @ 12.15 hrs, Volume= 0.036 af, Depth= 0.55"
 Routed to Pond 44P : Pr-10 Depression

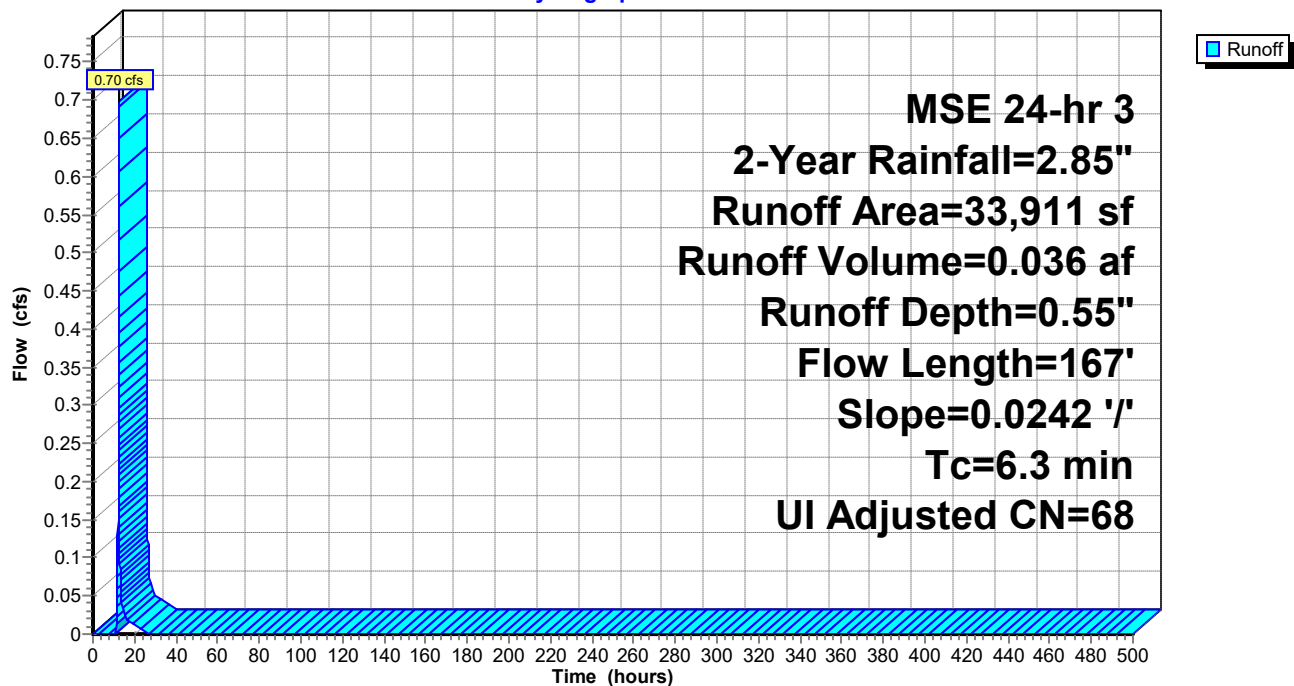
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Adj	Description
*	18,075	58		Meadow, HSG B
*	8,887	78		Meadow, HSG D
	6,949	98		Unconnected roofs, HSG B
	33,911	71	68	Weighted Average, UI Adjusted
	26,962	65	65	79.51% Pervious Area
	6,949	98	98	20.49% Impervious Area
	6,949			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	167	0.0242	0.44		Lag/CN Method,

Subcatchment 33S: Pr-10

Hydrograph



Summary for Subcatchment 34S: Pr-11

Runoff = 0.53 cfs @ 12.19 hrs, Volume= 0.035 af, Depth= 0.44"
 Routed to Link 47L : Pr - SE ROW

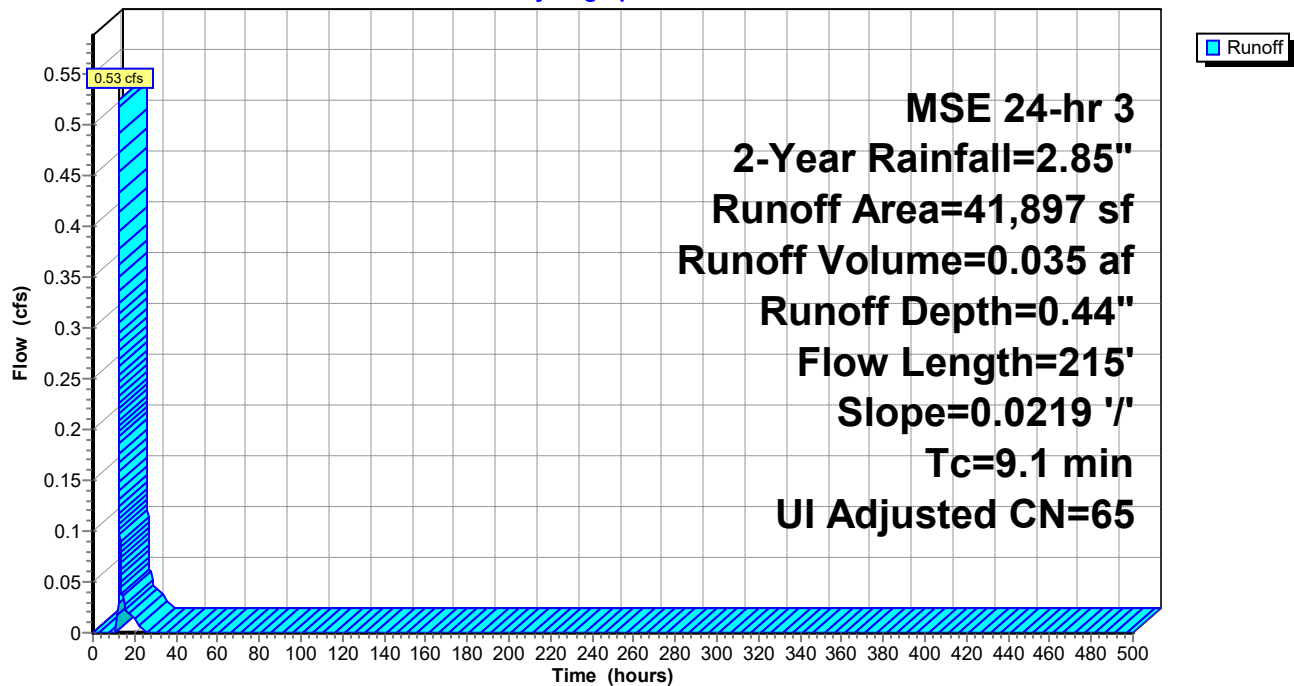
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Adj	Description
*	28,679	58		Meadow, HSG B
*	5,329	78		Meadow, HSG D
	5,154	98		Unconnected roofs, HSG B
*	267	98		Equipment pad, HSG B
*	2,423	85		Gravel surface, HSG B
*	45	91		Gravel surface, HSG D
	41,897	67	65	Weighted Average, UI Adjusted
	36,476	63	63	87.06% Pervious Area
	5,421	98	98	12.94% Impervious Area
	5,154			95.07% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	215	0.0219	0.39		Lag/CN Method,

Subcatchment 34S: Pr-11

Hydrograph



Summary for Subcatchment 35S: Pr-6_offsite

Runoff = 0.06 cfs @ 12.15 hrs, Volume= 0.004 af, Depth= 0.44"
 Routed to Pond 41P : Pr-6 Wetland

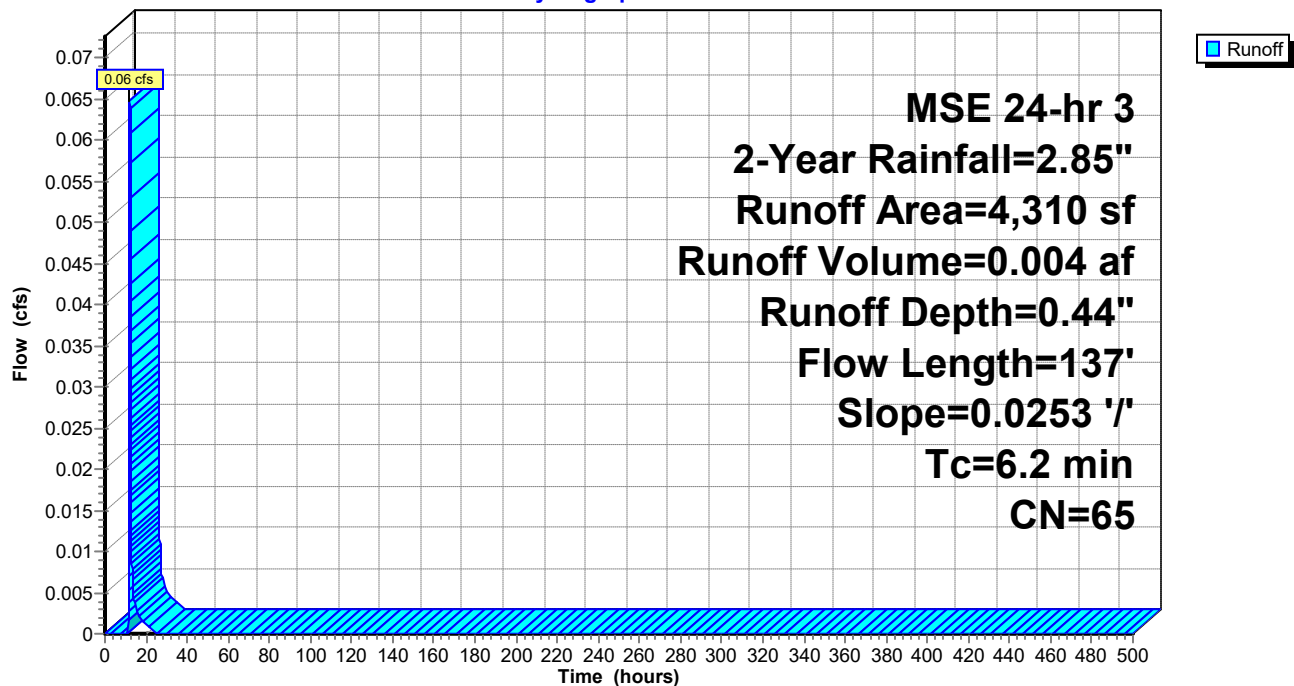
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.85"

	Area (sf)	CN	Description
*	3,760	65	Pasture/grassland/range, HSG B
*	550	65	Pasture/grassland/range, HSG B
	4,310	65	Weighted Average
	4,310	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	137	0.0253	0.37		Lag/CN Method,

Subcatchment 35S: Pr-6_offsite

Hydrograph



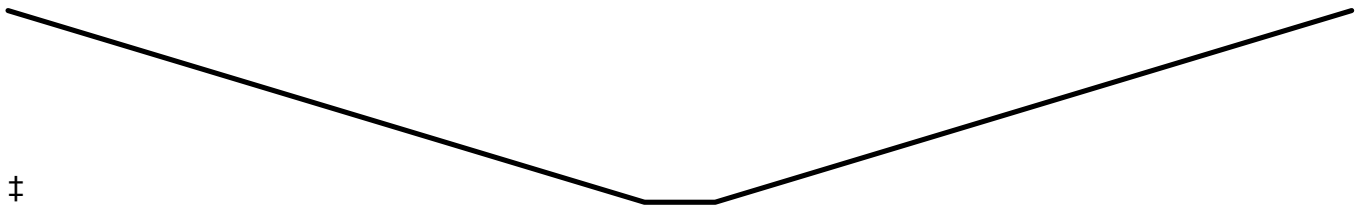
Summary for Reach 9R: Flow over Ex-11

Inflow Area = 0.778 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Routed to Link 16L : Ex - SE ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 0.00 fps, Avg. Travel Time= 0.0 min

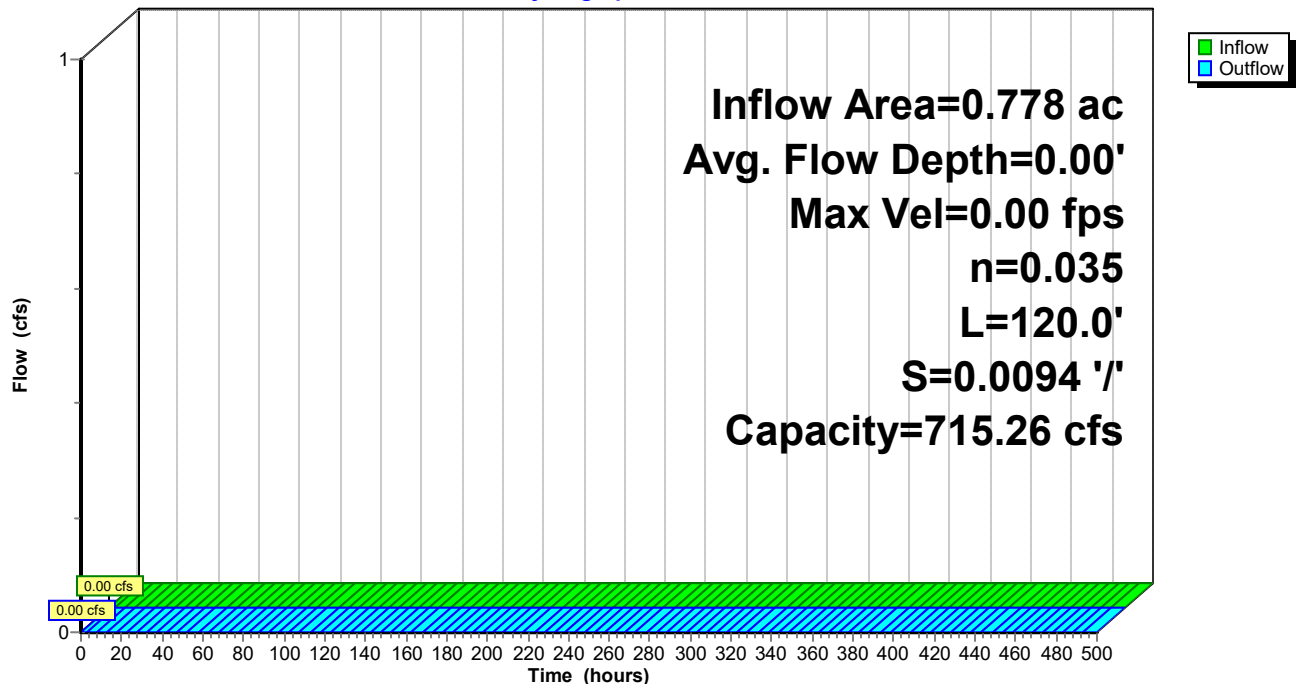
Peak Storage= 0 cf @ 0.00 hrs
 Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 1.80' Flow Area= 180.0 sf, Capacity= 715.26 cfs

10.00' x 1.80' deep channel, n= 0.035 High grass
 Side Slope Z-value= 50.0 '/' Top Width= 190.00'
 Length= 120.0' Slope= 0.0094 '/'
 Inlet Invert= 960.83', Outlet Invert= 959.70'



Reach 9R: Flow over Ex-11

Hydrograph



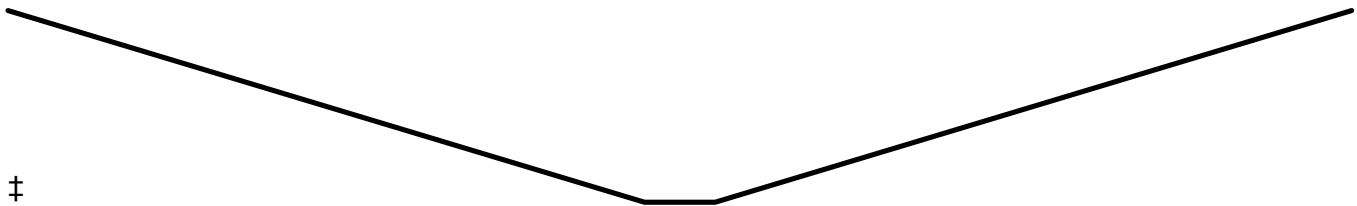
Summary for Reach 10R: Flow over Ex-11

Inflow Area = 0.778 ac, 20.49% Impervious, Inflow Depth = 0.00" for 2-Year event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Routed to Link 47L : Pr - SE ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 0.00 fps, Avg. Travel Time= 0.0 min

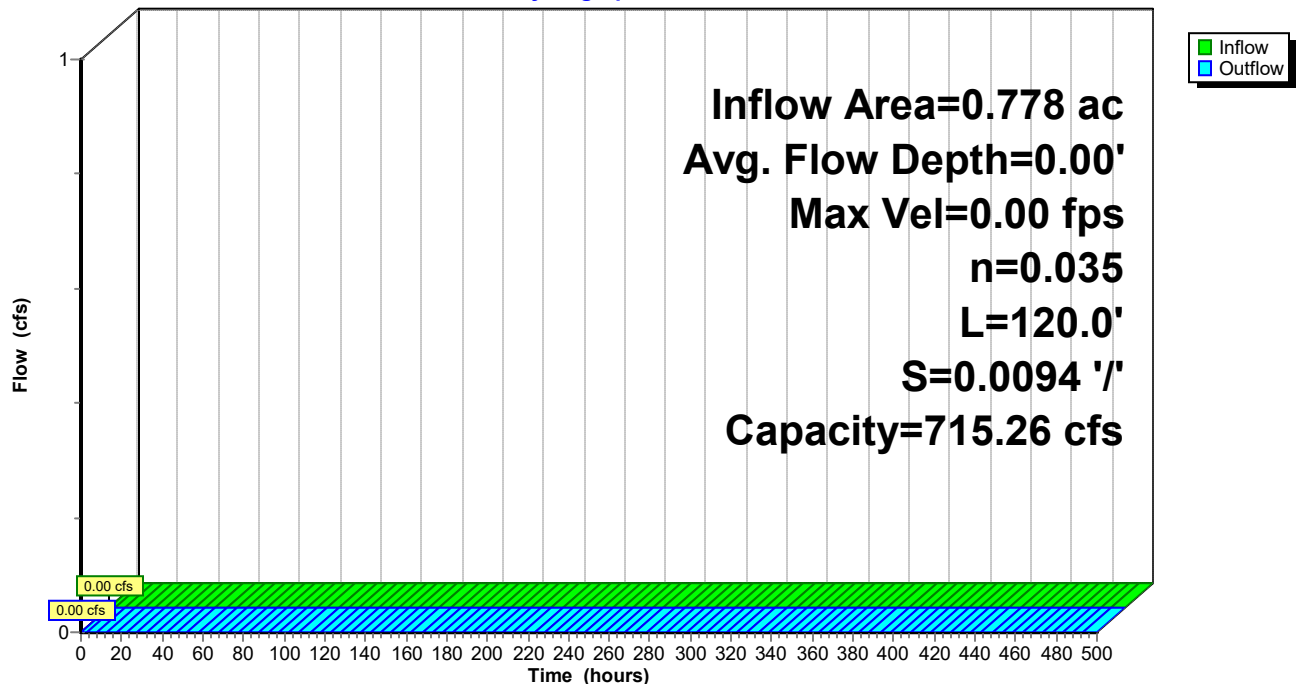
Peak Storage= 0 cf @ 0.00 hrs
 Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 1.80' Flow Area= 180.0 sf, Capacity= 715.26 cfs

10.00' x 1.80' deep channel, n= 0.035 High grass
 Side Slope Z-value= 50.0 '/' Top Width= 190.00'
 Length= 120.0' Slope= 0.0094 '/'
 Inlet Invert= 960.83', Outlet Invert= 959.70'



Reach 10R: Flow over Ex-11

Hydrograph



Summary for Pond 9P: Ex-2 Depression/ROW

Inflow Area = 4.681 ac, 3.94% Impervious, Inflow Depth = 0.72" for 2-Year event
 Inflow = 4.07 cfs @ 12.23 hrs, Volume= 0.280 af
 Outflow = 0.11 cfs @ 17.76 hrs, Volume= 0.280 af, Atten= 97%, Lag= 331.5 min
 Discarded = 0.11 cfs @ 17.76 hrs, Volume= 0.280 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Pond 12P : Ex-6 Wetland
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 959.65' @ 17.76 hrs Surf.Area= 10,831 sf Storage= 8,521 cf

Plug-Flow detention time= 1,001.8 min calculated for 0.280 af (100% of inflow)
 Center-of-Mass det. time= 1,001.9 min (1,848.8 - 846.9)

Volume	Invert	Avail.Storage	Storage Description
#1	957.84'	1,523,832 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
957.84	11	0	0
958.04	592	60	60
958.24	1,658	225	285
958.44	2,745	440	726
958.64	4,026	677	1,403
958.84	5,210	924	2,326
959.04	6,286	1,150	3,476
959.24	7,287	1,357	4,833
959.44	8,805	1,609	6,442
959.64	10,710	1,951	8,394
959.84	12,755	2,347	10,740
960.04	14,897	2,765	13,506
960.24	17,050	3,195	16,700
960.44	19,171	3,622	20,322
960.64	21,356	4,053	24,375
960.84	23,530	4,489	28,864
961.04	25,672	4,920	33,784
961.24	27,825	5,350	39,134
961.44	30,247	5,807	44,941
961.64	32,690	6,294	51,234
961.84	35,758	6,845	58,079
962.04	39,127	7,488	65,568
962.24	43,066	8,219	73,787
962.44	49,191	9,226	83,013
962.64	56,554	10,574	93,587
962.84	65,229	12,178	105,766
963.04	73,539	13,877	119,642
963.24	79,136	15,268	134,910
963.44	84,271	16,341	151,251
963.64	89,502	17,377	168,628
963.84	95,788	18,529	187,157
964.04	101,299	19,709	206,866
964.24	106,143	20,744	227,610
964.44	110,341	21,648	249,258
964.64	114,367	22,471	271,729
964.84	118,661	23,303	295,032
965.04	123,473	24,213	319,245
965.24	128,586	25,206	344,451
965.44	135,808	26,439	370,891
965.64	140,049	27,586	398,476
965.84	144,000	28,405	426,881
966.04	146,949	29,095	455,976
966.24	149,511	29,646	485,622
966.44	151,707	30,122	515,744
966.64	153,440	30,515	546,258
966.84	154,656	30,810	577,068
967.04	156,109	31,076	608,145
967.24	157,487	31,360	639,504
967.44	158,951	31,644	671,148
967.64	160,877	31,983	703,131

967.84	162,697	32,357	735,488
968.04	164,925	32,762	768,250
968.24	166,819	33,174	801,425
968.44	168,272	33,509	834,934
968.64	169,456	33,773	868,707
968.84	170,630	34,009	902,715
969.04	171,727	34,236	936,951
969.24	172,718	34,445	971,396
969.44	173,730	34,645	1,006,040
969.64	174,591	34,832	1,040,872
969.84	175,387	34,998	1,075,870
970.04	176,055	35,144	1,111,014
970.24	176,647	35,270	1,146,285
970.44	177,152	35,380	1,181,665
970.64	177,669	35,482	1,217,147
970.84	178,207	35,588	1,252,734
971.04	178,670	35,688	1,288,422
971.24	179,155	35,783	1,324,204
971.44	179,424	35,858	1,360,062
971.64	179,650	35,907	1,395,970
971.84	179,833	35,948	1,431,918
972.04	180,102	35,993	1,467,911
972.24	180,425	36,053	1,503,964
972.35	180,812	19,868	1,523,832

Device	Routing	Invert	Outlet Devices
#1	Discarded	957.84'	0.450 in/hr Exfiltration over Surface area
#2	Primary	962.36'	10.0' long + 40.0 '/' SideZ x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#3	Secondary	962.98'	10.0' long + 7.0 '/' SideZ x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.11 cfs @ 17.76 hrs HW=959.65' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.11 cfs)

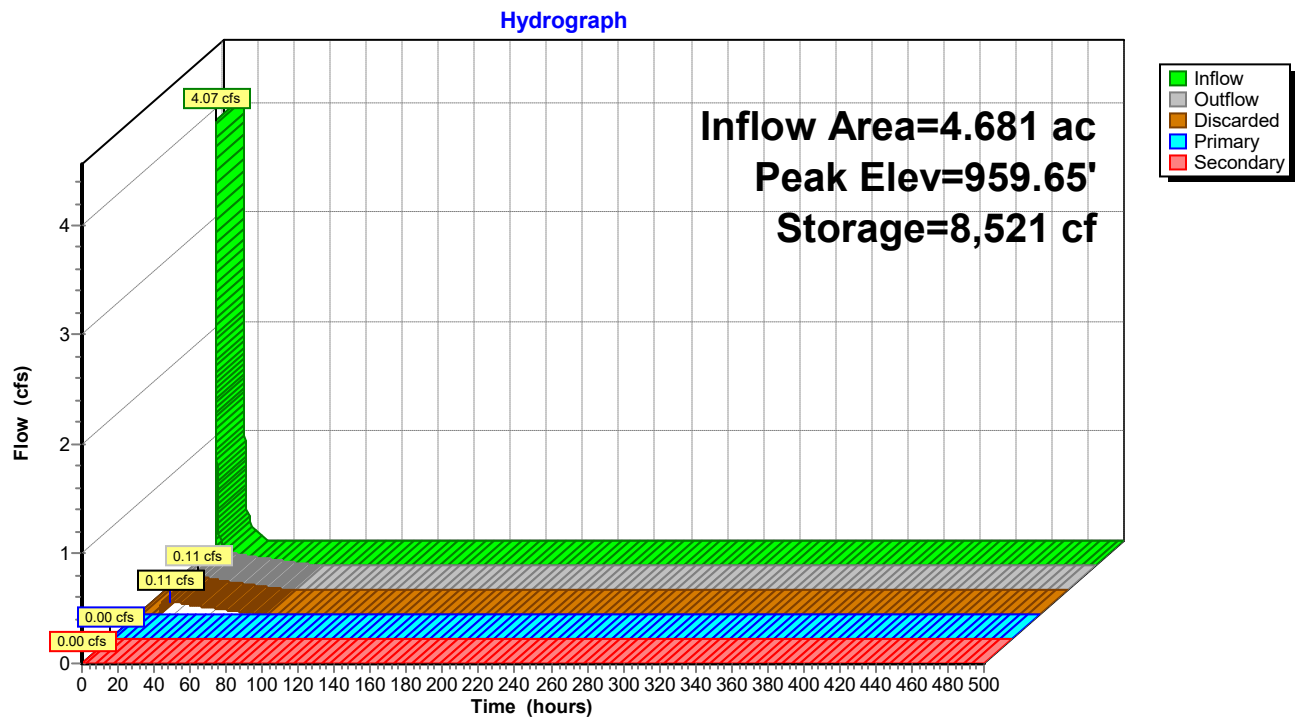
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=957.84' TW=955.89' (Dynamic Tailwater)

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

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=957.84' TW=0.00' (Dynamic Tailwater)

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

Pond 9P: Ex-2 Depression/ROW



Summary for Pond 12P: Ex-6 Wetland

Inflow Area = 8.791 ac, 5.91% Impervious, Inflow Depth = 0.26" for 2-Year event
 Inflow = 2.72 cfs @ 12.22 hrs, Volume= 0.188 af
 Outflow = 0.02 cfs @ 23.76 hrs, Volume= 0.188 af, Atten= 99%, Lag= 692.4 min
 Discarded = 0.02 cfs @ 23.76 hrs, Volume= 0.188 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 957.46' @ 23.76 hrs Surf.Area= 14,225 sf Storage= 7,392 cf

Plug-Flow detention time= 4,304.9 min calculated for 0.188 af (100% of inflow)
 Center-of-Mass det. time= 4,305.2 min (5,163.2 - 857.9)

Volume	Invert	Avail.Storage	Storage Description
#1	955.89'	1,210,988 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

01518_0022_northrup_grumman_solar_ROW_250605*MSE 24-hr 3 2-Year Rainfall=2.85"*

Prepared by Emmons & Olivier Resources

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
955.89	11	0	0
956.10	22	3	3
956.29	75	9	13
956.49	560	64	76
956.70	3,229	398	474
956.89	6,921	964	1,438
957.10	9,225	1,695	3,134
957.29	11,862	2,003	5,137
957.49	14,596	2,646	7,783
957.70	17,190	3,338	11,120
957.89	19,838	3,518	14,638
958.10	22,023	4,395	19,033
958.29	23,907	4,363	23,397
958.49	25,984	4,989	28,386
958.70	27,846	5,652	34,038
958.89	29,784	5,475	39,513
959.10	31,700	6,456	45,969
959.29	33,734	6,216	52,185
959.49	35,865	6,960	59,145
959.70	38,481	7,806	66,951
959.89	41,269	7,576	74,527
960.10	46,005	9,164	83,691
960.29	54,638	9,561	93,252
960.49	62,162	11,680	104,932
960.70	67,328	13,596	118,529
960.89	72,387	13,273	131,801
961.10	76,876	15,673	147,474
961.29	82,290	15,121	162,595
961.49	90,578	17,287	179,882
961.70	99,437	19,952	199,833
961.89	108,113	19,717	219,550
962.10	114,840	23,410	242,961
962.29	122,041	22,504	265,464
962.49	130,663	25,270	290,735
962.70	138,015	28,211	318,946
962.89	143,849	26,777	345,723
963.10	150,189	30,874	376,597
963.29	154,710	28,965	405,562
963.49	157,971	31,268	436,830
963.70	160,102	33,398	470,228
963.89	161,609	30,563	500,791
964.10	162,718	34,054	534,845
964.29	163,655	31,005	565,850
964.49	164,365	32,802	598,652
964.70	164,935	34,577	633,229
964.89	165,323	31,375	664,603
965.10	165,678	34,755	699,359
965.29	166,001	31,510	730,868
965.49	166,367	33,237	764,105
965.70	166,765	34,979	799,084

965.89	167,056	31,713	830,797
966.10	167,271	35,104	865,901
966.29	167,476	31,801	897,702
966.49	167,530	33,501	931,203
966.70	167,530	35,181	966,384
966.89	167,530	31,831	998,215
967.10	167,530	35,181	1,033,396
967.29	167,530	31,831	1,065,227
967.49	167,530	33,506	1,098,733
967.70	167,530	35,181	1,133,914
967.89	167,530	31,831	1,165,745
968.10	167,583	35,187	1,200,931
968.16	167,626	10,056	1,210,988

Device	Routing	Invert	Outlet Devices
#1	Discarded	955.89'	0.060 in/hr Exfiltration over Surface area
#2	Primary	958.16'	15.0' long + 40.0' /' SideZ 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=0.02 cfs @ 23.76 hrs HW=957.46' (Free Discharge)

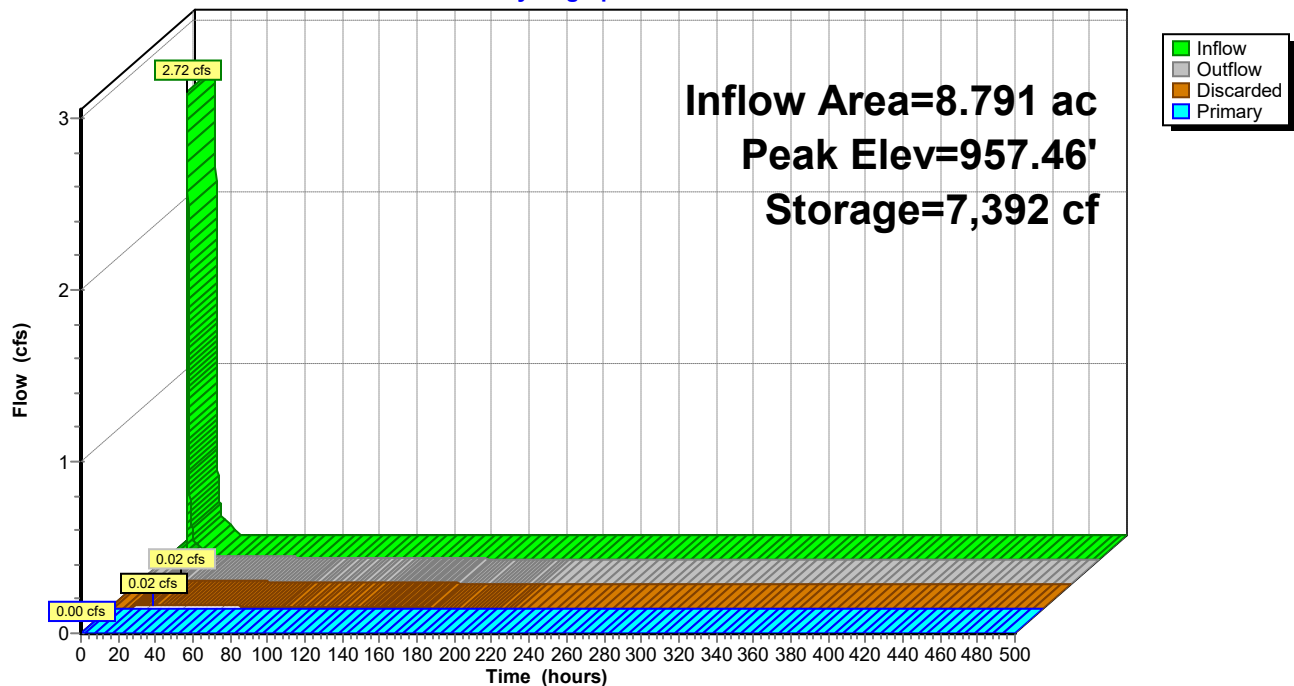
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=955.89' TW=0.00' (Dynamic Tailwater)

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

Pond 12P: Ex-6 Wetland

Hydrograph



Summary for Pond 13P: Ex-8 Wetland

Inflow Area = 0.935 ac, 53.55% Impervious, Inflow Depth = 1.76" for 2-Year event
 Inflow = 3.49 cfs @ 12.10 hrs, Volume= 0.138 af
 Outflow = 0.02 cfs @ 22.11 hrs, Volume= 0.138 af, Atten= 100%, Lag= 600.8 min
 Discarded = 0.02 cfs @ 22.11 hrs, Volume= 0.138 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 954.89' @ 22.11 hrs Surf.Area= 11,081 sf Storage= 5,347 cf

Plug-Flow detention time= 3,694.4 min calculated for 0.138 af (100% of inflow)
 Center-of-Mass det. time= 3,694.6 min (4,485.5 - 790.8)

Volume	Invert	Avail.Storage	Storage Description
#1	953.63'	396,795 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

01518_0022_northrup_grumman_solar_ROW_250605*MSE 24-hr 3 2-Year Rainfall=2.85"*

Prepared by Emmons & Olivier Resources

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
953.63	11	0	0
953.83	86	10	10
954.03	355	44	54
954.23	1,938	229	283
954.43	6,060	800	1,083
954.63	9,494	1,555	2,638
954.83	10,775	2,027	4,665
955.03	11,754	2,253	6,918
955.23	12,475	2,423	9,341
955.43	13,078	2,555	11,896
955.63	13,778	2,686	14,582
955.83	14,402	2,818	17,400
956.03	14,876	2,928	20,328
956.23	15,586	3,046	23,374
956.43	16,189	3,177	26,551
956.63	16,641	3,283	29,834
956.83	17,308	3,395	33,229
957.03	17,879	3,519	36,748
957.23	18,406	3,629	40,377
957.43	18,901	3,731	44,107
957.63	19,569	3,847	47,954
957.83	20,064	3,963	51,918
958.03	20,581	4,064	55,982
958.23	21,076	4,166	60,148
958.43	21,679	4,275	64,423
958.63	22,324	4,400	68,824
958.83	22,949	4,527	73,351
959.03	23,573	4,652	78,003
959.23	24,230	4,780	82,783
959.43	24,886	4,912	87,695
959.63	25,435	5,032	92,727
959.83	26,059	5,149	97,876
960.03	26,522	5,258	103,134
960.23	27,060	5,358	108,493
960.43	27,674	5,473	113,966
960.63	28,384	5,606	119,572
960.83	28,976	5,736	125,308
961.03	29,515	5,849	131,157
961.23	30,214	5,973	137,130
961.43	30,677	6,089	143,219
961.63	31,291	6,197	149,416
961.83	31,818	6,311	155,727
962.03	32,302	6,412	162,139
962.23	32,625	6,493	168,631
962.43	33,067	6,569	175,201
962.63	33,497	6,656	181,857
962.83	33,906	6,740	188,597
963.03	34,315	6,822	195,419
963.23	34,595	6,891	202,310
963.43	34,886	6,948	209,258

963.63	35,123	7,001	216,259
963.83	35,327	7,045	223,304
964.03	35,553	7,088	230,392
964.23	35,725	7,128	237,520
964.43	35,822	7,155	244,675
964.63	35,941	7,176	251,851
964.83	36,016	7,196	259,047
965.03	36,091	7,211	266,258
965.23	36,178	7,227	273,485
965.43	36,231	7,241	280,725
965.63	36,253	7,248	287,974
965.83	36,264	7,252	295,226
966.03	36,274	7,254	302,479
966.23	36,274	7,255	309,734
966.43	36,274	7,255	316,989
966.63	36,274	7,255	324,244
966.83	36,274	7,255	331,499
967.03	36,274	7,255	338,753
967.23	36,274	7,255	346,008
967.43	36,274	7,255	353,263
967.63	36,274	7,255	360,518
967.83	36,274	7,255	367,773
968.03	36,274	7,255	375,027
968.23	36,274	7,255	382,282
968.43	36,274	7,255	389,537
968.63	36,307	7,258	396,795

Device	Routing	Invert	Outlet Devices
#1	Discarded	953.63'	0.060 in/hr Exfiltration over Surface area
#2	Primary	958.79'	13.0' long + 14.0 ' /' SideZ x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Secondary	959.09'	8.0' long + 25.0 ' /' SideZ 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=0.02 cfs @ 22.11 hrs HW=954.89' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

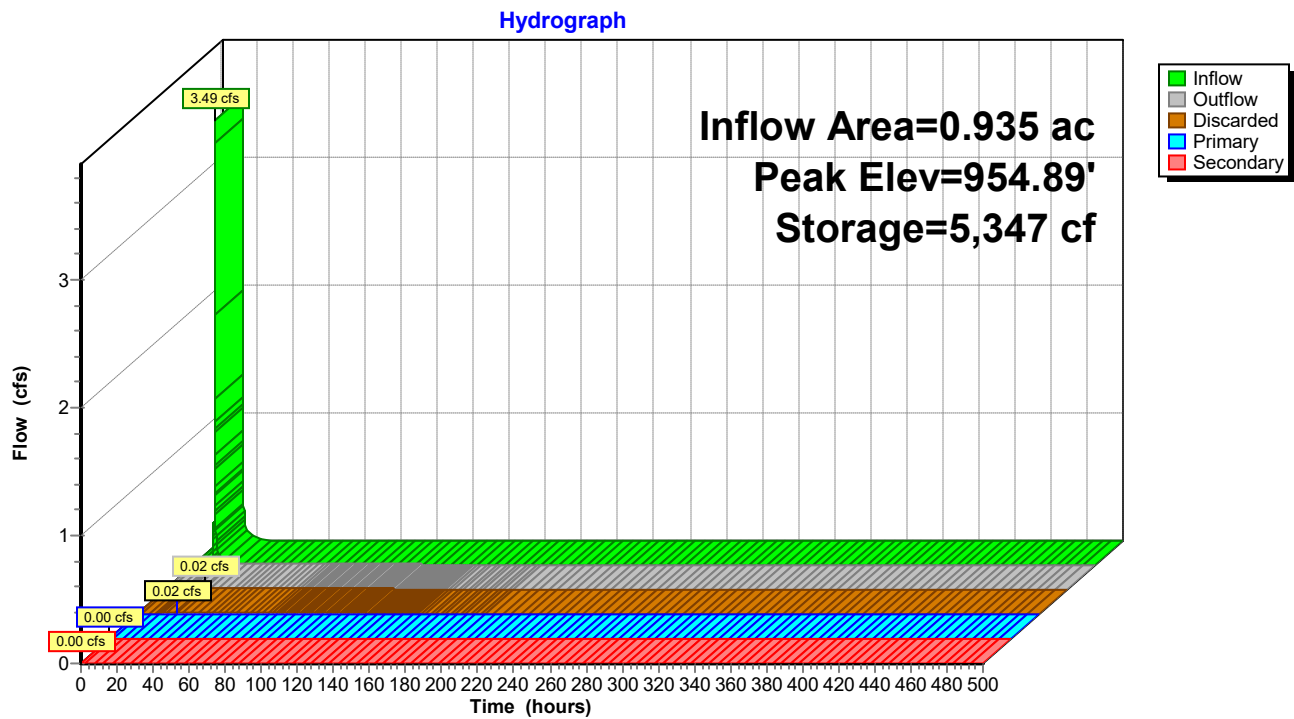
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.63' TW=0.00' (Dynamic Tailwater)

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

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.63' TW=0.00' (Dynamic Tailwater)

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

Pond 13P: Ex-8 Wetland



Summary for Pond 15P: Ex-10 Depression

Inflow Area = 0.778 ac, 0.00% Impervious, Inflow Depth = 0.59" for 2-Year event
 Inflow = 0.75 cfs @ 12.15 hrs, Volume= 0.038 af
 Outflow = 0.03 cfs @ 15.04 hrs, Volume= 0.038 af, Atten= 96%, Lag= 173.2 min
 Discarded = 0.03 cfs @ 15.04 hrs, Volume= 0.038 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Reach 9R : Flow over Ex-11

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 960.07' @ 15.04 hrs Surf.Area= 3,182 sf Storage= 922 cf

Plug-Flow detention time= 359.2 min calculated for 0.038 af (100% of inflow)
 Center-of-Mass det. time= 359.2 min (1,208.8 - 849.6)

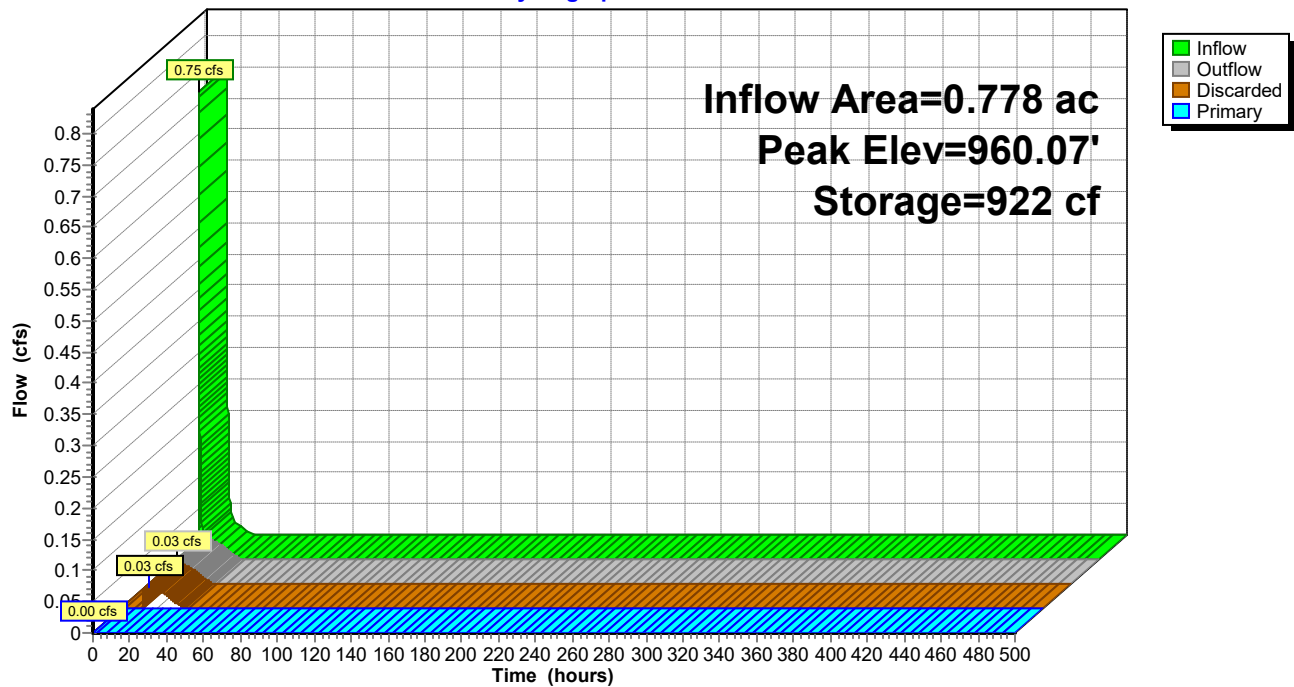
Volume	Invert	Avail.Storage	Storage Description
#1	959.47'	75,588 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
959.47	11	0	0
959.67	915	93	93
959.87	2,164	308	401
960.07	3,208	537	938
960.27	4,359	757	1,694
960.47	5,877	1,024	2,718
960.67	7,406	1,328	4,046
960.87	9,268	1,667	5,714
961.07	11,227	2,050	7,763
961.27	12,992	2,422	10,185
961.47	14,682	2,767	12,953
961.67	16,329	3,101	16,054
961.87	17,760	3,409	19,463
962.07	19,289	3,705	23,167
962.27	20,807	4,010	27,177
962.47	22,475	4,328	31,505
962.67	23,950	4,642	36,148
962.87	25,338	4,929	41,077
963.07	27,254	5,259	46,336
963.27	29,052	5,631	51,966
963.47	29,482	5,853	57,820
963.67	29,633	5,911	63,731
963.87	29,644	5,928	69,659
964.07	29,644	5,929	75,588

Device	Routing	Invert	Outlet Devices
#1	Discarded	959.47'	0.450 in/hr Exfiltration over Surface area
#2	Primary	960.83'	15.0' long + 75.0 ' SideZ x 7.0' 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65

2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Discarded OutFlow Max=0.03 cfs @ 15.04 hrs HW=960.07' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=959.47' TW=960.83' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)**Pond 15P: Ex-10 Depression**

Hydrograph



Summary for Pond 39P: Pr-2 Depression/ROW

Inflow Area = 4.681 ac, 22.38% Impervious, Inflow Depth = 0.65" for 2-Year event
 Inflow = 3.63 cfs @ 12.23 hrs, Volume= 0.254 af
 Outflow = 0.10 cfs @ 17.89 hrs, Volume= 0.254 af, Atten= 97%, Lag= 339.6 min
 Discarded = 0.10 cfs @ 17.89 hrs, Volume= 0.254 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Pond 41P : Pr-6 Wetland
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 959.57' @ 17.89 hrs Surf.Area= 10,034 sf Storage= 7,658 cf

Plug-Flow detention time= 966.4 min calculated for 0.254 af (100% of inflow)
 Center-of-Mass det. time= 966.4 min (1,817.1 - 850.7)

Volume	Invert	Avail.Storage	Storage Description
#1	957.84'	1,523,832 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

01518_0022_northrup_grumman_solar_ROW_250605*MSE 24-hr 3 2-Year Rainfall=2.85"*

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
957.84	11	0	0
958.04	592	60	60
958.24	1,658	225	285
958.44	2,745	440	726
958.64	4,026	677	1,403
958.84	5,210	924	2,326
959.04	6,286	1,150	3,476
959.24	7,287	1,357	4,833
959.44	8,805	1,609	6,442
959.64	10,710	1,951	8,394
959.84	12,755	2,347	10,740
960.04	14,897	2,765	13,506
960.24	17,050	3,195	16,700
960.44	19,171	3,622	20,322
960.64	21,356	4,053	24,375
960.84	23,530	4,489	28,864
961.04	25,672	4,920	33,784
961.24	27,825	5,350	39,134
961.44	30,247	5,807	44,941
961.64	32,690	6,294	51,234
961.84	35,758	6,845	58,079
962.04	39,127	7,488	65,568
962.24	43,066	8,219	73,787
962.44	49,191	9,226	83,013
962.64	56,554	10,574	93,587
962.84	65,229	12,178	105,766
963.04	73,539	13,877	119,642
963.24	79,136	15,268	134,910
963.44	84,271	16,341	151,251
963.64	89,502	17,377	168,628
963.84	95,788	18,529	187,157
964.04	101,299	19,709	206,866
964.24	106,143	20,744	227,610
964.44	110,341	21,648	249,258
964.64	114,367	22,471	271,729
964.84	118,661	23,303	295,032
965.04	123,473	24,213	319,245
965.24	128,586	25,206	344,451
965.44	135,808	26,439	370,891
965.64	140,049	27,586	398,476
965.84	144,000	28,405	426,881
966.04	146,949	29,095	455,976
966.24	149,511	29,646	485,622
966.44	151,707	30,122	515,744
966.64	153,440	30,515	546,258
966.84	154,656	30,810	577,068
967.04	156,109	31,076	608,145
967.24	157,487	31,360	639,504
967.44	158,951	31,644	671,148
967.64	160,877	31,983	703,131

967.84	162,697	32,357	735,488
968.04	164,925	32,762	768,250
968.24	166,819	33,174	801,425
968.44	168,272	33,509	834,934
968.64	169,456	33,773	868,707
968.84	170,630	34,009	902,715
969.04	171,727	34,236	936,951
969.24	172,718	34,445	971,396
969.44	173,730	34,645	1,006,040
969.64	174,591	34,832	1,040,872
969.84	175,387	34,998	1,075,870
970.04	176,055	35,144	1,111,014
970.24	176,647	35,270	1,146,285
970.44	177,152	35,380	1,181,665
970.64	177,669	35,482	1,217,147
970.84	178,207	35,588	1,252,734
971.04	178,670	35,688	1,288,422
971.24	179,155	35,783	1,324,204
971.44	179,424	35,858	1,360,062
971.64	179,650	35,907	1,395,970
971.84	179,833	35,948	1,431,918
972.04	180,102	35,993	1,467,911
972.24	180,425	36,053	1,503,964
972.35	180,812	19,868	1,523,832

Device	Routing	Invert	Outlet Devices
#1	Discarded	957.84'	0.450 in/hr Exfiltration over Surface area
#2	Primary	962.36'	10.0' long + 40.0 ' SideZ x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#3	Secondary	962.98'	10.0' long + 7.0 ' SideZ x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.10 cfs @ 17.89 hrs HW=959.57' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.10 cfs)

