



Storm Water Management Plan
Calculations & Summaries

Mayo Employees Credit Union
La Crosse, WI

Project No. 18994

March 02, 2026

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin.

Eric Sautbine, P.E.

Reg. No. E-43034-6

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Project Overview

Site redevelopment of the Mayo Employees Credit Union is proposed at 605 West Ave S, La Crosse, WI 54601. The parcel encompasses 0.82 acres. The project includes site clearing and demolishing the existing building, concrete and asphalt paving. Construction will include a new building, parking lot, and teller drive thru.

Existing Site Conditions

The 0.82 acre lot is bounded by Ferry St to the north, West Ave to the west, and residential lots to the south and east. The existing building has a finished floor of 673.25. The existing parking lot is located south of the building, the existing drive thru is on the east side of the building, and the driveway comes from the west off West Ave along the south of the parking lot and turns north through the drive thru up to Ferry St to the north. The site generally drains from the southeast corner to the north west corner. There is currently no storm sewer on site. An existing 12" storm sewer runs under Ferry Street and belongs to the city of La Crosse. The existing drainage pattern can be seen in **Exhibit A: Existing Drainage Map** within the appendices of this report.

Soils

A geotechnical report has not been conducted on the site yet and a soil report is not available at this time. Also a web soil survey could not be conducted as the area is only labelled as urban land and did not give additional information on soil composition. A soil map was provided of the area and shows the whole city of La Crosse as having Planview sand. With discussion with the city of La Crosse, the site should have good drainage sands consistent with the soil map provided. The soil map can be seen in **Exhibit F: Soil Map**.

To be conservative, we assumed the sand has loam in it and part of hydraulic soil group B. This soil is well drained and is considered suitable for infiltration practices with an infiltration rate of 0.5 in/hr per the Wisconsin DNR technical standard. Per the Wisconsin Admin code, redevelopment projects do not require infiltration practices but infiltration will help with TSS requirements discussed later in this report.

Proposed Site Conditions

The proposed redevelopment will consist of a new building with parking lots located north and south of the building and a teller drive thru to the east. The grades around the site will be around 2% in the parking lots and driveways. The building is proposed to have a finished floor elevation of 673.80. The site will generally flow from south to north. New 12" storm sewer will be installed throughout the site and be broken into 2 drainage areas. The east drainage area will include the south parking lot, the drive thru, and the north driveway. The west drainage area will include the building, half the south parking lot, the north parking lot and the west driveway. Both drainage areas will outlet into an infiltration pond located in the northwest corner of the site to be treated before heading into the city storm sewer system located along Ferry St. See **Exhibit B: Proposed Drainage Map** located in the appendices of this report.

Post construction Management Devices

The proposed redevelopment will include an infiltration basin located in the northwest corner of the property and will treat stormwater coming from the site before it enters the city storm sewer.

Methodology

P8 Urban Catchment Model - TSS

The project is redeveloping a previously developed site meaning only 40% total suspended solids (TSS) removal is required. The P8 Urban Catchment Modeling software was used to calculate TSS removal. The climate files for Wisconsin were used to determine rainfall events with the Madison location being the closest to La Crosse. The NURP 50 file was used for determining the TSS particle size.

Runoff from pervious and impervious surfaces were calculated separately by water shed area in order to more accurately model the runoff volume from the site surfaces. Results of this analysis are summarized below, and a report can be seen in **Exhibit C: P8 Calculations Report**.

HydroCAD – Peak Discharge

The Hydrologic characteristics of the site were modeled using HydroCAD software for peak discharge. TR55/TR20 methods were utilized. Existing and proposed drainage areas were determined via review of as-built data, current land survey data, and aerial photos.

The 2, 10, & 100-year frequency events were analyzed for peak runoff rate control in the existing and proposed conditions. The MSE-3 24-hr distribution was used in analysis. Storm frequency depths were determined by the City of La Crosse Guidelines using Atlas 14 data. Depths for the 2, 10, & 100-year storms were found to be 2.94", 4.32", and 7.31" respectively.

Runoff from pervious and impervious surfaces were calculated separately in order to more accurately model the runoff volume from the site surfaces. Results of this analysis are summarized below, and a report can be seen in **Exhibit D: HydroCAD Report**.

City of La Crosse Rules & Regulations

In addition to the rules described below, the proposed design and report will utilize those definitions and procedural requirements as described by the City of La Crosse Municipal Code Chapter 105 Section 61, and the Wisconsin DNR stormwater rules and regulations in the Wisconsin Administrative Code Section NR151 Ch3. The construction and stormwater management plans have also been designed to meet general standards described within the Stormwater Management Rule and Erosion Control Rule.

Table 1 below summarizes the watershed rules that are **not** applicable to this site and reasoning for exclusion:

Table 1: Non-Applicable DNR Watershed Rules	
NR151.105(1)(a) State Storm Water Management Plan	Disturbance under 1 acre
City 105-61(b)(4)d Infiltration	Redevelopment
City 105-61(b)(4)e Protective Areas	No disturbance of wetland or discharge to open waters
City 105-61(b)(4)f Fuel and Maintenance Area	No fueling or maintenance on site proposed
City 105-61(b)(4)g Swale treatment for transportation facilities	Project is not a transportation facility

Below is a summary of other applicable watershed rules and regulations have been met for this project:

Stormwater Management Rule

City 105-61(b)(4)a – Total Suspended Solids (TSS)

Criteria: Total suspended solids. BMPs shall be designed, installed and maintained to control total suspended solids carried in runoff from the post-construction site as follows: Redevelopment - 40 percent of load from parking areas and roads. The design shall be based on an average annual rainfall, as compared to no runoff management controls.

The P8 Urban Catchment Modeling software was used to calculate TSS. The software analyzed the proposed runoff without management controls and compared it to the proposed runoff with management controls.

Because we are using an infiltration basin in P8 for the control, we need to follow the Wisconsin DNR modeling post construction storm water treatment guide B.7 along with Technical Standard 1003. The standards allow P8 to keep 100% of TSS removal from infiltration, but only 50% from settling due to scouring for ponds that are 1.5’ deep.

In addition to the P8 calculation outputs in **Exhibit C**, See **Table 2** below for a summary of the results. The calculation breakdown in **Table 3** shows the allowed TSS removal per Modeling guide B7.

Table 2 – Annual Load TSS					
Variable: TSS	Loads(lbs)				
Mass Balance Term	OVERALL	North Storm Pipe	South Storm Pipe	Infiltration Basin	Offsite Storm
01 watershed inflows	336.26	136.22	180.53	0.24	19.27
02 upstream device	0.00	0.00	0.00	316.76	3.22
03 infiltrate	45.39	0.00	0.00	45.39	0.00
05 filtered	45.39	0.00	0.00	45.39	0.00
06 normal outlet	22.49	136.22	180.53	0.00	22.49
07 spillway outlet	0.00	0.00	0.00	3.22	0.00
08 sediment + decay	268.34	0.00	0.00	268.34	0.00
09 total inflow	336.26	136.22	180.53	316.99	22.49
10 surface outflow	22.49	136.22	180.53	3.22	22.49
12 total outflow	22.49	136.22	180.53	3.22	22.49
13 total trapped	313.73	0.00	0.00	313.73	0.00
14 storage increase	0.00	0.00	0.00	0.00	0.00
15 mass balance check	0.05	0.00	0.00	0.05	0.00
Load Reduction (%)	93.30	0.00	0.00	98.97	0.00

Table 3 – Annual TSS load	
<u>Site</u>	<u>TSS</u>
Proposed Conditions without Controls	336.26 lbs
100% Infiltration Removal	45.39 lbs
50% Sediment Removal	134.17 lbs
Total TSS Removal	179.56 lbs
Removal Efficiency	53.4%

City 105-61(b)(4)b – Peak Discharge (Rate Control)

Criteria: By design, BMPs shall be employed to maintain or reduce the two-year, 24-hour; and the ten-year, 24-hour post-construction peak runoff discharge rates to the two-year, 24-hour; and the ten-year, 24-hour pre-development peak runoff discharge rates respectively, or to the maximum extent practicable.

Rate control was analyzed for the 2, 10, and 100-year - 24 hour storm event. Existing condition rates and proposed rates were compared for the entire property area. Runoff rates for the proposed activity shall not exceed existing runoff rates for the 2 and 10-year critical storm. The 100-year storm is shown for information only and is not required to be decreased per the municipal code. Per **Exhibits A & B and Table 4**, impervious surface on site will increase. With an overall increase in impervious surface, further analysis was needed.

A full summary of the existing and proposed HydroCAD results can be found within **Exhibit D: HydroCAD Report** in the appendices of this report. Tabulations of the existing and proposed peak runoff rates can be found in **Table 5** shows that post development rates are held below existing conditions:

Table 4 – Impervious Areas	
<u>Site</u>	<u>TSS</u>
Existing Impervious Area	0.335 Ac
Proposed Impervious Area	0.498 Ac
Net Increase	0.163 Ac

Table 5: Rate Control Offsite		
Storm Event	Existing Rate (CFS) 1R	Post Development Rate (CFS) 10R
2-year	1.04	0.44
10-year	2.17	1.77
100-year	4.93	3.58

City 105-61(b)(4)c – Safe Outlet

Criteria: By design, the site shall provide for the safe passage of run-off from events up to and including the 100 year, 24-hour event. Safe passage implies buildings in and around the site will not be negatively impacted by run-off from the site.

The 100-year, 24 hour storm event will be retained by the infiltration basin. The 100-year high water level in the basin will reach 670.44' which is below the overflow elevation of 670.80'. This can be seen in **Exhibit D: HydroCAD Report**. The 100-year, 24 hour storm event will have safe passage through the infiltration basin and city storm sewer and will not negatively impact buildings in the area.

Erosion and Sediment Control Rule

A NDPES permit is not required with this project because the disturbed area is under 1 acre. If additional disturbances occur during construction, the contractor will be responsible for initiating a NDPES construction permit. Anderson Engineering completed an erosion control map for the city submittal for the contractor to use.

Summary

The site layout and final grades are designed to maintain the general drainage of the existing landscape. Within the project boundary, some changes to the existing drainage patterns are expected due to the proposed structures and other site improvements. The project design does not propose to make major changes to drainage divides. A new storm sewer system is designed to prevent as much storm water runoff to flow directly onto Ferry St and West Ave than the previous existing development while also lowering the peak discharge into the city storm system.

P8 Urban Catchment Model, Version 3.5

Run Date 02/19/26

Case	18994_MayoCU_LaCrosse_TypeB.p8c	FirstDate	10/11/80	Precip(in)	30.4
Title	Startup Case	LastDate	09/30/81	Rain(in)	28.02
PrecFile	Mdsn6095.pcp	Events	76	Snow(in)	2.33
PartFile	nurp50.p8p	TotalHrs	8406	TotalYrs	0.96

File Directory Y:\18900\18994 - HTG - MAYO EMPLOYEES CREDIT UNION - LA CROSSE WI_17 SWMP\03-P8\

Case Title Startup Case

Case File 18994_MayoCU_LaCrosse_TypeB.p8c

Particle File nurp50.p8p

Temperature File madison_6190.tem

Storm File Mdsn6095.pcp

Precip Scale Factor 1

Watersheds 4

Devices 4

Particles 5

WQ Components 7

Start Date 09/13/79

Keep Date 10/11/80

Stop Date 09/30/81

Storm Count 76

Total Hours 8406

Wet Hours 722

Precip (in) 30

Rain (in) 28

Snowfall (in) 2

Snowmelt (in) 2

EvapoTran(in) 23

Overall TSS Removal(%) 1

Water Balance Error(%) 0

TSS Mass Balance Error (%) 0

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Case Title	Startup Case
Case Data File	18994_MayoCU_LaCrosse_TypeB.p8c
Path	Y:\18900\18994 - HTG - MAYO EMPLOYEES CREDIT UNION - LA CROSSE WI\17 SWMP\03-P8\
Case Notes:	
Storm Data File	Mdsn6095.pcp
Particle File	nurp50.p8p
Air Temp File File	madison_6190.tem

Time Steps Per Hour	4
Minimum Inter-Event Time (hrs)	10
Maximum Continuity Error %	2
Rainfall Breakpoint (inches)	0.8
Precipitation Scale Factor	1
Air Temp Offset (deg-F)	0
Loops Thru Storm File	1
Simulation Dates	
Start	9/11/1979
Keep	10/11/1980
Stop	9/30/1981

Max Snowfall Temperature (deg-f)	32.0
SnowMelt Temperature (deg-f)	32.0
Snowmelt Coef (in/degF-Day)	0.06
Soil Freeze Temp (deg-F)	32.0
Snowmelt Abstraction Factor	1.00
Evapo-Trans. Calibration Factor	1.00
Growing Season Start Month	5
Growing Season End Month	10

5-Day Antecedent Rainfall + Runoff (inches)		
CN Antecedent Moisture Condition	AMC-II	AMC-III
Growing Season	1.40	2.10
NonGrowing Season	0.50	1.10

Watershed Data						
Watershed Name	S2	S1	S3	S4		
Runoff to Device	South Storm Pipe	North Storm Pipe	Infiltration Basin	Offsite Storm		
Infiltration to Device						
Watershed Area	0.339	0.302	0.092	0.087		
SCS Curve Number (Pervious)	61	61	61	61		
Scale Factor for Pervious Runoff Load	1	1	1	1		
Indirectly Connected Imperv Fraction	0	0	0	0		

UnSwept Impervious Fraction	0.185	0	0	0		
UnSwept Depression Storage (inches)	0.08	0.02	0.02	0.02		
UnSwept Imperv. Runoff Coefficient	0.909	1	1	1		
UnSwept Scale Factor for Particle Loads	1	1	1	1		
Swept Impervious Fraction	0.59	0.635	0	0.31		
Swept Depression Storage (inches)	0.02	0.02	0.02	0.02		
Swept Imperv. Runoff Coefficient	0.973	0.973	1	0.973		
Swept Scale Factor for Particle Loads	1	1	1	1		
Sweeping Frequency	0	0	0	0		
Sweeping Efficiency	0	0	0	0		
Sweeping Start Date (MMDD)	101	101	101	101		
Sweeping Stop Date (MMDD)	1231	1231	1231	1231		

Device Data						
Device Name	Infiltration Basin	Offsite Storm	North Storm Pipe	South Storm Pipe		
Device Type	INF_BASIN	PIPE	PIPE	PIPE		
Infiltration Outlet						
Normal Outlet			Infiltration Basin	Infiltration Basin		
Spillway Outlet	Offsite Storm					
Particle Removal Scale Factor	1					
Bottom Elevation (ft)	668					
Bottom Area (acres)	0.015					
Permanent Pool Area (acres)						
Permanent Pool Volume (ac-ft)						
Perm Pool Infiltr Rate (in/hr)						
Flood Pool Area (acres)	0.036					
Flood Pool Volume (ac-ft)	0.051					
Flood Pool Infiltr Rate (in/hr)	0.5					
Infiltr Basin Void Fraction (%)	100					
Detention Pond Outlet Parameters						
Outlet Type						
Outlet Orifice Diameter (in)						
Orifice Discharge Coef						
Outlet Weir Length (ft)						
Weir Discharge Coef						
Perforated Riser Height (ft)						
Number of Holes in Riser						
Holes Diameter						
Flood Pool Drain Time (hrs)						
Swale Parameters						
Length of Flow Path (ft)						
Slope of Flow Path %						
Bottom Width (ft)						
Side Slope (ft-v/ft-h)						
Maximum Depth of Flow (ft)						
Mannings n Constant						
Hydraulic Model						
Pipe, Splitter, Aquifer Parameter						
Hydraulic Res. Time (hrs)		0	0	0		

