

STORMWATER MANAGEMENT REPORT

Commercial Site Redevelopment

AP 115 LOT 1
792 VALLEY ROAD
MIDDLETOWN, RI

January, 2020

Revised: June 1, 2023

Prepared for:

NEWPORT COUNTY REGIONAL YMCA
792 VALLEY ROAD
MIDDLETOWN, RI 02842

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A handwritten signature in cursive script, appearing to read "Michael E. Russell", written below the professional seal.



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INTRODUCTION

This report was prepared to address the Stormwater Management System (SMS) for the Commercial Site Redevelopment on AP 115 Lot 1, Valley Road in Middletown, RI. The project proposes an addition and renovation to the existing 52,921 SF YMCA facility to create a 57,837 sf YMCA facility. The Development will create 12 additional parking spaces with associated landscaping, lighting, utilities & stormwater management system. This report will outline and summarize the current SMS as well the improvements of the proposed redevelopment. Said improvements are intended to control peak runoff & volume rates for the added impervious area(s). Additionally, the proposed SMS will provide, at minimum, the water quality & stormwater recharge volumes as required for redevelopment projects. The SMS as proposed will comply with the Town of Middletown's & State of Rhode Island's Stormwater Management Policy (2018).

EXISTING CONDITIONS (SUMMARY)

The subject property is approximately 8 acres in area and fronts along Valley Road with John Clarke Road to its rear (Map 114, Lot 1). The existing ground cover consists mainly of a large parking lot, a 52,921 sf YMCA facility, and large fields for outdoor sports and activities. The site slopes generally towards the West (Valley Road). The elevation change across the site is approximately 44 feet. Currently, most of the Runoff from the site sheet flows across the site to the existing drainage swales along Valley Road. The summary of the Pre-Development Analysis is located in Appendix 1 of this report.

PROPOSED CONDITIONS (SUMMARY)

The project proposes an addition and renovation to the existing 52,921 SF YMCA facility to create a 57,837 sf YMCA facility. The Development will create 12 additional parking spaces with associated landscaping, lighting, utilities & stormwater management system. Site grading will create the cuts & fills throughout the project limits to create the desired site layout and function and will maintain pre-development runoff patterns towards the Western portion of the site. A stormwater collection system will be incorporated into the newly designed parking area to collect runoff from impervious surfaces and landscaped areas within the limit of disturbance. This system consists of deep sump catch basins, sediment forebay, an underground infiltration system and a sand filter. The catch basin and sediment forebay will provide pre-treatment. The drainage system will accommodate a 100-year storm event, handle the water quality volume (WQv) and provide for total suspended solids (TSS) removal. This overall system is designed to accommodate, at minimum, the water quality volume (WQv) and recharge volume (ReV) required for redevelopment projects. Low impact development practices (LID) will be employed to the maximum extent practicable. Summary of the Post-Development Conditions Analysis is located in Appendix 1 of this report.

SITE SOIL & GROUNDWATER CONDITIONS

The underlying watershed soils within the developed area are mapped with the Udorthents-Urban land complex series, as shown in the RI soil survey. A geotechnical evaluation and supplemental soil evaluation were performed in May & June 2020. Soil textures consisted primarily of a loamy sand and groundwater elevations varied from 3.5 ft. (TH-5) to over 8.5 ft. (TH-4)



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METHODOLOGY

HydroCad® Stormwater Modeling System was used to quantify stormwater runoff generated by WQv, 1-year, 2-year, 10-year, 25-year, and 100-year design storms in pre and post development conditions. The calculations were performed using “Dynamic Storage-Indication” to also analyze the impact of the pipe size, material and slope selection in upstream structures. The HydroCad® program utilizes Natural Resource Conservation Service (NRCS) techniques (TR-20) to predict stormwater runoff for given design storms. The calculations performed by HydroCad® are based on the NRCS model return frequency Type III distribution and a user specified design storms. The calculation is also performed using the simple dynamic method which utilizes *Rawls Rate* for infiltration based on soil texture.

The analysis is performed by modeling the drainage area as subcatchments and ponds. A subcatchment is an area that produces runoff and drains into a pond. A pond can be a natural depression, wetland, or manmade structure that detains or retains stormwater runoff. The drainage network pipe design adequacy is evaluated by integrating it in the HydroCad® pond model for drainage structures. The pipes are modeled as the pond outlet-culvert type. Manning’s Equation and/or Hazen-Williams hydraulic equations were also utilized to determine the required pipe sizes as well as minimum and maximum pipe slopes.

DRAINAGE SYSTEM MODEL

The proposed development is analyzed by creating an existing condition or pre-development model and a full build-out or post-development model. The models were created to compare the existing and post-development runoff to the abutting properties and existing SMS. The post-development analysis results are also utilized to adequately size the proposed practices. Analysis within the site was performed using WQv, 1, 2, 10, 25 and 100-year design storm projections. All excess stormwater runoff captured on site will be treated and retained/recharged on site. On site post-development runoff rates flowing overland toward abutting properties will not exceed pre-development runoff rates up to the 100-year event.

The pre-development HydroCad® model within the site consists of 9 subcatchments. These subcatchments were created to be able to analyze the flows entering different parts of the existing drainage system as well as the flows going to the different analysis points on the site.

Post-development subcatchment models were created for the site. Subcatchment models represent the drainage areas to each of the proposed reaches, drainage structures, or storage & treatment areas. Each of these areas provides elements of treatment, storage, and infiltration in order to effectively mitigate flows to the Point of Analysis in each analyzed storm event. See Post-Development output in Appendix B and summary at the end of this narrative.

The majority of the paved & landscaped areas for the developed area discharge into a forebay, before flowing into a sand filter. A portion of roof runoff and sidewalk runoff discharges into a underground infiltration system.



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STORMWATER TREATMENT

Stormwater runoff will be treated through the use of Best Management Practices (BMP's). The BMP's used within the proposed development include an underground infiltration system, deep sump hooded catch basins, forebays, and sand filters. These BMP's will aid in the removal of pollutants within the stormwater runoff as well as provide recharge to the groundwater aquifer.

This system will provide pollutant removal and treatment to the maximum extent practicable for the proposed redevelopment.

ANALYSIS DATA

The following information was used in performing the calculations for the drainage system.

RUNOFF SUMMARY AT ANALYSIS POINTS		
Cover Description		
Cover Type	Hydrologic condition	Curve Number (Class: A , B , C, D)
Landscaping, Lawns	Good	39 , 61 , 74 , 80
Woods	Good	30 , 55 , 70 , 77
Gravel	Good	76 , 85 , 89 , 91
Buildings	-	98
Pavement	-	98
Brick Walkways	-	98

Rainfall Data (Type III - 24 Hour Storm Duration*)

Storm Event	Rainfall
WQv	1.2 inches
1 - Year	2.8 inches
2 - Year	3.3 inches
10 - Year	4.9 inches
25 - Year	6.1 inches
100 - Year	8.6 inches



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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
226,852	74	>75% Grass cover, Good, HSG C (eS1, eS10, eS11, eS12, eS13, eS14, eS15, eS16, eS17, eS18, eS2, eS20, eS21, eS3, eS4, eS5, eS6, eS9)
1,125	98	Existing Walk (eS17)
172	98	Existing Wall (eS17)
3,556	89	Gravel (eS16, eS18)
437	89	Gravel Area (eS12)
937	89	Gravel Driveway (eS10)
446	89	Gravel path (eS9)
120,610	98	Paved parking, HSG C (eS1, eS10, eS12, eS13, eS14, eS15, eS16, eS2, eS21, eS3, eS4, eS5, eS6, eS7, eS9)
55,145	98	Roofs, HSG C (eRF1, eRF2, eRF3, eS10, eS12, eS13, eS21)
547	98	Rubber play surface (eS11)
3,308	98	Unconnected pavement, HSG C (eS11, eS12, eS21, eS9)
741	98	Walkway (eS2)
10,632	70	Woods, Good, HSG C (eS10, eS13, eS14, eS21)
424,508	84	TOTAL AREA

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Time span=0.00-36.00 hrs, dt=0.03 hrs, 1201 points x 2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond CB-1: CB-1

Peak Elev=39.51' Inflow=1.11 cfs 3,714 cf
Outflow=1.11 cfs 3,714 cf

Pond eA1: Pre - Analysis Point-1

Inflow=1.11 cfs 3,714 cf
Primary=1.11 cfs 3,714 cf

Pond eA2: Pre - Analysis Point-2

Inflow=4.28 cfs 25,639 cf
Primary=4.28 cfs 25,639 cf

Pond eA3: Post - Analysis Point-3

Inflow=3.47 cfs 33,254 cf
Primary=3.47 cfs 33,254 cf

Pond eAD: Pre - Area drain at main entrance

12.0" Round Culvert n=0.013 L=69.0' S=0.0109 '/' Peak Elev=24.13' Inflow=0.07 cfs 244 cf
Outflow=0.07 cfs 244 cf

Pond eCB1: Pre - CB1

12.0" Round Culvert n=0.012 L=140.0' S=0.0143 '/' Peak Elev=32.52' Inflow=1.01 cfs 3,003 cf
Outflow=1.01 cfs 3,003 cf

Pond eCB2: Pre - CB2

15.0" Round Culvert n=0.013 L=10.0' S=0.0200 '/' Peak Elev=32.92' Inflow=1.90 cfs 5,658 cf
Outflow=1.90 cfs 5,658 cf

Pond eCB3: Pre - CB3

8.0" Round Culvert n=0.013 L=44.0' S=0.0318 '/' Peak Elev=34.85' Inflow=0.38 cfs 1,237 cf
Outflow=0.38 cfs 1,237 cf

Pond eCB4: Pre - CB4

8.0" Round Culvert n=0.013 L=55.0' S=0.0227 '/' Peak Elev=24.75' Inflow=0.20 cfs 685 cf
Outflow=0.20 cfs 685 cf

Pond eCB5: Pre - CB5

12.0" Round Culvert n=0.013 L=158.0' S=0.0100 '/' Peak Elev=29.08' Inflow=1.23 cfs 5,766 cf
Outflow=1.23 cfs 5,766 cf

Pond eCB6: CB-6

Primary=0.35 cfs 1,498 cf Secondary=0.00 cfs 0 cf Peak Elev=32.50' Inflow=0.35 cfs 1,498 cf
Outflow=0.35 cfs 1,498 cf

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Pond eCB7: CB-7

4.0" Round Culvert n=0.013 L=14.3' S=-0.0392 '/' Inflow=0.06 cfs 213 cf
Peak Elev=26.14'

Pond eDB1: Pre - Detention Basin-1

Peak Elev=21.23' Storage=1,438 cf Inflow=2.67 cfs 2,521 cf
Outflow=0.83 cfs 2,476 cf

Pond eDB2: Pre - Stone Drainage extra storage Basin-2

Peak Elev=21.58' Storage=2,984 cf Inflow=2.04 cfs 8,583 cf
Outflow=0.94 cfs 6,954 cf

Pond eDM5: Pre - Field DMH

6.0" Round Culvert n=0.013 L=95.0' S=0.0200 '/' Inflow=0.35 cfs 1,498 cf
Peak Elev=24.09'

Pond eDMH1: Pre - DMH1

Primary=1.64 cfs 6,413 cf Secondary=0.52 cfs 481 cf Inflow=2.16 cfs 6,894 cf
Peak Elev=32.52'

Pond eDMH2: Pre - DMH2

Primary=1.27 cfs 6,765 cf Secondary=1.38 cfs 2,651 cf Inflow=2.65 cfs 9,416 cf
Peak Elev=30.47'

Pond eDMH3: Pre - DMH3

18.0" Round Culvert n=0.013 L=105.0' S=0.0200 '/' Inflow=3.05 cfs 12,037 cf
Peak Elev=26.92'

Pond eDMH4: Pre - DMH4

18.0" Round Culvert n=0.013 L=75.0' S=0.0273 '/' Inflow=3.05 cfs 12,037 cf
Peak Elev=24.62'

Pond eDMH5: Pre - DMH5

12.0" Round Culvert n=0.013 L=3.5' S=0.0714 '/' Inflow=1.61 cfs 5,341 cf
Peak Elev=22.68'

Pond eFB1: Forebay-1

Peak Elev=23.20' Storage=527 cf Inflow=2.30 cfs 6,796 cf
Outflow=2.27 cfs 6,329 cf

Pond eFB2: Forebay-2

Peak Elev=23.21' Storage=529 cf Inflow=2.40 cfs 7,133 cf
Outflow=2.36 cfs 6,666 cf

Pond eH1: Pre - Roof Header

Peak Elev=27.14' Inflow=0.90 cfs 3,050 cf
Outflow=0.90 cfs 3,050 cf

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Reach eOP1: Outlet pipe-1

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.25' Max Vel=5.00 fps Inflow=0.77 cfs 3,138 cf
L=14.0' S=0.0250 '/' Capacity=5.63 cfs Outflow=0.76 cfs 3,138 cf

Reach eRD1: Pre - Roof Drain-1

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.40' Max Vel=4.06 fps Inflow=1.18 cfs 3,981 cf
L=20.0' S=0.0100 '/' Capacity=3.56 cfs Outflow=1.18 cfs 3,981 cf

Reach eRD2: Pre - Roof Drain-2

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.37' Max Vel=4.68 fps Inflow=1.23 cfs 4,159 cf
L=28.0' S=0.0143 '/' Capacity=4.26 cfs Outflow=1.23 cfs 4,159 cf

Subcatchment eRF1: Pre - Roof flow

Runoff Area=15,575 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=0/98 Runoff=1.18 cfs 3,981 cf

Subcatchment eRF2: Pre - Roof flow

Runoff Area=16,270 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=0/98 Runoff=1.23 cfs 4,159 cf

Subcatchment eRF3: Pre - Roof flow

Runoff Area=11,932 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=0/98 Runoff=0.90 cfs 3,050 cf

Subcatchment eS1: Pre - Northeastern Parking lot

Runoff Area=16,598 sf 80.53% Impervious Runoff Depth=2.68"
Tc=5.0 min CN=74/98 Runoff=1.11 cfs 3,714 cf

Subcatchment eS10: Pre - Flow to Swale-5

Runoff Area=43,017 sf 12.59% Impervious Runoff Depth=1.35"
Flow Length=342' Tc=19.0 min CN=74/98 Runoff=1.00 cfs 4,843 cf

Subcatchment eS11: Pre - Flow to playground catch basin

Runoff Area=1,116 sf 60.48% Impervious Runoff Depth=2.29"
Tc=5.0 min CN=74/98 Runoff=0.06 cfs 213 cf

Subcatchment eS12: Pre - Area in front of bldg flowing to existing swale-4

Runoff Area=15,500 sf 58.78% Impervious Runoff Depth=2.28"
Flow Length=50' Slope=0.1600 '/' Tc=5.4 min CN=75/98 Runoff=0.87 cfs 2,947 cf

Subcatchment eS13: Pre - Northeastern area flowing to proposed CB5

Runoff Area=58,920 sf 3.59% Impervious Runoff Depth=1.17"
Flow Length=445' Tc=18.2 min CN=74/98 Runoff=1.23 cfs 5,766 cf

Subcatchment eS14: Pre - Parking area-4 runoff

Runoff Area=29,725 sf 36.32% Impervious Runoff Depth=1.78"
Tc=5.0 min CN=73/98 Runoff=1.33 cfs 4,412 cf

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Subcatchment eS15: Pre - Flow to entrance area drain

Runoff Area=1,395 sf 50.82% Impervious Runoff Depth=2.10"
Tc=5.0 min CN=74/98 Runoff=0.07 cfs 244 cf

Subcatchment eS16: Pre - Flow to Sand Filter-2

Runoff Area=8,374 sf 18.89% Impervious Runoff Depth=1.62"
Tc=5.0 min CN=77/98 Runoff=0.35 cfs 1,131 cf

Subcatchment eS17: Pre - Area in front of bldg flowing to existing swale-3

Runoff Area=7,518 sf 17.25% Impervious Runoff Depth=1.44"
Flow Length=173' Tc=6.3 min CN=74/98 Runoff=0.27 cfs 904 cf

Subcatchment eS18: Pre - Flow to Sand Filter-1

Runoff Area=6,183 sf 0.00% Impervious Runoff Depth=1.41"
Tc=5.0 min CN=79/0 Runoff=0.24 cfs 728 cf

Subcatchment eS2: Pre - Flow to CB3

Runoff Area=10,081 sf 18.76% Impervious Runoff Depth=1.47"
Tc=5.0 min CN=74/98 Runoff=0.38 cfs 1,237 cf

Subcatchment eS20: Pre - Flow to Stone Detention Basin

Runoff Area=3,870 sf 0.00% Impervious Runoff Depth=1.10"
Tc=5.0 min CN=74/0 Runoff=0.11 cfs 356 cf

Subcatchment eS21: Pre - Flow along South side to Basin-2

Runoff Area=61,481 sf 8.55% Impervious Runoff Depth=1.27"
Flow Length=552' Tc=12.5 min CN=74/98 Runoff=1.59 cfs 6,516 cf

Subcatchment eS3: Pre - Norther half of parking area-2

Runoff Area=12,808 sf 87.06% Impervious Runoff Depth=2.81"
Flow Length=117' Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=1.01 cfs 3,003 cf

Subcatchment eS4: Pre - Southern half of parking area-2

Runoff Area=24,441 sf 85.26% Impervious Runoff Depth=2.78"
Flow Length=117' Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=1.90 cfs 5,658 cf

Subcatchment eS5: Pre - Norther half of parking area-3

Runoff Area=32,764 sf 70.56% Impervious Runoff Depth=2.49"
Flow Length=117' Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=2.30 cfs 6,796 cf

Subcatchment eS6: Pre - Southern half of parking area-3

Runoff Area=29,790 sf 90.12% Impervious Runoff Depth=2.87"
Flow Length=117' Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=2.40 cfs 7,133 cf

Subcatchment eS7: Pre - Flow to CB4

Runoff Area=2,681 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=0/98 Runoff=0.20 cfs 685 cf

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Subcatchment eS9: Pre - Flow to CB-4

Runoff Area=14,469 sf 7.07% Impervious Runoff Depth=1.24"
Flow Length=387' Tc=14.0 min CN=74/98 Runoff=0.35 cfs 1,498 cf

Pond eSF1: Pre - Sand Filter-1

Peak Elev=21.55' Storage=5,787 cf Inflow=7.81 cfs 25,759 cf
Outflow=4.29 cfs 25,640 cf

Pond eSF2: Pre - Sand Filter-2

Peak Elev=22.37' Storage=3,453 cf Inflow=4.37 cfs 14,612 cf
Primary=2.67 cfs 2,521 cf Secondary=0.45 cfs 12,080 cf Outflow=3.12 cfs 14,601 cf

Pond eSTC1: Pre - Stormceptor-1

Peak Elev=30.11' Inflow=1.27 cfs 6,765 cf
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 '/' Outflow=1.27 cfs 6,765 cf

Pond eSTC2: Pre - Stormceptor-2

Peak Elev=23.75' Inflow=1.53 cfs 5,097 cf
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=1.53 cfs 5,097 cf

Pond eSW1: Pre - Swale-1

Peak Elev=18.26' Storage=269 cf Inflow=4.29 cfs 25,640 cf
Outflow=4.28 cfs 25,639 cf

Pond eSW2: Pre - Swale-2

Peak Elev=19.00' Storage=0 cf Inflow=1.27 cfs 14,556 cf
Primary=1.27 cfs 14,556 cf Secondary=0.00 cfs 0 cf Outflow=1.27 cfs 14,556 cf

Pond eSW3: Pre - Swale-3

Peak Elev=18.88' Storage=340 cf Inflow=1.36 cfs 15,460 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0047 '/' Outflow=1.33 cfs 15,460 cf

Pond eSW4: Pre - Swale-4

Peak Elev=18.73' Storage=240 cf Inflow=2.08 cfs 21,457 cf
18.0" Round Culvert n=0.013 L=21.0' S=0.0081 '/' Outflow=2.01 cfs 21,457 cf

Reach eSW5: Pre - Swale-5

Avg. Flow Depth=0.22' Max Vel=1.62 fps Inflow=3.47 cfs 33,254 cf
n=0.022 L=145.0' S=0.0050 '/' Capacity=110.11 cfs Outflow=3.47 cfs 33,254 cf

Pond eUS1: Pre - Underground Recharge System-1

Peak Elev=29.81' Storage=1,204 cf Inflow=1.27 cfs 6,765 cf
Discarded=0.04 cfs 3,633 cf Primary=0.77 cfs 3,138 cf Outflow=0.81 cfs 6,765 cf

Total Runoff Area = 424,508 sf Runoff Volume = 68,972 cf Average Runoff Depth = 1.95"
57.21% Pervious = 242,860 sf 42.79% Impervious = 181,648 sf

Summary for Pond CB-1: CB-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 2.68" for 2-Year event
Inflow = 1.11 cfs @ 12.07 hrs, Volume= 3,714 cf
Outflow = 1.11 cfs @ 12.07 hrs, Volume= 3,714 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.11 cfs @ 12.07 hrs, Volume= 3,714 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 39.51' @ 12.07 hrs
Flood Elev= 46.68'

Device	Routing	Invert	Outlet Devices
#1	Primary	38.96'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.09 cfs @ 12.07 hrs HW=39.50' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 1.09 cfs @ 2.50 fps)

Summary for Pond eA1: Pre - Analysis Point-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 2.68" for 2-Year event
Inflow = 1.11 cfs @ 12.07 hrs, Volume= 3,714 cf
Primary = 1.11 cfs @ 12.07 hrs, Volume= 3,714 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond eA2: Pre - Analysis Point-2

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 1.76" for 2-Year event
Inflow = 4.28 cfs @ 12.22 hrs, Volume= 25,639 cf
Primary = 4.28 cfs @ 12.22 hrs, Volume= 25,639 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond eA3: Post - Analysis Point-3

Inflow Area = 232,923 sf, 35.34% Impervious, Inflow Depth > 1.71" for 2-Year event
Inflow = 3.47 cfs @ 12.38 hrs, Volume= 33,254 cf
Primary = 3.47 cfs @ 12.38 hrs, Volume= 33,254 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond eAD: Pre - Area drain at main entrance

Inflow Area = 1,395 sf, 50.82% Impervious, Inflow Depth = 2.10" for 2-Year event
Inflow = 0.07 cfs @ 12.07 hrs, Volume= 244 cf
Outflow = 0.07 cfs @ 12.07 hrs, Volume= 244 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.07 cfs @ 12.07 hrs, Volume= 244 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 24.13' @ 12.07 hrs
Flood Elev= 28.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.00'	12.0" Round Culvert L= 69.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.00' / 23.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.07 cfs @ 12.07 hrs HW=24.13' TW=22.68' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.07 cfs @ 1.82 fps)

Summary for Pond eCB1: Pre - CB1

Inflow Area = 12,808 sf, 87.06% Impervious, Inflow Depth = 2.81" for 2-Year event
Inflow = 1.01 cfs @ 12.01 hrs, Volume= 3,003 cf
Outflow = 1.01 cfs @ 12.01 hrs, Volume= 3,003 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.01 cfs @ 12.01 hrs, Volume= 3,003 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 32.52' @ 12.01 hrs

Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	32.00'	12.0" Round Culvert L= 140.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.00' / 30.00' S= 0.0143 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.99 cfs @ 12.01 hrs HW=32.51' TW=30.47' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.99 cfs @ 2.44 fps)

Summary for Pond eCB2: Pre - CB2

Inflow Area =	24,441 sf, 85.26% Impervious, Inflow Depth = 2.78" for 2-Year event
Inflow =	1.90 cfs @ 12.01 hrs, Volume= 5,658 cf
Outflow =	1.90 cfs @ 12.01 hrs, Volume= 5,658 cf, Atten= 0%, Lag= 0.0 min
Primary =	1.90 cfs @ 12.01 hrs, Volume= 5,658 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 32.92' @ 12.01 hrs

Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	32.20'	15.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.20' / 32.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.86 cfs @ 12.01 hrs HW=32.91' TW=32.52' (Dynamic Tailwater)

1=Culvert (Barrel Controls 1.86 cfs @ 3.71 fps)

Summary for Pond eCB3: Pre - CB3

Inflow Area = 10,081 sf, 18.76% Impervious, Inflow Depth = 1.47" for 2-Year event
Inflow = 0.38 cfs @ 12.08 hrs, Volume= 1,237 cf
Outflow = 0.38 cfs @ 12.08 hrs, Volume= 1,237 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.08 hrs, Volume= 1,237 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 34.85' @ 12.08 hrs
Flood Elev= 39.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.50'	8.0" Round Culvert L= 44.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 34.50' / 33.10' S= 0.0318 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.37 cfs @ 12.08 hrs HW=34.85' TW=32.43' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.37 cfs @ 2.02 fps)

Summary for Pond eCB4: Pre - CB4

Inflow Area = 2,681 sf, 100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 0.20 cfs @ 12.07 hrs, Volume= 685 cf
Outflow = 0.20 cfs @ 12.07 hrs, Volume= 685 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.07 hrs, Volume= 685 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 24.75' @ 12.07 hrs
Flood Elev= 28.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.50'	8.0" Round Culvert L= 55.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.50' / 23.25' S= 0.0227 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

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Primary OutFlow Max=0.20 cfs @ 12.07 hrs HW=24.75' TW=23.74' (Dynamic Tailwater)

└─**1=Culvert** (Inlet Controls 0.20 cfs @ 1.69 fps)

Summary for Pond eCB5: Pre - CB5

Inflow Area = 58,920 sf, 3.59% Impervious, Inflow Depth = 1.17" for 2-Year event
Inflow = 1.23 cfs @ 12.27 hrs, Volume= 5,766 cf
Outflow = 1.23 cfs @ 12.27 hrs, Volume= 5,766 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.23 cfs @ 12.27 hrs, Volume= 5,766 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 29.08' @ 12.27 hrs

Flood Elev= 31.70'

Device	Routing	Invert	Outlet Devices

#1	Primary	28.50'	12.0" Round Culvert L= 158.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 28.50' / 26.92' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.22 cfs @ 12.27 hrs HW=29.08' TW=26.82' (Dynamic Tailwater)

└─**1=Culvert** (Inlet Controls 1.22 cfs @ 2.59 fps)

Summary for Pond eCB6: CB-6

Inflow Area = 14,469 sf, 7.07% Impervious, Inflow Depth = 1.24" for 2-Year event
Inflow = 0.35 cfs @ 12.20 hrs, Volume= 1,498 cf
Outflow = 0.35 cfs @ 12.20 hrs, Volume= 1,498 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.20 hrs, Volume= 1,498 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 32.50' @ 12.20 hrs

Flood Elev= 34.66'

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Device	Routing	Invert	Outlet Devices
#1	Primary	32.11'	6.0" Round Culvert L= 110.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.11' / 27.50' S= 0.0419 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	34.50'	2.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.35 cfs @ 12.20 hrs HW=32.50' TW=24.09' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.35 cfs @ 2.13 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=32.11' TW=19.00' (Dynamic Tailwater)

