Stormwater Management Calculations For:

Proposed Facility
1619 County Highway XX & 2409 Tower Road
Village of Kronenwetter
Marathon County, WI

REI #10453B

Prepared For:
Ruedebusch Development & Construction, Inc.
4605 Dovetail Dr
Madison, WI 53704

1/30/2026

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Section 1.0 - Stormwater Calculations Overview

Software: HydroCAD Version 10.20-8a

Rainfall Reference: NRCS Rainfall Distributions and 24-hour Duration Rainfall Depths for each Marathon County, Wisconsin

Distribution: MSE 3

State Stormwater Requirements: (WDNR) Developed condition shall not exceed the Pre-Developed condition for the 1-yr and 2-yr rainfall events and pass the 100-yr safely.

Other Stormwater Requirements: (Village of Kronenwetter) Developed condition shall not exceed the Pre-Developed condition for the 10-yr rainfall events

Table 1
Peak Flow Summary

Development Condition	Composite Curve Number	1-yr Storm Peak Flow	2-yr Storm Peak Flow	10-yr Storm Peak Flow
Pre-Development	36	0.00	0.00	0.01
Post-Development	84	0.38	0.44	1.38

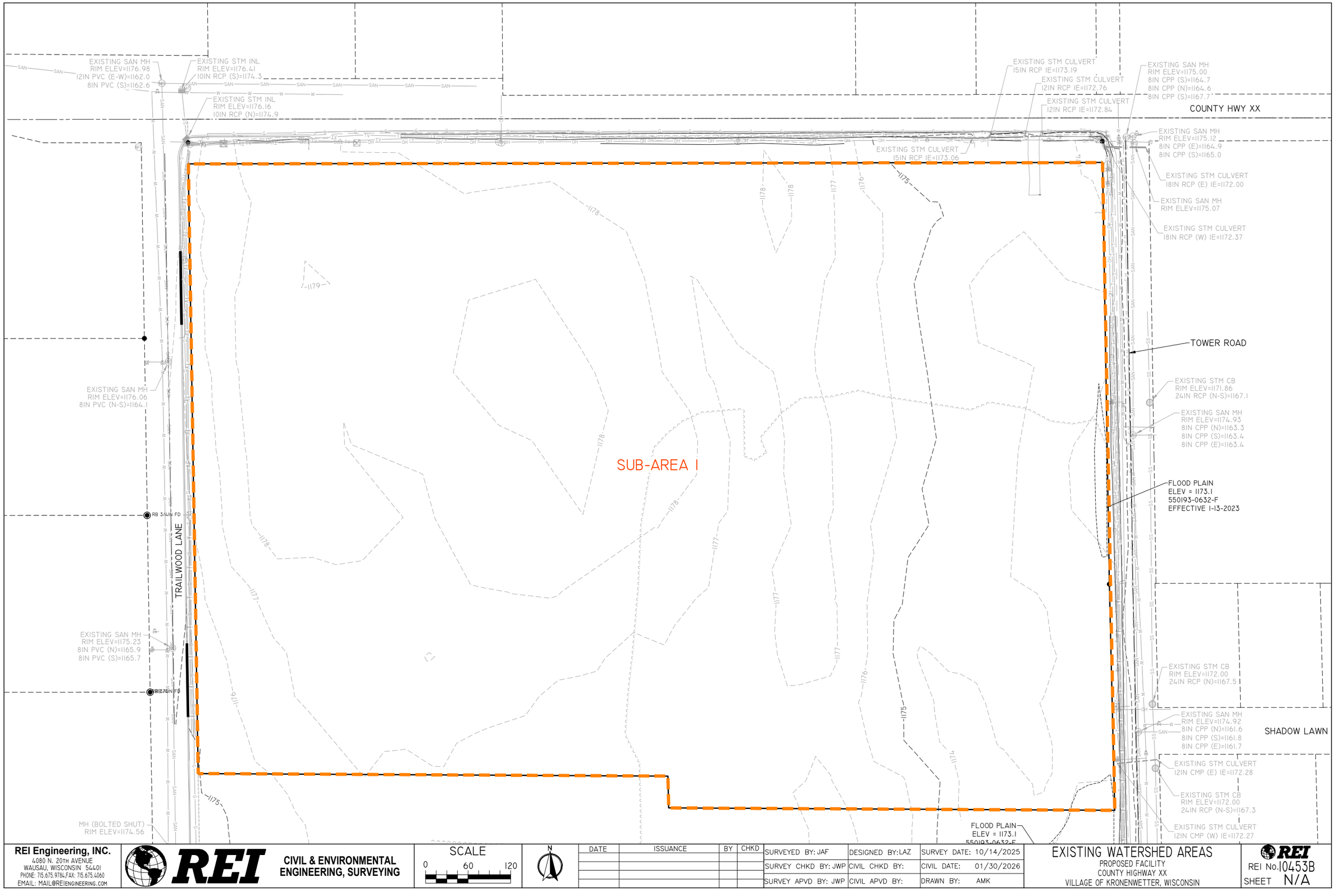
note: peak flow units are in cfs

Table 2
100-year Peak Water Elevation

Stormwater Device	100-Year Peak Elevation	Top of Pond Elevation	Overflow Elevation
Infiltration Pond 1	1176.31	1177.00	1176.50
Infiltration Pond 2	1174.82	1175.00	1174.00
Infiltration Pond 3	1174.86	1175.00	1174.00

Section 2.0

Existing Watershed Areas



REI Engineering, INC.
4080 N. 20TH AVENUE
WAUSAU, WISCONSIN 54401
PHONE: 715.675.9784, FAX: 715.675.4060
EMAIL: MAIL@REIENGINEERING.COM

REI **CIVIL & ENVIRONMENTAL ENGINEERING, SURVEYING**

SCALE 0 60 120

N

DATE	ISSUANCE	BY	CHKD

SURVEYED BY: JAF	DESIGNED BY: LAZ	SURVEY DATE: 10/14/2025
SURVEY CHKD BY: JWP	CIVIL CHKD BY:	CIVIL DATE: 01/30/2026
SURVEY APVD BY: JWP	CIVIL APVD BY:	DRAWN BY: AMK

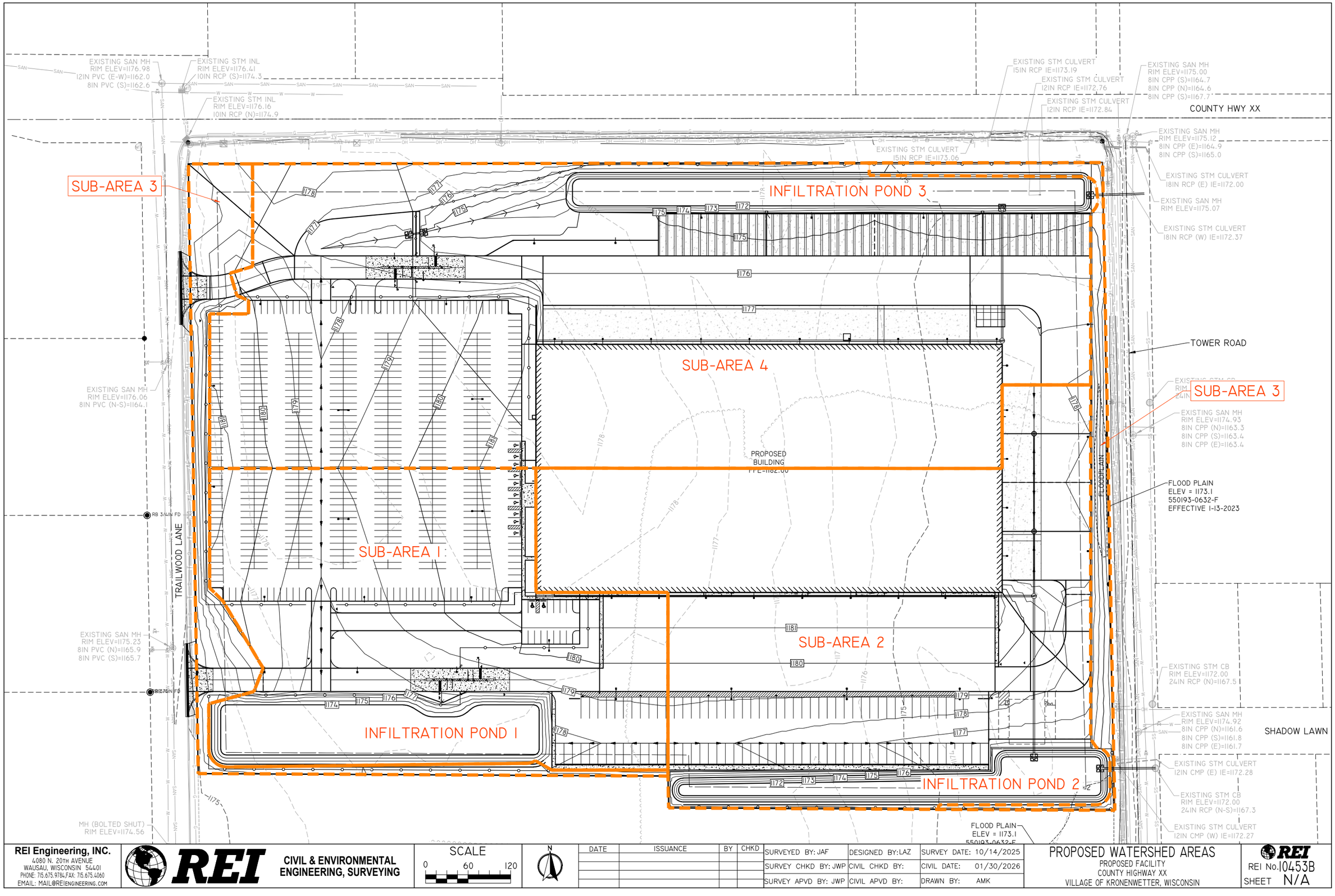
EXISTING WATERSHED AREAS

PROPOSED FACILITY
COUNTY HIGHWAY XX
VILLAGE OF KRONENWETTER, WISCONSIN

REI No. 10453B
SHEET N/A

Section 3.0

Proposed Watershed Areas



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SURVEY APVD BY: JWP	CIVIL APVD BY:	DRAWN BY: AMK

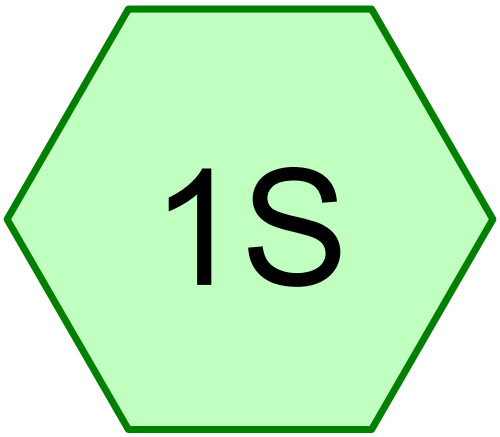
PROPOSED WATERSHED AREAS

PROPOSED FACILITY
COUNTY HIGHWAY XX
VILLAGE OF KRONENWETTER, WISCONSIN

REI No. 10453B
SHEET N/A

Section 4.0

Pre-Development Conditions Peak Flow Analysis



Sub-Area 1

Subcat Reach Pond Link

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
17.614	39	>75% Grass cover, Good, HSG A (1S)
0.016	98	Paved driveway, HSG B (1S)
0.001	98	Roofs, HSG A (1S)
8.514	30	Woods, Good, HSG A (1S)
26.145	**36**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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