Particle Data					
Particle File	nurp50.p8p				
Particle Class	P0%	P10%	P30%	P50%	P80%
Filtration Efficiency (%)	90	100	100	100	100
Settling Velocity (ft/hr)	0	0.03	0.3	1.5	15
First Order Decay Rate (1/day)	0	0	0	0	0
2nd Order Decay (1/day-ppm)	0	0	0	0	0
Impervious Runoff Conc (ppm)	1	0	0	0	0
Pervious Runoff Conc (ppm)	1	100	100	100	200
Pervious Conc Exponent	0	1	1	1	1
Accum. Rate (lbs-ac-day)	0	1.75	1.75	1.75	3.5
Particle Removal Rate (1/day)	0	0.25	0.25	0.25	0.25
Washoff Coefficient	0	20	20	20	20
Washoff Exponent	0	2	2	2	2
Sweeper Efficiency	0	0	0	5	15

Water Quality Component Data							
Component Name	TSS	TP	TKN	CU	PB	ZN	HC

Water Quality Criteria (ppm)							
	TSS	TP	TKN	CU	PB	ZN	HC
Level 1	5	0.025	2	2	0.02	5	0.1
Level 2	10	0.05	1	0.0048	0.014	0.0362	0.5
Level 3	20	0.1	0.5	0.02	0.15	0.38	1

Content Scale Factor	TSS	TP	TKN	CU	PB	ZN	HC
	1	1	1	1	1	1	1

Particle Composition (mg/kg)							
	TSS	TP	TKN	CU	PB	ZN	HC
P0%	0	99000	600000	13600	2000	64000	250000
P10%	1000000	3850	15000	340	180	1600	22500
P30%	1000000	3850	15000	340	180	1600	22500
P50%	1000000	3850	15000	340	180	1600	22500
P80%	1000000	0	0	340	180	0	22500

P8 Urban Catchment Model, Version 3.5

Run Date 02/19/26

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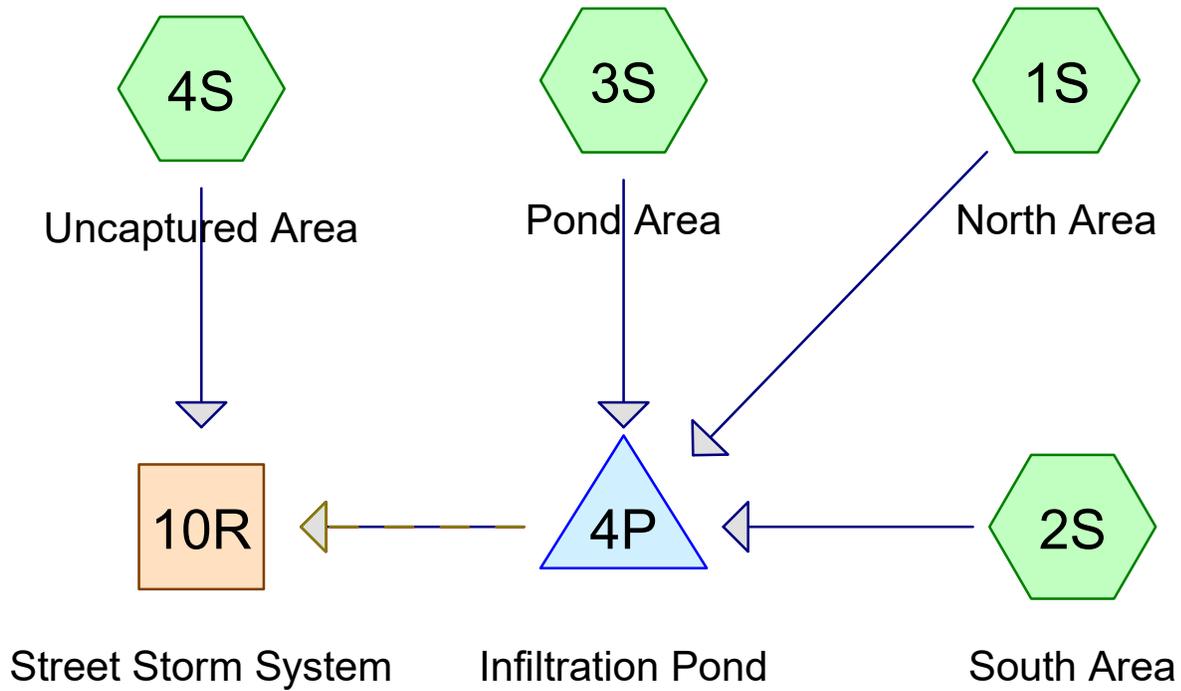
Devices Listed in Downstream Order

Device:	North Storm Pipe	Type:	PIPE
	Discharges normal outlet to		Infiltration Basin
	Runoff from watershed		S1

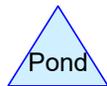
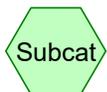
Device:	South Storm Pipe	Type:	PIPE
	Discharges normal outlet to		Infiltration Basin
	Runoff from watershed		S2

Device:	Infiltration Basin	Type:	INF_BASIN
	Discharges spillway to		Offsite Storm
	Runoff from watershed		S3

Device:	Offsite Storm	Type:	PIPE
	Runoff from watershed		S4



PROPOSED



P8 Urban Catchment Model, Version 3.5

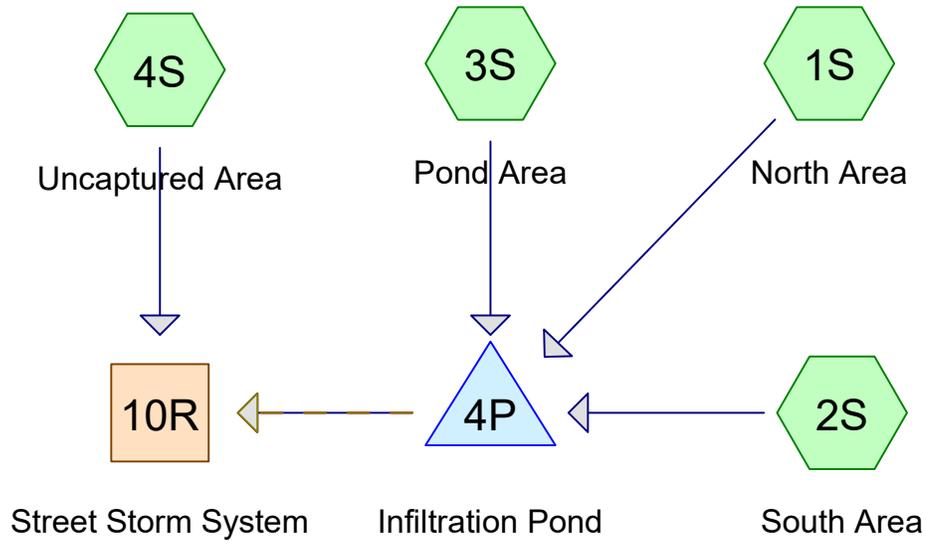
Run Date 02/19/26

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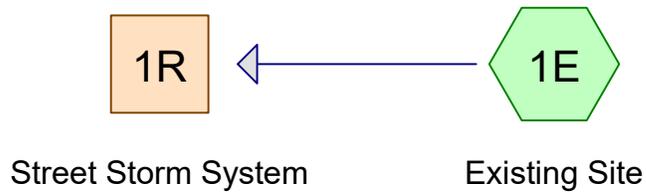
Mass Balances by Variable

Variable: Flow	Flow ac-ft									
	OVERALL	North Storm Pipe	South Storm Pipe	Infiltration Basin	Offsite Storm	OVERALL	North Storm Pipe	South Storm Pipe	Infiltration Basin	Offsite Storm
01 watershed inflows	1.12	0.46	0.60	0.00	0.07					
02 upstream device	0.00	0.00	0.00	1.05	0.07					
03 infiltrate	0.99	0.00	0.00	0.99	0.00					
04 exfiltrate	0.99	0.00	0.00	0.99	0.00					
06 normal outlet	0.14	0.46	0.60	0.00	0.14					
07 spillway outlet	0.00	0.00	0.00	0.07	0.00					
09 total inflow	1.12	0.46	0.60	1.06	0.14					
10 surface outflow	0.14	0.46	0.60	0.07	0.14					
11 groundw outflow	0.99	0.00	0.00	0.99	0.00					
12 total outflow	1.12	0.46	0.60	1.06	0.14					
14 storage increase	0.00	0.00	0.00	0.00	0.00					
15 mass balance check	0.00	0.00	0.00	0.00	0.00					
Load Reduction (%)	0.00	0.00	0.00	0.00	0.00					

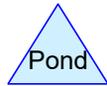
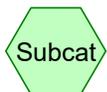
Variable: TSS	Loads(lbs)					Concs (ppm)				
	OVERALL	North Storm Pipe	South Storm Pipe	Infiltration Basin	Offsite Storm	OVERALL	North Storm Pipe	South Storm Pipe	Infiltration Basin	Offsite Storm
01 watershed inflows	336.26	136.22	180.53	0.24	19.27	110.27	110.01	110.91	37.34	108.76
02 upstream device	0.00	0.00	0.00	316.76	3.22				110.52	16.88
03 infiltrate	45.39	0.00	0.00	45.39	0.00	16.93			16.93	
05 filtered	45.39	0.00	0.00	45.39	0.00					
06 normal outlet	22.49	136.22	180.53	0.00	22.49	61.16	110.01	110.91		61.16
07 spillway outlet	0.00	0.00	0.00	3.22	0.00				16.88	
08 sedimen + decay	268.34	0.00	0.00	268.34	0.00					
09 total inflow	336.26	136.22	180.53	316.99	22.49	110.27	110.01	110.91	110.36	61.16
10 surface outflow	22.49	136.22	180.53	3.22	22.49	61.16	110.01	110.91	16.88	61.16
12 total outflow	22.49	136.22	180.53	3.22	22.49	7.37	110.01	110.91	1.12	61.16
13 total trapped	313.73	0.00	0.00	313.73	0.00					
14 storage increase	0.00	0.00	0.00	0.00	0.00					
15 mass balance check	0.05	0.00	0.00	0.05	0.00					
Load Reduction (%)	93.30	0.00	0.00	98.97	0.00					



PROPOSED



EXISTING



18994_MayoCU_LaCrosse

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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.485	61	>75% Grass cover, Good, HSG B (1E)
0.335	98	Paved parking, HSG B (1E)

18994_MayoCU_LaCrosse

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Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.820	HSG B	1E
0.000	HSG C	
0.000	HSG D	
0.000	Other	

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Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.485	0.000	0.000	0.000	0.485	>75% Grass cover, Good	1E
0.000	0.335	0.000	0.000	0.000	0.335	Paved parking	1E

18994_MayoCU_LaCrosse

MSE 24-hr 4 2-Year Rainfall=2.94"

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Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1E: Existing Site

Runoff Area=35,720 sf 40.90% Impervious Runoff Depth>0.97"
Tc=10.0 min CN=76 Runoff=1.04 cfs 0.067 af

Reach 1R: Street Storm System

Inflow=1.04 cfs 0.067 af
Outflow=1.04 cfs 0.067 af

Summary for Subcatchment 1E: Existing Site

Runoff = 1.04 cfs @ 12.19 hrs, Volume= 0.067 af, Depth> 0.97"
 Routed to Reach 1R : Street Storm System

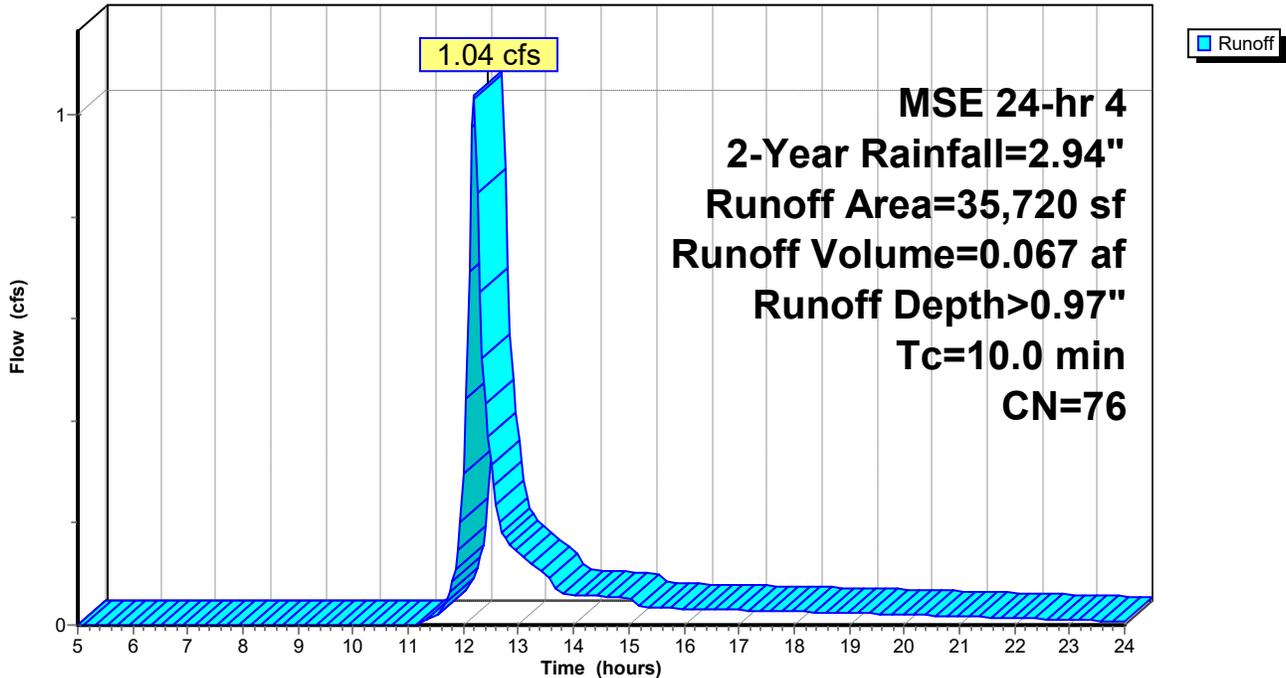
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 MSE 24-hr 4 2-Year Rainfall=2.94"

Area (sf)	CN	Description
21,110	61	>75% Grass cover, Good, HSG B
14,610	98	Paved parking, HSG B
35,720	76	Weighted Average
21,110		59.10% Pervious Area
14,610		40.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Small Drainage Area