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

Summary for Pond eCB7: CB-7

Inflow Area = 1,116 sf, 60.48% Impervious, Inflow Depth = 2.29" for 2-Year event
Inflow = 0.06 cfs @ 12.07 hrs, Volume= 213 cf
Outflow = 0.06 cfs @ 12.07 hrs, Volume= 213 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.06 cfs @ 12.07 hrs, Volume= 213 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 26.14' @ 12.07 hrs

Flood Elev= 27.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	25.97'	4.0" Round Culvert L= 14.3' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 25.41' / 25.97' S= -0.0392 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.06 cfs @ 12.07 hrs HW=26.14' TW=20.60' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.06 cfs @ 1.40 fps)

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Summary for Pond eDB1: Pre - Detention Basin-1

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth = 0.41" for 2-Year event
Inflow = 2.67 cfs @ 12.15 hrs, Volume= 2,521 cf
Outflow = 0.83 cfs @ 12.44 hrs, Volume= 2,476 cf, Atten= 69%, Lag= 17.4 min
Primary = 0.83 cfs @ 12.44 hrs, Volume= 2,476 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 21.23' @ 12.44 hrs Surf.Area= 886 sf Storage= 1,438 cf

Flood Elev= 23.00' Surf.Area= 1,340 sf Storage= 3,397 cf

Plug-Flow detention time= 31.4 min calculated for 2,476 cf (98% of inflow)

Center-of-Mass det. time= 30.7 min (768.6 - 737.9)

Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	3,397 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	421	0	0
20.00	613	517	517
21.00	830	722	1,239
22.00	1,073	952	2,190
23.00	1,340	1,207	3,397

Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32 4.0" Round Culvert X 3.00 L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.90' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Primary	21.00'	4.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.10' / 19.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Primary	19.10'	4.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.10' / 19.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

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Primary OutFlow Max=0.83 cfs @ 12.44 hrs HW=21.23' TW=19.00' (Dynamic Tailwater)

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

2=Culvert (Barrel Controls 0.26 cfs @ 1.90 fps)

3=Culvert (Barrel Controls 0.57 cfs @ 6.54 fps)

Summary for Pond eDB2: Pre - Stone Drainage extra storage Basin-2

Inflow Area = 80,936 sf, 8.59% Impervious, Inflow Depth = 1.27" for 2-Year event
Inflow = 2.04 cfs @ 12.18 hrs, Volume= 8,583 cf
Outflow = 0.94 cfs @ 12.51 hrs, Volume= 6,954 cf, Atten= 54%, Lag= 19.9 min
Primary = 0.94 cfs @ 12.51 hrs, Volume= 6,954 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 21.58' @ 12.51 hrs Surf.Area= 3,811 sf Storage= 2,984 cf

Plug-Flow detention time= 157.8 min calculated for 6,954 cf (81% of inflow)
Center-of-Mass det. time= 78.8 min (923.1 - 844.3)

Volume	Invert	Avail.Storage	Storage Description
#1	20.00'	4,315 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	19.00'	647 cf	Stone Storage (Prismatic) Listed below (Recalc)
		1,962 cf Overall	x 33.0% Voids
		4,963 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
20.00	1,116	0	0
21.00	1,569	1,343	1,343
22.00	2,051	1,810	3,153
22.50	2,600	1,163	4,315

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,962	0	0
20.00	1,962	1,962	1,962

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Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	8.0' long x 6.0' 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) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#2	Primary	20.75'	6.0" Round Culvert L= 20.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 20.75' / 20.50' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	21.25'	6.0" Round Culvert L= 20.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 21.25' / 21.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.94 cfs @ 12.51 hrs HW=21.58' TW=18.03' (Dynamic Tailwater)

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

└─**2=Culvert** (Barrel Controls 0.68 cfs @ 3.49 fps)

└─**3=Culvert** (Barrel Controls 0.26 cfs @ 2.63 fps)

Summary for Pond eDM5: Pre - Field DMH

Inflow Area = 14,469 sf, 7.07% Impervious, Inflow Depth = 1.24" for 2-Year event
Inflow = 0.35 cfs @ 12.20 hrs, Volume= 1,498 cf
Outflow = 0.35 cfs @ 12.20 hrs, Volume= 1,498 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.20 hrs, Volume= 1,498 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.09' @ 12.20 hrs

Flood Elev= 29.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.70'	6.0" Round Culvert L= 95.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.70' / 21.80' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.35 cfs @ 12.20 hrs HW=24.09' TW=21.14' (Dynamic Tailwater)

└─**1=Culvert** (Inlet Controls 0.35 cfs @ 2.13 fps)

Summary for Pond eDMH1: Pre - DMH1

Inflow Area = 34,522 sf, 65.84% Impervious, Inflow Depth = 2.40" for 2-Year event
Inflow = 2.16 cfs @ 12.01 hrs, Volume= 6,894 cf
Outflow = 2.16 cfs @ 12.01 hrs, Volume= 6,894 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.64 cfs @ 12.01 hrs, Volume= 6,413 cf
Secondary = 0.52 cfs @ 12.01 hrs, Volume= 481 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 32.52' @ 12.01 hrs
Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	31.90'	15.0" Round Culvert L= 67.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 31.90' / 29.90' S= 0.0299 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf
#2	Secondary	32.10'	8.0" Round Culvert L= 80.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.10' / 27.00' S= 0.0638 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=1.61 cfs @ 12.01 hrs HW=32.52' TW=30.46' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.61 cfs @ 2.67 fps)

Secondary OutFlow Max=0.50 cfs @ 12.01 hrs HW=32.52' TW=26.91' (Dynamic Tailwater)
2=Culvert (Inlet Controls 0.50 cfs @ 2.19 fps)

Summary for Pond eDMH2: Pre - DMH2

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 2.39" for 2-Year event
Inflow = 2.65 cfs @ 12.01 hrs, Volume= 9,416 cf
Outflow = 2.65 cfs @ 12.01 hrs, Volume= 9,416 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.27 cfs @ 12.01 hrs, Volume= 6,765 cf
Secondary = 1.38 cfs @ 12.01 hrs, Volume= 2,651 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 30.47' @ 12.01 hrs
Flood Elev= 33.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.80'	12.0" Round Culvert L= 17.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.80' / 29.65' S= 0.0088 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	29.90'	15.0" Round Culvert L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.90' / 29.55' S= 0.0140 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.24 cfs @ 12.01 hrs HW=30.47' TW=30.10' (Dynamic Tailwater)

└─1=Culvert (Barrel Controls 1.24 cfs @ 3.16 fps)

Secondary OutFlow Max=1.35 cfs @ 12.01 hrs HW=30.47' TW=26.91' (Dynamic Tailwater)

└─2=Culvert (Barrel Controls 1.35 cfs @ 3.67 fps)

Summary for Pond eDMH3: Pre - DMH3

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 1.36" for 2-Year event
Inflow = 3.05 cfs @ 12.01 hrs, Volume= 12,037 cf
Outflow = 3.05 cfs @ 12.01 hrs, Volume= 12,037 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.05 cfs @ 12.01 hrs, Volume= 12,037 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 26.92' @ 12.01 hrs
Flood Elev= 33.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	26.10'	18.0" Round Culvert L= 105.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.10' / 24.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.98 cfs @ 12.01 hrs HW=26.91' TW=24.61' (Dynamic Tailwater)

└─1=Culvert (Inlet Controls 2.98 cfs @ 3.06 fps)

Summary for Pond eDMH4: Pre - DMH4

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 1.36" for 2-Year event
Inflow = 3.05 cfs @ 12.01 hrs, Volume= 12,037 cf
Outflow = 3.05 cfs @ 12.01 hrs, Volume= 12,037 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.05 cfs @ 12.01 hrs, Volume= 12,037 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 24.62' @ 12.01 hrs
Flood Elev= 26.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.80'	18.0" Round Culvert L= 75.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.80' / 21.75' S= 0.0273 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.98 cfs @ 12.01 hrs HW=24.61' TW=21.23' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.98 cfs @ 3.06 fps)

Summary for Pond eDMH5: Pre - DMH5

Inflow Area = 33,801 sf, 41.97% Impervious, Inflow Depth = 1.90" for 2-Year event
Inflow = 1.61 cfs @ 12.07 hrs, Volume= 5,341 cf
Outflow = 1.61 cfs @ 12.07 hrs, Volume= 5,341 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.61 cfs @ 12.07 hrs, Volume= 5,341 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 22.68' @ 12.07 hrs
Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	12.0" Round Culvert L= 3.5' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 22.00' / 21.75' S= 0.0714 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=1.58 cfs @ 12.07 hrs HW=22.68' TW=22.12' (Dynamic Tailwater)

1=Culvert (Inlet Controls 1.58 cfs @ 2.80 fps)

Summary for Pond eFB1: Forebay-1

Inflow Area = 32,764 sf, 70.56% Impervious, Inflow Depth = 2.49" for 2-Year event
Inflow = 2.30 cfs @ 12.01 hrs, Volume= 6,796 cf
Outflow = 2.27 cfs @ 12.02 hrs, Volume= 6,329 cf, Atten= 1%, Lag= 0.5 min
Primary = 2.27 cfs @ 12.02 hrs, Volume= 6,329 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.20' @ 12.02 hrs Surf.Area= 315 sf Storage= 527 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 67.6 min calculated for 6,329 cf (93% of inflow)

Center-of-Mass det. time= 30.0 min (794.4 - 764.4)

Volume Invert Avail.Storage Storage Description

#1 19.00' 628 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	7	0	0
20.00	40	24	24
21.00	98	69	93
22.00	181	140	232
23.00	289	235	467
23.50	353	161	628

Device Routing Invert Outlet Devices

#1 Primary 23.00' **10.0' long x 2.0' 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
Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

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Primary OutFlow Max=2.21 cfs @ 12.02 hrs HW=23.20' TW=21.25' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Weir Controls 2.21 cfs @ 1.13 fps)

Summary for Pond eFB2: Forebay-2

Inflow Area = 29,790 sf, 90.12% Impervious, Inflow Depth = 2.87" for 2-Year event
Inflow = 2.40 cfs @ 12.01 hrs, Volume= 7,133 cf
Outflow = 2.36 cfs @ 12.02 hrs, Volume= 6,666 cf, Atten= 1%, Lag= 0.5 min
Primary = 2.36 cfs @ 12.02 hrs, Volume= 6,666 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.21' @ 12.02 hrs Surf.Area= 315 sf Storage= 529 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 65.4 min calculated for 6,666 cf (93% of inflow)

Center-of-Mass det. time= 29.2 min (784.0 - 754.7)

Volume Invert Avail.Storage Storage Description

#1 19.00' 628 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	7	0	0
20.00	40	24	24
21.00	98	69	93
22.00	181	140	232
23.00	289	235	467
23.50	353	161	628

Device Routing Invert Outlet Devices

#1 Primary 23.00' **10.0' long x 2.0' 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
Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=2.30 cfs @ 12.02 hrs HW=23.20' TW=21.24' (Dynamic Tailwater)
└1=Broad-Crested Rectangular Weir (Weir Controls 2.30 cfs @ 1.14 fps)

Summary for Pond eH1: Pre - Roof Header

Inflow Area = 11,932 sf, 100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 0.90 cfs @ 12.07 hrs, Volume= 3,050 cf
Outflow = 0.90 cfs @ 12.07 hrs, Volume= 3,050 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.90 cfs @ 12.07 hrs, Volume= 3,050 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 27.14' @ 12.07 hrs
Flood Elev= 30.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	25.98'	6.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.89 cfs @ 12.07 hrs HW=27.11' TW=18.69' (Dynamic Tailwater)
└1=Orifice/Grate (Orifice Controls 0.89 cfs @ 4.53 fps)

Summary for Reach eOP1: Outlet pipe-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 0.80" for 2-Year event
Inflow = 0.77 cfs @ 12.12 hrs, Volume= 3,138 cf
Outflow = 0.76 cfs @ 12.33 hrs, Volume= 3,138 cf, Atten= 1%, Lag= 12.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 5.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.18 fps, Avg. Travel Time= 0.1 min

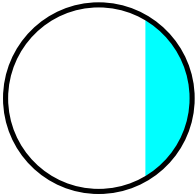
Peak Storage= 2 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.63 cfs

12.0" Round Pipe

n= 0.013 Concrete pipe, bends & connections

Length= 14.0' Slope= 0.0250 '/'

Inlet Invert= 29.50', Outlet Invert= 29.15'



Summary for Reach eRD1: Pre - Roof Drain-1

Inflow Area =	15,575 sf, 100.00% Impervious,	Inflow Depth = 3.07"	for 2-Year event
Inflow =	1.18 cfs @ 12.07 hrs,	Volume=	3,981 cf
Outflow =	1.18 cfs @ 12.07 hrs,	Volume=	3,981 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 4.06 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 1.34 fps, Avg. Travel Time= 0.2 min

Peak Storage= 6 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.40'

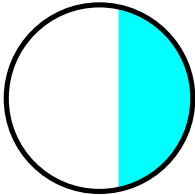
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 20.0' Slope= 0.0100 '/'

Inlet Invert= 25.70', Outlet Invert= 25.50'



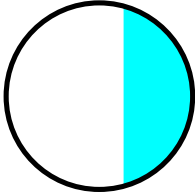
Summary for Reach eRD2: Pre - Roof Drain-2

Inflow Area = 16,270 sf, 100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 1.23 cfs @ 12.07 hrs, Volume= 4,159 cf
Outflow = 1.23 cfs @ 12.07 hrs, Volume= 4,159 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 4.68 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.54 fps, Avg. Travel Time= 0.3 min

Peak Storage= 7 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.37"
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.26 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 28.0' Slope= 0.0143 '
Inlet Invert= 22.50', Outlet Invert= 22.10'



Summary for Subcatchment eRF1: Pre - Roof flow

Runoff = 1.18 cfs @ 12.07 hrs, Volume= 3,981 cf, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

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Area (sf)	CN	Description
15,575	98	Roofs, HSG C
15,575	98	100.00% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description

5.0

Direct Entry, Roof runoff

Summary for Subcatchment eRF2: Pre - Roof flow

Runoff = 1.23 cfs @ 12.07 hrs, Volume= 4,159 cf, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
16,270	98	Roofs, HSG C
16,270	98	100.00% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description

5.0

Direct Entry, Roof runoff

Summary for Subcatchment eRF3: Pre - Roof flow

Runoff = 0.90 cfs @ 12.07 hrs, Volume= 3,050 cf, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
11,932	98	Roofs, HSG C
11,932	98	100.00% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Roof runoff

Summary for Subcatchment eS1: Pre - Northeastern Parking lot

Runoff = 1.11 cfs @ 12.07 hrs, Volume= 3,714 cf, Depth= 2.68"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
13,366	98	Paved parking, HSG C
3,232	74	>75% Grass cover, Good, HSG C
16,598	93	Weighted Average
3,232	74	19.47% Pervious Area
13,366	98	80.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Parking Runoff to CB

Summary for Subcatchment eS10: Pre - Flow to Swale-5

Runoff = 1.00 cfs @ 12.27 hrs, Volume= 4,843 cf, Depth= 1.35"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

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Area (sf)	CN	Description
36,588	74	>75% Grass cover, Good, HSG C
* 937	89	Gravel Driveway
670	98	Paved parking, HSG C
4,746	98	Roofs, HSG C
76	70	Woods, Good, HSG C
43,017	77	Weighted Average
37,601	74	87.41% Pervious Area
5,416	98	12.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
2.7	292	0.0650	1.78		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
19.0	342	Total			

Summary for Subcatchment eS11: Pre - Flow to playground catch basin

Runoff = 0.06 cfs @ 12.07 hrs, Volume= 213 cf, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
128	98	Unconnected pavement, HSG C
441	74	>75% Grass cover, Good, HSG C
* 547	98	Rubber play surface
1,116	89	Weighted Average
441	74	39.52% Pervious Area
675	98	60.48% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to CB5

Summary for Subcatchment eS12: Pre - Area in front of bldg flowing to existing swale-4

Runoff = 0.87 cfs @ 12.08 hrs, Volume= 2,947 cf, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description

5,952	74	>75% Grass cover, Good, HSG C
530	98	Unconnected pavement, HSG C
2,376	98	Roofs, HSG C
6,205	98	Paved parking, HSG C
437	89	Gravel Area

*

15,500	89	Weighted Average
6,389	75	41.22% Pervious Area
9,111	98	58.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.4 50 0.1600 0.15

Sheet Flow, AB

Grass: Bermuda n= 0.410 P2= 3.30"

Summary for Subcatchment eS13: Pre - Northeastern area flowing to proposed CB5

Runoff = 1.23 cfs @ 12.27 hrs, Volume= 5,766 cf, Depth= 1.17"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

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Type III 24-hr 2-Year Rainfall=3.30"

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Area (sf)	CN	Description			
2,021	98	Roofs, HSG C			
52,854	74	>75% Grass cover, Good, HSG C			
93	98	Paved parking, HSG C			
3,952	70	Woods, Good, HSG C			
58,920	75	Weighted Average			
56,806	74	96.41% Pervious Area			
2,114	98	3.59% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	50	0.0200	0.07		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.7	70	0.0500	1.57		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
0.1	24	0.3300	4.02		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
4.9	206	0.0100	0.70		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.1	95	0.1900	18.24	72.98	Channel Flow, EF Area= 4.0 sf Perim= 8.2' r= 0.49' n= 0.022 Earth, clean & straight
18.2	445	Total			

Summary for Subcatchment eS14: Pre - Parking area-4 runoff

Runoff = 1.33 cfs @ 12.08 hrs, Volume= 4,412 cf, Depth= 1.78"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

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Type III 24-hr 2-Year Rainfall=3.30"

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Area (sf)	CN	Description
16,413	74	>75% Grass cover, Good, HSG C
10,797	98	Paved parking, HSG C
2,515	70	Woods, Good, HSG C
29,725	82	Weighted Average
18,928	73	63.68% Pervious Area
10,797	98	36.32% Impervious Area

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

Summary for Subcatchment eS15: Pre - Flow to entrance area drain

Runoff = 0.07 cfs @ 12.07 hrs, Volume= 244 cf, Depth= 2.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
686	74	>75% Grass cover, Good, HSG C
709	98	Paved parking, HSG C
1,395	86	Weighted Average
686	74	49.18% Pervious Area
709	98	50.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Flow to area drain

Summary for Subcatchment eS16: Pre - Flow to Sand Filter-2

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 1,131 cf, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
* 1,543	89	Gravel
5,249	74	>75% Grass cover, Good, HSG C
1,582	98	Paved parking, HSG C
8,374	81	Weighted Average
6,792	77	81.11% Pervious Area
1,582	98	18.89% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description
5.0		

Direct Entry, Runoff into Basin**Summary for Subcatchment eS17: Pre - Area in front of bldg flowing to existing swale-3**

Runoff = 0.27 cfs @ 12.10 hrs, Volume= 904 cf, Depth= 1.44"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
6,221	74	>75% Grass cover, Good, HSG C
* 172	98	Existing Wall
* 1,125	98	Existing Walk
7,518	78	Weighted Average
6,221	74	82.75% Pervious Area
1,297	98	17.25% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	38	0.0800	0.11		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.6	135	0.0400	4.06		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
6.3	173	Total			

Summary for Subcatchment eS18: Pre - Flow to Sand Filter-1

Runoff = 0.24 cfs @ 12.08 hrs, Volume= 728 cf, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
4,170	74	>75% Grass cover, Good, HSG C
2,013	89	Gravel
6,183	79	Weighted Average
6,183	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Flow into Basin

Summary for Subcatchment eS2: Pre - Flow to CB3

Runoff = 0.38 cfs @ 12.08 hrs, Volume= 1,237 cf, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

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Area (sf)	CN	Description
8,190	74	>75% Grass cover, Good, HSG C
1,150	98	Paved parking, HSG C
741	98	Walkway
*		
10,081	79	Weighted Average
8,190	74	81.24% Pervious Area
1,891	98	18.76% Impervious Area

Tc Length Slope Velocity Capacity Description
(min) (feet) (ft/ft) (ft/sec) (cfs)

5.0

Direct Entry,

Summary for Subcatchment eS20: Pre - Flow to Stone Detention Basin

Runoff = 0.11 cfs @ 12.08 hrs, Volume= 356 cf, Depth= 1.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
3,870	74	>75% Grass cover, Good, HSG C
3,870	74	100.00% Pervious Area

Tc Length Slope Velocity Capacity Description
(min) (feet) (ft/ft) (ft/sec) (cfs)

5.0

Direct Entry,

Summary for Subcatchment eS21: Pre - Flow along South side to Basin-2

Runoff = 1.59 cfs @ 12.18 hrs, Volume= 6,516 cf, Depth= 1.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

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	Area (sf)	CN	Description
	2,225	98	Roofs, HSG C
	1,207	98	Paved parking, HSG C
*	0	89	Gravel Path
	1,823	98	Unconnected pavement, HSG C
*	0	89	Gravel Area
*	0	89	Stone pile
	52,137	74	>75% Grass cover, Good, HSG C
	4,089	70	Woods, Good, HSG C
	61,481	76	Weighted Average
	56,226	74	91.45% Pervious Area
	5,255	98	8.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.4	50	0.1000	2.21		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
3.5	147	0.0100	0.70		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
0.2	40	0.1500	2.71		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0600	1.71		Shallow Concentrated Flow, EF Short Grass Pasture Kv= 7.0 fps
0.2	31	0.1900	3.05		Shallow Concentrated Flow, FG Short Grass Pasture Kv= 7.0 fps
0.2	59	0.0170	5.53	55.30	Channel Flow, GH Area= 10.0 sf Perim= 20.1' r= 0.50' n= 0.022 Earth, clean & straight
0.2	143	0.0700	11.22	112.21	Channel Flow, HI Area= 10.0 sf Perim= 20.1' r= 0.50' n= 0.022 Earth, clean & straight
12.5	552	Total			

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Summary for Subcatchment eS3: Pre - Norther half or parking area-2

Runoff = 1.01 cfs @ 12.01 hrs, Volume= 3,003 cf, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)		CN	Description		
1,657	74	>75% Grass cover, Good, HSG C			
11,151	98	Paved parking, HSG C			
12,808	95	Weighted Average			
1,657	74	12.94% Pervious Area			
11,151	98	87.06% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps

Summary for Subcatchment eS4: Pre - Southern half of parking area-2

Runoff = 1.90 cfs @ 12.01 hrs, Volume= 5,658 cf, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)		CN	Description
3,603	74	>75% Grass cover, Good, HSG C	
20,838	98	Paved parking, HSG C	
24,441	94	Weighted Average	
3,603	74	14.74% Pervious Area	
20,838	98	85.26% Impervious Area	

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment eS5: Pre - Norther half of parking area-3

Runoff = 2.30 cfs @ 12.01 hrs, Volume= 6,796 cf, Depth= 2.49"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
9,645	74	>75% Grass cover, Good, HSG C
23,119	98	Paved parking, HSG C
32,764	91	Weighted Average
9,645	74	29.44% Pervious Area
23,119	98	70.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

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Summary for Subcatchment eS6: Pre - Southern half of parking area-3

Runoff = 2.40 cfs @ 12.01 hrs, Volume= 7,133 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
2,944	74	>75% Grass cover, Good, HSG C
26,846	98	Paved parking, HSG C
29,790	96	Weighted Average
2,944	74	9.88% Pervious Area
26,846	98	90.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment eS7: Pre - Flow to CB4

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 685 cf, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
2,681	98	Paved parking, HSG C
2,681	98	100.00% Impervious Area

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

Summary for Subcatchment eS9: Pre - Flow to CB-4

Runoff = 0.35 cfs @ 12.20 hrs, Volume= 1,498 cf, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
827	98	Unconnected pavement, HSG C
196	98	Paved parking, HSG C
446	89	Gravel path
13,000	74	>75% Grass cover, Good, HSG C
14,469	76	Weighted Average
13,446	74	92.93% Pervious Area
1,023	98	7.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.5	64	0.1100	2.32		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
3.6	152	0.0100	0.70		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
0.4	72	0.1700	2.89		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.1	49	0.1000	13.41	134.11	Channel Flow, EF Area= 10.0 sf Perim= 20.1' r= 0.50' n= 0.022 Earth, clean & straight
14.0	387	Total			

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Summary for Pond eSF1: Pre - Sand Filter-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 1.77" for 2-Year event.
Inflow = 7.81 cfs @ 12.02 hrs, Volume= 25,759 cf
Outflow = 4.29 cfs @ 12.20 hrs, Volume= 25,640 cf, Atten= 45%, Lag= 11.3 min
Primary = 4.29 cfs @ 12.20 hrs, Volume= 25,640 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 21.55' @ 12.20 hrs Surf.Area= 8,690 sf Storage= 5,787 cf

Flood Elev= 22.20' Surf.Area= 9,493 sf Storage= 8,980 cf

Plug-Flow detention time= 41.8 min calculated for 25,640 cf (100% of inflow)

Center-of-Mass det. time= 38.9 min (838.6 - 799.7)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	5,566 cf	Open Storage (Prismatic) Listed below (Recalc)
#2	18.50'	3,390 cf	Sand Filter (Prismatic) Listed below (Recalc)
#3	18.58'	24 cf	10,295 cf Overall - 24 cf Embedded = 10,271 cf x 33.0% Voids 4.0" Round Pipe Storage Inside #2 L= 271.0'
		8,980 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	4,118	0	0
22.00	4,950	4,534	4,534
22.20	5,375	1,032	5,566
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	4,118	0	0
19.00	4,118	2,059	2,059
20.00	4,118	4,118	6,177
21.00	4,118	4,118	10,295

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Device Routing Invert Outlet Devices

#1	Primary	21.20'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 0.00	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	Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	21.20'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28)	Head (feet) 0.00 1.00	
#3	Device 4	18.50'	8.270 in/hr Exfiltration over Surface area	Width (feet) 4.00 8.00	
#4	Primary	18.58'	4.0" Round Culvert X 2.00 L= 15.0' RCP, sq.cut end projecting, Ke= 0.500	Inlet / Outlet Invert= 18.58' / 18.40' S= 0.0120 '/' Cc= 0.900	
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf		

Primary OutFlow Max=4.28 cfs @ 12.20 hrs HW=21.55' TW=18.26' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Controls 0.00 cfs)

2=Custom Weir/Orifice (Weir Controls 3.04 cfs @ 1.87 fps)

4=Culvert (Barrel Controls 1.25 cfs @ 7.16 fps)

3=Exfiltration (Passes 1.25 cfs of 1.66 cfs potential flow)

Summary for Pond eSF2: Pre - Sand Filter-2

Inflow Area =	74,020 sf, 64.33% Impervious, Inflow Depth = 2.37" for 2-Year event
Inflow =	4.37 cfs @ 12.07 hrs, Volume= 14,612 cf
Outflow =	3.12 cfs @ 12.15 hrs, Volume= 14,601 cf, Atten= 29%, Lag= 4.9 min
Primary =	2.67 cfs @ 12.15 hrs, Volume= 2,521 cf
Secondary =	0.45 cfs @ 12.16 hrs, Volume= 12,080 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.37' @ 12.16 hrs Surf.Area= 3,536 sf Storage= 3,453 cf