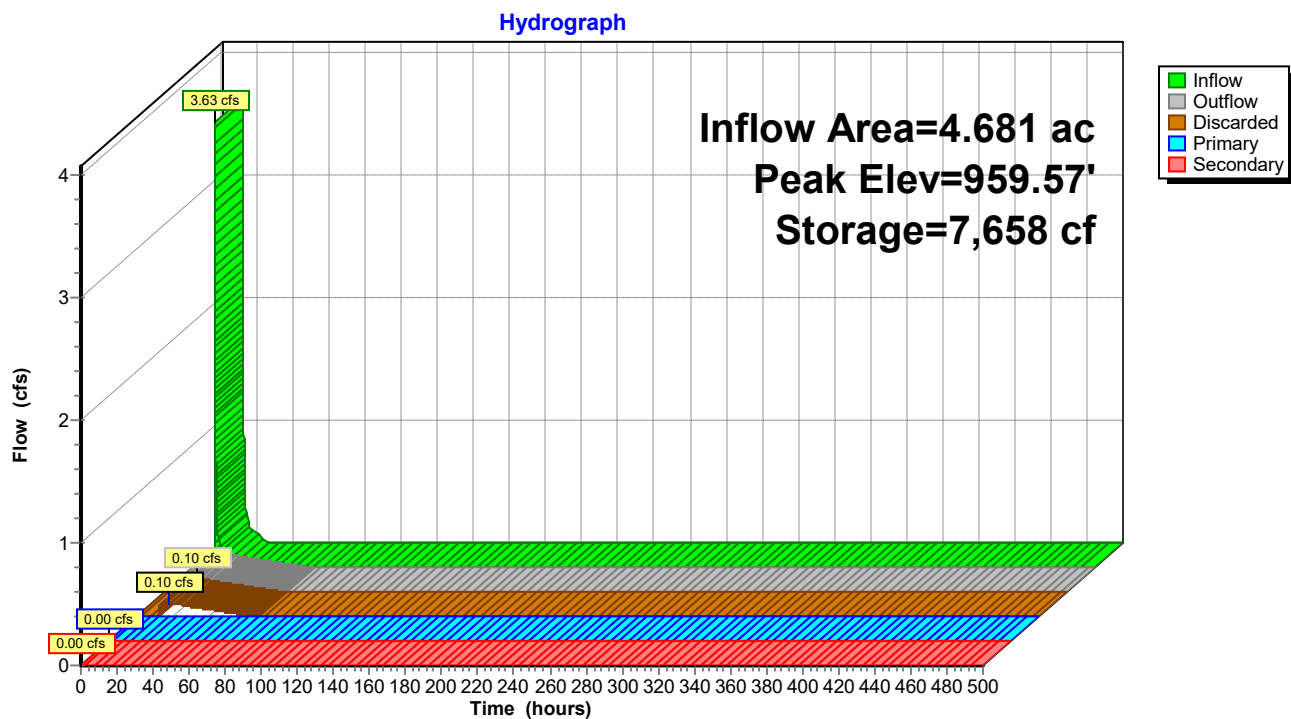
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=957.84' TW=955.89' (Dynamic Tailwater)

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

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=957.84' TW=0.00' (Dynamic Tailwater)

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

Pond 39P: Pr-2 Depression/ROW



Summary for Pond 41P: Pr-6 Wetland

Inflow Area = 8.791 ac, 25.29% Impervious, Inflow Depth = 0.22" for 2-Year event
 Inflow = 2.25 cfs @ 12.22 hrs, Volume= 0.162 af
 Outflow = 0.02 cfs @ 23.74 hrs, Volume= 0.162 af, Atten= 99%, Lag= 691.1 min
 Discarded = 0.02 cfs @ 23.74 hrs, Volume= 0.162 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 957.39' @ 23.74 hrs Surf.Area= 13,186 sf Storage= 6,350 cf

Plug-Flow detention time= 3,995.3 min calculated for 0.162 af (100% of inflow)
 Center-of-Mass det. time= 3,995.5 min (4,860.0 - 864.5)

Volume	Invert	Avail.Storage	Storage Description
#1	955.89'	1,210,988 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

01518_0022_northrup_grumman_solar_ROW_250605*MSE 24-hr 3 2-Year Rainfall=2.85"*

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
955.89	11	0	0
956.10	22	3	3
956.29	75	9	13
956.49	560	64	76
956.70	3,229	398	474
956.89	6,921	964	1,438
957.10	9,225	1,695	3,134
957.29	11,862	2,003	5,137
957.49	14,596	2,646	7,783
957.70	17,190	3,338	11,120
957.89	19,838	3,518	14,638
958.10	22,023	4,395	19,033
958.29	23,907	4,363	23,397
958.49	25,984	4,989	28,386
958.70	27,846	5,652	34,038
958.89	29,784	5,475	39,513
959.10	31,700	6,456	45,969
959.29	33,734	6,216	52,185
959.49	35,865	6,960	59,145
959.70	38,481	7,806	66,951
959.89	41,269	7,576	74,527
960.10	46,005	9,164	83,691
960.29	54,638	9,561	93,252
960.49	62,162	11,680	104,932
960.70	67,328	13,596	118,529
960.89	72,387	13,273	131,801
961.10	76,876	15,673	147,474
961.29	82,290	15,121	162,595
961.49	90,578	17,287	179,882
961.70	99,437	19,952	199,833
961.89	108,113	19,717	219,550
962.10	114,840	23,410	242,961
962.29	122,041	22,504	265,464
962.49	130,663	25,270	290,735
962.70	138,015	28,211	318,946
962.89	143,849	26,777	345,723
963.10	150,189	30,874	376,597
963.29	154,710	28,965	405,562
963.49	157,971	31,268	436,830
963.70	160,102	33,398	470,228
963.89	161,609	30,563	500,791
964.10	162,718	34,054	534,845
964.29	163,655	31,005	565,850
964.49	164,365	32,802	598,652
964.70	164,935	34,577	633,229
964.89	165,323	31,375	664,603
965.10	165,678	34,755	699,359
965.29	166,001	31,510	730,868
965.49	166,367	33,237	764,105
965.70	166,765	34,979	799,084

965.89	167,056	31,713	830,797
966.10	167,271	35,104	865,901
966.29	167,476	31,801	897,702
966.49	167,530	33,501	931,203
966.70	167,530	35,181	966,384
966.89	167,530	31,831	998,215
967.10	167,530	35,181	1,033,396
967.29	167,530	31,831	1,065,227
967.49	167,530	33,506	1,098,733
967.70	167,530	35,181	1,133,914
967.89	167,530	31,831	1,165,745
968.10	167,583	35,187	1,200,931
968.16	167,626	10,056	1,210,988

Device	Routing	Invert	Outlet Devices
#1	Discarded	955.89'	0.060 in/hr Exfiltration over Surface area
#2	Primary	958.16'	15.0' long + 40.0 ' SideZ 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=0.02 cfs @ 23.74 hrs HW=957.39' (Free Discharge)

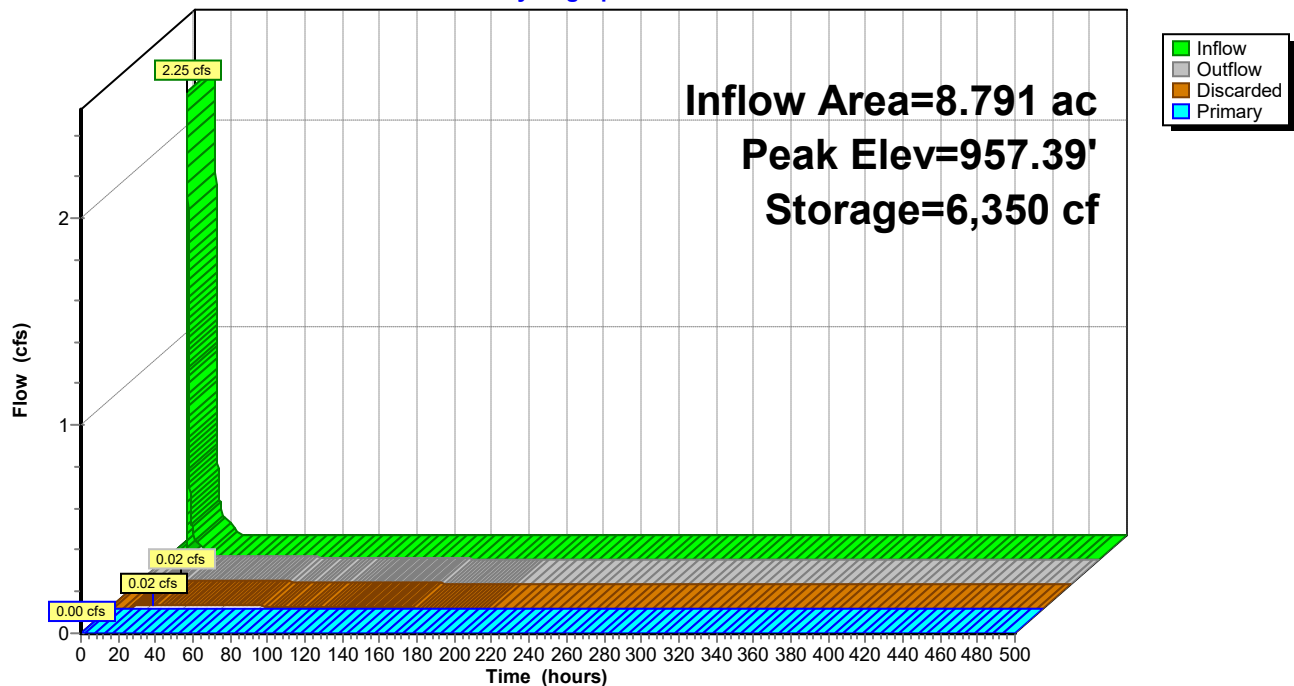
↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=955.89' TW=0.00' (Dynamic Tailwater)

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

Pond 41P: Pr-6 Wetland

Hydrograph



Summary for Pond 42P: Pr-8 Wetland

Inflow Area = 0.935 ac, 53.55% Impervious, Inflow Depth = 1.76" for 2-Year event
 Inflow = 3.49 cfs @ 12.10 hrs, Volume= 0.138 af
 Outflow = 0.02 cfs @ 22.11 hrs, Volume= 0.138 af, Atten= 100%, Lag= 600.8 min
 Discarded = 0.02 cfs @ 22.11 hrs, Volume= 0.138 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 954.89' @ 22.11 hrs Surf.Area= 11,081 sf Storage= 5,347 cf

Plug-Flow detention time= 3,694.4 min calculated for 0.138 af (100% of inflow)
 Center-of-Mass det. time= 3,694.6 min (4,485.5 - 790.8)

Volume	Invert	Avail.Storage	Storage Description
#1	953.63'	396,795 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
953.63	11	0	0
953.83	86	10	10
954.03	355	44	54
954.23	1,938	229	283
954.43	6,060	800	1,083
954.63	9,494	1,555	2,638
954.83	10,775	2,027	4,665
955.03	11,754	2,253	6,918
955.23	12,475	2,423	9,341
955.43	13,078	2,555	11,896
955.63	13,778	2,686	14,582
955.83	14,402	2,818	17,400
956.03	14,876	2,928	20,328
956.23	15,586	3,046	23,374
956.43	16,189	3,177	26,551
956.63	16,641	3,283	29,834
956.83	17,308	3,395	33,229
957.03	17,879	3,519	36,748
957.23	18,406	3,629	40,377
957.43	18,901	3,731	44,107
957.63	19,569	3,847	47,954
957.83	20,064	3,963	51,918
958.03	20,581	4,064	55,982
958.23	21,076	4,166	60,148
958.43	21,679	4,275	64,423
958.63	22,324	4,400	68,824
958.83	22,949	4,527	73,351
959.03	23,573	4,652	78,003
959.23	24,230	4,780	82,783
959.43	24,886	4,912	87,695
959.63	25,435	5,032	92,727
959.83	26,059	5,149	97,876
960.03	26,522	5,258	103,134
960.23	27,060	5,358	108,493
960.43	27,674	5,473	113,966
960.63	28,384	5,606	119,572
960.83	28,976	5,736	125,308
961.03	29,515	5,849	131,157
961.23	30,214	5,973	137,130
961.43	30,677	6,089	143,219
961.63	31,291	6,197	149,416
961.83	31,818	6,311	155,727
962.03	32,302	6,412	162,139
962.23	32,625	6,493	168,631
962.43	33,067	6,569	175,201
962.63	33,497	6,656	181,857
962.83	33,906	6,740	188,597
963.03	34,315	6,822	195,419
963.23	34,595	6,891	202,310
963.43	34,886	6,948	209,258

963.63	35,123	7,001	216,259
963.83	35,327	7,045	223,304
964.03	35,553	7,088	230,392
964.23	35,725	7,128	237,520
964.43	35,822	7,155	244,675
964.63	35,941	7,176	251,851
964.83	36,016	7,196	259,047
965.03	36,091	7,211	266,258
965.23	36,178	7,227	273,485
965.43	36,231	7,241	280,725
965.63	36,253	7,248	287,974
965.83	36,264	7,252	295,226
966.03	36,274	7,254	302,479
966.23	36,274	7,255	309,734
966.43	36,274	7,255	316,989
966.63	36,274	7,255	324,244
966.83	36,274	7,255	331,499
967.03	36,274	7,255	338,753
967.23	36,274	7,255	346,008
967.43	36,274	7,255	353,263
967.63	36,274	7,255	360,518
967.83	36,274	7,255	367,773
968.03	36,274	7,255	375,027
968.23	36,274	7,255	382,282
968.43	36,274	7,255	389,537
968.63	36,307	7,258	396,795

Device	Routing	Invert	Outlet Devices
#1	Discarded	953.63'	0.060 in/hr Exfiltration over Surface area
#2	Primary	958.79'	13.0' long + 14.0 ' /' SideZ x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Secondary	959.09'	8.0' long + 25.0 ' /' SideZ 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=0.02 cfs @ 22.11 hrs HW=954.89' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

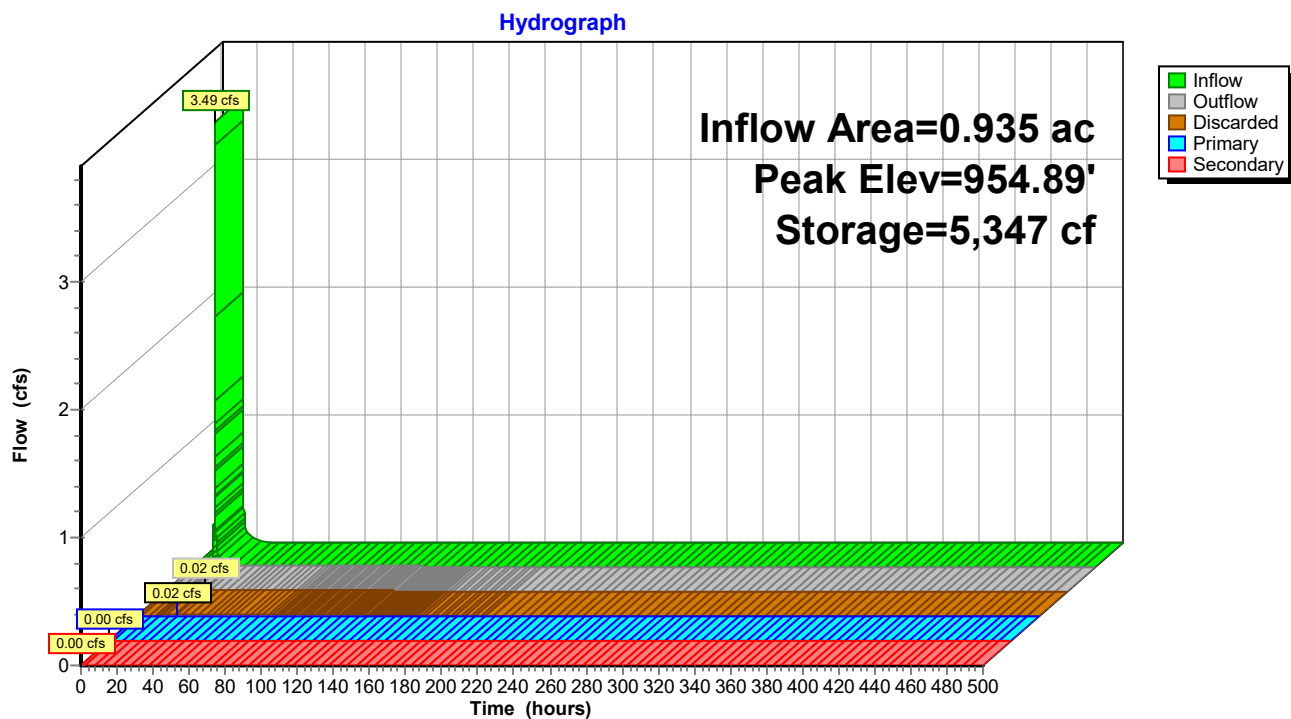
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.63' TW=0.00' (Dynamic Tailwater)

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

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.63' TW=0.00' (Dynamic Tailwater)

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

Pond 42P: Pr-8 Wetland



Summary for Pond 44P: Pr-10 Depression

Inflow Area = 0.778 ac, 20.49% Impervious, Inflow Depth = 0.55" for 2-Year event
 Inflow = 0.70 cfs @ 12.15 hrs, Volume= 0.036 af
 Outflow = 0.03 cfs @ 15.03 hrs, Volume= 0.036 af, Atten= 95%, Lag= 173.2 min
 Discarded = 0.03 cfs @ 15.03 hrs, Volume= 0.036 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Reach 10R : Flow over Ex-11

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Peak Elev= 960.04' @ 15.03 hrs Surf.Area= 3,047 sf Storage= 842 cf

Plug-Flow detention time= 343.3 min calculated for 0.036 af (100% of inflow)

Center-of-Mass det. time= 343.3 min (1,195.8 - 852.5)

Volume	Invert	Avail.Storage	Storage Description
#1	959.47'	75,588 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

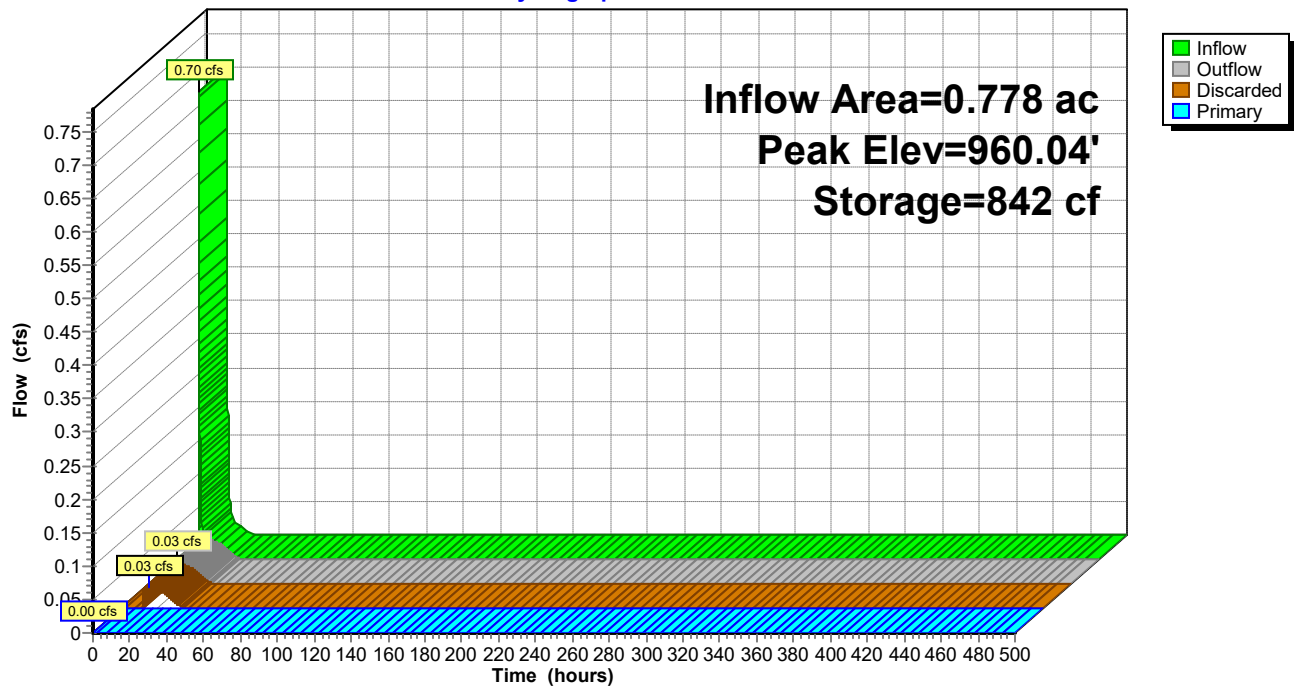
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
959.47	11	0	0
959.67	915	93	93
959.87	2,164	308	401
960.07	3,208	537	938
960.27	4,359	757	1,694
960.47	5,877	1,024	2,718
960.67	7,406	1,328	4,046
960.87	9,268	1,667	5,714
961.07	11,227	2,050	7,763
961.27	12,992	2,422	10,185
961.47	14,682	2,767	12,953
961.67	16,329	3,101	16,054
961.87	17,760	3,409	19,463
962.07	19,289	3,705	23,167
962.27	20,807	4,010	27,177
962.47	22,475	4,328	31,505
962.67	23,950	4,642	36,148
962.87	25,338	4,929	41,077
963.07	27,254	5,259	46,336
963.27	29,052	5,631	51,966
963.47	29,482	5,853	57,820
963.67	29,633	5,911	63,731
963.87	29,644	5,928	69,659
964.07	29,644	5,929	75,588

Device	Routing	Invert	Outlet Devices
#1	Discarded	959.47'	0.450 in/hr Exfiltration over Surface area
#2	Primary	960.83'	15.0' long + 75.0 ' SideZ x 7.0' 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65

2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Discarded OutFlow Max=0.03 cfs @ 15.03 hrs HW=960.04' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=959.47' TW=960.83' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)**Pond 44P: Pr-10 Depression**

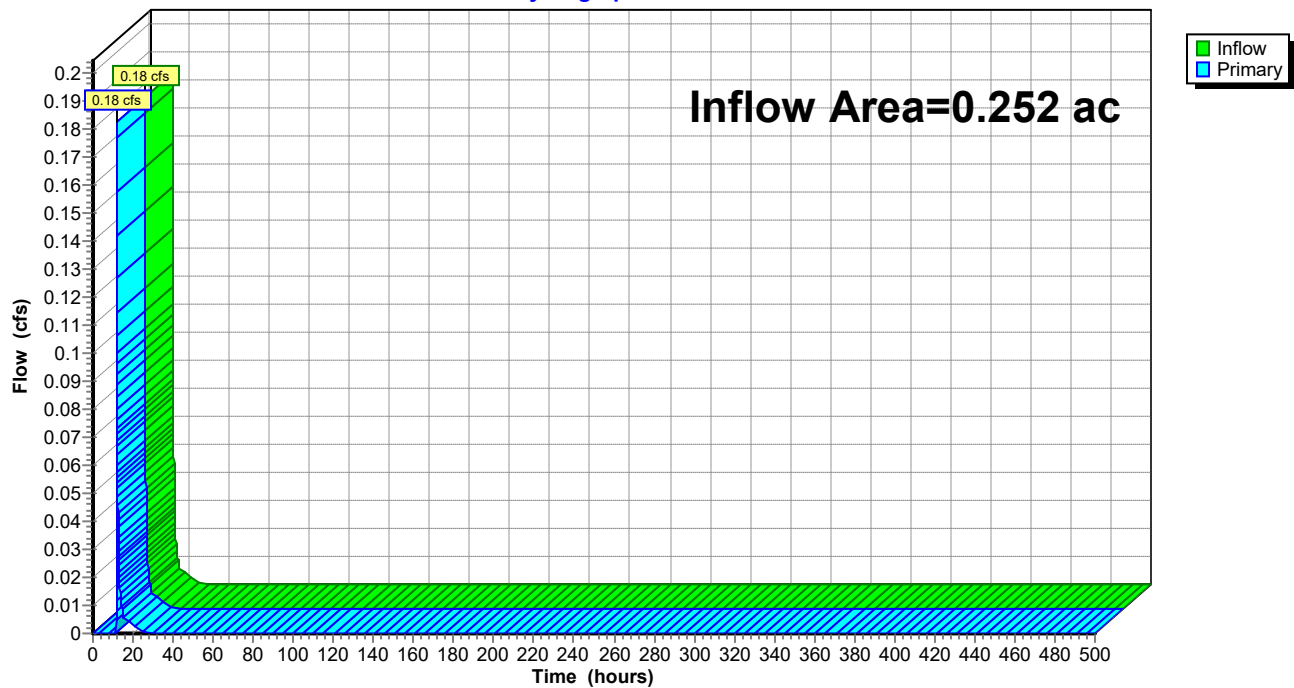
Hydrograph



Summary for Link 15L: Ex - NW ROW

Inflow Area = 0.252 ac, 0.00% Impervious, Inflow Depth = 0.44" for 2-Year event
Inflow = 0.18 cfs @ 12.13 hrs, Volume= 0.009 af
Primary = 0.18 cfs @ 12.13 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

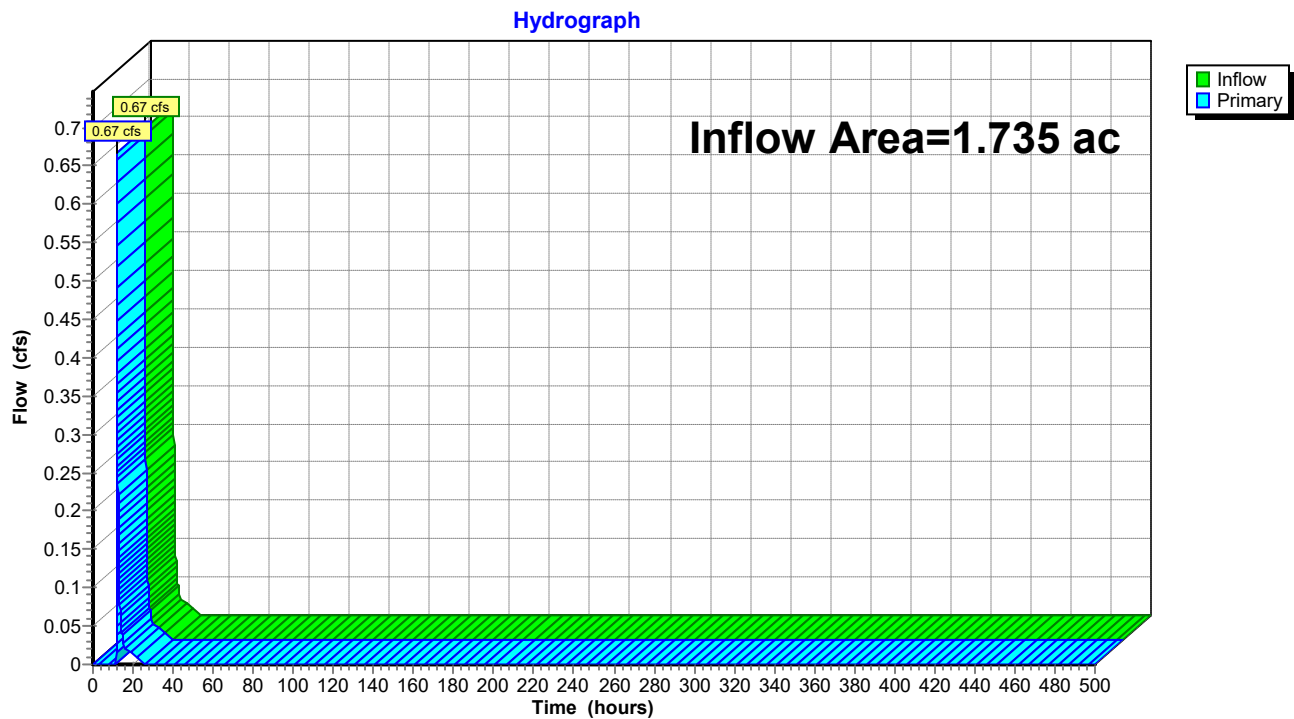
Link 15L: Ex - NW ROW**Hydrograph**

Summary for Link 16L: Ex - SE ROW

Inflow Area = 1.735 ac, 0.00% Impervious, Inflow Depth = 0.28" for 2-Year event
Inflow = 0.67 cfs @ 12.18 hrs, Volume= 0.041 af
Primary = 0.67 cfs @ 12.18 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 16L: Ex - SE ROW

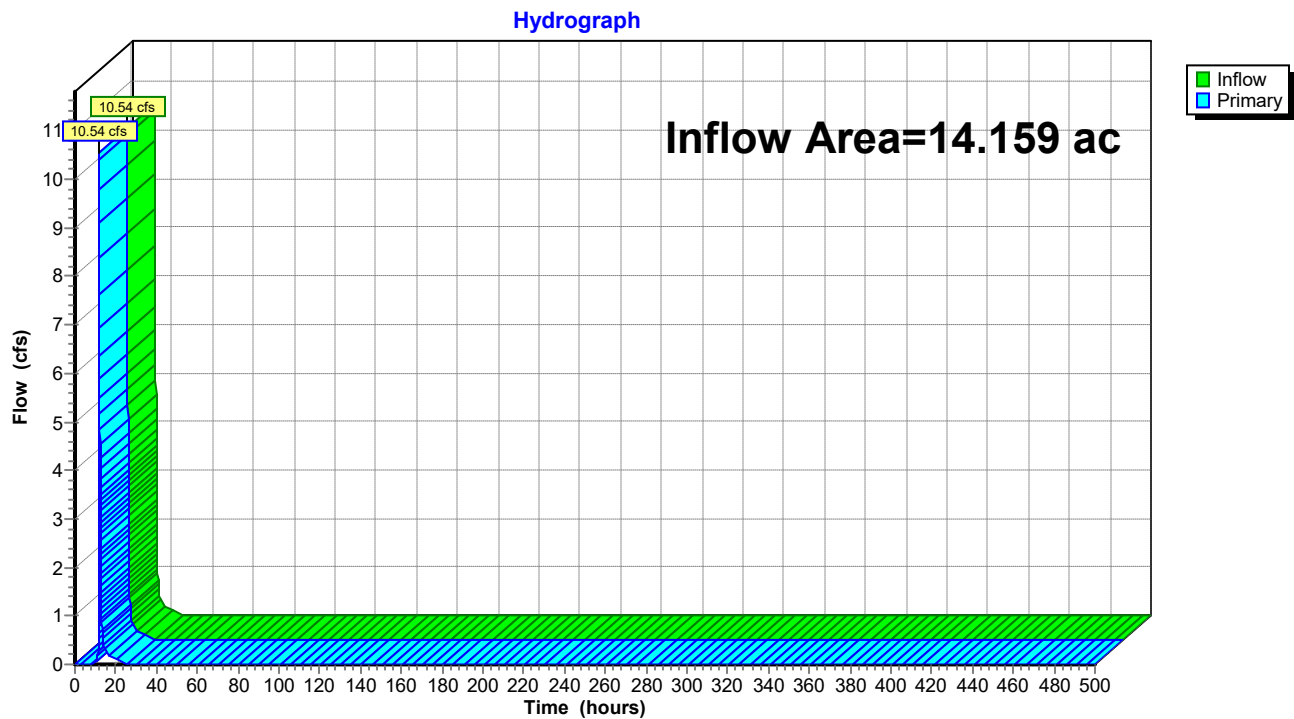


Summary for Link 17L: Ex - Northeast Offsite Wetland/ROW

Inflow Area = 14.159 ac, 19.02% Impervious, Inflow Depth = 0.42" for 2-Year event
Inflow = 10.54 cfs @ 12.14 hrs, Volume= 0.495 af
Primary = 10.54 cfs @ 12.14 hrs, Volume= 0.495 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 17L: Ex - Northeast Offsite Wetland/ROW



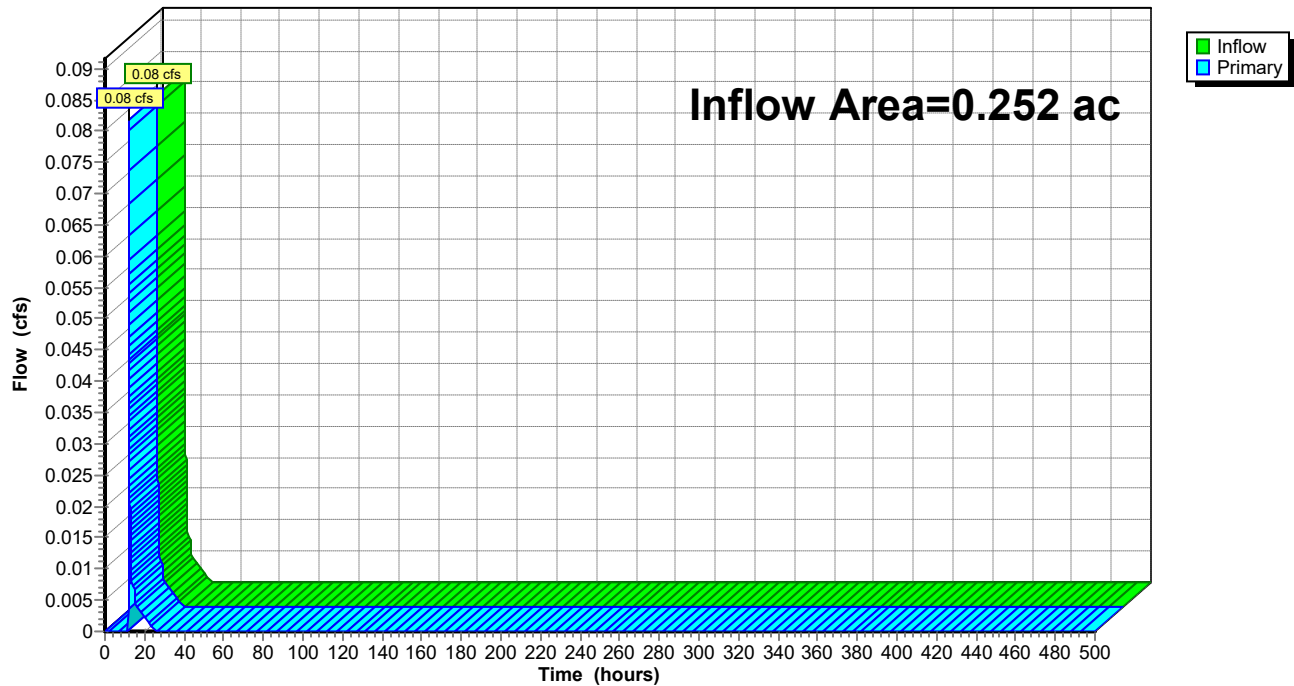
Summary for Link 46L: Pr - NW ROW

Inflow Area = 0.252 ac, 8.88% Impervious, Inflow Depth = 0.28" for 2-Year event
Inflow = 0.08 cfs @ 12.15 hrs, Volume= 0.006 af
Primary = 0.08 cfs @ 12.15 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 46L: Pr - NW ROW

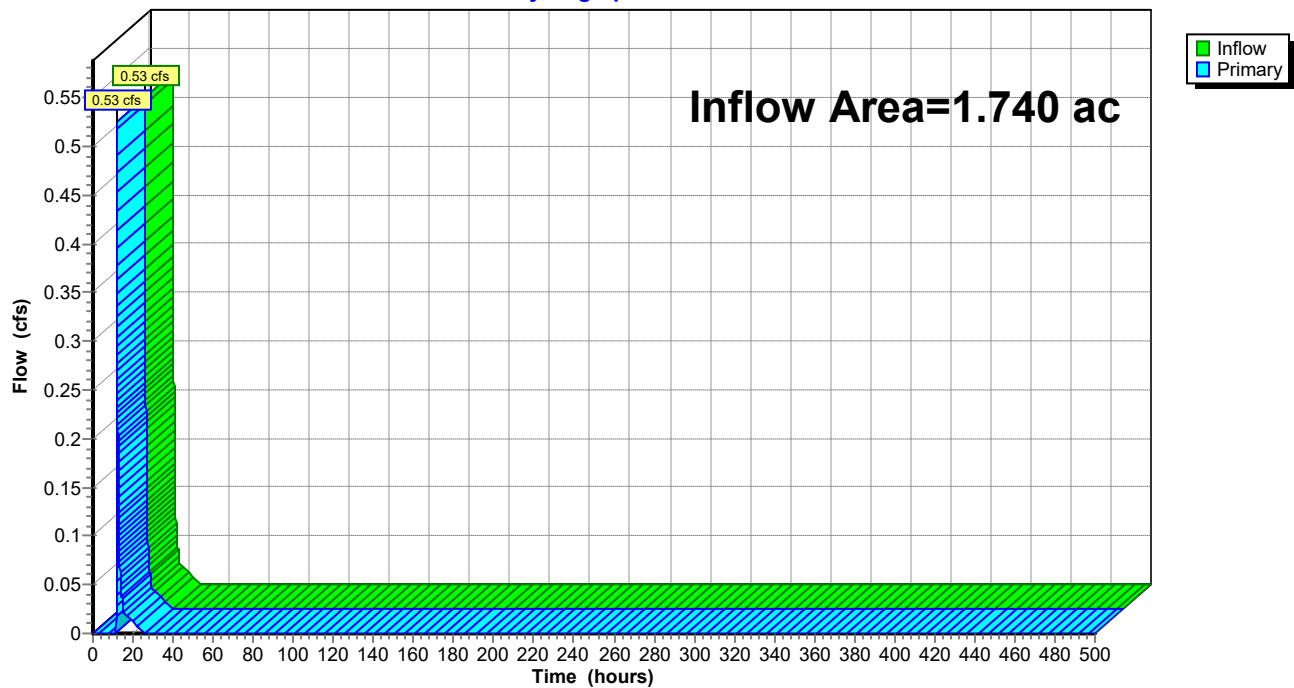
Hydrograph



Summary for Link 47L: Pr - SE ROW

Inflow Area = 1.740 ac, 16.32% Impervious, Inflow Depth = 0.24" for 2-Year event
Inflow = 0.53 cfs @ 12.19 hrs, Volume= 0.035 af
Primary = 0.53 cfs @ 12.19 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

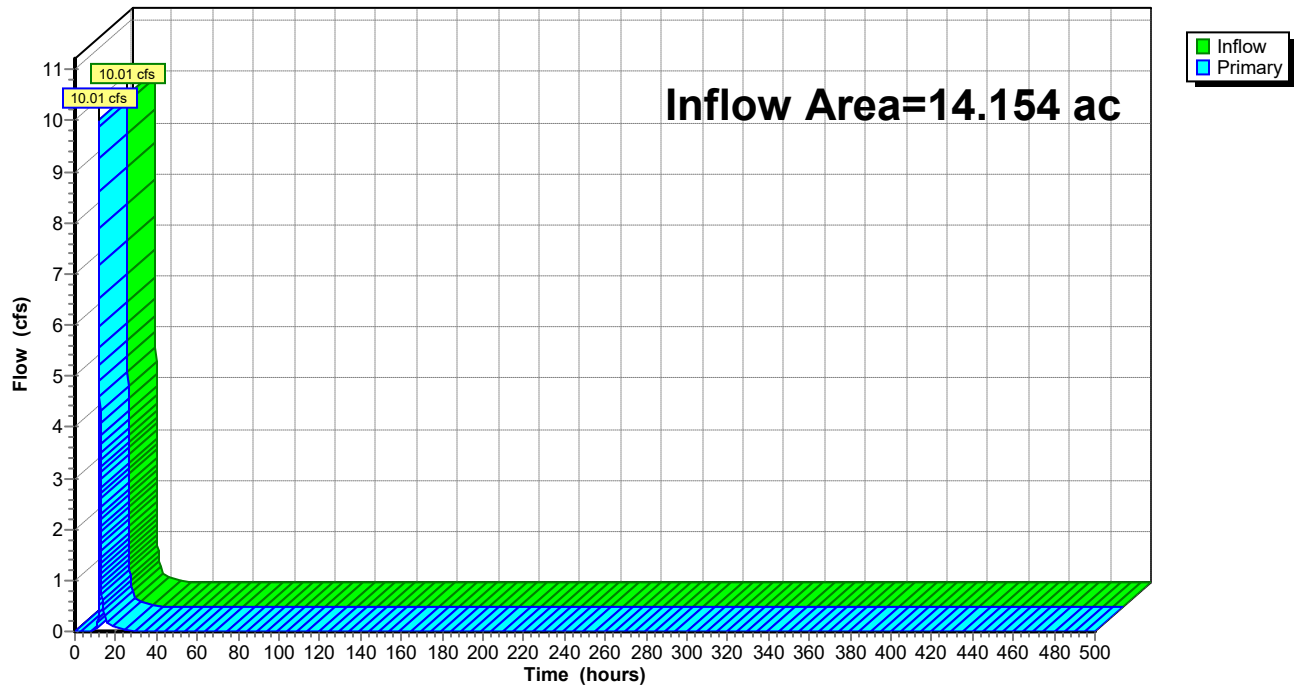
Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 47L: Pr - SE ROW**Hydrograph**

Summary for Link 48L: Pr - Northeast Offsite Wetland/ROW

Inflow Area = 14.154 ac, 31.25% Impervious, Inflow Depth = 0.40" for 2-Year event
Inflow = 10.01 cfs @ 12.14 hrs, Volume= 0.476 af
Primary = 10.01 cfs @ 12.14 hrs, Volume= 0.476 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 48L: Pr - Northeast Offsite Wetland/ROW**Hydrograph**

Time span=0.00-500.00 hrs, dt=0.01 hrs, 50001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Ex-1	Runoff Area=10,988 sf 0.00% Impervious Runoff Depth=1.16" Flow Length=137' Slope=0.0431 '/' Tc=4.8 min CN=65 Runoff=0.56 cfs 0.024 af
Subcatchment 2S: Ex-2	Runoff Area=158,203 sf 0.00% Impervious Runoff Depth=1.55" Flow Length=448' Slope=0.0297 '/' Tc=12.6 min CN=71 Runoff=7.76 cfs 0.468 af
Subcatchment 3S: Ex-2_offsite	Runoff Area=45,720 sf 17.58% Impervious Runoff Depth=1.83" Flow Length=689' Slope=0.0254 '/' Tc=17.2 min CN=75 Runoff=2.31 cfs 0.160 af
Subcatchment 8S: Ex-6	Runoff Area=174,708 sf 8.35% Impervious Runoff Depth=1.35" Flow Length=346' Slope=0.0254 '/' Tc=12.0 min CN=68 Runoff=7.50 cfs 0.450 af
Subcatchment 9S: Ex-7	Runoff Area=58,257 sf 0.00% Impervious Runoff Depth=1.62" Flow Length=274' Slope=0.0262 '/' Tc=8.8 min CN=72 Runoff=3.52 cfs 0.180 af
Subcatchment 10S: Ex-8	Runoff Area=40,750 sf 53.55% Impervious Runoff Depth=3.03" Tc=1.2 min CN=89 Runoff=5.73 cfs 0.236 af
Subcatchment 11S: Ex-7_offsite	Runoff Area=134,831 sf 54.05% Impervious Runoff Depth=2.84" Flow Length=349' Slope=0.0330 '/' Tc=5.9 min CN=87 Runoff=15.94 cfs 0.732 af
Subcatchment 12S: Ex-10	Runoff Area=33,911 sf 0.00% Impervious Runoff Depth=1.41" Flow Length=167' Slope=0.0242 '/' Tc=6.7 min CN=69 Runoff=1.96 cfs 0.092 af
Subcatchment 13S: Ex-6_offsite	Runoff Area=4,310 sf 0.00% Impervious Runoff Depth=1.16" Flow Length=137' Slope=0.0253 '/' Tc=6.2 min CN=65 Runoff=0.20 cfs 0.010 af
Subcatchment 14S: Ex-11	Runoff Area=41,655 sf 0.00% Impervious Runoff Depth=1.28" Flow Length=215' Slope=0.0224 '/' Tc=9.0 min CN=67 Runoff=1.94 cfs 0.102 af
Subcatchment 15S: Pr-7_offsite	Runoff Area=134,831 sf 54.05% Impervious Runoff Depth=2.84" Flow Length=349' Slope=0.0330 '/' Tc=5.9 min CN=87 Runoff=15.94 cfs 0.732 af
Subcatchment 22S: Pr-1	Runoff Area=10,988 sf 8.88% Impervious Runoff Depth=0.87" Flow Length=137' Slope=0.0431 '/' Tc=5.1 min UI Adjusted CN=60 Runoff=0.39 cfs 0.018 af
Subcatchment 23S: Pr-2	Runoff Area=158,203 sf 23.77% Impervious Runoff Depth=1.41" Flow Length=448' Slope=0.0297 '/' Tc=11.9 min UI Adjusted CN=69 Runoff=7.18 cfs 0.427 af
Subcatchment 24S: Pr-2_offsite	Runoff Area=45,720 sf 17.58% Impervious Runoff Depth=1.83" Flow Length=689' Slope=0.0255 '/' Tc=17.2 min CN=75 Runoff=2.31 cfs 0.160 af
Subcatchment 29S: Pr-6	Runoff Area=174,708 sf 29.31% Impervious Runoff Depth=1.22" Flow Length=346' Slope=0.0254 '/' Tc=11.4 min UI Adjusted CN=66 Runoff=6.83 cfs 0.408 af
Subcatchment 30S: Pr-7	Runoff Area=58,015 sf 1.95% Impervious Runoff Depth=1.35" Flow Length=274' Slope=0.0267 '/' Tc=9.7 min CN=68 Runoff=2.74 cfs 0.149 af

Subcatchment 31S: Pr-8 Runoff Area=40,750 sf 53.55% Impervious Runoff Depth=3.03"
Tc=1.2 min CN=89 Runoff=5.73 cfs 0.236 af

Subcatchment 33S: Pr-10 Runoff Area=33,911 sf 20.49% Impervious Runoff Depth=1.35"
Flow Length=167' Slope=0.0242 '/' Tc=6.3 min UI Adjusted CN=68 Runoff=1.90 cfs 0.087 af

Subcatchment 34S: Pr-11 Runoff Area=41,897 sf 12.94% Impervious Runoff Depth=1.16"
Flow Length=215' Slope=0.0219 '/' Tc=9.1 min UI Adjusted CN=65 Runoff=1.71 cfs 0.093 af

Subcatchment 35S: Pr-6_offsite Runoff Area=4,310 sf 0.00% Impervious Runoff Depth=1.16"
Flow Length=137' Slope=0.0253 '/' Tc=6.2 min CN=65 Runoff=0.20 cfs 0.010 af

Reach 9R: Flow over Ex-11 Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.035 L=120.0' S=0.0094 '/' Capacity=715.26 cfs Outflow=0.00 cfs 0.000 af

Reach 10R: Flow over Ex-11 Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.035 L=120.0' S=0.0094 '/' Capacity=715.26 cfs Outflow=0.00 cfs 0.000 af

Pond 9P: Ex-2 Depression/ROW Peak Elev=960.45' Storage=20,579 cf Inflow=9.90 cfs 0.628 af
Discarded=0.20 cfs 0.628 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.628 af

Pond 12P: Ex-6 Wetland Peak Elev=958.09' Storage=18,769 cf Inflow=7.63 cfs 0.460 af
Discarded=0.03 cfs 0.460 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.460 af

Pond 13P: Ex-8 Wetland Peak Elev=955.24' Storage=9,511 cf Inflow=5.73 cfs 0.236 af
Discarded=0.02 cfs 0.236 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.236 af

Pond 15P: Ex-10 Depression Peak Elev=960.44' Storage=2,570 cf Inflow=1.96 cfs 0.092 af
Discarded=0.06 cfs 0.092 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.092 af

Pond 39P: Pr-2 Depression/ROW Peak Elev=960.37' Storage=19,098 cf Inflow=9.28 cfs 0.588 af
Discarded=0.19 cfs 0.588 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.19 cfs 0.588 af

Pond 41P: Pr-6 Wetland Peak Elev=958.00' Storage=16,983 cf Inflow=6.97 cfs 0.417 af
Discarded=0.03 cfs 0.417 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.417 af

Pond 42P: Pr-8 Wetland Peak Elev=955.24' Storage=9,511 cf Inflow=5.73 cfs 0.236 af
Discarded=0.02 cfs 0.236 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.236 af

Pond 44P: Pr-10 Depression Peak Elev=960.42' Storage=2,431 cf Inflow=1.90 cfs 0.087 af
Discarded=0.06 cfs 0.087 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.087 af

Link 15L: Ex - NW ROW Inflow=0.56 cfs 0.024 af
Primary=0.56 cfs 0.024 af

Link 16L: Ex - SE ROW Inflow=1.94 cfs 0.102 af
Primary=1.94 cfs 0.102 af

Link 17L: Ex - Northeast Offsite Wetland/ROW Inflow=19.13 cfs 0.912 af
Primary=19.13 cfs 0.912 af

Link 46L: Pr - NW ROW

Inflow=0.39 cfs 0.018 af
Primary=0.39 cfs 0.018 af

Link 47L: Pr - SE ROW

Inflow=1.71 cfs 0.093 af
Primary=1.71 cfs 0.093 af

Link 48L: Pr - Northeast Offsite Wetland/ROW

Inflow=18.26 cfs 0.882 af
Primary=18.26 cfs 0.882 af

Total Runoff Area = 32.293 ac Runoff Volume = 4.776 af Average Runoff Depth = 1.77"
77.01% Pervious = 24.870 ac 22.99% Impervious = 7.423 ac

Summary for Subcatchment 1S: Ex-1

Runoff = 0.56 cfs @ 12.13 hrs, Volume= 0.024 af, Depth= 1.16"
 Routed to Link 15L : Ex - NW ROW

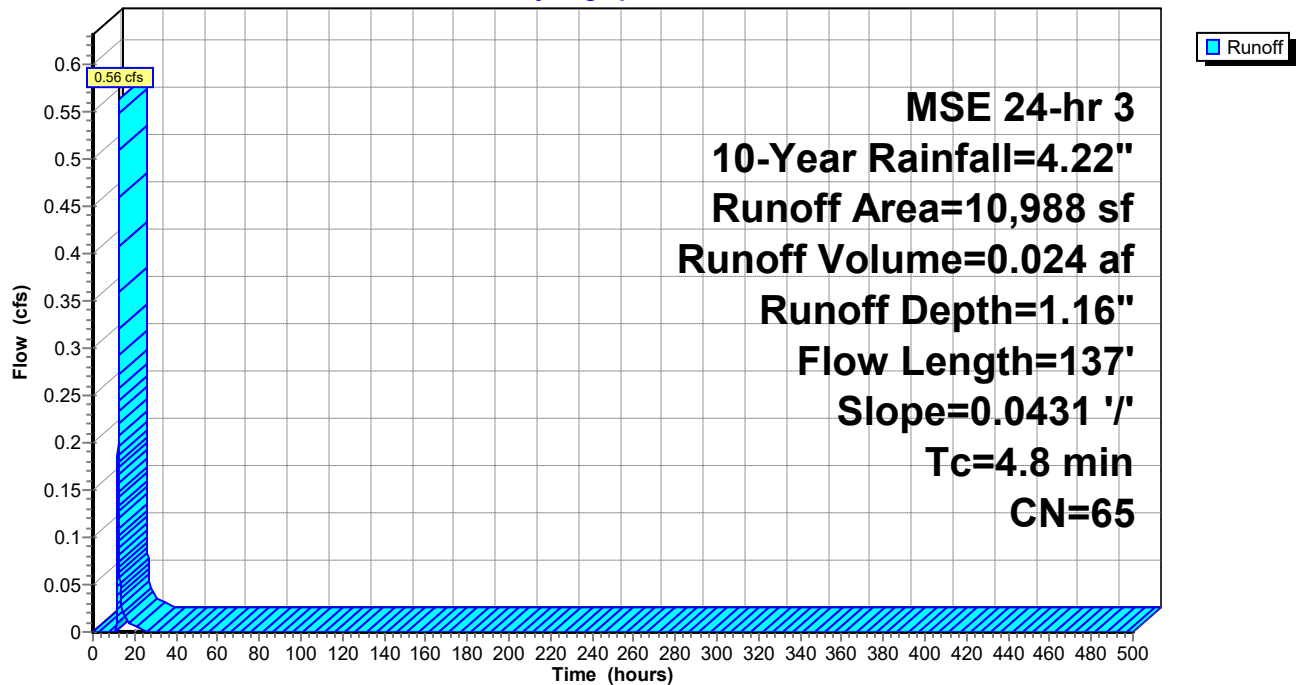
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

Area (sf)	CN	Description
* 10,988	65	Pasture/grassland/range, HSG B
10,988	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	137	0.0431	0.48		Lag/CN Method,