Subcatchment 1E: Existing Site

Hydrograph

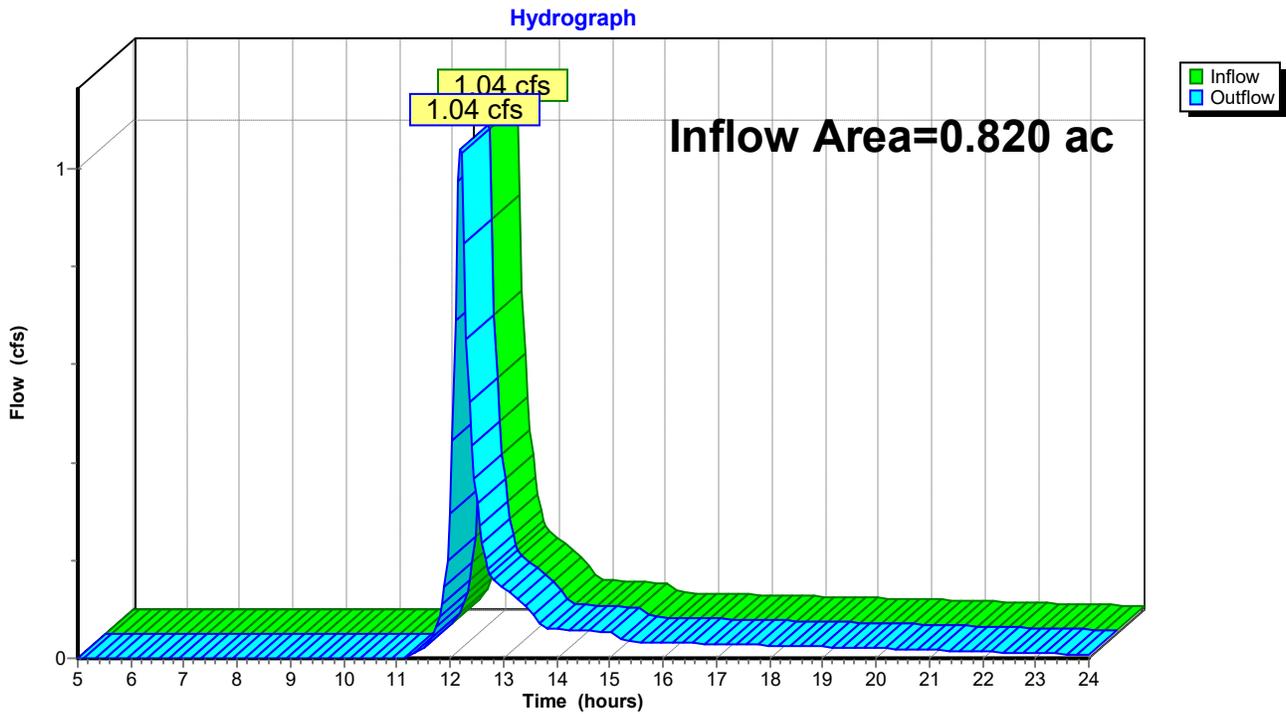


Summary for Reach 1R: Street Storm System

Inflow Area = 0.820 ac, 40.90% Impervious, Inflow Depth > 0.97" for 2-Year event
Inflow = 1.04 cfs @ 12.19 hrs, Volume= 0.067 af
Outflow = 1.04 cfs @ 12.19 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach 1R: Street Storm System



18994_MayoCU_LaCrosse

MSE 24-hr 4 10-Year Rainfall=4.32"

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Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1E: Existing Site

Runoff Area=35,720 sf 40.90% Impervious Runoff Depth>1.99"
Tc=10.0 min CN=76 Runoff=2.17 cfs 0.136 af

Reach 1R: Street Storm System

Inflow=2.17 cfs 0.136 af
Outflow=2.17 cfs 0.136 af

Summary for Subcatchment 1E: Existing Site

Runoff = 2.17 cfs @ 12.18 hrs, Volume= 0.136 af, Depth> 1.99"
 Routed to Reach 1R : Street Storm System

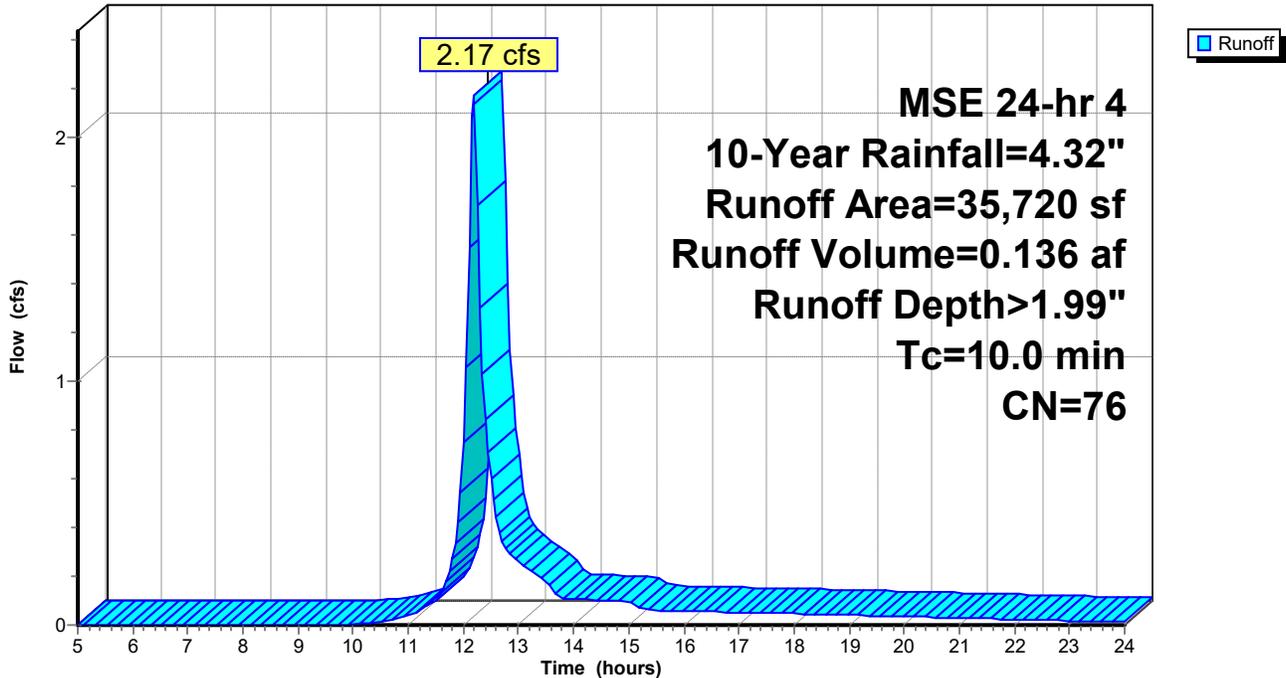
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 MSE 24-hr 4 10-Year Rainfall=4.32"

Area (sf)	CN	Description
21,110	61	>75% Grass cover, Good, HSG B
14,610	98	Paved parking, HSG B
35,720	76	Weighted Average
21,110		59.10% Pervious Area
14,610		40.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Small Drainage Area

Subcatchment 1E: Existing Site

Hydrograph

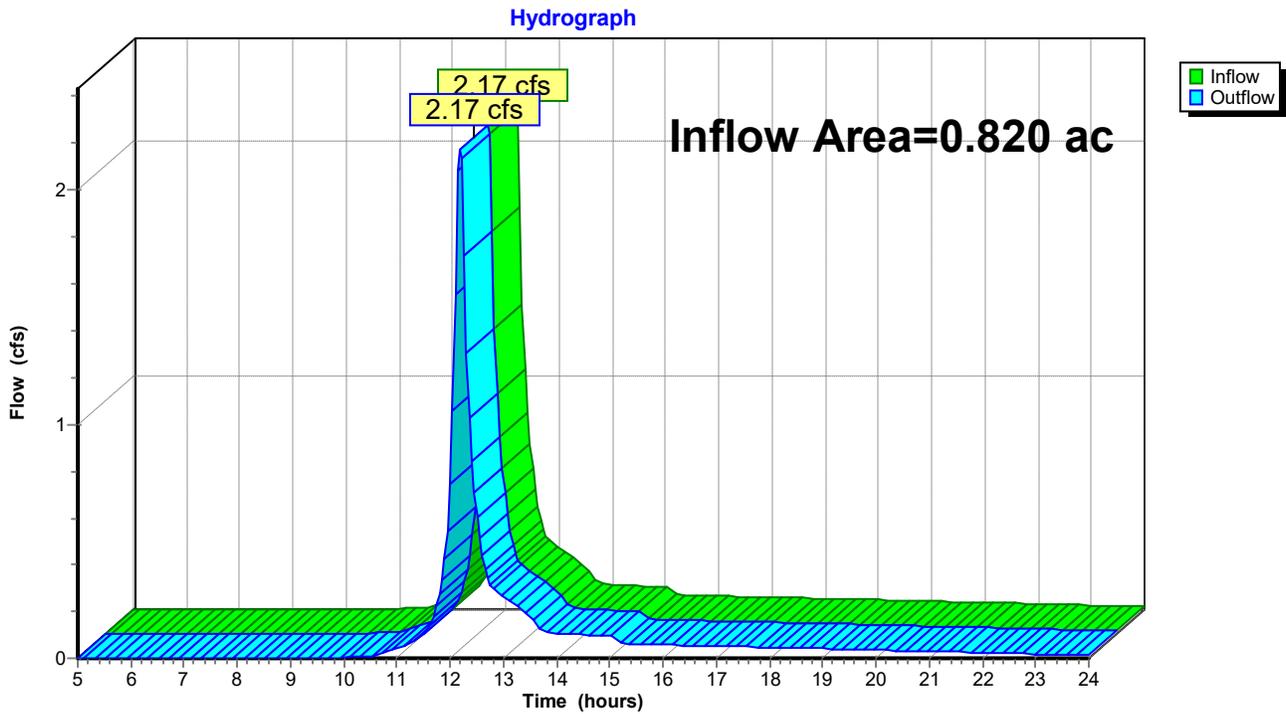


Summary for Reach 1R: Street Storm System

Inflow Area = 0.820 ac, 40.90% Impervious, Inflow Depth > 1.99" for 10-Year event
Inflow = 2.17 cfs @ 12.18 hrs, Volume= 0.136 af
Outflow = 2.17 cfs @ 12.18 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach 1R: Street Storm System



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MSE 24-hr 4 100-Year Rainfall=7.31"

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Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1E: Existing Site

Runoff Area=35,720 sf 40.90% Impervious Runoff Depth>4.53"
Tc=10.0 min CN=76 Runoff=4.93 cfs 0.310 af

Reach 1R: Street Storm System

Inflow=4.93 cfs 0.310 af
Outflow=4.93 cfs 0.310 af

Summary for Subcatchment 1E: Existing Site

Runoff = 4.93 cfs @ 12.17 hrs, Volume= 0.310 af, Depth> 4.53"
 Routed to Reach 1R : Street Storm System

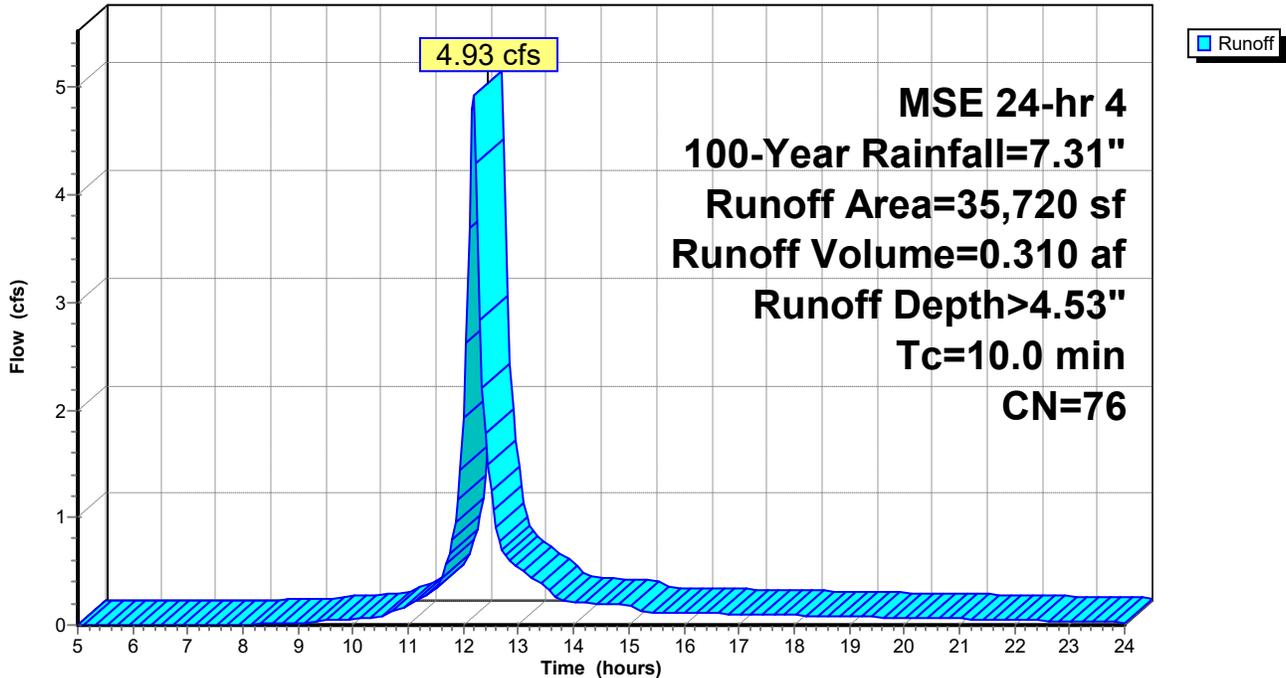
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 MSE 24-hr 4 100-Year Rainfall=7.31"

Area (sf)	CN	Description
21,110	61	>75% Grass cover, Good, HSG B
14,610	98	Paved parking, HSG B
35,720	76	Weighted Average
21,110		59.10% Pervious Area
14,610		40.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Small Drainage Area

Subcatchment 1E: Existing Site

Hydrograph

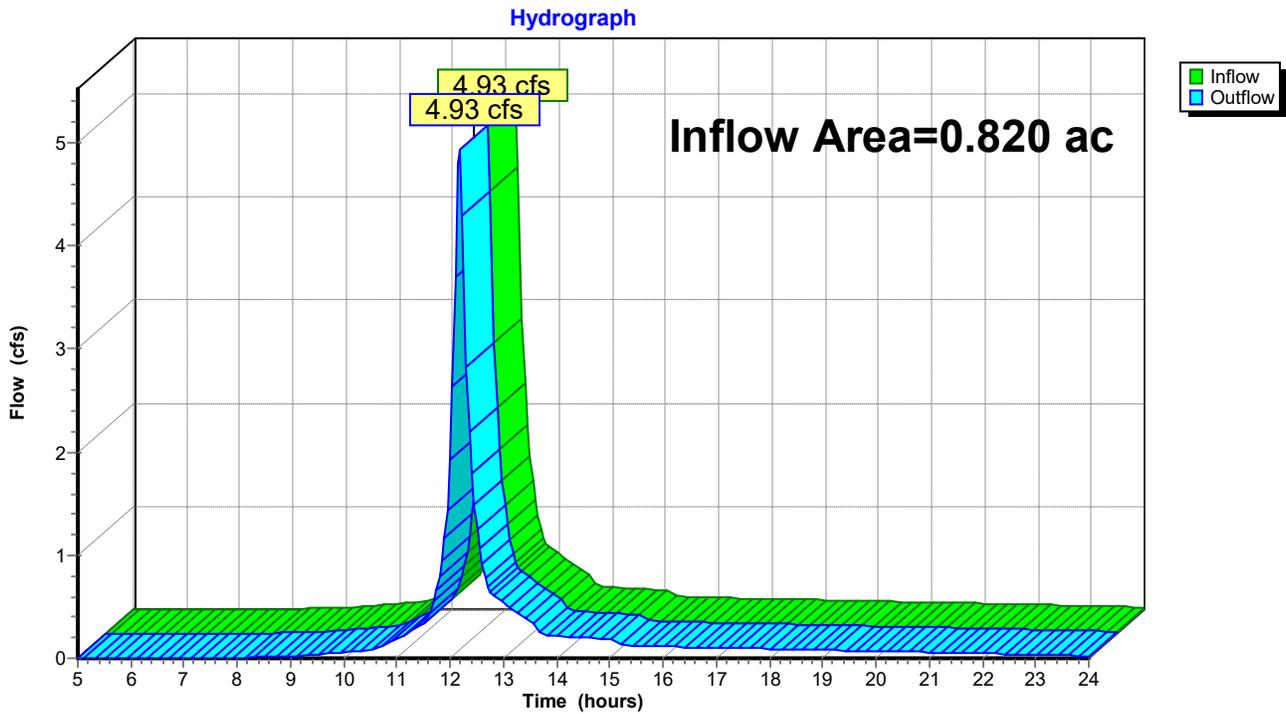


Summary for Reach 1R: Street Storm System

Inflow Area = 0.820 ac, 40.90% Impervious, Inflow Depth > 4.53" for 100-Year event
Inflow = 4.93 cfs @ 12.17 hrs, Volume= 0.310 af
Outflow = 4.93 cfs @ 12.17 hrs, Volume= 0.310 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach 1R: Street Storm System