Subcatchment1S: Sub-Area1 Runoff Area=26.145 ac 0.07% Impervious Runoff Depth=0.00"
Flow Length=430' Tc=15.8 min CN=36 Runoff=0.00 cfs 0.000 af

Total Runoff Area = 26.145 ac Runoff Volume = 0.000 af Average Runoff Depth = 0.00"
99.93% Pervious = 26.128 ac 0.07% Impervious = 0.017 ac

Summary for Subcatchment 1S: Sub-Area 1

[45] Hint: Runoff=Zero

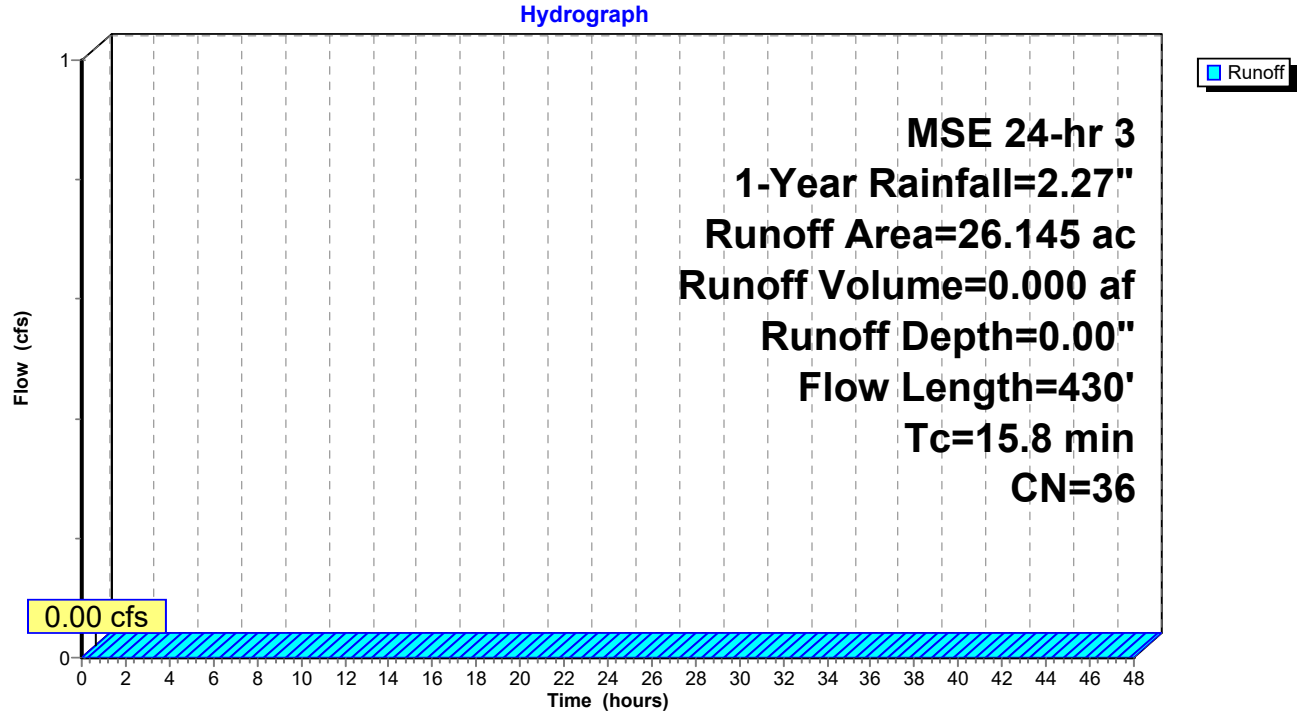
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-Year Rainfall=2.27"

	Area (ac)	CN	Description
	8.514	30	Woods, Good, HSG A
	17.614	39	>75% Grass cover, Good, HSG A
	0.001	98	Roofs, HSG A
*	0.016	98	Paved driveway, HSG B
	26.145	36	Weighted Average
	26.128		99.93% Pervious Area
	0.017		0.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	100	0.0135	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.61"
3.1	330	0.0119	1.76		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
15.8	430	Total			

Subcatchment 1S: Sub-Area 1



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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

Subcatchment1S: Sub-Area1 Runoff Area=26.145 ac 0.07% Impervious Runoff Depth=0.00"
Flow Length=430' Tc=15.8 min CN=36 Runoff=0.00 cfs 0.000 af

Total Runoff Area = 26.145 ac Runoff Volume = 0.000 af Average Runoff Depth = 0.00"
99.93% Pervious = 26.128 ac 0.07% Impervious = 0.017 ac

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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

Subcatchment1S: Sub-Area1 Runoff Area=26.145 ac 0.07% Impervious Runoff Depth=0.00"
Flow Length=430' Tc=15.8 min CN=36 Runoff=0.01 cfs 0.004 af

Total Runoff Area = 26.145 ac Runoff Volume = 0.004 af Average Runoff Depth = 0.00"
99.93% Pervious = 26.128 ac 0.07% Impervious = 0.017 ac

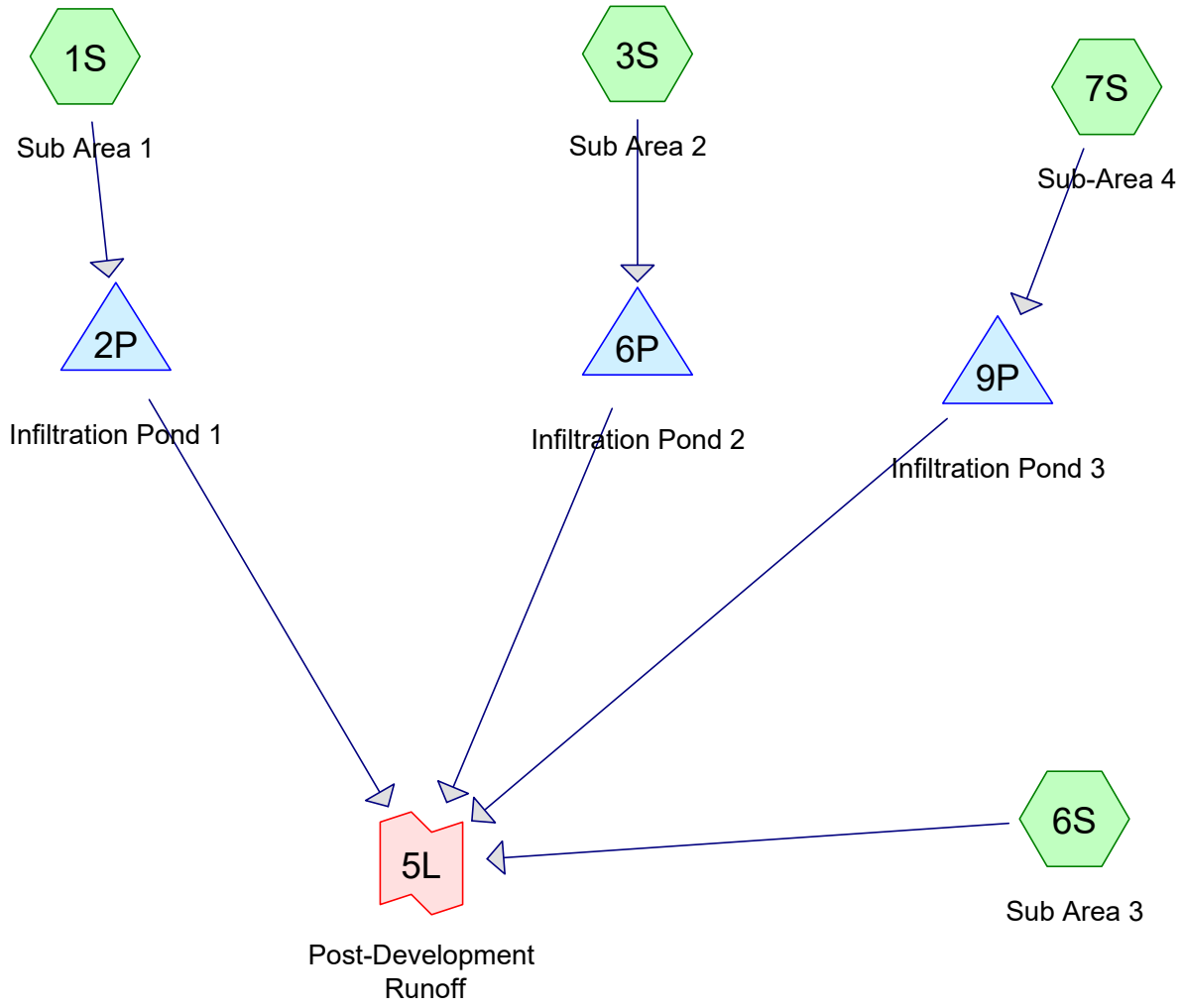
Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Sub-Area1 Runoff Area=26.145 ac 0.07% Impervious Runoff Depth=0.26"
Flow Length=430' Tc=15.8 min CN=36 Runoff=2.45 cfs 0.571 af

Total Runoff Area = 26.145 ac Runoff Volume = 0.571 af Average Runoff Depth = 0.26"
99.93% Pervious = 26.128 ac 0.07% Impervious = 0.017 ac

Section 5.0

Post-Development Conditions Peak Flow Analysis



Subcat Reach Pond Link

Routing Diagram for 10453B-Post
Prepared by REI Engineering, Printed 1/30/2026

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
6.211	39	>75% Grass cover, Good, HSG A (1S, 3S, 6S, 7S)
0.101	98	Paved Sidewalk, HSG A (1S)
12.834	98	Paved parking, HSG A (1S, 3S, 6S, 7S)
2.654	98	Roofs (3S)
2.649	98	Roofs, HSG A (7S)
0.088	98	Sidewalk, HSG A (3S)
1.609	98	Water Surface, 0% imp, HSG A (1S, 3S, 7S)
26.145	**84**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Sub Area 1 Runoff Area=223,614 sf 65.08% Impervious Runoff Depth=1.61"
Tc=6.0 min CN=WQ Runoff=12.95 cfs 0.688 af