Subcatchment 1S: Ex-1

Hydrograph



Summary for Subcatchment 2S: Ex-2

Runoff = 7.76 cfs @ 12.21 hrs, Volume= 0.468 af, Depth= 1.55"
 Routed to Pond 9P : Ex-2 Depression/ROW

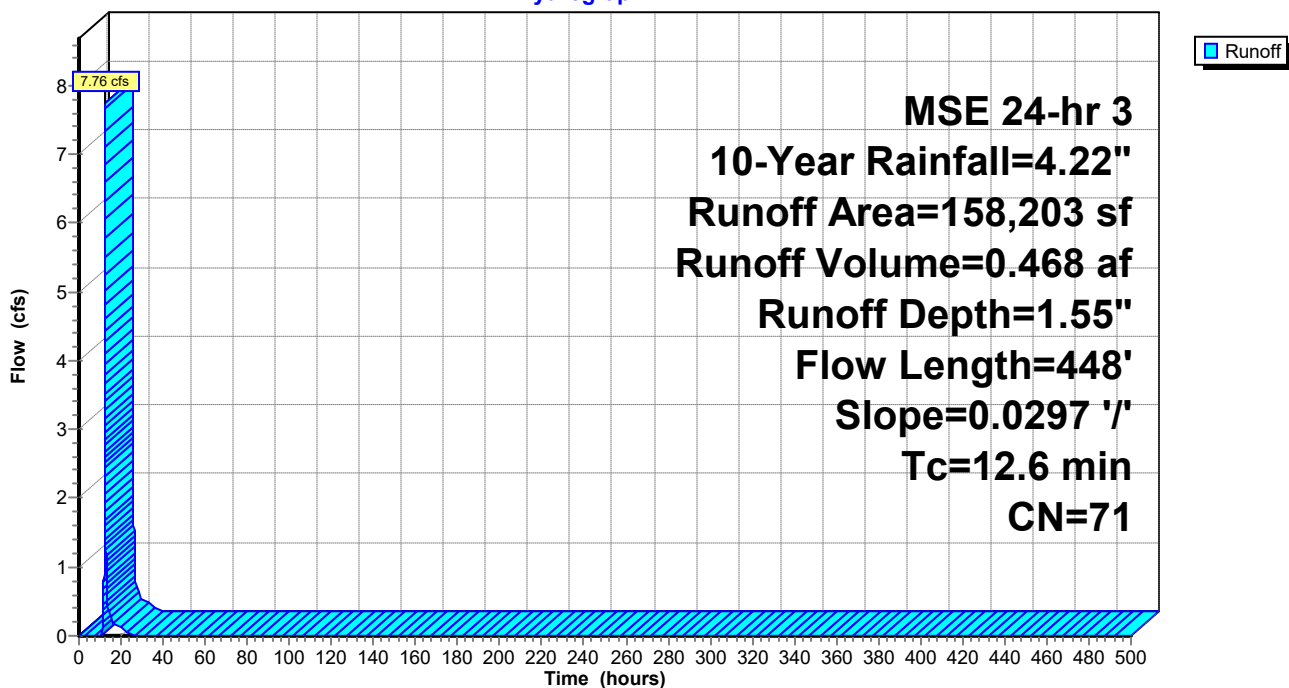
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Description
*	79,495	65	Pasture/grassland/range, HSG B
*	73,332	77	Pasture/grassland/range, HSG C
*	5,091	82	Pasture/grassland/range, HSG D
*	285	60	Woods, HSG B
	158,203	71	Weighted Average
	158,203	71	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	448	0.0297	0.59		Lag/CN Method,

Subcatchment 2S: Ex-2

Hydrograph



Summary for Subcatchment 3S: Ex-2_offsite

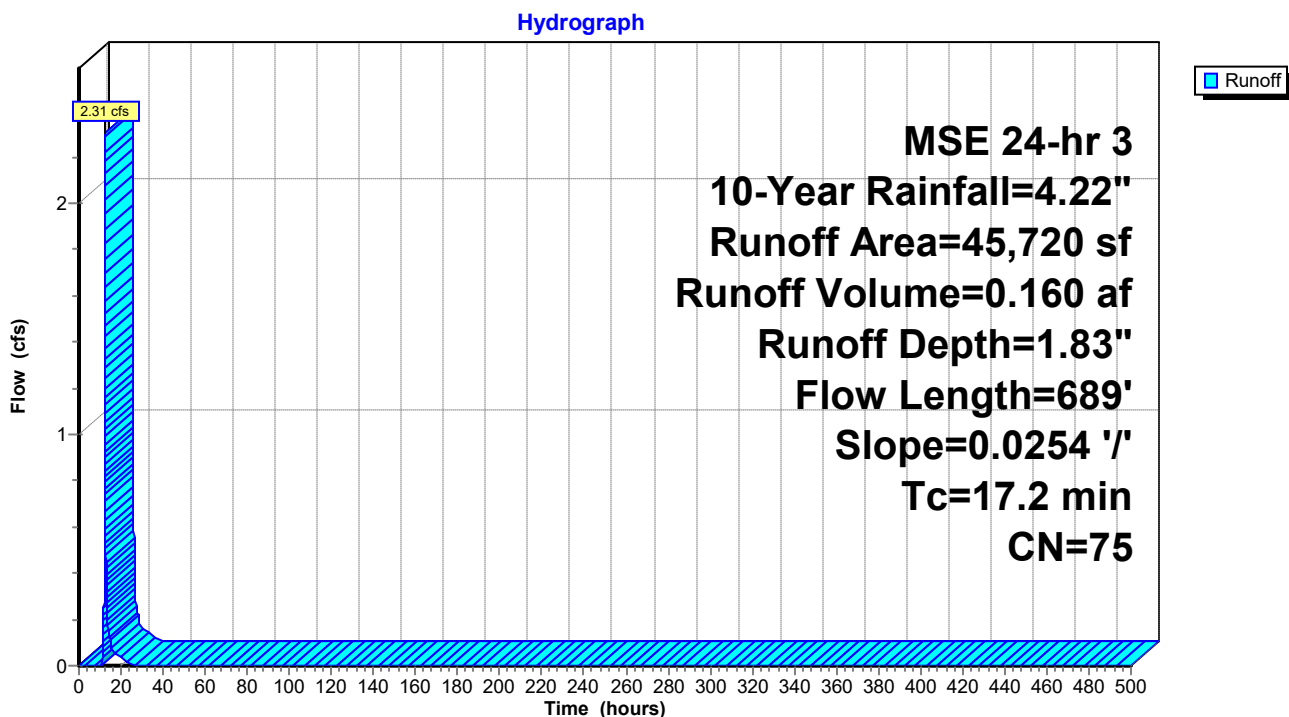
Runoff = 2.31 cfs @ 12.27 hrs, Volume= 0.160 af, Depth= 1.83"
 Routed to Pond 9P : Ex-2 Depression/ROW

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Description
*	12,116	65	Pasture/grassland/range, HSG B
*	4,797	77	Pasture/grassland/range, HSG C
*	1,486	82	Pasture/grassland/range, HSG D
*	12,181	65	Pasture/grassland/range, HSG B
*	5,469	77	Pasture/grassland/range, HSG C
*	1,635	82	Pasture/grassland/range, HSG D
*	8,036	98	Paved road
	45,720	75	Weighted Average
	37,684	70	82.42% Pervious Area
	8,036	98	17.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	689	0.0254	0.67		Lag/CN Method,

Subcatchment 3S: Ex-2_offsite



Summary for Subcatchment 8S: Ex-6

Runoff = 7.50 cfs @ 12.21 hrs, Volume= 0.450 af, Depth= 1.35"
 Routed to Pond 12P : Ex-6 Wetland

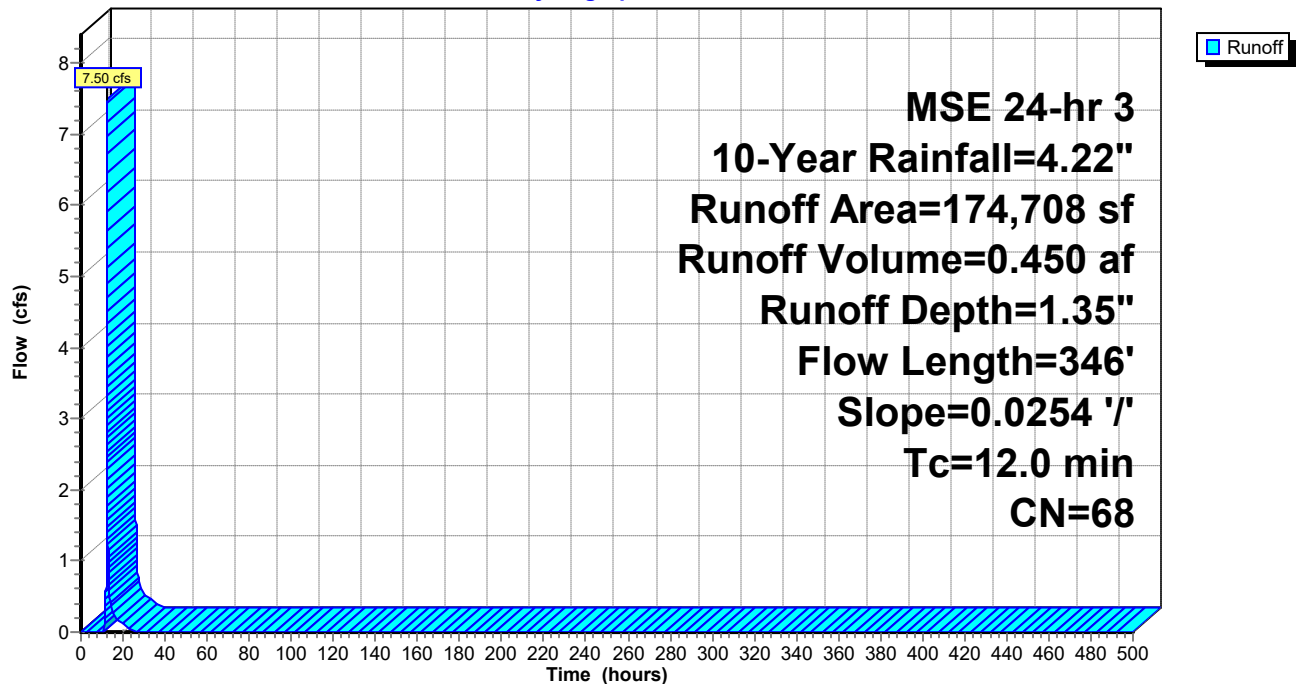
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Description
*	155,017	65	Pasture/grassland/range, HSG B
*	1,076	82	Pasture/grassland/range, HSG D
*	14,586	98	Wetland
*	4,029	60	Woods, HSG B
	174,708	68	Weighted Average
	160,122	65	91.65% Pervious Area
	14,586	98	8.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	346	0.0254	0.48		Lag/CN Method,

Subcatchment 8S: Ex-6

Hydrograph



Summary for Subcatchment 9S: Ex-7

Runoff = 3.52 cfs @ 12.17 hrs, Volume= 0.180 af, Depth= 1.62"
 Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW

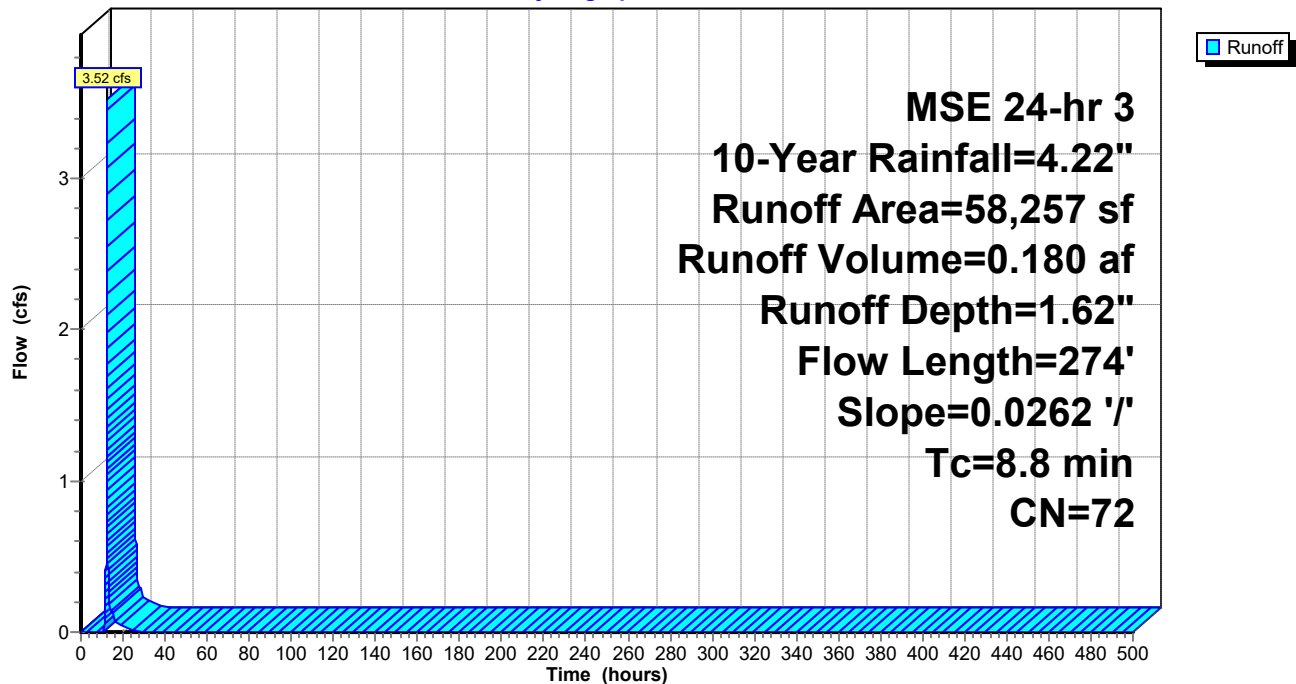
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Description
*	29,314	65	Pasture/grassland/range, HSG B
*	15,465	82	Pasture/grassland/range, HSG D
*	804	65	Pasture/grassland/range, HSG B
*	974	60	Woods, HSG B
*	11,700	79	Woods, HSG D
	58,257	72	Weighted Average
	58,257	72	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	274	0.0262	0.52		Lag/CN Method,

Subcatchment 9S: Ex-7

Hydrograph



Summary for Subcatchment 10S: Ex-8

calculated tc with lag/CN method was less than $2 \cdot dt = 1.2$ min, so set to 1.2 min

Runoff = 5.73 cfs @ 12.10 hrs, Volume= 0.236 af, Depth= 3.03"
 Routed to Pond 13P : Ex-8 Wetland

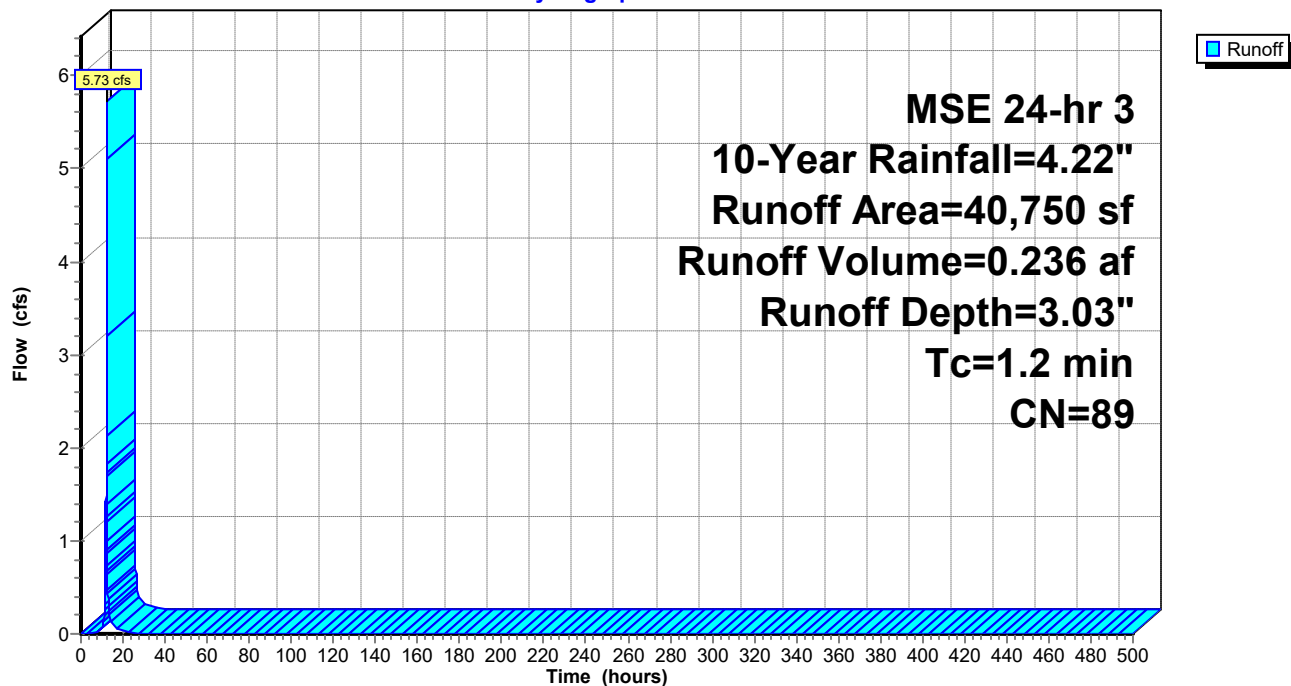
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Description
*	95	82	Pasture/grassland/range, HSG D
*	21,821	98	Wetland
*	18,834	79	Woods, HSG D
	40,750	89	Weighted Average
	18,929	79	46.45% Pervious Area
	21,821	98	53.55% Impervious Area

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

Subcatchment 10S: Ex-8

Hydrograph



Summary for Subcatchment 11S: Ex-7_offsite

Runoff = 15.94 cfs @ 12.13 hrs, Volume= 0.732 af, Depth= 2.84"
 Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW

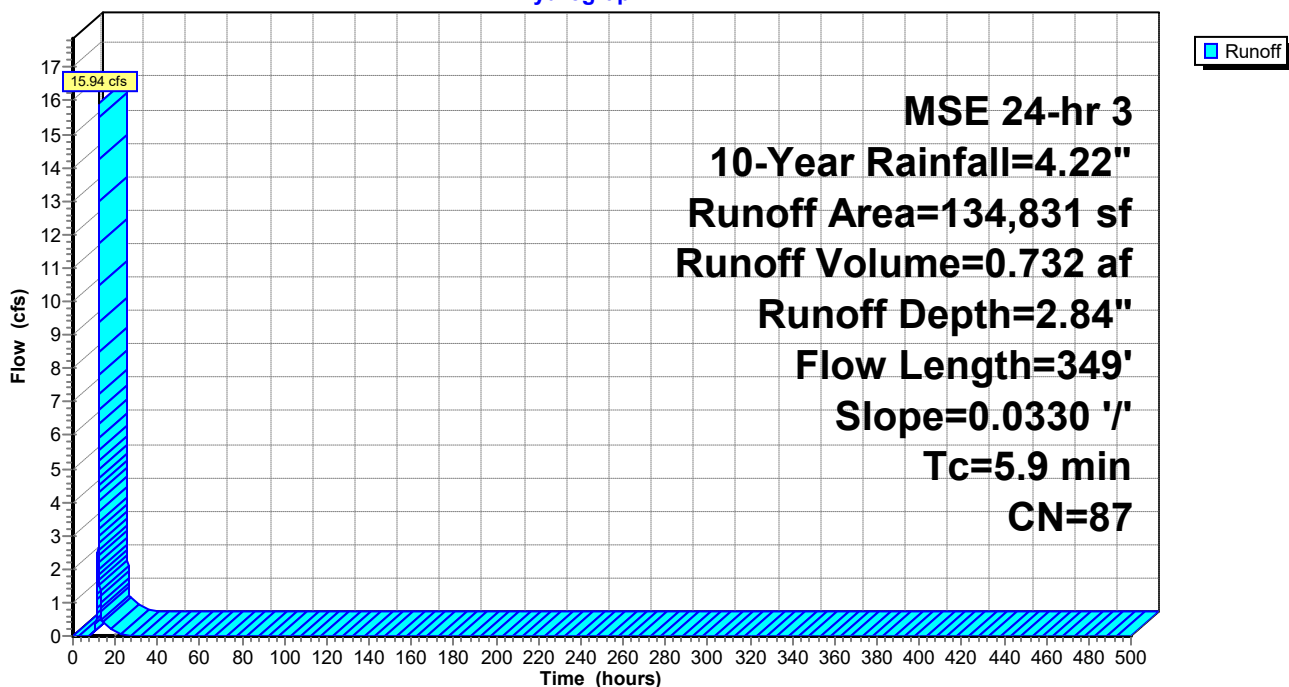
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Description
*	11,289	65	Pasture/grassland/range, HSG B
*	2,488	82	Pasture/grassland/range, HSG D
*	15,448	65	Pasture/grassland/range, HSG B
*	14,603	82	Pasture/grassland/range, HSG D
*	48	60	Woods, HSG B
*	18,084	79	Woods, HSG D
*	57,777	98	Wetland
*	15,094	98	Paved road
	134,831	87	Weighted Average
	61,960	74	45.95% Pervious Area
	72,871	98	54.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	349	0.0330	0.98		Lag/CN Method,

Subcatchment 11S: Ex-7_offsite

Hydrograph



Summary for Subcatchment 12S: Ex-10

Runoff = 1.96 cfs @ 12.15 hrs, Volume= 0.092 af, Depth= 1.41"
 Routed to Pond 15P : Ex-10 Depression

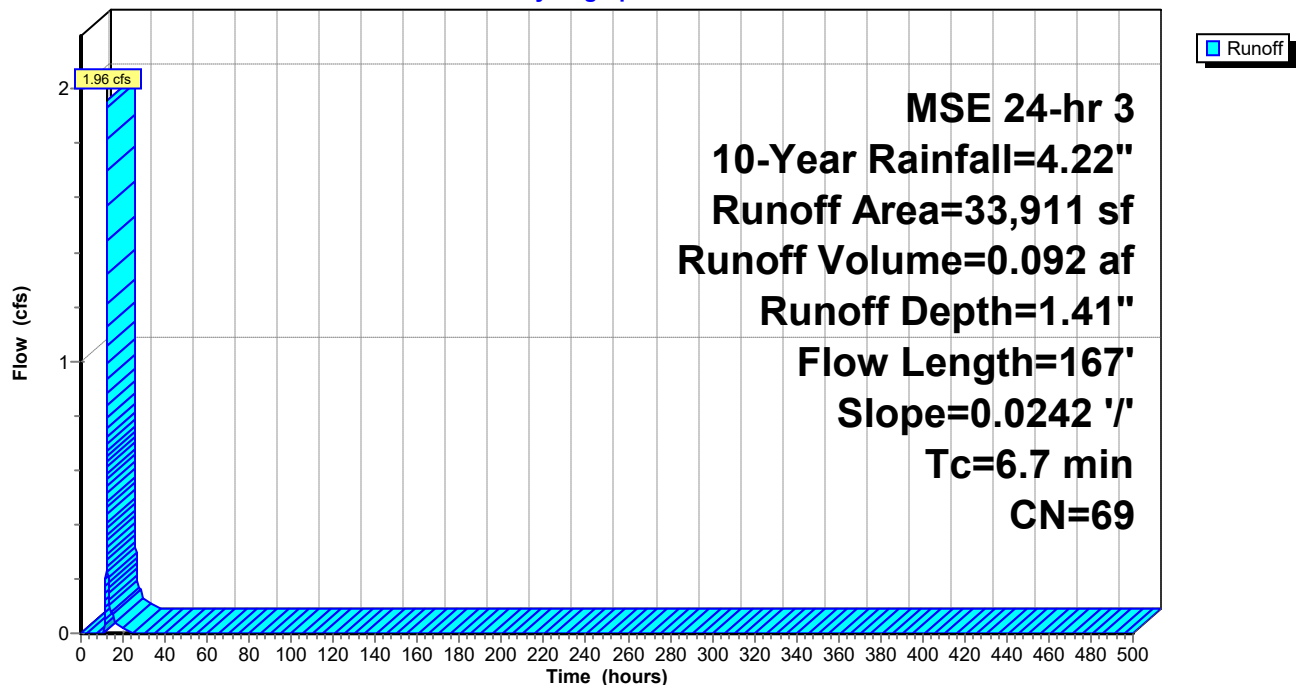
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Description
*	25,024	65	Pasture/grassland/range, HSG B
*	8,310	82	Pasture/grassland/range, HSG D
*	577	79	Woods, HSG D
	33,911	69	Weighted Average
	33,911	69	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	167	0.0242	0.42		Lag/CN Method,

Subcatchment 12S: Ex-10

Hydrograph



Summary for Subcatchment 13S: Ex-6_offsite

Runoff = 0.20 cfs @ 12.14 hrs, Volume= 0.010 af, Depth= 1.16"
 Routed to Pond 12P : Ex-6 Wetland

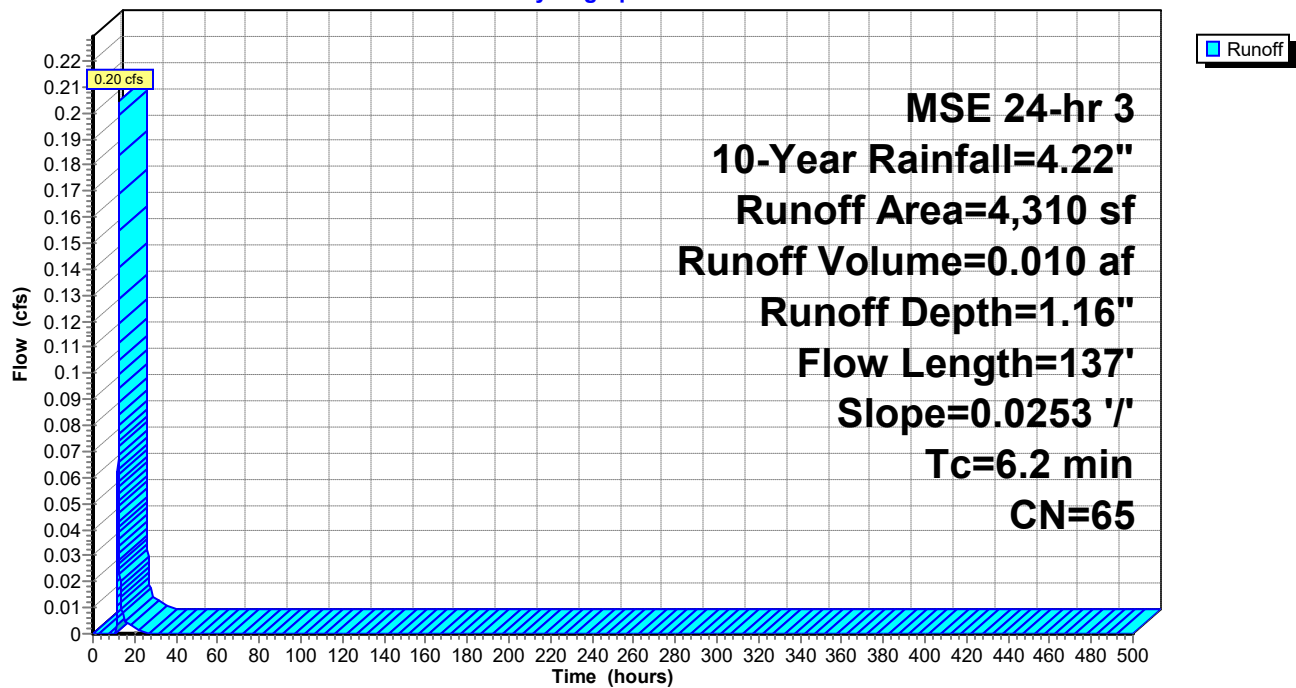
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Description
*	3,760	65	Pasture/grassland/range, HSG B
*	550	65	Pasture/grassland/range, HSG B
	4,310	65	Weighted Average
	4,310	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	137	0.0253	0.37		Lag/CN Method,

Subcatchment 13S: Ex-6_offsite

Hydrograph



Summary for Subcatchment 14S: Ex-11

Runoff = 1.94 cfs @ 12.17 hrs, Volume= 0.102 af, Depth= 1.28"
 Routed to Link 16L : Ex - SE ROW

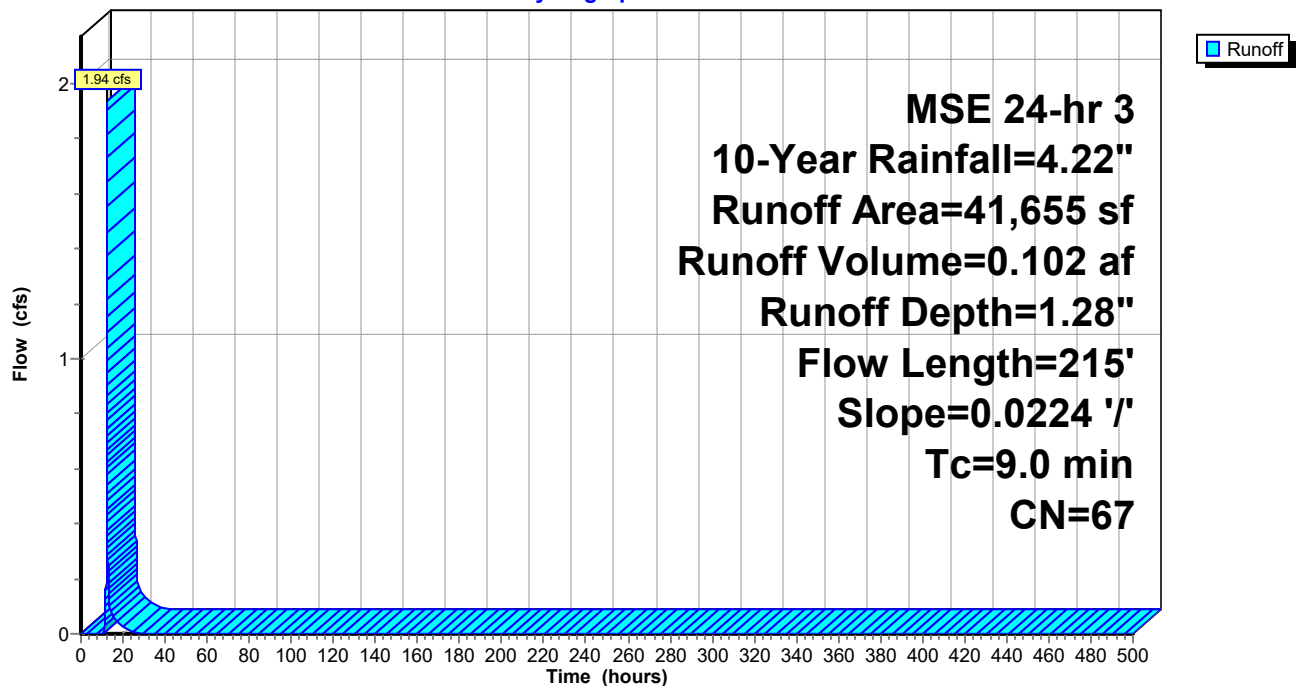
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Description
*	35,137	65	Pasture/grassland/range, HSG B
*	4,197	82	Pasture/grassland/range, HSG D
*	1,142	65	Pasture/grassland/range, HSG B
*	1,179	79	Woods, HSG D
	41,655	67	Weighted Average
	41,655	67	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	215	0.0224	0.40		Lag/CN Method,

Subcatchment 14S: Ex-11

Hydrograph



Summary for Subcatchment 15S: Pr-7_offsite

Runoff = 15.94 cfs @ 12.13 hrs, Volume= 0.732 af, Depth= 2.84"
 Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW

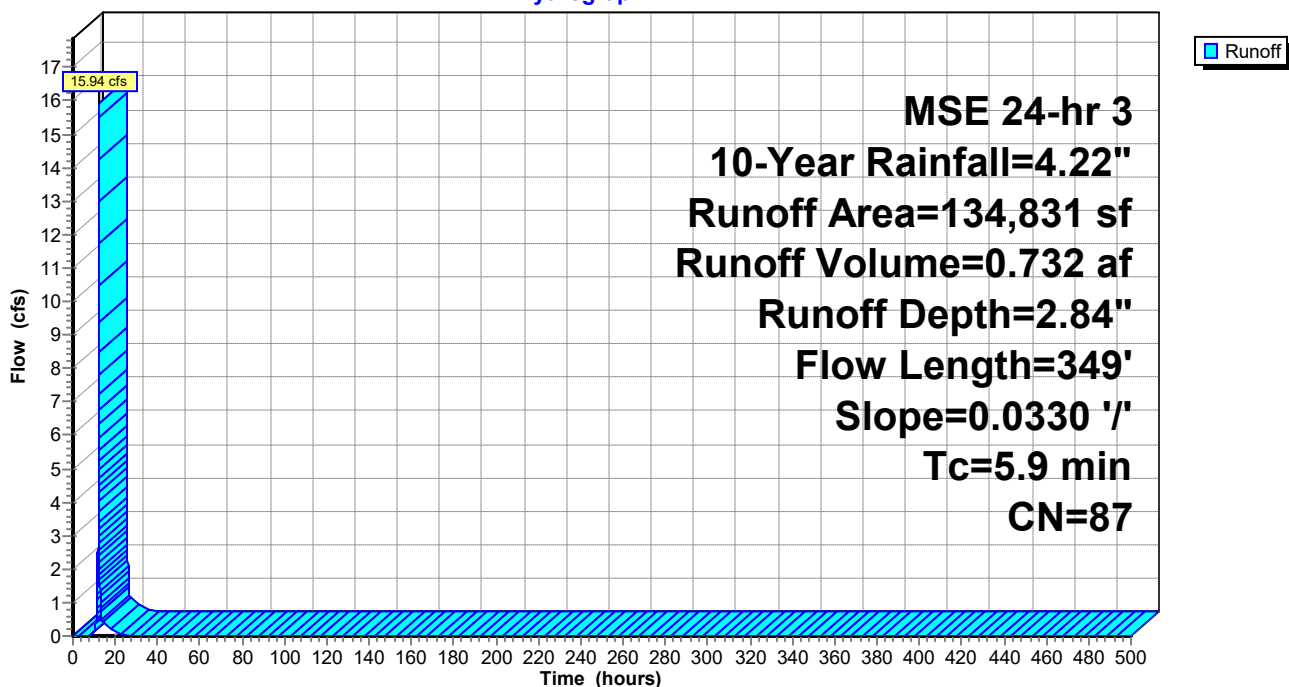
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Description
*	11,289	65	Pasture/grassland/range, HSG B
*	2,488	82	Pasture/grassland/range, HSG D
*	15,448	65	Pasture/grassland/range, HSG B
*	14,603	82	Pasture/grassland/range, HSG D
*	48	60	Woods, HSG B
*	18,084	79	Woods, HSG D
*	57,777	98	Wetland
*	15,094	98	Paved road
	134,831	87	Weighted Average
	61,960	74	45.95% Pervious Area
	72,871	98	54.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	349	0.0330	0.98		Lag/CN Method,

Subcatchment 15S: Pr-7_offsite

Hydrograph



Summary for Subcatchment 22S: Pr-1

Runoff = 0.39 cfs @ 12.13 hrs, Volume= 0.018 af, Depth= 0.87"
 Routed to Link 46L : Pr - NW ROW

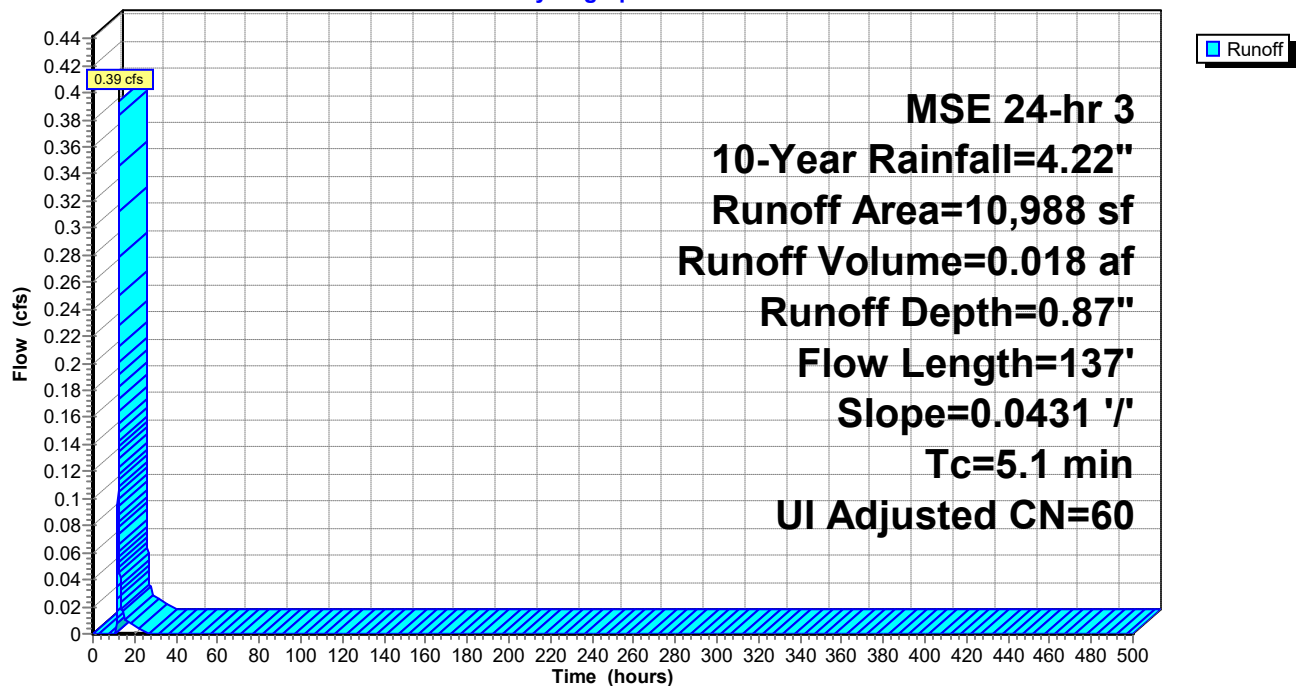
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Adj	Description
*	10,012	58		Meadow, HSG B
	976	98		Unconnected roofs, HSG B
	10,988	62	60	Weighted Average, UI Adjusted
	10,012	58	58	91.12% Pervious Area
	976	98	98	8.88% Impervious Area
	976			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	137	0.0431	0.44		Lag/CN Method,

Subcatchment 22S: Pr-1

Hydrograph



Summary for Subcatchment 23S: Pr-2

Runoff = 7.18 cfs @ 12.21 hrs, Volume= 0.427 af, Depth= 1.41"
 Routed to Pond 39P : Pr-2 Depression/ROW

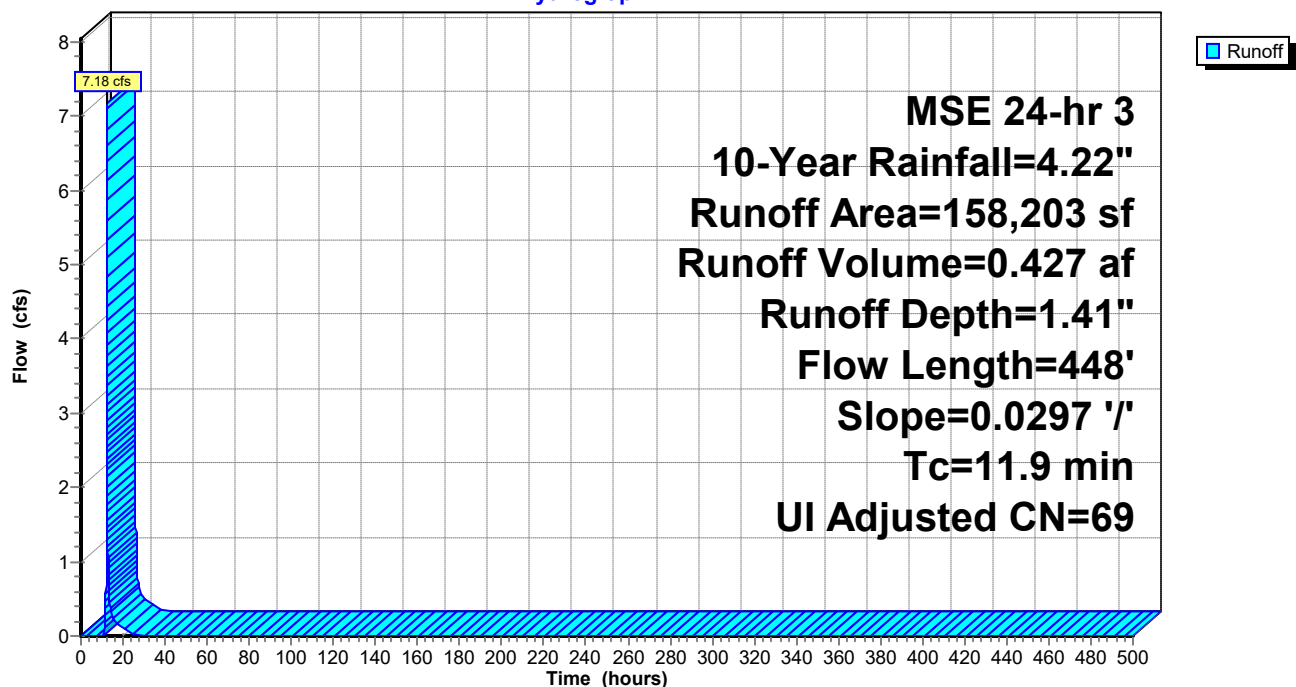
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Adj	Description
*	62,278	58		Meadow, HSG B
*	53,419	71		Meadow, HSG C
*	4,896	78		Meadow, HSG D
	16,746	98		Unconnected roofs, HSG B
	19,913	98		Unconnected roofs, HSG C
	195	98		Unconnected roofs, HSG D
*	756	98		Equipment pad, HSG B
	158,203	73	69	Weighted Average, UI Adjusted
	120,593	65	65	76.23% Pervious Area
	37,610	98	98	23.77% Impervious Area
	36,854			97.99% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	448	0.0297	0.63		Lag/CN Method,

Subcatchment 23S: Pr-2

Hydrograph



Summary for Subcatchment 24S: Pr-2_offsite

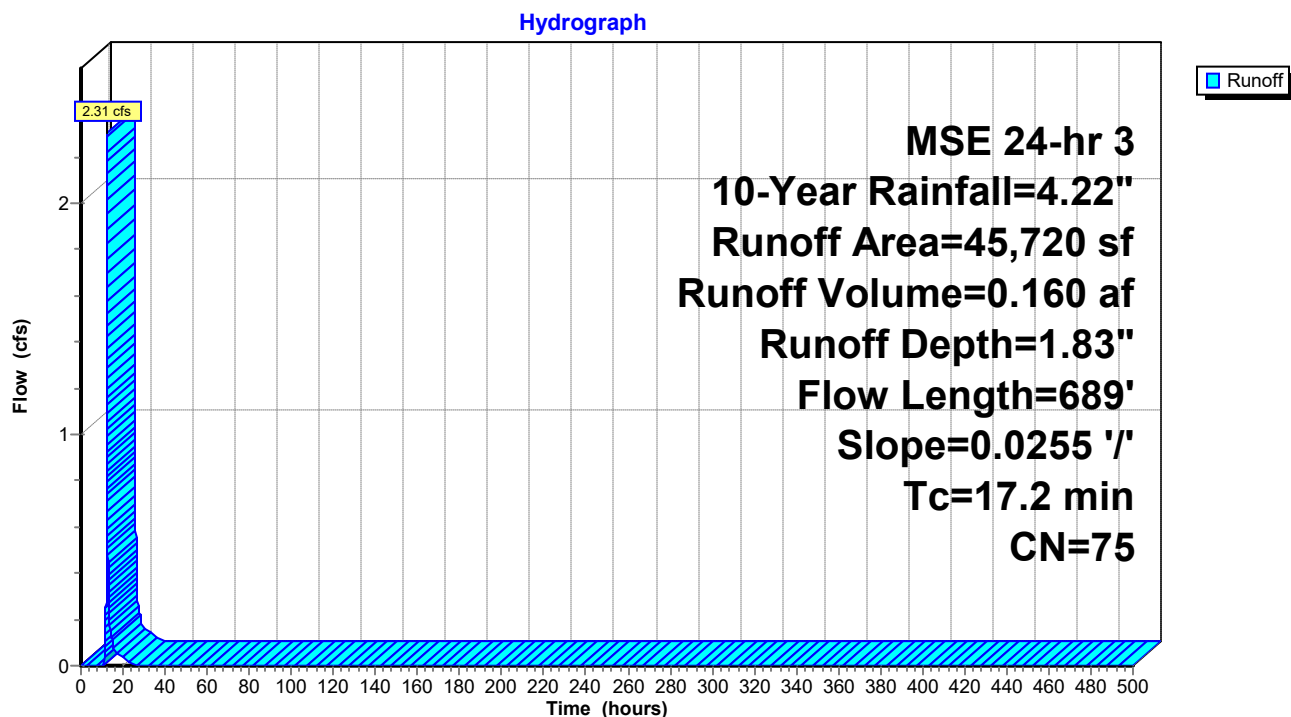
Runoff = 2.31 cfs @ 12.27 hrs, Volume= 0.160 af, Depth= 1.83"
 Routed to Pond 39P : Pr-2 Depression/ROW

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Description
*	12,116	65	Pasture/grassland/range, HSG B
*	4,797	77	Pasture/grassland/range, HSG C
*	1,486	82	Pasture/grassland/range, HSG D
*	12,181	65	Pasture/grassland/range, HSG B
*	5,469	77	Pasture/grassland/range, HSG C
*	1,635	82	Pasture/grassland/range, HSG D
*	8,036	98	Paved road
	45,720	75	Weighted Average
	37,684	70	82.42% Pervious Area
	8,036	98	17.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	689	0.0255	0.67		Lag/CN Method,

Subcatchment 24S: Pr-2_offsite



Summary for Subcatchment 29S: Pr-6

Runoff = 6.83 cfs @ 12.20 hrs, Volume= 0.408 af, Depth= 1.22"
 Routed to Pond 41P : Pr-6 Wetland

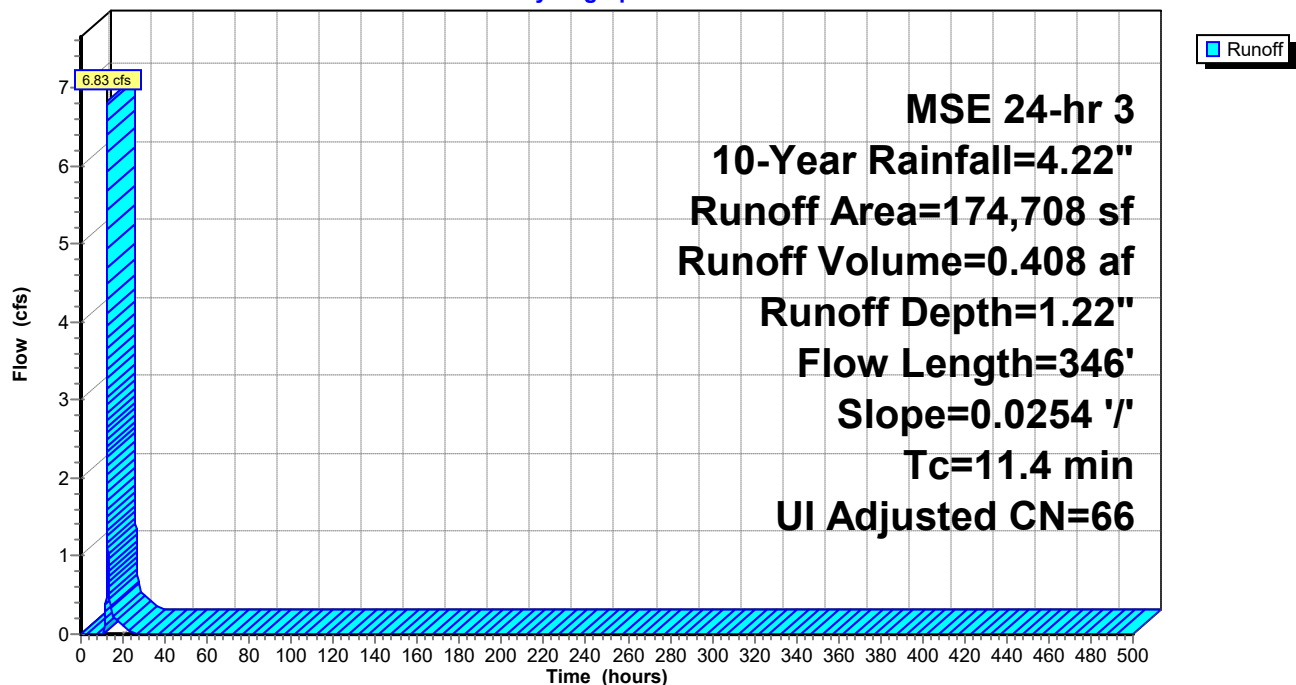
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Adj	Description
*	122,744	58		Meadow, HSG B
*	751	78		Meadow, HSG D
*	14,586	98		Wetland
	36,303	98		Unconnected roofs, HSG B
	324	98		Unconnected roofs, HSG D
	174,708	70	66	Weighted Average, UI Adjusted
	123,495	58	58	70.69% Pervious Area
	51,213	98	98	29.31% Impervious Area
	36,627			71.52% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	346	0.0254	0.51		Lag/CN Method,

Subcatchment 29S: Pr-6

Hydrograph



Summary for Subcatchment 30S: Pr-7

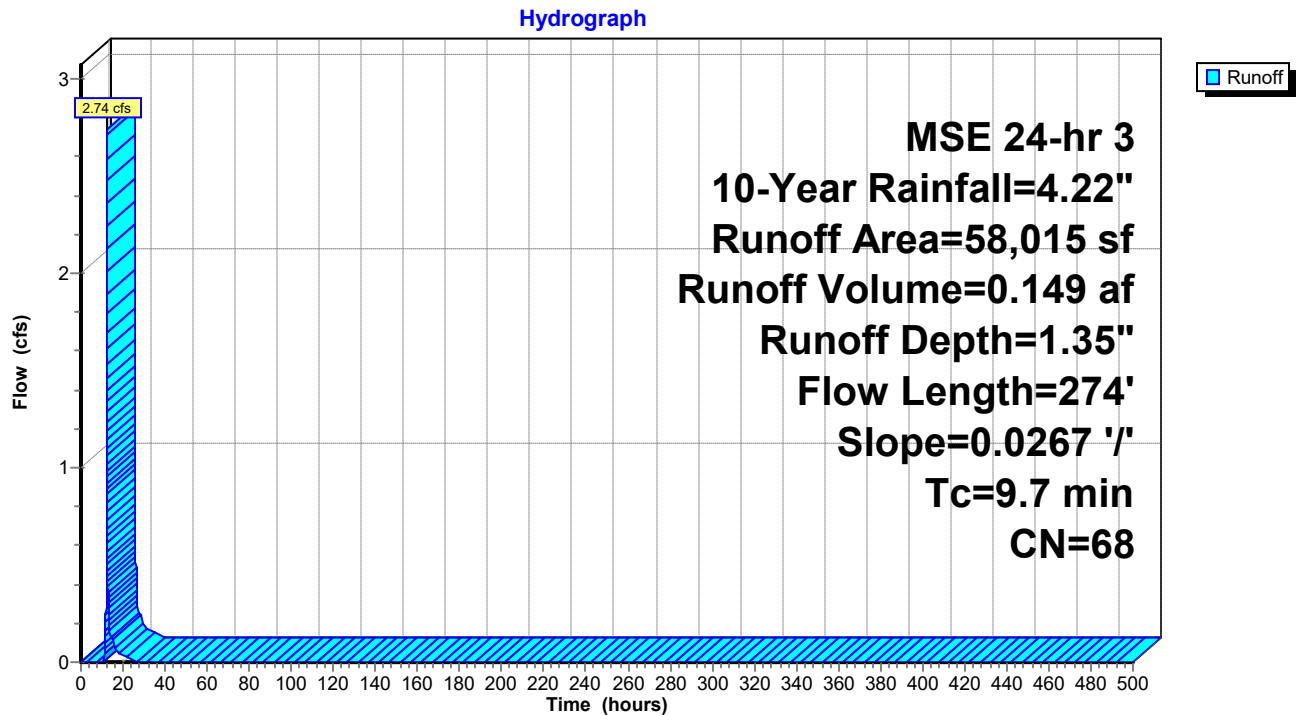
Runoff = 2.74 cfs @ 12.18 hrs, Volume= 0.149 af, Depth= 1.35"
 Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Description
*	29,742	58	Meadow, HSG B
*	26,427	78	Meadow, HSG D
	394	98	Unconnected roofs, HSG B
	739	98	Unconnected roofs, HSG D
*	713	85	Gravel surface, HSG B
	58,015	68	Weighted Average
	56,882	68	98.05% Pervious Area
	1,133	98	1.95% Impervious Area
	1,133		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	274	0.0267	0.47		Lag/CN Method,