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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.322	61	>75% Grass cover, Good, HSG B (1S, 2S, 3S, 4S)
0.435	98	Paved parking, HSG B (1S, 2S, 4S)
0.063	98	Roofs, HSG B (2S)

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Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.820	HSG B	1S, 2S, 3S, 4S
0.000	HSG C	
0.000	HSG D	
0.000	Other	

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Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.322	0.000	0.000	0.000	0.322	>75% Grass cover, Good	1S, 2S, 3S, 4S
0.000	0.435	0.000	0.000	0.000	0.435	Paved parking	1S, 2S, 4S
0.000	0.063	0.000	0.000	0.000	0.063	Roofs	2S

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Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	4P	669.00	667.32	30.0	0.0560	0.012	0.0	12.0	0.0	

Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: North Area Runoff Area=13,167 sf 68.38% Impervious Runoff Depth>1.61"
Tc=10.0 min CN=86 Runoff=0.65 cfs 0.041 af

Subcatchment 2S: South Area Runoff Area=14,779 sf 77.86% Impervious Runoff Depth>1.93"
Tc=10.0 min CN=90 Runoff=0.86 cfs 0.055 af

Subcatchment 3S: Pond Area Runoff Area=3,988 sf 0.00% Impervious Runoff Depth>0.34"
Tc=10.0 min CN=61 Runoff=0.03 cfs 0.003 af

Subcatchment 4S: Uncaptured Area Runoff Area=3,788 sf 31.05% Impervious Runoff Depth>0.77"
Tc=10.0 min CN=72 Runoff=0.08 cfs 0.006 af

Reach 10R: Street Storm System Inflow=0.44 cfs 0.050 af
Outflow=0.44 cfs 0.050 af

Pond 4P: Infiltration Pond Peak Elev=669.34' Storage=1,996 cf Inflow=1.53 cfs 0.098 af
Discarded=0.02 cfs 0.018 af Primary=0.41 cfs 0.045 af Secondary=0.00 cfs 0.000 af Outflow=0.43 cfs 0.063 af

Summary for Subcatchment 1S: North Area

Runoff = 0.65 cfs @ 12.18 hrs, Volume= 0.041 af, Depth> 1.61"
 Routed to Pond 4P : Infiltration Pond

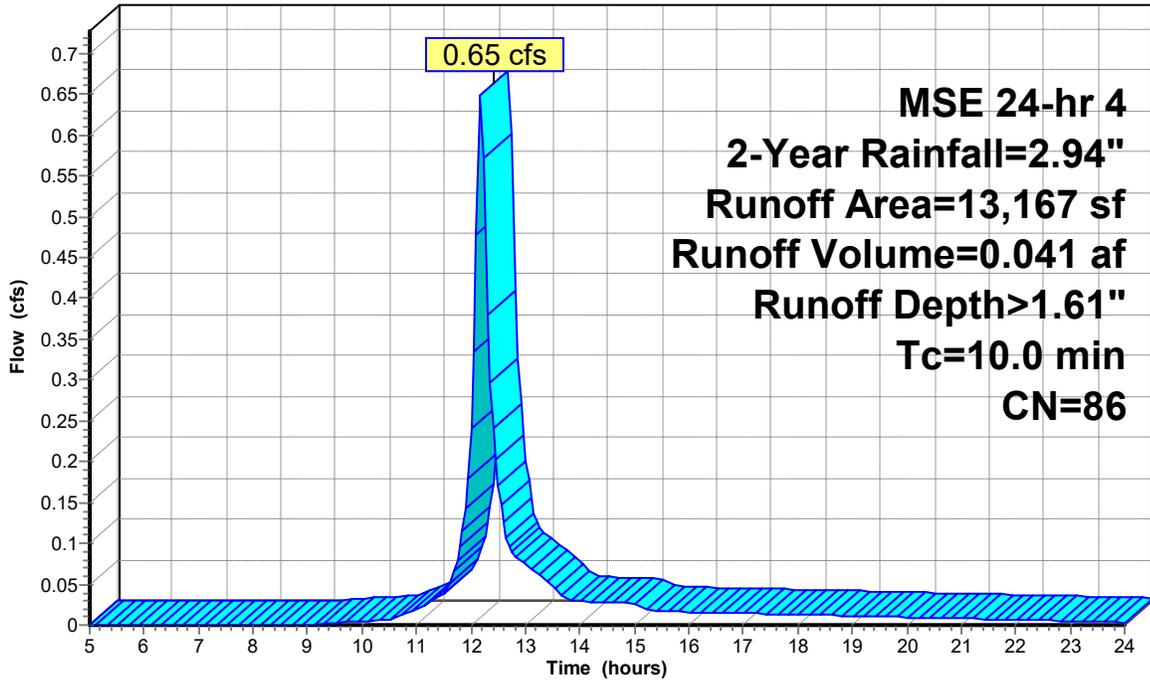
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 MSE 24-hr 4 2-Year Rainfall=2.94"

Area (sf)	CN	Description
9,003	98	Paved parking, HSG B
4,164	61	>75% Grass cover, Good, HSG B
13,167	86	Weighted Average
4,164		31.62% Pervious Area
9,003		68.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Small Drainage Area

Subcatchment 1S: North Area

Hydrograph



Runoff

Summary for Subcatchment 2S: South Area

Runoff = 0.86 cfs @ 12.17 hrs, Volume= 0.055 af, Depth> 1.93"
 Routed to Pond 4P : Infiltration Pond

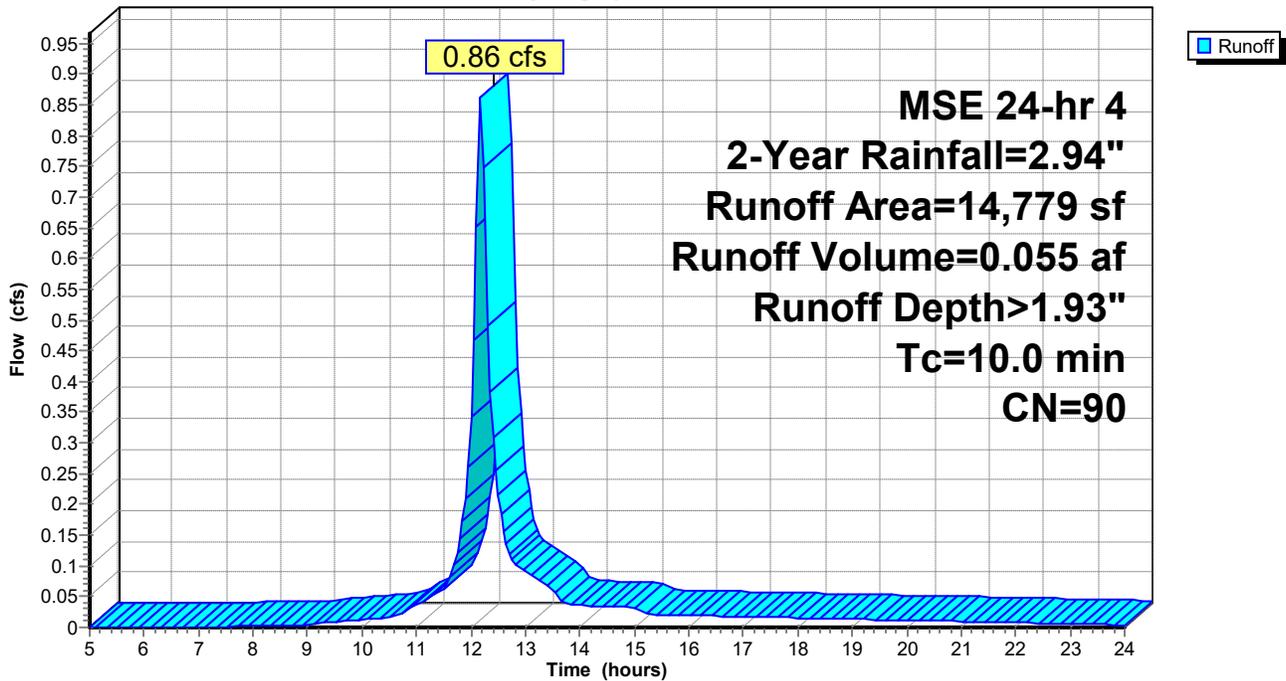
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 MSE 24-hr 4 2-Year Rainfall=2.94"

Area (sf)	CN	Description
2,735	98	Roofs, HSG B
8,772	98	Paved parking, HSG B
3,272	61	>75% Grass cover, Good, HSG B
14,779	90	Weighted Average
3,272		22.14% Pervious Area
11,507		77.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Small Drainage Area

Subcatchment 2S: South Area

Hydrograph



Summary for Subcatchment 3S: Pond Area

Runoff = 0.03 cfs @ 12.22 hrs, Volume= 0.003 af, Depth> 0.34"
 Routed to Pond 4P : Infiltration Pond

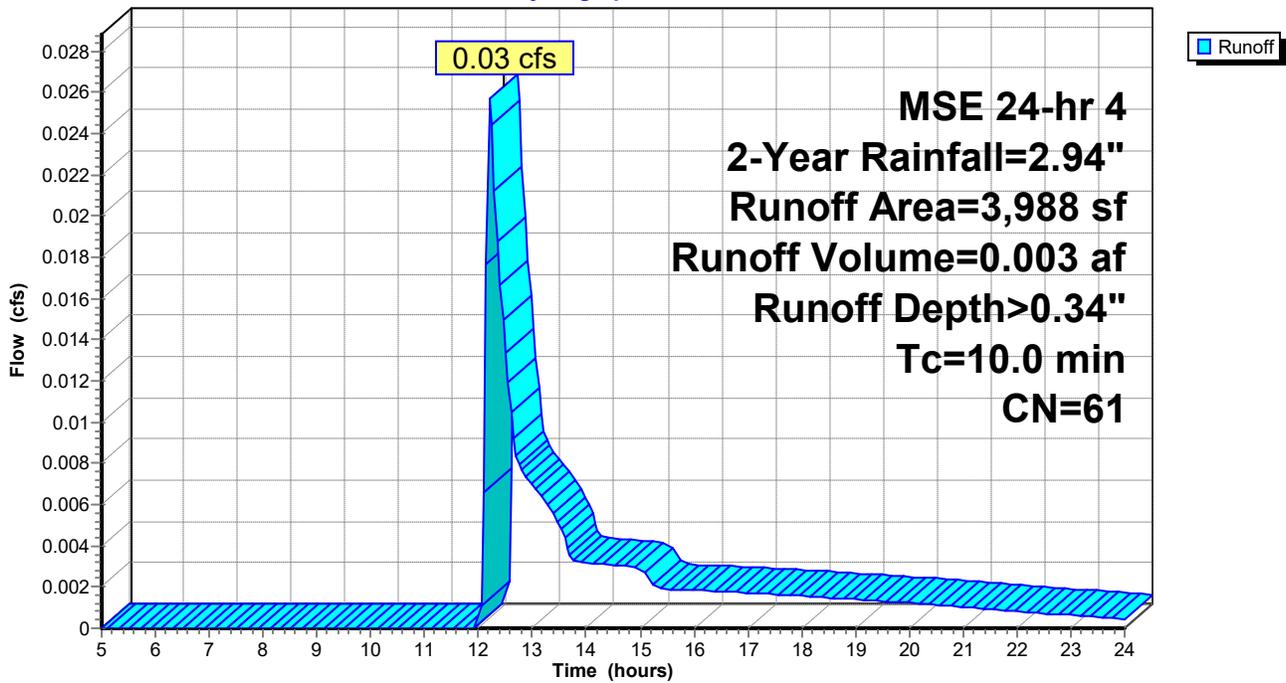
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 MSE 24-hr 4 2-Year Rainfall=2.94"

Area (sf)	CN	Description
3,988	61	>75% Grass cover, Good, HSG B
3,988		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Small Drainage Area

Subcatchment 3S: Pond Area

Hydrograph



Summary for Subcatchment 4S: Uncaptured Area

Runoff = 0.08 cfs @ 12.19 hrs, Volume= 0.006 af, Depth> 0.77"
 Routed to Reach 10R : Street Storm System

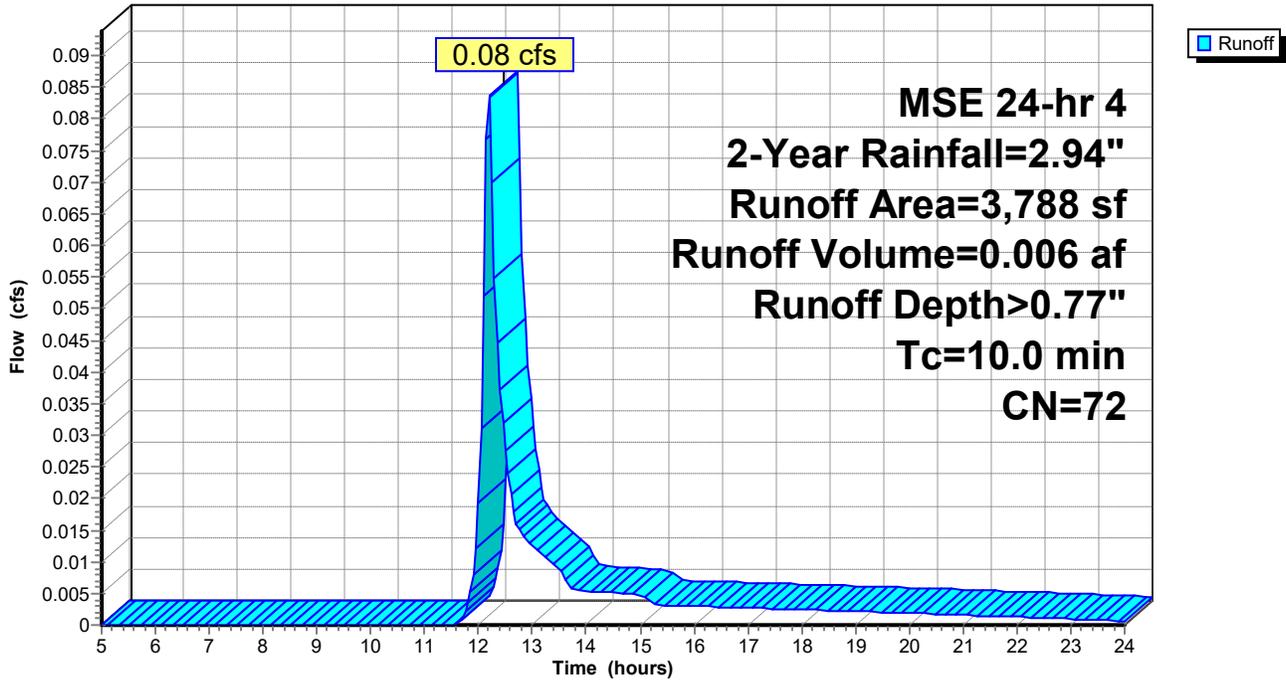
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 MSE 24-hr 4 2-Year Rainfall=2.94"

Area (sf)	CN	Description
1,176	98	Paved parking, HSG B
2,612	61	>75% Grass cover, Good, HSG B
3,788	72	Weighted Average
2,612		68.95% Pervious Area
1,176		31.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Small Drainage Area