Flood Elev= 23.00' Surf.Area= 3,746 sf Storage= 4,765 cf

Plug-Flow detention time= 55.9 min calculated for 14,601 cf (100% of inflow)

Center-of-Mass det. time= 55.4 min (827.6 - 772.3)

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Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	1,020 cf	Sand Filter (Prismatic) Listed below (Recalc) 3,102 cf Overall - 11 cf Embedded = 3,091 cf x 33.0% Voids
#2	21.00'	3,734 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#3	19.00'	11 cf	4.0" Round Pipe Storage Inside #1 L= 123.0'
		4,765 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,551	0	0
20.00	1,551	1,551	1,551
21.00	1,551	1,551	3,102

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	1,551	0	0
22.00	1,861	1,706	1,706
23.00	2,195	2,028	3,734

Device	Routing	Invert	Outlet Devices
#1	Primary	22.15'	10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Device 3	19.00'	8.270 in/hr Exfiltration over Surface area
#3	Secondary	19.00'	4.0" Round Culvert L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.00' / 18.75' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=2.62 cfs @ 12.15 hrs HW=22.37' TW=19.88' (Dynamic Tailwater)**1=Broad-Crested Rectangular Weir** (Weir Controls 2.62 cfs @ 1.19 fps)**Secondary OutFlow** Max=0.45 cfs @ 12.16 hrs HW=22.37' TW=19.00' (Dynamic Tailwater)**3=Culvert** (Barrel Controls 0.45 cfs @ 5.14 fps)**2=Exfiltration** (Passes 0.45 cfs of 0.68 cfs potential flow)

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Summary for Pond eSTC1: Pre - Stormceptor-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 1.72" for 2-Year event
Inflow = 1.27 cfs @ 12.01 hrs, Volume= 6,765 cf
Outflow = 1.27 cfs @ 12.01 hrs, Volume= 6,765 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.27 cfs @ 12.01 hrs, Volume= 6,765 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 30.11' @ 12.01 hrs
Flood Elev= 33.20'

Device	Routing	Invert	Outlet Devices

#1	Primary	29.40'	12.0" Round Culvert L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.40' / 29.35' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.24 cfs @ 12.01 hrs HW=30.10' TW=29.72' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.24 cfs @ 2.98 fps)

Summary for Pond eSTC2: Pre - Stormceptor-2

Inflow Area = 32,406 sf, 41.59% Impervious, Inflow Depth = 1.89" for 2-Year event
Inflow = 1.53 cfs @ 12.07 hrs, Volume= 5,097 cf
Outflow = 1.53 cfs @ 12.07 hrs, Volume= 5,097 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.53 cfs @ 12.07 hrs, Volume= 5,097 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 23.75' @ 12.07 hrs
Flood Elev= 27.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	23.00'	12.0" Round Culvert L= 5.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.00' / 22.90' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.51 cfs @ 12.07 hrs HW=23.74' TW=22.68' (Dynamic Tailwater)

1=Culvert (Barrel Controls 1.51 cfs @ 3.35 fps)

Summary for Pond eSW1: Pre - Swale-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 1.76" for 2-Year event
 Inflow = 4.29 cfs @ 12.20 hrs, Volume= 25,640 cf
 Outflow = 4.28 cfs @ 12.22 hrs, Volume= 25,639 cf, Atten= 0%, Lag= 0.8 min
 Primary = 4.28 cfs @ 12.22 hrs, Volume= 25,639 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 18.26' @ 12.22 hrs Surf.Area= 1,288 sf Storage= 269 cf

Flood Elev= 19.40' Surf.Area= 3,367 sf Storage= 2,947 cf

Plug-Flow detention time= 1.7 min calculated for 25,639 cf (100% of inflow)

Center-of-Mass det. time= 1.7 min (840.3 - 838.6)

Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	2,947 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.00	814	0	0
19.00	2,666	1,740	1,740
19.40	3,367	1,207	2,947

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28)

Head (feet) 0.00 1.00 1.40

Width (feet) 9.34 16.70 21.40

Primary OutFlow Max=4.28 cfs @ 12.22 hrs HW=18.26' TW=0.00' (Dynamic Tailwater)

1=Custom Weir/Orifice (Weir Controls 4.28 cfs @ 1.63 fps)

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Summary for Pond eSW2: Pre - Swale-2

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth > 2.36" for 2-Year event
Inflow = 1.27 cfs @ 12.44 hrs, Volume= 14,556 cf
Outflow = 1.27 cfs @ 12.45 hrs, Volume= 14,556 cf, Atten= 0%, Lag= 0.1 min
Primary = 1.27 cfs @ 12.45 hrs, Volume= 14,556 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.00' @ 12.47 hrs Surf.Area= 264 sf Storage= 0 cf

Flood Elev= 20.70' Surf.Area= 825 sf Storage= 945 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.0 min (833.1 - 833.1)

Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	945 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	263	0	0
20.00	617	440	440
20.70	825	505	945

Device	Routing	Invert	Outlet Devices
#1	Primary	18.19'	18.0" Round Culvert L= 24.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.19' / 18.09' S= 0.0042 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	19.03'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.68' / 19.03' S= -0.0233 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=1.34 cfs @ 12.45 hrs HW=19.00' TW=18.88' (Dynamic Tailwater)

└─1=Culvert (Outlet Controls 1.34 cfs @ 1.99 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=19.00' TW=18.00' (Dynamic Tailwater)

└─2=Culvert (Controls 0.00 cfs)

Summary for Pond eSW3: Pre - Swale-3

Inflow Area = 81,538 sf, 59.99% Impervious, Inflow Depth > 2.28" for 2-Year event
Inflow = 1.36 cfs @ 12.43 hrs, Volume= 15,460 cf
Outflow = 1.33 cfs @ 12.52 hrs, Volume= 15,460 cf, Atten= 2%, Lag= 5.0 min
Primary = 1.33 cfs @ 12.52 hrs, Volume= 15,460 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 18.88' @ 12.49 hrs Surf.Area= 1,411 sf Storage= 340 cf

Flood Elev= 20.00' Surf.Area= 3,014 sf Storage= 2,902 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 1.2 min (833.7 - 832.5)

Volume Invert Avail.Storage Storage Description

#1 18.50' 2,902 cf Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	374	0	0
19.00	1,735	527	527
20.00	3,014	2,375	2,902

Device Routing Invert Outlet Devices

#1 Primary 18.08' 12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500
Inlet / Outlet Invert= 18.08' / 18.01' S= 0.0047 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=1.33 cfs @ 12.52 hrs HW=18.88' TW=18.66' (Dynamic Tailwater)

1=Culvert (Outlet Controls 1.33 cfs @ 2.70 fps)

Summary for Pond eSW4: Pre - Swale-4

Inflow Area = 108,970 sf, 64.20% Impervious, Inflow Depth > 2.36" for 2-Year event
Inflow = 2.08 cfs @ 12.09 hrs, Volume= 21,457 cf
Outflow = 2.01 cfs @ 12.13 hrs, Volume= 21,457 cf, Atten= 4%, Lag= 2.3 min
Primary = 2.01 cfs @ 12.13 hrs, Volume= 21,457 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 18.73' @ 12.13 hrs Surf.Area= 629 sf Storage= 240 cf

Flood Elev= 19.80' Surf.Area= 1,554 sf Storage= 1,361 cf

Plug-Flow detention time= 1.9 min calculated for 21,457 cf (100% of inflow)

Center-of-Mass det. time= 1.9 min (816.5 - 814.6)

Volume Invert Avail.Storage Storage Description

#1 18.00' 1,361 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.00	27	0	0
19.00	851	439	439
19.50	1,190	510	949
19.80	1,554	412	1,361

Device Routing Invert Outlet Devices

#1 Primary 17.99' **18.0" Round Culvert** L= 21.0' RCP, sq.cut end projecting, Ke= 0.500
Inlet / Outlet Invert= 17.99' / 17.82' S= 0.0081 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.00 cfs @ 12.13 hrs HW=18.73' TW=18.00' (Dynamic Tailwater)

1=Culvert (Barrel Controls 2.00 cfs @ 3.37 fps)

Summary for Reach eSW5: Pre - Swale-5

Inflow Area = 232,923 sf, 35.34% Impervious, Inflow Depth > 1.71" for 2-Year event
Inflow = 3.47 cfs @ 12.36 hrs, Volume= 33,254 cf
Outflow = 3.47 cfs @ 12.38 hrs, Volume= 33,254 cf, Atten= 0%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 1.62 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 0.50 fps, Avg. Travel Time= 4.8 min

Peak Storage= 310 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.22'
Bank-Full Depth= 1.50' Flow Area= 22.4 sf, Capacity= 110.11 cfs

Custom cross-section, Length= 145.0' Slope= 0.0050 '/
Constant n= 0.022 Earth, clean & straight
Inlet Invert= 17.82', Outlet Invert= 17.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-12.50	19.50	0.00
-4.50	18.00	1.50
4.50	18.00	1.50
8.30	19.50	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	9.0	0	0.00
1.50	22.4	21.2	3,241	110.11

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Summary for Pond eUS1: Pre - Underground Recharge System-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 1.72" for 2-Year event.
Inflow = 1.27 cfs @ 12.01 hrs, Volume= 6,765 cf
Outflow = 0.81 cfs @ 12.12 hrs, Volume= 6,765 cf, Atten= 36%, Lag= 6.6 min
Discarded = 0.04 cfs @ 7.53 hrs, Volume= 3,633 cf
Primary = 0.77 cfs @ 12.12 hrs, Volume= 3,138 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 29.81' @ 12.10 hrs Surf.Area= 1,736 sf Storage= 1,204 cf
Flood Elev= 30.90' Surf.Area= 1,736 sf Storage= 1,991 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 123.6 min (903.0 - 779.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	28.57'	1,014 cf	21.50"W x 80.76'L x 2.33'H Field A 4,051 cf Overall - 978 cf Embedded = 3,073 cf x 33.0% Voids
#2A	29.07'	978 cf	ADS StormTech SC-310 x 66 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 6 rows
		1,992 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.57'	1.000 in/hr Exfiltration over Surface area
#2	Primary	29.36'	8.0" Round Culvert X 3.00 L= 2.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.36' / 29.30' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

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Discarded OutFlow Max=0.04 cfs @ 7.53 hrs HW=28.59' (Free Discharge)
└─1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.80 cfs @ 12.12 hrs HW=29.80' TW=29.75' (Dynamic Tailwater)
└─2=Culvert (Outlet Controls 0.80 cfs @ 1.53 fps)

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Time span=0.00-36.00 hrs, dt=0.03 hrs, 1201 points x 2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond CB-1: CB-1

Peak Elev=39.67' Inflow=1.72 cfs 5,810 cf
Outflow=1.72 cfs 5,810 cf

Pond eA1: Pre - Analysis Point-1

Inflow=1.72 cfs 5,810 cf
Primary=1.72 cfs 5,810 cf

Pond eA2: Pre - Analysis Point-2

Inflow=10.43 cfs 47,071 cf
Primary=10.43 cfs 47,071 cf

Pond eA3: Post - Analysis Point-3

Inflow=9.03 cfs 57,608 cf
Primary=9.03 cfs 57,608 cf

Pond eAD: Pre - Area drain at main entrance

Peak Elev=24.17' Inflow=0.12 cfs 406 cf
12.0" Round Culvert n=0.013 L=69.0' S=0.0109 '/' Outflow=0.12 cfs 406 cf

Pond eCB1: Pre - CB1

Peak Elev=32.67' Inflow=1.55 cfs 4,649 cf
12.0" Round Culvert n=0.012 L=140.0' S=0.0143 '/' Outflow=1.55 cfs 4,649 cf

Pond eCB2: Pre - CB2

Peak Elev=33.15' Inflow=2.93 cfs 8,784 cf
15.0" Round Culvert n=0.013 L=10.0' S=0.0200 '/' Outflow=2.93 cfs 8,784 cf

Pond eCB3: Pre - CB3

Peak Elev=35.02' Inflow=0.73 cfs 2,294 cf
8.0" Round Culvert n=0.013 L=44.0' S=0.0318 '/' Outflow=0.73 cfs 2,294 cf

Pond eCB4: Pre - CB4

Peak Elev=24.81' Inflow=0.30 cfs 1,042 cf
8.0" Round Culvert n=0.013 L=55.0' S=0.0227 '/' Outflow=0.30 cfs 1,042 cf

Pond eCB5: Pre - CB5

Peak Elev=29.46' Inflow=2.59 cfs 11,637 cf
12.0" Round Culvert n=0.013 L=158.0' S=0.0100 '/' Outflow=2.59 cfs 11,637 cf

Pond eCB6: CB-6

Peak Elev=32.94' Inflow=0.72 cfs 2,958 cf
Primary=0.72 cfs 2,958 cf Secondary=0.00 cfs 0 cf Outflow=0.72 cfs 2,958 cf

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Pond eCB7: CB-7

4.0" Round Culvert n=0.013 L=14.3' S=-0.0392 '/' Inflow=0.10 cfs 346 cf
Peak Elev=26.20' Outflow=0.10 cfs 346 cf

Pond eDB1: Pre - Detention Basin-1

Peak Elev=22.26' Storage=2,478 cf Inflow=6.31 cfs 7,548 cf
Outflow=5.21 cfs 7,503 cf

Pond eDB2: Pre - Stone Drainage extra storage Basin-2

Peak Elev=22.20' Storage=4,237 cf Inflow=4.16 cfs 16,788 cf
Outflow=3.46 cfs 15,158 cf

Pond eDM5: Pre - Field DMH

Peak Elev=24.53' Inflow=0.72 cfs 2,958 cf
6.0" Round Culvert n=0.013 L=95.0' S=0.0200 '/' Outflow=0.72 cfs 2,958 cf

Pond eDMH1: Pre - DMH1

Peak Elev=32.71' Inflow=3.44 cfs 11,078 cf
Primary=2.55 cfs 10,063 cf Secondary=0.88 cfs 1,015 cf Outflow=3.44 cfs 11,078 cf

Pond eDMH2: Pre - DMH2

Peak Elev=30.66' Inflow=4.09 cfs 14,711 cf
Primary=1.88 cfs 9,878 cf Secondary=2.22 cfs 4,834 cf Outflow=4.09 cfs 14,711 cf

Pond eDMH3: Pre - DMH3

Peak Elev=27.25' Inflow=5.30 cfs 23,481 cf
18.0" Round Culvert n=0.013 L=105.0' S=0.0200 '/' Outflow=5.30 cfs 23,481 cf

Pond eDMH4: Pre - DMH4

Peak Elev=24.95' Inflow=5.30 cfs 23,481 cf
18.0" Round Culvert n=0.013 L=75.0' S=0.0273 '/' Outflow=5.30 cfs 23,481 cf

Pond eDMH5: Pre - DMH5

Peak Elev=23.07' Inflow=2.79 cfs 9,118 cf
12.0" Round Culvert n=0.013 L=3.5' S=0.0714 '/' Outflow=2.79 cfs 9,118 cf

Pond eFB1: Forebay-1

Peak Elev=23.27' Storage=550 cf Inflow=3.65 cfs 10,821 cf
Outflow=3.60 cfs 10,354 cf

Pond eFB2: Forebay-2

Peak Elev=23.27' Storage=550 cf Inflow=3.65 cfs 10,993 cf
Outflow=3.60 cfs 10,526 cf

Pond eH1: Pre - Roof Header

Peak Elev=28.27' Inflow=1.35 cfs 4,637 cf
Outflow=1.35 cfs 4,637 cf

Reach eOP1: Outlet pipe-1

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.36' Max Vel=6.08 fps Inflow=1.65 cfs 5,995 cf
L=14.0' S=0.0250 '/' Capacity=5.63 cfs Outflow=1.54 cfs 5,995 cf

Reach eRD1: Pre - Roof Drain-1

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.50' Max Vel=4.51 fps Inflow=1.76 cfs 6,053 cf
L=20.0' S=0.0100 '/' Capacity=3.56 cfs Outflow=1.76 cfs 6,053 cf

Reach eRD2: Pre - Roof Drain-2

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.46' Max Vel=5.21 fps Inflow=1.84 cfs 6,323 cf
L=28.0' S=0.0143 '/' Capacity=4.26 cfs Outflow=1.84 cfs 6,323 cf

Subcatchment eRF1: Pre - Roof flow

Runoff Area=15,575 sf 100.00% Impervious Runoff Depth=4.66"
Tc=5.0 min CN=0/98 Runoff=1.76 cfs 6,053 cf

Subcatchment eRF2: Pre - Roof flow

Runoff Area=16,270 sf 100.00% Impervious Runoff Depth=4.66"
Tc=5.0 min CN=0/98 Runoff=1.84 cfs 6,323 cf

Subcatchment eRF3: Pre - Roof flow

Runoff Area=11,932 sf 100.00% Impervious Runoff Depth=4.66"
Tc=5.0 min CN=0/98 Runoff=1.35 cfs 4,637 cf

Subcatchment eS1: Pre - Northeastern Parking lot

Runoff Area=16,598 sf 80.53% Impervious Runoff Depth=4.20"
Tc=5.0 min CN=74/98 Runoff=1.72 cfs 5,810 cf

Subcatchment eS10: Pre - Flow to Swale-5

Runoff Area=43,017 sf 12.59% Impervious Runoff Depth=2.58"
Flow Length=342' Tc=19.0 min CN=74/98 Runoff=1.99 cfs 9,264 cf

Subcatchment eS11: Pre - Flow to playground catch basin

Runoff Area=1,116 sf 60.48% Impervious Runoff Depth=3.72"
Tc=5.0 min CN=74/98 Runoff=0.10 cfs 346 cf

Subcatchment eS12: Pre - Area in front of bldg flowing to existing swale-4

Runoff Area=15,500 sf 58.78% Impervious Runoff Depth=3.72"
Flow Length=50' Slope=0.1600 '/' Tc=5.4 min CN=75/98 Runoff=1.43 cfs 4,802 cf

Subcatchment eS13: Pre - Northeastern area flowing to proposed CB5

Runoff Area=58,920 sf 3.59% Impervious Runoff Depth=2.37"
Flow Length=445' Tc=18.2 min CN=74/98 Runoff=2.59 cfs 11,637 cf

Subcatchment eS14: Pre - Parking area-4 runoff

Runoff Area=29,725 sf 36.32% Impervious Runoff Depth=3.10"
Tc=5.0 min CN=73/98 Runoff=2.37 cfs 7,670 cf

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Subcatchment eS15: Pre - Flow to entrance area drain

Runoff Area=1,395 sf 50.82% Impervious Runoff Depth=3.49"
Tc=5.0 min CN=74/98 Runoff=0.12 cfs 406 cf

Subcatchment eS16: Pre - Flow to Sand Filter-2

Runoff Area=8,374 sf 18.89% Impervious Runoff Depth=2.94"
Tc=5.0 min CN=77/98 Runoff=0.66 cfs 2,052 cf

Subcatchment eS17: Pre - Area in front of bldg flowing to existing swale-3

Runoff Area=7,518 sf 17.25% Impervious Runoff Depth=2.70"
Flow Length=173' Tc=6.3 min CN=74/98 Runoff=0.51 cfs 1,688 cf

Subcatchment eS18: Pre - Flow to Sand Filter-1

Runoff Area=6,183 sf 0.00% Impervious Runoff Depth=2.72"
Tc=5.0 min CN=79/0 Runoff=0.46 cfs 1,399 cf

Subcatchment eS2: Pre - Flow to CB3

Runoff Area=10,081 sf 18.76% Impervious Runoff Depth=2.73"
Tc=5.0 min CN=74/98 Runoff=0.73 cfs 2,294 cf

Subcatchment eS20: Pre - Flow to Stone Detention Basin

Runoff Area=3,870 sf 0.00% Impervious Runoff Depth=2.28"
Tc=5.0 min CN=74/0 Runoff=0.24 cfs 737 cf

Subcatchment eS21: Pre - Flow along South side to Basin-2

Runoff Area=61,481 sf 8.55% Impervious Runoff Depth=2.49"
Flow Length=552' Tc=12.5 min CN=74/98 Runoff=3.24 cfs 12,747 cf

Subcatchment eS3: Pre - Norther half of parking area-2

Runoff Area=12,808 sf 87.06% Impervious Runoff Depth=4.36"
Flow Length=117' Slope=0.0900 '/ Tc=0.6 min CN=74/98 Runoff=1.55 cfs 4,649 cf

Subcatchment eS4: Pre - Southern half of parking area-2

Runoff Area=24,441 sf 85.26% Impervious Runoff Depth=4.31"
Flow Length=117' Slope=0.0900 '/ Tc=0.6 min CN=74/98 Runoff=2.93 cfs 8,784 cf

Subcatchment eS5: Pre - Norther half of parking area-3

Runoff Area=32,764 sf 70.56% Impervious Runoff Depth=3.96"
Flow Length=117' Slope=0.0900 '/ Tc=0.6 min CN=74/98 Runoff=3.65 cfs 10,821 cf

Subcatchment eS6: Pre - Southern half of parking area-3

Runoff Area=29,790 sf 90.12% Impervious Runoff Depth=4.43"
Flow Length=117' Slope=0.0900 '/ Tc=0.6 min CN=74/98 Runoff=3.65 cfs 10,993 cf

Subcatchment eS7: Pre - Flow to CB4

Runoff Area=2,681 sf 100.00% Impervious Runoff Depth=4.66"
Tc=5.0 min CN=0/98 Runoff=0.30 cfs 1,042 cf

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Subcatchment eS9: Pre - Flow to CB-4

Runoff Area=14,469 sf 7.07% Impervious Runoff Depth=2.45"
Flow Length=387' Tc=14.0 min CN=74/98 Runoff=0.72 cfs 2,958 cf

Pond eSF1: Pre - Sand Filter-1

Peak Elev=21.87' Storage=7,314 cf Inflow=12.72 cfs 45,761 cf
Outflow=10.45 cfs 45,641 cf

Pond eSF2: Pre - Sand Filter-2

Peak Elev=22.54' Storage=3,787 cf Inflow=7.05 cfs 23,545 cf
Primary=6.31 cfs 7,548 cf Secondary=0.46 cfs 15,987 cf Outflow=6.77 cfs 23,535 cf

Pond eSTC1: Pre - Stormceptor-1

Peak Elev=30.30' Inflow=1.88 cfs 9,878 cf
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 '/' Outflow=1.88 cfs 9,878 cf

Pond eSTC2: Pre - Stormceptor-2

Peak Elev=24.10' Inflow=2.67 cfs 8,711 cf
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=2.67 cfs 8,711 cf

Pond eSW1: Pre - Swale-1

Peak Elev=18.45' Storage=549 cf Inflow=10.44 cfs 47,071 cf
Outflow=10.43 cfs 47,071 cf

Pond eSW2: Pre - Swale-2

Peak Elev=19.58' Storage=212 cf Inflow=5.64 cfs 23,490 cf
Primary=4.05 cfs 22,060 cf Secondary=1.12 cfs 1,430 cf Outflow=5.17 cfs 23,490 cf

Pond eSW3: Pre - Swale-3

Peak Elev=19.46' Storage=1,464 cf Inflow=4.41 cfs 23,748 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0047 '/' Outflow=2.49 cfs 23,748 cf

Pond eSW4: Pre - Swale-4

Peak Elev=19.04' Storage=469 cf Inflow=3.64 cfs 33,187 cf
18.0" Round Culvert n=0.013 L=21.0' S=0.0081 '/' Outflow=3.60 cfs 33,187 cf

Reach eSW5: Pre - Swale-5

Avg. Flow Depth=0.38' Max Vel=2.27 fps Inflow=9.05 cfs 57,609 cf
n=0.022 L=145.0' S=0.0050 '/' Capacity=110.11 cfs Outflow=9.03 cfs 57,608 cf

Pond eUS1: Pre - Underground Recharge System-1

Peak Elev=29.98' Storage=1,381 cf Inflow=1.88 cfs 9,878 cf
Discarded=0.04 cfs 3,953 cf Primary=1.65 cfs 5,995 cf Outflow=1.69 cfs 9,880 cf

Total Runoff Area = 424,508 sf Runoff Volume = 117,111 cf Average Runoff Depth = 3.31"
57.21% Pervious = 242,860 sf 42.79% Impervious = 181,648 sf

Summary for Pond CB-1: CB-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 4.20" for 10-Year event
Inflow = 1.72 cfs @ 12.07 hrs, Volume= 5,810 cf
Outflow = 1.72 cfs @ 12.07 hrs, Volume= 5,810 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.72 cfs @ 12.07 hrs, Volume= 5,810 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 39.67' @ 12.07 hrs
Flood Elev= 46.68'

Device	Routing	Invert	Outlet Devices
#1	Primary	38.96'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.69 cfs @ 12.07 hrs HW=39.66' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 1.69 cfs @ 2.86 fps)

Summary for Pond eA1: Pre - Analysis Point-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 4.20" for 10-Year event
Inflow = 1.72 cfs @ 12.07 hrs, Volume= 5,810 cf
Primary = 1.72 cfs @ 12.07 hrs, Volume= 5,810 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond eA2: Pre - Analysis Point-2

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 3.23" for 10-Year event
Inflow = 10.43 cfs @ 12.09 hrs, Volume= 47,071 cf
Primary = 10.43 cfs @ 12.09 hrs, Volume= 47,071 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond eA3: Post - Analysis Point-3

Inflow Area = 232,923 sf, 35.34% Impervious, Inflow Depth = 2.97" for 10-Year event
Inflow = 9.03 cfs @ 12.28 hrs, Volume= 57,608 cf
Primary = 9.03 cfs @ 12.28 hrs, Volume= 57,608 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond eAD: Pre - Area drain at main entrance

Inflow Area = 1,395 sf, 50.82% Impervious, Inflow Depth = 3.49" for 10-Year event
Inflow = 0.12 cfs @ 12.07 hrs, Volume= 406 cf
Outflow = 0.12 cfs @ 12.07 hrs, Volume= 406 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 12.07 hrs, Volume= 406 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 24.17' @ 12.07 hrs
Flood Elev= 28.40'

Device	Routing	Invert	Outlet Devices

#1	Primary	24.00'	12.0" Round Culvert L= 69.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.00' / 23.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.12 cfs @ 12.07 hrs HW=24.17' TW=23.05' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.12 cfs @ 2.10 fps)

Summary for Pond eCB1: Pre - CB1

Inflow Area = 12,808 sf, 87.06% Impervious, Inflow Depth = 4.36" for 10-Year event
Inflow = 1.55 cfs @ 12.01 hrs, Volume= 4,649 cf
Outflow = 1.55 cfs @ 12.01 hrs, Volume= 4,649 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.55 cfs @ 12.01 hrs, Volume= 4,649 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 32.67' @ 12.01 hrs

Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	32.00'	12.0" Round Culvert L= 140.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.00' / 30.00' S= 0.0143 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.51 cfs @ 12.01 hrs HW=32.66' TW=30.65' (Dynamic Tailwater)

1=Culvert (Inlet Controls 1.51 cfs @ 2.76 fps)

Summary for Pond eCB2: Pre - CB2

Inflow Area = 24,441 sf, 85.26% Impervious, Inflow Depth = 4.31" for 10-Year event
Inflow = 2.93 cfs @ 12.01 hrs, Volume= 8,784 cf
Outflow = 2.93 cfs @ 12.01 hrs, Volume= 8,784 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.93 cfs @ 12.01 hrs, Volume= 8,784 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 33.15' @ 12.01 hrs

Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	32.20'	15.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.20' / 32.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.86 cfs @ 12.01 hrs HW=33.14' TW=32.69' (Dynamic Tailwater)

1=Culvert (Barrel Controls 2.86 cfs @ 4.04 fps)

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Summary for Pond eCB3: Pre - CB3

Inflow Area = 10,081 sf, 18.76% Impervious, Inflow Depth = 2.73" for 10-Year event
Inflow = 0.73 cfs @ 12.08 hrs, Volume= 2,294 cf
Outflow = 0.73 cfs @ 12.08 hrs, Volume= 2,294 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.73 cfs @ 12.08 hrs, Volume= 2,294 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 35.02' @ 12.08 hrs

Flood Elev= 39.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	34.50'	8.0" Round Culvert L= 44.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 34.50' / 33.10' S= 0.0318 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.72 cfs @ 12.08 hrs HW=35.02' TW=32.58' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.72 cfs @ 2.45 fps)

Summary for Pond eCB4: Pre - CB4

Inflow Area = 2,681 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 0.30 cfs @ 12.07 hrs, Volume= 1,042 cf
Outflow = 0.30 cfs @ 12.07 hrs, Volume= 1,042 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.07 hrs, Volume= 1,042 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.81' @ 12.07 hrs

Flood Elev= 28.25'

Device	Routing	Invert	Outlet Devices

#1	Primary	24.50'	8.0" Round Culvert L= 55.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.50' / 23.25' S= 0.0227 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.30 cfs @ 12.07 hrs HW=24.81' TW=24.08' (Dynamic Tailwater)**└─1=Culvert** (Inlet Controls 0.30 cfs @ 1.89 fps)**Summary for Pond eCB5: Pre - CB5**

Inflow Area = 58,920 sf, 3.59% Impervious, Inflow Depth = 2.37" for 10-Year event
Inflow = 2.59 cfs @ 12.26 hrs, Volume= 11,637 cf
Outflow = 2.59 cfs @ 12.26 hrs, Volume= 11,637 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.59 cfs @ 12.26 hrs, Volume= 11,637 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 29.46' @ 12.26 hrs

Flood Elev= 31.70'

Device	Routing	Invert	Outlet Devices

#1	Primary	28.50'	12.0" Round Culvert L= 158.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 28.50' / 26.92' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.58 cfs @ 12.26 hrs HW=29.46' TW=27.12' (Dynamic Tailwater)**└─1=Culvert** (Inlet Controls 2.58 cfs @ 3.33 fps)**Summary for Pond eCB6: CB-6**

Inflow Area = 14,469 sf, 7.07% Impervious, Inflow Depth = 2.45" for 10-Year event
Inflow = 0.72 cfs @ 12.20 hrs, Volume= 2,958 cf
Outflow = 0.72 cfs @ 12.20 hrs, Volume= 2,958 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.72 cfs @ 12.20 hrs, Volume= 2,958 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 32.94' @ 12.20 hrs

Flood Elev= 34.66'

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Device Routing Invert Outlet Devices

#1	Primary	32.11'	6.0" Round Culvert L= 110.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.11' / 27.50' S= 0.0419 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	34.50'	2.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.72 cfs @ 12.20 hrs HW=32.94' TW=24.53' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.72 cfs @ 3.66 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=32.11' TW=19.00' (Dynamic Tailwater)

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

Summary for Pond eCB7: CB-7

Inflow Area =	1,116 sf, 60.48% Impervious, Inflow Depth = 3.72" for 10-Year event
Inflow =	0.10 cfs @ 12.07 hrs, Volume= 346 cf
Outflow =	0.10 cfs @ 12.07 hrs, Volume= 346 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.10 cfs @ 12.07 hrs, Volume= 346 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 26.20' @ 12.07 hrs

Flood Elev= 27.10'

Device Routing Invert Outlet Devices

#1	Primary	25.97'	4.0" Round Culvert L= 14.3' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 25.41' / 25.97' S= -0.0392 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.10 cfs @ 12.07 hrs HW=26.20' TW=21.59' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.10 cfs @ 1.62 fps)

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Summary for Pond eDB1: Pre - Detention Basin-1

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth = 1.22" for 10-Year event
Inflow = 6.31 cfs @ 12.10 hrs, Volume= 7,548 cf
Outflow = 5.21 cfs @ 12.16 hrs, Volume= 7,503 cf, Atten= 17%, Lag= 3.9 min
Primary = 5.21 cfs @ 12.16 hrs, Volume= 7,503 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 22.26' @ 12.16 hrs Surf.Area= 1,142 sf Storage= 2,478 cf
Flood Elev= 23.00' Surf.Area= 1,340 sf Storage= 3,397 cf

Plug-Flow detention time= 20.3 min calculated for 7,503 cf (99% of inflow)
Center-of-Mass det. time= 19.6 min (755.8 - 736.2)

Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	3,397 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	421	0	0
20.00	613	517	517
21.00	830	722	1,239
22.00	1,073	952	2,190
23.00	1,340	1,207	3,397

Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32 4.0" Round Culvert X 3.00 L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.90' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Primary	21.00'	4.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.10' / 19.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Primary	19.10'	4.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.10' / 19.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

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Primary OutFlow Max=4.82 cfs @ 12.16 hrs HW=22.23' TW=19.49' (Dynamic Tailwater)

1=Broad-Crested Rectangular Weir (Weir Controls 2.89 cfs @ 1.23 fps)

2=Culvert (Barrel Controls 1.24 cfs @ 4.75 fps)

3=Culvert (Outlet Controls 0.69 cfs @ 7.86 fps)

Summary for Pond eDB2: Pre - Stone Drainage extra storage Basin-2

Inflow Area = 80,936 sf, 8.59% Impervious, Inflow Depth = 2.49" for 10-Year event
Inflow = 4.16 cfs @ 12.17 hrs, Volume= 16,788 cf
Outflow = 3.46 cfs @ 12.27 hrs, Volume= 15,158 cf, Atten= 17%, Lag= 6.0 min
Primary = 3.46 cfs @ 12.27 hrs, Volume= 15,158 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 22.20' @ 12.28 hrs Surf.Area= 4,235 sf Storage= 4,237 cf

Plug-Flow detention time= 99.6 min calculated for 15,158 cf (90% of inflow)
Center-of-Mass det. time= 51.7 min (881.4 - 829.8)

Volume	Invert	Avail.Storage	Storage Description
#1	20.00'	4,315 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	19.00'	647 cf	Stone Storage (Prismatic) Listed below (Recalc)
		1,962 cf Overall	x 33.0% Voids
		4,963 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
20.00	1,116	0	0
21.00	1,569	1,343	1,343
22.00	2,051	1,810	3,153
22.50	2,600	1,163	4,315

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,962	0	0
20.00	1,962	1,962	1,962

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Device Routing Invert Outlet Devices

#1	Primary	22.00'	8.0' long x 6.0' 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)	2.37	2.51	2.70	2.68	2.68	2.67	2.65	2.65	2.65	2.65	2.65	2.66	2.66	2.67	2.69	2.72	2.76	
				2.83																	
#2	Primary	20.75'	6.0" Round Culvert L= 20.0' RCP, sq.cut end projecting, Ke= 0.500																		
			Inlet / Outlet Invert=	20.75'	/	20.50'	S=	0.0125	'/'	Cc=	0.900										
			n=	0.013	Corrugated PE, smooth interior, Flow Area=	0.20	sf														
#3	Primary	21.25'	6.0" Round Culvert L= 20.0' RCP, sq.cut end projecting, Ke= 0.500																		
			Inlet / Outlet Invert=	21.25'	/	21.00'	S=	0.0125	'/'	Cc=	0.900										
			n=	0.013	Corrugated PE, smooth interior, Flow Area=	0.20	sf														

Primary OutFlow Max=3.44 cfs @ 12.27 hrs HW=22.20' TW=18.20' (Dynamic Tailwater)**1=Broad-Crested Rectangular Weir** (Weir Controls 1.71 cfs @ 1.06 fps)**2=Culvert** (Barrel Controls 0.98 cfs @ 5.01 fps)**3=Culvert** (Barrel Controls 0.75 cfs @ 3.83 fps)**Summary for Pond eDM5: Pre - Field DMH**

Inflow Area =	14,469 sf,	7.07% Impervious,	Inflow Depth = 2.45"	for 10-Year event
Inflow =	0.72 cfs @ 12.20 hrs,	Volume=	2,958 cf	
Outflow =	0.72 cfs @ 12.20 hrs,	Volume=	2,958 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.72 cfs @ 12.20 hrs,	Volume=	2,958 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.53' @ 12.20 hrs

Flood Elev= 29.50'

Device Routing Invert Outlet Devices

#1	Primary	23.70'	6.0" Round Culvert L= 95.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.70' / 21.80' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf									

Primary OutFlow Max=0.72 cfs @ 12.20 hrs HW=24.53' TW=22.11' (Dynamic Tailwater)**1=Culvert** (Inlet Controls 0.72 cfs @ 3.66 fps)

Summary for Pond eDMH1: Pre - DMH1

Inflow Area = 34,522 sf, 65.84% Impervious, Inflow Depth = 3.85" for 10-Year event
Inflow = 3.44 cfs @ 12.01 hrs, Volume= 11,078 cf
Outflow = 3.44 cfs @ 12.01 hrs, Volume= 11,078 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.55 cfs @ 12.01 hrs, Volume= 10,063 cf
Secondary = 0.88 cfs @ 12.01 hrs, Volume= 1,015 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 32.71' @ 12.01 hrs
Flood Elev= 35.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	31.90'	15.0" Round Culvert L= 67.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 31.90' / 29.90' S= 0.0299 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf
#2	Secondary	32.10'	8.0" Round Culvert L= 80.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.10' / 27.00' S= 0.0638 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=2.49 cfs @ 12.01 hrs HW=32.69' TW=30.65' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.49 cfs @ 3.03 fps)

Secondary OutFlow Max=0.86 cfs @ 12.01 hrs HW=32.69' TW=27.22' (Dynamic Tailwater)
└─**2=Culvert** (Inlet Controls 0.86 cfs @ 2.62 fps)

Summary for Pond eDMH2: Pre - DMH2

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 3.73" for 10-Year event
Inflow = 4.09 cfs @ 12.01 hrs, Volume= 14,711 cf
Outflow = 4.09 cfs @ 12.01 hrs, Volume= 14,711 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.88 cfs @ 12.01 hrs, Volume= 9,878 cf
Secondary = 2.22 cfs @ 12.01 hrs, Volume= 4,834 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 30.66' @ 12.01 hrs
Flood Elev= 33.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.80'	12.0" Round Culvert L= 17.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.80' / 29.65' S= 0.0088 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	29.90'	15.0" Round Culvert L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.90' / 29.55' S= 0.0140 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.83 cfs @ 12.01 hrs HW=30.65' TW=30.29' (Dynamic Tailwater)

└─1=Culvert (Barrel Controls 1.83 cfs @ 3.46 fps)

Secondary OutFlow Max=2.16 cfs @ 12.01 hrs HW=30.65' TW=27.21' (Dynamic Tailwater)

└─2=Culvert (Barrel Controls 2.16 cfs @ 4.02 fps)

Summary for Pond eDMH3: Pre - DMH3

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 2.65" for 10-Year event
Inflow = 5.30 cfs @ 12.05 hrs, Volume= 23,481 cf
Outflow = 5.30 cfs @ 12.05 hrs, Volume= 23,481 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.30 cfs @ 12.05 hrs, Volume= 23,481 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 27.25' @ 12.05 hrs
Flood Elev= 33.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	26.10'	18.0" Round Culvert L= 105.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.10' / 24.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.26 cfs @ 12.05 hrs HW=27.24' TW=24.94' (Dynamic Tailwater)

└─1=Culvert (Inlet Controls 5.26 cfs @ 3.64 fps)

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Summary for Pond eDMH4: Pre - DMH4

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 2.65" for 10-Year event
Inflow = 5.30 cfs @ 12.05 hrs, Volume= 23,481 cf
Outflow = 5.30 cfs @ 12.05 hrs, Volume= 23,481 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.30 cfs @ 12.05 hrs, Volume= 23,481 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.95' @ 12.05 hrs

Flood Elev= 26.80'

Device	Routing	Invert	Outlet Devices

#1	Primary	23.80'	18.0" Round Culvert L= 75.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.80' / 21.75' S= 0.0273 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.26 cfs @ 12.05 hrs HW=24.94' TW=21.84' (Dynamic Tailwater)

1=Culvert (Inlet Controls 5.26 cfs @ 3.64 fps)

Summary for Pond eDMH5: Pre - DMH5

Inflow Area = 33,801 sf, 41.97% Impervious, Inflow Depth = 3.24" for 10-Year event
Inflow = 2.79 cfs @ 12.07 hrs, Volume= 9,118 cf
Outflow = 2.79 cfs @ 12.07 hrs, Volume= 9,118 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.79 cfs @ 12.07 hrs, Volume= 9,118 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.07' @ 12.08 hrs

Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	22.00'	12.0" Round Culvert L= 3.5' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 22.00' / 21.75' S= 0.0714 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=2.74 cfs @ 12.07 hrs HW=23.05' TW=22.52' (Dynamic Tailwater)

1=Culvert (Inlet Controls 2.74 cfs @ 3.49 fps)

Summary for Pond eFB1: Forebay-1

Inflow Area = 32,764 sf, 70.56% Impervious, Inflow Depth = 3.96" for 10-Year event
Inflow = 3.65 cfs @ 12.01 hrs, Volume= 10,821 cf
Outflow = 3.60 cfs @ 12.02 hrs, Volume= 10,354 cf, Atten= 1%, Lag= 0.4 min
Primary = 3.60 cfs @ 12.02 hrs, Volume= 10,354 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.27' @ 12.02 hrs Surf.Area= 324 sf Storage= 550 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 48.0 min calculated for 10,354 cf (96% of inflow)

Center-of-Mass det. time= 22.4 min (781.1 - 758.6)

Volume Invert Avail.Storage Storage Description

#1 19.00' 628 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	7	0	0
20.00	40	24	24
21.00	98	69	93
22.00	181	140	232
23.00	289	235	467
23.50	353	161	628

Device Routing Invert Outlet Devices

#1 Primary 23.00' **10.0' long x 2.0' 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
Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

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Primary OutFlow Max=3.51 cfs @ 12.02 hrs HW=23.27' TW=21.77' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Weir Controls 3.51 cfs @ 1.32 fps)

Summary for Pond eFB2: Forebay-2

Inflow Area = 29,790 sf, 90.12% Impervious, Inflow Depth = 4.43" for 10-Year event
Inflow = 3.65 cfs @ 12.01 hrs, Volume= 10,993 cf
Outflow = 3.60 cfs @ 12.01 hrs, Volume= 10,526 cf, Atten= 1%, Lag= 0.4 min
Primary = 3.60 cfs @ 12.01 hrs, Volume= 10,526 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.27' @ 12.01 hrs Surf.Area= 324 sf Storage= 550 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 47.6 min calculated for 10,517 cf (96% of inflow)

Center-of-Mass det. time= 22.4 min (770.4 - 747.9)

Volume Invert Avail.Storage Storage Description

#1 19.00' 628 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	7	0	0
20.00	40	24	24
21.00	98	69	93
22.00	181	140	232
23.00	289	235	467
23.50	353	161	628

Device Routing Invert Outlet Devices

#1	Primary	23.00'	10.0' long x 2.0' 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
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=3.51 cfs @ 12.01 hrs HW=23.27' TW=21.77' (Dynamic Tailwater)

└─1=Broad-Crested Rectangular Weir (Weir Controls 3.51 cfs @ 1.32 fps)

Summary for Pond eH1: Pre - Roof Header

Inflow Area = 11,932 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 1.35 cfs @ 12.07 hrs, Volume= 4,637 cf
Outflow = 1.35 cfs @ 12.07 hrs, Volume= 4,637 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.35 cfs @ 12.07 hrs, Volume= 4,637 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 28.27' @ 12.07 hrs

Flood Elev= 30.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	25.98'	6.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.33 cfs @ 12.07 hrs HW=28.21' TW=18.88' (Dynamic Tailwater)

└─1=Orifice/Grate (Orifice Controls 1.33 cfs @ 6.77 fps)

Summary for Reach eOP1: Outlet pipe-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 1.52" for 10-Year event
Inflow = 1.65 cfs @ 12.09 hrs, Volume= 5,995 cf
Outflow = 1.54 cfs @ 12.07 hrs, Volume= 5,995 cf, Atten= 6%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 6.08 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 2.40 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.36'

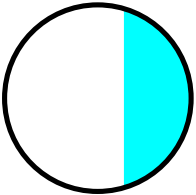
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.63 cfs

12.0" Round Pipe

n= 0.013 Concrete pipe, bends & connections

Length= 14.0' Slope= 0.0250 '/'

Inlet Invert= 29.50', Outlet Invert= 29.15'



Summary for Reach eRD1: Pre - Roof Drain-1

Inflow Area =	15,575 sf, 100.00% Impervious,	Inflow Depth = 4.66"	for 10-Year event
Inflow =	1.76 cfs @ 12.07 hrs,	Volume=	6,053 cf
Outflow =	1.76 cfs @ 12.07 hrs,	Volume=	6,053 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 4.51 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 1.52 fps, Avg. Travel Time= 0.2 min

Peak Storage= 8 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.50'

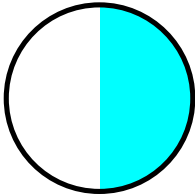
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 20.0' Slope= 0.0100 '/'

Inlet Invert= 25.70', Outlet Invert= 25.50'



Summary for Reach eRD2: Pre - Roof Drain-2

Inflow Area = 16,270 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 1.84 cfs @ 12.07 hrs, Volume= 6,323 cf
Outflow = 1.84 cfs @ 12.07 hrs, Volume= 6,323 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 5.21 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 1.74 fps, Avg. Travel Time= 0.3 min

Peak Storage= 10 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.46"

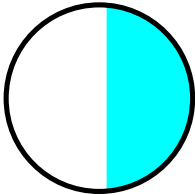
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.26 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 28.0' Slope= 0.0143 '

Inlet Invert= 22.50', Outlet Invert= 22.10'



Summary for Subcatchment eRF1: Pre - Roof flow

Runoff = 1.76 cfs @ 12.07 hrs, Volume= 6,053 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

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Area (sf)	CN	Description
15,575	98	Roofs, HSG C
15,575	98	100.00% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description

5.0

Direct Entry, Roof runoff

Summary for Subcatchment eRF2: Pre - Roof flow

Runoff = 1.84 cfs @ 12.07 hrs, Volume= 6,323 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
16,270	98	Roofs, HSG C
16,270	98	100.00% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description

5.0

Direct Entry, Roof runoff

Summary for Subcatchment eRF3: Pre - Roof flow

Runoff = 1.35 cfs @ 12.07 hrs, Volume= 4,637 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
11,932	98	Roofs, HSG C
11,932	98	100.00% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Roof runoff

Summary for Subcatchment eS1: Pre - Northeastern Parking lot

Runoff = 1.72 cfs @ 12.07 hrs, Volume= 5,810 cf, Depth= 4.20"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
13,366	98	Paved parking, HSG C
3,232	74	>75% Grass cover, Good, HSG C
16,598	93	Weighted Average
3,232	74	19.47% Pervious Area
13,366	98	80.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Parking Runoff to CB

Summary for Subcatchment eS10: Pre - Flow to Swale-5

Runoff = 1.99 cfs @ 12.26 hrs, Volume= 9,264 cf, Depth= 2.58"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

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Area (sf)	CN	Description
36,588	74	>75% Grass cover, Good, HSG C
* 937	89	Gravel Driveway
670	98	Paved parking, HSG C
4,746	98	Roofs, HSG C
76	70	Woods, Good, HSG C
43,017	77	Weighted Average
37,601	74	87.41% Pervious Area
5,416	98	12.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
2.7	292	0.0650	1.78		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
19.0	342	Total			

Summary for Subcatchment eS11: Pre - Flow to playground catch basin

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 346 cf, Depth= 3.72"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
128	98	Unconnected pavement, HSG C
441	74	>75% Grass cover, Good, HSG C
* 547	98	Rubber play surface
1,116	89	Weighted Average
441	74	39.52% Pervious Area
675	98	60.48% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to CB5

Summary for Subcatchment eS12: Pre - Area in front of bldg flowing to existing swale-4

Runoff = 1.43 cfs @ 12.08 hrs, Volume= 4,802 cf, Depth= 3.72"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
5,952	74	>75% Grass cover, Good, HSG C
530	98	Unconnected pavement, HSG C
2,376	98	Roofs, HSG C
6,205	98	Paved parking, HSG C
437	89	Gravel Area
*		
15,500	89	Weighted Average
6,389	75	41.22% Pervious Area
9,111	98	58.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.4

Sheet Flow, AB
Grass: Bermuda n= 0.410 P2= 3.30"

Summary for Subcatchment eS13: Pre - Northeastern area flowing to proposed CB5

Runoff = 2.59 cfs @ 12.26 hrs, Volume= 11,637 cf, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

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Type III 24-hr 10-Year Rainfall=4.90"

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Area (sf)		CN	Description
2,021	98	98	Roofs, HSG C
52,854	74	74	>75% Grass cover, Good, HSG C
93	98	98	Paved parking, HSG C
3,952	70	70	Woods, Good, HSG C
58,920	75	75	Weighted Average
56,806	74	74	96.41% Pervious Area
2,114	98	98	3.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	50	0.0200	0.07		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.7	70	0.0500	1.57		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
0.1	24	0.3300	4.02		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
4.9	206	0.0100	0.70		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.1	95	0.1900	18.24	72.98	Channel Flow, EF Area= 4.0 sf Perim= 8.2' r= 0.49' n= 0.022 Earth, clean & straight
18.2	445	Total			

Summary for Subcatchment eS14: Pre - Parking area-4 runoff

Runoff = 2.37 cfs @ 12.07 hrs, Volume= 7,670 cf, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

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Type III 24-hr 10-Year Rainfall=4.90"

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Area (sf)	CN	Description
16,413	74	>75% Grass cover, Good, HSG C
10,797	98	Paved parking, HSG C
2,515	70	Woods, Good, HSG C
29,725	82	Weighted Average
18,928	73	63.68% Pervious Area
10,797	98	36.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment eS15: Pre - Flow to entrance area drain

Runoff = 0.12 cfs @ 12.07 hrs, Volume= 406 cf, Depth= 3.49"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
686	74	>75% Grass cover, Good, HSG C
709	98	Paved parking, HSG C
1,395	86	Weighted Average
686	74	49.18% Pervious Area
709	98	50.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to area drain

Summary for Subcatchment eS16: Pre - Flow to Sand Filter-2

Runoff = 0.66 cfs @ 12.07 hrs, Volume= 2,052 cf, Depth= 2.94"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
1,543	89	Gravel
5,249	74	>75% Grass cover, Good, HSG C
1,582	98	Paved parking, HSG C
8,374	81	Weighted Average
6,792	77	81.11% Pervious Area
1,582	98	18.89% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description

Summary for Subcatchment eS17: Pre - Area in front of bldg flowing to existing swale-3

Runoff = 0.51 cfs @ 12.09 hrs, Volume= 1,688 cf, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
6,221	74	>75% Grass cover, Good, HSG C
* 172	98	Existing Wall
* 1,125	98	Existing Walk
7,518	78	Weighted Average
6,221	74	82.75% Pervious Area
1,297	98	17.25% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	38	0.0800	0.11		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.6	135	0.0400	4.06		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
6.3	173	Total			

Summary for Subcatchment eS18: Pre - Flow to Sand Filter-1

Runoff = 0.46 cfs @ 12.08 hrs, Volume= 1,399 cf, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
4,170	74	>75% Grass cover, Good, HSG C
2,013	89	Gravel
6,183	79	Weighted Average
6,183	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Flow into Basin

Summary for Subcatchment eS2: Pre - Flow to CB3

Runoff = 0.73 cfs @ 12.08 hrs, Volume= 2,294 cf, Depth= 2.73"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

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Type III 24-hr 10-Year Rainfall=4.90"

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Area (sf)	CN	Description			
8,190	74	>75% Grass cover, Good, HSG C			
1,150	98	Paved parking, HSG C			
741	98	Walkway			
*					
10,081	79	Weighted Average			
8,190	74	81.24% Pervious Area			
1,891	98	18.76% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry, 100% Pervious				

Summary for Subcatchment eS20: Pre - Flow to Stone Detention Basin

Runoff = 0.24 cfs @ 12.08 hrs, Volume= 737 cf, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description			
3,870	74	>75% Grass cover, Good, HSG C			
3,870	74	100.00% Pervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry,				

Summary for Subcatchment eS21: Pre - Flow along South side to Basin-2

Runoff = 3.24 cfs @ 12.18 hrs, Volume= 12,747 cf, Depth= 2.49"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

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Area (sf)		CN	Description				
	2,225	98	Roofs, HSG C				
	1,207	98	Paved parking, HSG C				
*	0	89	Gravel Path				
	1,823	98	Unconnected pavement, HSG C				
*	0	89	Gravel Area				
*	0	89	Stone pile				
	52,137	74	>75% Grass cover, Good, HSG C				
	4,089	70	Woods, Good, HSG C				
	61,481	76	Weighted Average				
	56,226	74	91.45% Pervious Area				
	5,255	98	8.55% Impervious Area				
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
7.5	50	0.0700	0.11		Sheet Flow, AB		
					Grass: Bermuda n= 0.410 P2= 3.30"		
0.4	50	0.1000	2.21		Shallow Concentrated Flow, BC		
					Short Grass Pasture Kv= 7.0 fps		
3.5	147	0.0100	0.70		Shallow Concentrated Flow, CD		
					Short Grass Pasture Kv= 7.0 fps		
0.2	40	0.1500	2.71		Shallow Concentrated Flow, DE		
					Short Grass Pasture Kv= 7.0 fps		
0.3	32	0.0600	1.71		Shallow Concentrated Flow, EF		
					Short Grass Pasture Kv= 7.0 fps		
0.2	31	0.1900	3.05		Shallow Concentrated Flow, FG		
					Short Grass Pasture Kv= 7.0 fps		
0.2	59	0.0170	5.53	55.30	Channel Flow, GH		
					Area= 10.0 sf Perim= 20.1' r= 0.50'		
					n= 0.022 Earth, clean & straight		
0.2	143	0.0700	11.22	112.21	Channel Flow, HI		
					Area= 10.0 sf Perim= 20.1' r= 0.50'		
					n= 0.022 Earth, clean & straight		
12.5	552	Total					