Subcatchment 30S: Pr-7



Summary for Subcatchment 31S: Pr-8

calculated tc with lag/CN method was less than $2 \cdot dt = 1.2$ min, so set to 1.2 min

Runoff = 5.73 cfs @ 12.10 hrs, Volume= 0.236 af, Depth= 3.03"
 Routed to Pond 42P : Pr-8 Wetland

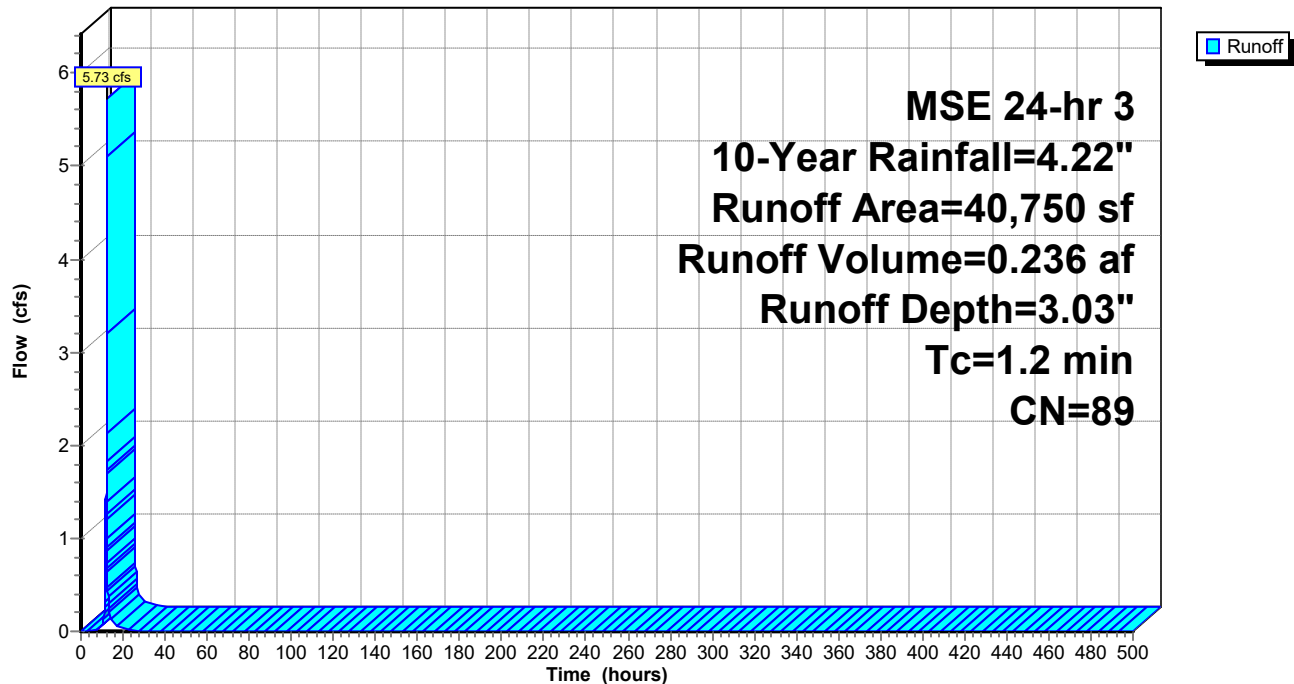
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Description
*	18,929	78	Meadow, HSG D
*	21,821	98	Wetland
	40,750	89	Weighted Average
	18,929	78	46.45% Pervious Area
	21,821	98	53.55% Impervious Area

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

Subcatchment 31S: Pr-8

Hydrograph



Summary for Subcatchment 33S: Pr-10

Runoff = 1.90 cfs @ 12.14 hrs, Volume= 0.087 af, Depth= 1.35"
 Routed to Pond 44P : Pr-10 Depression

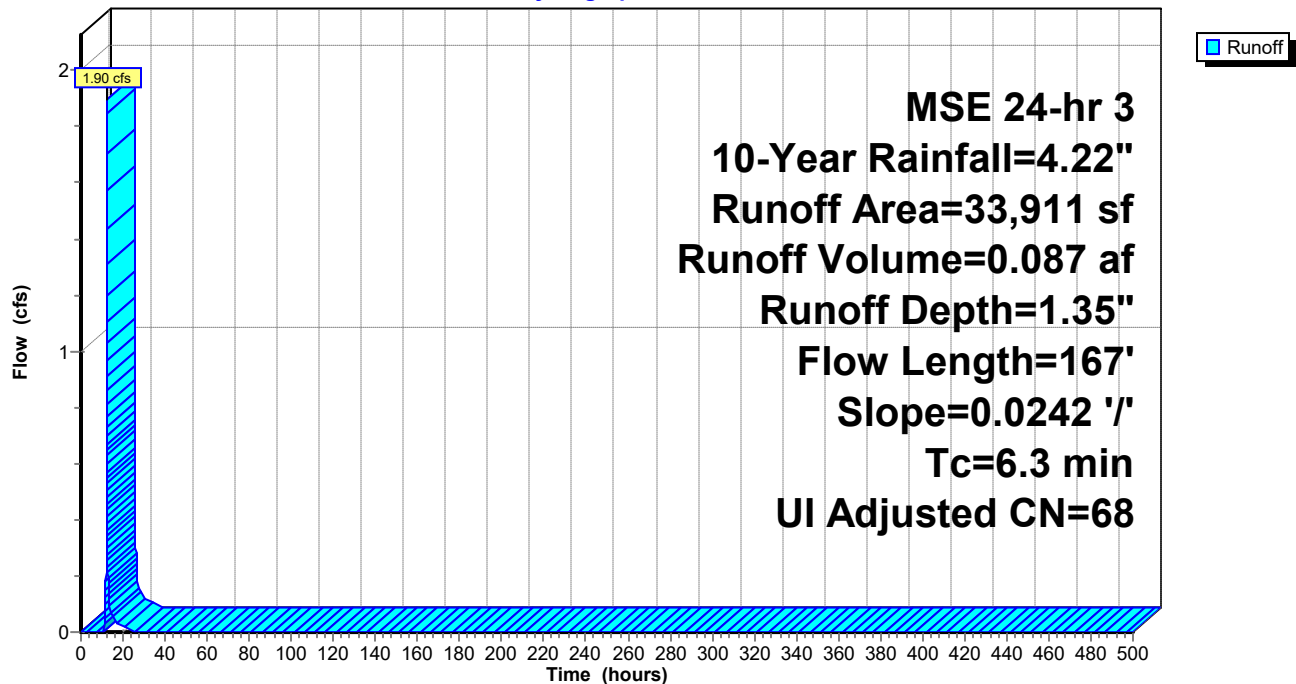
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Adj	Description
*	18,075	58		Meadow, HSG B
*	8,887	78		Meadow, HSG D
	6,949	98		Unconnected roofs, HSG B
	33,911	71	68	Weighted Average, UI Adjusted
	26,962	65	65	79.51% Pervious Area
	6,949	98	98	20.49% Impervious Area
	6,949			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	167	0.0242	0.44		Lag/CN Method,

Subcatchment 33S: Pr-10

Hydrograph



Summary for Subcatchment 34S: Pr-11

Runoff = 1.71 cfs @ 12.18 hrs, Volume= 0.093 af, Depth= 1.16"
 Routed to Link 47L : Pr - SE ROW

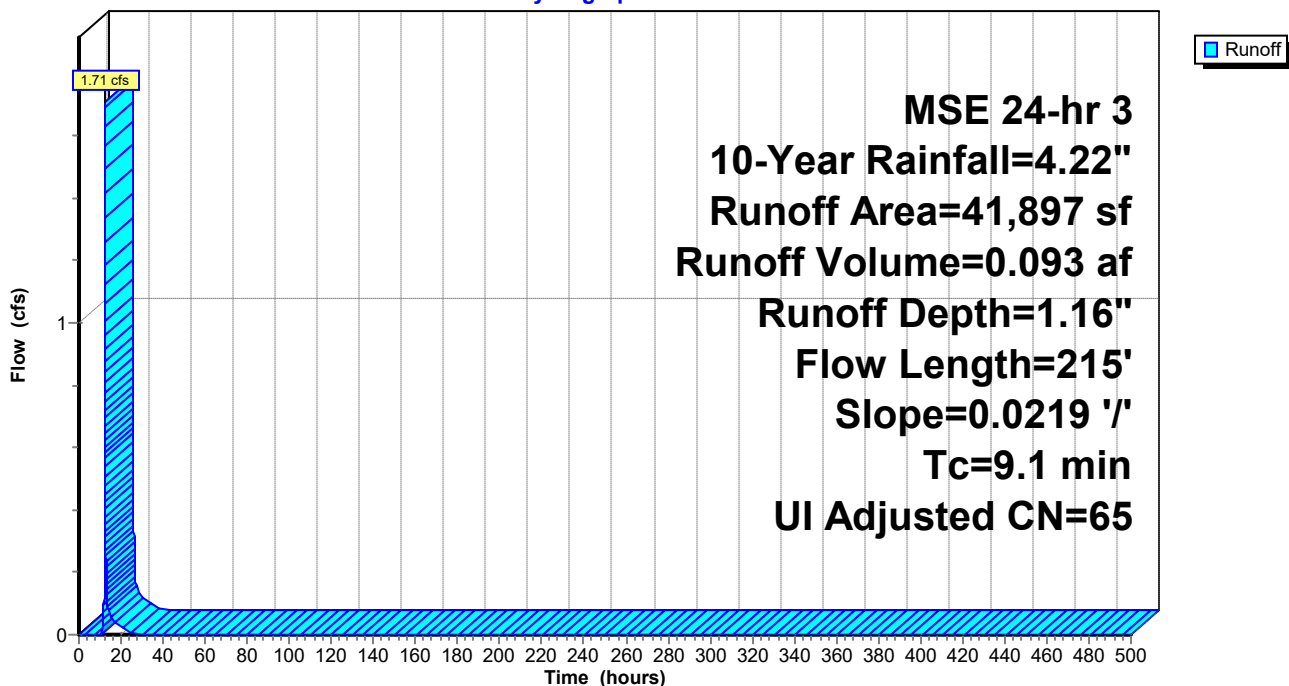
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Adj	Description
*	28,679	58		Meadow, HSG B
*	5,329	78		Meadow, HSG D
	5,154	98		Unconnected roofs, HSG B
*	267	98		Equipment pad, HSG B
*	2,423	85		Gravel surface, HSG B
*	45	91		Gravel surface, HSG D
	41,897	67	65	Weighted Average, UI Adjusted
	36,476	63	63	87.06% Pervious Area
	5,421	98	98	12.94% Impervious Area
	5,154			95.07% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	215	0.0219	0.39		Lag/CN Method,

Subcatchment 34S: Pr-11

Hydrograph



Summary for Subcatchment 35S: Pr-6_offsite

Runoff = 0.20 cfs @ 12.14 hrs, Volume= 0.010 af, Depth= 1.16"
 Routed to Pond 41P : Pr-6 Wetland

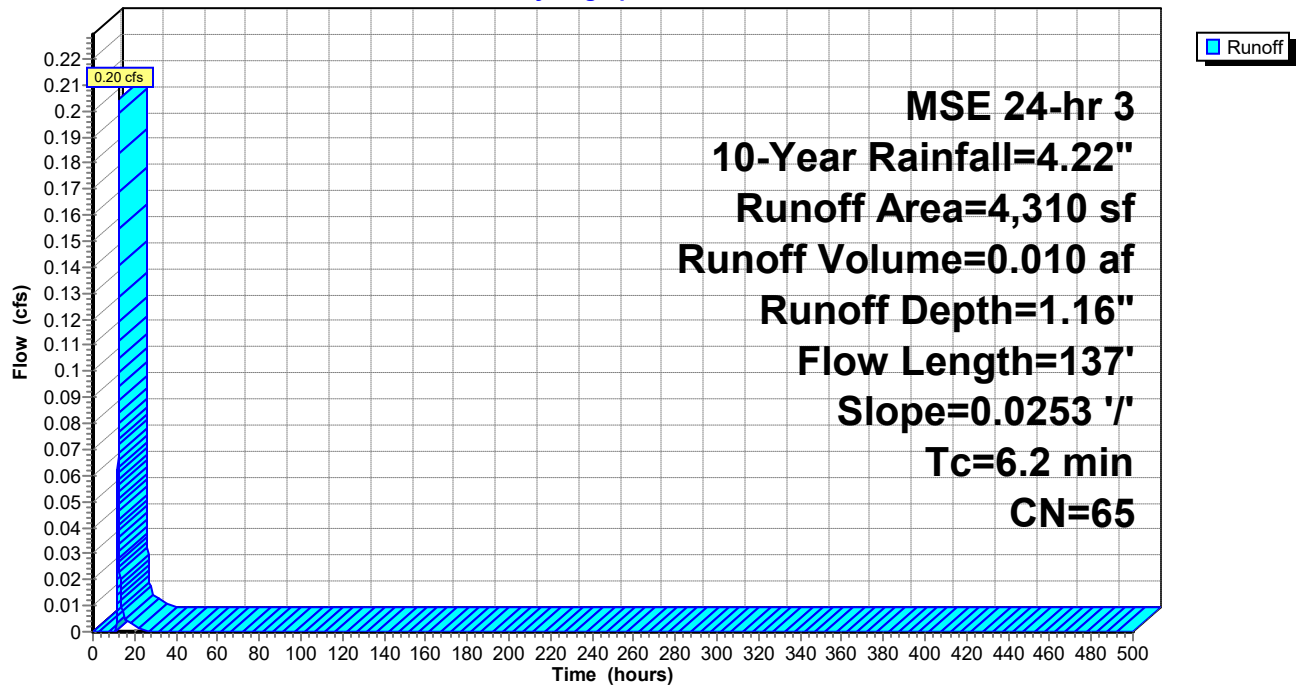
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=4.22"

	Area (sf)	CN	Description
*	3,760	65	Pasture/grassland/range, HSG B
*	550	65	Pasture/grassland/range, HSG B
	4,310	65	Weighted Average
	4,310	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	137	0.0253	0.37		Lag/CN Method,

Subcatchment 35S: Pr-6_offsite

Hydrograph



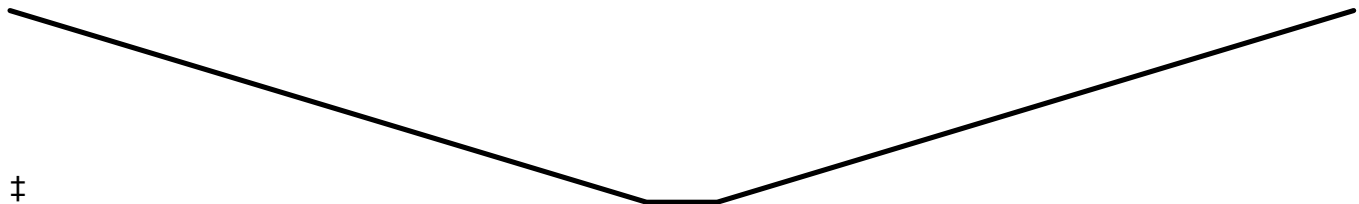
Summary for Reach 9R: Flow over Ex-11

Inflow Area = 0.778 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-Year event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Routed to Link 16L : Ex - SE ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 0.00 fps, Avg. Travel Time= 0.0 min

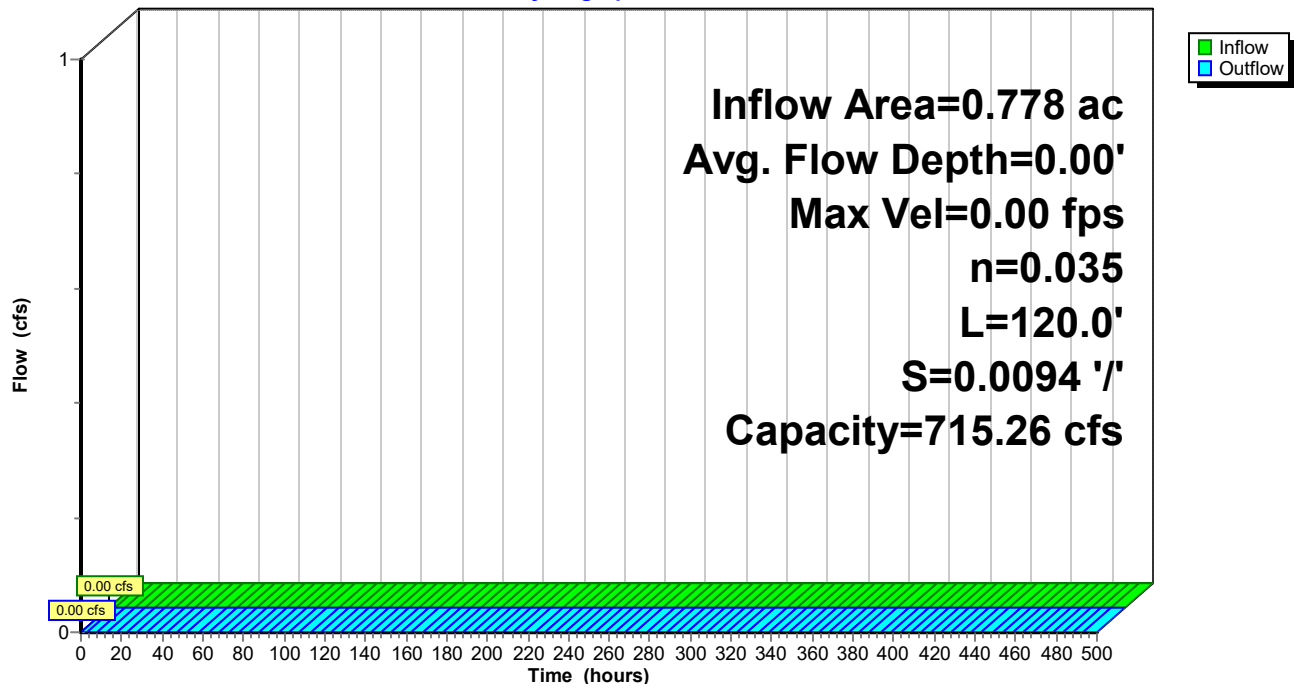
Peak Storage= 0 cf @ 0.00 hrs
 Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 1.80' Flow Area= 180.0 sf, Capacity= 715.26 cfs

10.00' x 1.80' deep channel, n= 0.035 High grass
 Side Slope Z-value= 50.0 '/' Top Width= 190.00'
 Length= 120.0' Slope= 0.0094 '/'
 Inlet Invert= 960.83', Outlet Invert= 959.70'



Reach 9R: Flow over Ex-11

Hydrograph



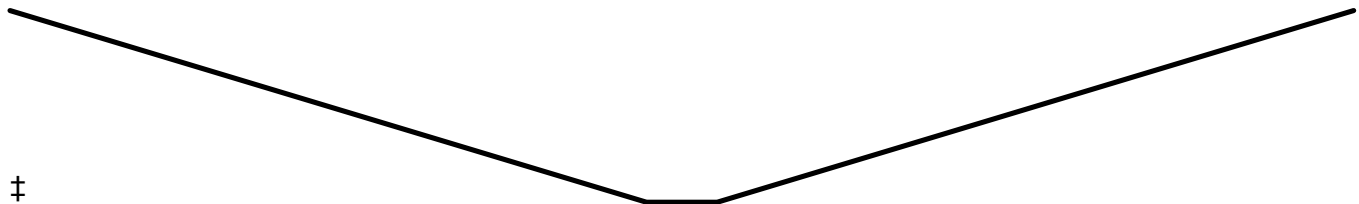
Summary for Reach 10R: Flow over Ex-11

Inflow Area = 0.778 ac, 20.49% Impervious, Inflow Depth = 0.00" for 10-Year event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Routed to Link 47L : Pr - SE ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
 Avg. Velocity= 0.00 fps, Avg. Travel Time= 0.0 min

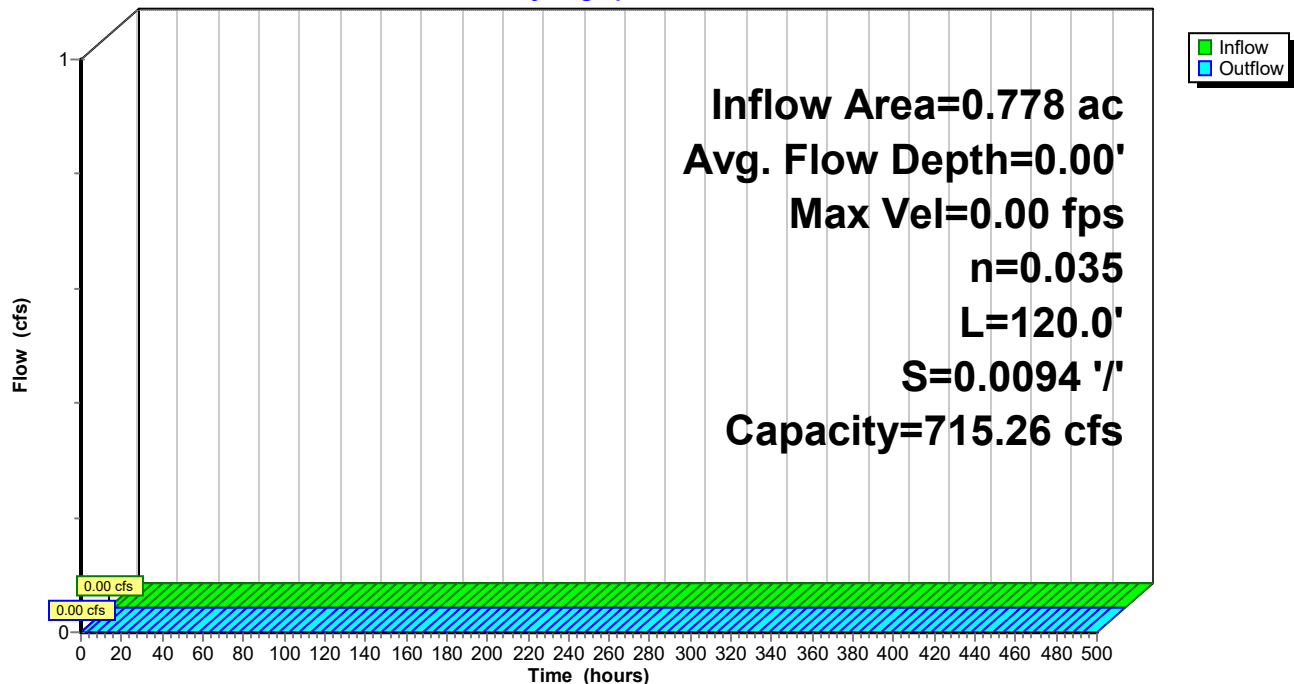
Peak Storage= 0 cf @ 0.00 hrs
 Average Depth at Peak Storage= 0.00'
 Bank-Full Depth= 1.80' Flow Area= 180.0 sf, Capacity= 715.26 cfs

10.00' x 1.80' deep channel, n= 0.035 High grass
 Side Slope Z-value= 50.0 '/' Top Width= 190.00'
 Length= 120.0' Slope= 0.0094 '/'
 Inlet Invert= 960.83', Outlet Invert= 959.70'



Reach 10R: Flow over Ex-11

Hydrograph



Summary for Pond 9P: Ex-2 Depression/ROW

Inflow Area = 4.681 ac, 3.94% Impervious, Inflow Depth = 1.61" for 10-Year event
 Inflow = 9.90 cfs @ 12.22 hrs, Volume= 0.628 af
 Outflow = 0.20 cfs @ 18.19 hrs, Volume= 0.628 af, Atten= 98%, Lag= 358.1 min
 Discarded = 0.20 cfs @ 18.19 hrs, Volume= 0.628 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Pond 12P : Ex-6 Wetland
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 960.45' @ 18.19 hrs Surf.Area= 19,317 sf Storage= 20,579 cf

Plug-Flow detention time= 1,346.8 min calculated for 0.628 af (100% of inflow)
 Center-of-Mass det. time= 1,346.8 min (2,174.7 - 827.9)

Volume	Invert	Avail.Storage	Storage Description
#1	957.84'	1,523,832 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
957.84	11	0	0
958.04	592	60	60
958.24	1,658	225	285
958.44	2,745	440	726
958.64	4,026	677	1,403
958.84	5,210	924	2,326
959.04	6,286	1,150	3,476
959.24	7,287	1,357	4,833
959.44	8,805	1,609	6,442
959.64	10,710	1,951	8,394
959.84	12,755	2,347	10,740
960.04	14,897	2,765	13,506
960.24	17,050	3,195	16,700
960.44	19,171	3,622	20,322
960.64	21,356	4,053	24,375
960.84	23,530	4,489	28,864
961.04	25,672	4,920	33,784
961.24	27,825	5,350	39,134
961.44	30,247	5,807	44,941
961.64	32,690	6,294	51,234
961.84	35,758	6,845	58,079
962.04	39,127	7,488	65,568
962.24	43,066	8,219	73,787
962.44	49,191	9,226	83,013
962.64	56,554	10,574	93,587
962.84	65,229	12,178	105,766
963.04	73,539	13,877	119,642
963.24	79,136	15,268	134,910
963.44	84,271	16,341	151,251
963.64	89,502	17,377	168,628
963.84	95,788	18,529	187,157
964.04	101,299	19,709	206,866
964.24	106,143	20,744	227,610
964.44	110,341	21,648	249,258
964.64	114,367	22,471	271,729
964.84	118,661	23,303	295,032
965.04	123,473	24,213	319,245
965.24	128,586	25,206	344,451
965.44	135,808	26,439	370,891
965.64	140,049	27,586	398,476
965.84	144,000	28,405	426,881
966.04	146,949	29,095	455,976
966.24	149,511	29,646	485,622
966.44	151,707	30,122	515,744
966.64	153,440	30,515	546,258
966.84	154,656	30,810	577,068
967.04	156,109	31,076	608,145
967.24	157,487	31,360	639,504
967.44	158,951	31,644	671,148
967.64	160,877	31,983	703,131

967.84	162,697	32,357	735,488
968.04	164,925	32,762	768,250
968.24	166,819	33,174	801,425
968.44	168,272	33,509	834,934
968.64	169,456	33,773	868,707
968.84	170,630	34,009	902,715
969.04	171,727	34,236	936,951
969.24	172,718	34,445	971,396
969.44	173,730	34,645	1,006,040
969.64	174,591	34,832	1,040,872
969.84	175,387	34,998	1,075,870
970.04	176,055	35,144	1,111,014
970.24	176,647	35,270	1,146,285
970.44	177,152	35,380	1,181,665
970.64	177,669	35,482	1,217,147
970.84	178,207	35,588	1,252,734
971.04	178,670	35,688	1,288,422
971.24	179,155	35,783	1,324,204
971.44	179,424	35,858	1,360,062
971.64	179,650	35,907	1,395,970
971.84	179,833	35,948	1,431,918
972.04	180,102	35,993	1,467,911
972.24	180,425	36,053	1,503,964
972.35	180,812	19,868	1,523,832

Device	Routing	Invert	Outlet Devices
#1	Discarded	957.84'	0.450 in/hr Exfiltration over Surface area
#2	Primary	962.36'	10.0' long + 40.0 ' SideZ x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#3	Secondary	962.98'	10.0' long + 7.0 ' SideZ x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.20 cfs @ 18.19 hrs HW=960.45' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.20 cfs)

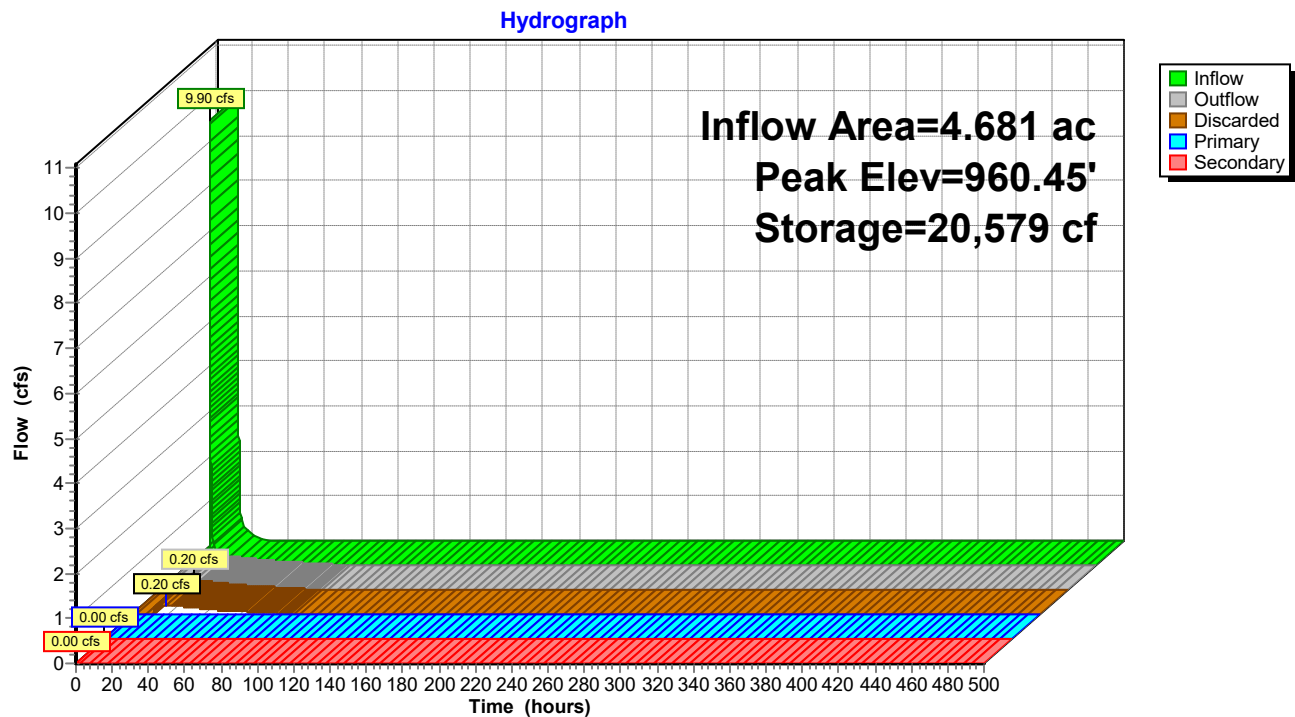
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=957.84' TW=955.89' (Dynamic Tailwater)

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

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=957.84' TW=0.00' (Dynamic Tailwater)

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

Pond 9P: Ex-2 Depression/ROW



Summary for Pond 12P: Ex-6 Wetland

Inflow Area = 8.791 ac, 5.91% Impervious, Inflow Depth = 0.63" for 10-Year event
 Inflow = 7.63 cfs @ 12.21 hrs, Volume= 0.460 af
 Outflow = 0.03 cfs @ 24.07 hrs, Volume= 0.460 af, Atten= 100%, Lag= 712.0 min
 Discarded = 0.03 cfs @ 24.07 hrs, Volume= 0.460 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 958.09' @ 24.07 hrs Surf.Area= 21,898 sf Storage= 18,769 cf

Plug-Flow detention time= 6,873.2 min calculated for 0.460 af (100% of inflow)
 Center-of-Mass det. time= 6,873.6 min (7,708.3 - 834.7)

Volume	Invert	Avail.Storage	Storage Description
#1	955.89'	1,210,988 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
955.89	11	0	0
956.10	22	3	3
956.29	75	9	13
956.49	560	64	76
956.70	3,229	398	474
956.89	6,921	964	1,438
957.10	9,225	1,695	3,134
957.29	11,862	2,003	5,137
957.49	14,596	2,646	7,783
957.70	17,190	3,338	11,120
957.89	19,838	3,518	14,638
958.10	22,023	4,395	19,033
958.29	23,907	4,363	23,397
958.49	25,984	4,989	28,386
958.70	27,846	5,652	34,038
958.89	29,784	5,475	39,513
959.10	31,700	6,456	45,969
959.29	33,734	6,216	52,185
959.49	35,865	6,960	59,145
959.70	38,481	7,806	66,951
959.89	41,269	7,576	74,527
960.10	46,005	9,164	83,691
960.29	54,638	9,561	93,252
960.49	62,162	11,680	104,932
960.70	67,328	13,596	118,529
960.89	72,387	13,273	131,801
961.10	76,876	15,673	147,474
961.29	82,290	15,121	162,595
961.49	90,578	17,287	179,882
961.70	99,437	19,952	199,833
961.89	108,113	19,717	219,550
962.10	114,840	23,410	242,961
962.29	122,041	22,504	265,464
962.49	130,663	25,270	290,735
962.70	138,015	28,211	318,946
962.89	143,849	26,777	345,723
963.10	150,189	30,874	376,597
963.29	154,710	28,965	405,562
963.49	157,971	31,268	436,830
963.70	160,102	33,398	470,228
963.89	161,609	30,563	500,791
964.10	162,718	34,054	534,845
964.29	163,655	31,005	565,850
964.49	164,365	32,802	598,652
964.70	164,935	34,577	633,229
964.89	165,323	31,375	664,603
965.10	165,678	34,755	699,359
965.29	166,001	31,510	730,868
965.49	166,367	33,237	764,105
965.70	166,765	34,979	799,084

965.89	167,056	31,713	830,797
966.10	167,271	35,104	865,901
966.29	167,476	31,801	897,702
966.49	167,530	33,501	931,203
966.70	167,530	35,181	966,384
966.89	167,530	31,831	998,215
967.10	167,530	35,181	1,033,396
967.29	167,530	31,831	1,065,227
967.49	167,530	33,506	1,098,733
967.70	167,530	35,181	1,133,914
967.89	167,530	31,831	1,165,745
968.10	167,583	35,187	1,200,931
968.16	167,626	10,056	1,210,988

Device	Routing	Invert	Outlet Devices
#1	Discarded	955.89'	0.060 in/hr Exfiltration over Surface area
#2	Primary	958.16'	15.0' long + 40.0' /' SideZ 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=0.03 cfs @ 24.07 hrs HW=958.09' (Free Discharge)

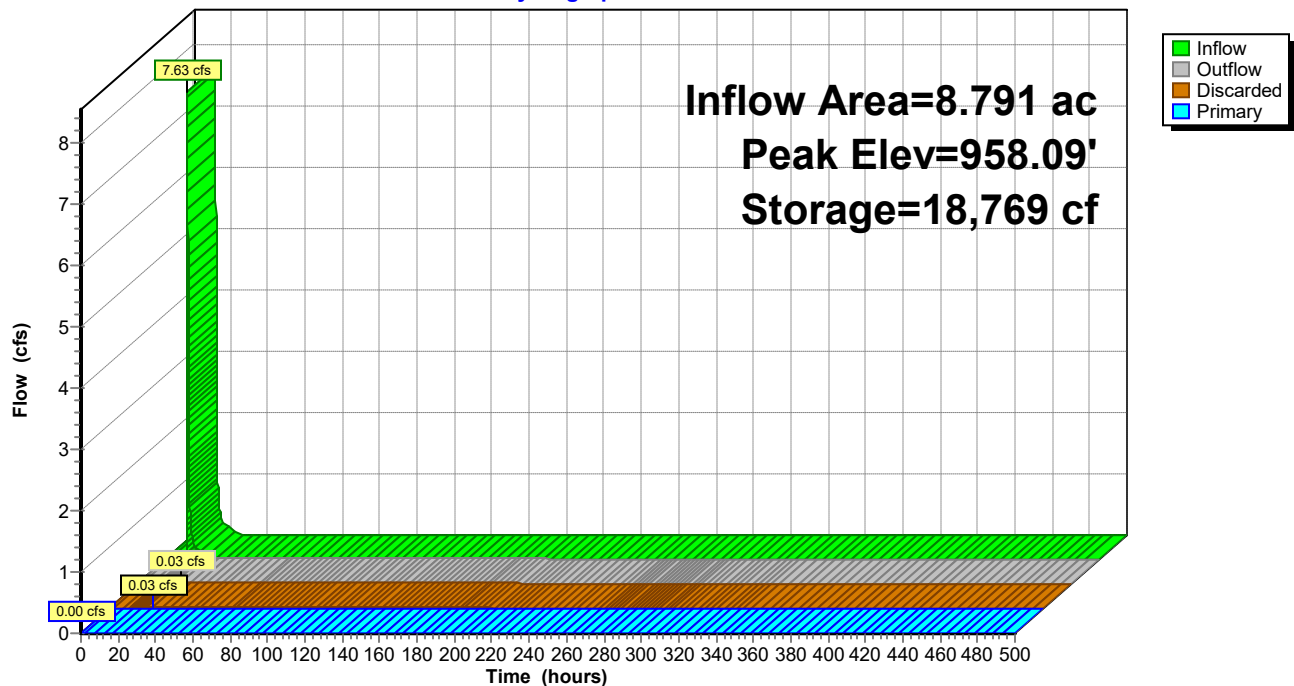
↑1=Exfiltration (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=955.89' TW=0.00' (Dynamic Tailwater)

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

Pond 12P: Ex-6 Wetland

Hydrograph



Summary for Pond 13P: Ex-8 Wetland

Inflow Area = 0.935 ac, 53.55% Impervious, Inflow Depth = 3.03" for 10-Year event
 Inflow = 5.73 cfs @ 12.10 hrs, Volume= 0.236 af
 Outflow = 0.02 cfs @ 23.01 hrs, Volume= 0.236 af, Atten= 100%, Lag= 654.6 min
 Discarded = 0.02 cfs @ 23.01 hrs, Volume= 0.236 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 955.24' @ 23.01 hrs Surf.Area= 12,516 sf Storage= 9,511 cf

Plug-Flow detention time= 5,459.5 min calculated for 0.236 af (100% of inflow)
 Center-of-Mass det. time= 5,459.7 min (6,239.8 - 780.1)

Volume	Invert	Avail.Storage	Storage Description
#1	953.63'	396,795 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
953.63	11	0	0
953.83	86	10	10
954.03	355	44	54
954.23	1,938	229	283
954.43	6,060	800	1,083
954.63	9,494	1,555	2,638
954.83	10,775	2,027	4,665
955.03	11,754	2,253	6,918
955.23	12,475	2,423	9,341
955.43	13,078	2,555	11,896
955.63	13,778	2,686	14,582
955.83	14,402	2,818	17,400
956.03	14,876	2,928	20,328
956.23	15,586	3,046	23,374
956.43	16,189	3,177	26,551
956.63	16,641	3,283	29,834
956.83	17,308	3,395	33,229
957.03	17,879	3,519	36,748
957.23	18,406	3,629	40,377
957.43	18,901	3,731	44,107
957.63	19,569	3,847	47,954
957.83	20,064	3,963	51,918
958.03	20,581	4,064	55,982
958.23	21,076	4,166	60,148
958.43	21,679	4,275	64,423
958.63	22,324	4,400	68,824
958.83	22,949	4,527	73,351
959.03	23,573	4,652	78,003
959.23	24,230	4,780	82,783
959.43	24,886	4,912	87,695
959.63	25,435	5,032	92,727
959.83	26,059	5,149	97,876
960.03	26,522	5,258	103,134
960.23	27,060	5,358	108,493
960.43	27,674	5,473	113,966
960.63	28,384	5,606	119,572
960.83	28,976	5,736	125,308
961.03	29,515	5,849	131,157
961.23	30,214	5,973	137,130
961.43	30,677	6,089	143,219
961.63	31,291	6,197	149,416
961.83	31,818	6,311	155,727
962.03	32,302	6,412	162,139
962.23	32,625	6,493	168,631
962.43	33,067	6,569	175,201
962.63	33,497	6,656	181,857
962.83	33,906	6,740	188,597
963.03	34,315	6,822	195,419
963.23	34,595	6,891	202,310
963.43	34,886	6,948	209,258

963.63	35,123	7,001	216,259
963.83	35,327	7,045	223,304
964.03	35,553	7,088	230,392
964.23	35,725	7,128	237,520
964.43	35,822	7,155	244,675
964.63	35,941	7,176	251,851
964.83	36,016	7,196	259,047
965.03	36,091	7,211	266,258
965.23	36,178	7,227	273,485
965.43	36,231	7,241	280,725
965.63	36,253	7,248	287,974
965.83	36,264	7,252	295,226
966.03	36,274	7,254	302,479
966.23	36,274	7,255	309,734
966.43	36,274	7,255	316,989
966.63	36,274	7,255	324,244
966.83	36,274	7,255	331,499
967.03	36,274	7,255	338,753
967.23	36,274	7,255	346,008
967.43	36,274	7,255	353,263
967.63	36,274	7,255	360,518
967.83	36,274	7,255	367,773
968.03	36,274	7,255	375,027
968.23	36,274	7,255	382,282
968.43	36,274	7,255	389,537
968.63	36,307	7,258	396,795

Device	Routing	Invert	Outlet Devices
#1	Discarded	953.63'	0.060 in/hr Exfiltration over Surface area
#2	Primary	958.79'	13.0' long + 14.0 ' /' SideZ x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Secondary	959.09'	8.0' long + 25.0 ' /' SideZ 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=0.02 cfs @ 23.01 hrs HW=955.24' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

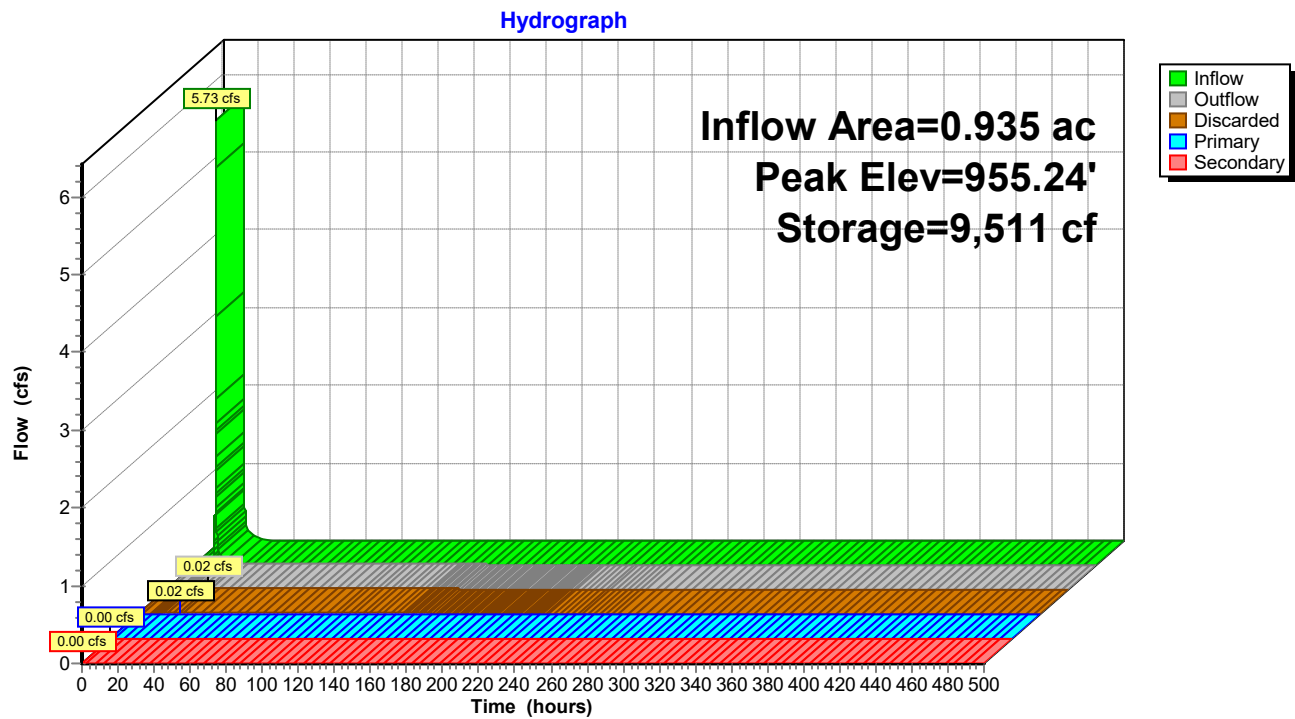
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.63' TW=0.00' (Dynamic Tailwater)

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

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.63' TW=0.00' (Dynamic Tailwater)

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

Pond 13P: Ex-8 Wetland



Summary for Pond 15P: Ex-10 Depression

Inflow Area = 0.778 ac, 0.00% Impervious, Inflow Depth = 1.41" for 10-Year event
 Inflow = 1.96 cfs @ 12.15 hrs, Volume= 0.092 af
 Outflow = 0.06 cfs @ 15.08 hrs, Volume= 0.092 af, Atten= 97%, Lag= 175.9 min
 Discarded = 0.06 cfs @ 15.08 hrs, Volume= 0.092 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Reach 9R : Flow over Ex-11

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 960.44' @ 15.08 hrs Surf.Area= 5,683 sf Storage= 2,570 cf

Plug-Flow detention time= 568.6 min calculated for 0.092 af (100% of inflow)
 Center-of-Mass det. time= 568.6 min (1,396.2 - 827.6)

Volume	Invert	Avail.Storage	Storage Description
#1	959.47'	75,588 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
959.47	11	0	0
959.67	915	93	93
959.87	2,164	308	401
960.07	3,208	537	938
960.27	4,359	757	1,694
960.47	5,877	1,024	2,718
960.67	7,406	1,328	4,046
960.87	9,268	1,667	5,714
961.07	11,227	2,050	7,763
961.27	12,992	2,422	10,185
961.47	14,682	2,767	12,953
961.67	16,329	3,101	16,054
961.87	17,760	3,409	19,463
962.07	19,289	3,705	23,167
962.27	20,807	4,010	27,177
962.47	22,475	4,328	31,505
962.67	23,950	4,642	36,148
962.87	25,338	4,929	41,077
963.07	27,254	5,259	46,336
963.27	29,052	5,631	51,966
963.47	29,482	5,853	57,820
963.67	29,633	5,911	63,731
963.87	29,644	5,928	69,659
964.07	29,644	5,929	75,588

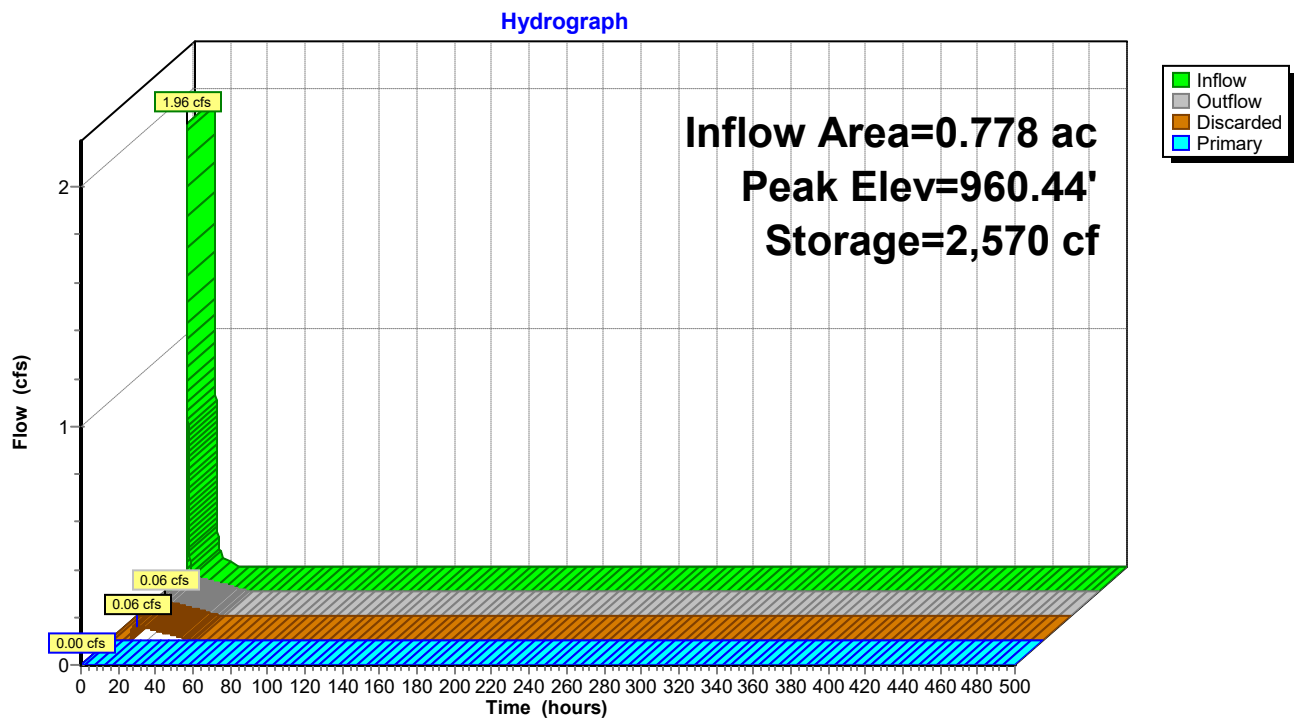
Device	Routing	Invert	Outlet Devices
#1	Discarded	959.47'	0.450 in/hr Exfiltration over Surface area
#2	Primary	960.83'	15.0' long + 75.0 ' SideZ x 7.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50 5.00 5.50			
Coef. (English) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65			

2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Discarded OutFlow Max=0.06 cfs @ 15.08 hrs HW=960.44' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=959.47' TW=960.83' (Dynamic Tailwater)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 15P: Ex-10 Depression



Summary for Pond 39P: Pr-2 Depression/ROW

Inflow Area = 4.681 ac, 22.38% Impervious, Inflow Depth = 1.51" for 10-Year event
 Inflow = 9.28 cfs @ 12.22 hrs, Volume= 0.588 af
 Outflow = 0.19 cfs @ 18.22 hrs, Volume= 0.588 af, Atten= 98%, Lag= 360.4 min
 Discarded = 0.19 cfs @ 18.22 hrs, Volume= 0.588 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Pond 41P : Pr-6 Wetland
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 960.37' @ 18.22 hrs Surf.Area= 18,481 sf Storage= 19,098 cf