Subcatchment 4S: Uncaptured Area

Hydrograph



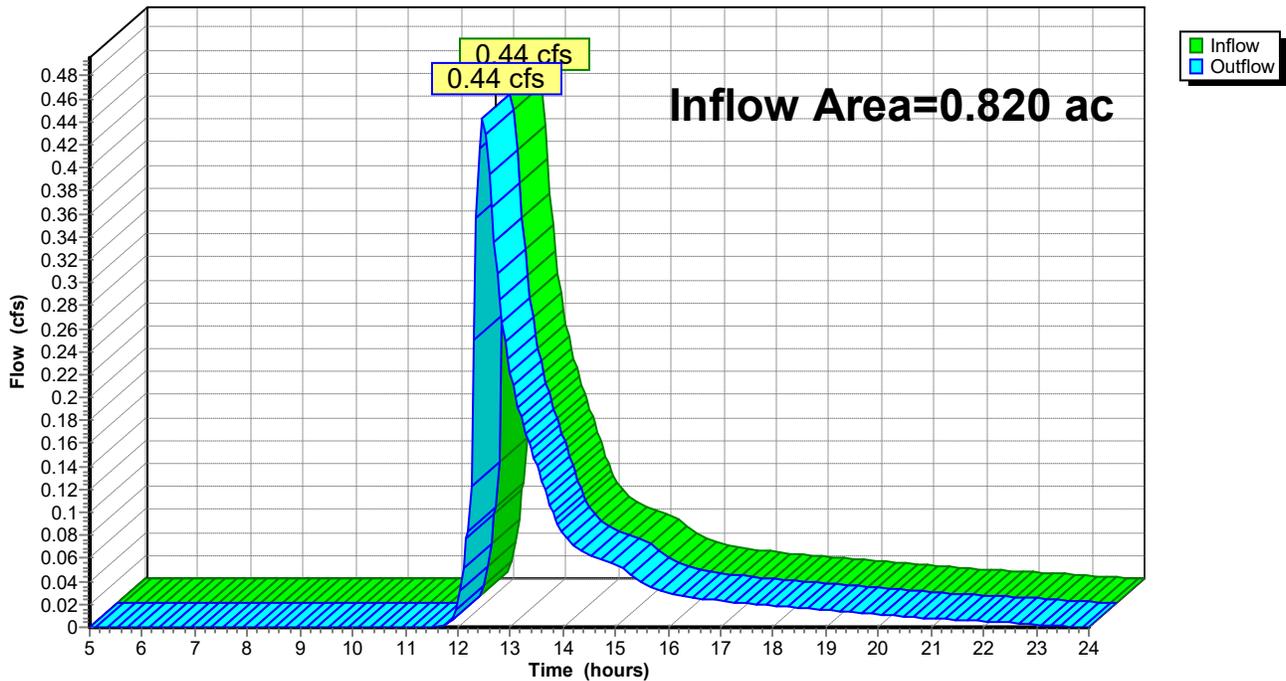
Summary for Reach 10R: Street Storm System

Inflow Area = 0.820 ac, 60.71% Impervious, Inflow Depth > 0.74" for 2-Year event
Inflow = 0.44 cfs @ 12.47 hrs, Volume= 0.050 af
Outflow = 0.44 cfs @ 12.47 hrs, Volume= 0.050 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach 10R: Street Storm System

Hydrograph



Summary for Pond 4P: Infiltration Pond

Inflow Area = 0.733 ac, 64.23% Impervious, Inflow Depth > 1.60" for 2-Year event
 Inflow = 1.53 cfs @ 12.18 hrs, Volume= 0.098 af
 Outflow = 0.43 cfs @ 12.48 hrs, Volume= 0.063 af, Atten= 72%, Lag= 18.3 min
 Discarded = 0.02 cfs @ 12.48 hrs, Volume= 0.018 af
 Primary = 0.41 cfs @ 12.48 hrs, Volume= 0.045 af
 Routed to Reach 10R : Street Storm System
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Reach 10R : Street Storm System

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 669.34' @ 12.48 hrs Surf.Area= 1,510 sf Storage= 1,996 cf

Plug-Flow detention time= 175.2 min calculated for 0.063 af (65% of inflow)
 Center-of-Mass det. time= 86.8 min (898.1 - 811.3)

Volume	Invert	Avail.Storage	Storage Description
#1	667.50'	5,193 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
667.50	660	0	0
670.00	1,815	3,094	3,094
671.00	2,383	2,099	5,193

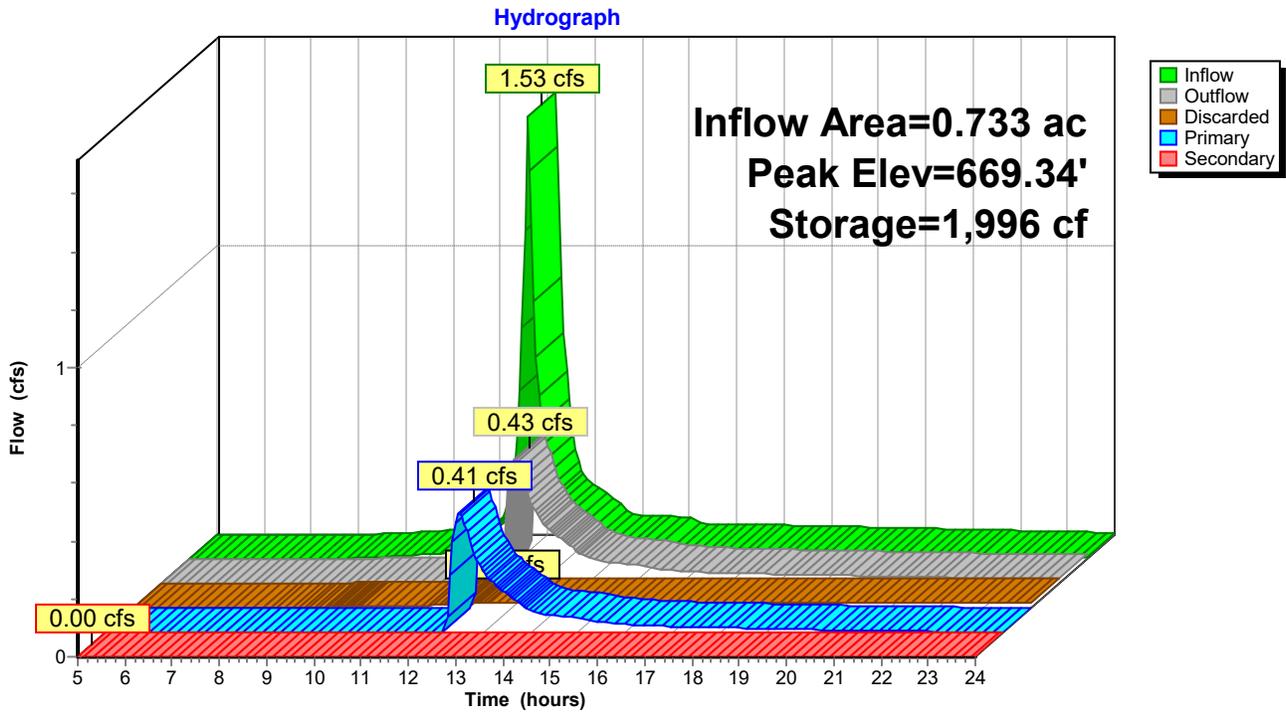
Device	Routing	Invert	Outlet Devices
#1	Secondary	670.80'	4.0' long x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Primary	669.00'	12.0" Round RCP_Round 12" L= 30.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 669.00' / 667.32' S= 0.0560 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#3	Discarded	667.50'	0.500 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 620.00'

Discarded OutFlow Max=0.02 cfs @ 12.48 hrs HW=669.34' (Free Discharge)
 ↑3=Exfiltration (Controls 0.02 cfs)

Primary OutFlow Max=0.41 cfs @ 12.48 hrs HW=669.34' (Free Discharge)
 ↑2=RCP_Round 12" (Inlet Controls 0.41 cfs @ 1.75 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=667.50' (Free Discharge)
 ↑1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 4P: Infiltration Pond



Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: North Area Runoff Area=13,167 sf 68.38% Impervious Runoff Depth>2.84"
Tc=10.0 min CN=86 Runoff=1.13 cfs 0.071 af

Subcatchment 2S: South Area Runoff Area=14,779 sf 77.86% Impervious Runoff Depth>3.22"
Tc=10.0 min CN=90 Runoff=1.41 cfs 0.091 af

Subcatchment 3S: Pond Area Runoff Area=3,988 sf 0.00% Impervious Runoff Depth>0.98"
Tc=10.0 min CN=61 Runoff=0.11 cfs 0.007 af

Subcatchment 4S: Uncaptured Area Runoff Area=3,788 sf 31.05% Impervious Runoff Depth>1.69"
Tc=10.0 min CN=72 Runoff=0.19 cfs 0.012 af

Reach 10R: Street Storm System Inflow=1.77 cfs 0.127 af
Outflow=1.77 cfs 0.127 af

Pond 4P: Infiltration Pond Peak Elev=669.75' Storage=2,654 cf Inflow=2.64 cfs 0.170 af
Discarded=0.02 cfs 0.020 af Primary=1.64 cfs 0.114 af Secondary=0.00 cfs 0.000 af Outflow=1.66 cfs 0.135 af

Summary for Subcatchment 1S: North Area

Runoff = 1.13 cfs @ 12.17 hrs, Volume= 0.071 af, Depth> 2.84"
 Routed to Pond 4P : Infiltration Pond

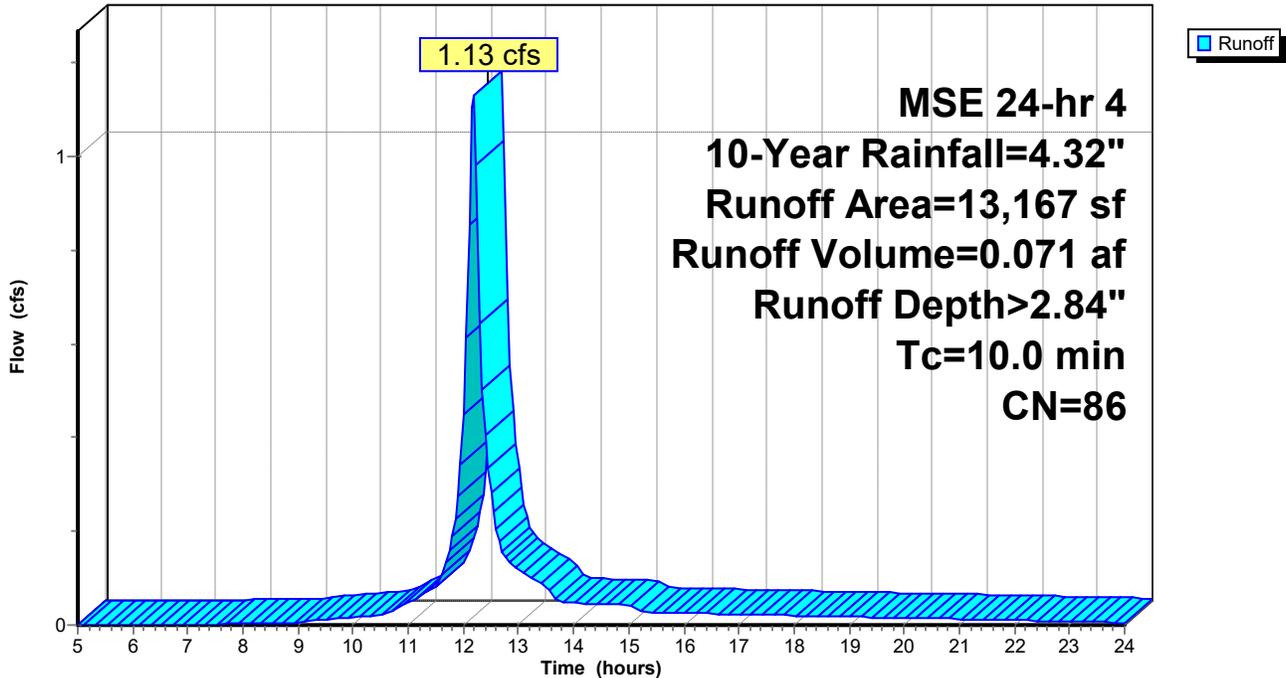
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 MSE 24-hr 4 10-Year Rainfall=4.32"

Area (sf)	CN	Description
9,003	98	Paved parking, HSG B
4,164	61	>75% Grass cover, Good, HSG B
13,167	86	Weighted Average
4,164		31.62% Pervious Area
9,003		68.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Small Drainage Area

Subcatchment 1S: North Area

Hydrograph



Summary for Subcatchment 2S: South Area

Runoff = 1.41 cfs @ 12.17 hrs, Volume= 0.091 af, Depth> 3.22"
 Routed to Pond 4P : Infiltration Pond

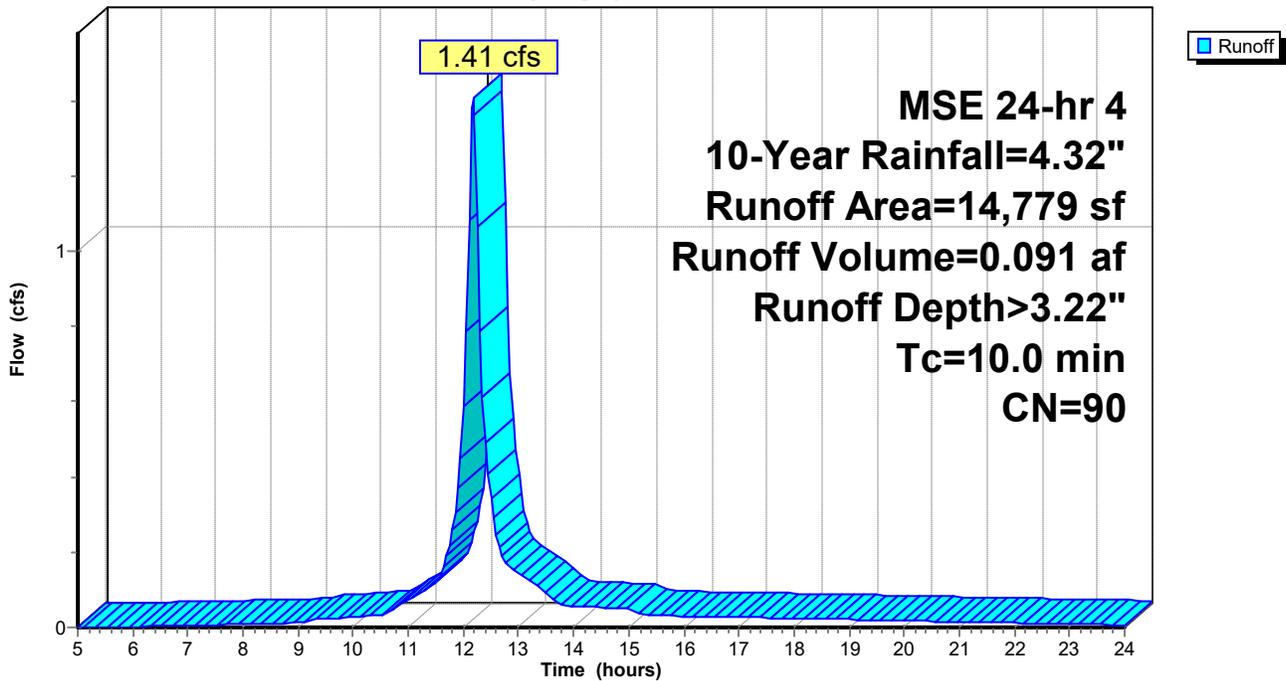
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 MSE 24-hr 4 10-Year Rainfall=4.32"