Subcatchment3S: Sub Area 2 Runoff Area=335,580 sf 81.99% Impervious Runoff Depth=1.77"
Tc=6.0 min CN=WQ Runoff=21.42 cfs 1.139 af

Subcatchment6S: Sub Area 3 Runoff Area=74,938 sf 6.85% Impervious Runoff Depth=0.14"
Tc=6.0 min CN=WQ Runoff=0.38 cfs 0.020 af

Subcatchment7S: Sub-Area 4 Runoff Area=504,741 sf 73.79% Impervious Runoff Depth=1.60"
Tc=6.0 min CN=WQ Runoff=29.06 cfs 1.545 af

Pond 2P: Infiltration Pond 1 Peak Elev=1,174.27' Storage=8,567 cf Inflow=12.95 cfs 0.688 af
Discarded=2.68 cfs 0.688 af Primary=0.00 cfs 0.000 af Outflow=2.68 cfs 0.688 af

Pond 6P: Infiltration Pond 2 Peak Elev=1,173.18' Storage=22,076 cf Inflow=21.42 cfs 1.139 af
Discarded=1.77 cfs 1.139 af Primary=0.00 cfs 0.000 af Outflow=1.77 cfs 1.139 af

Pond 9P: Infiltration Pond 3 Peak Elev=1,173.19' Storage=29,999 cf Inflow=29.06 cfs 1.545 af
Discarded=2.32 cfs 1.545 af Primary=0.00 cfs 0.000 af Outflow=2.32 cfs 1.545 af

Link 5L: Post-DevelopmentRunoff Inflow=0.38 cfs 0.020 af
Primary=0.38 cfs 0.020 af

Total Runoff Area = 26.145 ac Runoff Volume = 3.392 af Average Runoff Depth = 1.56"
29.91% Pervious = 7.820 ac 70.09% Impervious = 18.325 ac

Summary for Subcatchment 1S: Sub Area 1

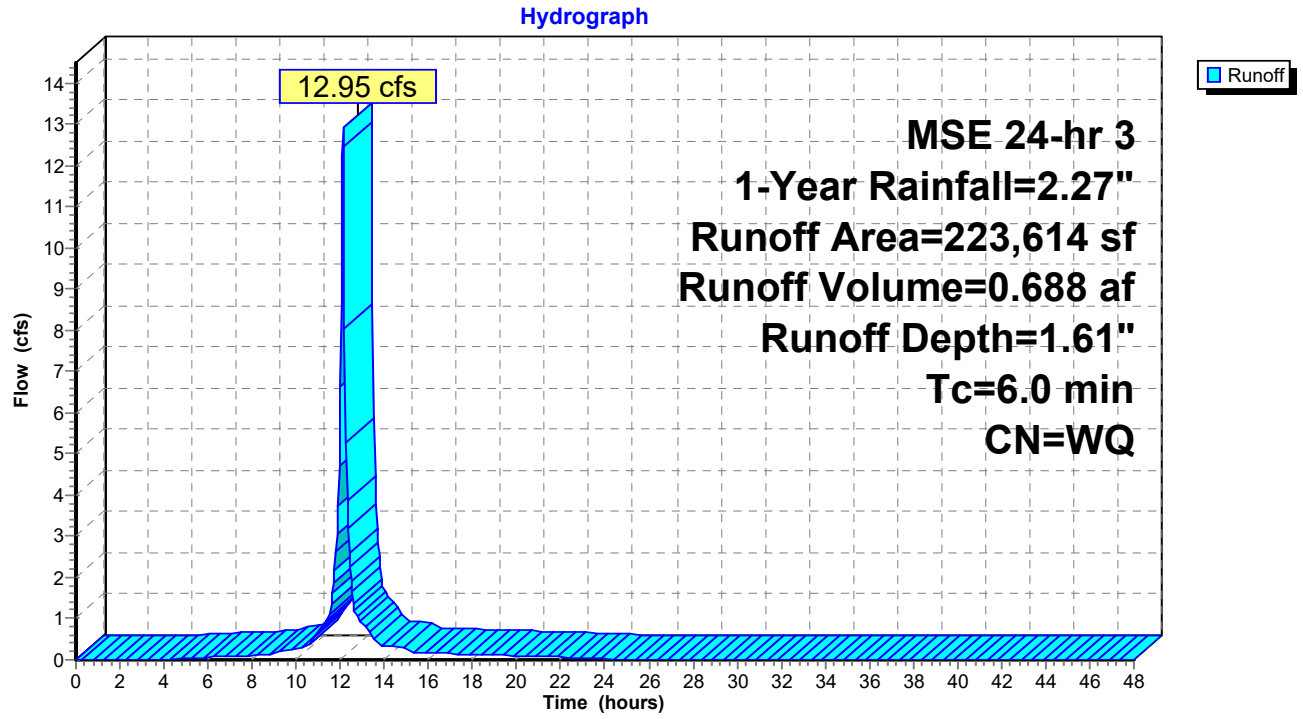
Runoff = 12.95 cfs @ 12.13 hrs, Volume= 0.688 af, Depth= 1.61"
Routed to Pond 2P : Infiltration Pond 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-Year Rainfall=2.27"

	Area (sf)	CN	Description
	141,144	98	Paved parking, HSG A
	47,436	39	>75% Grass cover, Good, HSG A
	30,654	98	Water Surface, 0% imp, HSG A
*	4,380	98	Paved Sidewalk, HSG A
	223,614		Weighted Average
	78,090		34.92% Pervious Area
	145,524		65.08% Impervious Area

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

Subcatchment 1S: Sub Area 1



Summary for Subcatchment 3S: Sub Area 2

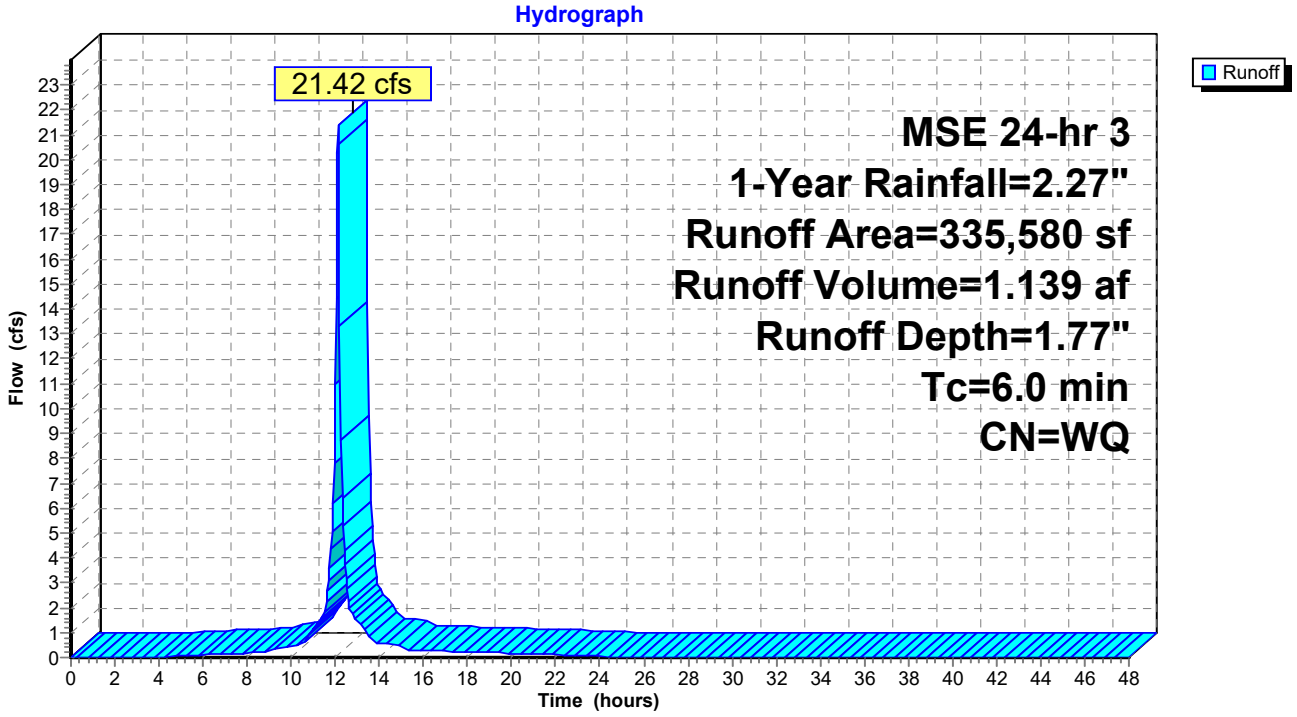
Runoff = 21.42 cfs @ 12.13 hrs, Volume= 1.139 af, Depth= 1.77"
Routed to Pond 6P : Infiltration Pond 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-Year Rainfall=2.27"

	Area (sf)	CN	Description
*	115,596	98	Roofs
*	155,693	98	Paved parking, HSG A
*	3,850	98	Sidewalk, HSG A
*	44,022	39	>75% Grass cover, Good, HSG A
	16,419	98	Water Surface, 0% imp, HSG A
	335,580		Weighted Average
	60,441		18.01% Pervious Area
	275,139		81.99% Impervious Area