Plug-Flow detention time= 1,311.6 min calculated for 0.588 af (100% of inflow)
 Center-of-Mass det. time= 1,311.7 min (2,142.1 - 830.4)

Volume	Invert	Avail.Storage	Storage Description
#1	957.84'	1,523,832 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
957.84	11	0	0
958.04	592	60	60
958.24	1,658	225	285
958.44	2,745	440	726
958.64	4,026	677	1,403
958.84	5,210	924	2,326
959.04	6,286	1,150	3,476
959.24	7,287	1,357	4,833
959.44	8,805	1,609	6,442
959.64	10,710	1,951	8,394
959.84	12,755	2,347	10,740
960.04	14,897	2,765	13,506
960.24	17,050	3,195	16,700
960.44	19,171	3,622	20,322
960.64	21,356	4,053	24,375
960.84	23,530	4,489	28,864
961.04	25,672	4,920	33,784
961.24	27,825	5,350	39,134
961.44	30,247	5,807	44,941
961.64	32,690	6,294	51,234
961.84	35,758	6,845	58,079
962.04	39,127	7,488	65,568
962.24	43,066	8,219	73,787
962.44	49,191	9,226	83,013
962.64	56,554	10,574	93,587
962.84	65,229	12,178	105,766
963.04	73,539	13,877	119,642
963.24	79,136	15,268	134,910
963.44	84,271	16,341	151,251
963.64	89,502	17,377	168,628
963.84	95,788	18,529	187,157
964.04	101,299	19,709	206,866
964.24	106,143	20,744	227,610
964.44	110,341	21,648	249,258
964.64	114,367	22,471	271,729
964.84	118,661	23,303	295,032
965.04	123,473	24,213	319,245
965.24	128,586	25,206	344,451
965.44	135,808	26,439	370,891
965.64	140,049	27,586	398,476
965.84	144,000	28,405	426,881
966.04	146,949	29,095	455,976
966.24	149,511	29,646	485,622
966.44	151,707	30,122	515,744
966.64	153,440	30,515	546,258
966.84	154,656	30,810	577,068
967.04	156,109	31,076	608,145
967.24	157,487	31,360	639,504
967.44	158,951	31,644	671,148
967.64	160,877	31,983	703,131

967.84	162,697	32,357	735,488
968.04	164,925	32,762	768,250
968.24	166,819	33,174	801,425
968.44	168,272	33,509	834,934
968.64	169,456	33,773	868,707
968.84	170,630	34,009	902,715
969.04	171,727	34,236	936,951
969.24	172,718	34,445	971,396
969.44	173,730	34,645	1,006,040
969.64	174,591	34,832	1,040,872
969.84	175,387	34,998	1,075,870
970.04	176,055	35,144	1,111,014
970.24	176,647	35,270	1,146,285
970.44	177,152	35,380	1,181,665
970.64	177,669	35,482	1,217,147
970.84	178,207	35,588	1,252,734
971.04	178,670	35,688	1,288,422
971.24	179,155	35,783	1,324,204
971.44	179,424	35,858	1,360,062
971.64	179,650	35,907	1,395,970
971.84	179,833	35,948	1,431,918
972.04	180,102	35,993	1,467,911
972.24	180,425	36,053	1,503,964
972.35	180,812	19,868	1,523,832

Device	Routing	Invert	Outlet Devices
#1	Discarded	957.84'	0.450 in/hr Exfiltration over Surface area
#2	Primary	962.36'	10.0' long + 40.0 ' SideZ x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#3	Secondary	962.98'	10.0' long + 7.0 ' SideZ x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.19 cfs @ 18.22 hrs HW=960.37' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.19 cfs)

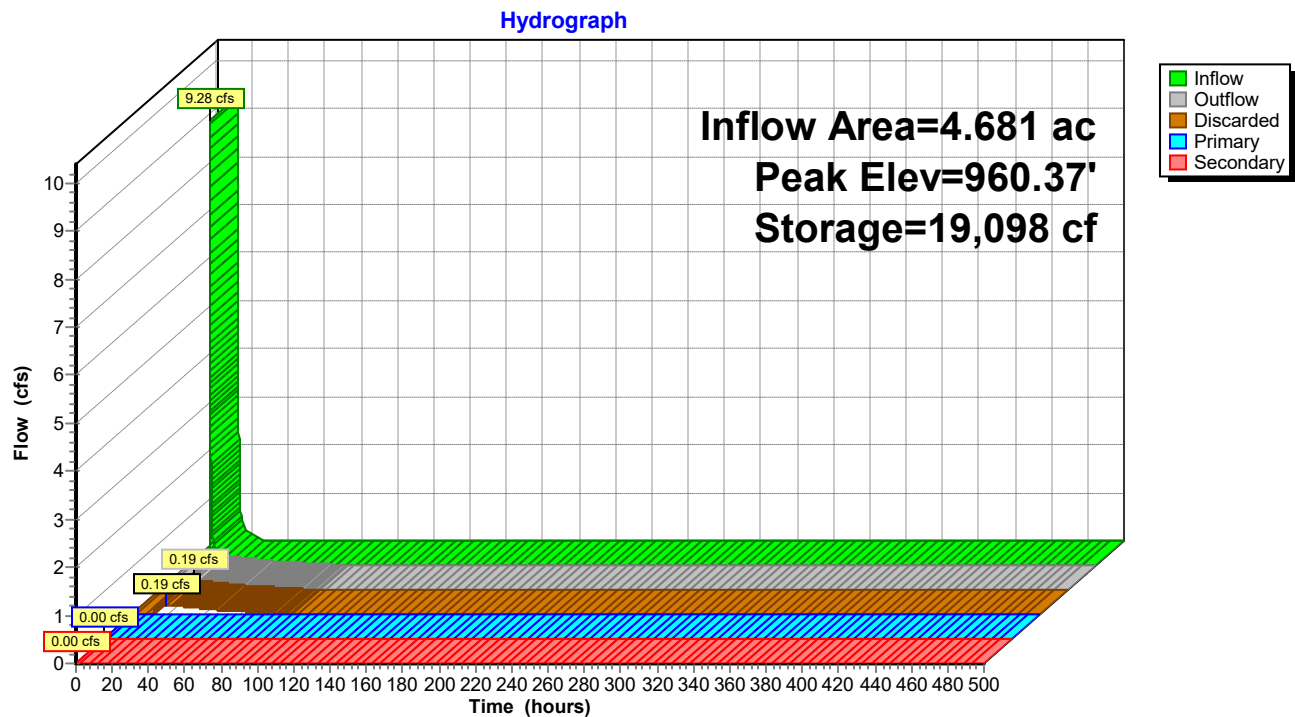
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=957.84' TW=955.89' (Dynamic Tailwater)

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

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=957.84' TW=0.00' (Dynamic Tailwater)

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

Pond 39P: Pr-2 Depression/ROW



Summary for Pond 41P: Pr-6 Wetland

Inflow Area = 8.791 ac, 25.29% Impervious, Inflow Depth = 0.57" for 10-Year event
 Inflow = 6.97 cfs @ 12.20 hrs, Volume= 0.417 af
 Outflow = 0.03 cfs @ 24.06 hrs, Volume= 0.417 af, Atten= 100%, Lag= 711.6 min
 Discarded = 0.03 cfs @ 24.06 hrs, Volume= 0.417 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 958.00' @ 24.06 hrs Surf.Area= 21,032 sf Storage= 16,983 cf

Plug-Flow detention time= 6,522.6 min calculated for 0.417 af (100% of inflow)
 Center-of-Mass det. time= 6,523.0 min (7,361.5 - 838.6)

Volume	Invert	Avail.Storage	Storage Description
#1	955.89'	1,210,988 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
955.89	11	0	0
956.10	22	3	3
956.29	75	9	13
956.49	560	64	76
956.70	3,229	398	474
956.89	6,921	964	1,438
957.10	9,225	1,695	3,134
957.29	11,862	2,003	5,137
957.49	14,596	2,646	7,783
957.70	17,190	3,338	11,120
957.89	19,838	3,518	14,638
958.10	22,023	4,395	19,033
958.29	23,907	4,363	23,397
958.49	25,984	4,989	28,386
958.70	27,846	5,652	34,038
958.89	29,784	5,475	39,513
959.10	31,700	6,456	45,969
959.29	33,734	6,216	52,185
959.49	35,865	6,960	59,145
959.70	38,481	7,806	66,951
959.89	41,269	7,576	74,527
960.10	46,005	9,164	83,691
960.29	54,638	9,561	93,252
960.49	62,162	11,680	104,932
960.70	67,328	13,596	118,529
960.89	72,387	13,273	131,801
961.10	76,876	15,673	147,474
961.29	82,290	15,121	162,595
961.49	90,578	17,287	179,882
961.70	99,437	19,952	199,833
961.89	108,113	19,717	219,550
962.10	114,840	23,410	242,961
962.29	122,041	22,504	265,464
962.49	130,663	25,270	290,735
962.70	138,015	28,211	318,946
962.89	143,849	26,777	345,723
963.10	150,189	30,874	376,597
963.29	154,710	28,965	405,562
963.49	157,971	31,268	436,830
963.70	160,102	33,398	470,228
963.89	161,609	30,563	500,791
964.10	162,718	34,054	534,845
964.29	163,655	31,005	565,850
964.49	164,365	32,802	598,652
964.70	164,935	34,577	633,229
964.89	165,323	31,375	664,603
965.10	165,678	34,755	699,359
965.29	166,001	31,510	730,868
965.49	166,367	33,237	764,105
965.70	166,765	34,979	799,084

965.89	167,056	31,713	830,797
966.10	167,271	35,104	865,901
966.29	167,476	31,801	897,702
966.49	167,530	33,501	931,203
966.70	167,530	35,181	966,384
966.89	167,530	31,831	998,215
967.10	167,530	35,181	1,033,396
967.29	167,530	31,831	1,065,227
967.49	167,530	33,506	1,098,733
967.70	167,530	35,181	1,133,914
967.89	167,530	31,831	1,165,745
968.10	167,583	35,187	1,200,931
968.16	167,626	10,056	1,210,988

Device	Routing	Invert	Outlet Devices
#1	Discarded	955.89'	0.060 in/hr Exfiltration over Surface area
#2	Primary	958.16'	15.0' long + 40.0' /' SideZ 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=0.03 cfs @ 24.06 hrs HW=958.00' (Free Discharge)

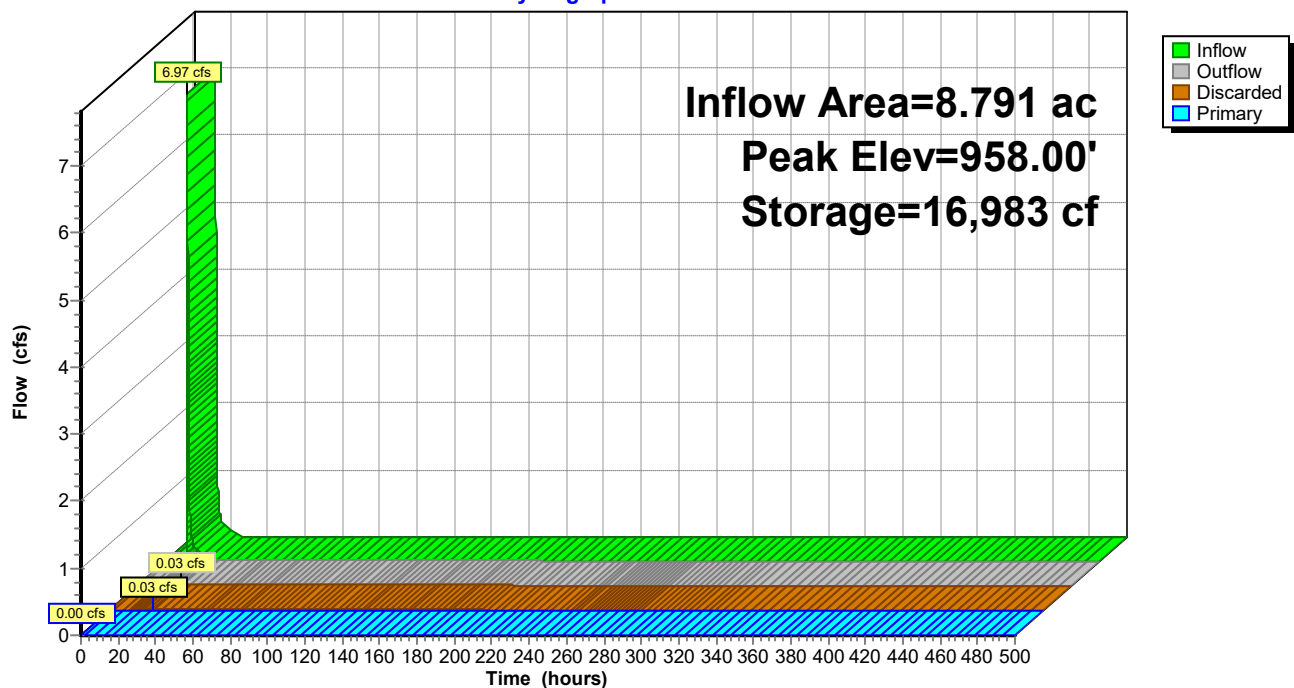
↑1=Exfiltration (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=955.89' TW=0.00' (Dynamic Tailwater)

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

Pond 41P: Pr-6 Wetland

Hydrograph



Summary for Pond 42P: Pr-8 Wetland

Inflow Area = 0.935 ac, 53.55% Impervious, Inflow Depth = 3.03" for 10-Year event
 Inflow = 5.73 cfs @ 12.10 hrs, Volume= 0.236 af
 Outflow = 0.02 cfs @ 23.01 hrs, Volume= 0.236 af, Atten= 100%, Lag= 654.6 min
 Discarded = 0.02 cfs @ 23.01 hrs, Volume= 0.236 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 955.24' @ 23.01 hrs Surf.Area= 12,516 sf Storage= 9,511 cf

Plug-Flow detention time= 5,459.5 min calculated for 0.236 af (100% of inflow)
 Center-of-Mass det. time= 5,459.7 min (6,239.8 - 780.1)

Volume	Invert	Avail.Storage	Storage Description
#1	953.63'	396,795 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
953.63	11	0	0
953.83	86	10	10
954.03	355	44	54
954.23	1,938	229	283
954.43	6,060	800	1,083
954.63	9,494	1,555	2,638
954.83	10,775	2,027	4,665
955.03	11,754	2,253	6,918
955.23	12,475	2,423	9,341
955.43	13,078	2,555	11,896
955.63	13,778	2,686	14,582
955.83	14,402	2,818	17,400
956.03	14,876	2,928	20,328
956.23	15,586	3,046	23,374
956.43	16,189	3,177	26,551
956.63	16,641	3,283	29,834
956.83	17,308	3,395	33,229
957.03	17,879	3,519	36,748
957.23	18,406	3,629	40,377
957.43	18,901	3,731	44,107
957.63	19,569	3,847	47,954
957.83	20,064	3,963	51,918
958.03	20,581	4,064	55,982
958.23	21,076	4,166	60,148
958.43	21,679	4,275	64,423
958.63	22,324	4,400	68,824
958.83	22,949	4,527	73,351
959.03	23,573	4,652	78,003
959.23	24,230	4,780	82,783
959.43	24,886	4,912	87,695
959.63	25,435	5,032	92,727
959.83	26,059	5,149	97,876
960.03	26,522	5,258	103,134
960.23	27,060	5,358	108,493
960.43	27,674	5,473	113,966
960.63	28,384	5,606	119,572
960.83	28,976	5,736	125,308
961.03	29,515	5,849	131,157
961.23	30,214	5,973	137,130
961.43	30,677	6,089	143,219
961.63	31,291	6,197	149,416
961.83	31,818	6,311	155,727
962.03	32,302	6,412	162,139
962.23	32,625	6,493	168,631
962.43	33,067	6,569	175,201
962.63	33,497	6,656	181,857
962.83	33,906	6,740	188,597
963.03	34,315	6,822	195,419
963.23	34,595	6,891	202,310
963.43	34,886	6,948	209,258

963.63	35,123	7,001	216,259
963.83	35,327	7,045	223,304
964.03	35,553	7,088	230,392
964.23	35,725	7,128	237,520
964.43	35,822	7,155	244,675
964.63	35,941	7,176	251,851
964.83	36,016	7,196	259,047
965.03	36,091	7,211	266,258
965.23	36,178	7,227	273,485
965.43	36,231	7,241	280,725
965.63	36,253	7,248	287,974
965.83	36,264	7,252	295,226
966.03	36,274	7,254	302,479
966.23	36,274	7,255	309,734
966.43	36,274	7,255	316,989
966.63	36,274	7,255	324,244
966.83	36,274	7,255	331,499
967.03	36,274	7,255	338,753
967.23	36,274	7,255	346,008
967.43	36,274	7,255	353,263
967.63	36,274	7,255	360,518
967.83	36,274	7,255	367,773
968.03	36,274	7,255	375,027
968.23	36,274	7,255	382,282
968.43	36,274	7,255	389,537
968.63	36,307	7,258	396,795

Device	Routing	Invert	Outlet Devices
#1	Discarded	953.63'	0.060 in/hr Exfiltration over Surface area
#2	Primary	958.79'	13.0' long + 14.0 ' /' SideZ x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Secondary	959.09'	8.0' long + 25.0 ' /' SideZ 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=0.02 cfs @ 23.01 hrs HW=955.24' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

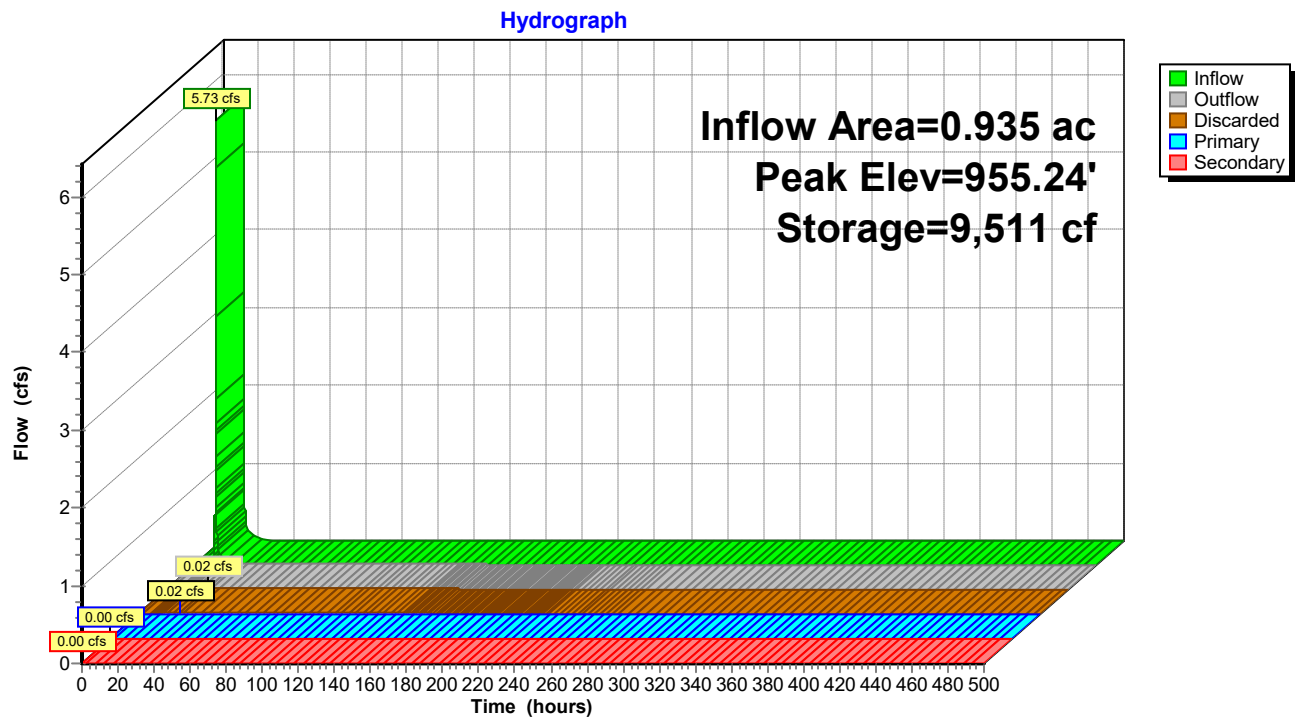
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.63' TW=0.00' (Dynamic Tailwater)

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

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.63' TW=0.00' (Dynamic Tailwater)

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

Pond 42P: Pr-8 Wetland



Summary for Pond 44P: Pr-10 Depression

Inflow Area = 0.778 ac, 20.49% Impervious, Inflow Depth = 1.35" for 10-Year event
 Inflow = 1.90 cfs @ 12.14 hrs, Volume= 0.087 af
 Outflow = 0.06 cfs @ 15.07 hrs, Volume= 0.087 af, Atten= 97%, Lag= 175.9 min
 Discarded = 0.06 cfs @ 15.07 hrs, Volume= 0.087 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Reach 10R : Flow over Ex-11

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 960.42' @ 15.07 hrs Surf.Area= 5,494 sf Storage= 2,431 cf

Plug-Flow detention time= 556.7 min calculated for 0.087 af (100% of inflow)
 Center-of-Mass det. time= 556.8 min (1,386.1 - 829.4)

Volume	Invert	Avail.Storage	Storage Description
#1	959.47'	75,588 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
959.47	11	0	0
959.67	915	93	93
959.87	2,164	308	401
960.07	3,208	537	938
960.27	4,359	757	1,694
960.47	5,877	1,024	2,718
960.67	7,406	1,328	4,046
960.87	9,268	1,667	5,714
961.07	11,227	2,050	7,763
961.27	12,992	2,422	10,185
961.47	14,682	2,767	12,953
961.67	16,329	3,101	16,054
961.87	17,760	3,409	19,463
962.07	19,289	3,705	23,167
962.27	20,807	4,010	27,177
962.47	22,475	4,328	31,505
962.67	23,950	4,642	36,148
962.87	25,338	4,929	41,077
963.07	27,254	5,259	46,336
963.27	29,052	5,631	51,966
963.47	29,482	5,853	57,820
963.67	29,633	5,911	63,731
963.87	29,644	5,928	69,659
964.07	29,644	5,929	75,588

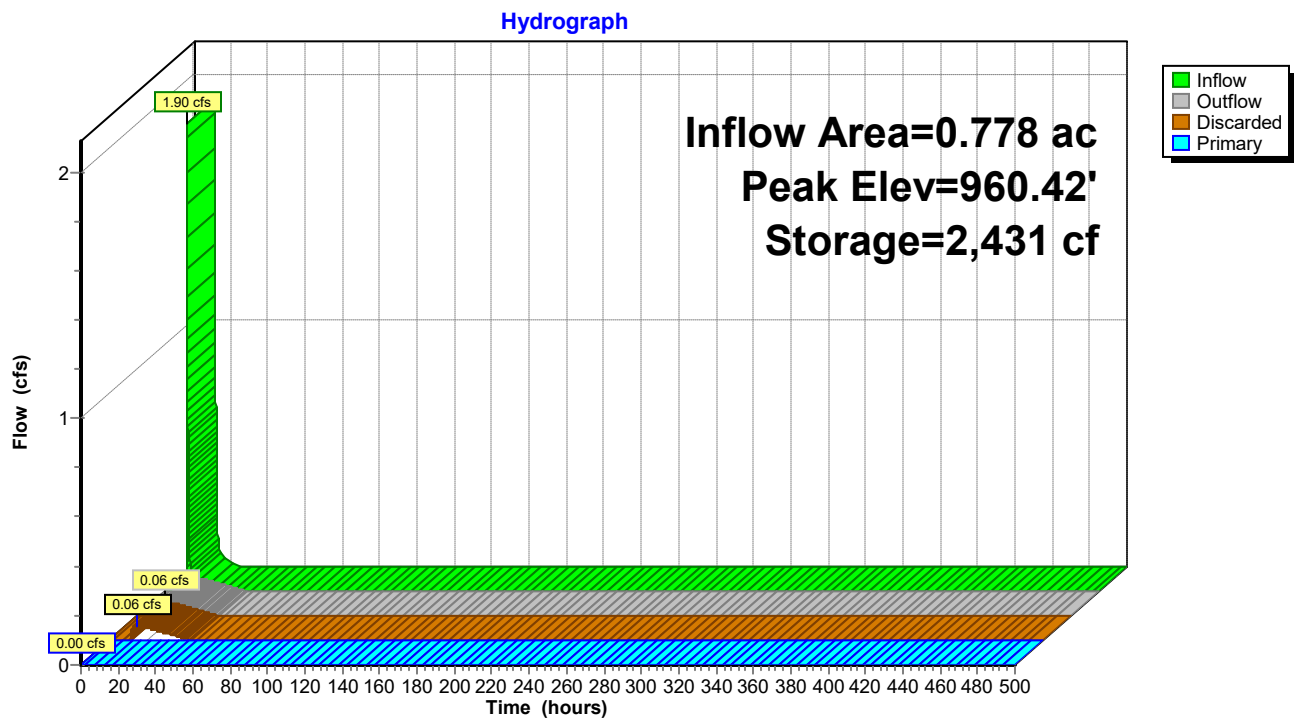
Device	Routing	Invert	Outlet Devices
#1	Discarded	959.47'	0.450 in/hr Exfiltration over Surface area
#2	Primary	960.83'	15.0' long + 75.0 ' SideZ x 7.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50 5.00 5.50			
Coef. (English) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65			

2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Discarded OutFlow Max=0.06 cfs @ 15.07 hrs HW=960.42' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=959.47' TW=960.83' (Dynamic Tailwater)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 44P: Pr-10 Depression

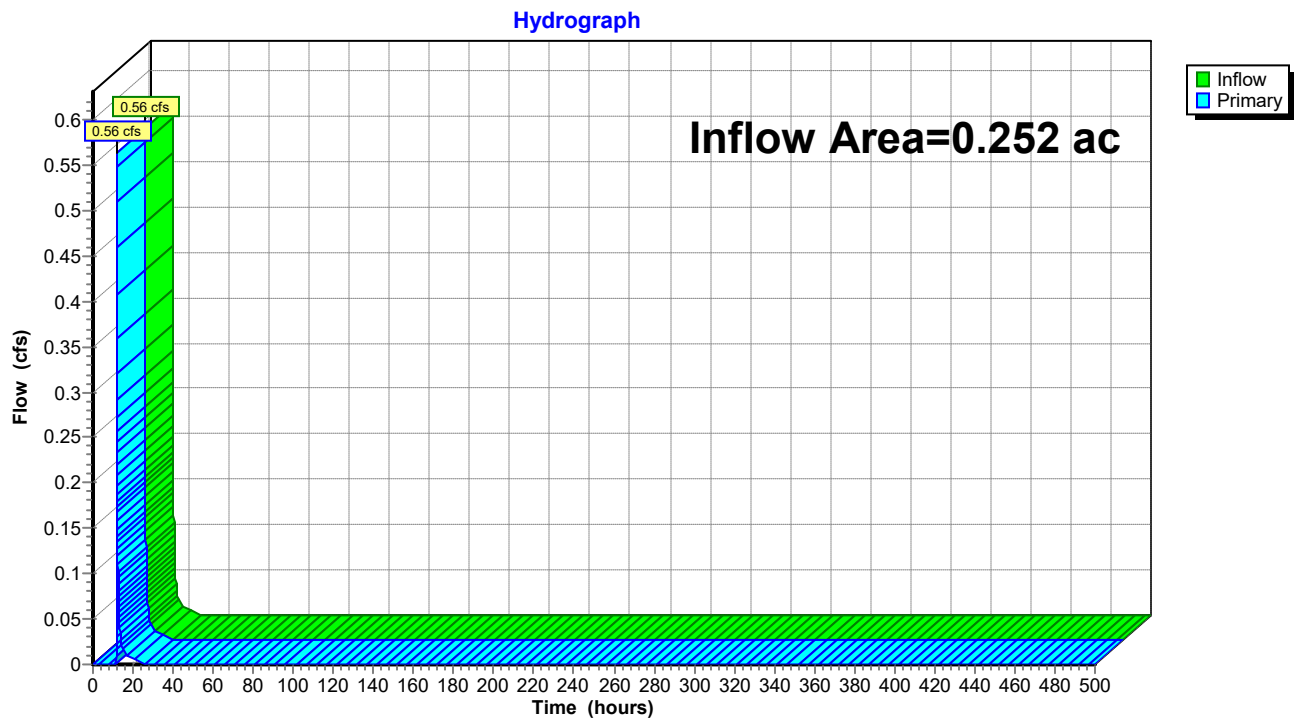


Summary for Link 15L: Ex - NW ROW

Inflow Area = 0.252 ac, 0.00% Impervious, Inflow Depth = 1.16" for 10-Year event
Inflow = 0.56 cfs @ 12.13 hrs, Volume= 0.024 af
Primary = 0.56 cfs @ 12.13 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 15L: Ex - NW ROW

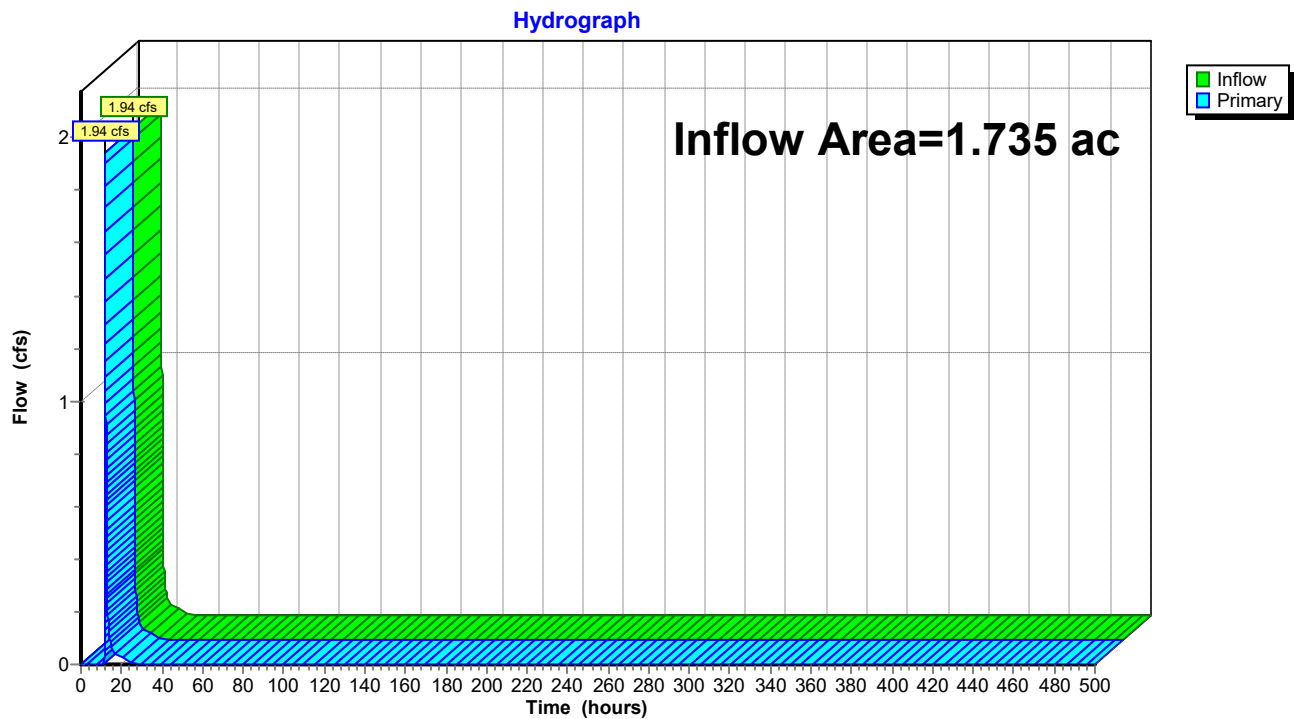


Summary for Link 16L: Ex - SE ROW

Inflow Area = 1.735 ac, 0.00% Impervious, Inflow Depth = 0.71" for 10-Year event
Inflow = 1.94 cfs @ 12.17 hrs, Volume= 0.102 af
Primary = 1.94 cfs @ 12.17 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 16L: Ex - SE ROW

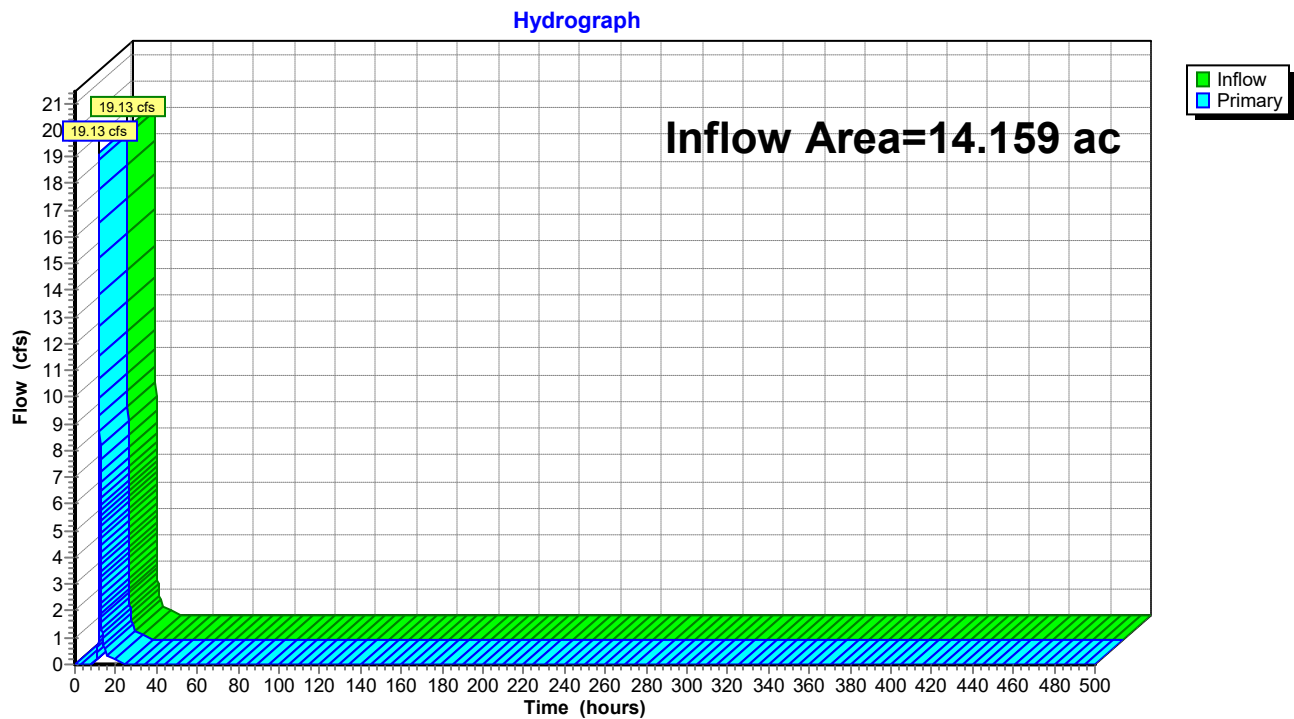


Summary for Link 17L: Ex - Northeast Offsite Wetland/ROW

Inflow Area = 14.159 ac, 19.02% Impervious, Inflow Depth = 0.77" for 10-Year event
Inflow = 19.13 cfs @ 12.14 hrs, Volume= 0.912 af
Primary = 19.13 cfs @ 12.14 hrs, Volume= 0.912 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 17L: Ex - Northeast Offsite Wetland/ROW



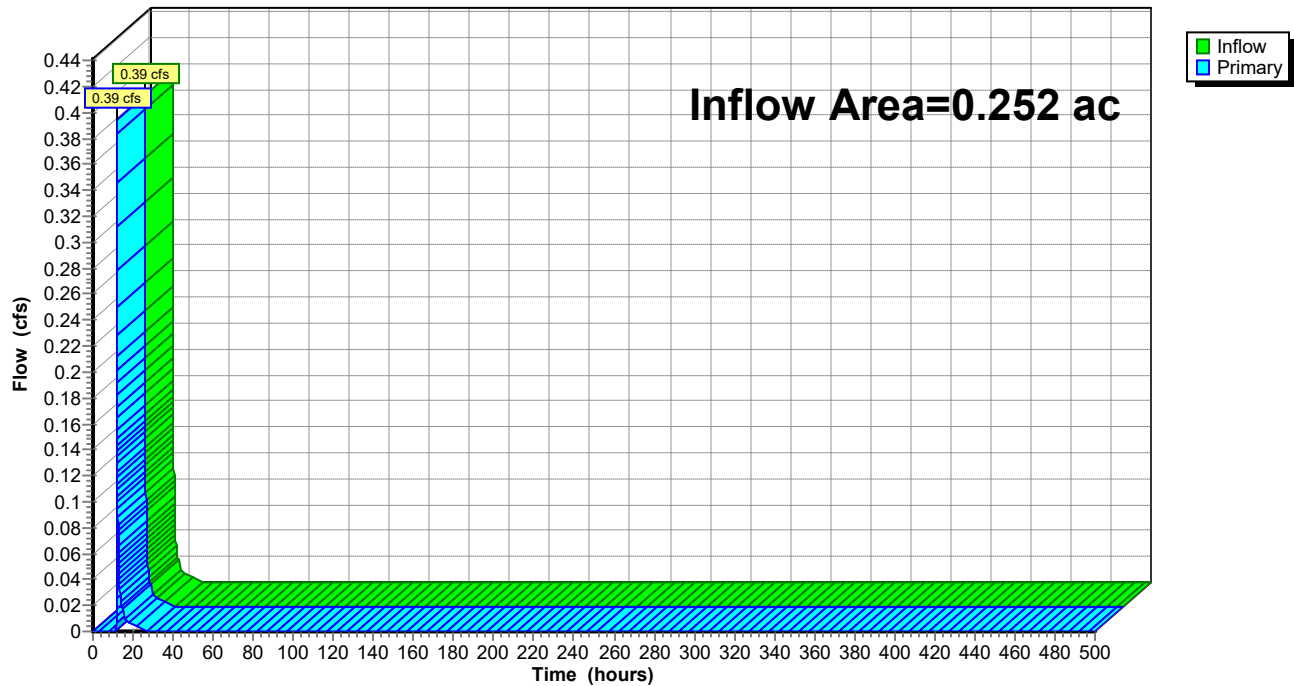
Summary for Link 46L: Pr - NW ROW

Inflow Area = 0.252 ac, 8.88% Impervious, Inflow Depth = 0.87" for 10-Year event
Inflow = 0.39 cfs @ 12.13 hrs, Volume= 0.018 af
Primary = 0.39 cfs @ 12.13 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 46L: Pr - NW ROW

Hydrograph

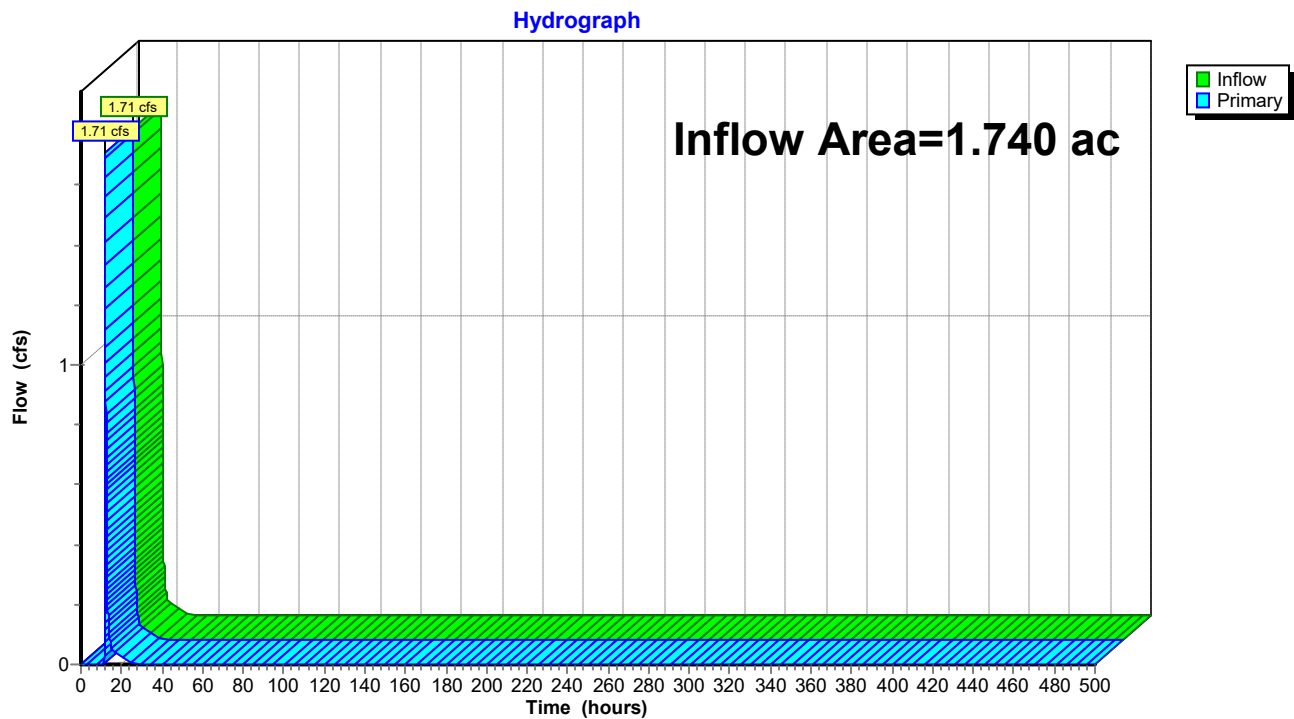


Summary for Link 47L: Pr - SE ROW

Inflow Area = 1.740 ac, 16.32% Impervious, Inflow Depth = 0.64" for 10-Year event
Inflow = 1.71 cfs @ 12.18 hrs, Volume= 0.093 af
Primary = 1.71 cfs @ 12.18 hrs, Volume= 0.093 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 47L: Pr - SE ROW

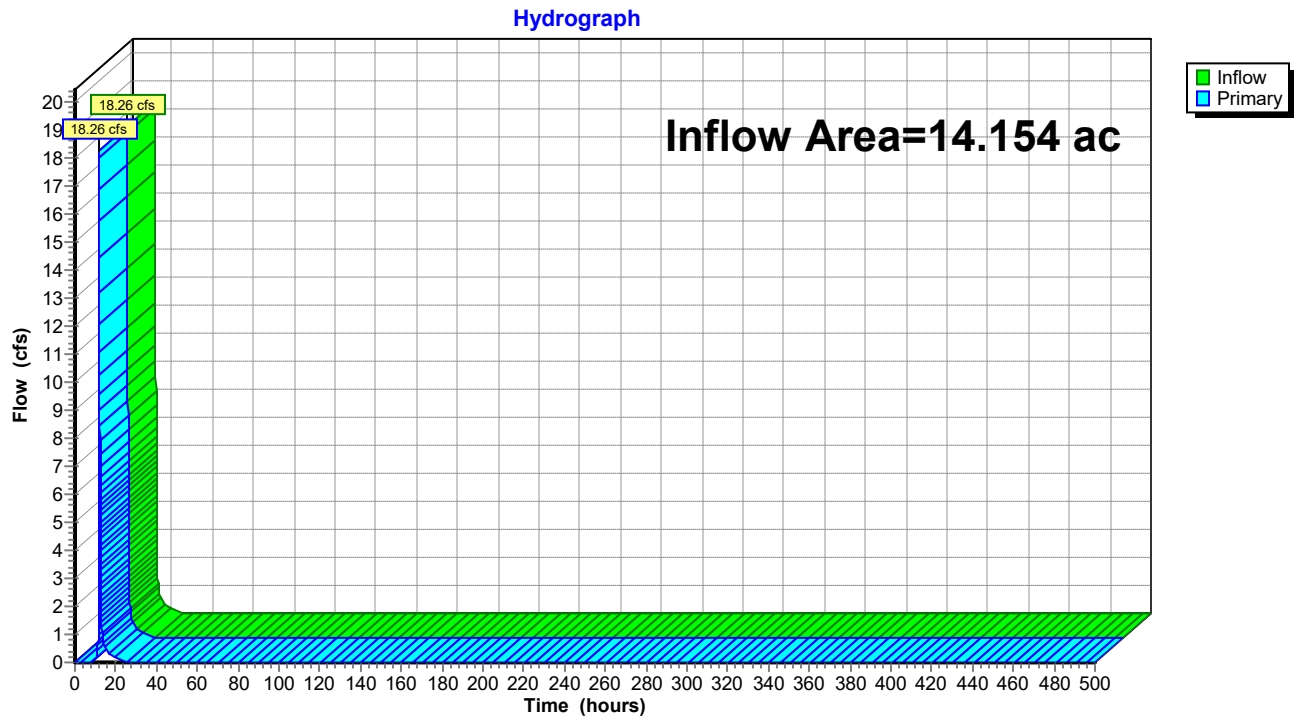


Summary for Link 48L: Pr - Northeast Offsite Wetland/ROW

Inflow Area = 14.154 ac, 31.25% Impervious, Inflow Depth = 0.75" for 10-Year event
Inflow = 18.26 cfs @ 12.14 hrs, Volume= 0.882 af
Primary = 18.26 cfs @ 12.14 hrs, Volume= 0.882 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 48L: Pr - Northeast Offsite Wetland/ROW



Time span=0.00-500.00 hrs, dt=0.01 hrs, 50001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Ex-1 Runoff Area=10,988 sf 0.00% Impervious Runoff Depth=3.06"
Flow Length=137' Slope=0.0431 '/' Tc=4.8 min CN=65 Runoff=1.52 cfs 0.064 af

Subcatchment 2S: Ex-2 Runoff Area=158,203 sf 0.00% Impervious Runoff Depth=3.67"
Flow Length=448' Slope=0.0297 '/' Tc=12.6 min CN=71 Runoff=18.77 cfs 1.112 af

Subcatchment 3S: Ex-2_offsite Runoff Area=45,720 sf 17.58% Impervious Runoff Depth=4.10"
Flow Length=689' Slope=0.0254 '/' Tc=17.2 min CN=75 Runoff=5.19 cfs 0.358 af

Subcatchment 8S: Ex-6 Runoff Area=174,708 sf 8.35% Impervious Runoff Depth=3.36"
Flow Length=346' Slope=0.0254 '/' Tc=12.0 min CN=68 Runoff=19.45 cfs 1.124 af

Subcatchment 9S: Ex-7 Runoff Area=58,257 sf 0.00% Impervious Runoff Depth=3.78"
Flow Length=274' Slope=0.0262 '/' Tc=8.8 min CN=72 Runoff=8.27 cfs 0.421 af

Subcatchment 10S: Ex-8 Runoff Area=40,750 sf 53.55% Impervious Runoff Depth=5.65"
Tc=1.2 min CN=89 Runoff=10.14 cfs 0.440 af

Subcatchment 11S: Ex-7_offsite Runoff Area=134,831 sf 54.05% Impervious Runoff Depth=5.42"
Flow Length=349' Slope=0.0330 '/' Tc=5.9 min CN=87 Runoff=29.28 cfs 1.398 af

Subcatchment 12S: Ex-10 Runoff Area=33,911 sf 0.00% Impervious Runoff Depth=3.46"
Flow Length=167' Slope=0.0242 '/' Tc=6.7 min CN=69 Runoff=4.87 cfs 0.225 af

Subcatchment 13S: Ex-6_offsite Runoff Area=4,310 sf 0.00% Impervious Runoff Depth=3.06"
Flow Length=137' Slope=0.0253 '/' Tc=6.2 min CN=65 Runoff=0.56 cfs 0.025 af

Subcatchment 14S: Ex-11 Runoff Area=41,655 sf 0.00% Impervious Runoff Depth=3.26"
Flow Length=215' Slope=0.0224 '/' Tc=9.0 min CN=67 Runoff=5.11 cfs 0.260 af

Subcatchment 15S: Pr-7_offsite Runoff Area=134,831 sf 54.05% Impervious Runoff Depth=5.42"
Flow Length=349' Slope=0.0330 '/' Tc=5.9 min CN=87 Runoff=29.28 cfs 1.398 af

Subcatchment 22S: Pr-1 Runoff Area=10,988 sf 8.88% Impervious Runoff Depth=2.56"
Flow Length=137' Slope=0.0431 '/' Tc=5.1 min UI Adjusted CN=60 Runoff=1.26 cfs 0.054 af

Subcatchment 23S: Pr-2 Runoff Area=158,203 sf 23.77% Impervious Runoff Depth=3.46"
Flow Length=448' Slope=0.0297 '/' Tc=11.9 min UI Adjusted CN=69 Runoff=18.16 cfs 1.049 af

Subcatchment 24S: Pr-2_offsite Runoff Area=45,720 sf 17.58% Impervious Runoff Depth=4.10"
Flow Length=689' Slope=0.0255 '/' Tc=17.2 min CN=75 Runoff=5.19 cfs 0.358 af

Subcatchment 29S: Pr-6 Runoff Area=174,708 sf 29.31% Impervious Runoff Depth=3.16"
Flow Length=346' Slope=0.0254 '/' Tc=11.4 min UI Adjusted CN=66 Runoff=18.60 cfs 1.055 af

Subcatchment 30S: Pr-7 Runoff Area=58,015 sf 1.95% Impervious Runoff Depth=3.36"
Flow Length=274' Slope=0.0267 '/' Tc=9.7 min CN=68 Runoff=7.06 cfs 0.373 af

Subcatchment 31S: Pr-8 Runoff Area=40,750 sf 53.55% Impervious Runoff Depth=5.65"
Tc=1.2 min CN=89 Runoff=10.14 cfs 0.440 af

Subcatchment 33S: Pr-10 Runoff Area=33,911 sf 20.49% Impervious Runoff Depth=3.36"
Flow Length=167' Slope=0.0242 '/' Tc=6.3 min UI Adjusted CN=68 Runoff=4.82 cfs 0.218 af

Subcatchment 34S: Pr-11 Runoff Area=41,897 sf 12.94% Impervious Runoff Depth=3.06"
Flow Length=215' Slope=0.0219 '/' Tc=9.1 min UI Adjusted CN=65 Runoff=4.75 cfs 0.245 af

Subcatchment 35S: Pr-6_offsite Runoff Area=4,310 sf 0.00% Impervious Runoff Depth=3.06"
Flow Length=137' Slope=0.0253 '/' Tc=6.2 min CN=65 Runoff=0.56 cfs 0.025 af

Reach 9R: Flow over Ex-11 Avg. Flow Depth=0.05' Max Vel=0.49 fps Inflow=0.29 cfs 0.037 af
n=0.035 L=120.0' S=0.0094 '/' Capacity=715.26 cfs Outflow=0.29 cfs 0.037 af

Reach 10R: Flow over Ex-11 Avg. Flow Depth=0.04' Max Vel=0.47 fps Inflow=0.26 cfs 0.031 af
n=0.035 L=120.0' S=0.0094 '/' Capacity=715.26 cfs Outflow=0.25 cfs 0.031 af

Pond 9P: Ex-2 Depression/ROW Peak Elev=961.65' Storage=51,671 cf Inflow=23.62 cfs 1.470 af
Discarded=0.34 cfs 1.470 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.34 cfs 1.470 af