Area (sf)	CN	Description
2,735	98	Roofs, HSG B
8,772	98	Paved parking, HSG B
3,272	61	>75% Grass cover, Good, HSG B
14,779	90	Weighted Average
3,272		22.14% Pervious Area
11,507		77.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Small Drainage Area

Subcatchment 2S: South Area

Hydrograph



Summary for Subcatchment 3S: Pond Area

Runoff = 0.11 cfs @ 12.20 hrs, Volume= 0.007 af, Depth> 0.98"
 Routed to Pond 4P : Infiltration Pond

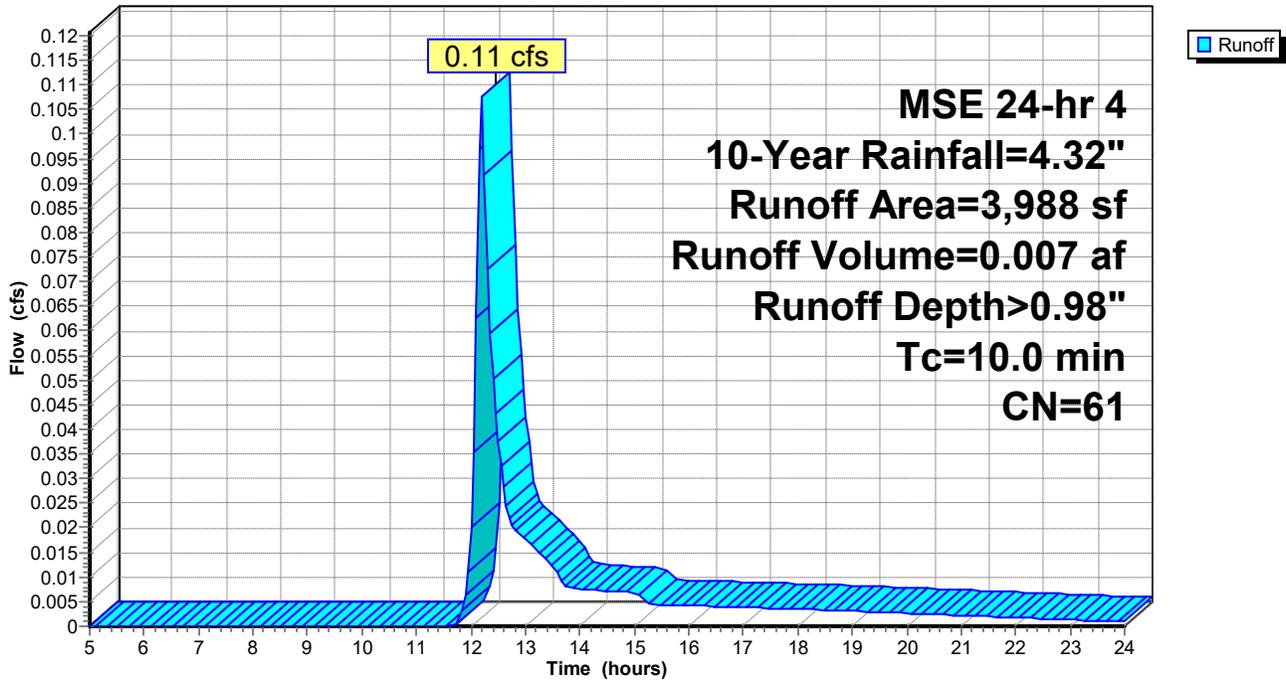
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 MSE 24-hr 4 10-Year Rainfall=4.32"

Area (sf)	CN	Description
3,988	61	>75% Grass cover, Good, HSG B
3,988		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Small Drainage Area

Subcatchment 3S: Pond Area

Hydrograph



Summary for Subcatchment 4S: Uncaptured Area

Runoff = 0.19 cfs @ 12.18 hrs, Volume= 0.012 af, Depth> 1.69"
 Routed to Reach 10R : Street Storm System

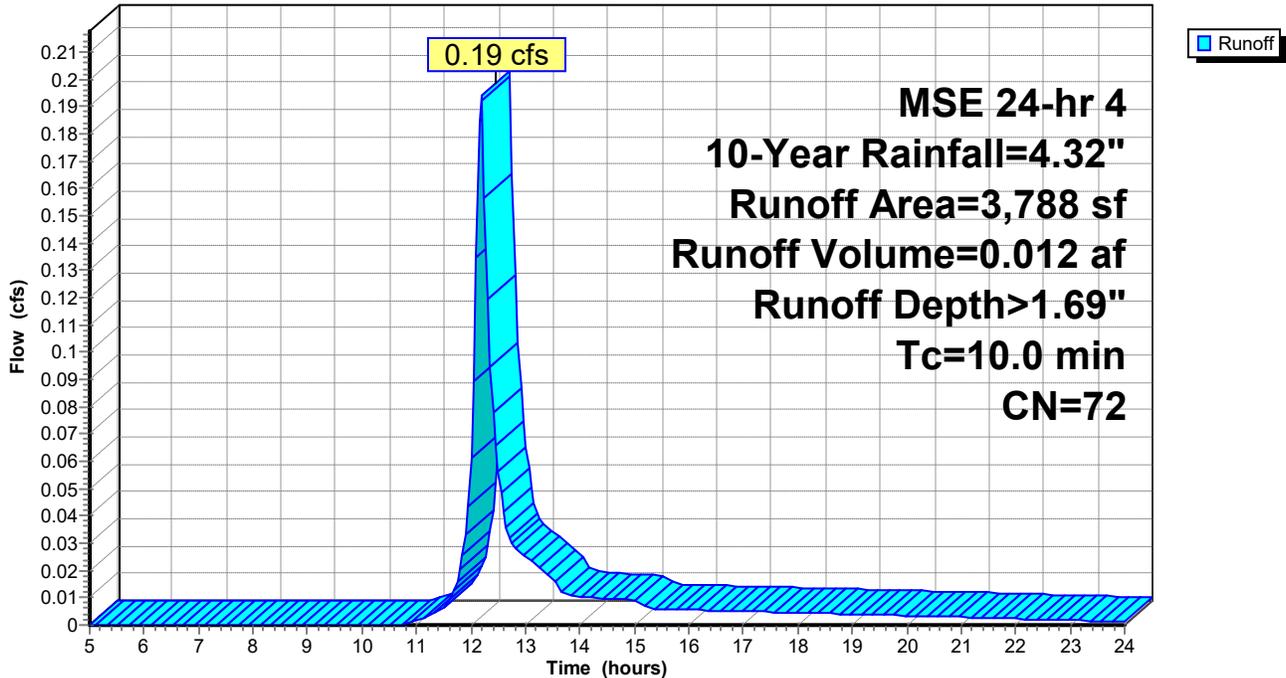
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 MSE 24-hr 4 10-Year Rainfall=4.32"

Area (sf)	CN	Description
1,176	98	Paved parking, HSG B
2,612	61	>75% Grass cover, Good, HSG B
3,788	72	Weighted Average
2,612		68.95% Pervious Area
1,176		31.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Small Drainage Area

Subcatchment 4S: Uncaptured Area

Hydrograph

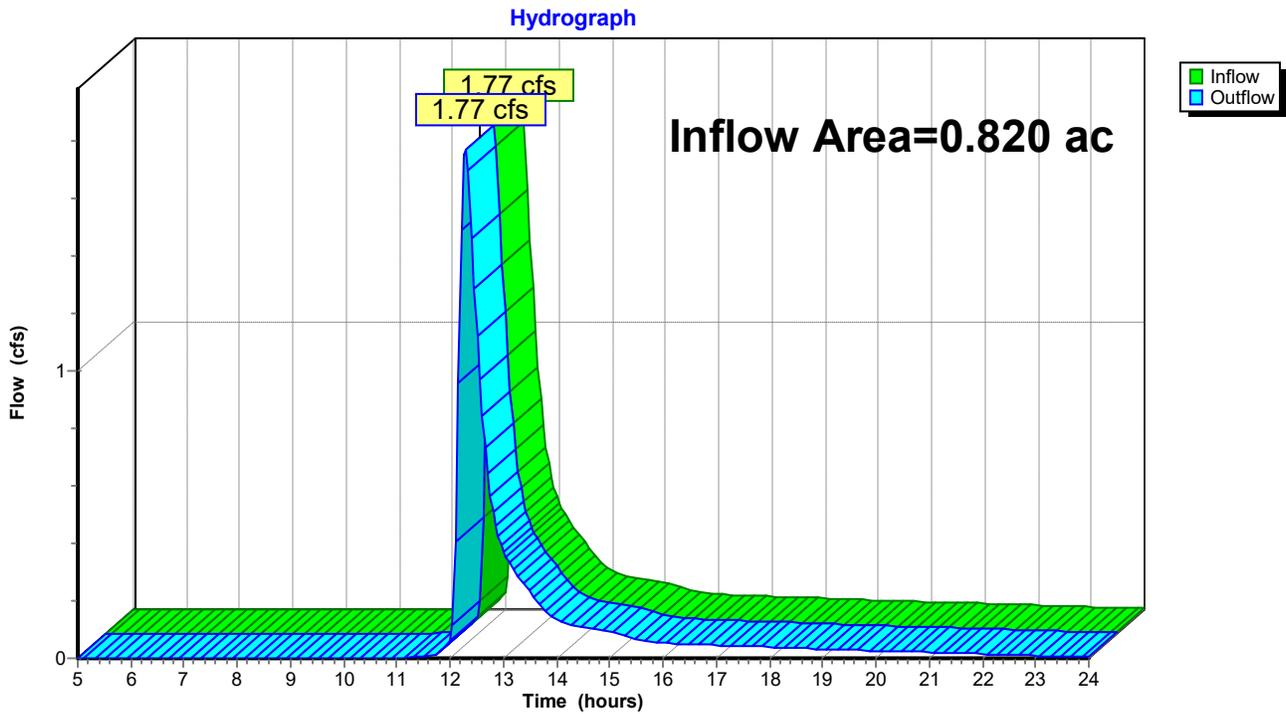


Summary for Reach 10R: Street Storm System

Inflow Area = 0.820 ac, 60.71% Impervious, Inflow Depth > 1.85" for 10-Year event
Inflow = 1.77 cfs @ 12.28 hrs, Volume= 0.127 af
Outflow = 1.77 cfs @ 12.28 hrs, Volume= 0.127 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach 10R: Street Storm System



Summary for Pond 4P: Infiltration Pond

Inflow Area = 0.733 ac, 64.23% Impervious, Inflow Depth > 2.78" for 10-Year event
 Inflow = 2.64 cfs @ 12.17 hrs, Volume= 0.170 af
 Outflow = 1.66 cfs @ 12.29 hrs, Volume= 0.135 af, Atten= 37%, Lag= 7.0 min
 Discarded = 0.02 cfs @ 12.29 hrs, Volume= 0.020 af
 Primary = 1.64 cfs @ 12.29 hrs, Volume= 0.114 af
 Routed to Reach 10R : Street Storm System
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Reach 10R : Street Storm System

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 669.75' @ 12.29 hrs Surf.Area= 1,699 sf Storage= 2,654 cf

Plug-Flow detention time= 120.2 min calculated for 0.135 af (79% of inflow)
 Center-of-Mass det. time= 50.3 min (849.6 - 799.3)

Volume	Invert	Avail.Storage	Storage Description
#1	667.50'	5,193 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
667.50	660	0	0
670.00	1,815	3,094	3,094
671.00	2,383	2,099	5,193

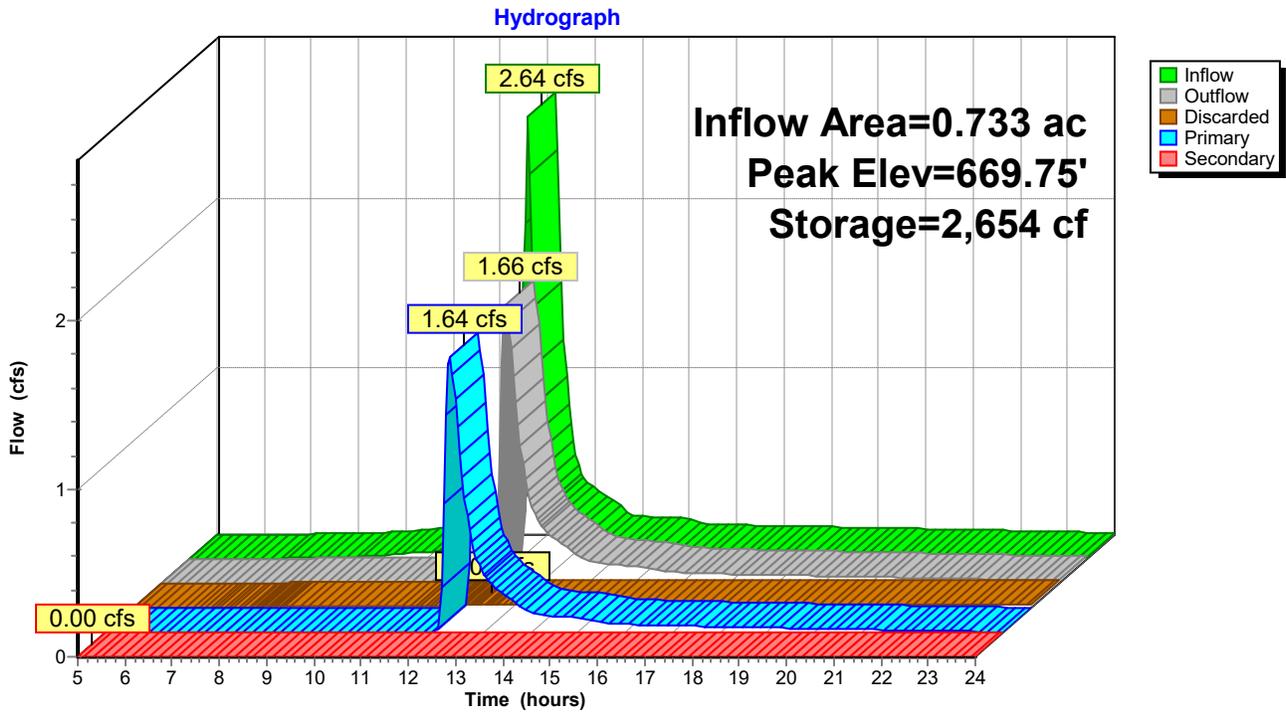
Device	Routing	Invert	Outlet Devices
#1	Secondary	670.80'	4.0' long x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Primary	669.00'	12.0" Round RCP_Round 12" L= 30.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 669.00' / 667.32' S= 0.0560 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#3	Discarded	667.50'	0.500 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 620.00'

Discarded OutFlow Max=0.02 cfs @ 12.29 hrs HW=669.75' (Free Discharge)
 ↑3=Exfiltration (Controls 0.02 cfs)

Primary OutFlow Max=1.63 cfs @ 12.29 hrs HW=669.75' (Free Discharge)
 ↑2=RCP_Round 12" (Inlet Controls 1.63 cfs @ 2.60 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=667.50' (Free Discharge)
 ↑1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 4P: Infiltration Pond



Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: North Area Runoff Area=13,167 sf 68.38% Impervious Runoff Depth>5.66"
Tc=10.0 min CN=86 Runoff=2.18 cfs 0.143 af

Subcatchment 2S: South Area Runoff Area=14,779 sf 77.86% Impervious Runoff Depth>6.12"
Tc=10.0 min CN=90 Runoff=2.58 cfs 0.173 af

Subcatchment 3S: Pond Area Runoff Area=3,988 sf 0.00% Impervious Runoff Depth>2.92"
Tc=10.0 min CN=61 Runoff=0.36 cfs 0.022 af