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

Subcatchment 3S: Sub Area 2



Summary for Subcatchment 6S: Sub Area 3

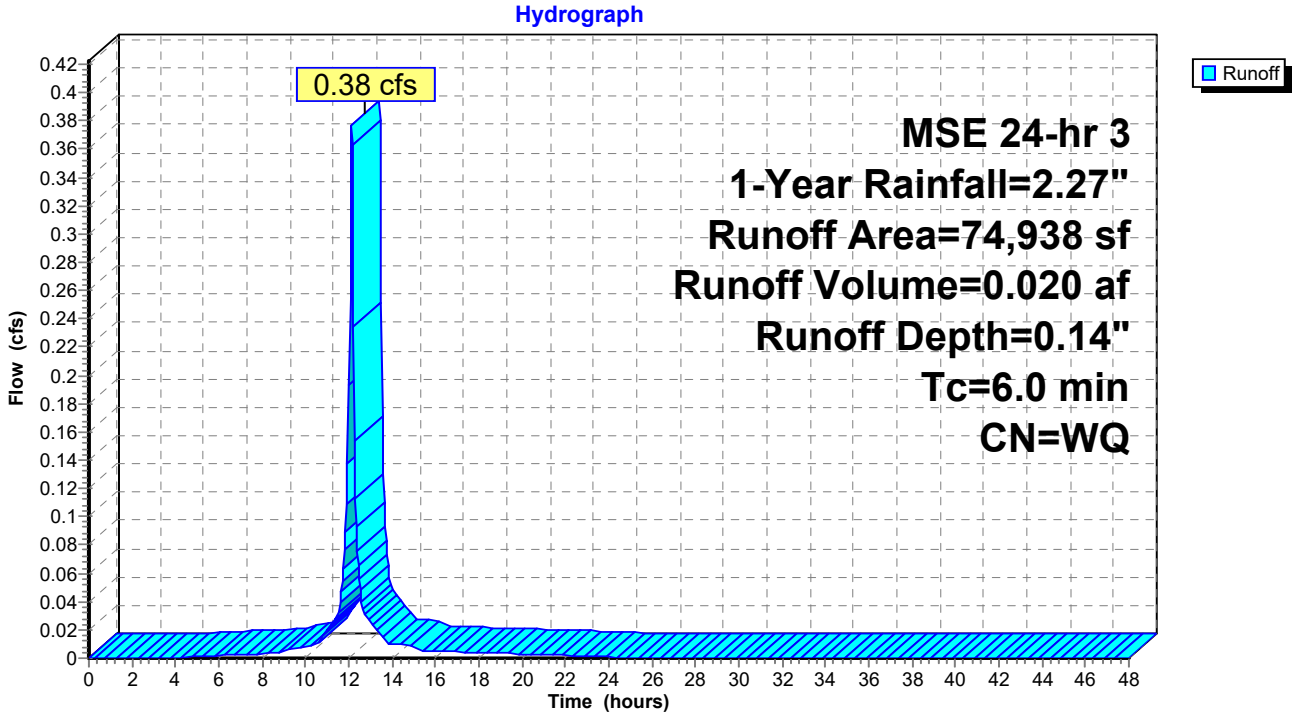
Runoff = 0.38 cfs @ 12.13 hrs, Volume= 0.020 af, Depth= 0.14"
Routed to Link 5L : Post-Development Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-Year Rainfall=2.27"

Area (sf)	CN	Description
69,805	39	>75% Grass cover, Good, HSG A
5,133	98	Paved parking, HSG A
74,938		Weighted Average
69,805		93.15% Pervious Area
5,133		6.85% Impervious Area

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

Subcatchment 6S: Sub Area 3



Summary for Subcatchment 7S: Sub-Area 4

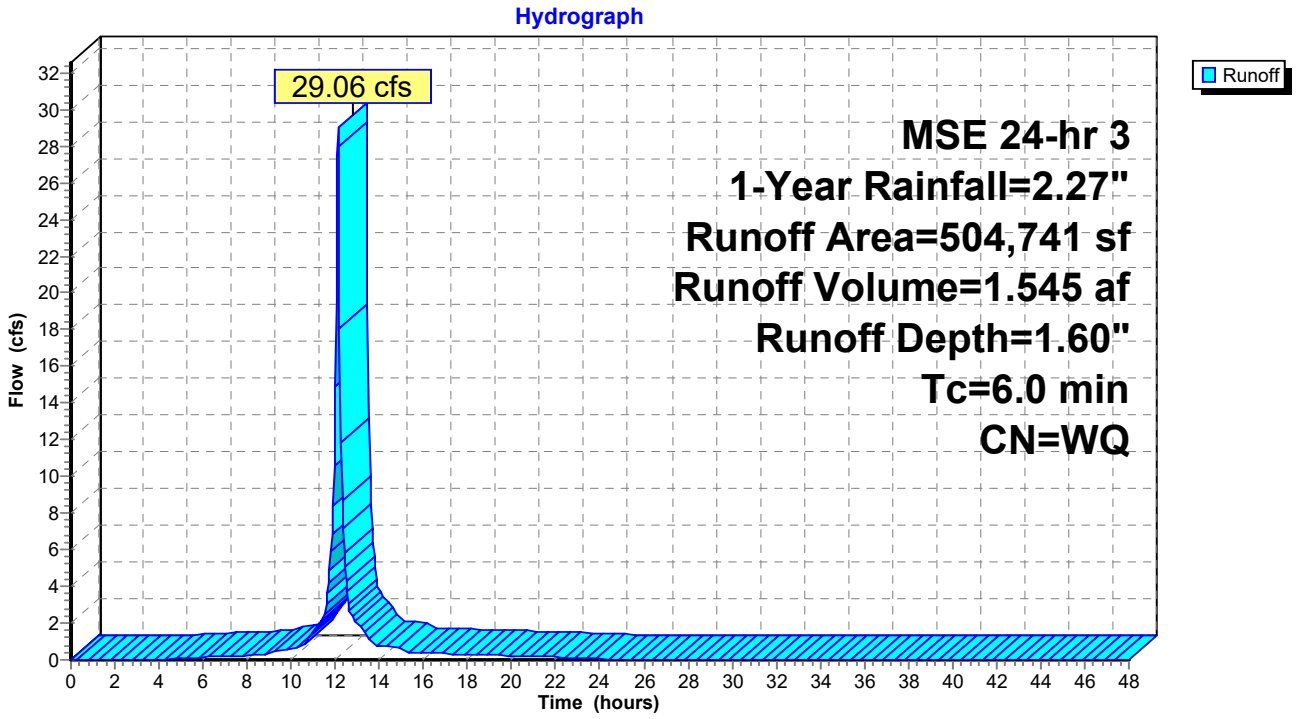
Runoff = 29.06 cfs @ 12.13 hrs, Volume= 1.545 af, Depth= 1.60"
Routed to Pond 9P : Infiltration Pond 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-Year Rainfall=2.27"

Area (sf)	CN	Description
115,376	98	Roofs, HSG A
257,059	98	Paved parking, HSG A
109,277	39	>75% Grass cover, Good, HSG A
23,029	98	Water Surface, 0% imp, HSG A
504,741		Weighted Average
132,306		26.21% Pervious Area
372,435		73.79% Impervious Area

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

Subcatchment 7S: Sub-Area 4



Summary for Pond 2P: Infiltration Pond 1

Inflow Area = 5.133 ac, 65.08% Impervious, Inflow Depth = 1.61" for 1-Year event
Inflow = 12.95 cfs @ 12.13 hrs, Volume= 0.688 af
Outflow = 2.68 cfs @ 12.40 hrs, Volume= 0.688 af, Atten= 79%, Lag= 16.2 min
Discarded = 2.68 cfs @ 12.40 hrs, Volume= 0.688 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 5L : Post-Development Runoff

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,174.27' @ 12.40 hrs Surf.Area= 31,966 sf Storage= 8,567 cf

Plug-Flow detention time= 21.5 min calculated for 0.688 af (100% of inflow)
Center-of-Mass det. time= 21.5 min (779.4 - 757.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,174.00'	114,350 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

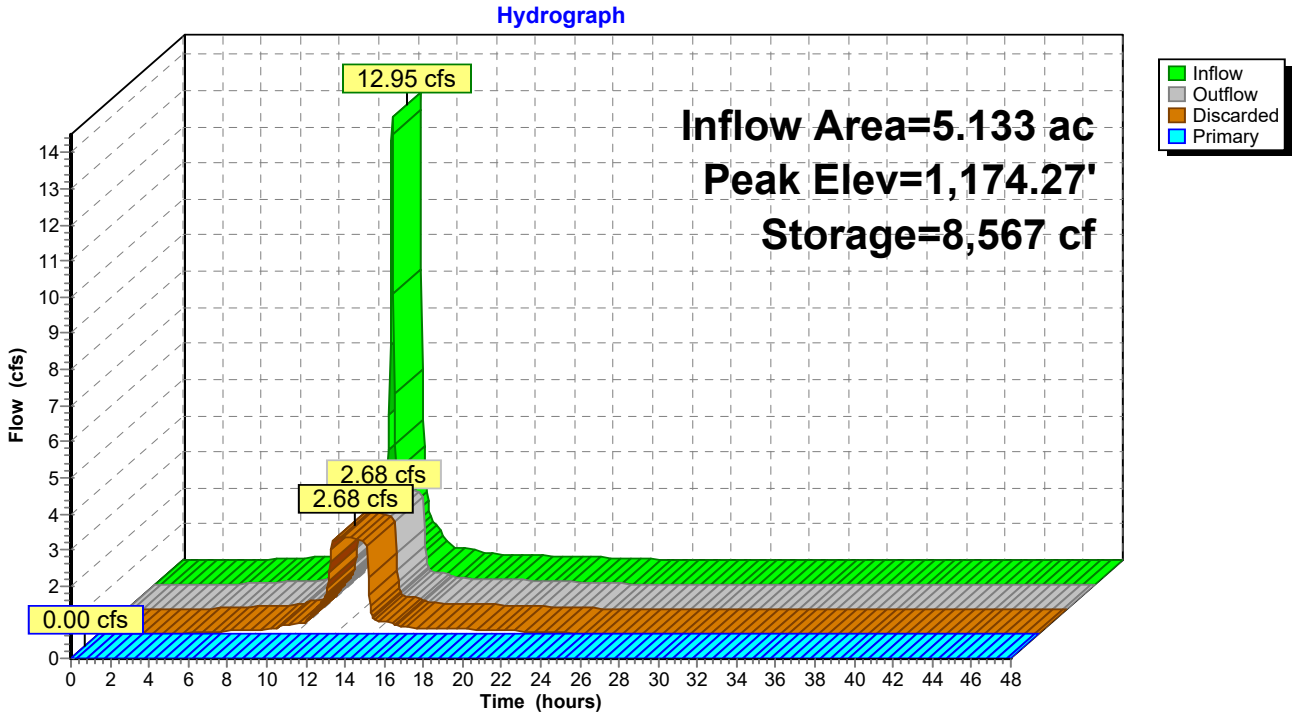
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,174.00	30,654	1,036.0	0	0	30,654
1,175.00	35,583	1,069.0	33,088	33,088	36,281
1,176.00	40,639	1,101.0	38,083	71,171	41,913
1,177.00	45,771	1,127.0	43,180	114,350	46,655

Device	Routing	Invert	Outlet Devices
#1	Primary	1,176.50'	**10.0' long + 3.0 '/' SideZ x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	1,174.00'	**3.600 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=2.68 cfs @ 12.40 hrs HW=1,174.27' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 2.68 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,174.00' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: Infiltration Pond 1



Summary for Pond 6P: Infiltration Pond 2

Inflow Area = 7.704 ac, 81.99% Impervious, Inflow Depth = 1.77" for 1-Year event
Inflow = 21.42 cfs @ 12.13 hrs, Volume= 1.139 af
Outflow = 1.77 cfs @ 12.76 hrs, Volume= 1.139 af, Atten= 92%, Lag= 38.2 min
Discarded = 1.77 cfs @ 12.76 hrs, Volume= 1.139 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 5L : Post-Development Runoff