Pond 12P: Ex-6 Wetland Peak Elev=958.36' Storage=25,077 cf Inflow=19.81 cfs 1.149 af
Discarded=0.03 cfs 0.505 af Primary=5.11 cfs 0.644 af Outflow=5.15 cfs 1.149 af

Pond 13P: Ex-8 Wetland Peak Elev=955.89' Storage=18,210 cf Inflow=10.14 cfs 0.440 af
Discarded=0.02 cfs 0.440 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.440 af

Pond 15P: Ex-10 Depression Peak Elev=960.88' Storage=5,846 cf Inflow=4.87 cfs 0.225 af
Discarded=0.10 cfs 0.188 af Primary=0.29 cfs 0.037 af Outflow=0.39 cfs 0.225 af

Pond 39P: Pr-2 Depression/ROW Peak Elev=961.58' Storage=49,282 cf Inflow=22.89 cfs 1.407 af
Discarded=0.33 cfs 1.407 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.33 cfs 1.407 af

Pond 41P: Pr-6 Wetland Peak Elev=958.33' Storage=24,406 cf Inflow=18.98 cfs 1.080 af
Discarded=0.03 cfs 0.505 af Primary=3.93 cfs 0.576 af Outflow=3.96 cfs 1.080 af

Pond 42P: Pr-8 Wetland Peak Elev=955.89' Storage=18,210 cf Inflow=10.14 cfs 0.440 af
Discarded=0.02 cfs 0.440 af Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.440 af

Pond 44P: Pr-10 Depression Peak Elev=960.88' Storage=5,801 cf Inflow=4.82 cfs 0.218 af
Discarded=0.10 cfs 0.187 af Primary=0.26 cfs 0.031 af Outflow=0.36 cfs 0.218 af

Link 15L: Ex - NW ROW Inflow=1.52 cfs 0.064 af
Primary=1.52 cfs 0.064 af

Link 16L: Ex - SE ROW Inflow=5.11 cfs 0.297 af
Primary=5.11 cfs 0.297 af

Link 17L: Ex - Northeast Offsite Wetland/ROW Inflow=36.92 cfs 2.463 af
Primary=36.92 cfs 2.463 af

Link 46L: Pr - NW ROW

Inflow=1.26 cfs 0.054 af
Primary=1.26 cfs 0.054 af

Link 47L: Pr - SE ROW

Inflow=4.75 cfs 0.276 af
Primary=4.75 cfs 0.276 af

Link 48L: Pr - Northeast Offsite Wetland/ROW

Inflow=35.48 cfs 2.347 af
Primary=35.48 cfs 2.347 af

Total Runoff Area = 32.293 ac Runoff Volume = 10.644 af Average Runoff Depth = 3.96"
77.01% Pervious = 24.870 ac 22.99% Impervious = 7.423 ac

Summary for Subcatchment 1S: Ex-1

Runoff = 1.52 cfs @ 12.12 hrs, Volume= 0.064 af, Depth= 3.06"
 Routed to Link 15L : Ex - NW ROW

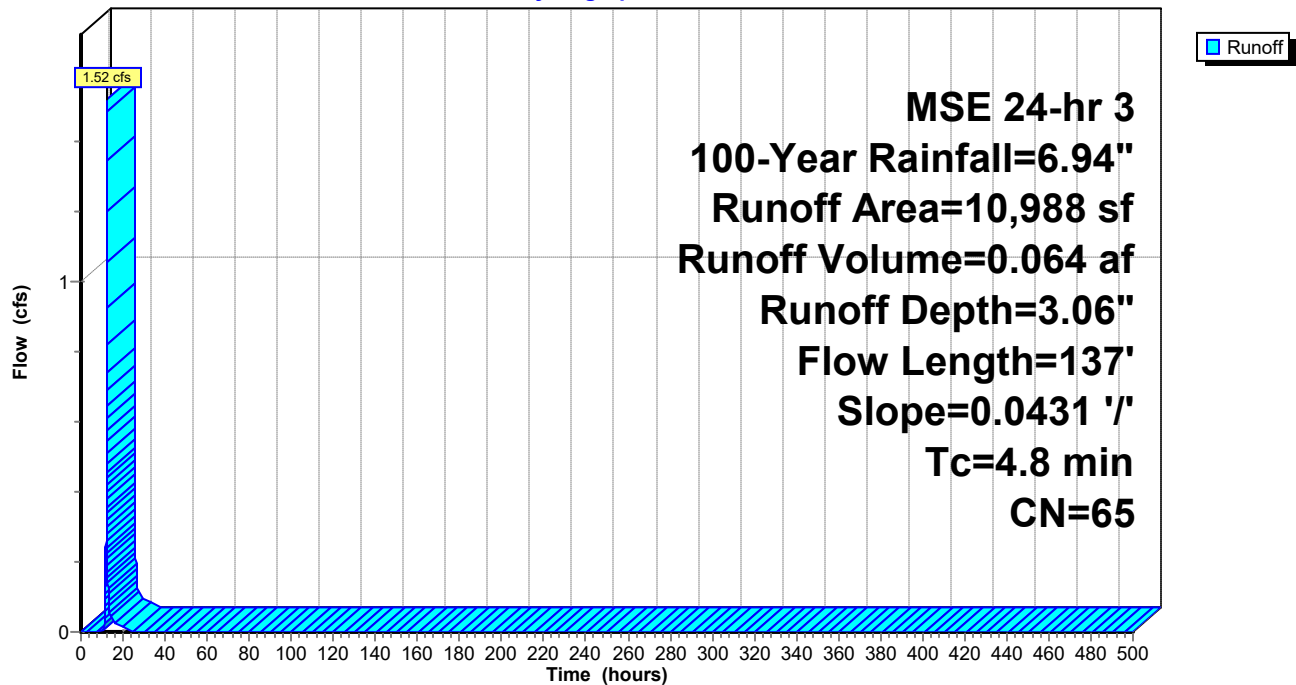
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

Area (sf)	CN	Description
* 10,988	65	Pasture/grassland/range, HSG B
10,988	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	137	0.0431	0.48		Lag/CN Method,

Subcatchment 1S: Ex-1

Hydrograph



Summary for Subcatchment 2S: Ex-2

Runoff = 18.77 cfs @ 12.21 hrs, Volume= 1.112 af, Depth= 3.67"
 Routed to Pond 9P : Ex-2 Depression/ROW

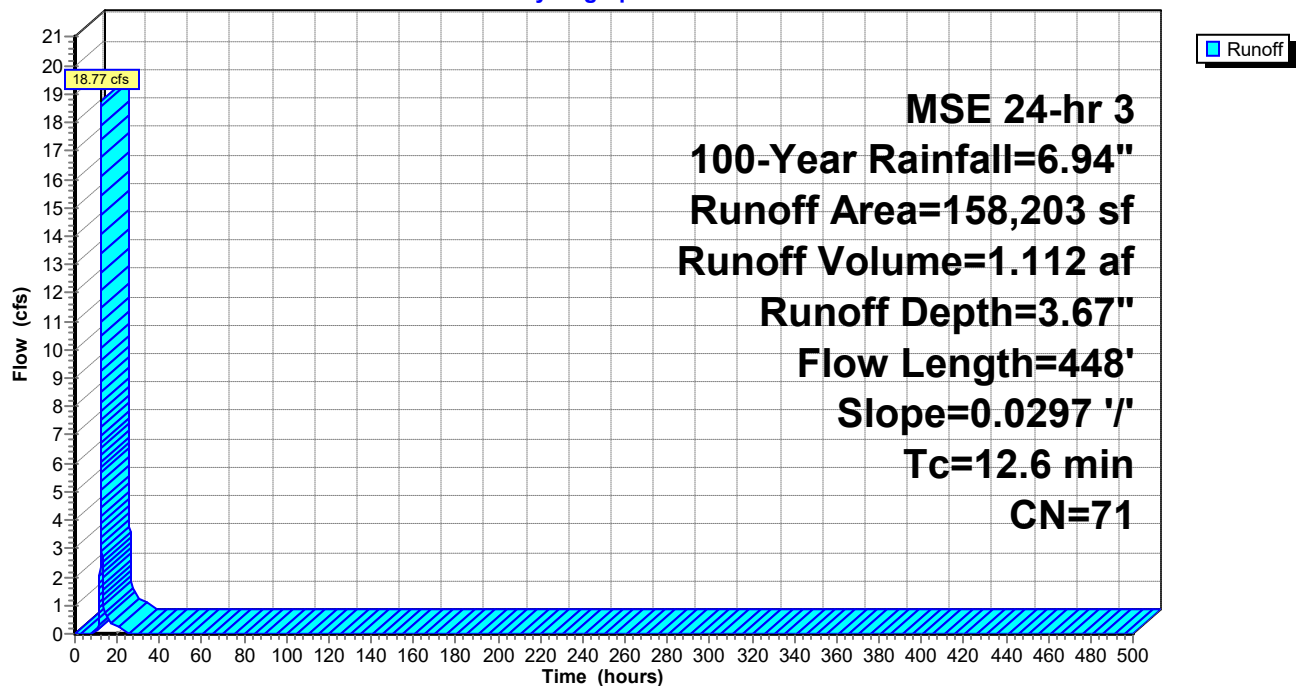
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Description
*	79,495	65	Pasture/grassland/range, HSG B
*	73,332	77	Pasture/grassland/range, HSG C
*	5,091	82	Pasture/grassland/range, HSG D
*	285	60	Woods, HSG B
	158,203	71	Weighted Average
	158,203	71	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	448	0.0297	0.59		Lag/CN Method,

Subcatchment 2S: Ex-2

Hydrograph



Summary for Subcatchment 3S: Ex-2_offsite

Runoff = 5.19 cfs @ 12.26 hrs, Volume= 0.358 af, Depth= 4.10"
Routed to Pond 9P : Ex-2 Depression/ROW

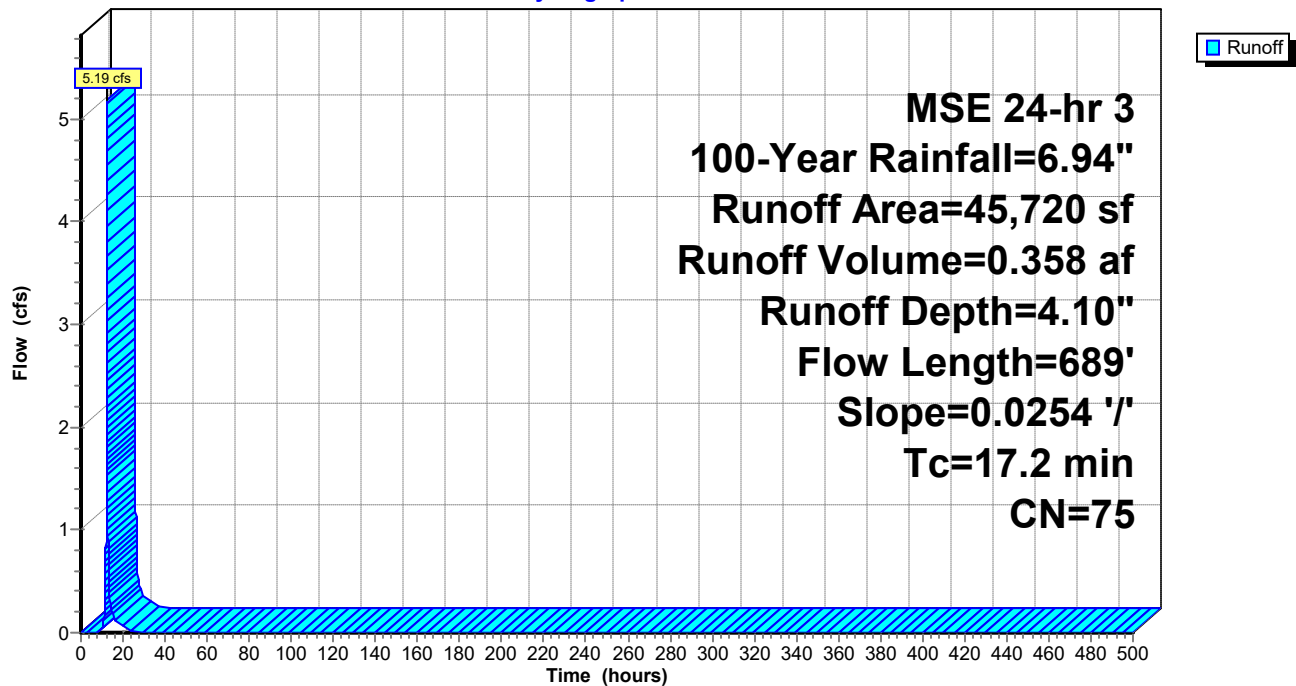
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Description
*	12,116	65	Pasture/grassland/range, HSG B
*	4,797	77	Pasture/grassland/range, HSG C
*	1,486	82	Pasture/grassland/range, HSG D
*	12,181	65	Pasture/grassland/range, HSG B
*	5,469	77	Pasture/grassland/range, HSG C
*	1,635	82	Pasture/grassland/range, HSG D
*	8,036	98	Paved road
	45,720	75	Weighted Average
	37,684	70	82.42% Pervious Area
	8,036	98	17.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	689	0.0254	0.67		Lag/CN Method,

Subcatchment 3S: Ex-2_offsite

Hydrograph



Summary for Subcatchment 8S: Ex-6

Runoff = 19.45 cfs @ 12.20 hrs, Volume= 1.124 af, Depth= 3.36"
 Routed to Pond 12P : Ex-6 Wetland

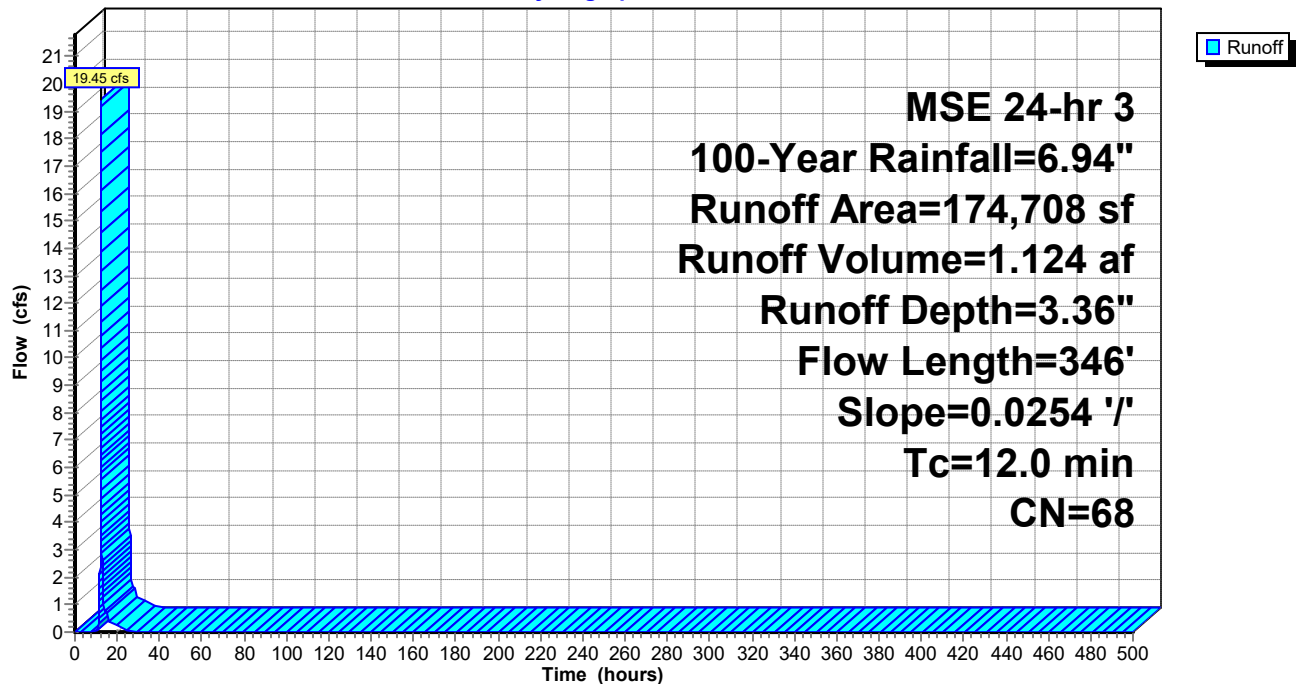
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Description
*	155,017	65	Pasture/grassland/range, HSG B
*	1,076	82	Pasture/grassland/range, HSG D
*	14,586	98	Wetland
*	4,029	60	Woods, HSG B
	174,708	68	Weighted Average
	160,122	65	91.65% Pervious Area
	14,586	98	8.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	346	0.0254	0.48		Lag/CN Method,

Subcatchment 8S: Ex-6

Hydrograph



Summary for Subcatchment 9S: Ex-7

Runoff = 8.27 cfs @ 12.16 hrs, Volume= 0.421 af, Depth= 3.78"
 Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW

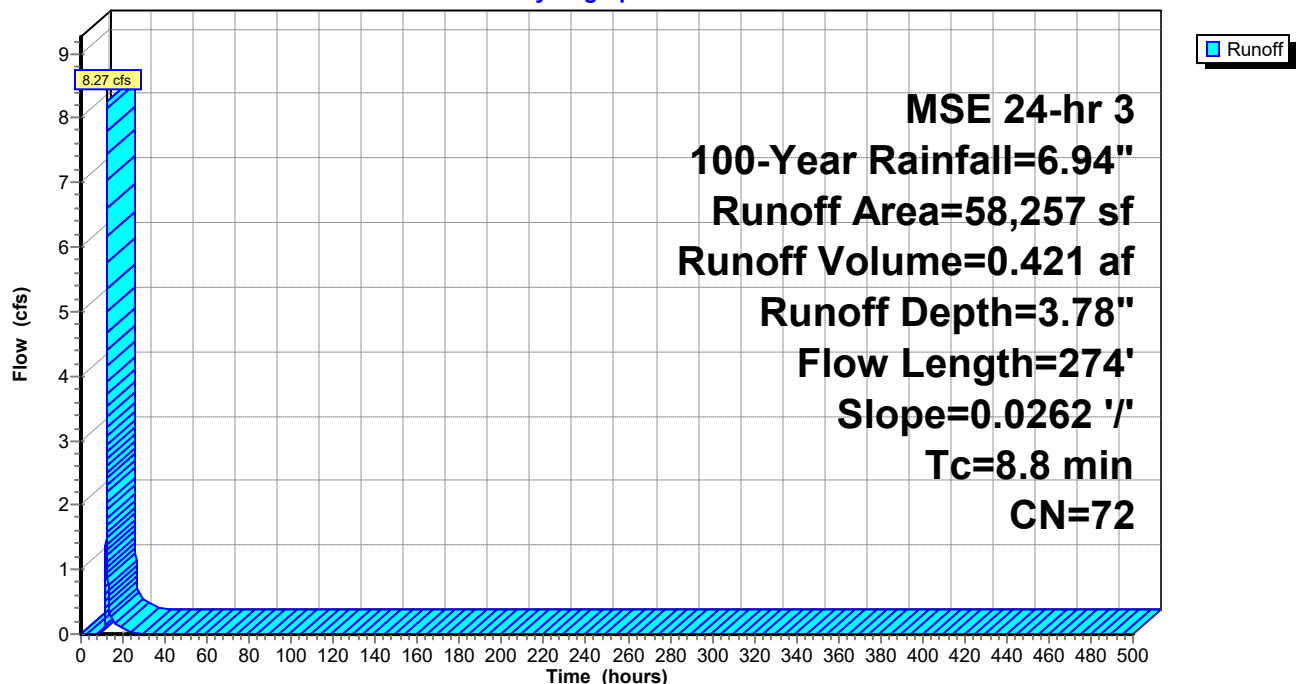
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Description
*	29,314	65	Pasture/grassland/range, HSG B
*	15,465	82	Pasture/grassland/range, HSG D
*	804	65	Pasture/grassland/range, HSG B
*	974	60	Woods, HSG B
*	11,700	79	Woods, HSG D
	58,257	72	Weighted Average
	58,257	72	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	274	0.0262	0.52		Lag/CN Method,

Subcatchment 9S: Ex-7

Hydrograph



Summary for Subcatchment 10S: Ex-8

calculated tc with lag/CN method was less than $2 \cdot dt = 1.2$ min, so set to 1.2 min

Runoff = 10.14 cfs @ 12.10 hrs, Volume= 0.440 af, Depth= 5.65"
 Routed to Pond 13P : Ex-8 Wetland

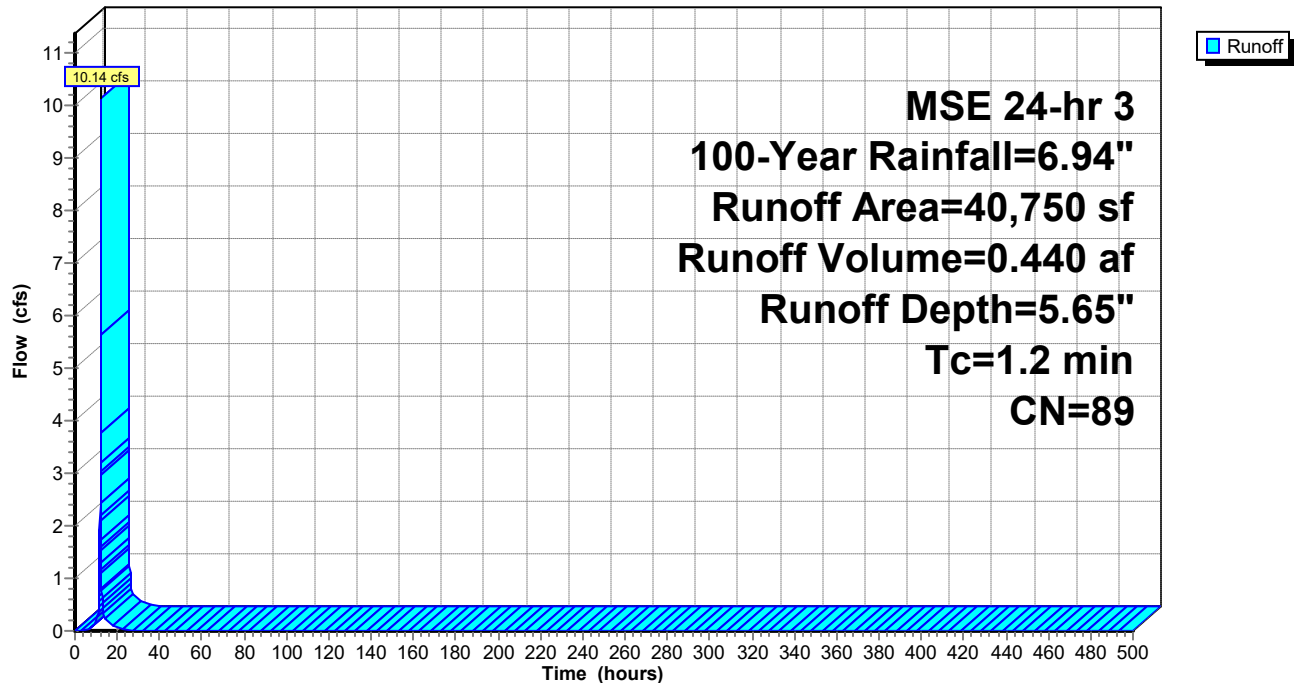
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Description
*	95	82	Pasture/grassland/range, HSG D
*	21,821	98	Wetland
*	18,834	79	Woods, HSG D
	40,750	89	Weighted Average
	18,929	79	46.45% Pervious Area
	21,821	98	53.55% Impervious Area

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

Subcatchment 10S: Ex-8

Hydrograph



Summary for Subcatchment 11S: Ex-7_offsite

Runoff = 29.28 cfs @ 12.13 hrs, Volume= 1.398 af, Depth= 5.42"
 Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW

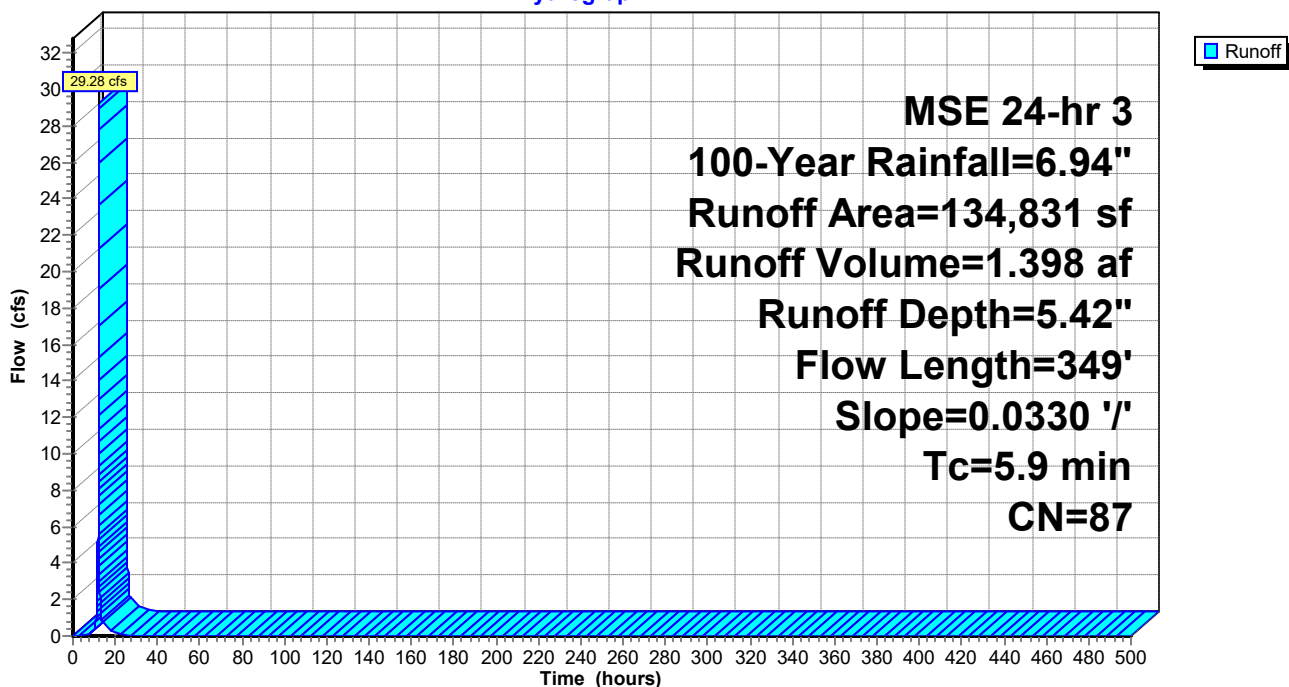
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Description
*	11,289	65	Pasture/grassland/range, HSG B
*	2,488	82	Pasture/grassland/range, HSG D
*	15,448	65	Pasture/grassland/range, HSG B
*	14,603	82	Pasture/grassland/range, HSG D
*	48	60	Woods, HSG B
*	18,084	79	Woods, HSG D
*	57,777	98	Wetland
*	15,094	98	Paved road
	134,831	87	Weighted Average
	61,960	74	45.95% Pervious Area
	72,871	98	54.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	349	0.0330	0.98		Lag/CN Method,

Subcatchment 11S: Ex-7_offsite

Hydrograph



Summary for Subcatchment 12S: Ex-10

Runoff = 4.87 cfs @ 12.14 hrs, Volume= 0.225 af, Depth= 3.46"
 Routed to Pond 15P : Ex-10 Depression

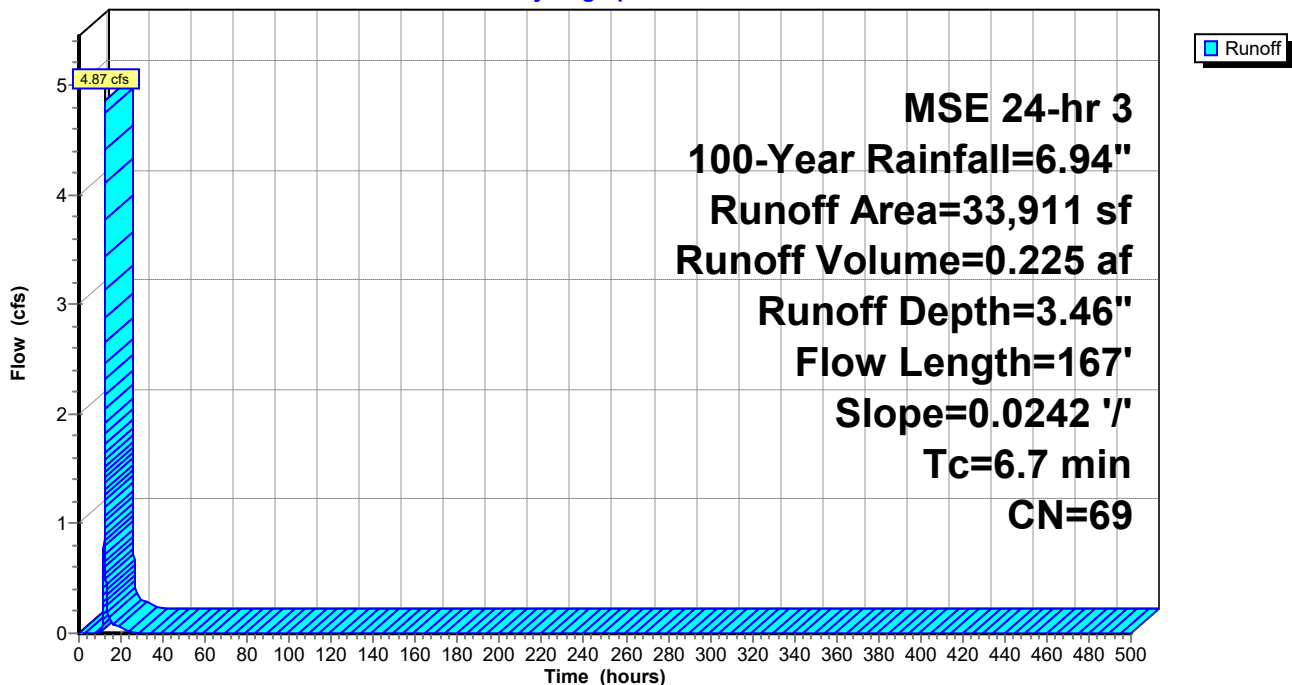
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Description
*	25,024	65	Pasture/grassland/range, HSG B
*	8,310	82	Pasture/grassland/range, HSG D
*	577	79	Woods, HSG D
	33,911	69	Weighted Average
	33,911	69	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.7	167	0.0242	0.42		Lag/CN Method,

Subcatchment 12S: Ex-10

Hydrograph



Summary for Subcatchment 13S: Ex-6_offsite

Runoff = 0.56 cfs @ 12.14 hrs, Volume= 0.025 af, Depth= 3.06"
 Routed to Pond 12P : Ex-6 Wetland

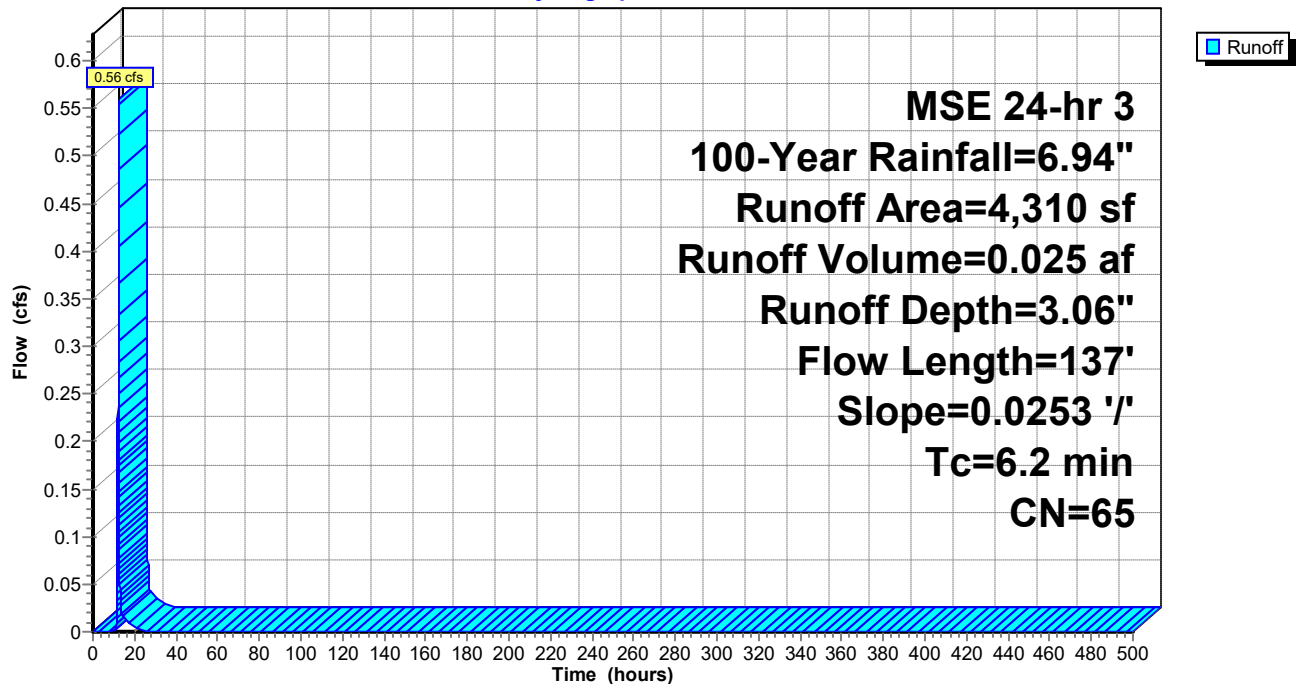
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Description
*	3,760	65	Pasture/grassland/range, HSG B
*	550	65	Pasture/grassland/range, HSG B
	4,310	65	Weighted Average
	4,310	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	137	0.0253	0.37		Lag/CN Method,

Subcatchment 13S: Ex-6_offsite

Hydrograph



Summary for Subcatchment 14S: Ex-11

Runoff = 5.11 cfs @ 12.17 hrs, Volume= 0.260 af, Depth= 3.26"
 Routed to Link 16L : Ex - SE ROW

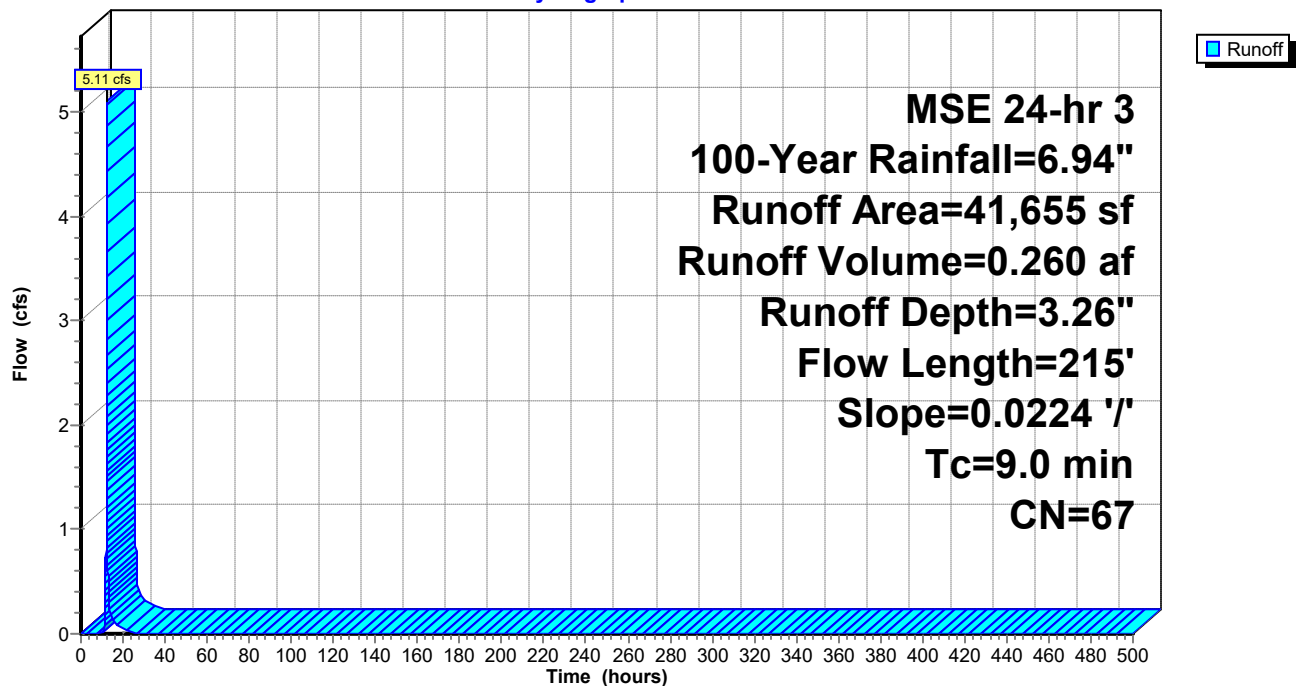
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Description
*	35,137	65	Pasture/grassland/range, HSG B
*	4,197	82	Pasture/grassland/range, HSG D
*	1,142	65	Pasture/grassland/range, HSG B
*	1,179	79	Woods, HSG D
	41,655	67	Weighted Average
	41,655	67	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	215	0.0224	0.40		Lag/CN Method,

Subcatchment 14S: Ex-11

Hydrograph



Summary for Subcatchment 15S: Pr-7_offsite

Runoff = 29.28 cfs @ 12.13 hrs, Volume= 1.398 af, Depth= 5.42"
 Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW

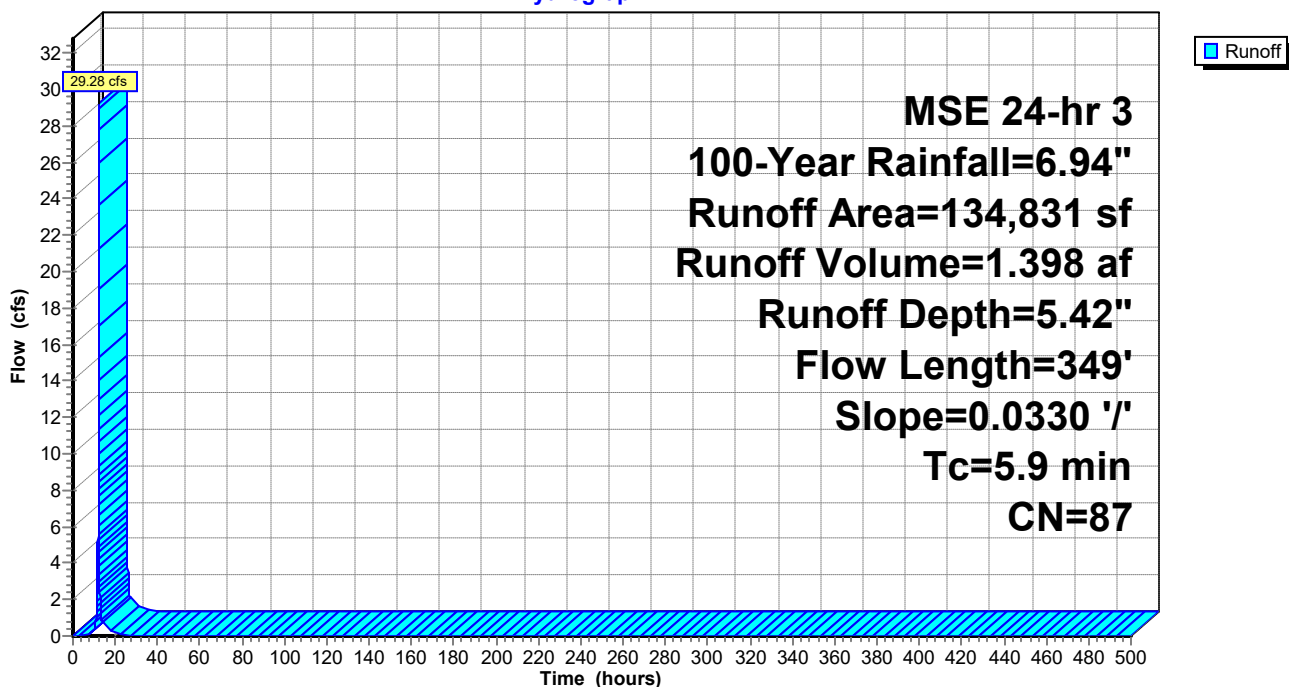
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Description
*	11,289	65	Pasture/grassland/range, HSG B
*	2,488	82	Pasture/grassland/range, HSG D
*	15,448	65	Pasture/grassland/range, HSG B
*	14,603	82	Pasture/grassland/range, HSG D
*	48	60	Woods, HSG B
*	18,084	79	Woods, HSG D
*	57,777	98	Wetland
*	15,094	98	Paved road
	134,831	87	Weighted Average
	61,960	74	45.95% Pervious Area
	72,871	98	54.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	349	0.0330	0.98		Lag/CN Method,

Subcatchment 15S: Pr-7_offsite

Hydrograph



Summary for Subcatchment 22S: Pr-1

Runoff = 1.26 cfs @ 12.13 hrs, Volume= 0.054 af, Depth= 2.56"
 Routed to Link 46L : Pr - NW ROW

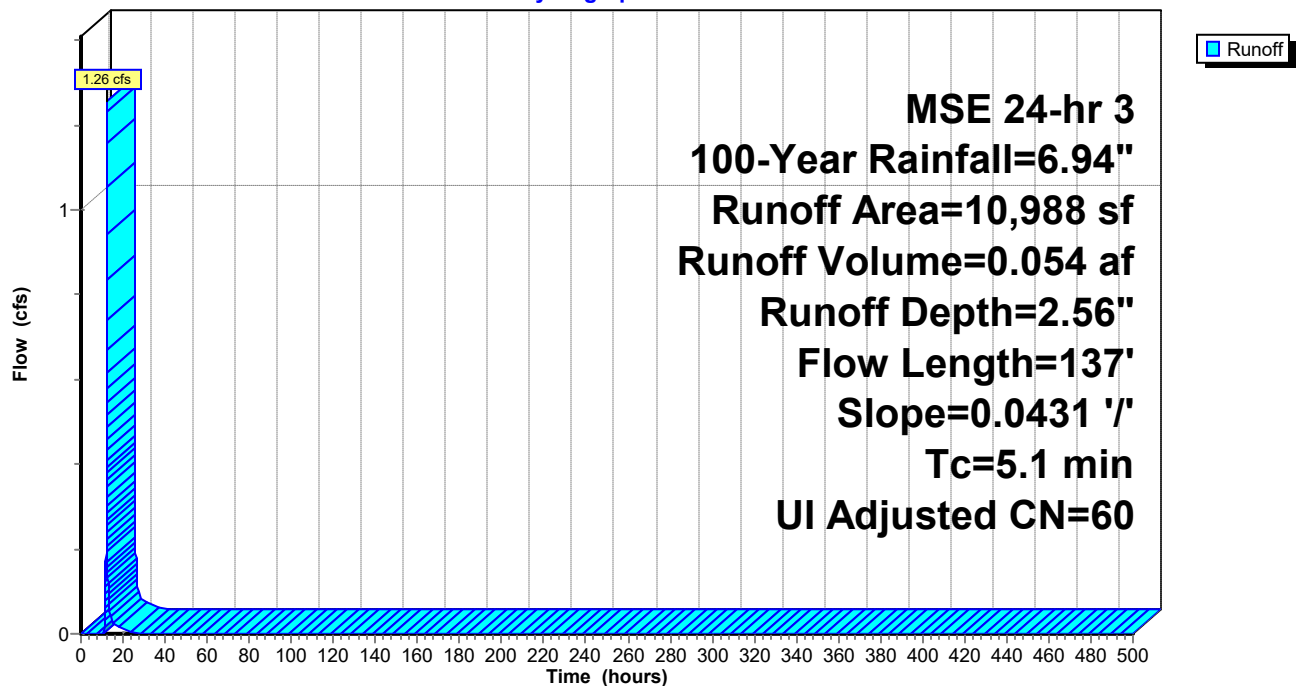
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Adj	Description
*	10,012	58		Meadow, HSG B
	976	98		Unconnected roofs, HSG B
	10,988	62	60	Weighted Average, UI Adjusted
	10,012	58	58	91.12% Pervious Area
	976	98	98	8.88% Impervious Area
	976			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	137	0.0431	0.44		Lag/CN Method,

Subcatchment 22S: Pr-1

Hydrograph



Summary for Subcatchment 23S: Pr-2

Runoff = 18.16 cfs @ 12.20 hrs, Volume= 1.049 af, Depth= 3.46"
 Routed to Pond 39P : Pr-2 Depression/ROW

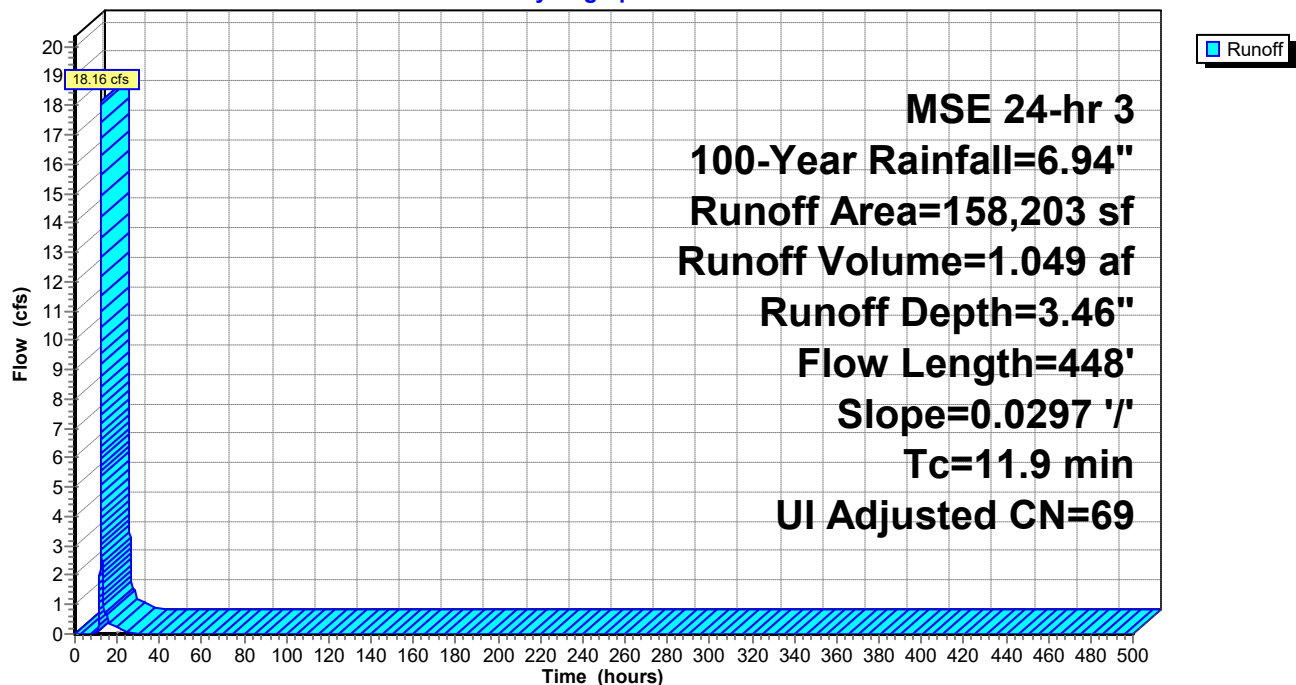
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Adj	Description
*	62,278	58		Meadow, HSG B
*	53,419	71		Meadow, HSG C
*	4,896	78		Meadow, HSG D
	16,746	98		Unconnected roofs, HSG B
	19,913	98		Unconnected roofs, HSG C
	195	98		Unconnected roofs, HSG D
*	756	98		Equipment pad, HSG B
	158,203	73	69	Weighted Average, UI Adjusted
	120,593	65	65	76.23% Pervious Area
	37,610	98	98	23.77% Impervious Area
	36,854			97.99% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.9	448	0.0297	0.63		Lag/CN Method,

Subcatchment 23S: Pr-2

Hydrograph



Summary for Subcatchment 24S: Pr-2_offsite

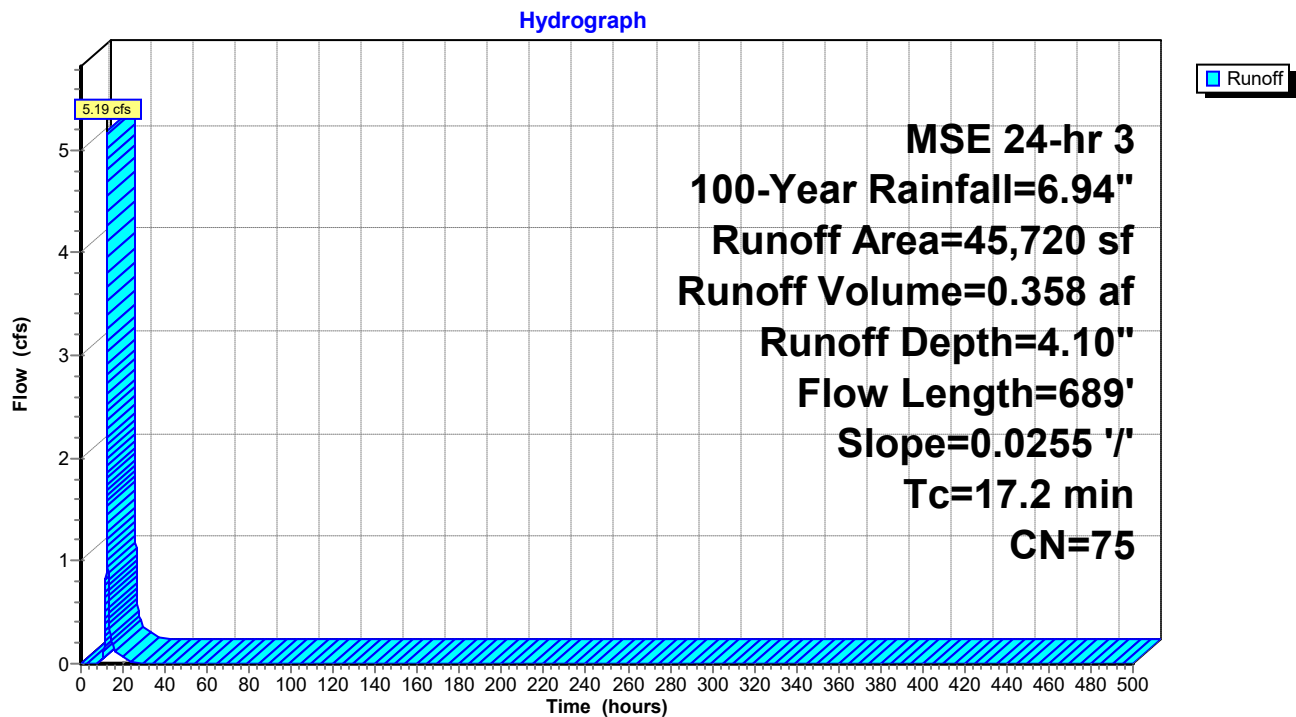
Runoff = 5.19 cfs @ 12.26 hrs, Volume= 0.358 af, Depth= 4.10"
 Routed to Pond 39P : Pr-2 Depression/ROW