Subcatchment 4S: Uncaptured Area Runoff Area=3,788 sf 31.05% Impervious Runoff Depth>4.09"
Tc=10.0 min CN=72 Runoff=0.47 cfs 0.030 af

Reach 10R: Street Storm System Inflow=3.58 cfs 0.308 af
Outflow=3.58 cfs 0.308 af

Pond 4P: Infiltration Pond Peak Elev=670.44' Storage=3,946 cf Inflow=5.12 cfs 0.338 af
Discarded=0.02 cfs 0.023 af Primary=3.23 cfs 0.278 af Secondary=0.00 cfs 0.000 af Outflow=3.26 cfs 0.301 af

Summary for Subcatchment 1S: North Area

Runoff = 2.18 cfs @ 12.17 hrs, Volume= 0.143 af, Depth> 5.66"
 Routed to Pond 4P : Infiltration Pond

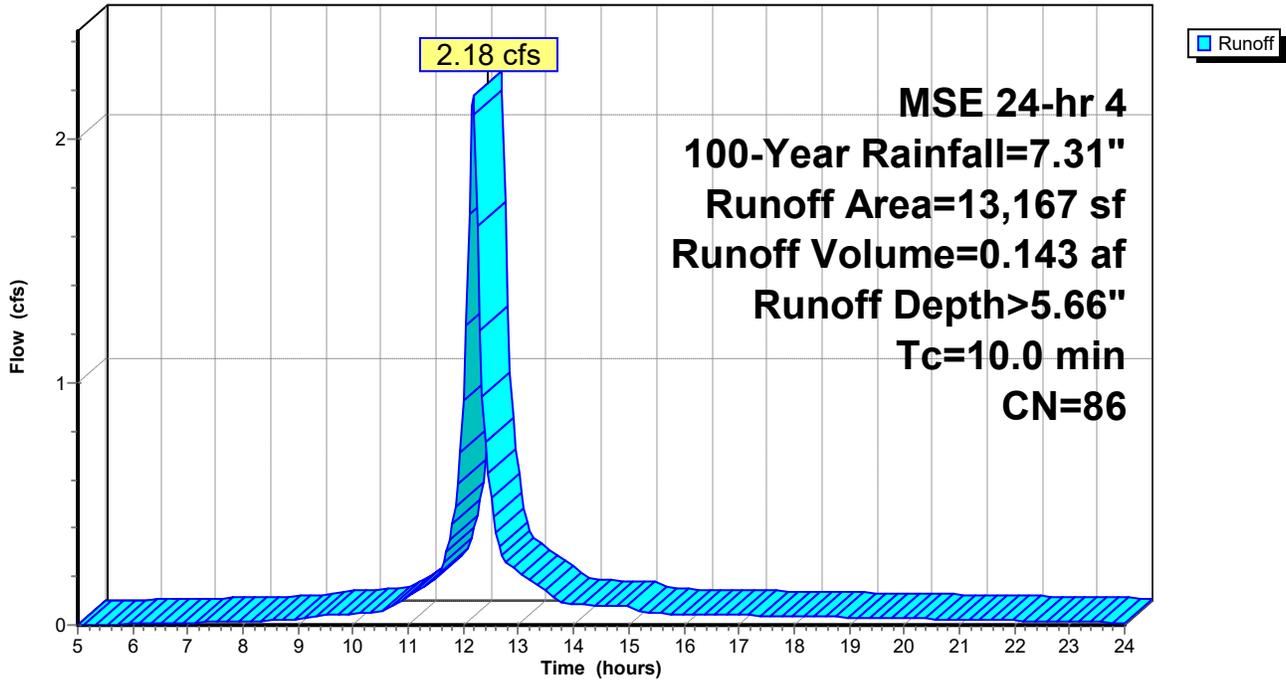
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 MSE 24-hr 4 100-Year Rainfall=7.31"

Area (sf)	CN	Description
9,003	98	Paved parking, HSG B
4,164	61	>75% Grass cover, Good, HSG B
13,167	86	Weighted Average
4,164		31.62% Pervious Area
9,003		68.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Small Drainage Area

Subcatchment 1S: North Area

Hydrograph



Summary for Subcatchment 2S: South Area

Runoff = 2.58 cfs @ 12.17 hrs, Volume= 0.173 af, Depth> 6.12"
 Routed to Pond 4P : Infiltration Pond

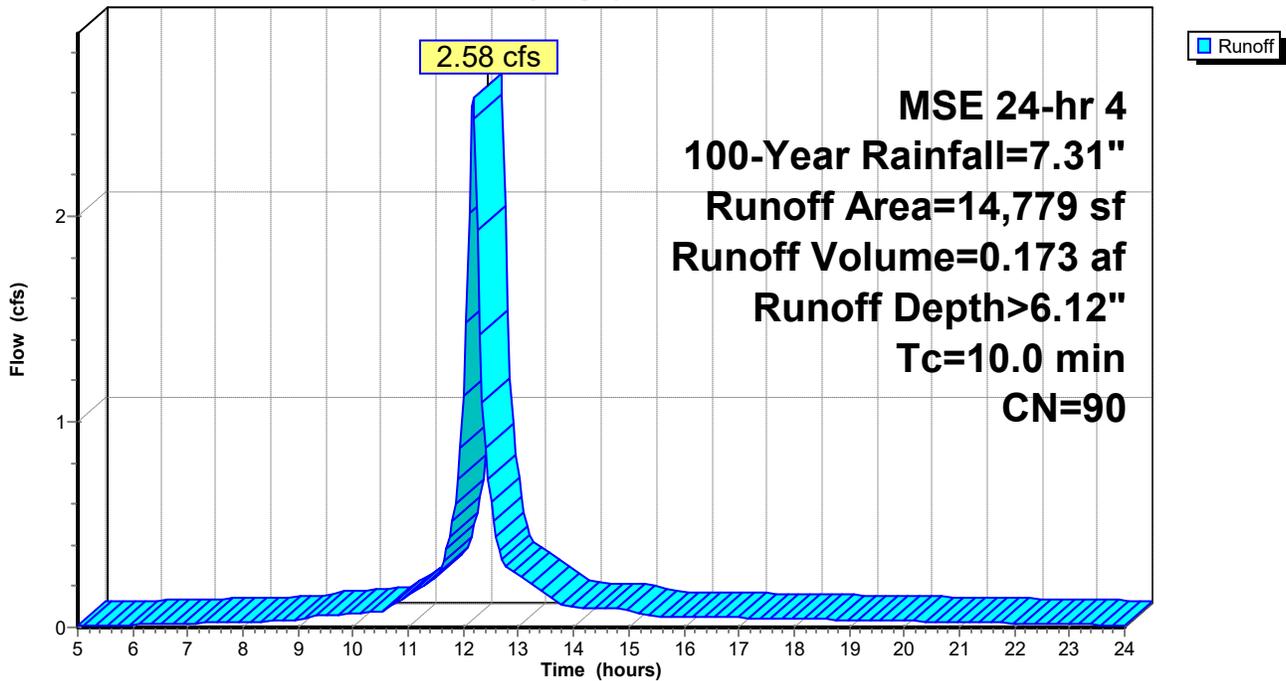
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 MSE 24-hr 4 100-Year Rainfall=7.31"

Area (sf)	CN	Description
2,735	98	Roofs, HSG B
8,772	98	Paved parking, HSG B
3,272	61	>75% Grass cover, Good, HSG B
14,779	90	Weighted Average
3,272		22.14% Pervious Area
11,507		77.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Small Drainage Area

Subcatchment 2S: South Area

Hydrograph



Summary for Subcatchment 3S: Pond Area

Runoff = 0.36 cfs @ 12.18 hrs, Volume= 0.022 af, Depth> 2.92"
 Routed to Pond 4P : Infiltration Pond

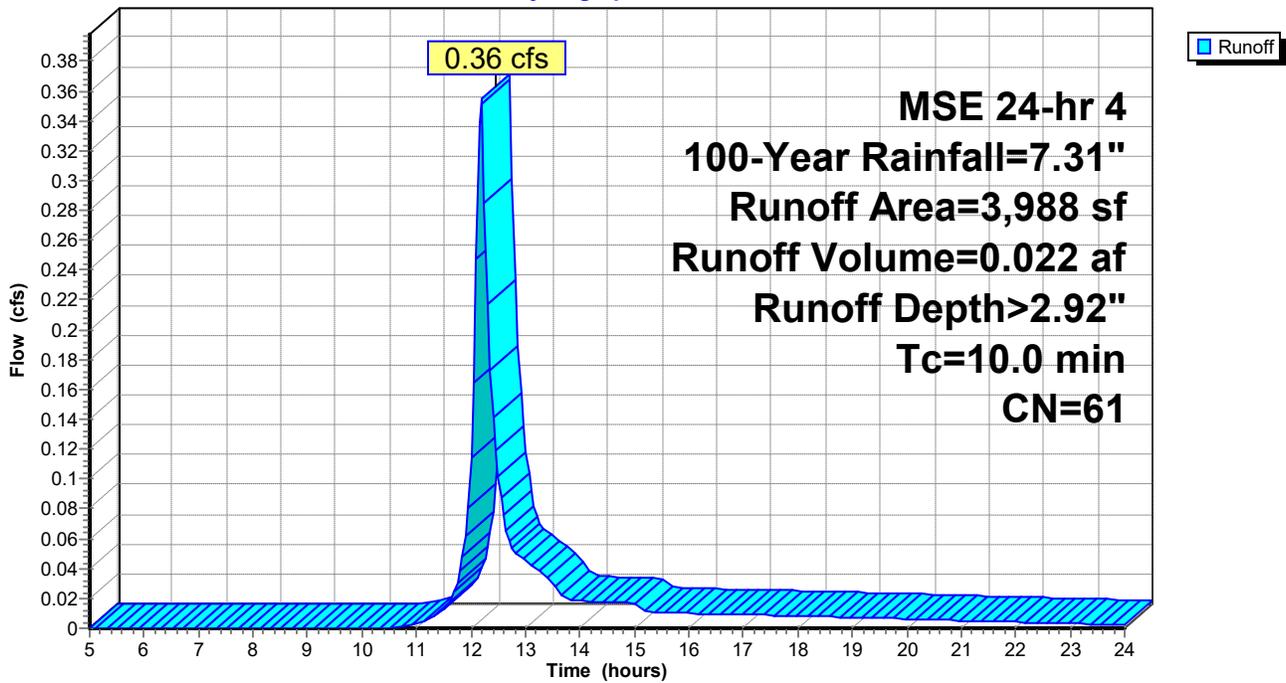
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 MSE 24-hr 4 100-Year Rainfall=7.31"

Area (sf)	CN	Description
3,988	61	>75% Grass cover, Good, HSG B
3,988		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Small Drainage Area

Subcatchment 3S: Pond Area

Hydrograph



Summary for Subcatchment 4S: Uncaptured Area

Runoff = 0.47 cfs @ 12.18 hrs, Volume= 0.030 af, Depth> 4.09"
 Routed to Reach 10R : Street Storm System

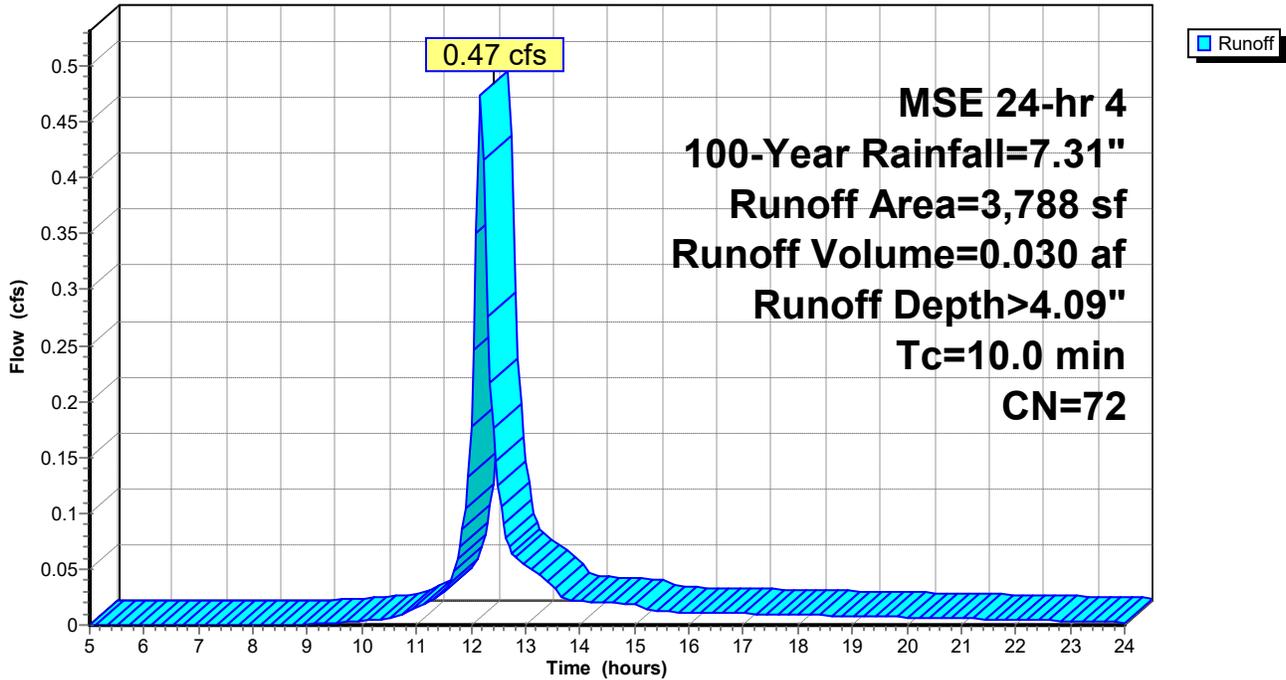
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 MSE 24-hr 4 100-Year Rainfall=7.31"

Area (sf)	CN	Description
1,176	98	Paved parking, HSG B
2,612	61	>75% Grass cover, Good, HSG B
3,788	72	Weighted Average
2,612		68.95% Pervious Area
1,176		31.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry, Small Drainage Area