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Summary for Subcatchment eS3: Pre - Norther half or parking area-2

Runoff = 1.55 cfs @ 12.01 hrs, Volume= 4,649 cf, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)		CN	Description		
1,657	74	>75% Grass cover, Good, HSG C			
11,151	98	Paved parking, HSG C			
12,808	95	Weighted Average			
1,657	74	12.94% Pervious Area			
11,151	98	87.06% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB
					Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC
					Paved Kv= 20.3 fps

Summary for Subcatchment eS4: Pre - Southern half of parking area-2

Runoff = 2.93 cfs @ 12.01 hrs, Volume= 8,784 cf, Depth= 4.31"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)		CN	Description
3,603	74	>75% Grass cover, Good, HSG C	
20,838	98	Paved parking, HSG C	
24,441	94	Weighted Average	
3,603	74	14.74% Pervious Area	
20,838	98	85.26% Impervious Area	

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment eS5: Pre - Norther half of parking area-3

Runoff = 3.65 cfs @ 12.01 hrs, Volume= 10,821 cf, Depth= 3.96"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
9,645	74	>75% Grass cover, Good, HSG C
23,119	98	Paved parking, HSG C
32,764	91	Weighted Average
9,645	74	29.44% Pervious Area
23,119	98	70.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

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Summary for Subcatchment eS6: Pre - Southern half of parking area-3

Runoff = 3.65 cfs @ 12.01 hrs, Volume= 10,993 cf, Depth= 4.43"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)		CN	Description		
2,944	74	>75% Grass cover, Good, HSG C			
26,846	98	Paved parking, HSG C			
29,790	96	Weighted Average			
2,944	74	9.88% Pervious Area			
26,846	98	90.12% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps

Summary for Subcatchment eS7: Pre - Flow to CB4

Runoff = 0.30 cfs @ 12.07 hrs, Volume= 1,042 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)		CN	Description
2,681	98	Paved parking, HSG C	
2,681	98	100.00% Impervious Area	

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment eS9: Pre - Flow to CB-4

Runoff = 0.72 cfs @ 12.20 hrs, Volume= 2,958 cf, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
827	98	Unconnected pavement, HSG C
196	98	Paved parking, HSG C
446	89	Gravel path
13,000	74	>75% Grass cover, Good, HSG C
14,469	76	Weighted Average
13,446	74	92.93% Pervious Area
1,023	98	7.07% Impervious Area

*

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

9.4	50	0.0400	0.09		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.5	64	0.1100	2.32		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
3.6	152	0.0100	0.70		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
0.4	72	0.1700	2.89		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.1	49	0.1000	13.41	134.11	Channel Flow, EF Area= 10.0 sf Perim= 20.1' r= 0.50' n= 0.022 Earth, clean & straight

14.0 387 Total

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Summary for Pond eSF1: Pre - Sand Filter-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 3.14" for 10-Year event
Inflow = 12.72 cfs @ 12.02 hrs, Volume= 45,761 cf
Outflow = 10.45 cfs @ 12.08 hrs, Volume= 45,641 cf, Atten= 18%, Lag= 3.3 min
Primary = 10.45 cfs @ 12.08 hrs, Volume= 45,641 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 21.87' @ 12.08 hrs Surf.Area= 8,960 sf Storage= 7,314 cf

Flood Elev= 22.20' Surf.Area= 9,493 sf Storage= 8,980 cf

Plug-Flow detention time= 34.9 min calculated for 45,641 cf (100% of inflow)

Center-of-Mass det. time= 33.2 min (825.8 - 792.6)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	5,566 cf	Open Storage (Prismatic) Listed below (Recalc)
#2	18.50'	3,390 cf	Sand Filter (Prismatic) Listed below (Recalc)
#3	18.58'	24 cf	10,295 cf Overall - 24 cf Embedded = 10,271 cf x 33.0% Voids 4.0" Round Pipe Storage Inside #2 L= 271.0'
		8,980 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	4,118	0	0
22.00	4,950	4,534	4,534
22.20	5,375	1,032	5,566

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	4,118	0	0
19.00	4,118	2,059	2,059
20.00	4,118	4,118	6,177
21.00	4,118	4,118	10,295

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Device Routing Invert Outlet Devices

#1	Primary	21.20'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 0.00															
			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		
			Coef. (English)	2.54	2.61	2.61	2.60	2.66	2.70	2.77	2.89	2.88	2.85	3.07	3.20	3.32		
#2	Primary	21.20'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28)															
			Head (feet)	0.00	1.00													
			Width (feet)	4.00	8.00													
#3	Device 4	18.50'	8.270 in/hr Exfiltration over Surface area															
#4	Primary	18.58'	4.0" Round Culvert X 2.00 L= 15.0' RCP, sq.cut end projecting, Ke= 0.500															
			Inlet / Outlet Invert= 18.58' / 18.40'				S= 0.0120 '/'				Cc= 0.900							
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf															

Primary OutFlow Max=10.37 cfs @ 12.08 hrs HW=21.87' TW=18.44' (Dynamic Tailwater)

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

2=Custom Weir/Orifice (Weir Controls 9.05 cfs @ 2.54 fps)

4=Culvert (Barrel Controls 1.32 cfs @ 7.55 fps)

3=Exfiltration (Passes 1.32 cfs of 1.71 cfs potential flow)

Summary for Pond eSF2: Pre - Sand Filter-2

Inflow Area =	74,020 sf,	64.33% Impervious,	Inflow Depth = 3.82"	for 10-Year event
Inflow =	7.05 cfs @ 12.07 hrs,	Volume=	23,545 cf	
Outflow =	6.77 cfs @ 12.10 hrs,	Volume=	23,535 cf,	Atten= 4%, Lag= 1.4 min
Primary =	6.31 cfs @ 12.10 hrs,	Volume=	7,548 cf	
Secondary =	0.46 cfs @ 12.08 hrs,	Volume=	15,987 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.54' @ 12.10 hrs Surf.Area= 3,592 sf Storage= 3,787 cf

Flood Elev= 23.00' Surf.Area= 3,746 sf Storage= 4,765 cf

Plug-Flow detention time= 49.1 min calculated for 23,535 cf (100% of inflow)

Center-of-Mass det. time= 48.7 min (815.4 - 766.7)

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Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	1,020 cf	Sand Filter (Prismatic) Listed below (Recalc) 3,102 cf Overall - 11 cf Embedded = 3,091 cf x 33.0% Voids
#2	21.00'	3,734 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#3	19.00'	11 cf	4.0" Round Pipe Storage Inside #1 L= 123.0'
		4,765 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,551	0	0
20.00	1,551	1,551	1,551
21.00	1,551	1,551	3,102

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	1,551	0	0
22.00	1,861	1,706	1,706
23.00	2,195	2,028	3,734

Device	Routing	Invert	Outlet Devices
#1	Primary	22.15'	10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Device 3	19.00'	8.270 in/hr Exfiltration over Surface area
#3	Secondary	19.00'	4.0" Round Culvert L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.00' / 18.75' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=6.23 cfs @ 12.10 hrs HW=22.54' TW=21.67' (Dynamic Tailwater)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 6.23 cfs @ 1.62 fps)**Secondary OutFlow** Max=0.46 cfs @ 12.08 hrs HW=22.53' TW=19.05' (Dynamic Tailwater)↑**3=Culvert** (Barrel Controls 0.46 cfs @ 5.26 fps)↑**2=Exfiltration** (Passes 0.46 cfs of 0.69 cfs potential flow)

Summary for Pond eSTC1: Pre - Stormceptor-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 2.50" for 10-Year event
Inflow = 1.88 cfs @ 12.01 hrs, Volume= 9,878 cf
Outflow = 1.88 cfs @ 12.01 hrs, Volume= 9,878 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.88 cfs @ 12.01 hrs, Volume= 9,878 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 30.30' @ 12.01 hrs
Flood Elev= 33.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.40'	12.0" Round Culvert L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.40' / 29.35' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.83 cfs @ 12.01 hrs HW=30.29' TW=29.90' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.83 cfs @ 3.30 fps)

Summary for Pond eSTC2: Pre - Stormceptor-2

Inflow Area = 32,406 sf, 41.59% Impervious, Inflow Depth = 3.23" for 10-Year event
Inflow = 2.67 cfs @ 12.07 hrs, Volume= 8,711 cf
Outflow = 2.67 cfs @ 12.07 hrs, Volume= 8,711 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.67 cfs @ 12.07 hrs, Volume= 8,711 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 24.10' @ 12.07 hrs
Flood Elev= 27.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.00'	12.0" Round Culvert L= 5.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.00' / 22.90' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=2.62 cfs @ 12.07 hrs HW=24.08' TW=23.05' (Dynamic Tailwater)

1=Culvert (Barrel Controls 2.62 cfs @ 3.84 fps)

Summary for Pond eSW1: Pre - Swale-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 3.23" for 10-Year event
Inflow = 10.44 cfs @ 12.08 hrs, Volume= 47,071 cf
Outflow = 10.43 cfs @ 12.09 hrs, Volume= 47,071 cf, Atten= 0%, Lag= 0.9 min
Primary = 10.43 cfs @ 12.09 hrs, Volume= 47,071 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 18.45' @ 12.09 hrs Surf.Area= 1,642 sf Storage= 549 cf

Flood Elev= 19.40' Surf.Area= 3,367 sf Storage= 2,947 cf

Plug-Flow detention time= 1.5 min calculated for 47,071 cf (100% of inflow)

Center-of-Mass det. time= 1.4 min (824.7 - 823.2)

Volume Invert Avail.Storage Storage Description

#1 18.00' 2,947 cf Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.00	814	0	0
19.00	2,666	1,740	1,740
19.40	3,367	1,207	2,947

Device Routing Invert Outlet Devices

#1 Primary 18.00' Custom Weir/Orifice, Cv= 2.62 (C= 3.28)

Head (feet) 0.00 1.00 1.40

Width (feet) 9.34 16.70 21.40

Primary OutFlow Max=10.38 cfs @ 12.09 hrs HW=18.45' TW=0.00' (Dynamic Tailwater)

1=Custom Weir/Orifice (Weir Controls 10.38 cfs @ 2.12 fps)

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Summary for Pond eSW2: Pre - Swale-2

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth = 3.81" for 10-Year event
Inflow = 5.64 cfs @ 12.16 hrs, Volume= 23,490 cf
Outflow = 5.17 cfs @ 12.18 hrs, Volume= 23,490 cf, Atten= 8%, Lag= 1.2 min
Primary = 4.05 cfs @ 12.18 hrs, Volume= 22,060 cf
Secondary = 1.12 cfs @ 12.18 hrs, Volume= 1,430 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.58' @ 12.18 hrs Surf.Area= 468 sf Storage= 212 cf

Flood Elev= 20.70' Surf.Area= 825 sf Storage= 945 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.3 min (822.1 - 821.8)

Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	945 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	263	0	0
20.00	617	440	440
20.70	825	505	945

Device	Routing	Invert	Outlet Devices
#1	Primary	18.19'	18.0" Round Culvert L= 24.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.19' / 18.09' S= 0.0042 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	19.03'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.68' / 19.03' S= -0.0233 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=4.07 cfs @ 12.18 hrs HW=19.57' TW=19.29' (Dynamic Tailwater)

└─1=Culvert (Outlet Controls 4.07 cfs @ 3.13 fps)

Secondary OutFlow Max=1.12 cfs @ 12.18 hrs HW=19.58' TW=18.43' (Dynamic Tailwater)

└─2=Culvert (Inlet Controls 1.12 cfs @ 2.52 fps)

Summary for Pond eSW3: Pre - Swale-3

Inflow Area = 81,538 sf, 59.99% Impervious, Inflow Depth = 3.50" for 10-Year event
Inflow = 4.41 cfs @ 12.18 hrs, Volume= 23,748 cf
Outflow = 2.49 cfs @ 12.33 hrs, Volume= 23,748 cf, Atten= 44%, Lag= 9.0 min
Primary = 2.49 cfs @ 12.33 hrs, Volume= 23,748 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.46' @ 12.30 hrs Surf.Area= 2,325 sf Storage= 1,464 cf

Flood Elev= 20.00' Surf.Area= 3,014 sf Storage= 2,902 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 2.7 min (828.9 - 826.2)

Volume	Invert	Avail.Storage	Storage	Description
#1	18.50'	2,902 cf	Custom Stage Data (Prismatic)	Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	374	0	0
19.00	1,735	527	527
20.00	3,014	2,375	2,902

Device	Routing	Invert	Outlet Devices
#1	Primary	18.08'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.08' / 18.01' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=2.48 cfs @ 12.33 hrs HW=19.46' TW=19.02' (Dynamic Tailwater)

1=Culvert (Inlet Controls 2.48 cfs @ 3.16 fps)

Summary for Pond eSW4: Pre - Swale-4

Inflow Area = 108,970 sf, 64.20% Impervious, Inflow Depth = 3.65" for 10-Year event
Inflow = 3.64 cfs @ 12.22 hrs, Volume= 33,187 cf
Outflow = 3.60 cfs @ 12.27 hrs, Volume= 33,187 cf, Atten= 1%, Lag= 2.8 min
Primary = 3.60 cfs @ 12.27 hrs, Volume= 33,187 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.04' @ 12.27 hrs Surf.Area= 875 sf Storage= 469 cf

Flood Elev= 19.80' Surf.Area= 1,554 sf Storage= 1,361 cf

Plug-Flow detention time= 1.9 min calculated for 33,187 cf (100% of inflow)

Center-of-Mass det. time= 1.9 min (811.1 - 809.1)

Volume Invert Avail.Storage Storage Description

#1 18.00' 1,361 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.00	27	0	0
19.00	851	439	439
19.50	1,190	510	949
19.80	1,554	412	1,361

Device Routing Invert Outlet Devices

#1 Primary 17.99' **18.0" Round Culvert** L= 21.0' RCP, sq.cut end projecting, Ke= 0.500
Inlet / Outlet Invert= 17.99' / 17.82' S= 0.0081 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.60 cfs @ 12.27 hrs HW=19.03' TW=18.20' (Dynamic Tailwater)

1=Culvert (Barrel Controls 3.60 cfs @ 3.85 fps)

Summary for Reach eSW5: Pre - Swale-5

Inflow Area = 232,923 sf, 35.34% Impervious, Inflow Depth = 2.97" for 10-Year event
Inflow = 9.05 cfs @ 12.27 hrs, Volume= 57,609 cf
Outflow = 9.03 cfs @ 12.28 hrs, Volume= 57,608 cf, Atten= 0%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 2.27 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.58 fps, Avg. Travel Time= 4.2 min

Peak Storage= 577 cf @ 12.28 hrs

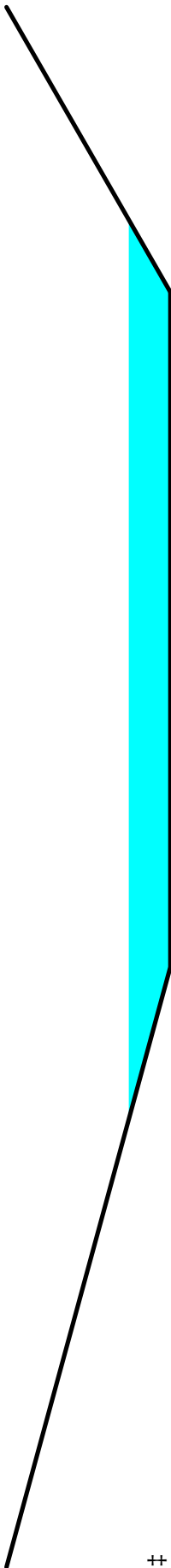
Average Depth at Peak Storage= 0.38'

Bank-Full Depth= 1.50' Flow Area= 22.4 sf, Capacity= 110.11 cfs

Custom cross-section, Length= 145.0' Slope= 0.0050 '/'

Constant n= 0.022 Earth, clean & straight

Inlet Invert= 17.82', Outlet Invert= 17.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-12.50	19.50	0.00
-4.50	18.00	1.50
4.50	18.00	1.50
8.30	19.50	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	9.0	0	0.00
1.50	22.4	21.2	3,241	110.11

Summary for Pond eUS1: Pre - Underground Recharge System-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 2.50" for 10-Year event
Inflow = 1.88 cfs @ 12.01 hrs, Volume= 9,878 cf
Outflow = 1.69 cfs @ 12.09 hrs, Volume= 9,880 cf, Atten= 10%, Lag= 4.7 min
Discarded = 0.04 cfs @ 5.58 hrs, Volume= 3,953 cf
Primary = 1.65 cfs @ 12.09 hrs, Volume= 5,995 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 29.98' @ 12.06 hrs Surf.Area= 1,736 sf Storage= 1,381 cf
Flood Elev= 30.90' Surf.Area= 1,736 sf Storage= 1,991 cf

Plug-Flow detention time= 97.4 min calculated for 9,871 cf (100% of inflow)
Center-of-Mass det. time= 97.7 min (869.2 - 771.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	28.57'	1,014 cf	21.50"W x 80.76'L x 2.33'H Field A 4,051 cf Overall - 978 cf Embedded = 3,073 cf x 33.0% Voids
#2A	29.07'	978 cf	ADS StormTech SC-310 x 66 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 6 rows
		1,992 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.57'	1.000 in/hr Exfiltration over Surface area
#2	Primary	29.36'	8.0" Round Culvert X 3.00 L= 2.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.36' / 29.30' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

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Discarded OutFlow Max=0.04 cfs @ 5.58 hrs HW=28.59' (Free Discharge)
└─1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=1.59 cfs @ 12.09 hrs HW=29.96' TW=29.85' (Dynamic Tailwater)
└─2=Culvert (Inlet Controls 1.59 cfs @ 1.60 fps)

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Time span=0.00-36.00 hrs, dt=0.03 hrs, 1201 points x 2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond CB-1: CB-1

Peak Elev=39.79' Inflow=2.18 cfs 7,410 cf
Outflow=2.18 cfs 7,410 cf

Pond eA1: Pre - Analysis Point-1

Inflow=2.18 cfs 7,410 cf
Primary=2.18 cfs 7,410 cf

Pond eA2: Pre - Analysis Point-2

Inflow=15.65 cfs 65,188 cf
Primary=15.65 cfs 65,188 cf

Pond eA3: Post - Analysis Point-3

Inflow=13.01 cfs 75,892 cf
Primary=13.01 cfs 75,892 cf

Pond eAD: Pre - Area drain at main entrance

12.0" Round Culvert n=0.013 L=69.0' S=0.0109 '/' Peak Elev=24.20' Inflow=0.16 cfs 533 cf
Outflow=0.16 cfs 533 cf

Pond eCB1: Pre - CB1

12.0" Round Culvert n=0.012 L=140.0' S=0.0143 '/' Peak Elev=32.77' Inflow=1.95 cfs 5,898 cf
Outflow=1.95 cfs 5,898 cf

Pond eCB2: Pre - CB2

15.0" Round Culvert n=0.013 L=10.0' S=0.0200 '/' Peak Elev=33.32' Inflow=3.70 cfs 11,160 cf
Outflow=3.70 cfs 11,160 cf

Pond eCB3: Pre - CB3

8.0" Round Culvert n=0.013 L=44.0' S=0.0318 '/' Peak Elev=35.19' Inflow=1.01 cfs 3,155 cf
Outflow=1.01 cfs 3,155 cf

Pond eCB4: Pre - CB4

8.0" Round Culvert n=0.013 L=55.0' S=0.0227 '/' Peak Elev=24.90' Inflow=0.38 cfs 1,310 cf
Outflow=0.38 cfs 1,310 cf

Pond eCB5: Pre - CB5

12.0" Round Culvert n=0.013 L=158.0' S=0.0100 '/' Peak Elev=30.15' Inflow=3.70 cfs 16,508 cf
Outflow=3.70 cfs 16,508 cf

Pond eCB6: CB-6

Primary=1.03 cfs 4,163 cf Secondary=0.00 cfs 0 cf Peak Elev=33.54' Inflow=1.03 cfs 4,163 cf
Outflow=1.03 cfs 4,163 cf

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Pond eCB7: CB-7

4.0" Round Culvert n=0.013 L=14.3' S=-0.0392 '/' Inflow=0.14 cfs 450 cf
Outflow=0.14 cfs 450 cf

Pond eDB1: Pre - Detention Basin-1

Peak Elev=22.37' Storage=2,604 cf Inflow=7.94 cfs 12,010 cf
Outflow=7.81 cfs 11,966 cf

Pond eDB2: Pre - Stone Drainage extra storage Basin-2

Peak Elev=22.33' Storage=4,539 cf Inflow=5.89 cfs 23,552 cf
Outflow=5.61 cfs 21,921 cf

Pond eDM5: Pre - Field DMH

6.0" Round Culvert n=0.013 L=95.0' S=0.0200 '/' Inflow=1.03 cfs 4,163 cf
Outflow=1.03 cfs 4,163 cf

Pond eDMH1: Pre - DMH1

Primary=3.33 cfs 12,846 cf Secondary=1.09 cfs 1,469 cf Inflow=4.42 cfs 14,315 cf
Outflow=4.42 cfs 14,315 cf

Pond eDMH2: Pre - DMH2

Primary=2.30 cfs 12,085 cf Secondary=2.98 cfs 6,659 cf Inflow=5.27 cfs 18,744 cf
Outflow=5.27 cfs 18,744 cf

Pond eDMH3: Pre - DMH3

18.0" Round Culvert n=0.013 L=105.0' S=0.0200 '/' Inflow=7.43 cfs 32,732 cf
Outflow=7.43 cfs 32,732 cf

Pond eDMH4: Pre - DMH4

18.0" Round Culvert n=0.013 L=75.0' S=0.0273 '/' Inflow=7.43 cfs 32,732 cf
Outflow=7.43 cfs 32,732 cf

Pond eDMH5: Pre - DMH5

12.0" Round Culvert n=0.013 L=3.5' S=0.0714 '/' Inflow=3.73 cfs 12,120 cf
Outflow=3.73 cfs 12,120 cf

Pond eFB1: Forebay-1

Peak Elev=23.32' Storage=565 cf Inflow=4.68 cfs 13,921 cf
Outflow=4.62 cfs 13,454 cf

Pond eFB2: Forebay-2

Peak Elev=23.31' Storage=564 cf Inflow=4.59 cfs 13,916 cf
Outflow=4.53 cfs 13,449 cf

Pond eH1: Pre - Roof Header

Peak Elev=29.40' Inflow=1.69 cfs 5,829 cf
Outflow=1.69 cfs 5,829 cf

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Reach eOP1: Outlet pipe-1

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.42' Max Vel=6.57 fps Inflow=2.15 cfs 8,094 cf
L=14.0' S=0.0250 '/' Capacity=5.63 cfs Outflow=2.03 cfs 8,095 cf

Reach eRD1: Pre - Roof Drain-1

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.57' Max Vel=4.76 fps Inflow=2.20 cfs 7,608 cf
L=20.0' S=0.0100 '/' Capacity=3.56 cfs Outflow=2.20 cfs 7,608 cf

Reach eRD2: Pre - Roof Drain-2

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.52' Max Vel=5.51 fps Inflow=2.30 cfs 7,948 cf
L=28.0' S=0.0143 '/' Capacity=4.26 cfs Outflow=2.30 cfs 7,948 cf

Subcatchment eRF1: Pre - Roof flow

Runoff Area=15,575 sf 100.00% Impervious Runoff Depth=5.86"
Tc=5.0 min CN=0/98 Runoff=2.20 cfs 7,608 cf

Subcatchment eRF2: Pre - Roof flow

Runoff Area=16,270 sf 100.00% Impervious Runoff Depth=5.86"
Tc=5.0 min CN=0/98 Runoff=2.30 cfs 7,948 cf

Subcatchment eRF3: Pre - Roof flow

Runoff Area=11,932 sf 100.00% Impervious Runoff Depth=5.86"
Tc=5.0 min CN=0/98 Runoff=1.69 cfs 5,829 cf

Subcatchment eS1: Pre - Northeastern Parking lot

Runoff Area=16,598 sf 80.53% Impervious Runoff Depth=5.36"
Tc=5.0 min CN=74/98 Runoff=2.18 cfs 7,410 cf

Subcatchment eS10: Pre - Flow to Swale-5

Runoff Area=43,017 sf 12.59% Impervious Runoff Depth=3.60"
Flow Length=342' Tc=19.0 min CN=74/98 Runoff=2.79 cfs 12,889 cf

Subcatchment eS11: Pre - Flow to playground catch basin

Runoff Area=1,116 sf 60.48% Impervious Runoff Depth=4.84"
Tc=5.0 min CN=74/98 Runoff=0.14 cfs 450 cf

Subcatchment eS12: Pre - Area in front of bldg flowing to existing swale-4

Flow Length=50' Slope=0.1600 '/' Tc=5.4 min CN=75/98 Runoff=1.85 cfs 6,243 cf

Subcatchment eS13: Pre - Northeastern area flowing to proposed CB5

Runoff Area=58,920 sf 3.59% Impervious Runoff Depth=3.36"
Flow Length=445' Tc=18.2 min CN=74/98 Runoff=3.70 cfs 16,508 cf

Subcatchment eS14: Pre - Parking area-4 runoff

Runoff Area=29,725 sf 36.32% Impervious Runoff Depth=4.15"
Tc=5.0 min CN=73/98 Runoff=3.19 cfs 10,277 cf

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Subcatchment eS15: Pre - Flow to entrance area drain

Runoff Area=1,395 sf 50.82% Impervious Runoff Depth=4.59"
Tc=5.0 min CN=74/98 Runoff=0.16 cfs 533 cf

Subcatchment eS16: Pre - Flow to Sand Filter-2

Runoff Area=8,374 sf 18.89% Impervious Runoff Depth=4.00"
Tc=5.0 min CN=77/98 Runoff=0.89 cfs 2,791 cf

Subcatchment eS17: Pre - Area in front of bldg flowing to existing swale-3

Runoff Area=7,518 sf 17.25% Impervious Runoff Depth=3.72"
Flow Length=173' Tc=6.3 min CN=74/98 Runoff=0.71 cfs 2,328 cf

Subcatchment eS18: Pre - Flow to Sand Filter-1

Runoff Area=6,183 sf 0.00% Impervious Runoff Depth=3.77"
Tc=5.0 min CN=79/0 Runoff=0.64 cfs 1,942 cf

Subcatchment eS2: Pre - Flow to CB3

Runoff Area=10,081 sf 18.76% Impervious Runoff Depth=3.76"
Tc=5.0 min CN=74/98 Runoff=1.01 cfs 3,155 cf