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,173.18' @ 12.76 hrs Surf.Area= 20,961 sf Storage= 22,076 cf

Plug-Flow detention time= 100.5 min calculated for 1.139 af (100% of inflow)
Center-of-Mass det. time= 100.5 min (858.4 - 757.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,172.00'	66,646 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

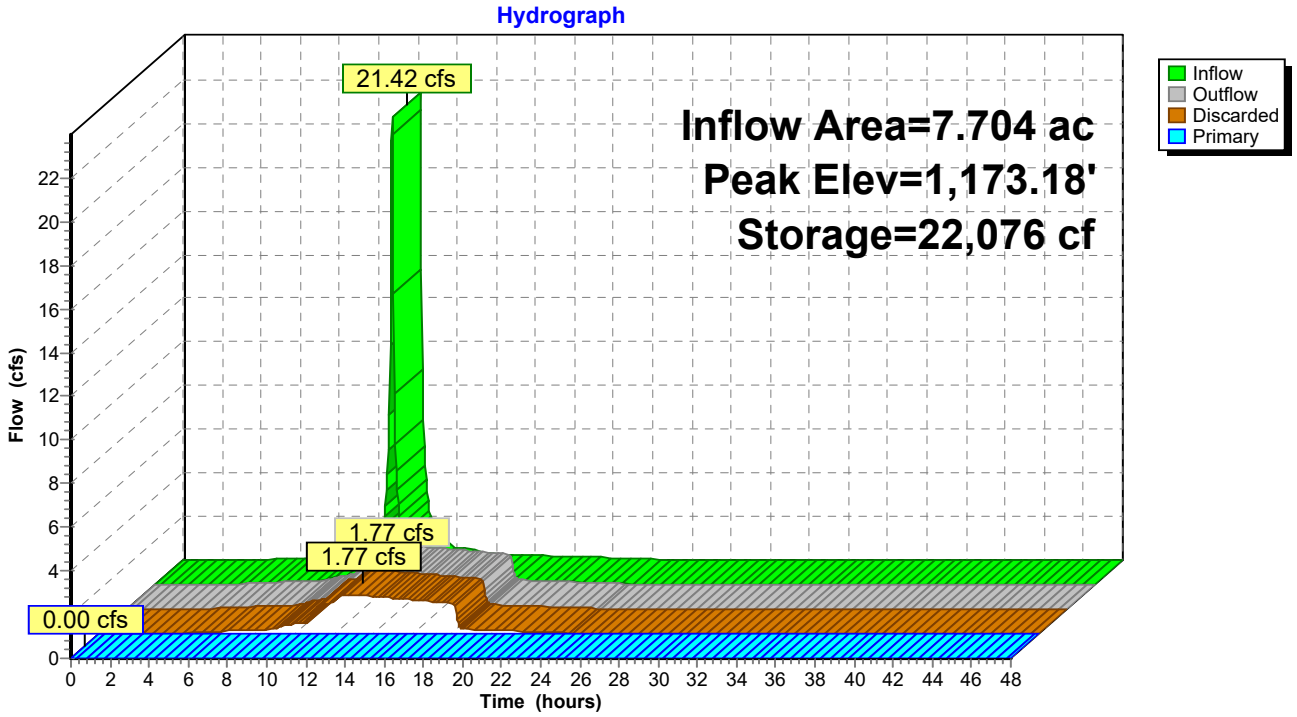
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,172.00	16,419	1,275.0	0	0	16,419
1,173.00	20,273	1,294.0	18,312	18,312	20,510
1,174.00	24,180	1,313.0	22,198	40,510	24,662
1,175.00	28,142	1,332.0	26,136	66,646	28,874

Device	Routing	Invert	Outlet Devices
#1	Primary	1,174.00'	**8.0' long + 3.0 '/' SideZ x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	1,172.00'	**3.600 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=1.77 cfs @ 12.76 hrs HW=1,173.18' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 1.77 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,172.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 6P: Infiltration Pond 2



Summary for Pond 9P: Infiltration Pond 3

Inflow Area = 11.587 ac, 73.79% Impervious, Inflow Depth = 1.60" for 1-Year event
Inflow = 29.06 cfs @ 12.13 hrs, Volume= 1.545 af
Outflow = 2.32 cfs @ 12.81 hrs, Volume= 1.545 af, Atten= 92%, Lag= 41.1 min
Discarded = 2.32 cfs @ 12.81 hrs, Volume= 1.545 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 5L : Post-Development Runoff

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,173.19' @ 12.81 hrs Surf.Area= 27,573 sf Storage= 29,999 cf

Plug-Flow detention time= 102.7 min calculated for 1.545 af (100% of inflow)
Center-of-Mass det. time= 102.6 min (860.6 - 757.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,172.00'	86,434 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

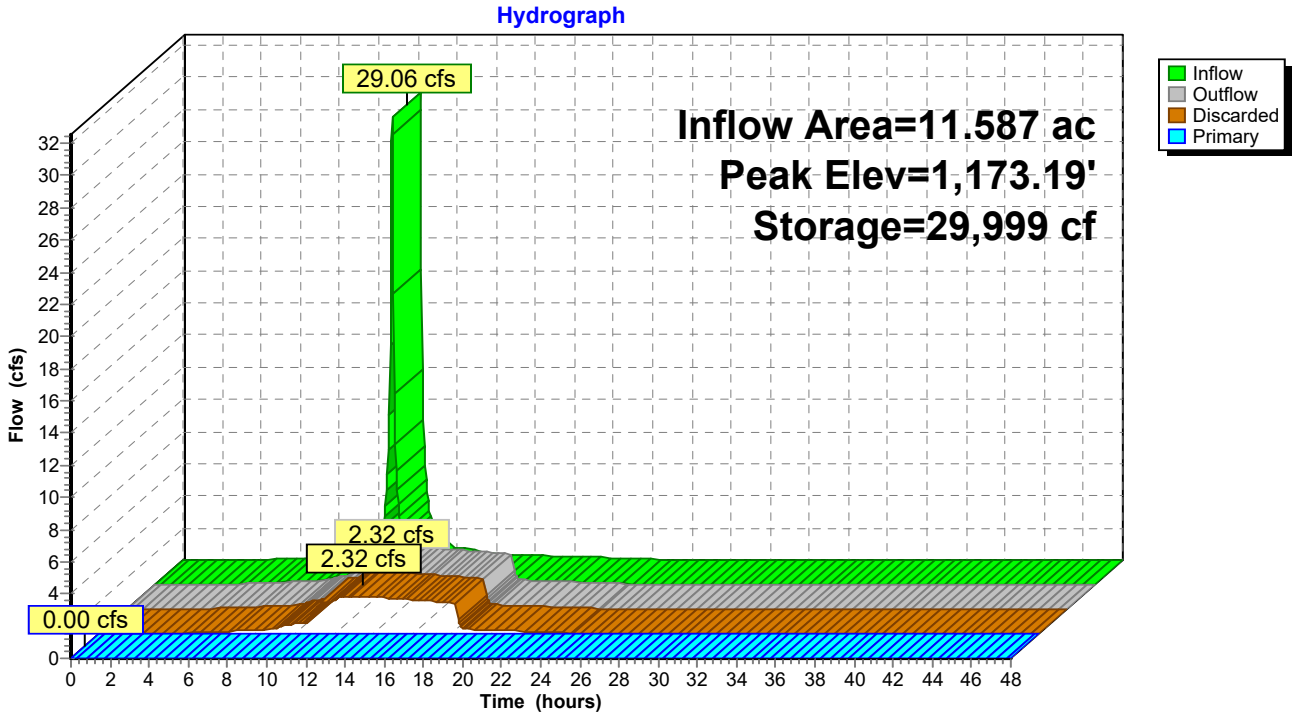
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,172.00	23,029	1,270.0	0	0	23,029
1,173.00	26,867	1,289.0	24,923	24,923	27,104
1,174.00	30,762	1,308.0	28,793	53,716	31,240
1,175.00	34,714	1,327.0	32,718	86,434	35,436

Device	Routing	Invert	Outlet Devices
#1	Primary	1,174.00'	**8.0' long + 3.0 '/' SideZ x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	1,172.00'	**3.600 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=2.32 cfs @ 12.81 hrs HW=1,173.19' (Free Discharge)
↑**2=Exfiltration** (Exfiltration Controls 2.32 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,172.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 9P: Infiltration Pond 3

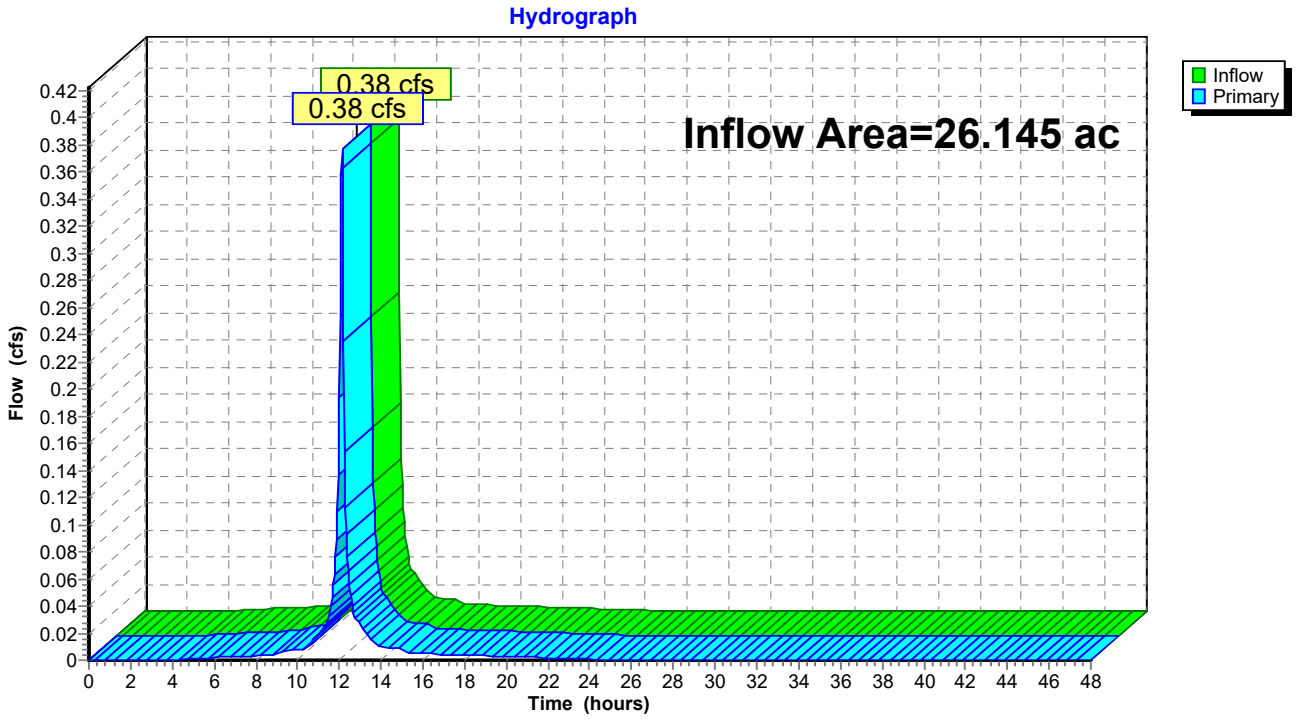


Summary for Link 5L: Post-Development Runoff

Inflow Area = 26.145 ac, 70.09% Impervious, Inflow Depth = 0.01" for 1-Year event
Inflow = 0.38 cfs @ 12.13 hrs, Volume= 0.020 af
Primary = 0.38 cfs @ 12.13 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 5L: Post-Development Runoff