Subcatchment 4S: Uncaptured Area

Hydrograph

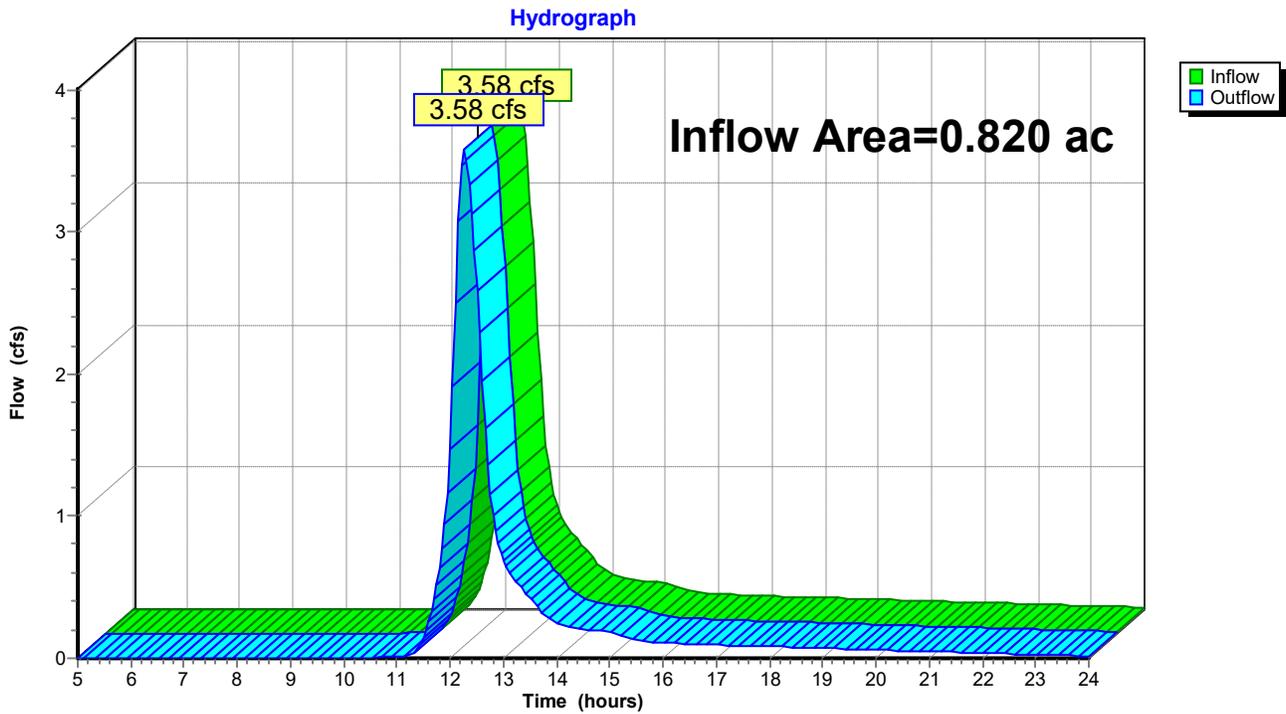


Summary for Reach 10R: Street Storm System

Inflow Area = 0.820 ac, 60.71% Impervious, Inflow Depth > 4.51" for 100-Year event
Inflow = 3.58 cfs @ 12.25 hrs, Volume= 0.308 af
Outflow = 3.58 cfs @ 12.25 hrs, Volume= 0.308 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach 10R: Street Storm System



Summary for Pond 4P: Infiltration Pond

Inflow Area = 0.733 ac, 64.23% Impervious, Inflow Depth > 5.53" for 100-Year event
 Inflow = 5.12 cfs @ 12.17 hrs, Volume= 0.338 af
 Outflow = 3.26 cfs @ 12.28 hrs, Volume= 0.301 af, Atten= 36%, Lag= 6.6 min
 Discarded = 0.02 cfs @ 12.28 hrs, Volume= 0.023 af
 Primary = 3.23 cfs @ 12.28 hrs, Volume= 0.278 af
 Routed to Reach 10R : Street Storm System
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Reach 10R : Street Storm System

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 670.44' @ 12.28 hrs Surf.Area= 2,065 sf Storage= 3,946 cf

Plug-Flow detention time= 83.6 min calculated for 0.301 af (89% of inflow)
 Center-of-Mass det. time= 36.5 min (821.5 - 785.0)

Volume	Invert	Avail.Storage	Storage Description
#1	667.50'	5,193 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
667.50	660	0	0
670.00	1,815	3,094	3,094
671.00	2,383	2,099	5,193

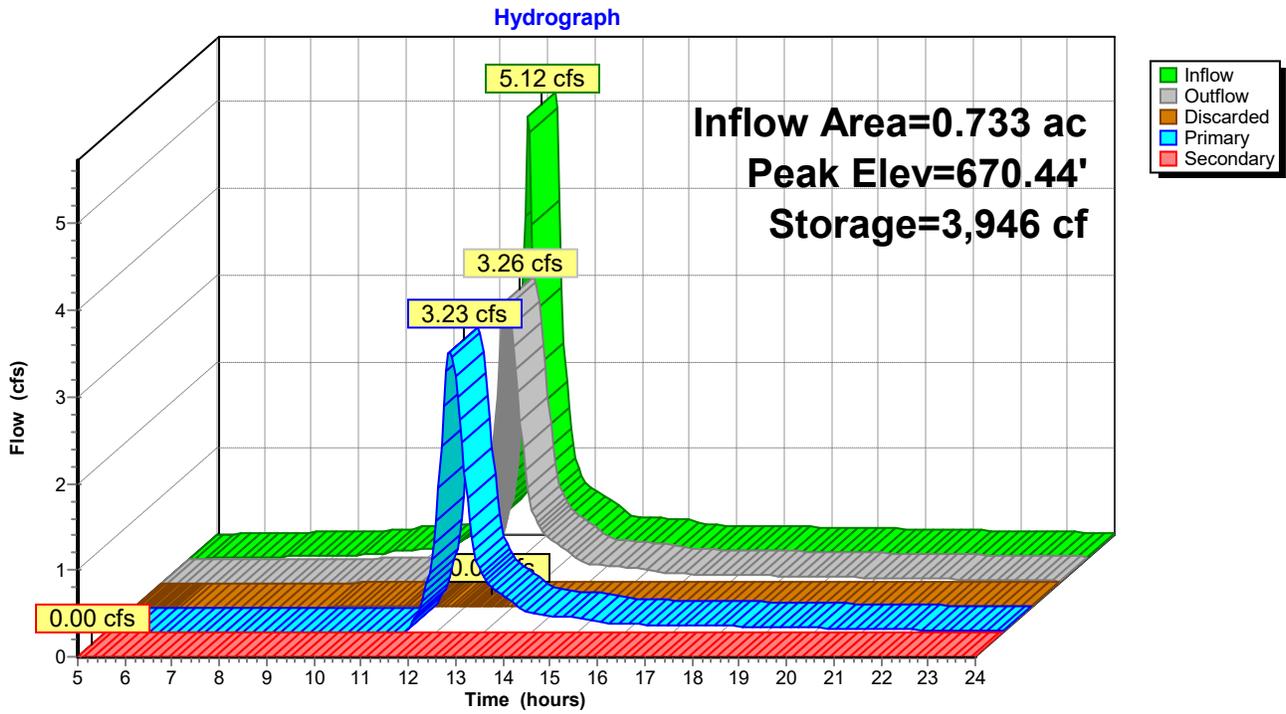
Device	Routing	Invert	Outlet Devices
#1	Secondary	670.80'	4.0' long x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Primary	669.00'	12.0" Round RCP_Round 12" L= 30.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 669.00' / 667.32' S= 0.0560 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#3	Discarded	667.50'	0.500 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 620.00'

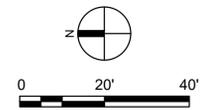
Discarded OutFlow Max=0.02 cfs @ 12.28 hrs HW=670.43' (Free Discharge)
 ↑3=Exfiltration (Controls 0.02 cfs)

Primary OutFlow Max=3.22 cfs @ 12.28 hrs HW=670.43' (Free Discharge)
 ↑2=RCP_Round 12" (Inlet Controls 3.22 cfs @ 4.10 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=667.50' (Free Discharge)
 ↑1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

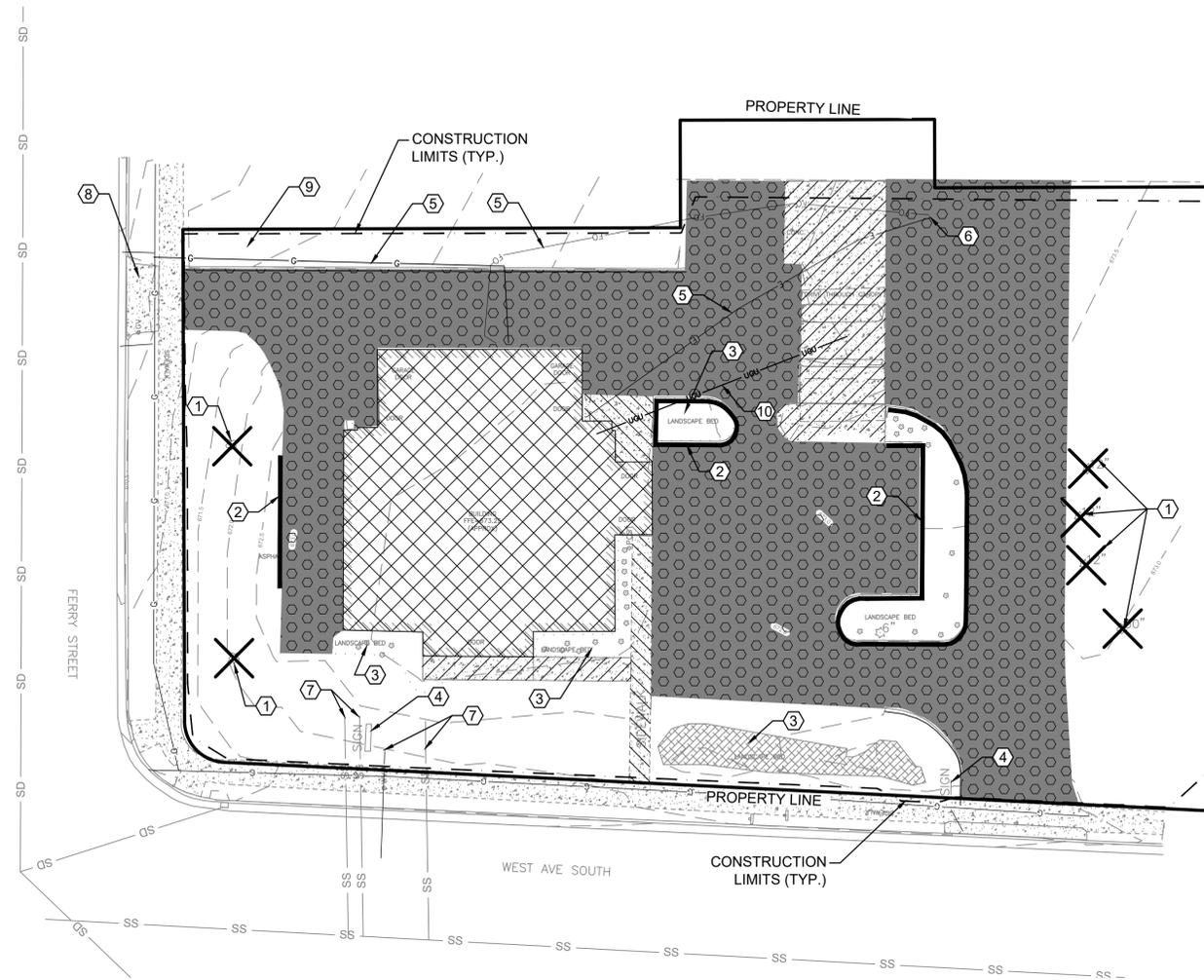
Pond 4P: Infiltration Pond





LEGEND

	PROPERTY LIMITS
	CONSTRUCTION LIMITS
	EXISTING WATERMAIN
	EXISTING STORM SEWER
	EXISTING SANITARY SEWER
	EXISTING GAS MAIN
	EXISTING FIBER OPTIC LINE
	EXISTING UNDERGROUND ELECTRIC
	EXISTING UNDERGROUND UTILITY
	SAWCUT LINE
	REMOVE EXISTING CONCRETE C&G
	REMOVE BITUMINOUS PAVEMENT
	REMOVE EXISTING CONCRETE PAVEMENT
	REMOVE EXISTING BUILDING
	REMOVE EXISTING TREE



DEMOLITION NOTES

1. UTILITIES SHOWN HERE ARE FOR INFORMATIONAL USE ONLY AND ARE NOT GUARANTEED IN THEIR ACCURACY. VERIFY WORK, NOTIFY ENGINEER OF ANY/ALL DISCREPANCIES WITHIN 24 HOURS OF DISCOVERY. CONTRACTOR SHALL HIRE PRIVATE UTILITY LOCATOR AS NECESSARY TO VERIFY UNDERGROUND UTILITIES. UTILITIES SHOWN ON PLANS MAY VARY FROM EXISTING CONDITIONS, AND CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED TO UTILITY LINES SHOWN, NOT SHOWN, OR SHOWN INCORRECTLY.
2. ALL UNDERGROUND UTILITIES MUST BE LOCATED PRIOR TO EXCAVATION OR GRADING ON SITE. CALL WISCONSIN ONE-CALL AT 800-242-8511 AT LEAST 48 HOURS PRIOR TO EXCAVATION TO SCHEDULE UTILITY LOCATIONS FOR THIS SITE. CONTRACTOR TO REPAIR ANY DAMAGED UNDERGROUND UTILITIES DURING CONSTRUCTION AT NO COST TO OWNER.
3. CONTRACTOR SHALL PROVIDE DIGITAL RECORD OF ALL EXISTING CONDITIONS TO REMAIN IN PLACE THAT MAYBE DAMAGED CAUSED BY REGULAR CONSTRUCTION OPERATIONS.
4. CONTRACTOR TO VERIFY EXISTING INVERT ELEVATIONS, SIZE, AND TYPE OF ALL SANITARY, STORM, AND WATERMAIN CONNECTION LOCATIONS PRIOR TO INSTALLATION. NOTIFY ENGINEER & OWNER OF DISCREPANCIES WITHIN 24 HOURS OF DISCOVERY.
5. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR DEMOLITION, REMOVAL, AND DISPOSAL.
6. ALL MATERIAL DESIGNATED FOR REMOVAL TO BECOME PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE NOTED. CONTRACTOR SHALL HAUL MATERIAL OFF-SITE AND DISPOSE IN A RESPONSIBLE MANNER.
7. CONTRACTOR TO COORDINATE WITH SMALL UTILITY OWNER FOR REMOVAL/REPLACEMENT WORK.
8. CONTRACTOR TO REVIEW ALL TREE AND OTHER SIGNIFICANT LANDSCAPE REMOVAL LIMITS WITH OWNER PRIOR TO CONSTRUCTION.

KEY NOTES

- ① REMOVE EXISTING TREE (TYP)
- ② REMOVE EXISTING CONCRETE CURB & GUTTER
- ③ REMOVE LANDSCAPE AREAS. REFER TO SITE GEOTECHNICAL REPORT FOR MORE INFORMATION ON SUBGRADE ORGANIC REMOVALS.
- ④ REMOVE EXISTING SIGN.
- ⑤ REMOVE AND RELOCATE UNDERGROUND ELECTRIC, GAS, AND FIBER OPTIC LINES. CONTRACTOR TO COORDINATE WITH RESPECTIVE SMALL UTILITY OWNER ON RELOCATED LOCATION.
- ⑥ REMOVE EXISTING POWER POLE
- ⑦ CONTRACTOR TO REMOVE EXISTING BUILDING WATER AND SANITARY SERVICE TO PROPERTY LINE. BEFORE CONSTRUCTION ACTIVITIES BEGIN, FIELD VERIFY VIA EXCAVATION OR PRIVATE UTILITY LOCATE EXACT LOCATION OF WATER AND SANITARY SEWER CONNECTION TO CITY INFRASTRUCTURE. NOTIFY ARCHITECT/ENGINEER IMMEDIATELY IF DISCREPANCIES FROM THE PLANS ARE FOUND.
- ⑧ CONTRACTOR TO COORDINATE WITH CITY ON APRON AND SIDEWALK INSTALLATION WITH TIMING TO STREET RECONSTRUCTION
- ⑨ CLEAR AND GRUB EXISTING TREE LINE PER OWNERS DIRECTION
- ⑩ CONTRACTOR TO LOCATE AND REMOVE EXISTING 32" TUBE SYSYTEM ENTIRELY

CALL 48 HOURS BEFORE DIGGING:
DIGGERS HOTLINE
 (800) 242-8511



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 Tel: 952.278.8880

PROJECT

**MAYO EMPLOYEES
 CREDIT UNION**

ADDITION/REMODELING

LA CROSSE, WI

ISSUED SET MARCH 02, 2026

REVISIONS

DATE NO.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF WISCONSIN.

NOT FOR CONSTRUCTION

ERIC SAUTBINE, P.E.

REG. NO. 03/02/2026 DATE



**DEMOLITION
 PLAN**

DRAWN BY: BN CHECKED BY: BF

C1