Subcatchment eS20: Pre - Flow to Stone Detention Basin

Runoff Area=3,870 sf 0.00% Impervious Runoff Depth=3.27"
Tc=5.0 min CN=74/0 Runoff=0.35 cfs 1,054 cf

Subcatchment eS21: Pre - Flow along South side to Basin-2

Runoff Area=61,481 sf 8.55% Impervious Runoff Depth=3.49"
Flow Length=552' Tc=12.5 min CN=74/98 Runoff=4.58 cfs 17,885 cf

Subcatchment eS3: Pre - Norther half of parking area-2

Runoff Area=12,808 sf 87.06% Impervious Runoff Depth=5.53"
Flow Length=117' Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=1.95 cfs 5,898 cf

Subcatchment eS4: Pre - Southern half of parking area-2

Runoff Area=24,441 sf 85.26% Impervious Runoff Depth=5.48"
Flow Length=117' Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=3.70 cfs 11,160 cf

Subcatchment eS5: Pre - Norther half of parking area-3

Runoff Area=32,764 sf 70.56% Impervious Runoff Depth=5.10"
Flow Length=117' Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=4.68 cfs 13,921 cf

Subcatchment eS6: Pre - Southern half of parking area-3

Runoff Area=29,790 sf 90.12% Impervious Runoff Depth=5.61"
Flow Length=117' Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=4.59 cfs 13,916 cf

Subcatchment eS7: Pre - Flow to CB4

Runoff Area=2,681 sf 100.00% Impervious Runoff Depth=5.86"
Tc=5.0 min CN=0/98 Runoff=0.38 cfs 1,310 cf

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Subcatchment eS9: Pre - Flow to CB-4

Runoff Area=14,469 sf 7.07% Impervious Runoff Depth=3.45"
Flow Length=387' Tc=14.0 min CN=74/98 Runoff=1.03 cfs 4,163 cf

Pond eSF1: Pre - Sand Filter-1

Peak Elev=22.03' Storage=8,112 cf Inflow=16.98 cfs 61,576 cf
Outflow=14.63 cfs 61,456 cf

Pond eSF2: Pre - Sand Filter-2

Peak Elev=22.65' Storage=4,009 cf Inflow=9.12 cfs 30,467 cf
Primary=7.94 cfs 12,010 cf Secondary=0.46 cfs 18,446 cf Outflow=8.36 cfs 30,456 cf

Pond eSTC1: Pre - Stormceptor-1

Peak Elev=30.43' Inflow=2.30 cfs 12,085 cf
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 '/' Outflow=2.30 cfs 12,085 cf

Pond eSTC2: Pre - Stormceptor-2

Peak Elev=24.44' Inflow=3.56 cfs 11,587 cf
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=3.56 cfs 11,587 cf

Pond eSW1: Pre - Swale-1

Peak Elev=18.57' Storage=770 cf Inflow=15.75 cfs 65,188 cf
Outflow=15.65 cfs 65,188 cf

Pond eSW2: Pre - Swale-2

Peak Elev=20.01' Storage=448 cf Inflow=8.22 cfs 30,412 cf
Primary=5.22 cfs 26,681 cf Secondary=2.60 cfs 3,732 cf Outflow=7.61 cfs 30,413 cf

Pond eSW3: Pre - Swale-3

Peak Elev=19.84' Storage=2,430 cf Inflow=5.91 cfs 29,009 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0047 '/' Outflow=3.00 cfs 29,010 cf

Pond eSW4: Pre - Swale-4

Peak Elev=19.24' Storage=665 cf Inflow=5.08 cfs 41,082 cf
18.0" Round Culvert n=0.013 L=21.0' S=0.0081 '/' Outflow=4.81 cfs 41,082 cf

Reach eSW5: Pre - Swale-5

Avg. Flow Depth=0.47' Max Vel=2.57 fps Inflow=13.04 cfs 75,893 cf
n=0.022 L=145.0' S=0.0050 '/' Capacity=110.11 cfs Outflow=13.01 cfs 75,892 cf

Pond eUS1: Pre - Underground Recharge System-1

Peak Elev=30.08' Storage=1,479 cf Inflow=2.30 cfs 12,085 cf
Discarded=0.04 cfs 4,056 cf Primary=2.15 cfs 8,094 cf Outflow=2.19 cfs 12,085 cf

Total Runoff Area = 424,508 sf Runoff Volume = 155,218 cf Average Runoff Depth = 4.39"
57.21% Pervious = 242,860 sf 42.79% Impervious = 181,648 sf

Summary for Pond CB-1: CB-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 5.36" for 25-Year event
Inflow = 2.18 cfs @ 12.07 hrs, Volume= 7,410 cf
Outflow = 2.18 cfs @ 12.07 hrs, Volume= 7,410 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.18 cfs @ 12.07 hrs, Volume= 7,410 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 39.79' @ 12.07 hrs
Flood Elev= 46.68'

Device	Routing	Invert	Outlet Devices
#1	Primary	38.96'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=2.14 cfs @ 12.07 hrs HW=39.78' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 2.14 cfs @ 3.09 fps)

Summary for Pond eA1: Pre - Analysis Point-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 5.36" for 25-Year event
Inflow = 2.18 cfs @ 12.07 hrs, Volume= 7,410 cf
Primary = 2.18 cfs @ 12.07 hrs, Volume= 7,410 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond eA2: Pre - Analysis Point-2

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 4.47" for 25-Year event
Inflow = 15.65 cfs @ 12.11 hrs, Volume= 65,188 cf
Primary = 15.65 cfs @ 12.11 hrs, Volume= 65,188 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond eA3: Post - Analysis Point-3

Inflow Area = 232,923 sf, 35.34% Impervious, Inflow Depth = 3.91" for 25-Year event
Inflow = 13.01 cfs @ 12.23 hrs, Volume= 75,892 cf
Primary = 13.01 cfs @ 12.23 hrs, Volume= 75,892 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond eAD: Pre - Area drain at main entrance

Inflow Area = 1,395 sf, 50.82% Impervious, Inflow Depth = 4.59" for 25-Year event
Inflow = 0.16 cfs @ 12.07 hrs, Volume= 533 cf
Outflow = 0.16 cfs @ 12.07 hrs, Volume= 533 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.07 hrs, Volume= 533 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 24.20' @ 12.08 hrs
Flood Elev= 28.40'

Device	Routing	Invert	Outlet Devices

#1	Primary	24.00'	12.0" Round Culvert L= 69.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.00' / 23.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.15 cfs @ 12.07 hrs HW=24.20' TW=23.54' (Dynamic Tailwater)

1-Culvert (Outlet Controls 0.15 cfs @ 2.10 fps)

Summary for Pond eCB1: Pre - CB1

Inflow Area = 12,808 sf, 87.06% Impervious, Inflow Depth = 5.53" for 25-Year event
Inflow = 1.95 cfs @ 12.01 hrs, Volume= 5,898 cf
Outflow = 1.95 cfs @ 12.01 hrs, Volume= 5,898 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.95 cfs @ 12.01 hrs, Volume= 5,898 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 32.77' @ 12.01 hrs

Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	32.00'	12.0" Round Culvert L= 140.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.00' / 30.00' S= 0.0143 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.91 cfs @ 12.01 hrs HW=32.76' TW=30.80' (Dynamic Tailwater)

1=Culvert (Inlet Controls 1.91 cfs @ 2.97 fps)

Summary for Pond eCB2: Pre - CB2

Inflow Area =	24,441 sf, 85.26% Impervious, Inflow Depth = 5.48" for 25-Year event
Inflow =	3.70 cfs @ 12.01 hrs, Volume= 11,160 cf
Outflow =	3.70 cfs @ 12.01 hrs, Volume= 11,160 cf, Atten= 0%, Lag= 0.0 min
Primary =	3.70 cfs @ 12.01 hrs, Volume= 11,160 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 33.32' @ 12.01 hrs

Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	32.20'	15.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.20' / 32.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.61 cfs @ 12.01 hrs HW=33.30' TW=32.84' (Dynamic Tailwater)

1=Culvert (Outlet Controls 3.61 cfs @ 4.20 fps)

Summary for Pond eCB3: Pre - CB3

Inflow Area = 10,081 sf, 18.76% Impervious, Inflow Depth = 3.76" for 25-Year event
 Inflow = 1.01 cfs @ 12.07 hrs, Volume= 3,155 cf
 Outflow = 1.01 cfs @ 12.07 hrs, Volume= 3,155 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.01 cfs @ 12.07 hrs, Volume= 3,155 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 35.19' @ 12.07 hrs

Flood Elev= 39.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.50'	8.0" Round Culvert L= 44.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 34.50' / 33.10' S= 0.0318 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.99 cfs @ 12.07 hrs HW=35.18' TW=32.70' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.99 cfs @ 2.84 fps)

Summary for Pond eCB4: Pre - CB4

Inflow Area = 2,681 sf,100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
 Inflow = 0.38 cfs @ 12.07 hrs, Volume= 1,310 cf
 Outflow = 0.38 cfs @ 12.07 hrs, Volume= 1,310 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.38 cfs @ 12.07 hrs, Volume= 1,310 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.90' @ 12.07 hrs

Flood Elev= 28.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.50'	8.0" Round Culvert L= 55.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.50' / 23.25' S= 0.0227 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

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Primary OutFlow Max=0.37 cfs @ 12.07 hrs HW=24.89' TW=24.41' (Dynamic Tailwater)

└─**1=Culvert** (Outlet Controls 0.37 cfs @ 2.53 fps)

Summary for Pond eCB5: Pre - CB5

Inflow Area = 58,920 sf, 3.59% Impervious, Inflow Depth = 3.36" for 25-Year event
Inflow = 3.70 cfs @ 12.25 hrs, Volume= 16,508 cf
Outflow = 3.70 cfs @ 12.25 hrs, Volume= 16,508 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.70 cfs @ 12.25 hrs, Volume= 16,508 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 30.15' @ 12.25 hrs

Flood Elev= 31.70'

Device	Routing	Invert	Outlet Devices

#1	Primary	28.50'	12.0" Round Culvert L= 158.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 28.50' / 26.92' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.69 cfs @ 12.25 hrs HW=30.13' TW=27.35' (Dynamic Tailwater)

└─**1=Culvert** (Barrel Controls 3.69 cfs @ 4.70 fps)

Summary for Pond eCB6: CB-6

Inflow Area = 14,469 sf, 7.07% Impervious, Inflow Depth = 3.45" for 25-Year event
Inflow = 1.03 cfs @ 12.19 hrs, Volume= 4,163 cf
Outflow = 1.03 cfs @ 12.19 hrs, Volume= 4,163 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.03 cfs @ 12.19 hrs, Volume= 4,163 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 33.54' @ 12.19 hrs

Flood Elev= 34.66'

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Device Routing Invert Outlet Devices

#1	Primary	32.11'	6.0" Round Culvert L= 110.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.11' / 27.50' S= 0.0419 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	34.50'	2.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=1.02 cfs @ 12.19 hrs HW=33.52' TW=26.10' (Dynamic Tailwater)

└─1=Culvert (Inlet Controls 1.02 cfs @ 5.20 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=32.11' TW=19.00' (Dynamic Tailwater)

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

Summary for Pond eCB7: CB-7

Inflow Area =	1,116 sf, 60.48% Impervious, Inflow Depth = 4.84" for 25-Year event
Inflow =	0.14 cfs @ 12.07 hrs, Volume= 450 cf
Outflow =	0.14 cfs @ 12.07 hrs, Volume= 450 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.14 cfs @ 12.07 hrs, Volume= 450 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 26.24' @ 12.07 hrs

Flood Elev= 27.10'

Device Routing Invert Outlet Devices

#1	Primary	25.97'	4.0" Round Culvert L= 14.3' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 25.41' / 25.97' S= -0.0392 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.13 cfs @ 12.07 hrs HW=26.24' TW=22.02' (Dynamic Tailwater)

└─1=Culvert (Inlet Controls 0.13 cfs @ 1.76 fps)

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Summary for Pond eDB1: Pre - Detention Basin-1

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth = 1.95" for 25-Year event
Inflow = 7.94 cfs @ 12.11 hrs, Volume= 12,010 cf
Outflow = 7.81 cfs @ 12.11 hrs, Volume= 11,966 cf, Atten= 2%, Lag= 0.3 min
Primary = 7.81 cfs @ 12.11 hrs, Volume= 11,966 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 22.37' @ 12.11 hrs Surf.Area= 1,171 sf Storage= 2,604 cf
Flood Elev= 23.00' Surf.Area= 1,340 sf Storage= 3,397 cf

Plug-Flow detention time= 16.6 min calculated for 11,966 cf (100% of inflow)
Center-of-Mass det. time= 15.9 min (753.1 - 737.2)

Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	3,397 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	421	0	0
20.00	613	517	517
21.00	830	722	1,239
22.00	1,073	952	2,190
23.00	1,340	1,207	3,397

Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32 4.0" Round Culvert X 3.00 L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.90' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Primary	21.00'	4.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.10' / 19.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Primary	19.10'	4.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.10' / 19.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

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Primary OutFlow Max=7.75 cfs @ 12.11 hrs HW=22.37' TW=19.86' (Dynamic Tailwater)

1=Broad-Crested Rectangular Weir (Weir Controls 5.77 cfs @ 1.57 fps)

2=Culvert (Barrel Controls 1.32 cfs @ 5.05 fps)

3=Culvert (Outlet Controls 0.66 cfs @ 7.52 fps)

Summary for Pond eDB2: Pre - Stone Drainage extra storage Basin-2

Inflow Area = 80,936 sf, 8.59% Impervious, Inflow Depth = 3.49" for 25-Year event
Inflow = 5.89 cfs @ 12.17 hrs, Volume= 23,552 cf
Outflow = 5.61 cfs @ 12.22 hrs, Volume= 21,921 cf, Atten= 5%, Lag= 2.8 min
Primary = 5.61 cfs @ 12.22 hrs, Volume= 21,921 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 22.33' @ 12.22 hrs Surf.Area= 4,377 sf Storage= 4,539 cf

Plug-Flow detention time= 79.7 min calculated for 21,921 cf (93% of inflow)
Center-of-Mass det. time= 43.3 min (865.1 - 821.9)

Volume	Invert	Avail.Storage	Storage Description
#1	20.00'	4,315 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	19.00'	647 cf	Stone Storage (Prismatic) Listed below (Recalc)
		1,962 cf Overall	x 33.0% Voids
		4,963 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
20.00	1,116	0	0
21.00	1,569	1,343	1,343
22.00	2,051	1,810	3,153
22.50	2,600	1,163	4,315

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,962	0	0
20.00	1,962	1,962	1,962

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Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	8.0' long x 6.0' 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) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#2	Primary	20.75'	6.0" Round Culvert L= 20.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 20.75' / 20.50' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	21.25'	6.0" Round Culvert L= 20.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 21.25' / 21.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=5.57 cfs @ 12.22 hrs HW=22.33' TW=18.29' (Dynamic Tailwater)

└─**1=Broad-Crested Rectangular Weir** (Weir Controls 3.72 cfs @ 1.41 fps)

└─**2=Culvert** (Barrel Controls 1.03 cfs @ 5.27 fps)

└─**3=Culvert** (Barrel Controls 0.82 cfs @ 4.16 fps)

Summary for Pond eDM5: Pre - Field DMH

Inflow Area = 14,469 sf, 7.07% Impervious, Inflow Depth = 3.45" for 25-Year event
Inflow = 1.03 cfs @ 12.19 hrs, Volume= 4,163 cf
Outflow = 1.03 cfs @ 12.19 hrs, Volume= 4,163 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.03 cfs @ 12.19 hrs, Volume= 4,163 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 26.15' @ 12.19 hrs

Flood Elev= 29.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.70'	6.0" Round Culvert L= 95.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.70' / 21.80' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=1.02 cfs @ 12.19 hrs HW=26.10' TW=22.32' (Dynamic Tailwater)

└─**1=Culvert** (Outlet Controls 1.02 cfs @ 5.20 fps)

Summary for Pond eDMH1: Pre - DMH1

Inflow Area = 34,522 sf, 65.84% Impervious, Inflow Depth = 4.98" for 25-Year event
Inflow = 4.42 cfs @ 12.01 hrs, Volume= 14,315 cf
Outflow = 4.42 cfs @ 12.01 hrs, Volume= 14,315 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.33 cfs @ 12.01 hrs, Volume= 12,846 cf
Secondary = 1.09 cfs @ 12.01 hrs, Volume= 1,469 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 32.85' @ 12.01 hrs
Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	31.90'	15.0" Round Culvert L= 67.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 31.90' / 29.90' S= 0.0299 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf
#2	Secondary	32.10'	8.0" Round Culvert L= 80.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.10' / 27.00' S= 0.0638 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=3.24 cfs @ 12.01 hrs HW=32.83' TW=30.80' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 3.24 cfs @ 3.29 fps)

Secondary OutFlow Max=1.07 cfs @ 12.01 hrs HW=32.83' TW=27.55' (Dynamic Tailwater)
└─**2=Culvert** (Inlet Controls 1.07 cfs @ 3.05 fps)

Summary for Pond eDMH2: Pre - DMH2

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 4.75" for 25-Year event
Inflow = 5.27 cfs @ 12.01 hrs, Volume= 18,744 cf
Outflow = 5.27 cfs @ 12.01 hrs, Volume= 18,744 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.30 cfs @ 12.01 hrs, Volume= 12,085 cf
Secondary = 2.98 cfs @ 12.01 hrs, Volume= 6,659 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 30.82' @ 12.01 hrs
Flood Elev= 33.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.80'	12.0" Round Culvert L= 17.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.80' / 29.65' S= 0.0088 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	29.90'	15.0" Round Culvert L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.90' / 29.55' S= 0.0140 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.27 cfs @ 12.01 hrs HW=30.80' TW=30.42' (Dynamic Tailwater)

└─1=Culvert (Outlet Controls 2.27 cfs @ 3.59 fps)

Secondary OutFlow Max=2.89 cfs @ 12.01 hrs HW=30.80' TW=27.54' (Dynamic Tailwater)

└─2=Culvert (Barrel Controls 2.89 cfs @ 4.26 fps)

Summary for Pond eDMH3: Pre - DMH3

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 3.70" for 25-Year event
Inflow = 7.43 cfs @ 12.03 hrs, Volume= 32,732 cf
Outflow = 7.43 cfs @ 12.03 hrs, Volume= 32,732 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.43 cfs @ 12.03 hrs, Volume= 32,732 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 27.61' @ 12.03 hrs
Flood Elev= 33.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	26.10'	18.0" Round Culvert L= 105.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.10' / 24.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.39 cfs @ 12.03 hrs HW=27.60' TW=25.30' (Dynamic Tailwater)

└─1=Culvert (Inlet Controls 7.39 cfs @ 4.18 fps)

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Summary for Pond eDMH4: Pre - DMH4

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 3.70" for 25-Year event
Inflow = 7.43 cfs @ 12.03 hrs, Volume= 32,732 cf
Outflow = 7.43 cfs @ 12.03 hrs, Volume= 32,732 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.43 cfs @ 12.03 hrs, Volume= 32,732 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 25.31' @ 12.03 hrs

Flood Elev= 26.80'

Device	Routing	Invert	Outlet Devices

#1	Primary	23.80'	18.0" Round Culvert L= 75.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.80' / 21.75' S= 0.0273 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.39 cfs @ 12.03 hrs HW=25.30' TW=22.00' (Dynamic Tailwater)

1=1=Culvert (Inlet Controls 7.39 cfs @ 4.18 fps)

Summary for Pond eDMH5: Pre - DMH5

Inflow Area = 33,801 sf, 41.97% Impervious, Inflow Depth = 4.30" for 25-Year event
Inflow = 3.73 cfs @ 12.07 hrs, Volume= 12,120 cf
Outflow = 3.73 cfs @ 12.07 hrs, Volume= 12,120 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.73 cfs @ 12.07 hrs, Volume= 12,120 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.57' @ 12.08 hrs

Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	22.00'	12.0" Round Culvert L= 3.5' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 22.00' / 21.75' S= 0.0714 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=3.64 cfs @ 12.07 hrs HW=23.54' TW=22.61' (Dynamic Tailwater)

1=Culvert (Inlet Controls 3.64 cfs @ 4.64 fps)

Summary for Pond eFB1: Forebay-1

Inflow Area = 32,764 sf, 70.56% Impervious, Inflow Depth = 5.10" for 25-Year event
Inflow = 4.68 cfs @ 12.01 hrs, Volume= 13,921 cf
Outflow = 4.62 cfs @ 12.01 hrs, Volume= 13,454 cf, Atten= 1%, Lag= 0.4 min
Primary = 4.62 cfs @ 12.01 hrs, Volume= 13,454 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.32' @ 12.01 hrs Surf.Area= 330 sf Storage= 565 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 39.4 min calculated for 13,454 cf (97% of inflow)

Center-of-Mass det. time= 18.9 min (774.5 - 755.6)

Volume Invert Avail.Storage Storage Description

#1 19.00' 628 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	7	0	0
20.00	40	24	24
21.00	98	69	93
22.00	181	140	232
23.00	289	235	467
23.50	353	161	628

Device Routing Invert Outlet Devices

#1 Primary 23.00' **10.0' long x 2.0' 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
Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

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Primary OutFlow Max=4.51 cfs @ 12.01 hrs HW=23.31' TW=21.94' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Weir Controls 4.51 cfs @ 1.44 fps)

Summary for Pond eFB2: Forebay-2

Inflow Area = 29,790 sf, 90.12% Impervious, Inflow Depth = 5.61" for 25-Year event
Inflow = 4.59 cfs @ 12.01 hrs, Volume= 13,916 cf
Outflow = 4.53 cfs @ 12.01 hrs, Volume= 13,449 cf, Atten= 1%, Lag= 0.4 min
Primary = 4.53 cfs @ 12.01 hrs, Volume= 13,449 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.31' @ 12.01 hrs Surf.Area= 329 sf Storage= 564 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 39.6 min calculated for 13,438 cf (97% of inflow)

Center-of-Mass det. time= 19.1 min (763.7 - 744.7)

Volume Invert Avail.Storage Storage Description

#1 19.00' 628 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	7	0	0
20.00	40	24	24
21.00	98	69	93
22.00	181	140	232
23.00	289	235	467
23.50	353	161	628

Device Routing Invert Outlet Devices

#1 Primary 23.00' **10.0' long x 2.0' 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
Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=4.42 cfs @ 12.01 hrs HW=23.31' TW=21.94' (Dynamic Tailwater)

1=Broad-Crested Rectangular Weir (Weir Controls 4.42 cfs @ 1.43 fps)

Summary for Pond eH1: Pre - Roof Header

Inflow Area = 11,932 sf, 100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 1.69 cfs @ 12.07 hrs, Volume= 5,829 cf
Outflow = 1.69 cfs @ 12.07 hrs, Volume= 5,829 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.69 cfs @ 12.07 hrs, Volume= 5,829 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 29.40' @ 12.07 hrs

Flood Elev= 30.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	25.98'	6.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.66 cfs @ 12.07 hrs HW=29.30' TW=19.07' (Dynamic Tailwater)

1=Orifice/Grate (Orifice Controls 1.66 cfs @ 8.44 fps)

Summary for Reach eOP1: Outlet pipe-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 2.05" for 25-Year event
Inflow = 2.15 cfs @ 12.06 hrs, Volume= 8,094 cf
Outflow = 2.03 cfs @ 12.08 hrs, Volume= 8,095 cf, Atten= 5%, Lag= 1.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 6.57 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 2.68 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 12.08 hrs

Average Depth at Peak Storage= 0.42'

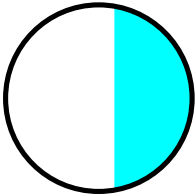
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.63 cfs

12.0" Round Pipe

n= 0.013 Concrete pipe, bends & connections

Length= 14.0' Slope= 0.0250 '/'

Inlet Invert= 29.50', Outlet Invert= 29.15'



Summary for Reach eRD1: Pre - Roof Drain-1

Inflow Area =	15,575 sf, 100.00% Impervious,	Inflow Depth = 5.86"	for 25-Year event
Inflow =	2.20 cfs @ 12.07 hrs,	Volume=	7,608 cf
Outflow =	2.20 cfs @ 12.07 hrs,	Volume=	7,608 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 4.76 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 1.63 fps, Avg. Travel Time= 0.2 min

Peak Storage= 9 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.57'

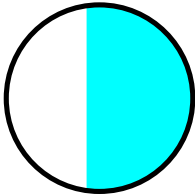
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 20.0' Slope= 0.0100 '/'

Inlet Invert= 25.70', Outlet Invert= 25.50'



Summary for Reach eRD2: Pre - Roof Drain-2

Inflow Area = 16,270 sf, 100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 2.30 cfs @ 12.07 hrs, Volume= 7,948 cf
Outflow = 2.30 cfs @ 12.07 hrs, Volume= 7,948 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 5.51 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 1.87 fps, Avg. Travel Time= 0.2 min

Peak Storage= 12 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.52'

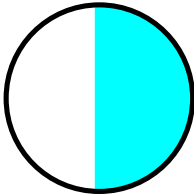
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.26 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 28.0' Slope= 0.0143 '

Inlet Invert= 22.50', Outlet Invert= 22.10'



Summary for Subcatchment eRF1: Pre - Roof flow

Runoff = 2.20 cfs @ 12.07 hrs, Volume= 7,608 cf, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
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Area (sf)	CN	Description
15,575	98	Roofs, HSG C
15,575	98	100.00% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft)
	Velocity (ft/sec)	Capacity (cfs)
	Description	

5.0

Direct Entry, Roof runoff

Summary for Subcatchment eRF2: Pre - Roof flow

Runoff = 2.30 cfs @ 12.07 hrs, Volume= 7,948 cf, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
16,270	98	Roofs, HSG C
16,270	98	100.00% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft)
	Velocity (ft/sec)	Capacity (cfs)
	Description	

5.0

Direct Entry, Roof runoff

Summary for Subcatchment eRF3: Pre - Roof flow

Runoff = 1.69 cfs @ 12.07 hrs, Volume= 5,829 cf, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
11,932	98	Roofs, HSG C
11,932	98	100.00% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Roof runoff

Summary for Subcatchment eS1: Pre - Northeastern Parking lot

Runoff = 2.18 cfs @ 12.07 hrs, Volume= 7,410 cf, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
13,366	98	Paved parking, HSG C
3,232	74	>75% Grass cover, Good, HSG C
16,598	93	Weighted Average
3,232	74	19.47% Pervious Area
13,366	98	80.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Parking Runoff to CB

Summary for Subcatchment eS10: Pre - Flow to Swale-5

Runoff = 2.79 cfs @ 12.26 hrs, Volume= 12,889 cf, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

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Area (sf)	CN	Description
36,588	74	>75% Grass cover, Good, HSG C
937	89	Gravel Driveway
670	98	Paved parking, HSG C
4,746	98	Roofs, HSG C
76	70	Woods, Good, HSG C
43,017	77	Weighted Average
37,601	74	87.41% Pervious Area
5,416	98	12.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
2.7	292	0.0650	1.78		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
19.0	342	Total			