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Description
*	12,116	65	Pasture/grassland/range, HSG B
*	4,797	77	Pasture/grassland/range, HSG C
*	1,486	82	Pasture/grassland/range, HSG D
*	12,181	65	Pasture/grassland/range, HSG B
*	5,469	77	Pasture/grassland/range, HSG C
*	1,635	82	Pasture/grassland/range, HSG D
*	8,036	98	Paved road
	45,720	75	Weighted Average
	37,684	70	82.42% Pervious Area
	8,036	98	17.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.2	689	0.0255	0.67		Lag/CN Method,

Subcatchment 24S: Pr-2_offsite



Summary for Subcatchment 29S: Pr-6

Runoff = 18.60 cfs @ 12.20 hrs, Volume= 1.055 af, Depth= 3.16"
 Routed to Pond 41P : Pr-6 Wetland

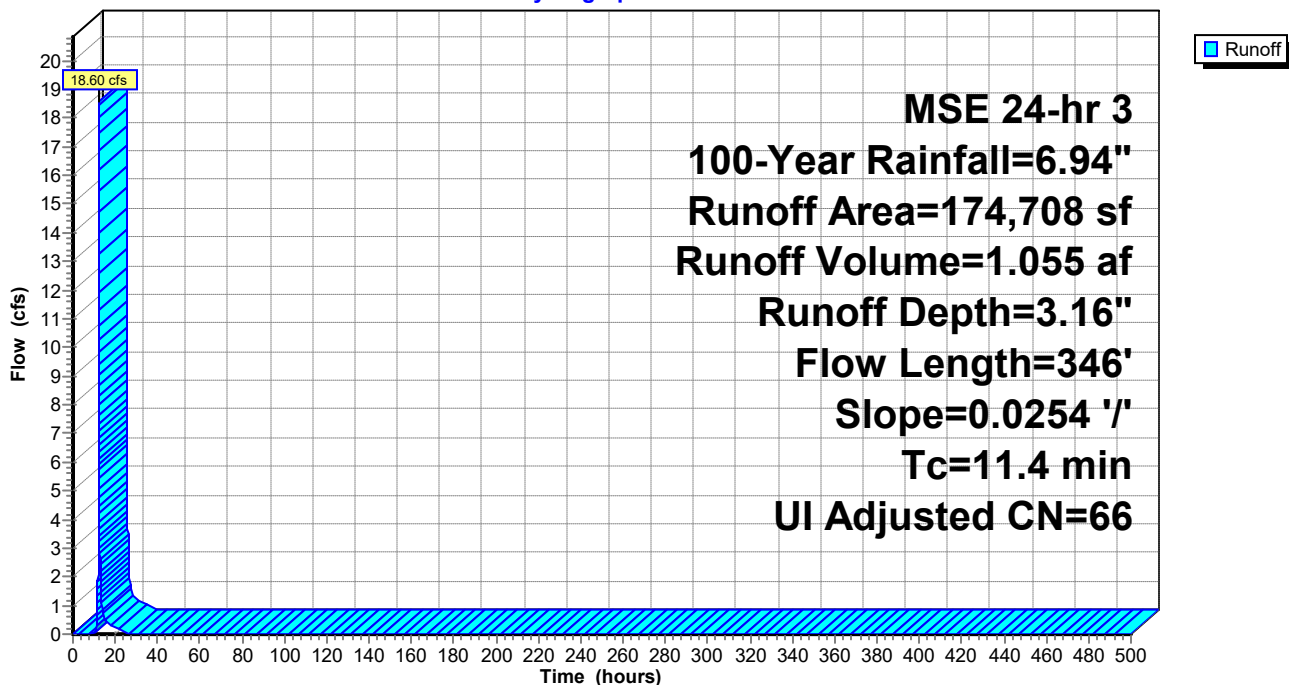
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Adj	Description
*	122,744	58		Meadow, HSG B
*	751	78		Meadow, HSG D
*	14,586	98		Wetland
	36,303	98		Unconnected roofs, HSG B
	324	98		Unconnected roofs, HSG D
	174,708	70	66	Weighted Average, UI Adjusted
	123,495	58	58	70.69% Pervious Area
	51,213	98	98	29.31% Impervious Area
	36,627			71.52% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	346	0.0254	0.51		Lag/CN Method,

Subcatchment 29S: Pr-6

Hydrograph



Summary for Subcatchment 30S: Pr-7

Runoff = 7.06 cfs @ 12.17 hrs, Volume= 0.373 af, Depth= 3.36"
 Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW

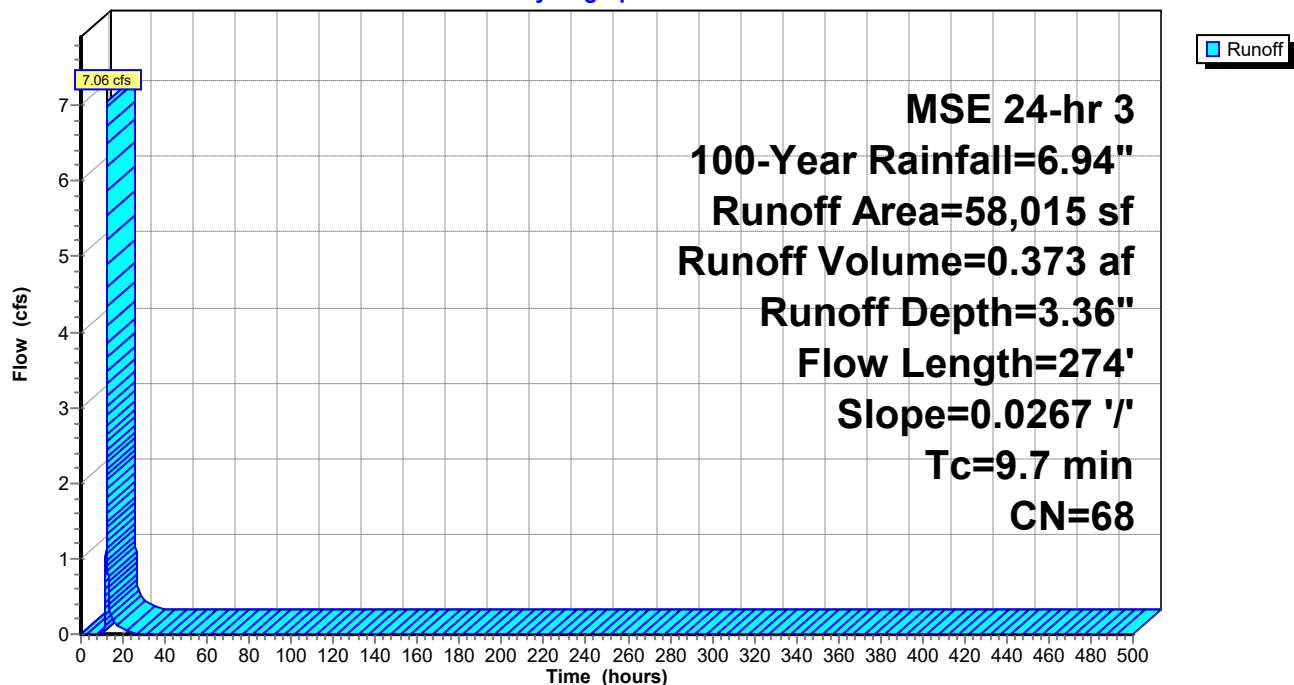
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Description
*	29,742	58	Meadow, HSG B
*	26,427	78	Meadow, HSG D
	394	98	Unconnected roofs, HSG B
	739	98	Unconnected roofs, HSG D
*	713	85	Gravel surface, HSG B
	58,015	68	Weighted Average
	56,882	68	98.05% Pervious Area
	1,133	98	1.95% Impervious Area
	1,133		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	274	0.0267	0.47		Lag/CN Method,

Subcatchment 30S: Pr-7

Hydrograph



Summary for Subcatchment 31S: Pr-8

calculated tc with lag/CN method was less than $2 \cdot dt = 1.2$ min, so set to 1.2 min

Runoff = 10.14 cfs @ 12.10 hrs, Volume= 0.440 af, Depth= 5.65"
 Routed to Pond 42P : Pr-8 Wetland

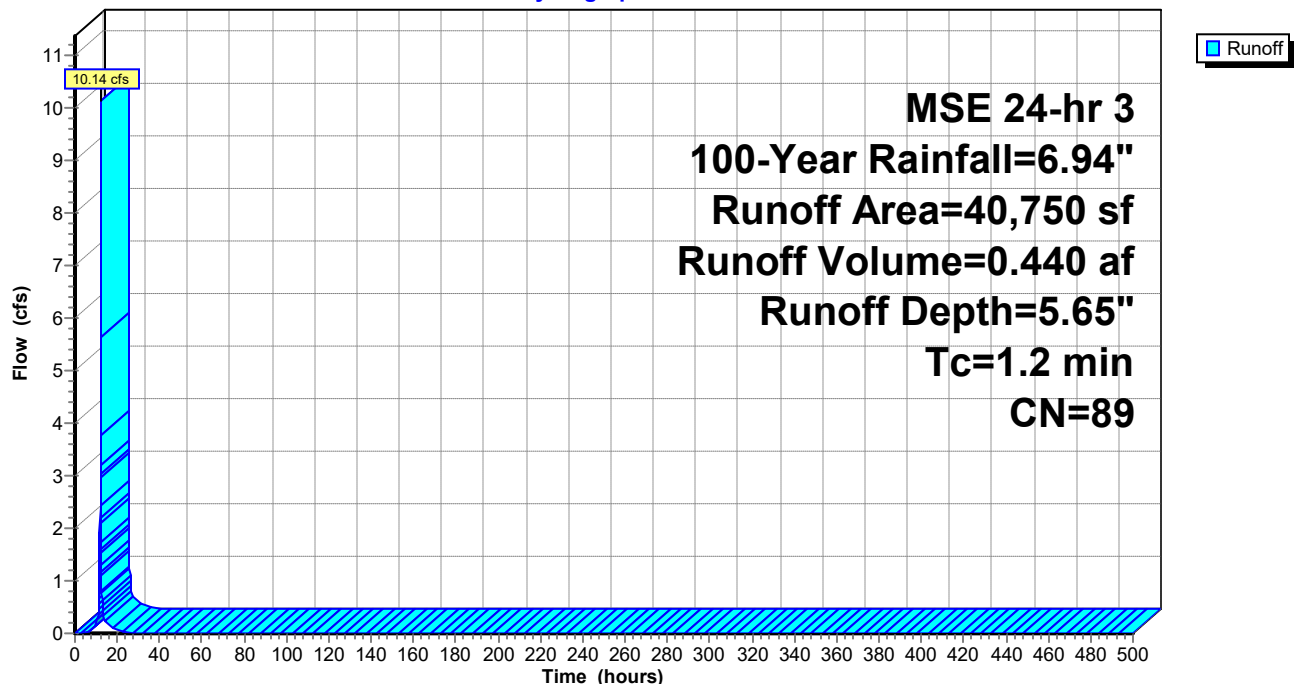
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Description
*	18,929	78	Meadow, HSG D
*	21,821	98	Wetland
	40,750	89	Weighted Average
	18,929	78	46.45% Pervious Area
	21,821	98	53.55% Impervious Area

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

Subcatchment 31S: Pr-8

Hydrograph



Summary for Subcatchment 33S: Pr-10

Runoff = 4.82 cfs @ 12.14 hrs, Volume= 0.218 af, Depth= 3.36"
 Routed to Pond 44P : Pr-10 Depression

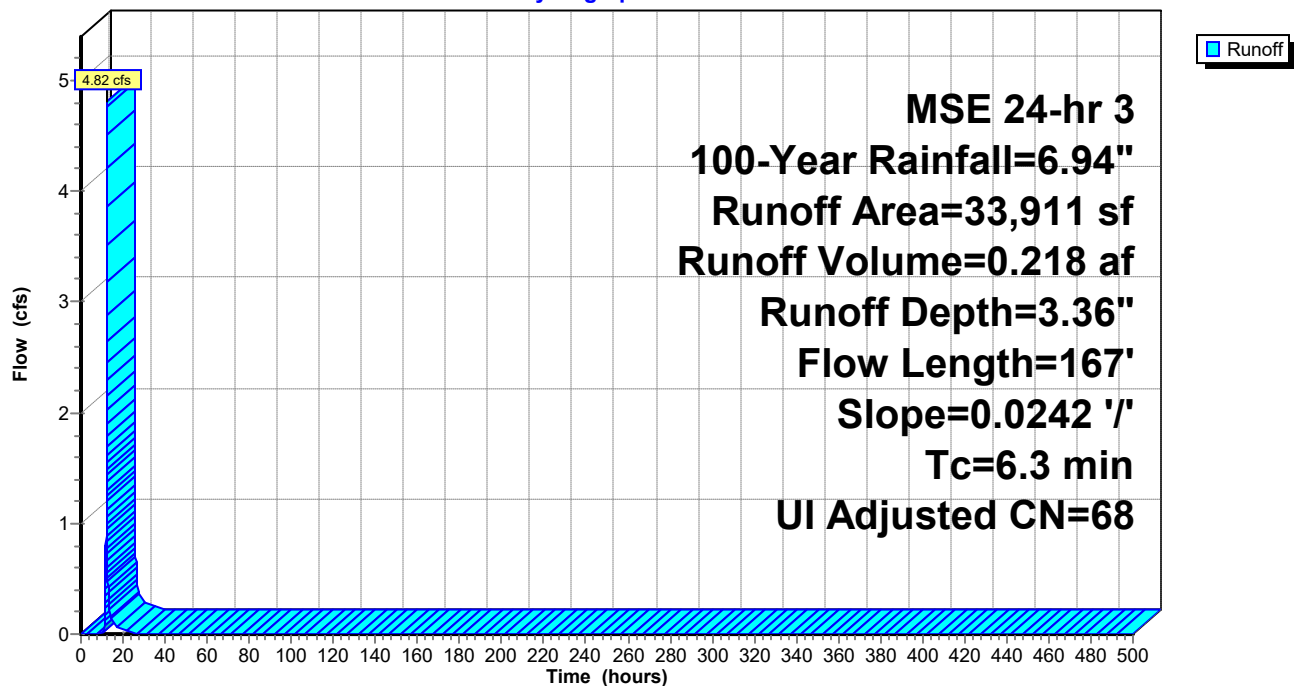
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Adj	Description
*	18,075	58		Meadow, HSG B
*	8,887	78		Meadow, HSG D
	6,949	98		Unconnected roofs, HSG B
	33,911	71	68	Weighted Average, UI Adjusted
	26,962	65	65	79.51% Pervious Area
	6,949	98	98	20.49% Impervious Area
	6,949			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	167	0.0242	0.44		Lag/CN Method,

Subcatchment 33S: Pr-10

Hydrograph



Summary for Subcatchment 34S: Pr-11

Runoff = 4.75 cfs @ 12.17 hrs, Volume= 0.245 af, Depth= 3.06"
Routed to Link 47L : Pr - SE ROW

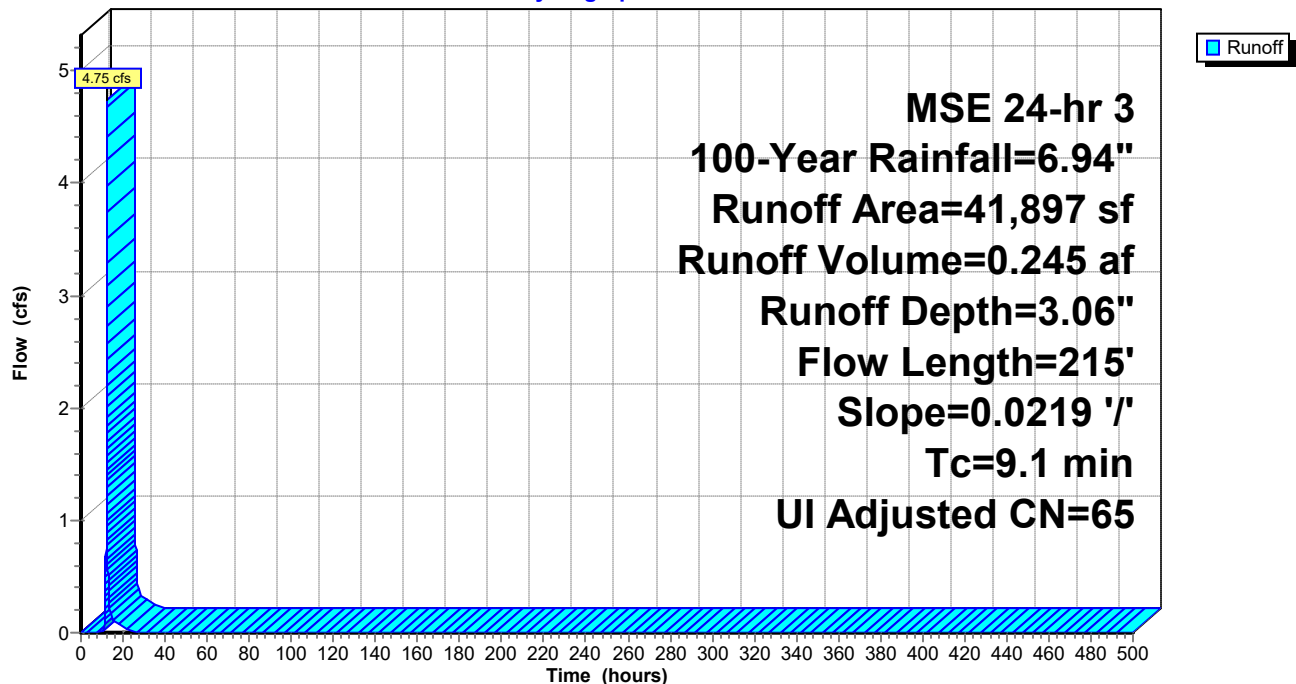
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Adj	Description
*	28,679	58		Meadow, HSG B
*	5,329	78		Meadow, HSG D
	5,154	98		Unconnected roofs, HSG B
*	267	98		Equipment pad, HSG B
*	2,423	85		Gravel surface, HSG B
*	45	91		Gravel surface, HSG D
	41,897	67	65	Weighted Average, UI Adjusted
	36,476	63	63	87.06% Pervious Area
	5,421	98	98	12.94% Impervious Area
	5,154			95.07% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	215	0.0219	0.39		Lag/CN Method,

Subcatchment 34S: Pr-11

Hydrograph



Summary for Subcatchment 35S: Pr-6_offsite

Runoff = 0.56 cfs @ 12.14 hrs, Volume= 0.025 af, Depth= 3.06"
 Routed to Pond 41P : Pr-6 Wetland

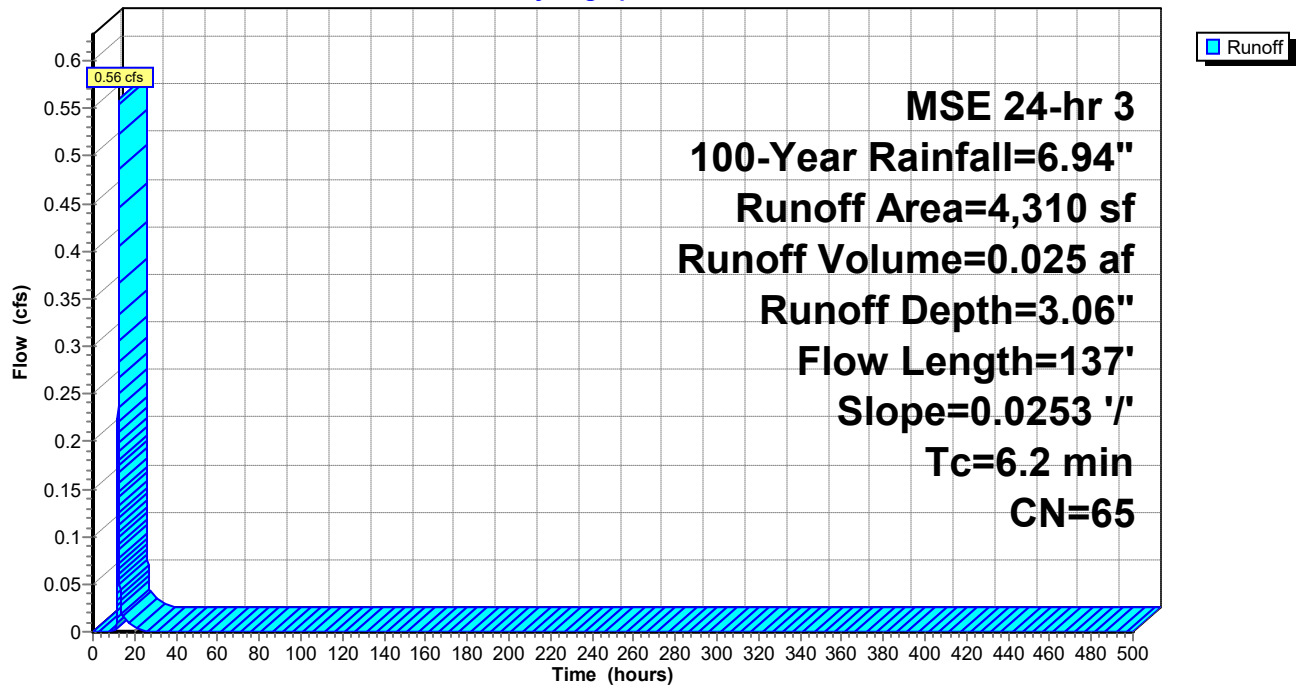
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.94"

	Area (sf)	CN	Description
*	3,760	65	Pasture/grassland/range, HSG B
*	550	65	Pasture/grassland/range, HSG B
	4,310	65	Weighted Average
	4,310	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	137	0.0253	0.37		Lag/CN Method,

Subcatchment 35S: Pr-6_offsite

Hydrograph



Summary for Reach 9R: Flow over Ex-11

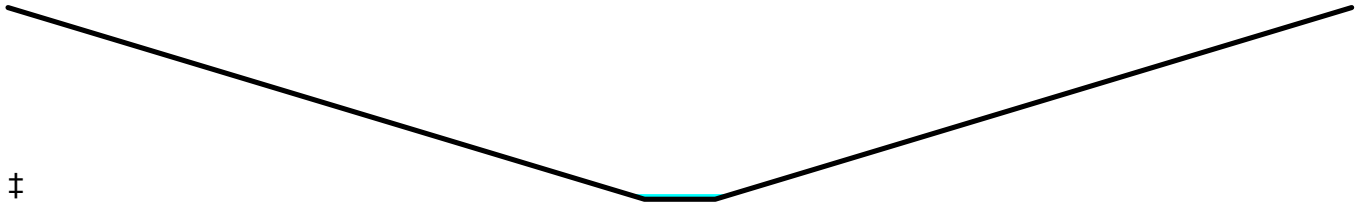
[80] Warning: Exceeded Pond 15P by 0.03' @ 19.61 hrs (0.00 cfs 0.000 af)

Inflow Area = 0.778 ac, 0.00% Impervious, Inflow Depth = 0.57" for 100-Year event
Inflow = 0.29 cfs @ 13.04 hrs, Volume= 0.037 af
Outflow = 0.29 cfs @ 13.08 hrs, Volume= 0.037 af, Atten= 0%, Lag= 2.6 min
Routed to Link 16L : Ex - SE ROW

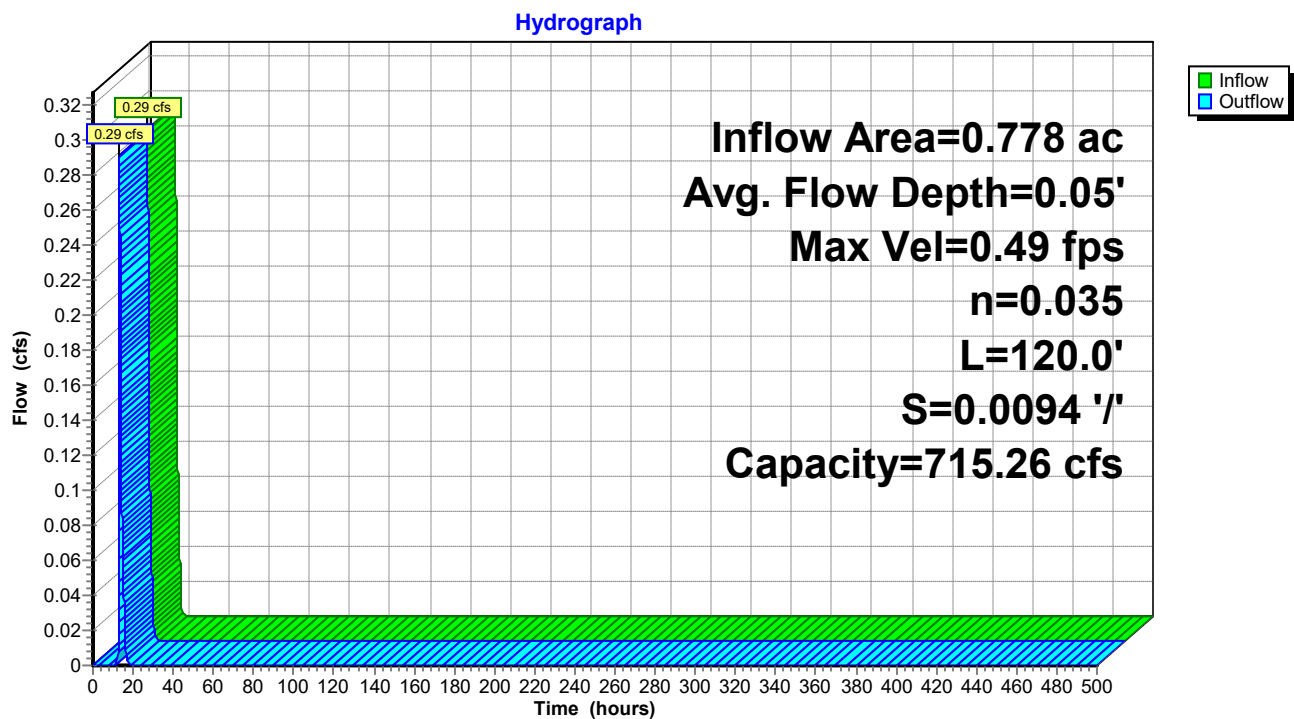
Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.49 fps, Min. Travel Time= 4.1 min
Avg. Velocity= 0.33 fps, Avg. Travel Time= 6.0 min

Peak Storage= 71 cf @ 13.08 hrs
Average Depth at Peak Storage= 0.05', Surface Width= 14.77'
Bank-Full Depth= 1.80' Flow Area= 180.0 sf, Capacity= 715.26 cfs

10.00' x 1.80' deep channel, n= 0.035 High grass
Side Slope Z-value= 50.0 '/' Top Width= 190.00'
Length= 120.0' Slope= 0.0094 '/'
Inlet Invert= 960.83', Outlet Invert= 959.70'



Reach 9R: Flow over Ex-11



Summary for Reach 10R: Flow over Ex-11

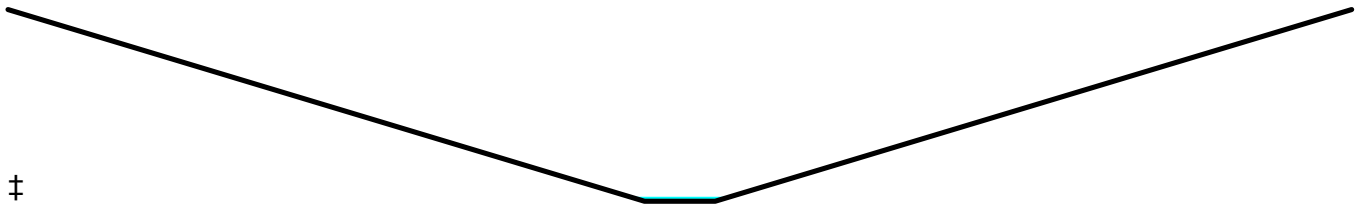
[80] Warning: Exceeded Pond 44P by 0.03' @ 19.54 hrs (0.00 cfs 0.000 af)

Inflow Area = 0.778 ac, 20.49% Impervious, Inflow Depth = 0.48" for 100-Year event
Inflow = 0.26 cfs @ 13.14 hrs, Volume= 0.031 af
Outflow = 0.25 cfs @ 13.20 hrs, Volume= 0.031 af, Atten= 5%, Lag= 3.5 min
Routed to Link 47L : Pr - SE ROW

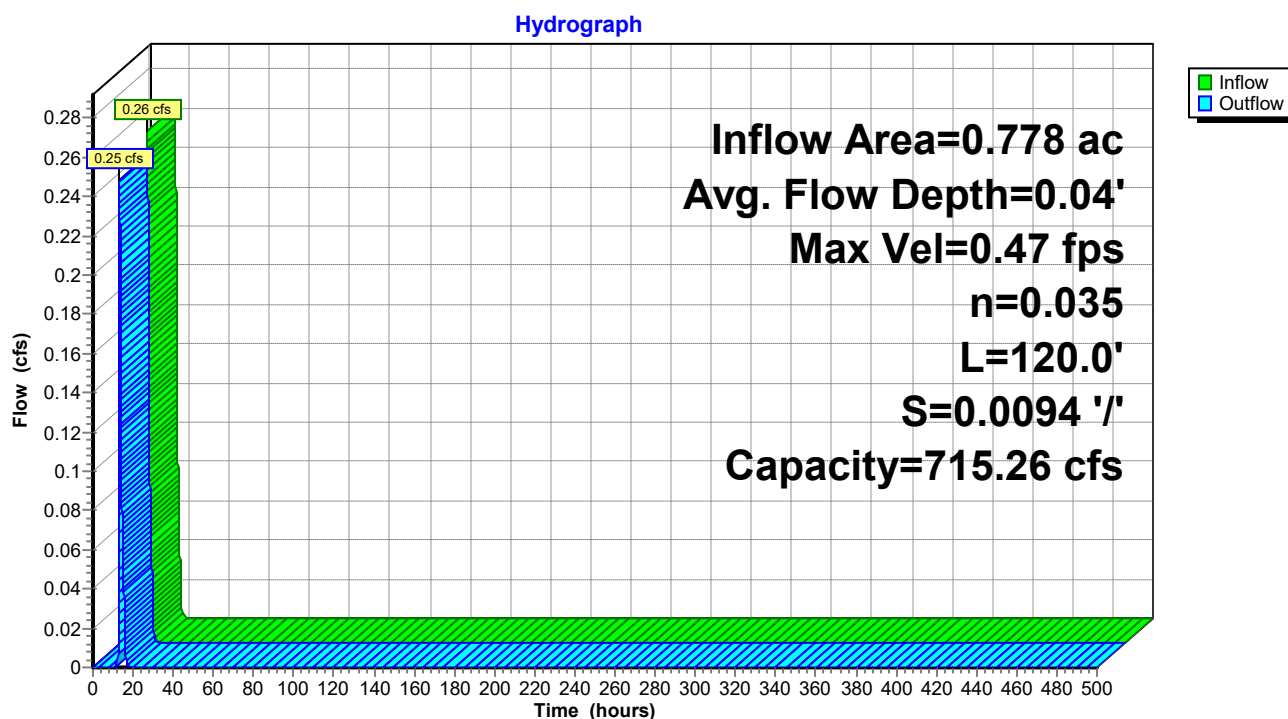
Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.47 fps, Min. Travel Time= 4.3 min
Avg. Velocity= 0.32 fps, Avg. Travel Time= 6.2 min

Peak Storage= 64 cf @ 13.20 hrs
Average Depth at Peak Storage= 0.04', Surface Width= 14.34'
Bank-Full Depth= 1.80' Flow Area= 180.0 sf, Capacity= 715.26 cfs

10.00' x 1.80' deep channel, n= 0.035 High grass
Side Slope Z-value= 50.0 '/' Top Width= 190.00'
Length= 120.0' Slope= 0.0094 '/'
Inlet Invert= 960.83', Outlet Invert= 959.70'



Reach 10R: Flow over Ex-11



Summary for Pond 9P: Ex-2 Depression/ROW

Inflow Area = 4.681 ac, 3.94% Impervious, Inflow Depth = 3.77" for 100-Year event
 Inflow = 23.62 cfs @ 12.22 hrs, Volume= 1.470 af
 Outflow = 0.34 cfs @ 19.20 hrs, Volume= 1.470 af, Atten= 99%, Lag= 419.2 min
 Discarded = 0.34 cfs @ 19.20 hrs, Volume= 1.470 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Pond 12P : Ex-6 Wetland
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 961.65' @ 19.20 hrs Surf.Area= 32,894 sf Storage= 51,671 cf

Plug-Flow detention time= 1,910.0 min calculated for 1.470 af (100% of inflow)
 Center-of-Mass det. time= 1,910.1 min (2,720.3 - 810.2)

Volume	Invert	Avail.Storage	Storage Description
#1	957.84'	1,523,832 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
957.84	11	0	0
958.04	592	60	60
958.24	1,658	225	285
958.44	2,745	440	726
958.64	4,026	677	1,403
958.84	5,210	924	2,326
959.04	6,286	1,150	3,476
959.24	7,287	1,357	4,833
959.44	8,805	1,609	6,442
959.64	10,710	1,951	8,394
959.84	12,755	2,347	10,740
960.04	14,897	2,765	13,506
960.24	17,050	3,195	16,700
960.44	19,171	3,622	20,322
960.64	21,356	4,053	24,375
960.84	23,530	4,489	28,864
961.04	25,672	4,920	33,784
961.24	27,825	5,350	39,134
961.44	30,247	5,807	44,941
961.64	32,690	6,294	51,234
961.84	35,758	6,845	58,079
962.04	39,127	7,488	65,568
962.24	43,066	8,219	73,787
962.44	49,191	9,226	83,013
962.64	56,554	10,574	93,587
962.84	65,229	12,178	105,766
963.04	73,539	13,877	119,642
963.24	79,136	15,268	134,910
963.44	84,271	16,341	151,251
963.64	89,502	17,377	168,628
963.84	95,788	18,529	187,157
964.04	101,299	19,709	206,866
964.24	106,143	20,744	227,610
964.44	110,341	21,648	249,258
964.64	114,367	22,471	271,729
964.84	118,661	23,303	295,032
965.04	123,473	24,213	319,245
965.24	128,586	25,206	344,451
965.44	135,808	26,439	370,891
965.64	140,049	27,586	398,476
965.84	144,000	28,405	426,881
966.04	146,949	29,095	455,976
966.24	149,511	29,646	485,622
966.44	151,707	30,122	515,744
966.64	153,440	30,515	546,258
966.84	154,656	30,810	577,068
967.04	156,109	31,076	608,145
967.24	157,487	31,360	639,504
967.44	158,951	31,644	671,148
967.64	160,877	31,983	703,131

967.84	162,697	32,357	735,488
968.04	164,925	32,762	768,250
968.24	166,819	33,174	801,425
968.44	168,272	33,509	834,934
968.64	169,456	33,773	868,707
968.84	170,630	34,009	902,715
969.04	171,727	34,236	936,951
969.24	172,718	34,445	971,396
969.44	173,730	34,645	1,006,040
969.64	174,591	34,832	1,040,872
969.84	175,387	34,998	1,075,870
970.04	176,055	35,144	1,111,014
970.24	176,647	35,270	1,146,285
970.44	177,152	35,380	1,181,665
970.64	177,669	35,482	1,217,147
970.84	178,207	35,588	1,252,734
971.04	178,670	35,688	1,288,422
971.24	179,155	35,783	1,324,204
971.44	179,424	35,858	1,360,062
971.64	179,650	35,907	1,395,970
971.84	179,833	35,948	1,431,918
972.04	180,102	35,993	1,467,911
972.24	180,425	36,053	1,503,964
972.35	180,812	19,868	1,523,832

Device	Routing	Invert	Outlet Devices
#1	Discarded	957.84'	0.450 in/hr Exfiltration over Surface area
#2	Primary	962.36'	10.0' long + 40.0 ' SideZ x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#3	Secondary	962.98'	10.0' long + 7.0 ' SideZ x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.34 cfs @ 19.20 hrs HW=961.65' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.34 cfs)

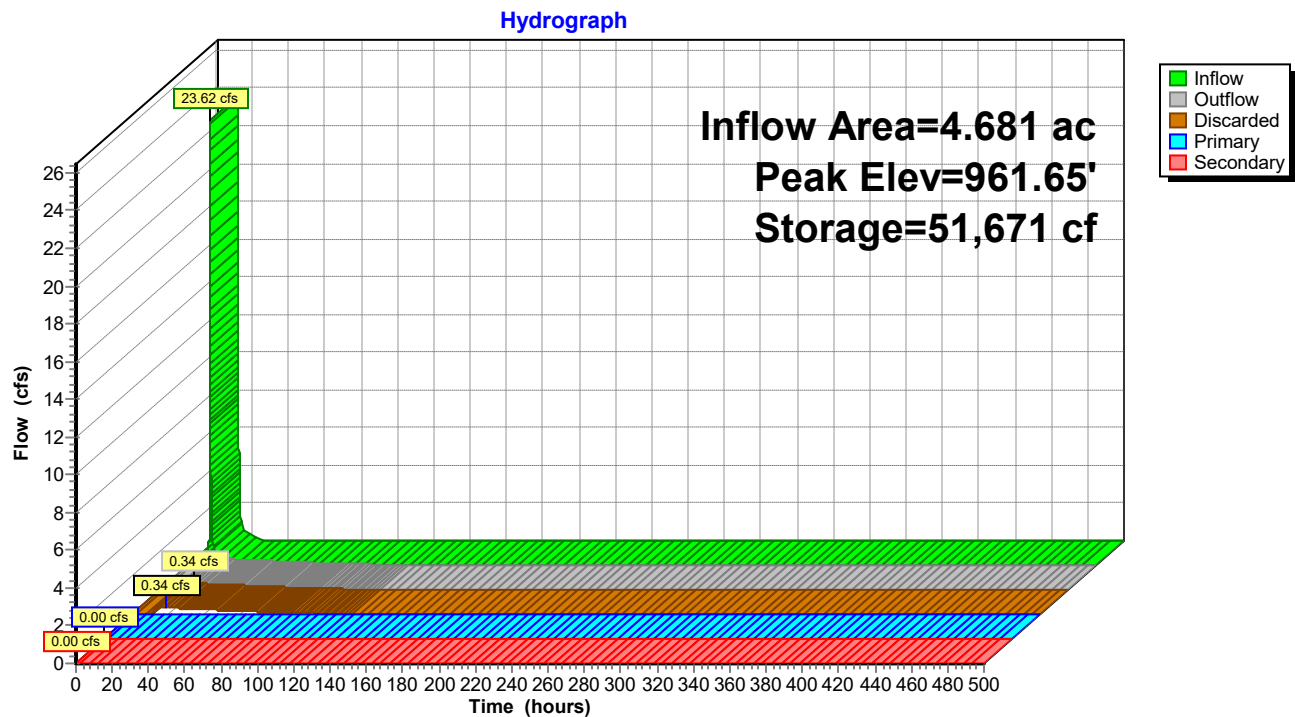
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=957.84' TW=955.89' (Dynamic Tailwater)

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

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=957.84' TW=0.00' (Dynamic Tailwater)

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

Pond 9P: Ex-2 Depression/ROW



Summary for Pond 12P: Ex-6 Wetland

Inflow Area = 8.791 ac, 5.91% Impervious, Inflow Depth = 1.57" for 100-Year event
 Inflow = 19.81 cfs @ 12.20 hrs, Volume= 1.149 af
 Outflow = 5.15 cfs @ 12.55 hrs, Volume= 1.149 af, Atten= 74%, Lag= 21.2 min
 Discarded = 0.03 cfs @ 12.55 hrs, Volume= 0.505 af
 Primary = 5.11 cfs @ 12.55 hrs, Volume= 0.644 af

Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Peak Elev= 958.36' @ 12.55 hrs Surf.Area= 24,626 sf Storage= 25,077 cf

Plug-Flow detention time= 3,202.5 min calculated for 1.149 af (100% of inflow)

Center-of-Mass det. time= 3,203.0 min (4,017.8 - 814.8)

Volume	Invert	Avail.Storage	Storage Description
#1	955.89'	1,210,988 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

01518_0022_northrup_grumman_solar_ROW_250605 MSE 24-hr 3 100-Year Rainfall=6.94"

Prepared by Emmons & Olivier Resources

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
955.89	11	0	0
956.10	22	3	3
956.29	75	9	13
956.49	560	64	76
956.70	3,229	398	474
956.89	6,921	964	1,438
957.10	9,225	1,695	3,134
957.29	11,862	2,003	5,137
957.49	14,596	2,646	7,783
957.70	17,190	3,338	11,120
957.89	19,838	3,518	14,638
958.10	22,023	4,395	19,033
958.29	23,907	4,363	23,397
958.49	25,984	4,989	28,386
958.70	27,846	5,652	34,038
958.89	29,784	5,475	39,513
959.10	31,700	6,456	45,969
959.29	33,734	6,216	52,185
959.49	35,865	6,960	59,145
959.70	38,481	7,806	66,951
959.89	41,269	7,576	74,527
960.10	46,005	9,164	83,691
960.29	54,638	9,561	93,252
960.49	62,162	11,680	104,932
960.70	67,328	13,596	118,529
960.89	72,387	13,273	131,801
961.10	76,876	15,673	147,474
961.29	82,290	15,121	162,595
961.49	90,578	17,287	179,882
961.70	99,437	19,952	199,833
961.89	108,113	19,717	219,550
962.10	114,840	23,410	242,961
962.29	122,041	22,504	265,464
962.49	130,663	25,270	290,735
962.70	138,015	28,211	318,946
962.89	143,849	26,777	345,723
963.10	150,189	30,874	376,597
963.29	154,710	28,965	405,562
963.49	157,971	31,268	436,830
963.70	160,102	33,398	470,228
963.89	161,609	30,563	500,791
964.10	162,718	34,054	534,845
964.29	163,655	31,005	565,850
964.49	164,365	32,802	598,652
964.70	164,935	34,577	633,229
964.89	165,323	31,375	664,603
965.10	165,678	34,755	699,359
965.29	166,001	31,510	730,868
965.49	166,367	33,237	764,105
965.70	166,765	34,979	799,084

965.89	167,056	31,713	830,797
966.10	167,271	35,104	865,901
966.29	167,476	31,801	897,702
966.49	167,530	33,501	931,203
966.70	167,530	35,181	966,384
966.89	167,530	31,831	998,215
967.10	167,530	35,181	1,033,396
967.29	167,530	31,831	1,065,227
967.49	167,530	33,506	1,098,733
967.70	167,530	35,181	1,133,914
967.89	167,530	31,831	1,165,745
968.10	167,583	35,187	1,200,931
968.16	167,626	10,056	1,210,988

Device	Routing	Invert	Outlet Devices
#1	Discarded	955.89'	0.060 in/hr Exfiltration over Surface area
#2	Primary	958.16'	15.0' long + 40.0' /' SideZ 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=0.03 cfs @ 12.55 hrs HW=958.36' (Free Discharge)

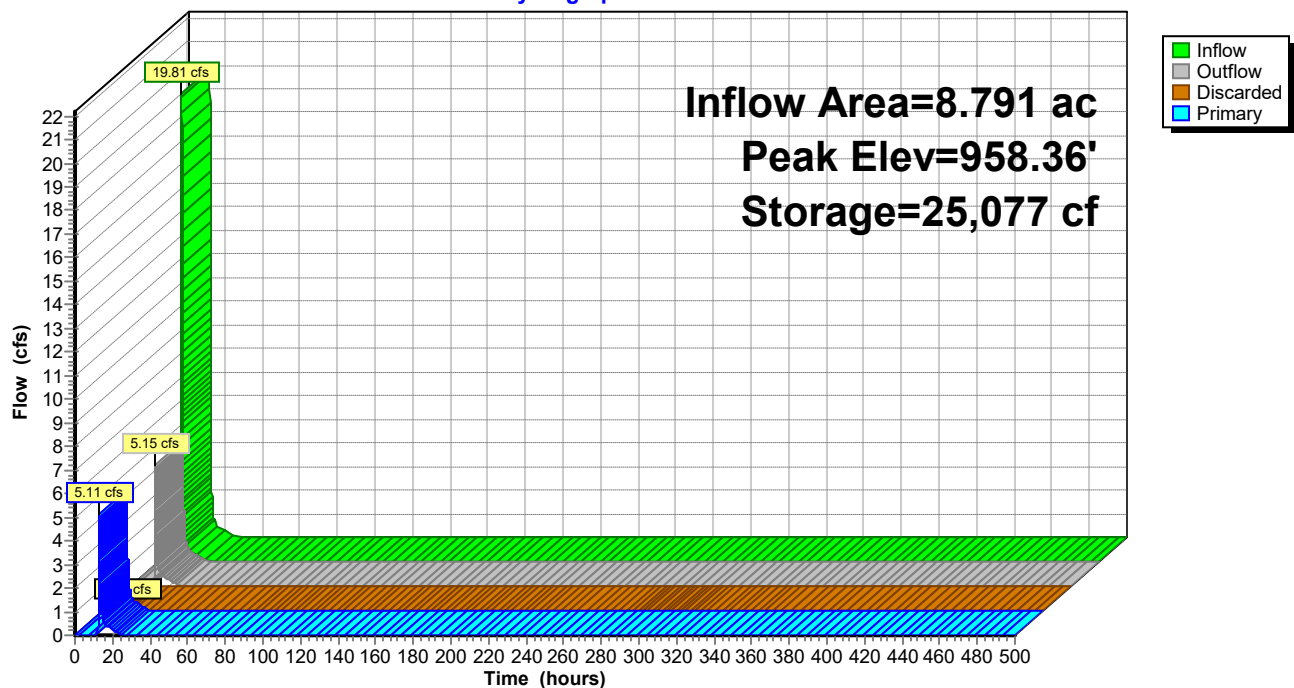
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=5.11 cfs @ 12.55 hrs HW=958.36' TW=0.00' (Dynamic Tailwater)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 5.11 cfs @ 1.12 fps)

Pond 12P: Ex-6 Wetland

Hydrograph



Summary for Pond 13P: Ex-8 Wetland

Inflow Area = 0.935 ac, 53.55% Impervious, Inflow Depth = 5.65" for 100-Year event
 Inflow = 10.14 cfs @ 12.10 hrs, Volume= 0.440 af
 Outflow = 0.02 cfs @ 23.72 hrs, Volume= 0.440 af, Atten= 100%, Lag= 697.2 min
 Discarded = 0.02 cfs @ 23.72 hrs, Volume= 0.440 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 17L : Ex - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 955.89' @ 23.72 hrs Surf.Area= 14,535 sf Storage= 18,210 cf

Plug-Flow detention time= 8,771.4 min calculated for 0.440 af (100% of inflow)
 Center-of-Mass det. time= 8,771.7 min (9,539.5 - 767.8)

Volume	Invert	Avail.Storage	Storage Description
#1	953.63'	396,795 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

01518_0022_northrup_grumman_solar_ROW_250605 MSE 24-hr 3 100-Year Rainfall=6.94"

Prepared by Emmons & Olivier Resources

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
953.63	11	0	0
953.83	86	10	10
954.03	355	44	54
954.23	1,938	229	283
954.43	6,060	800	1,083
954.63	9,494	1,555	2,638
954.83	10,775	2,027	4,665
955.03	11,754	2,253	6,918
955.23	12,475	2,423	9,341
955.43	13,078	2,555	11,896
955.63	13,778	2,686	14,582
955.83	14,402	2,818	17,400
956.03	14,876	2,928	20,328
956.23	15,586	3,046	23,374
956.43	16,189	3,177	26,551
956.63	16,641	3,283	29,834
956.83	17,308	3,395	33,229
957.03	17,879	3,519	36,748
957.23	18,406	3,629	40,377
957.43	18,901	3,731	44,107
957.63	19,569	3,847	47,954
957.83	20,064	3,963	51,918
958.03	20,581	4,064	55,982
958.23	21,076	4,166	60,148
958.43	21,679	4,275	64,423
958.63	22,324	4,400	68,824
958.83	22,949	4,527	73,351
959.03	23,573	4,652	78,003
959.23	24,230	4,780	82,783
959.43	24,886	4,912	87,695
959.63	25,435	5,032	92,727
959.83	26,059	5,149	97,876
960.03	26,522	5,258	103,134
960.23	27,060	5,358	108,493
960.43	27,674	5,473	113,966
960.63	28,384	5,606	119,572
960.83	28,976	5,736	125,308
961.03	29,515	5,849	131,157
961.23	30,214	5,973	137,130
961.43	30,677	6,089	143,219
961.63	31,291	6,197	149,416
961.83	31,818	6,311	155,727
962.03	32,302	6,412	162,139
962.23	32,625	6,493	168,631
962.43	33,067	6,569	175,201
962.63	33,497	6,656	181,857
962.83	33,906	6,740	188,597
963.03	34,315	6,822	195,419
963.23	34,595	6,891	202,310
963.43	34,886	6,948	209,258

963.63	35,123	7,001	216,259
963.83	35,327	7,045	223,304
964.03	35,553	7,088	230,392
964.23	35,725	7,128	237,520
964.43	35,822	7,155	244,675
964.63	35,941	7,176	251,851
964.83	36,016	7,196	259,047
965.03	36,091	7,211	266,258
965.23	36,178	7,227	273,485
965.43	36,231	7,241	280,725
965.63	36,253	7,248	287,974
965.83	36,264	7,252	295,226
966.03	36,274	7,254	302,479
966.23	36,274	7,255	309,734
966.43	36,274	7,255	316,989
966.63	36,274	7,255	324,244
966.83	36,274	7,255	331,499
967.03	36,274	7,255	338,753
967.23	36,274	7,255	346,008
967.43	36,274	7,255	353,263
967.63	36,274	7,255	360,518
967.83	36,274	7,255	367,773
968.03	36,274	7,255	375,027
968.23	36,274	7,255	382,282
968.43	36,274	7,255	389,537
968.63	36,307	7,258	396,795

Device	Routing	Invert	Outlet Devices
#1	Discarded	953.63'	0.060 in/hr Exfiltration over Surface area
#2	Primary	958.79'	13.0' long + 14.0 ' /' SideZ x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Secondary	959.09'	8.0' long + 25.0 ' /' SideZ 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=0.02 cfs @ 23.72 hrs HW=955.89' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