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Sub Area 1 Runoff Area=223,614 sf 65.08% Impervious Runoff Depth=1.88"
Tc=6.0 min CN=WQ Runoff=14.96 cfs 0.802 af

Subcatchment3S: Sub Area 2 Runoff Area=335,580 sf 81.99% Impervious Runoff Depth=2.07"
Tc=6.0 min CN=WQ Runoff=24.76 cfs 1.328 af

Subcatchment6S: Sub Area 3 Runoff Area=74,938 sf 6.85% Impervious Runoff Depth=0.16"
Tc=6.0 min CN=WQ Runoff=0.44 cfs 0.023 af

Subcatchment7S: Sub-Area 4 Runoff Area=504,741 sf 73.79% Impervious Runoff Depth=1.86"
Tc=6.0 min CN=WQ Runoff=33.58 cfs 1.801 af

Pond 2P: Infiltration Pond 1 Peak Elev=1,174.34' Storage=10,702 cf Inflow=14.96 cfs 0.802 af
Discarded=2.71 cfs 0.802 af Primary=0.00 cfs 0.000 af Outflow=2.71 cfs 0.802 af

Pond 6P: Infiltration Pond 2 Peak Elev=1,173.40' Storage=26,789 cf Inflow=24.76 cfs 1.328 af
Discarded=1.85 cfs 1.328 af Primary=0.00 cfs 0.000 af Outflow=1.85 cfs 1.328 af

Pond 9P: Infiltration Pond 3 Peak Elev=1,173.42' Storage=36,482 cf Inflow=33.58 cfs 1.801 af
Discarded=2.40 cfs 1.801 af Primary=0.00 cfs 0.000 af Outflow=2.40 cfs 1.801 af

Link 5L: Post-DevelopmentRunoff Inflow=0.44 cfs 0.023 af
Primary=0.44 cfs 0.023 af

Total Runoff Area = 26.145 ac Runoff Volume = 3.954 af Average Runoff Depth = 1.81"
29.91% Pervious = 7.820 ac 70.09% Impervious = 18.325 ac

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Sub Area 1 Runoff Area=223,614 sf 65.08% Impervious Runoff Depth=2.76"
Tc=6.0 min CN=WQ Runoff=21.57 cfs 1.180 af

Subcatchment3S: Sub Area 2 Runoff Area=335,580 sf 81.99% Impervious Runoff Depth=3.04"
Tc=6.0 min CN=WQ Runoff=35.69 cfs 1.952 af

Subcatchment6S: Sub Area 3 Runoff Area=74,938 sf 6.85% Impervious Runoff Depth=0.26"
Tc=6.0 min CN=WQ Runoff=0.63 cfs 0.037 af

Subcatchment7S: Sub-Area 4 Runoff Area=504,741 sf 73.79% Impervious Runoff Depth=2.74"
Tc=6.0 min CN=WQ Runoff=48.41 cfs 2.649 af

Pond 2P: Infiltration Pond 1 Peak Elev=1,174.57' Storage=18,307 cf Inflow=21.57 cfs 1.180 af
Discarded=2.82 cfs 1.180 af Primary=0.00 cfs 0.000 af Outflow=2.82 cfs 1.180 af

Pond 6P: Infiltration Pond 2 Peak Elev=1,174.08' Storage=42,509 cf Inflow=35.69 cfs 1.952 af
Discarded=2.08 cfs 1.919 af Primary=0.47 cfs 0.033 af Outflow=2.55 cfs 1.952 af

Pond 9P: Infiltration Pond 3 Peak Elev=1,174.12' Storage=57,564 cf Inflow=48.41 cfs 2.649 af
Discarded=2.65 cfs 2.579 af Primary=0.87 cfs 0.071 af Outflow=3.51 cfs 2.649 af

Link 5L: Post-DevelopmentRunoff Inflow=1.38 cfs 0.141 af
Primary=1.38 cfs 0.141 af

Total Runoff Area = 26.145 ac Runoff Volume = 5.819 af Average Runoff Depth = 2.67"
29.91% Pervious = 7.820 ac 70.09% Impervious = 18.325 ac

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Sub Area 1 Runoff Area=223,614 sf 65.08% Impervious Runoff Depth=4.51"
Tc=6.0 min CN=WQ Runoff=34.16 cfs 1.928 af

Subcatchment3S: Sub Area 2 Runoff Area=335,580 sf 81.99% Impervious Runoff Depth=4.93"
Tc=6.0 min CN=WQ Runoff=56.41 cfs 3.164 af

Subcatchment6S: Sub Area 3 Runoff Area=74,938 sf 6.85% Impervious Runoff Depth=0.76"
Tc=6.0 min CN=WQ Runoff=1.28 cfs 0.109 af

Subcatchment7S: Sub-Area 4 Runoff Area=504,741 sf 73.79% Impervious Runoff Depth=4.48"
Tc=6.0 min CN=WQ Runoff=76.68 cfs 4.330 af

Pond 2P: Infiltration Pond 1 Peak Elev=1,175.04' Storage=34,423 cf Inflow=34.16 cfs 1.928 af
Discarded=3.04 cfs 1.928 af Primary=0.00 cfs 0.000 af Outflow=3.04 cfs 1.928 af

Pond 6P: Infiltration Pond 2 Peak Elev=1,174.68' Storage=57,721 cf Inflow=56.41 cfs 3.164 af
Discarded=2.29 cfs 2.357 af Primary=14.34 cfs 0.807 af Outflow=16.63 cfs 3.164 af

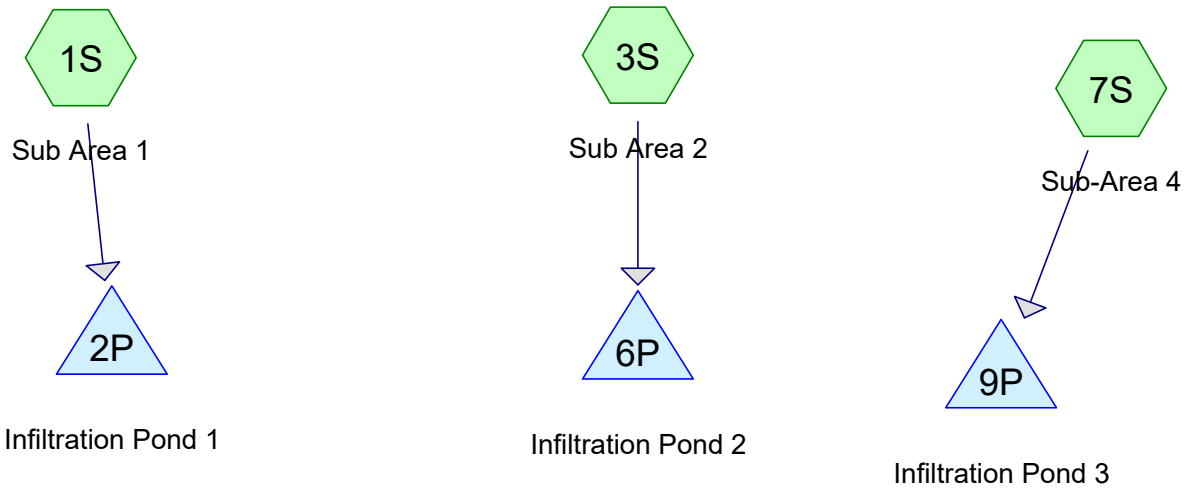
Pond 9P: Infiltration Pond 3 Peak Elev=1,174.78' Storage=79,034 cf Inflow=76.68 cfs 4.330 af
Discarded=2.88 cfs 3.172 af Primary=18.40 cfs 1.158 af Outflow=21.27 cfs 4.330 af

Link 5L: Post-DevelopmentRunoff Inflow=33.43 cfs 2.073 af
Primary=33.43 cfs 2.073 af

Total Runoff Area = 26.145 ac Runoff Volume = 9.531 af Average Runoff Depth = 4.37"
29.91% Pervious = 7.820 ac 70.09% Impervious = 18.325 ac

Section 6.0

Detention Pond Safe Passage Analysis



Subcat Reach Pond Link

Routing Diagram for 10453B-Post Safe Passage 2026
Prepared by REI Engineering, Printed 1/30/2026

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.608	39	>75% Grass cover, Good, HSG A (1S, 3S, 7S)
0.101	98	Paved Sidewalk, HSG A (1S)
12.716	98	Paved parking, HSG A (1S, 3S, 7S)
2.654	98	Roofs (3S)
2.649	98	Roofs, HSG A (7S)
0.088	98	Sidewalk, HSG A (3S)
1.609	98	Water Surface, 0% imp, HSG A (1S, 3S, 7S)
24.425	**87**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Sub Area 1 Runoff Area=223,614 sf 65.08% Impervious Runoff Depth=4.51"
Tc=6.0 min CN=WQ Runoff=34.16 cfs 1.928 af

Subcatchment3S: Sub Area 2 Runoff Area=335,580 sf 81.99% Impervious Runoff Depth=4.93"
Tc=6.0 min CN=WQ Runoff=56.41 cfs 3.164 af

Subcatchment7S: Sub-Area 4 Runoff Area=504,741 sf 73.79% Impervious Runoff Depth=4.48"
Tc=6.0 min CN=WQ Runoff=76.68 cfs 4.330 af

Pond 2P: Infiltration Pond 1 Peak Elev=1,176.31' Storage=83,988 cf Inflow=34.16 cfs 1.928 af
Outflow=0.00 cfs 0.000 af