Summary for Subcatchment eS11: Pre - Flow to playground catch basin

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 450 cf, Depth= 4.84"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
128	98	Unconnected pavement, HSG C
441	74	>75% Grass cover, Good, HSG C
547	98	Rubber play surface
1,116	89	Weighted Average
441	74	39.52% Pervious Area
675	98	60.48% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to CB5

Summary for Subcatchment eS12: Pre - Area in front of bldg flowing to existing swale-4

Runoff = 1.85 cfs @ 12.08 hrs, Volume= 6,243 cf, Depth= 4.83"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
5,952	74	>75% Grass cover, Good, HSG C
530	98	Unconnected pavement, HSG C
2,376	98	Roofs, HSG C
6,205	98	Paved parking, HSG C
437	89	Gravel Area
15,500	89	Weighted Average
6,389	75	41.22% Pervious Area
9,111	98	58.78% Impervious Area

*

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.4

Sheet Flow, AB
Grass: Bermuda n= 0.410 P2= 3.30"

Summary for Subcatchment eS13: Pre - Northeastern area flowing to proposed CB5

Runoff = 3.70 cfs @ 12.25 hrs, Volume= 16,508 cf, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

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Type III 24-hr 25-Year Rainfall=6.10"

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Area (sf)		CN	Description
2,021	98	98	Roofs, HSG C
52,854	74	74	>75% Grass cover, Good, HSG C
93	98	98	Paved parking, HSG C
3,952	70	70	Woods, Good, HSG C
58,920	75	75	Weighted Average
56,806	74	74	96.41% Pervious Area
2,114	98	98	3.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	50	0.0200	0.07		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.7	70	0.0500	1.57		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
0.1	24	0.3300	4.02		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
4.9	206	0.0100	0.70		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.1	95	0.1900	18.24	72.98	Channel Flow, EF Area= 4.0 sf Perim= 8.2' r= 0.49' n= 0.022 Earth, clean & straight
18.2	445	Total			

Summary for Subcatchment eS14: Pre - Parking area-4 runoff

Runoff = 3.19 cfs @ 12.07 hrs, Volume= 10,277 cf, Depth= 4.15"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

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Type III 24-hr 25-Year Rainfall=6.10"

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Area (sf)	CN	Description
16,413	74	>75% Grass cover, Good, HSG C
10,797	98	Paved parking, HSG C
2,515	70	Woods, Good, HSG C
29,725	82	Weighted Average
18,928	73	63.68% Pervious Area
10,797	98	36.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment eS15: Pre - Flow to entrance area drain

Runoff = 0.16 cfs @ 12.07 hrs, Volume= 533 cf, Depth= 4.59"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
686	74	>75% Grass cover, Good, HSG C
709	98	Paved parking, HSG C
1,395	86	Weighted Average
686	74	49.18% Pervious Area
709	98	50.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to area drain

Summary for Subcatchment eS16: Pre - Flow to Sand Filter-2

Runoff = 0.89 cfs @ 12.07 hrs, Volume= 2,791 cf, Depth= 4.00"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)		CN	Description		
*	1,543	89	Gravel		
	5,249	74	>75% Grass cover, Good, HSG C		
	1,582	98	Paved parking, HSG C		
	8,374	81	Weighted Average		
	6,792	77	81.11% Pervious Area		
	1,582	98	18.89% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry, Runoff into Basin				

Summary for Subcatchment eS17: Pre - Area in front of bldg flowing to existing swale-3

Runoff = 0.71 cfs @ 12.09 hrs, Volume= 2,328 cf, Depth= 3.72"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)		CN	Description
*	6,221	74	>75% Grass cover, Good, HSG C
	172	98	Existing Wall
	1,125	98	Existing Walk
	7,518	78	Weighted Average
	6,221	74	82.75% Pervious Area
	1,297	98	17.25% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	38	0.0800	0.11		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.6	135	0.0400	4.06		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
6.3	173	Total			

Summary for Subcatchment eS18: Pre - Flow to Sand Filter-1

Runoff = 0.64 cfs @ 12.07 hrs, Volume= 1,942 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
4,170	74	>75% Grass cover, Good, HSG C
2,013	89	Gravel
6,183	79	Weighted Average
6,183	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Flow into Basin

Summary for Subcatchment eS2: Pre - Flow to CB3

Runoff = 1.01 cfs @ 12.07 hrs, Volume= 3,155 cf, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

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Area (sf)	CN	Description
8,190	74	>75% Grass cover, Good, HSG C
1,150	98	Paved parking, HSG C
741	98	Walkway
*		
10,081	79	Weighted Average
8,190	74	81.24% Pervious Area
1,891	98	18.76% Impervious Area
Tc (min)	Slope (ft/ft)	Velocity (ft/sec)
5.0		
		Capacity (cfs)
		Description
		Direct Entry,

Summary for Subcatchment eS20: Pre - Flow to Stone Detention Basin

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 1,054 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)		CN	Description		
3,870		74	>75% Grass cover, Good, HSG C		
3,870		74	100.00% Pervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment eS21: Pre - Flow along South side to Basin-2

Runoff = 4.58 cfs @ 12.17 hrs, Volume= 17,885 cf, Depth= 3.49"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

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Area (sf)		CN	Description		
	2,225	98	Roofs, HSG C		
	1,207	98	Paved parking, HSG C		
*	0	89	Gravel Path		
	1,823	98	Unconnected pavement, HSG C		
*	0	89	Gravel Area		
*	0	89	Stone pile		
	52,137	74	>75% Grass cover, Good, HSG C		
	4,089	70	Woods, Good, HSG C		
	61,481	76	Weighted Average		
	56,226	74	91.45% Pervious Area		
	5,255	98	8.55% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.4	50	0.1000	2.21		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
3.5	147	0.0100	0.70		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
0.2	40	0.1500	2.71		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0600	1.71		Shallow Concentrated Flow, EF Short Grass Pasture Kv= 7.0 fps
0.2	31	0.1900	3.05		Shallow Concentrated Flow, FG Short Grass Pasture Kv= 7.0 fps
0.2	59	0.0170	5.53	55.30	Channel Flow, GH Area= 10.0 sf Perim= 20.1' r= 0.50' n= 0.022 Earth, clean & straight
0.2	143	0.0700	11.22	112.21	Channel Flow, HI Area= 10.0 sf Perim= 20.1' r= 0.50' n= 0.022 Earth, clean & straight
12.5	552	Total			

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Summary for Subcatchment eS3: Pre - Norther half or parking area-2

Runoff = 1.95 cfs @ 12.01 hrs, Volume= 5,898 cf, Depth= 5.53"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)		CN	Description		
1,657	74	>75% Grass cover, Good, HSG C			
11,151	98	Paved parking, HSG C			
12,808	95	Weighted Average			
1,657	74	12.94% Pervious Area			
11,151	98	87.06% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB
					Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC
					Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment eS4: Pre - Southern half of parking area-2

Runoff = 3.70 cfs @ 12.01 hrs, Volume= 11,160 cf, Depth= 5.48"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)		CN	Description
3,603	74	>75% Grass cover, Good, HSG C	
20,838	98	Paved parking, HSG C	
24,441	94	Weighted Average	
3,603	74	14.74% Pervious Area	
20,838	98	85.26% Impervious Area	

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment eS5: Pre - Norther half of parking area-3

Runoff = 4.68 cfs @ 12.01 hrs, Volume= 13,921 cf, Depth= 5.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
9,645	74	>75% Grass cover, Good, HSG C
23,119	98	Paved parking, HSG C
32,764	91	Weighted Average
9,645	74	29.44% Pervious Area
23,119	98	70.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

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Summary for Subcatchment eS6: Pre - Southern half of parking area-3

Runoff = 4.59 cfs @ 12.01 hrs, Volume= 13,916 cf, Depth= 5.61"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
2,944	74	>75% Grass cover, Good, HSG C
26,846	98	Paved parking, HSG C
29,790	96	Weighted Average
2,944	74	9.88% Pervious Area
26,846	98	90.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment eS7: Pre - Flow to CB4

Runoff = 0.38 cfs @ 12.07 hrs, Volume= 1,310 cf, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
2,681	98	Paved parking, HSG C
2,681	98	100.00% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,**Summary for Subcatchment eS9: Pre - Flow to CB-4**

Runoff = 1.03 cfs @ 12.19 hrs, Volume= 4,163 cf, Depth= 3.45"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
827	98	Unconnected pavement, HSG C
196	98	Paved parking, HSG C
446	89	Gravel path
13,000	74	>75% Grass cover, Good, HSG C
14,469	76	Weighted Average
13,446	74	92.93% Pervious Area
1,023	98	7.07% Impervious Area

*

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

9.4 50 0.0400 0.09 **Sheet Flow, AB**

Grass: Bermuda n= 0.410 P2= 3.30"

Shallow Concentrated Flow, BC

Short Grass Pasture Kv= 7.0 fps

Shallow Concentrated Flow, CD

Short Grass Pasture Kv= 7.0 fps

Shallow Concentrated Flow, DE

Short Grass Pasture Kv= 7.0 fps

Channel Flow, EF

Area= 10.0 sf Perim= 20.1' r= 0.50'

n= 0.022 Earth, clean & straight

14.0 387 Total

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Summary for Pond eSF1: Pre - Sand Filter-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 4.22" for 25-Year event
 Inflow = 16.98 cfs @ 12.02 hrs, Volume= 61,576 cf
 Outflow = 14.63 cfs @ 12.07 hrs, Volume= 61,456 cf, Atten= 14%, Lag= 2.8 min
 Primary = 14.63 cfs @ 12.07 hrs, Volume= 61,456 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.03' @ 12.07 hrs Surf.Area= 9,138 sf Storage= 8,112 cf

Flood Elev= 22.20' Surf.Area= 9,493 sf Storage= 8,980 cf

Plug-Flow detention time= 32.1 min calculated for 61,456 cf (100% of inflow)

Center-of-Mass det. time= 30.8 min (819.1 - 788.4)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	5,566 cf	Open Storage (Prismatic) Listed below (Recalc)
#2	18.50'	3,390 cf	Sand Filter (Prismatic) Listed below (Recalc)
#3	18.58'	24 cf	10,295 cf Overall - 24 cf Embedded = 10,271 cf x 33.0% Voids
			4.0" Round Pipe Storage Inside #2
			L= 271.0'
		8,980 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	4,118	0	0
22.00	4,950	4,534	4,534
22.20	5,375	1,032	5,566

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	4,118	0	0
19.00	4,118	2,059	2,059
20.00	4,118	4,118	6,177
21.00	4,118	4,118	10,295

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Device Routing Invert Outlet Devices

#1	Primary	21.20'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 0.00													
			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
			Coef. (English)	2.54	2.61	2.61	2.60	2.66	2.70	2.77	2.89	2.88	2.85	3.07	3.20	3.32
#2	Primary	21.20'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28)													
			Head (feet)	0.00	1.00											
			Width (feet)	4.00	8.00											
#3	Device 4	18.50'	8.270 in/hr Exfiltration over Surface area													
#4	Primary	18.58'	4.0" Round Culvert X 2.00 L= 15.0' RCP, sq.cut end projecting, Ke= 0.500													
			Inlet / Outlet Invert= 18.58' / 18.40'				S= 0.0120 '/'				Cc= 0.900					
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf													

Primary OutFlow Max=14.50 cfs @ 12.07 hrs HW=22.03' TW=18.55' (Dynamic Tailwater)

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

2=Custom Weir/Orifice (Weir Controls 13.14 cfs @ 2.81 fps)

4=Culvert (Barrel Controls 1.35 cfs @ 7.75 fps)

3=Exfiltration (Passes 1.35 cfs of 1.75 cfs potential flow)

Summary for Pond eSF2: Pre - Sand Filter-2

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth = 4.94" for 25-Year event
Inflow = 9.12 cfs @ 12.07 hrs, Volume= 30,467 cf
Outflow = 8.36 cfs @ 12.11 hrs, Volume= 30,456 cf, Atten= 8%, Lag= 2.2 min
Primary = 7.94 cfs @ 12.11 hrs, Volume= 12,010 cf
Secondary = 0.46 cfs @ 12.02 hrs, Volume= 18,446 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.65' @ 12.11 hrs Surf.Area= 3,628 sf Storage= 4,009 cf

Flood Elev= 23.00' Surf.Area= 3,746 sf Storage= 4,765 cf

Plug-Flow detention time= 45.8 min calculated for 30,456 cf (100% of inflow)

Center-of-Mass det. time= 45.5 min (809.1 - 763.6)

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Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	1,020 cf	Sand Filter (Prismatic) Listed below (Recalc) 3,102 cf Overall - 11 cf Embedded = 3,091 cf x 33.0% Voids
#2	21.00'	3,734 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#3	19.00'	11 cf	4.0" Round Pipe Storage Inside #1 L= 123.0'
		4,765 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,551	0	0
20.00	1,551	1,551	1,551
21.00	1,551	1,551	3,102

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	1,551	0	0
22.00	1,861	1,706	1,706
23.00	2,195	2,028	3,734

Device	Routing	Invert	Outlet Devices
#1	Primary	22.15'	10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Device 3	19.00'	8.270 in/hr Exfiltration over Surface area
#3	Secondary	19.00'	4.0" Round Culvert L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.00' / 18.75' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=7.85 cfs @ 12.11 hrs HW=22.64' TW=22.37' (Dynamic Tailwater)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 7.85 cfs @ 1.60 fps)**Secondary OutFlow** Max=0.46 cfs @ 12.02 hrs HW=22.51' TW=19.10' (Dynamic Tailwater)↑**3=Culvert** (Outlet Controls 0.46 cfs @ 5.23 fps)↑**2=Exfiltration** (Passes 0.46 cfs of 0.69 cfs potential flow)

Summary for Pond eSTC1: Pre - Stormceptor-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 3.06" for 25-Year event
 Inflow = 2.30 cfs @ 12.01 hrs, Volume= 12,085 cf
 Outflow = 2.30 cfs @ 12.01 hrs, Volume= 12,085 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.30 cfs @ 12.01 hrs, Volume= 12,085 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 30.43' @ 12.01 hrs

Flood Elev= 33.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.40'	12.0" Round Culvert L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.40' / 29.35' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.25 cfs @ 12.01 hrs HW=30.42' TW=30.04' (Dynamic Tailwater)

1=Culvert (Barrel Controls 2.25 cfs @ 3.50 fps)

Summary for Pond eSTC2: Pre - Stormceptor-2

Inflow Area = 32,406 sf, 41.59% Impervious, Inflow Depth = 4.29" for 25-Year event
 Inflow = 3.56 cfs @ 12.07 hrs, Volume= 11,587 cf
 Outflow = 3.56 cfs @ 12.07 hrs, Volume= 11,587 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.56 cfs @ 12.07 hrs, Volume= 11,587 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.44' @ 12.07 hrs

Flood Elev= 27.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.00'	12.0" Round Culvert L= 5.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.00' / 22.90' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=3.50 cfs @ 12.07 hrs HW=24.41' TW=23.54' (Dynamic Tailwater)

1=Culvert (Barrel Controls 3.50 cfs @ 4.46 fps)

Summary for Pond eSW1: Pre - Swale-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 4.47" for 25-Year event
Inflow = 15.75 cfs @ 12.10 hrs, Volume= 65,188 cf
Outflow = 15.65 cfs @ 12.11 hrs, Volume= 65,188 cf, Atten= 1%, Lag= 0.8 min
Primary = 15.65 cfs @ 12.11 hrs, Volume= 65,188 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 18.57' @ 12.11 hrs Surf.Area= 1,875 sf Storage= 770 cf

Flood Elev= 19.40' Surf.Area= 3,367 sf Storage= 2,947 cf

Plug-Flow detention time= 1.3 min calculated for 65,188 cf (100% of inflow)

Center-of-Mass det. time= 1.3 min (815.9 - 814.6)

Volume Invert Avail.Storage Storage Description

#1 18.00' 2,947 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.00	814	0	0
19.00	2,666	1,740	1,740
19.40	3,367	1,207	2,947

Device Routing Invert Outlet Devices

#1 Primary 18.00' **Custom Weir/Orifice, Cv= 2.62 (C= 3.28)**

Head (feet) 0.00 1.00 1.40

Width (feet) 9.34 16.70 21.40

Primary OutFlow Max=15.56 cfs @ 12.11 hrs HW=18.57' TW=0.00' (Dynamic Tailwater)

1=Custom Weir/Orifice (Weir Controls 15.56 cfs @ 2.38 fps)

Summary for Pond eSW2: Pre - Swale-2

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth = 4.93" for 25-Year event
 Inflow = 8.22 cfs @ 12.11 hrs, Volume= 30,412 cf
 Outflow = 7.61 cfs @ 12.13 hrs, Volume= 30,413 cf, Atten= 8%, Lag= 1.1 min
 Primary = 5.22 cfs @ 12.11 hrs, Volume= 26,681 cf
 Secondary = 2.60 cfs @ 12.17 hrs, Volume= 3,732 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 20.01' @ 12.18 hrs Surf.Area= 621 sf Storage= 448 cf

Flood Elev= 20.70' Surf.Area= 825 sf Storage= 945 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.4 min (815.9 - 815.5)

Volume	Invert	Avail.Storage	Storage	Description
#1	19.00'	945 cf	Custom Stage Data (Prismatic)	Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
19.00	263	0	0	
20.00	617	440	440	
20.70	825	505	945	

Device	Routing	Invert	Outlet Devices
#1	Primary	18.19'	18.0" Round Culvert L= 24.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.19' / 18.09' S= 0.0042 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	19.03'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.68' / 19.03' S= -0.0233 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=5.27 cfs @ 12.11 hrs HW=19.86' TW=19.47' (Dynamic Tailwater)

└─**1=Culvert** (Inlet Controls 5.27 cfs @ 2.98 fps)

Secondary OutFlow Max=2.60 cfs @ 12.17 hrs HW=20.00' TW=18.55' (Dynamic Tailwater)

└─**2=Culvert** (Barrel Controls 2.60 cfs @ 3.32 fps)

Summary for Pond eSW3: Pre - Swale-3

Inflow Area = 81,538 sf, 59.99% Impervious, Inflow Depth = 4.27" for 25-Year event
Inflow = 5.91 cfs @ 12.11 hrs, Volume= 29,009 cf
Outflow = 3.00 cfs @ 12.28 hrs, Volume= 29,010 cf, Atten= 49%, Lag= 10.0 min
Primary = 3.00 cfs @ 12.28 hrs, Volume= 29,010 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.84' @ 12.25 hrs Surf.Area= 2,807 sf Storage= 2,430 cf

Flood Elev= 20.00' Surf.Area= 3,014 sf Storage= 2,902 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 3.5 min (828.5 - 824.9)

Volume	Invert	Avail.Storage	Storage Description
#1	18.50'	2,902 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	374	0	0
19.00	1,735	527	527
20.00	3,014	2,375	2,902

Device	Routing	Invert	Outlet Devices
#1	Primary	18.08'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.08' / 18.01' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=2.99 cfs @ 12.28 hrs HW=19.83' TW=19.20' (Dynamic Tailwater)

1=Culvert (Inlet Controls 2.99 cfs @ 3.81 fps)

Summary for Pond eSW4: Pre - Swale-4

Inflow Area = 108,970 sf, 64.20% Impervious, Inflow Depth = 4.52" for 25-Year event
Inflow = 5.08 cfs @ 12.11 hrs, Volume= 41,082 cf
Outflow = 4.81 cfs @ 12.17 hrs, Volume= 41,082 cf, Atten= 5%, Lag= 3.4 min
Primary = 4.81 cfs @ 12.17 hrs, Volume= 41,082 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.24' @ 12.17 hrs Surf.Area= 1,015 sf Storage= 665 cf

Flood Elev= 19.80' Surf.Area= 1,554 sf Storage= 1,361 cf

Plug-Flow detention time= 2.0 min calculated for 41,082 cf (100% of inflow)

Center-of-Mass det. time= 2.0 min (809.2 - 807.2)

Volume Invert Avail.Storage Storage Description

#1 18.00' 1,361 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.00	27	0	0
19.00	851	439	439
19.50	1,190	510	949
19.80	1,554	412	1,361

Device Routing Invert Outlet Devices

#1 Primary 17.99' **18.0" Round Culvert** L= 21.0' RCP, sq.cut end projecting, Ke= 0.500
Inlet / Outlet Invert= 17.99' / 17.82' S= 0.0081 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.80 cfs @ 12.17 hrs HW=19.24' TW=18.27' (Dynamic Tailwater)

1=Culvert (Barrel Controls 4.80 cfs @ 4.13 fps)

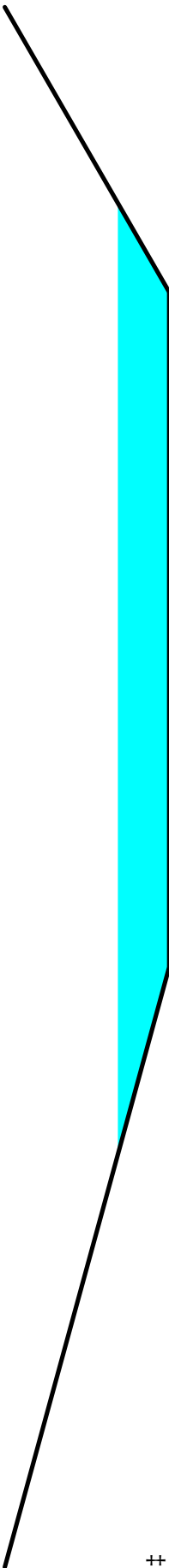
Summary for Reach eSW5: Pre - Swale-5

Inflow Area = 232,923 sf, 35.34% Impervious, Inflow Depth = 3.91" for 25-Year event
Inflow = 13.04 cfs @ 12.22 hrs, Volume= 75,893 cf
Outflow = 13.01 cfs @ 12.23 hrs, Volume= 75,892 cf, Atten= 0%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 2.57 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 0.63 fps, Avg. Travel Time= 3.8 min

Peak Storage= 735 cf @ 12.23 hrs
Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 1.50' Flow Area= 22.4 sf, Capacity= 110.11 cfs

Custom cross-section, Length= 145.0' Slope= 0.0050 '/
Constant n= 0.022 Earth, clean & straight
Inlet Invert= 17.82', Outlet Invert= 17.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-12.50	19.50	0.00
-4.50	18.00	1.50
4.50	18.00	1.50
8.30	19.50	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	9.0	0	0.00
1.50	22.4	21.2	3,241	110.11

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Summary for Pond eUS1: Pre - Underground Recharge System-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 3.06" for 25-Year event
Inflow = 2.30 cfs @ 12.01 hrs, Volume= 12,085 cf
Outflow = 2.19 cfs @ 12.06 hrs, Volume= 12,085 cf, Atten= 5%, Lag= 2.9 min
Discarded = 0.04 cfs @ 4.20 hrs, Volume= 4,056 cf
Primary = 2.15 cfs @ 12.06 hrs, Volume= 8,094 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 30.08' @ 12.05 hrs Surf.Area= 1,736 sf Storage= 1,479 cf

Flood Elev= 30.90' Surf.Area= 1,736 sf Storage= 1,991 cf

Plug-Flow detention time= 85.4 min calculated for 12,075 cf (100% of inflow)

Center-of-Mass det. time= 85.7 min (852.3 - 766.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	28.57'	1,014 cf	21.50"W x 80.76'L x 2.33'H Field A 4,051 cf Overall - 978 cf Embedded = 3,073 cf x 33.0% Voids
#2A	29.07'	978 cf	ADS StormTech SC-310 x 66 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 6 rows
		1,992 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.57'	1.000 in/hr Exfiltration over Surface area
#2	Primary	29.36'	8.0" Round Culvert X 3.00 L= 2.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.36' / 29.30' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

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Discarded OutFlow Max=0.04 cfs @ 4.20 hrs HW=28.59' (Free Discharge)
└─1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=2.10 cfs @ 12.06 hrs HW=30.08' TW=29.91' (Dynamic Tailwater)
└─2=Culvert (Inlet Controls 2.10 cfs @ 2.00 fps)

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Time span=0.00-36.00 hrs, dt=0.03 hrs, 1201 points x 2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond CB-1: CB-1

Peak Elev=40.15' Inflow=3.15 cfs 10,784 cf
Outflow=3.15 cfs 10,784 cf

Pond eA1: Pre - Analysis Point-1

Inflow=3.15 cfs 10,784 cf
Primary=3.15 cfs 10,784 cf

Pond eA2: Pre - Analysis Point-2

Inflow=28.10 cfs 104,390 cf
Primary=28.10 cfs 104,390 cf

Pond eA3: Post - Analysis Point-3

Inflow=24.91 cfs 116,357 cf
Primary=24.91 cfs 116,357 cf

Pond eAD: Pre - Area drain at main entrance

12.0" Round Culvert n=0.013 L=69.0' S=0.0109 '/' Inflow=0.24 cfs 806 cf
Outflow=0.24 cfs 806 cf

Pond eCB1: Pre - CB1

12.0" Round Culvert n=0.012 L=140.0' S=0.0143 '/' Inflow=2.80 cfs 8,523 cf
Outflow=2.80 cfs 8,523 cf

Pond eCB2: Pre - CB2

15.0" Round Culvert n=0.013 L=10.0' S=0.0200 '/' Inflow=5.32 cfs 16,158 cf
Outflow=5.32 cfs 16,158 cf

Pond eCB3: Pre - CB3

8.0" Round Culvert n=0.013 L=44.0' S=0.0318 '/' Inflow=1.61 cfs 5,048 cf
Outflow=1.61 cfs 5,048 cf

Pond eCB4: Pre - CB4

8.0" Round Culvert n=0.013 L=55.0' S=0.0227 '/' Inflow=0.54 cfs 1,868 cf
Outflow=0.54 cfs 1,868 cf

Pond eCB5: Pre - CB5

12.0" Round Culvert n=0.013 L=158.0' S=0.0100 '/' Inflow=6.13 cfs 27,346 cf
Outflow=6.13 cfs 27,346 cf

Pond eCB6: CB-6

Primary=1.25 cfs 6,617 cf Secondary=0.43 cfs 219 cf Inflow=1.69 cfs 6,837 cf
Outflow=1.69 cfs 6,837 cf

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Pond eCB7: CB-7

4.0" Round Culvert n=0.013 L=14.3' S=-0.0392 '/' Inflow=0.20 cfs 671 cf
Outflow=0.20 cfs 671 cf

Pond eDB1: Pre - Detention Basin-1

Peak Elev=22.83' Storage=3,168 cf Inflow=15.58 cfs 22,664 cf
Outflow=12.69 cfs 22,619 cf

Pond eDB2: Pre - Stone Drainage extra storage Basin-2

Peak Elev=22.50' Storage=4,963 cf Inflow=9.63 cfs 38,541 cf
Outflow=9.41 cfs 36,910 cf