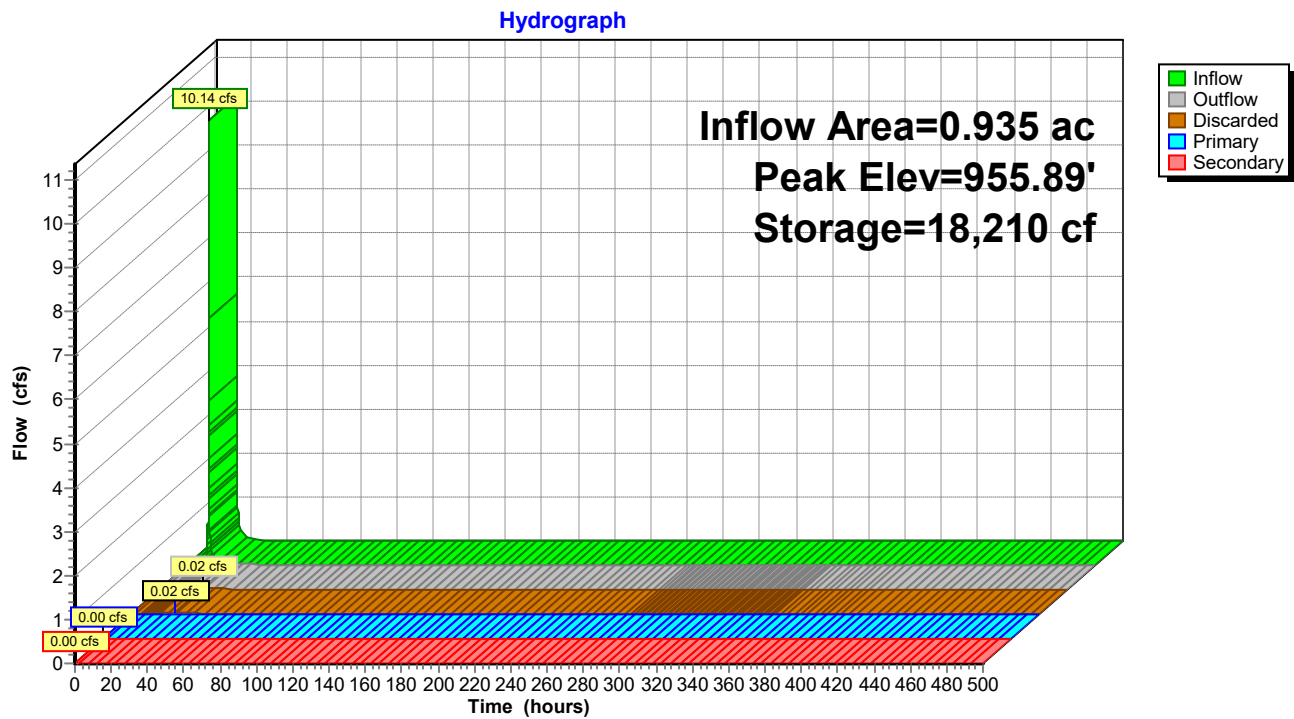
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.63' TW=0.00' (Dynamic Tailwater)

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

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.63' TW=0.00' (Dynamic Tailwater)

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

Pond 13P: Ex-8 Wetland



Summary for Pond 15P: Ex-10 Depression

Inflow Area = 0.778 ac, 0.00% Impervious, Inflow Depth = 3.46" for 100-Year event
 Inflow = 4.87 cfs @ 12.14 hrs, Volume= 0.225 af
 Outflow = 0.39 cfs @ 13.04 hrs, Volume= 0.225 af, Atten= 92%, Lag= 54.0 min
 Discarded = 0.10 cfs @ 13.07 hrs, Volume= 0.188 af
 Primary = 0.29 cfs @ 13.04 hrs, Volume= 0.037 af
 Routed to Reach 9R : Flow over Ex-11

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 960.88' @ 13.07 hrs Surf.Area= 9,407 sf Storage= 5,846 cf

Plug-Flow detention time= 645.7 min calculated for 0.225 af (100% of inflow)
 Center-of-Mass det. time= 645.7 min (1,454.1 - 808.4)

Volume	Invert	Avail.Storage	Storage Description
#1	959.47'	75,588 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
959.47	11	0	0
959.67	915	93	93
959.87	2,164	308	401
960.07	3,208	537	938
960.27	4,359	757	1,694
960.47	5,877	1,024	2,718
960.67	7,406	1,328	4,046
960.87	9,268	1,667	5,714
961.07	11,227	2,050	7,763
961.27	12,992	2,422	10,185
961.47	14,682	2,767	12,953
961.67	16,329	3,101	16,054
961.87	17,760	3,409	19,463
962.07	19,289	3,705	23,167
962.27	20,807	4,010	27,177
962.47	22,475	4,328	31,505
962.67	23,950	4,642	36,148
962.87	25,338	4,929	41,077
963.07	27,254	5,259	46,336
963.27	29,052	5,631	51,966
963.47	29,482	5,853	57,820
963.67	29,633	5,911	63,731
963.87	29,644	5,928	69,659
964.07	29,644	5,929	75,588

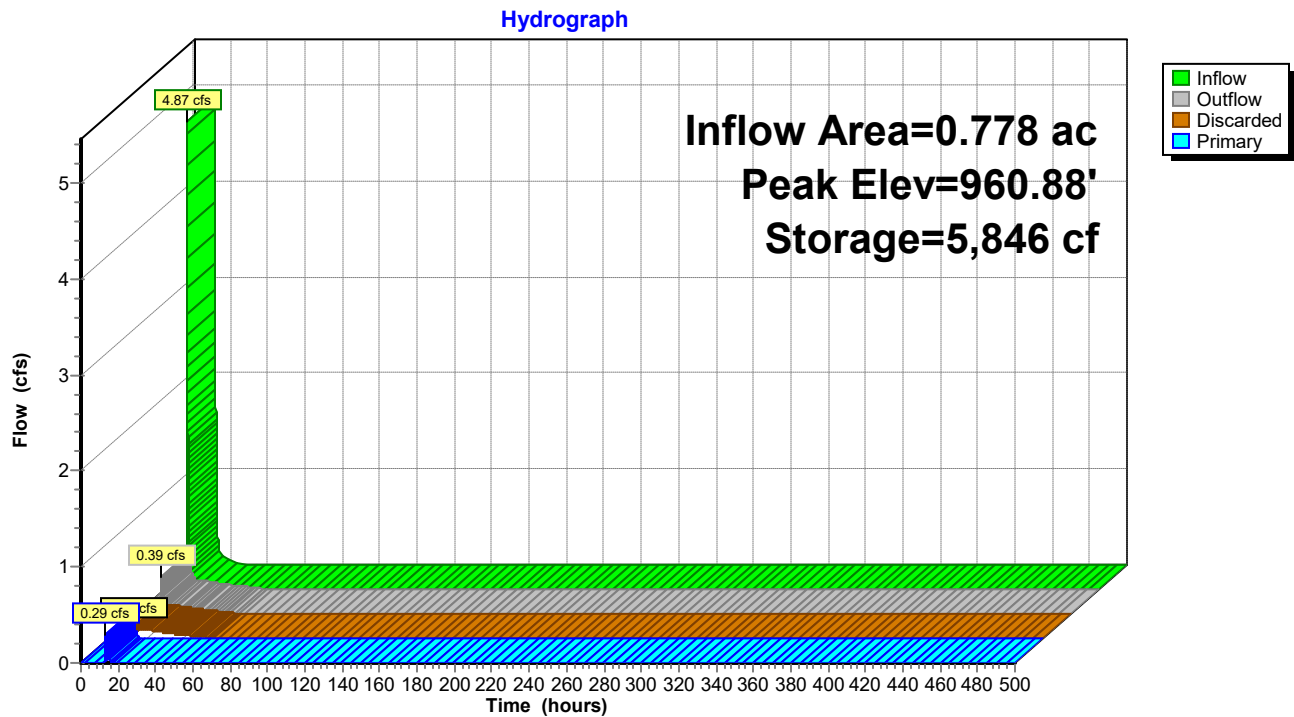
Device	Routing	Invert	Outlet Devices
#1	Discarded	959.47'	0.450 in/hr Exfiltration over Surface area
#2	Primary	960.83'	15.0' long + 75.0 ' SideZ x 7.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50 5.00 5.50			
Coef. (English) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65			

2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Discarded OutFlow Max=0.10 cfs @ 13.07 hrs HW=960.88' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.10 cfs)

Primary OutFlow Max=0.29 cfs @ 13.04 hrs HW=960.88' TW=960.88' (Dynamic Tailwater)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 0.29 cfs @ 0.28 fps)

Pond 15P: Ex-10 Depression



Summary for Pond 39P: Pr-2 Depression/ROW

Inflow Area = 4.681 ac, 22.38% Impervious, Inflow Depth = 3.61" for 100-Year event
 Inflow = 22.89 cfs @ 12.21 hrs, Volume= 1.407 af
 Outflow = 0.33 cfs @ 19.25 hrs, Volume= 1.407 af, Atten= 99%, Lag= 422.7 min
 Discarded = 0.33 cfs @ 19.25 hrs, Volume= 1.407 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Pond 41P : Pr-6 Wetland
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 961.58' @ 19.25 hrs Surf.Area= 31,952 sf Storage= 49,282 cf

Plug-Flow detention time= 1,875.8 min calculated for 1.407 af (100% of inflow)
 Center-of-Mass det. time= 1,875.9 min (2,688.0 - 812.0)

Volume	Invert	Avail.Storage	Storage Description
#1	957.84'	1,523,832 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
957.84	11	0	0
958.04	592	60	60
958.24	1,658	225	285
958.44	2,745	440	726
958.64	4,026	677	1,403
958.84	5,210	924	2,326
959.04	6,286	1,150	3,476
959.24	7,287	1,357	4,833
959.44	8,805	1,609	6,442
959.64	10,710	1,951	8,394
959.84	12,755	2,347	10,740
960.04	14,897	2,765	13,506
960.24	17,050	3,195	16,700
960.44	19,171	3,622	20,322
960.64	21,356	4,053	24,375
960.84	23,530	4,489	28,864
961.04	25,672	4,920	33,784
961.24	27,825	5,350	39,134
961.44	30,247	5,807	44,941
961.64	32,690	6,294	51,234
961.84	35,758	6,845	58,079
962.04	39,127	7,488	65,568
962.24	43,066	8,219	73,787
962.44	49,191	9,226	83,013
962.64	56,554	10,574	93,587
962.84	65,229	12,178	105,766
963.04	73,539	13,877	119,642
963.24	79,136	15,268	134,910
963.44	84,271	16,341	151,251
963.64	89,502	17,377	168,628
963.84	95,788	18,529	187,157
964.04	101,299	19,709	206,866
964.24	106,143	20,744	227,610
964.44	110,341	21,648	249,258
964.64	114,367	22,471	271,729
964.84	118,661	23,303	295,032
965.04	123,473	24,213	319,245
965.24	128,586	25,206	344,451
965.44	135,808	26,439	370,891
965.64	140,049	27,586	398,476
965.84	144,000	28,405	426,881
966.04	146,949	29,095	455,976
966.24	149,511	29,646	485,622
966.44	151,707	30,122	515,744
966.64	153,440	30,515	546,258
966.84	154,656	30,810	577,068
967.04	156,109	31,076	608,145
967.24	157,487	31,360	639,504
967.44	158,951	31,644	671,148
967.64	160,877	31,983	703,131

967.84	162,697	32,357	735,488
968.04	164,925	32,762	768,250
968.24	166,819	33,174	801,425
968.44	168,272	33,509	834,934
968.64	169,456	33,773	868,707
968.84	170,630	34,009	902,715
969.04	171,727	34,236	936,951
969.24	172,718	34,445	971,396
969.44	173,730	34,645	1,006,040
969.64	174,591	34,832	1,040,872
969.84	175,387	34,998	1,075,870
970.04	176,055	35,144	1,111,014
970.24	176,647	35,270	1,146,285
970.44	177,152	35,380	1,181,665
970.64	177,669	35,482	1,217,147
970.84	178,207	35,588	1,252,734
971.04	178,670	35,688	1,288,422
971.24	179,155	35,783	1,324,204
971.44	179,424	35,858	1,360,062
971.64	179,650	35,907	1,395,970
971.84	179,833	35,948	1,431,918
972.04	180,102	35,993	1,467,911
972.24	180,425	36,053	1,503,964
972.35	180,812	19,868	1,523,832

Device	Routing	Invert	Outlet Devices
#1	Discarded	957.84'	0.450 in/hr Exfiltration over Surface area
#2	Primary	962.36'	10.0' long + 40.0 ' SideZ x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#3	Secondary	962.98'	10.0' long + 7.0 ' SideZ x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.33 cfs @ 19.25 hrs HW=961.58' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.33 cfs)

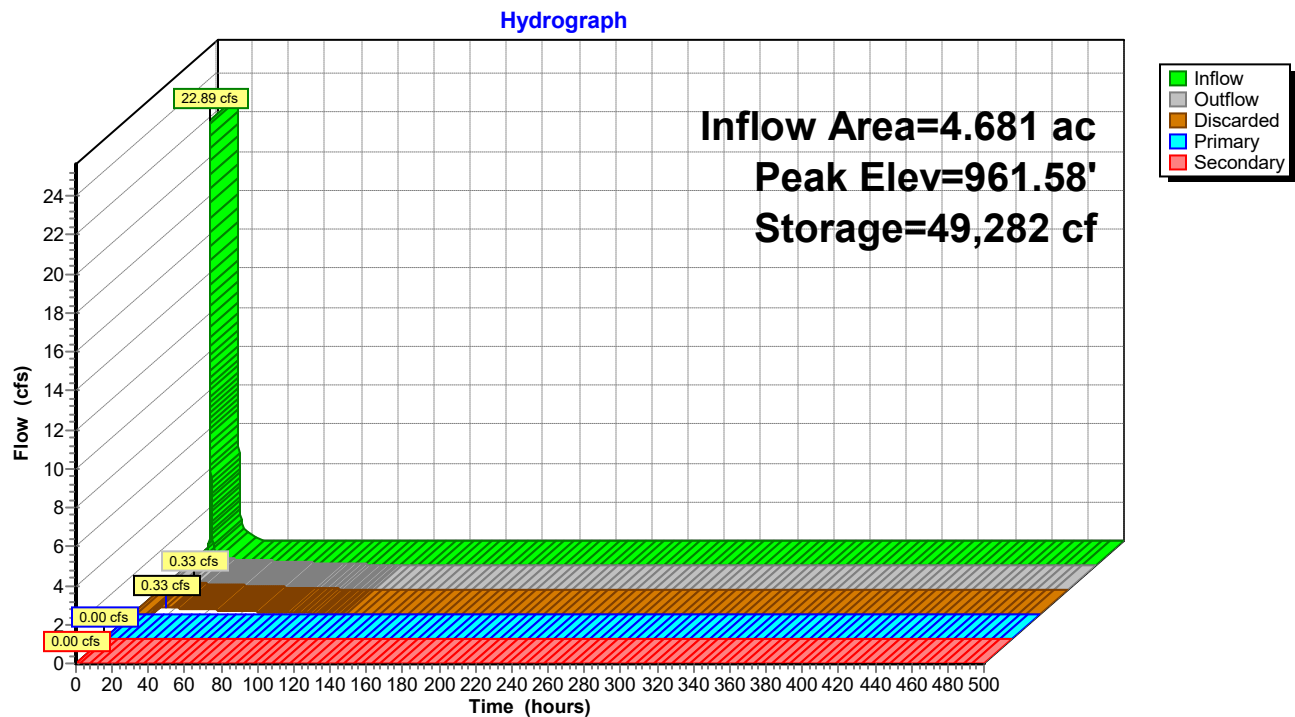
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=957.84' TW=955.89' (Dynamic Tailwater)

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

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=957.84' TW=0.00' (Dynamic Tailwater)

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

Pond 39P: Pr-2 Depression/ROW



Summary for Pond 41P: Pr-6 Wetland

Inflow Area = 8.791 ac, 25.29% Impervious, Inflow Depth = 1.47" for 100-Year event
 Inflow = 18.98 cfs @ 12.19 hrs, Volume= 1.080 af
 Outflow = 3.96 cfs @ 12.61 hrs, Volume= 1.080 af, Atten= 79%, Lag= 24.8 min
 Discarded = 0.03 cfs @ 12.61 hrs, Volume= 0.505 af
 Primary = 3.93 cfs @ 12.61 hrs, Volume= 0.576 af

Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Peak Elev= 958.33' @ 12.61 hrs Surf.Area= 24,341 sf Storage= 24,406 cf

Plug-Flow detention time= 3,402.3 min calculated for 1.080 af (100% of inflow)

Center-of-Mass det. time= 3,402.8 min (4,220.2 - 817.4)

Volume	Invert	Avail.Storage	Storage Description
#1	955.89'	1,210,988 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

01518_0022_northrup_grumman_solar_ROW_250605 MSE 24-hr 3 100-Year Rainfall=6.94"

Prepared by Emmons & Olivier Resources

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
955.89	11	0	0
956.10	22	3	3
956.29	75	9	13
956.49	560	64	76
956.70	3,229	398	474
956.89	6,921	964	1,438
957.10	9,225	1,695	3,134
957.29	11,862	2,003	5,137
957.49	14,596	2,646	7,783
957.70	17,190	3,338	11,120
957.89	19,838	3,518	14,638
958.10	22,023	4,395	19,033
958.29	23,907	4,363	23,397
958.49	25,984	4,989	28,386
958.70	27,846	5,652	34,038
958.89	29,784	5,475	39,513
959.10	31,700	6,456	45,969
959.29	33,734	6,216	52,185
959.49	35,865	6,960	59,145
959.70	38,481	7,806	66,951
959.89	41,269	7,576	74,527
960.10	46,005	9,164	83,691
960.29	54,638	9,561	93,252
960.49	62,162	11,680	104,932
960.70	67,328	13,596	118,529
960.89	72,387	13,273	131,801
961.10	76,876	15,673	147,474
961.29	82,290	15,121	162,595
961.49	90,578	17,287	179,882
961.70	99,437	19,952	199,833
961.89	108,113	19,717	219,550
962.10	114,840	23,410	242,961
962.29	122,041	22,504	265,464
962.49	130,663	25,270	290,735
962.70	138,015	28,211	318,946
962.89	143,849	26,777	345,723
963.10	150,189	30,874	376,597
963.29	154,710	28,965	405,562
963.49	157,971	31,268	436,830
963.70	160,102	33,398	470,228
963.89	161,609	30,563	500,791
964.10	162,718	34,054	534,845
964.29	163,655	31,005	565,850
964.49	164,365	32,802	598,652
964.70	164,935	34,577	633,229
964.89	165,323	31,375	664,603
965.10	165,678	34,755	699,359
965.29	166,001	31,510	730,868
965.49	166,367	33,237	764,105
965.70	166,765	34,979	799,084

965.89	167,056	31,713	830,797
966.10	167,271	35,104	865,901
966.29	167,476	31,801	897,702
966.49	167,530	33,501	931,203
966.70	167,530	35,181	966,384
966.89	167,530	31,831	998,215
967.10	167,530	35,181	1,033,396
967.29	167,530	31,831	1,065,227
967.49	167,530	33,506	1,098,733
967.70	167,530	35,181	1,133,914
967.89	167,530	31,831	1,165,745
968.10	167,583	35,187	1,200,931
968.16	167,626	10,056	1,210,988

Device	Routing	Invert	Outlet Devices
#1	Discarded	955.89'	0.060 in/hr Exfiltration over Surface area
#2	Primary	958.16'	15.0' long + 40.0' /' SideZ 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=0.03 cfs @ 12.61 hrs HW=958.33' (Free Discharge)

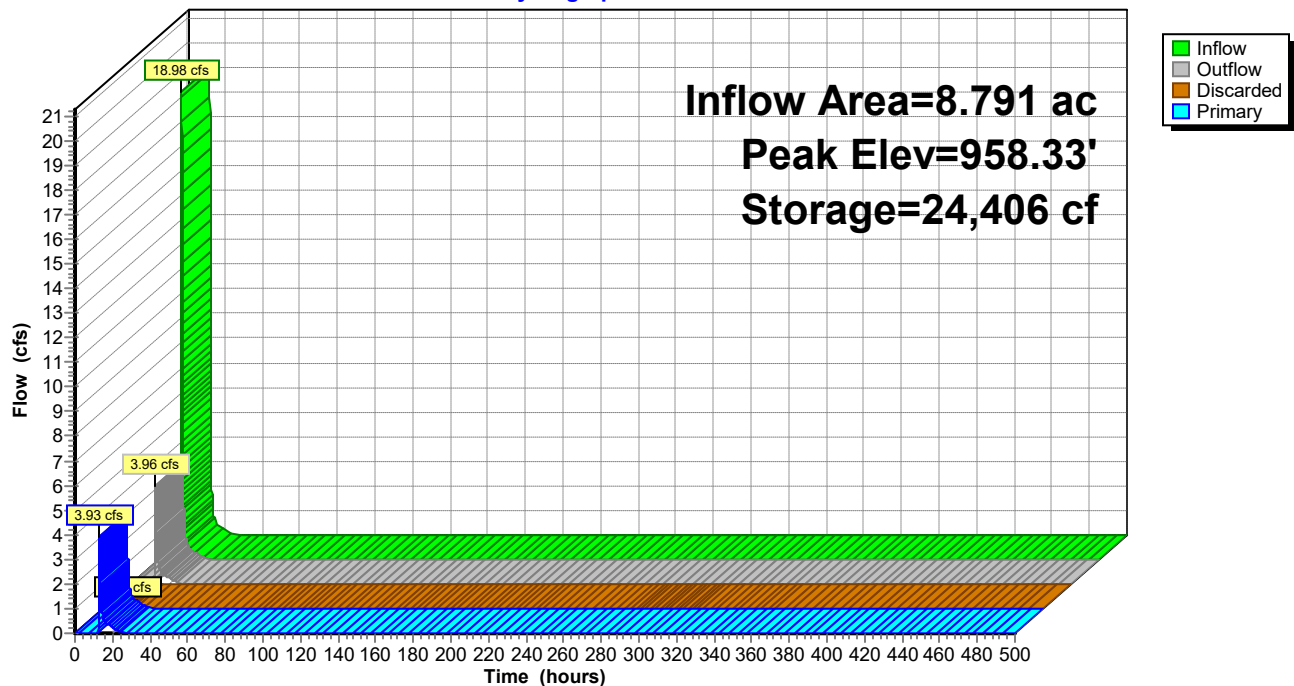
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=3.93 cfs @ 12.61 hrs HW=958.33' TW=0.00' (Dynamic Tailwater)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 3.93 cfs @ 1.04 fps)

Pond 41P: Pr-6 Wetland

Hydrograph



Summary for Pond 42P: Pr-8 Wetland

Inflow Area = 0.935 ac, 53.55% Impervious, Inflow Depth = 5.65" for 100-Year event
 Inflow = 10.14 cfs @ 12.10 hrs, Volume= 0.440 af
 Outflow = 0.02 cfs @ 23.72 hrs, Volume= 0.440 af, Atten= 100%, Lag= 697.2 min
 Discarded = 0.02 cfs @ 23.72 hrs, Volume= 0.440 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 48L : Pr - Northeast Offsite Wetland/ROW

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 955.89' @ 23.72 hrs Surf.Area= 14,535 sf Storage= 18,210 cf

Plug-Flow detention time= 8,771.4 min calculated for 0.440 af (100% of inflow)
 Center-of-Mass det. time= 8,771.7 min (9,539.5 - 767.8)

Volume	Invert	Avail.Storage	Storage Description
#1	953.63'	396,795 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

01518_0022_northrup_grumman_solar_ROW_250605 MSE 24-hr 3 100-Year Rainfall=6.94"

Prepared by Emmons & Olivier Resources

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
953.63	11	0	0
953.83	86	10	10
954.03	355	44	54
954.23	1,938	229	283
954.43	6,060	800	1,083
954.63	9,494	1,555	2,638
954.83	10,775	2,027	4,665
955.03	11,754	2,253	6,918
955.23	12,475	2,423	9,341
955.43	13,078	2,555	11,896
955.63	13,778	2,686	14,582
955.83	14,402	2,818	17,400
956.03	14,876	2,928	20,328
956.23	15,586	3,046	23,374
956.43	16,189	3,177	26,551
956.63	16,641	3,283	29,834
956.83	17,308	3,395	33,229
957.03	17,879	3,519	36,748
957.23	18,406	3,629	40,377
957.43	18,901	3,731	44,107
957.63	19,569	3,847	47,954
957.83	20,064	3,963	51,918
958.03	20,581	4,064	55,982
958.23	21,076	4,166	60,148
958.43	21,679	4,275	64,423
958.63	22,324	4,400	68,824
958.83	22,949	4,527	73,351
959.03	23,573	4,652	78,003
959.23	24,230	4,780	82,783
959.43	24,886	4,912	87,695
959.63	25,435	5,032	92,727
959.83	26,059	5,149	97,876
960.03	26,522	5,258	103,134
960.23	27,060	5,358	108,493
960.43	27,674	5,473	113,966
960.63	28,384	5,606	119,572
960.83	28,976	5,736	125,308
961.03	29,515	5,849	131,157
961.23	30,214	5,973	137,130
961.43	30,677	6,089	143,219
961.63	31,291	6,197	149,416
961.83	31,818	6,311	155,727
962.03	32,302	6,412	162,139
962.23	32,625	6,493	168,631
962.43	33,067	6,569	175,201
962.63	33,497	6,656	181,857
962.83	33,906	6,740	188,597
963.03	34,315	6,822	195,419
963.23	34,595	6,891	202,310
963.43	34,886	6,948	209,258

963.63	35,123	7,001	216,259
963.83	35,327	7,045	223,304
964.03	35,553	7,088	230,392
964.23	35,725	7,128	237,520
964.43	35,822	7,155	244,675
964.63	35,941	7,176	251,851
964.83	36,016	7,196	259,047
965.03	36,091	7,211	266,258
965.23	36,178	7,227	273,485
965.43	36,231	7,241	280,725
965.63	36,253	7,248	287,974
965.83	36,264	7,252	295,226
966.03	36,274	7,254	302,479
966.23	36,274	7,255	309,734
966.43	36,274	7,255	316,989
966.63	36,274	7,255	324,244
966.83	36,274	7,255	331,499
967.03	36,274	7,255	338,753
967.23	36,274	7,255	346,008
967.43	36,274	7,255	353,263
967.63	36,274	7,255	360,518
967.83	36,274	7,255	367,773
968.03	36,274	7,255	375,027
968.23	36,274	7,255	382,282
968.43	36,274	7,255	389,537
968.63	36,307	7,258	396,795

Device	Routing	Invert	Outlet Devices
#1	Discarded	953.63'	0.060 in/hr Exfiltration over Surface area
#2	Primary	958.79'	13.0' long + 14.0 ' /' SideZ x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Secondary	959.09'	8.0' long + 25.0 ' /' SideZ 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=0.02 cfs @ 23.72 hrs HW=955.89' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

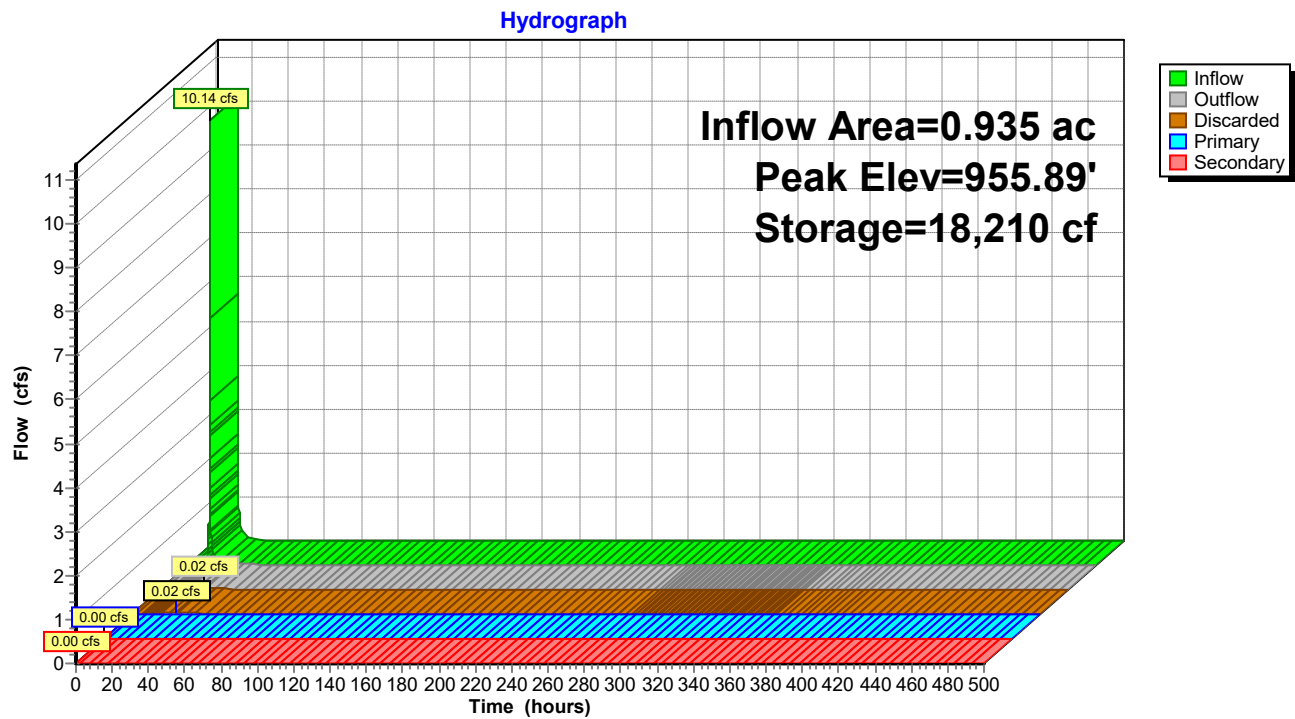
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.63' TW=0.00' (Dynamic Tailwater)

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

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=953.63' TW=0.00' (Dynamic Tailwater)

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

Pond 42P: Pr-8 Wetland



Summary for Pond 44P: Pr-10 Depression

Inflow Area = 0.778 ac, 20.49% Impervious, Inflow Depth = 3.36" for 100-Year event
 Inflow = 4.82 cfs @ 12.14 hrs, Volume= 0.218 af
 Outflow = 0.36 cfs @ 13.14 hrs, Volume= 0.218 af, Atten= 93%, Lag= 60.1 min
 Discarded = 0.10 cfs @ 13.19 hrs, Volume= 0.187 af
 Primary = 0.26 cfs @ 13.14 hrs, Volume= 0.031 af
 Routed to Reach 10R : Flow over Ex-11

Routing by Dyn-Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
 Peak Elev= 960.88' @ 13.19 hrs Surf.Area= 9,360 sf Storage= 5,801 cf

Plug-Flow detention time= 661.8 min calculated for 0.218 af (100% of inflow)
 Center-of-Mass det. time= 661.8 min (1,471.4 - 809.6)

Volume	Invert	Avail.Storage	Storage Description
#1	959.47'	75,588 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
959.47	11	0	0
959.67	915	93	93
959.87	2,164	308	401
960.07	3,208	537	938
960.27	4,359	757	1,694
960.47	5,877	1,024	2,718
960.67	7,406	1,328	4,046
960.87	9,268	1,667	5,714
961.07	11,227	2,050	7,763
961.27	12,992	2,422	10,185
961.47	14,682	2,767	12,953
961.67	16,329	3,101	16,054
961.87	17,760	3,409	19,463
962.07	19,289	3,705	23,167
962.27	20,807	4,010	27,177
962.47	22,475	4,328	31,505
962.67	23,950	4,642	36,148
962.87	25,338	4,929	41,077
963.07	27,254	5,259	46,336
963.27	29,052	5,631	51,966
963.47	29,482	5,853	57,820
963.67	29,633	5,911	63,731
963.87	29,644	5,928	69,659
964.07	29,644	5,929	75,588

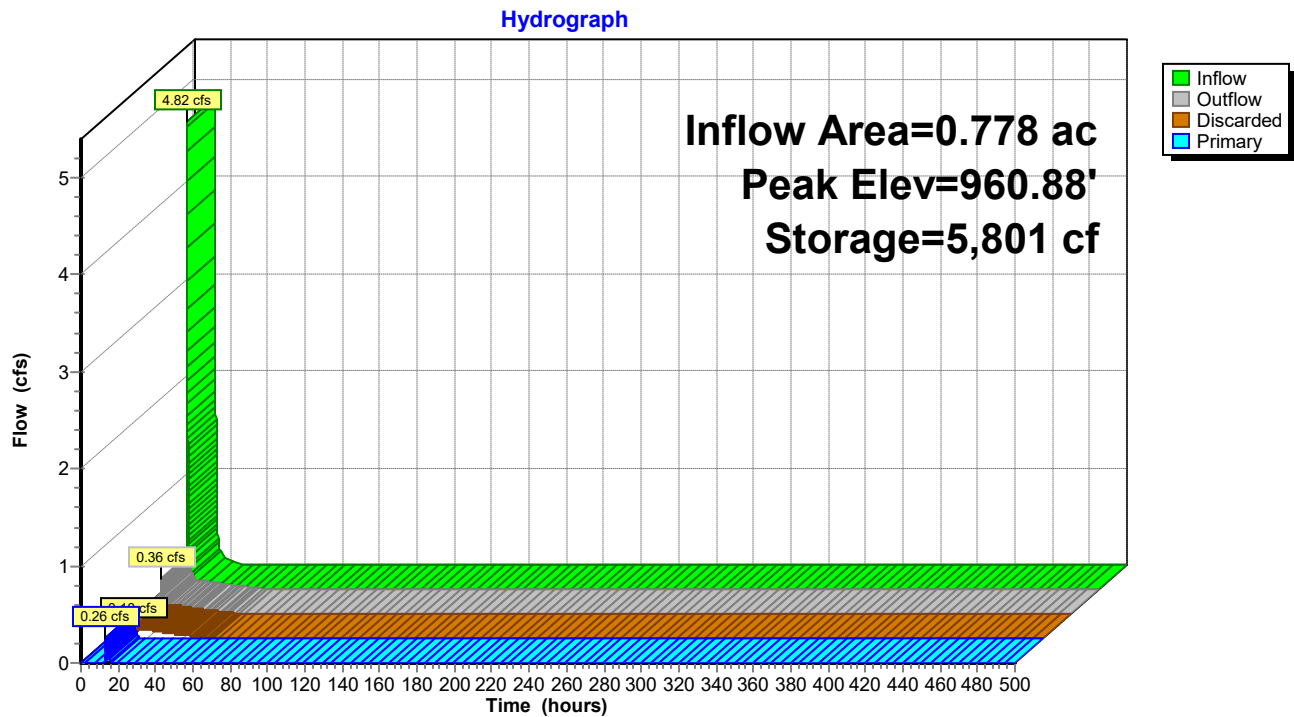
Device	Routing	Invert	Outlet Devices
#1	Discarded	959.47'	0.450 in/hr Exfiltration over Surface area
#2	Primary	960.83'	15.0' long + 75.0 ' SideZ x 7.0' breadth Broad-Crested Rectangular Weir
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50 5.00 5.50			
Coef. (English) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65			

2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Discarded OutFlow Max=0.10 cfs @ 13.19 hrs HW=960.88' (Free Discharge)
 ↳ **1=Exfiltration** (Exfiltration Controls 0.10 cfs)

Primary OutFlow Max=0.26 cfs @ 13.14 hrs HW=960.88' TW=960.87' (Dynamic Tailwater)
 ↳ **2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.28 fps)

Pond 44P: Pr-10 Depression

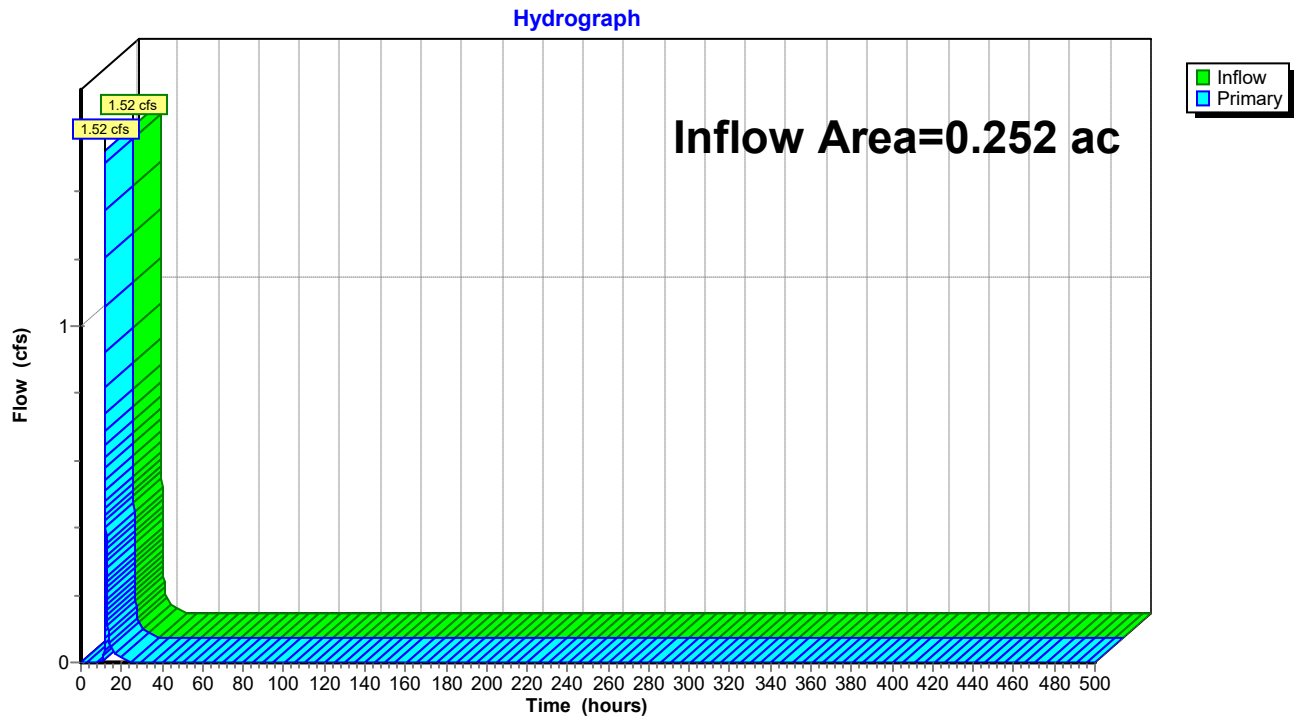


Summary for Link 15L: Ex - NW ROW

Inflow Area = 0.252 ac, 0.00% Impervious, Inflow Depth = 3.06" for 100-Year event
Inflow = 1.52 cfs @ 12.12 hrs, Volume= 0.064 af
Primary = 1.52 cfs @ 12.12 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 15L: Ex - NW ROW

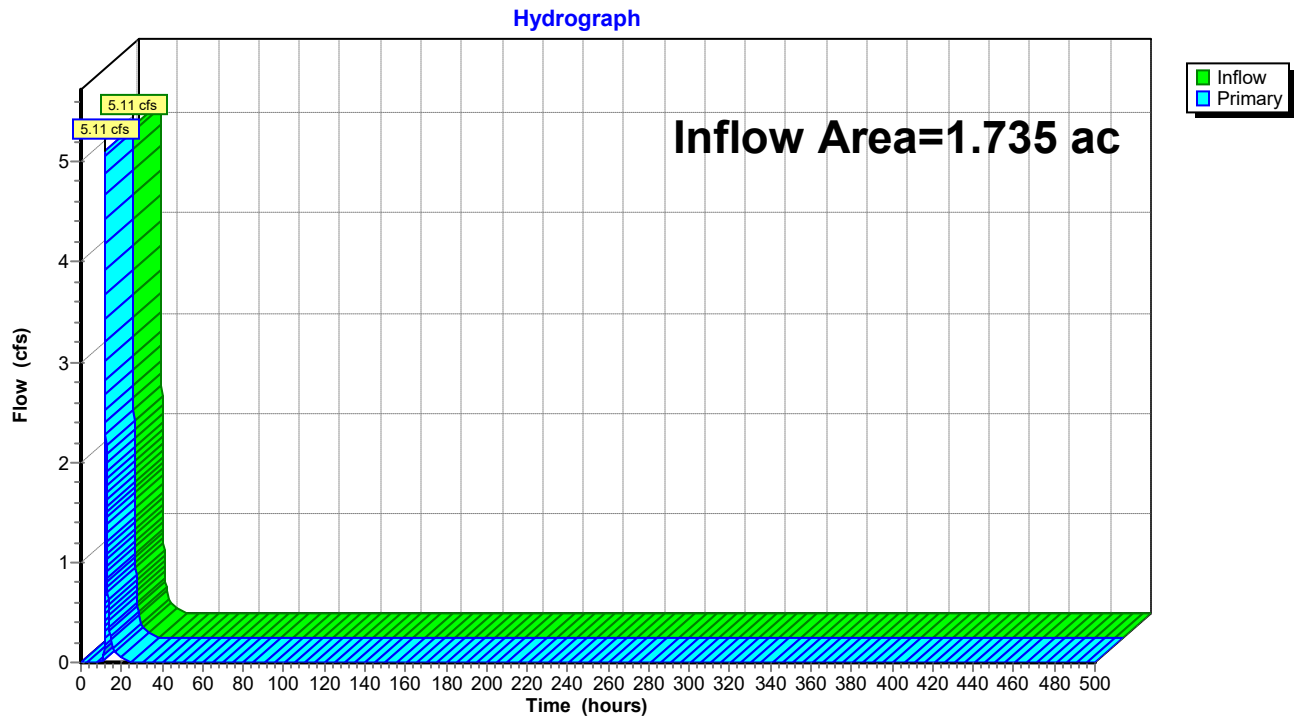


Summary for Link 16L: Ex - SE ROW

Inflow Area = 1.735 ac, 0.00% Impervious, Inflow Depth = 2.05" for 100-Year event
Inflow = 5.11 cfs @ 12.17 hrs, Volume= 0.297 af
Primary = 5.11 cfs @ 12.17 hrs, Volume= 0.297 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 16L: Ex - SE ROW

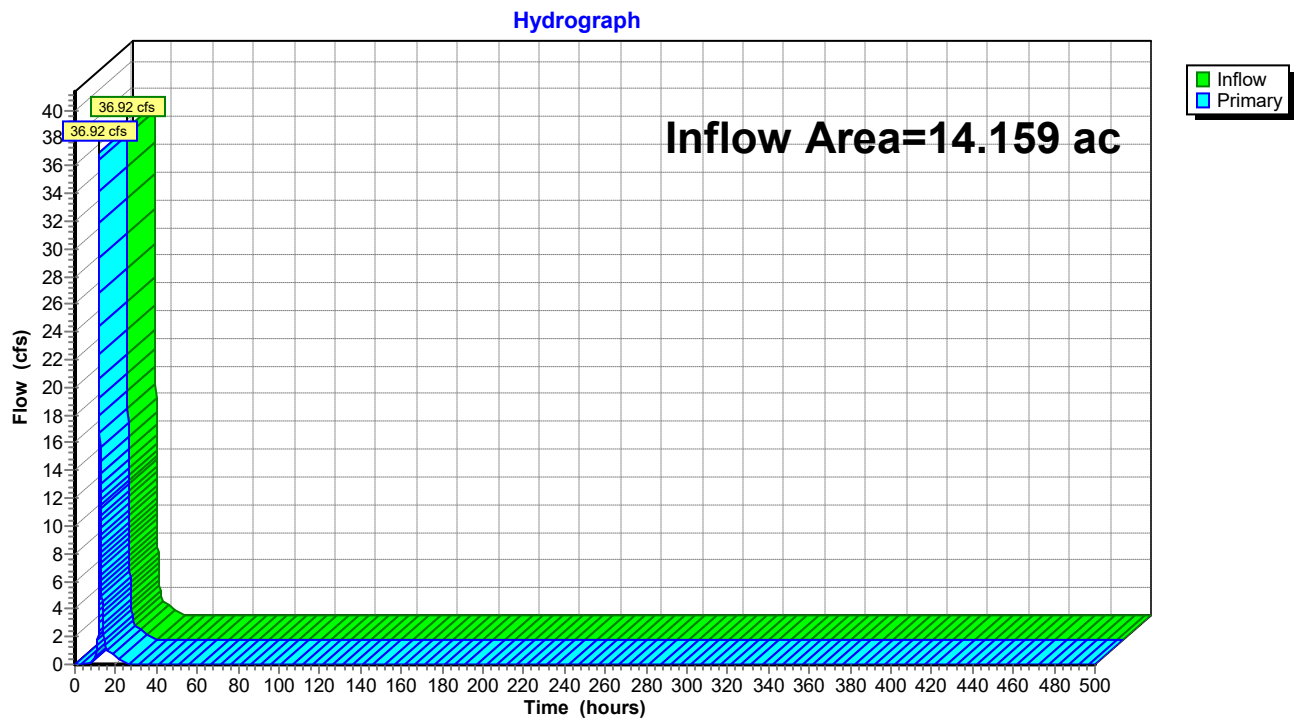


Summary for Link 17L: Ex - Northeast Offsite Wetland/ROW

Inflow Area = 14.159 ac, 19.02% Impervious, Inflow Depth = 2.09" for 100-Year event
Inflow = 36.92 cfs @ 12.13 hrs, Volume= 2.463 af
Primary = 36.92 cfs @ 12.13 hrs, Volume= 2.463 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 17L: Ex - Northeast Offsite Wetland/ROW

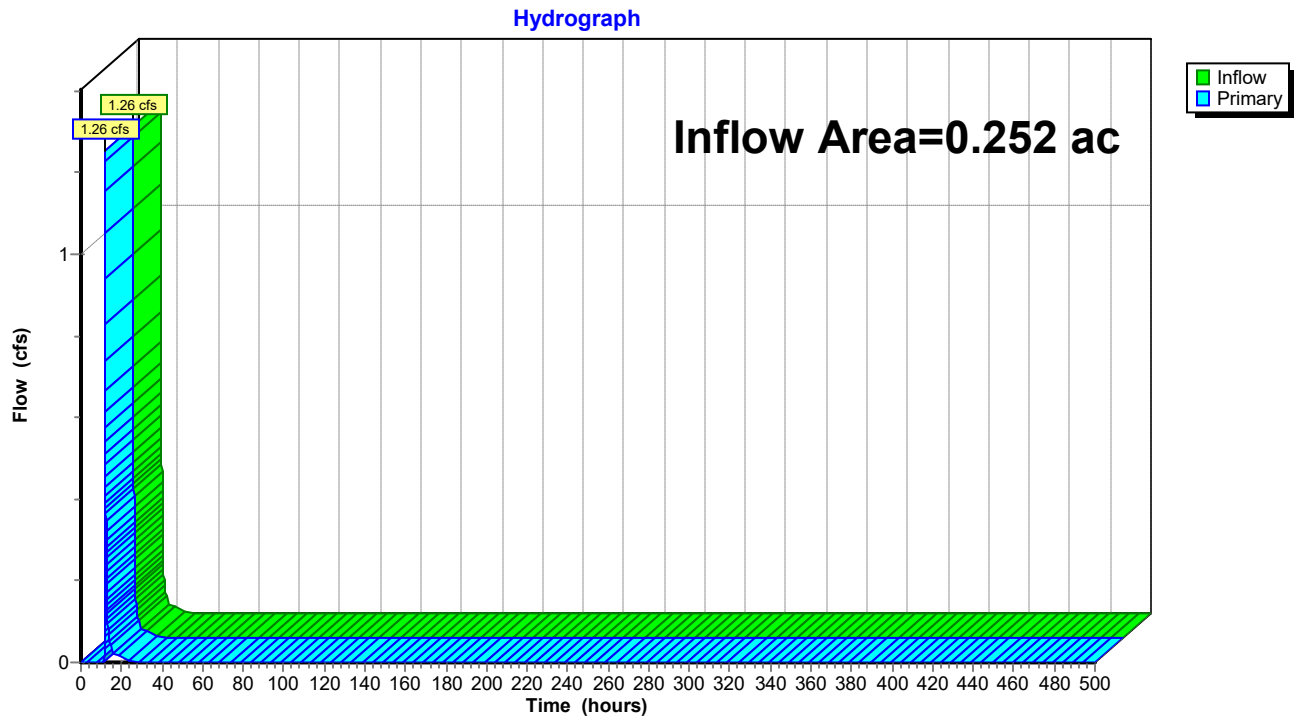


Summary for Link 46L: Pr - NW ROW

Inflow Area = 0.252 ac, 8.88% Impervious, Inflow Depth = 2.56" for 100-Year event
Inflow = 1.26 cfs @ 12.13 hrs, Volume= 0.054 af
Primary = 1.26 cfs @ 12.13 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 46L: Pr - NW ROW

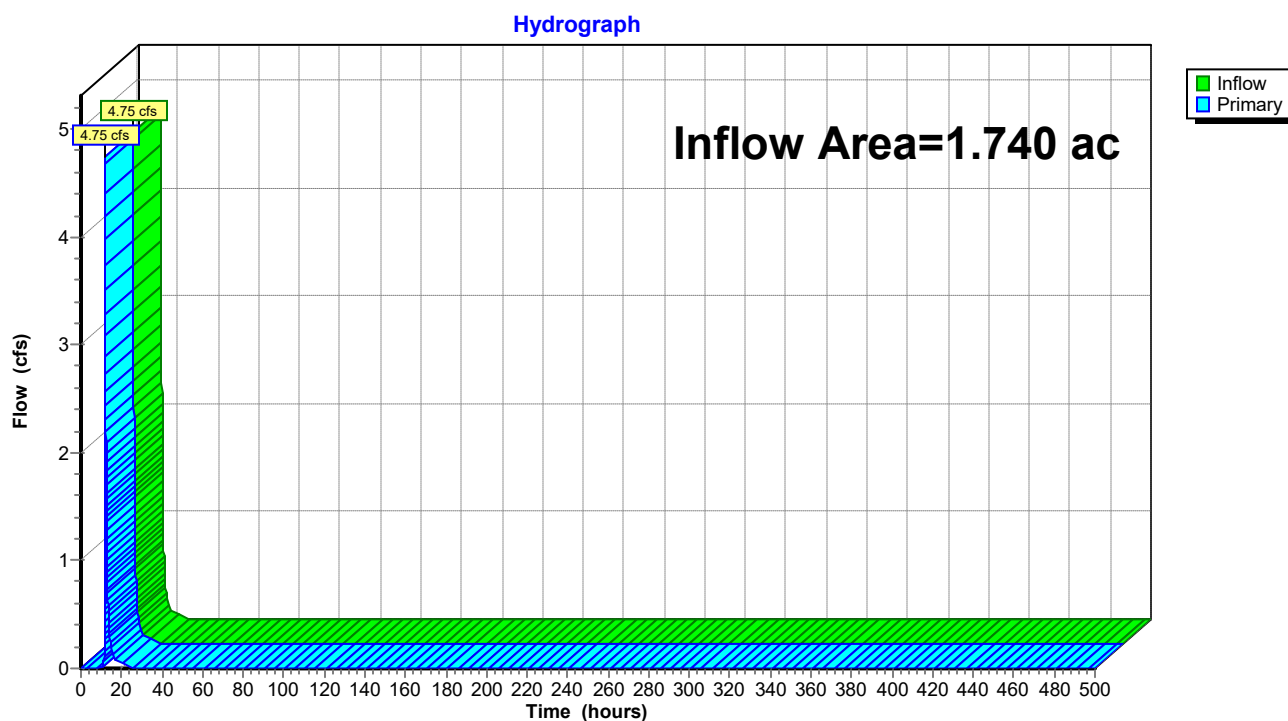


Summary for Link 47L: Pr - SE ROW

Inflow Area = 1.740 ac, 16.32% Impervious, Inflow Depth = 1.90" for 100-Year event
Inflow = 4.75 cfs @ 12.17 hrs, Volume= 0.276 af
Primary = 4.75 cfs @ 12.17 hrs, Volume= 0.276 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 47L: Pr - SE ROW



Summary for Link 48L: Pr - Northeast Offsite Wetland/ROW

Inflow Area = 14.154 ac, 31.25% Impervious, Inflow Depth = 1.99" for 100-Year event
Inflow = 35.48 cfs @ 12.13 hrs, Volume= 2.347 af
Primary = 35.48 cfs @ 12.13 hrs, Volume= 2.347 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Link 48L: Pr - Northeast Offsite Wetland/ROW