Pond 6P: Infiltration Pond 2 Peak Elev=1,174.82' Storage=61,729 cf Inflow=56.41 cfs 3.164 af
Outflow=39.95 cfs 2.234 af

Pond 9P: Infiltration Pond 3 Peak Elev=1,174.86' Storage=101,850 cf Inflow=76.68 cfs 4.330 af
Outflow=34.05 cfs 2.789 af

Total Runoff Area = 24.425 ac Runoff Volume = 9.422 af Average Runoff Depth = 4.63"
25.46% Pervious = 6.218 ac 74.54% Impervious = 18.207 ac

Summary for Subcatchment 1S: Sub Area 1

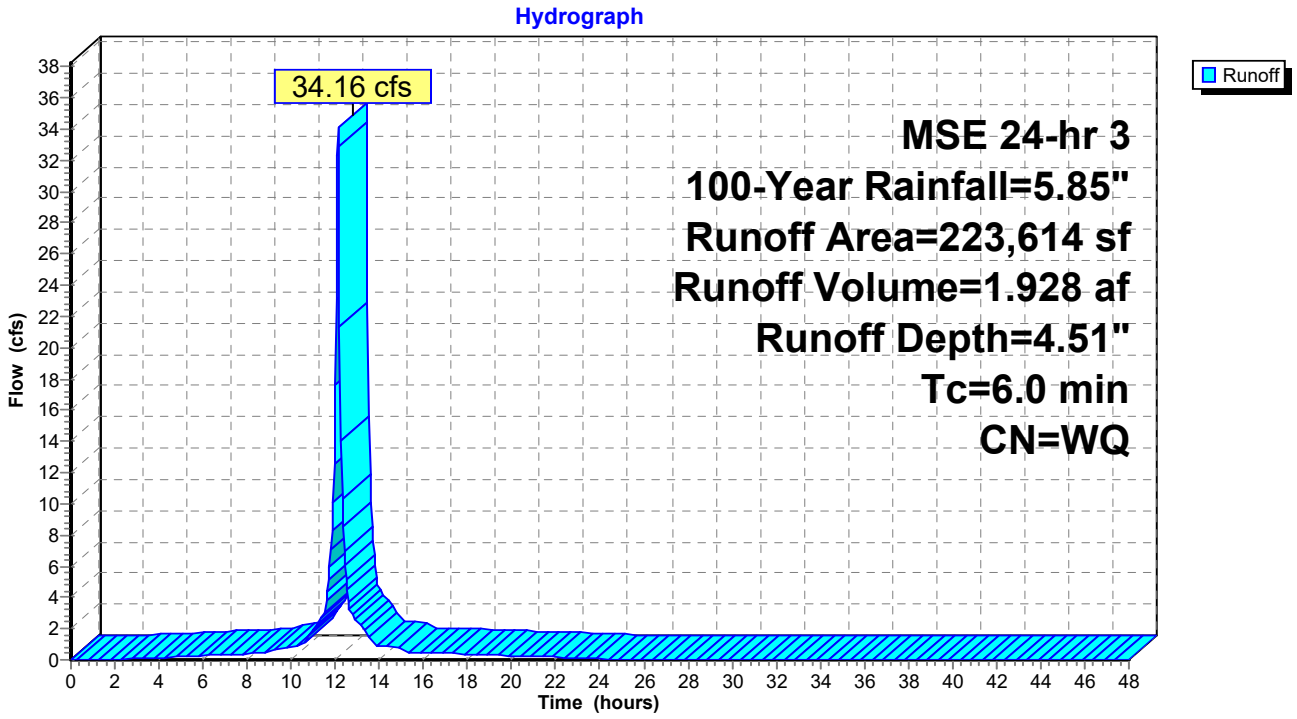
Runoff = 34.16 cfs @ 12.13 hrs, Volume= 1.928 af, Depth= 4.51"
Routed to Pond 2P : Infiltration Pond 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=5.85"

	Area (sf)	CN	Description
	141,144	98	Paved parking, HSG A
	47,436	39	>75% Grass cover, Good, HSG A
	30,654	98	Water Surface, 0% imp, HSG A
*	4,380	98	Paved Sidewalk, HSG A
	223,614		Weighted Average
	78,090		34.92% Pervious Area
	145,524		65.08% Impervious Area

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

Subcatchment 1S: Sub Area 1



Summary for Subcatchment 3S: Sub Area 2

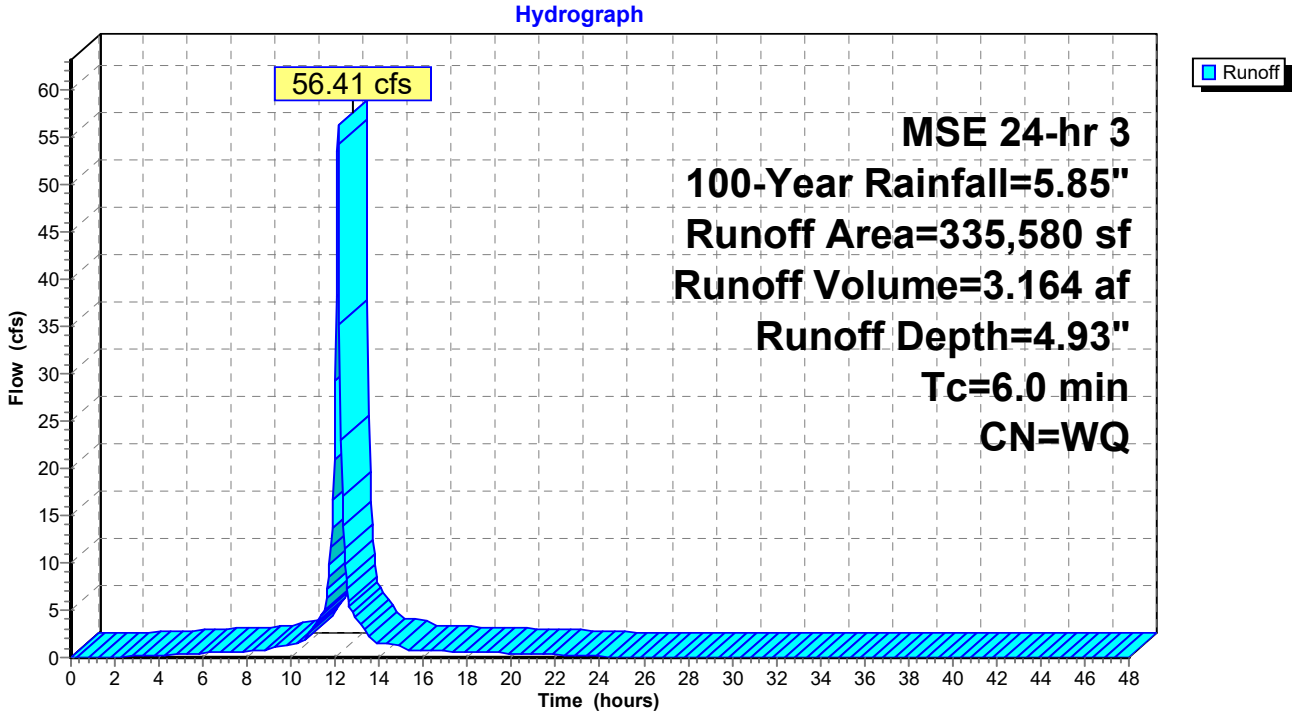
Runoff = 56.41 cfs @ 12.13 hrs, Volume= 3.164 af, Depth= 4.93"
Routed to Pond 6P : Infiltration Pond 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=5.85"

	Area (sf)	CN	Description
*	115,596	98	Roofs
*	155,693	98	Paved parking, HSG A
*	3,850	98	Sidewalk, HSG A
*	44,022	39	>75% Grass cover, Good, HSG A
	16,419	98	Water Surface, 0% imp, HSG A
	335,580		Weighted Average
	60,441		18.01% Pervious Area
	275,139		81.99% Impervious Area

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

Subcatchment 3S: Sub Area 2



Summary for Subcatchment 7S: Sub-Area 4

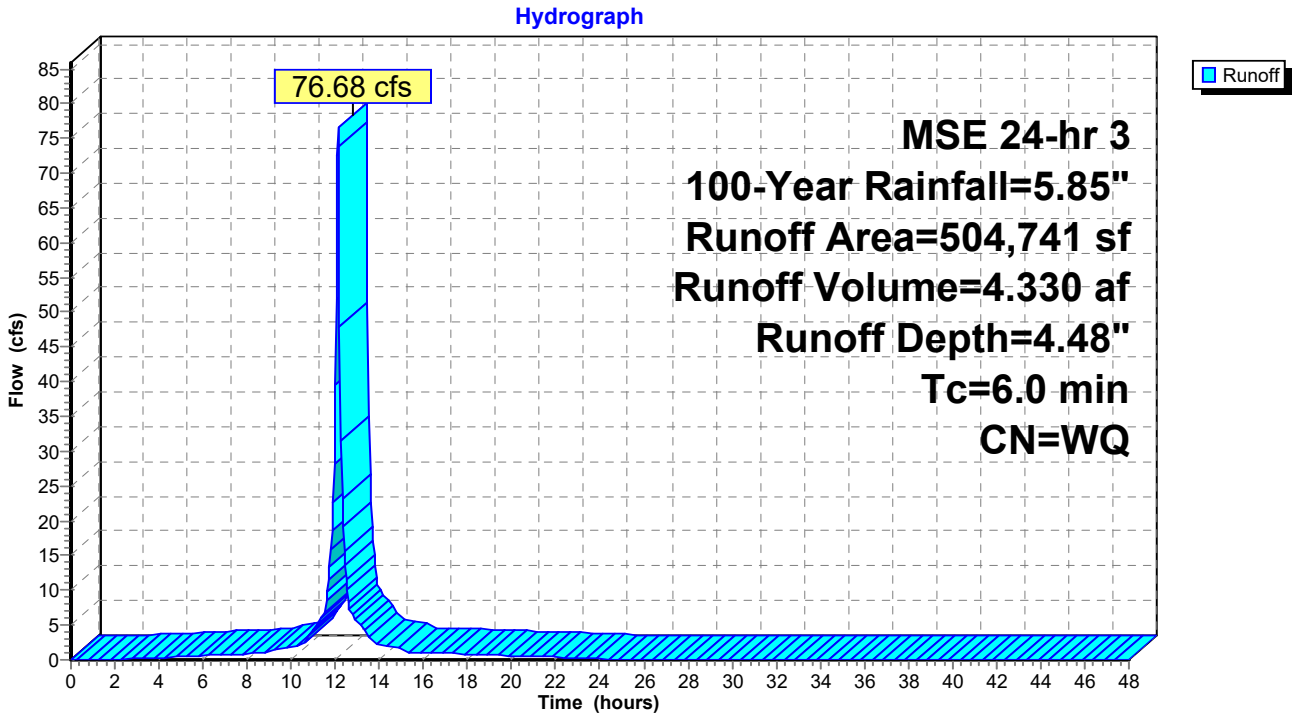
Runoff = 76.68 cfs @ 12.13 hrs, Volume= 4.330 af, Depth= 4.48"
Routed to Pond 9P : Infiltration Pond 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=5.85"

Area (sf)	CN	Description
115,376	98	Roofs, HSG A
257,059	98	Paved parking, HSG A
109,277	39	>75% Grass cover, Good, HSG A
23,029	98	Water Surface, 0% imp, HSG A
504,741		Weighted Average
132,306		26.21% Pervious Area
372,435		73.79% Impervious Area

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

Subcatchment 7S: Sub-Area 4



Summary for Pond 2P: Infiltration Pond 1

Inflow Area = 5.133 ac, 65.08% Impervious, Inflow Depth = 4.51" for 100-Year event
Inflow = 34.16 cfs @ 12.13 hrs, Volume= 1.928 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to nonexistent node 5L

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,176.31' @ 24.40 hrs Surf.Area= 42,195 sf Storage= 83,988 cf

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

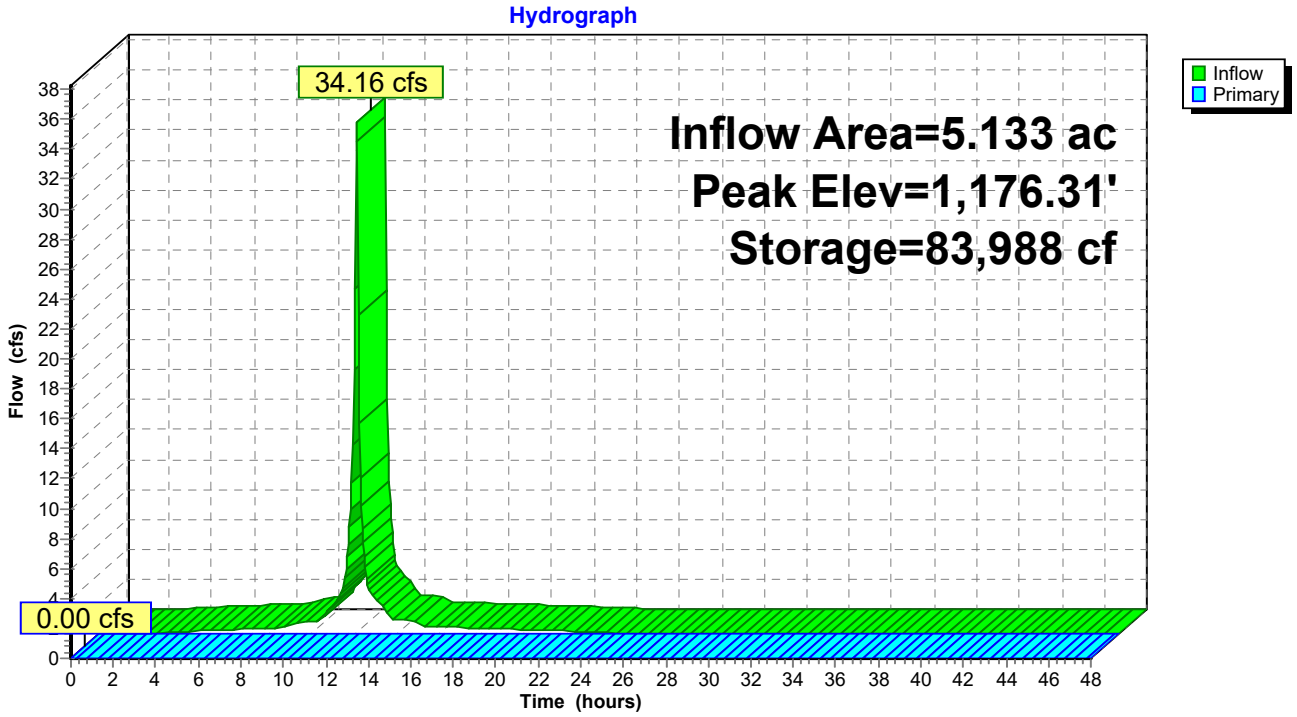
Volume	Invert	Avail.Storage	Storage Description
#1	1,174.00'	114,350 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,174.00	30,654	1,036.0	0	0	30,654
1,175.00	35,583	1,069.0	33,088	33,088	36,281
1,176.00	40,639	1,101.0	38,083	71,171	41,913
1,177.00	45,771	1,127.0	43,180	114,350	46,655

Device	Routing	Invert	Outlet Devices
#1	Primary	1,176.50'	**10.0' long + 3.0 '/' SideZ x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,174.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2P: Infiltration Pond 1



Summary for Pond 6P: Infiltration Pond 2

Inflow Area = 7.704 ac, 81.99% Impervious, Inflow Depth = 4.93" for 100-Year event
Inflow = 56.41 cfs @ 12.13 hrs, Volume= 3.164 af
Outflow = 39.95 cfs @ 12.20 hrs, Volume= 2.234 af, Atten= 29%, Lag= 4.1 min
Primary = 39.95 cfs @ 12.20 hrs, Volume= 2.234 af
Routed to nonexistent node 5L

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,174.82' @ 12.20 hrs Surf.Area= 27,419 sf Storage= 61,729 cf

Plug-Flow detention time= 149.8 min calculated for 2.232 af (71% of inflow)
Center-of-Mass det. time= 80.1 min (825.0 - 744.9)

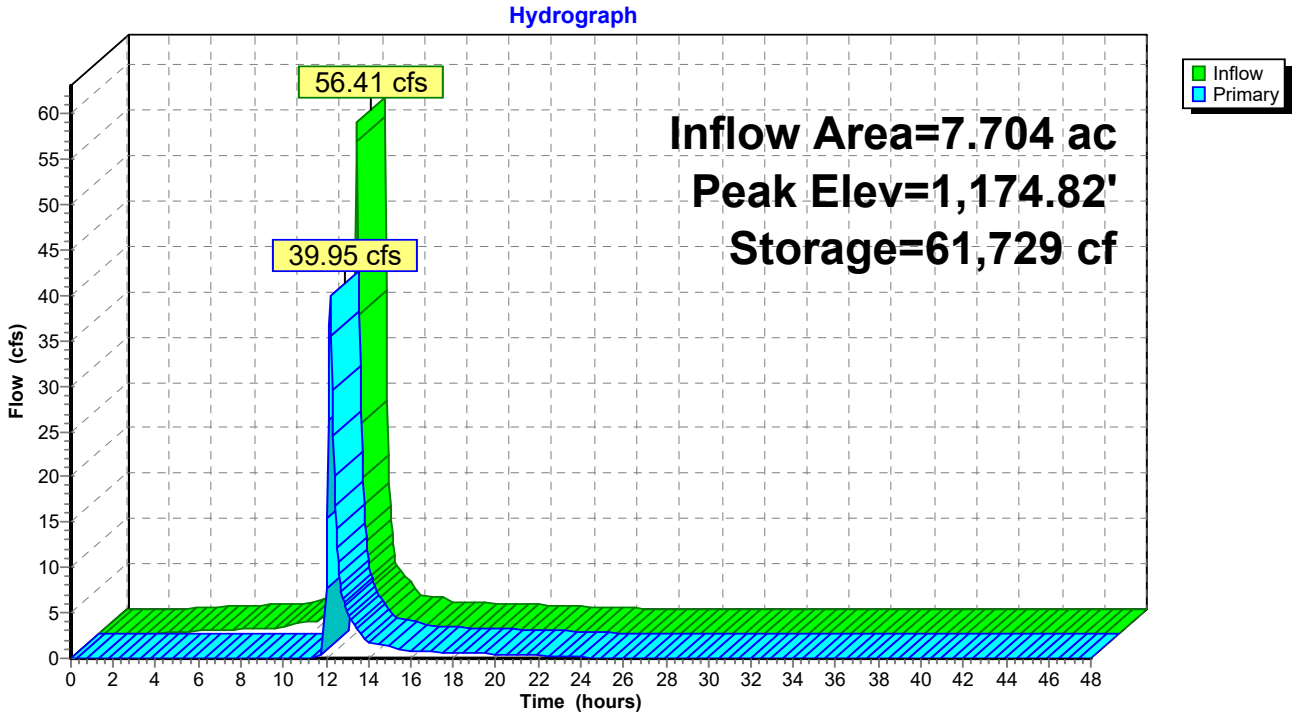
Volume	Invert	Avail.Storage	Storage Description
#1	1,172.00'	66,646 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,172.00	16,419	1,275.0	0	0	16,419
1,173.00	20,273	1,294.0	18,312	18,312	20,510
1,174.00	24,180	1,313.0	22,198	40,510	24,662
1,175.00	28,142	1,332.0	26,136	66,646	28,874

Device	Routing	Invert	Outlet Devices
#1	Primary	1,174.00'	**18.0' long + 3.0 '/' SideZ x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=39.68 cfs @ 12.20 hrs HW=1,174.82' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 39.68 cfs @ 2.37 fps)

Pond 6P: Infiltration Pond 2



Summary for Pond 9P: Infiltration Pond 3

Inflow Area = 11.587 ac, 73.79% Impervious, Inflow Depth = 4.48" for 100-Year event
Inflow = 76.68 cfs @ 12.13 hrs, Volume= 4.330 af
Outflow = 34.05 cfs @ 12.25 hrs, Volume= 2.789 af, Atten= 56%, Lag= 7.4 min
Primary = 34.05 cfs @ 12.25 hrs, Volume= 2.789 af
Routed to nonexistent node 5L

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 1,174.86' @ 12.25 hrs Surf.Area= 42,663 sf Storage= 101,850 cf

Plug-Flow detention time= 183.4 min calculated for 2.789 af (64% of inflow)
Center-of-Mass det. time= 105.2 min (851.6 - 746.4)

Volume	Invert	Avail.Storage	Storage Description
#1	1,172.00'	108,043 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) x 1.25

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,172.00	23,029	1,270.0	0	0	23,029
1,173.00	26,867	1,289.0	24,923	24,923	27,104
1,174.00	30,762	1,308.0	28,793	53,716	31,240
1,175.00	34,714	1,327.0	32,718	86,434	35,436

Device	Routing	Invert	Outlet Devices
#1	Primary	1,174.00'	**14.0' long + 3.0 '/' SideZ x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=34.00 cfs @ 12.25 hrs HW=1,174.86' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 34.00 cfs @ 2.40 fps)

Pond 9P: Infiltration Pond 3