Pond eDM5: Pre - Field DMH

6.0" Round Culvert n=0.013 L=95.0' S=0.0200 '/' Inflow=1.25 cfs 6,617 cf
Outflow=1.25 cfs 6,617 cf

Pond eDMH1: Pre - DMH1

Primary=4.98 cfs 18,678 cf Secondary=1.50 cfs 2,527 cf Inflow=6.48 cfs 21,206 cf
Outflow=6.48 cfs 21,206 cf

Pond eDMH2: Pre - DMH2

Primary=2.71 cfs 16,320 cf Secondary=5.07 cfs 10,882 cf Inflow=7.77 cfs 27,202 cf
Outflow=7.77 cfs 27,202 cf

Pond eDMH3: Pre - DMH3

18.0" Round Culvert n=0.013 L=105.0' S=0.0200 '/' Inflow=11.29 cfs 52,898 cf
Outflow=11.29 cfs 52,898 cf

Pond eDMH4: Pre - DMH4

18.0" Round Culvert n=0.013 L=75.0' S=0.0273 '/' Inflow=11.29 cfs 52,898 cf
Outflow=11.29 cfs 52,898 cf

Pond eDMH5: Pre - DMH5

12.0" Round Culvert n=0.013 L=3.5' S=0.0714 '/' Inflow=5.73 cfs 18,627 cf
Outflow=5.73 cfs 18,627 cf

Pond eFB1: Forebay-1

Peak Elev=23.41' Storage=595 cf Inflow=6.87 cfs 20,499 cf
Outflow=6.78 cfs 20,032 cf

Pond eFB2: Forebay-2

Peak Elev=23.40' Storage=591 cf Inflow=6.56 cfs 20,043 cf
Outflow=6.48 cfs 19,576 cf

Pond eH1: Pre - Roof Header

Peak Elev=32.56' Inflow=2.38 cfs 8,312 cf
Outflow=2.38 cfs 8,312 cf

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Reach eOP1: Outlet pipe-1

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.48' Max Vel=7.03 fps Inflow=2.60 cfs 12,141 cf
L=14.0' S=0.0250 '/' Capacity=5.63 cfs Outflow=2.61 cfs 12,142 cf

Reach eRD1: Pre - Roof Drain-1

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.72' Max Vel=5.10 fps Inflow=3.11 cfs 10,850 cf
L=20.0' S=0.0100 '/' Capacity=3.56 cfs Outflow=3.11 cfs 10,850 cf

Reach eRD2: Pre - Roof Drain-2

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.65' Max Vel=5.96 fps Inflow=3.25 cfs 11,335 cf
L=28.0' S=0.0143 '/' Capacity=4.26 cfs Outflow=3.25 cfs 11,335 cf

Subcatchment eRF1: Pre - Roof flow

Runoff Area=15,575 sf 100.00% Impervious Runoff Depth=8.36"
Tc=5.0 min CN=0/98 Runoff=3.11 cfs 10,850 cf

Subcatchment eRF2: Pre - Roof flow

Runoff Area=16,270 sf 100.00% Impervious Runoff Depth=8.36"
Tc=5.0 min CN=0/98 Runoff=3.25 cfs 11,335 cf

Subcatchment eRF3: Pre - Roof flow

Runoff Area=11,932 sf 100.00% Impervious Runoff Depth=8.36"
Tc=5.0 min CN=0/98 Runoff=2.38 cfs 8,312 cf

Subcatchment eS1: Pre - Northeastern Parking lot

Runoff Area=16,598 sf 80.53% Impervious Runoff Depth=7.80"
Tc=5.0 min CN=74/98 Runoff=3.15 cfs 10,784 cf

Subcatchment eS10: Pre - Flow to Swale-5

Runoff Area=43,017 sf 12.59% Impervious Runoff Depth=5.83"
Flow Length=342' Tc=19.0 min CN=74/98 Runoff=4.53 cfs 20,899 cf

Subcatchment eS11: Pre - Flow to playground catch basin

Runoff Area=1,116 sf 60.48% Impervious Runoff Depth=7.22"
Tc=5.0 min CN=74/98 Runoff=0.20 cfs 671 cf

Subcatchment eS12: Pre - Area in front of bldg flowing to existing swale-4

Flow Length=50' Slope=0.1600 '/' Tc=5.4 min CN=75/98 Runoff=2.75 cfs 9,321 cf

Subcatchment eS13: Pre - Northeastern area flowing to proposed CB5

Runoff Area=58,920 sf 3.59% Impervious Runoff Depth=5.57"
Flow Length=445' Tc=18.2 min CN=74/98 Runoff=6.13 cfs 27,346 cf

Subcatchment eS14: Pre - Parking area-4 runoff

Runoff Area=29,725 sf 36.32% Impervious Runoff Depth=6.44"
Tc=5.0 min CN=73/98 Runoff=4.95 cfs 15,953 cf

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Subcatchment eS15: Pre - Flow to entrance area drain

Runoff Area=1,395 sf 50.82% Impervious Runoff Depth=6.94"
Tc=5.0 min CN=74/98 Runoff=0.24 cfs 806 cf

Subcatchment eS16: Pre - Flow to Sand Filter-2

Runoff Area=8,374 sf 18.89% Impervious Runoff Depth=6.31"
Tc=5.0 min CN=77/98 Runoff=1.40 cfs 4,400 cf

Subcatchment eS17: Pre - Area in front of bldg flowing to existing swale-3

Runoff Area=7,518 sf 17.25% Impervious Runoff Depth=5.96"
Flow Length=173' Tc=6.3 min CN=74/98 Runoff=1.14 cfs 3,737 cf

Subcatchment eS18: Pre - Flow to Sand Filter-1

Runoff Area=6,183 sf 0.00% Impervious Runoff Depth=6.07"
Tc=5.0 min CN=79/0 Runoff=1.02 cfs 3,127 cf

Subcatchment eS2: Pre - Flow to CB3

Runoff Area=10,081 sf 18.76% Impervious Runoff Depth=6.01"
Tc=5.0 min CN=74/98 Runoff=1.61 cfs 5,048 cf

Subcatchment eS20: Pre - Flow to Stone Detention Basin

Runoff Area=3,870 sf 0.00% Impervious Runoff Depth=5.47"
Tc=5.0 min CN=74/0 Runoff=0.58 cfs 1,763 cf

Subcatchment eS21: Pre - Flow along South side to Basin-2

Runoff Area=61,481 sf 8.55% Impervious Runoff Depth=5.71"
Flow Length=552' Tc=12.5 min CN=74/98 Runoff=7.49 cfs 29,270 cf

Subcatchment eS3: Pre - Norther half of parking area-2

Runoff Area=12,808 sf 87.06% Impervious Runoff Depth=7.99"
Flow Length=117' Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=2.80 cfs 8,523 cf

Subcatchment eS4: Pre - Southern half of parking area-2

Runoff Area=24,441 sf 85.26% Impervious Runoff Depth=7.93"
Flow Length=117' Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=5.32 cfs 16,158 cf

Subcatchment eS5: Pre - Norther half of parking area-3

Runoff Area=32,764 sf 70.56% Impervious Runoff Depth=7.51"
Flow Length=117' Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=6.87 cfs 20,499 cf

Subcatchment eS6: Pre - Southern half of parking area-3

Runoff Area=29,790 sf 90.12% Impervious Runoff Depth=8.07"
Flow Length=117' Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=6.56 cfs 20,043 cf

Subcatchment eS7: Pre - Flow to CB4

Runoff Area=2,681 sf 100.00% Impervious Runoff Depth=8.36"
Tc=5.0 min CN=0/98 Runoff=0.54 cfs 1,868 cf

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Subcatchment eS9: Pre - Flow to CB-4

Runoff Area=14,469 sf 7.07% Impervious Runoff Depth=5.67"
Flow Length=387' Tc=14.0 min CN=74/98 Runoff=1.69 cfs 6,837 cf

Pond eSF1: Pre - Sand Filter-1

Peak Elev=22.51' Storage=8,980 cf Inflow=25.28 cfs 95,633 cf
Outflow=26.55 cfs 95,513 cf

Pond eSF2: Pre - Sand Filter-2

Peak Elev=22.97' Storage=4,691 cf Inflow=13.48 cfs 45,212 cf
Primary=15.58 cfs 22,664 cf Secondary=0.45 cfs 22,576 cf Outflow=15.92 cfs 45,202 cf

Pond eSTC1: Pre - Stormceptor-1

Peak Elev=30.69' Inflow=2.71 cfs 16,320 cf
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 '/' Outflow=2.71 cfs 16,320 cf

Pond eSTC2: Pre - Stormceptor-2

Peak Elev=27.12' Inflow=5.48 cfs 17,821 cf
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=5.48 cfs 17,821 cf

Pond eSW1: Pre - Swale-1

Peak Elev=18.81' Storage=1,271 cf Inflow=30.89 cfs 104,391 cf
Outflow=28.10 cfs 104,390 cf

Pond eSW2: Pre - Swale-2

Peak Elev=30.04' Storage=945 cf Inflow=13.04 cfs 45,194 cf
Primary=7.97 cfs 37,178 cf Secondary=12.26 cfs 8,878 cf Outflow=12.26 cfs 45,195 cf

Pond eSW3: Pre - Swale-3

Peak Elev=32.70' Storage=2,902 cf Inflow=9.05 cfs 40,915 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0047 '/' Outflow=13.13 cfs 40,914 cf

Pond eSW4: Pre - Swale-4

Peak Elev=21.02' Storage=1,361 cf Inflow=17.52 cfs 58,548 cf
18.0" Round Culvert n=0.013 L=21.0' S=0.0081 '/' Outflow=13.04 cfs 58,548 cf

Reach eSW5: Pre - Swale-5

Avg. Flow Depth=0.68' Max Vel=3.16 fps Inflow=25.17 cfs 116,358 cf
n=0.022 L=145.0' S=0.0050 '/' Capacity=110.11 cfs Outflow=24.91 cfs 116,357 cf

Pond eUS1: Pre - Underground Recharge System-1

Peak Elev=30.21' Storage=1,582 cf Inflow=2.71 cfs 16,320 cf
Discarded=0.04 cfs 4,182 cf Primary=2.60 cfs 12,141 cf Outflow=2.64 cfs 16,322 cf

Total Runoff Area = 424,508 sf Runoff Volume = 237,551 cf Average Runoff Depth = 6.72"
57.21% Pervious = 242,860 sf 42.79% Impervious = 181,648 sf

Summary for Pond CB-1: CB-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 7.80" for 100-Year event
Inflow = 3.15 cfs @ 12.07 hrs, Volume= 10,784 cf
Outflow = 3.15 cfs @ 12.07 hrs, Volume= 10,784 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.15 cfs @ 12.07 hrs, Volume= 10,784 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 40.15' @ 12.07 hrs
Flood Elev= 46.68'

Device	Routing	Invert	Outlet Devices
#1	Primary	38.96'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=3.10 cfs @ 12.07 hrs HW=40.13' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 3.10 cfs @ 3.95 fps)

Summary for Pond eA1: Pre - Analysis Point-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 7.80" for 100-Year event
Inflow = 3.15 cfs @ 12.07 hrs, Volume= 10,784 cf
Primary = 3.15 cfs @ 12.07 hrs, Volume= 10,784 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond eA2: Pre - Analysis Point-2

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 7.16" for 100-Year event
Inflow = 28.10 cfs @ 12.12 hrs, Volume= 104,390 cf
Primary = 28.10 cfs @ 12.12 hrs, Volume= 104,390 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond eA3: Post - Analysis Point-3

Inflow Area = 232,923 sf, 35.34% Impervious, Inflow Depth = 5.99" for 100-Year event
Inflow = 24.91 cfs @ 12.15 hrs, Volume= 116,357 cf
Primary = 24.91 cfs @ 12.15 hrs, Volume= 116,357 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond eAD: Pre - Area drain at main entrance

Inflow Area = 1,395 sf, 50.82% Impervious, Inflow Depth = 6.94" for 100-Year event
Inflow = 0.24 cfs @ 12.07 hrs, Volume= 806 cf
Outflow = 0.24 cfs @ 12.07 hrs, Volume= 806 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.07 hrs, Volume= 806 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 25.02' @ 12.08 hrs
Flood Elev= 28.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.00'	12.0" Round Culvert L= 69.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.00' / 23.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=24.95' TW=25.01' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond eCB1: Pre - CB1

Inflow Area = 12,808 sf, 87.06% Impervious, Inflow Depth = 7.99" for 100-Year event
Inflow = 2.80 cfs @ 12.01 hrs, Volume= 8,523 cf
Outflow = 2.80 cfs @ 12.01 hrs, Volume= 8,523 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.80 cfs @ 12.01 hrs, Volume= 8,523 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 33.05' @ 12.01 hrs
Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	32.00'	12.0" Round Culvert L= 140.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.00' / 30.00' S= 0.0143 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=2.73 cfs @ 12.01 hrs HW=33.02' TW=31.22' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.73 cfs @ 3.48 fps)

Summary for Pond eCB2: Pre - CB2

Inflow Area =	24,441 sf, 85.26% Impervious, Inflow Depth = 7.93" for 100-Year event
Inflow =	5.32 cfs @ 12.01 hrs, Volume= 16,158 cf
Outflow =	5.32 cfs @ 12.01 hrs, Volume= 16,158 cf, Atten= 0%, Lag= 0.0 min
Primary =	5.32 cfs @ 12.01 hrs, Volume= 16,158 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 34.03' @ 12.01 hrs
Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	32.20'	15.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.20' / 32.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.20 cfs @ 12.01 hrs HW=33.97' TW=33.20' (Dynamic Tailwater)
1=Culvert (Inlet Controls 5.20 cfs @ 4.23 fps)

Summary for Pond eCB3: Pre - CB3

Inflow Area = 10,081 sf, 18.76% Impervious, Inflow Depth = 6.01" for 100-Year event
Inflow = 1.61 cfs @ 12.07 hrs, Volume= 5,048 cf
Outflow = 1.61 cfs @ 12.07 hrs, Volume= 5,048 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.61 cfs @ 12.07 hrs, Volume= 5,048 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 35.75' @ 12.07 hrs
Flood Elev= 39.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.50'	8.0" Round Culvert L= 44.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 34.50' / 33.10' S= 0.0318 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=1.58 cfs @ 12.07 hrs HW=35.72' TW=32.95' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.58 cfs @ 4.53 fps)

Summary for Pond eCB4: Pre - CB4

Inflow Area = 2,681 sf, 100.00% Impervious, Inflow Depth = 8.36" for 100-Year event
Inflow = 0.54 cfs @ 12.07 hrs, Volume= 1,868 cf
Outflow = 0.54 cfs @ 12.07 hrs, Volume= 1,868 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.54 cfs @ 12.07 hrs, Volume= 1,868 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 27.16' @ 12.09 hrs
Flood Elev= 28.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.50'	8.0" Round Culvert L= 55.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.50' / 23.25' S= 0.0227 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=26.77' TW=26.97' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond eCB5: Pre - CB5

Inflow Area = 58,920 sf, 3.59% Impervious, Inflow Depth = 5.57" for 100-Year event
Inflow = 6.13 cfs @ 12.25 hrs, Volume= 27,346 cf
Outflow = 6.13 cfs @ 12.25 hrs, Volume= 27,346 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.13 cfs @ 12.25 hrs, Volume= 27,346 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 34.21' @ 12.24 hrs
Flood Elev= 31.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	28.50'	12.0" Round Culvert L= 158.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 28.50' / 26.92' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=6.09 cfs @ 12.25 hrs HW=34.14' TW=28.11' (Dynamic Tailwater)
1=Culvert (Outlet Controls 6.09 cfs @ 7.76 fps)

Summary for Pond eCB6: CB-6

Inflow Area = 14,469 sf, 7.07% Impervious, Inflow Depth = 5.67" for 100-Year event
Inflow = 1.69 cfs @ 12.19 hrs, Volume= 6,837 cf
Outflow = 1.69 cfs @ 12.19 hrs, Volume= 6,837 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.25 cfs @ 12.22 hrs, Volume= 6,617 cf
Secondary = 0.43 cfs @ 12.19 hrs, Volume= 219 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 34.69' @ 12.19 hrs
Flood Elev= 34.66'

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Device Routing Invert Outlet Devices

#1	Primary	32.11'	6.0" Round Culvert L= 110.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.11' / 27.50' S= 0.0419 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	34.50'	2.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=1.25 cfs @ 12.22 hrs HW=34.68' TW=28.21' (Dynamic Tailwater)

1=Culvert (Outlet Controls 1.25 cfs @ 6.39 fps)

Secondary OutFlow Max=0.42 cfs @ 12.19 hrs HW=34.68' TW=22.50' (Dynamic Tailwater)

2=Broad-Crested Rectangular Weir (Weir Controls 0.42 cfs @ 1.15 fps)

Summary for Pond eCB7: CB-7

Inflow Area =	1,116 sf, 60.48% Impervious, Inflow Depth = 7.22" for 100-Year event
Inflow =	0.20 cfs @ 12.07 hrs, Volume= 671 cf
Outflow =	0.20 cfs @ 12.07 hrs, Volume= 671 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.20 cfs @ 12.07 hrs, Volume= 671 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 26.37' @ 12.07 hrs

Flood Elev= 27.10'

Device Routing Invert Outlet Devices

#1	Primary	25.97'	4.0" Round Culvert L= 14.3' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 25.41' / 25.97' S= -0.0392 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.20 cfs @ 12.07 hrs HW=26.36' TW=22.35' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.20 cfs @ 2.26 fps)

Summary for Pond eDB1: Pre - Detention Basin-1

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth = 3.67" for 100-Year event
 Inflow = 15.58 cfs @ 12.18 hrs, Volume= 22,664 cf
 Outflow = 12.69 cfs @ 12.11 hrs, Volume= 22,619 cf, Atten= 19%, Lag= 0.0 min
 Primary = 12.69 cfs @ 12.11 hrs, Volume= 22,619 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 22.83' @ 12.21 hrs Surf.Area= 1,294 sf Storage= 3,168 cf
 Flood Elev= 23.00' Surf.Area= 1,340 sf Storage= 3,397 cf

Plug-Flow detention time= 13.5 min calculated for 22,600 cf (100% of inflow)
 Center-of-Mass det. time= 13.3 min (753.6 - 740.3)

Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	3,397 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	421	0	0
20.00	613	517	517
21.00	830	722	1,239
22.00	1,073	952	2,190
23.00	1,340	1,207	3,397

Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32 4.0" Round Culvert X 3.00 L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.90' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Primary	21.00'	4.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.10' / 19.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Primary	19.10'	4.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.10' / 19.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.00 cfs @ 12.11 hrs HW=22.53' TW=25.66' (Dynamic Tailwater)

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

2=Culvert (Controls 0.00 cfs)

3=Culvert (Controls 0.00 cfs)

Summary for Pond eDB2: Pre - Stone Drainage extra storage Basin-2

Inflow Area = 80,936 sf, 8.59% Impervious, Inflow Depth = 5.71" for 100-Year event
 Inflow = 9.63 cfs @ 12.17 hrs, Volume= 38,541 cf
 Outflow = 9.41 cfs @ 12.20 hrs, Volume= 36,910 cf, Atten= 2%, Lag= 1.8 min
 Primary = 9.41 cfs @ 12.20 hrs, Volume= 36,910 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 22.50' @ 12.20 hrs Surf.Area= 4,562 sf Storage= 4,963 cf

Plug-Flow detention time= 57.8 min calculated for 36,880 cf (96% of inflow)
 Center-of-Mass det. time= 34.3 min (844.3 - 810.0)

Volume	Invert	Avail.Storage	Storage Description
#1	20.00'	4,315 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	19.00'	647 cf	Stone Storage (Prismatic) Listed below (Recalc)
		1,962 cf Overall	x 33.0% Voids
		4,963 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
20.00	1,116	0	0
21.00	1,569	1,343	1,343
22.00	2,051	1,810	3,153
22.50	2,600	1,163	4,315

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,962	0	0
20.00	1,962	1,962	1,962

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Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	8.0' long x 6.0' 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) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#2	Primary	20.75'	6.0" Round Culvert L= 20.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 20.75' / 20.50' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	21.25'	6.0" Round Culvert L= 20.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 21.25' / 21.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=9.36 cfs @ 12.20 hrs HW=22.50' TW=18.43' (Dynamic Tailwater)

└─**1=Broad-Crested Rectangular Weir** (Weir Controls 7.36 cfs @ 1.84 fps)

└─**2=Culvert** (Barrel Controls 1.10 cfs @ 5.60 fps)

└─**3=Culvert** (Barrel Controls 0.90 cfs @ 4.57 fps)

Summary for Pond eDM5: Pre - Field DMH

Inflow Area = 14,469 sf, 7.07% Impervious, Inflow Depth = 5.49" for 100-Year event
Inflow = 1.25 cfs @ 12.22 hrs, Volume= 6,617 cf
Outflow = 1.25 cfs @ 12.22 hrs, Volume= 6,617 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.25 cfs @ 12.22 hrs, Volume= 6,617 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 28.21' @ 12.20 hrs

Flood Elev= 29.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.70'	6.0" Round Culvert L= 95.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.70' / 21.80' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=1.25 cfs @ 12.22 hrs HW=28.21' TW=22.50' (Dynamic Tailwater)

└─**1=Culvert** (Outlet Controls 1.25 cfs @ 6.39 fps)

Summary for Pond eDMH1: Pre - DMH1

Inflow Area = 34,522 sf, 65.84% Impervious, Inflow Depth = 7.37" for 100-Year event
Inflow = 6.48 cfs @ 12.01 hrs, Volume= 21,206 cf
Outflow = 6.48 cfs @ 12.01 hrs, Volume= 21,206 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.98 cfs @ 12.01 hrs, Volume= 18,678 cf
Secondary = 1.50 cfs @ 12.01 hrs, Volume= 2,527 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 33.23' @ 12.01 hrs
Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	31.90'	15.0" Round Culvert L= 67.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 31.90' / 29.90' S= 0.0299 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf
#2	Secondary	32.10'	8.0" Round Culvert L= 80.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.10' / 27.00' S= 0.0638 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=4.85 cfs @ 12.01 hrs HW=33.20' TW=31.21' (Dynamic Tailwater)
1=Culvert (Inlet Controls 4.85 cfs @ 3.96 fps)

Secondary OutFlow Max=1.47 cfs @ 12.01 hrs HW=33.20' TW=28.57' (Dynamic Tailwater)
2=Culvert (Inlet Controls 1.47 cfs @ 4.22 fps)

Summary for Pond eDMH2: Pre - DMH2

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 6.90" for 100-Year event
Inflow = 7.77 cfs @ 12.01 hrs, Volume= 27,202 cf
Outflow = 7.77 cfs @ 12.01 hrs, Volume= 27,202 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.71 cfs @ 12.02 hrs, Volume= 16,320 cf
Secondary = 5.07 cfs @ 12.01 hrs, Volume= 10,882 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 31.25' @ 12.01 hrs
Flood Elev= 33.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.80'	12.0" Round Culvert L= 17.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.80' / 29.65' S= 0.0088 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	29.90'	15.0" Round Culvert L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.90' / 29.55' S= 0.0140 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.76 cfs @ 12.02 hrs HW=31.20' TW=30.66' (Dynamic Tailwater)

└─1=Culvert (Inlet Controls 2.76 cfs @ 3.52 fps)

Secondary OutFlow Max=4.91 cfs @ 12.01 hrs HW=31.22' TW=28.57' (Dynamic Tailwater)

└─2=Culvert (Inlet Controls 4.91 cfs @ 4.00 fps)

Summary for Pond eDMH3: Pre - DMH3

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 5.97" for 100-Year event
Inflow = 11.29 cfs @ 12.03 hrs, Volume= 52,898 cf
Outflow = 11.29 cfs @ 12.03 hrs, Volume= 52,898 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.29 cfs @ 12.03 hrs, Volume= 52,898 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 28.61' @ 12.03 hrs
Flood Elev= 33.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	26.10'	18.0" Round Culvert L= 105.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.10' / 24.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=11.26 cfs @ 12.03 hrs HW=28.60' TW=26.30' (Dynamic Tailwater)

└─1=Culvert (Inlet Controls 11.26 cfs @ 6.37 fps)

Summary for Pond eDMH4: Pre - DMH4

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 5.97" for 100-Year event
 Inflow = 11.29 cfs @ 12.03 hrs, Volume= 52,898 cf
 Outflow = 11.29 cfs @ 12.03 hrs, Volume= 52,898 cf, Atten= 0%, Lag= 0.0 min
 Primary = 11.29 cfs @ 12.03 hrs, Volume= 52,898 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 26.31' @ 12.03 hrs

Flood Elev= 26.80'

Device	Routing	Invert	Outlet Devices

#1	Primary	23.80'	18.0" Round Culvert L= 75.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.80' / 21.75' S= 0.0273 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=11.26 cfs @ 12.03 hrs HW=26.30' TW=22.46' (Dynamic Tailwater)

1=Culvert (Inlet Controls 11.26 cfs @ 6.37 fps)

Summary for Pond eDMH5: Pre - DMH5

Inflow Area = 33,801 sf, 41.97% Impervious, Inflow Depth = 6.61" for 100-Year event
 Inflow = 5.73 cfs @ 12.07 hrs, Volume= 18,627 cf
 Outflow = 5.73 cfs @ 12.07 hrs, Volume= 18,627 cf, Atten= 0%, Lag= 0.0 min
 Primary = 5.73 cfs @ 12.07 hrs, Volume= 18,627 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 25.09' @ 12.07 hrs

Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	22.00'	12.0" Round Culvert L= 3.5' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 22.00' / 21.75' S= 0.0714 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=5.61 cfs @ 12.07 hrs HW=25.01' TW=22.81' (Dynamic Tailwater)

1=Culvert (Inlet Controls 5.61 cfs @ 7.14 fps)

Summary for Pond eFB1: Forebay-1

Inflow Area = 32,764 sf, 70.56% Impervious, Inflow Depth = 7.51" for 100-Year event
Inflow = 6.87 cfs @ 12.01 hrs, Volume= 20,499 cf
Outflow = 6.78 cfs @ 12.01 hrs, Volume= 20,032 cf, Atten= 1%, Lag= 0.4 min
Primary = 6.78 cfs @ 12.01 hrs, Volume= 20,032 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.41' @ 12.01 hrs Surf.Area= 341 sf Storage= 595 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 28.7 min calculated for 20,032 cf (98% of inflow)

Center-of-Mass det. time= 14.1 min (765.1 - 751.0)

Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	628 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	7	0	0
20.00	40	24	24
21.00	98	69	93
22.00	181	140	232
23.00	289	235	467
23.50	353	161	628

Device	Routing	Invert	Outlet Devices
#1	Primary	23.00'	10.0' long x 2.0' 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
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

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Primary OutFlow Max=6.61 cfs @ 12.01 hrs HW=23.40' TW=22.31' (Dynamic Tailwater)

1=Broad-Crested Rectangular Weir (Weir Controls 6.61 cfs @ 1.65 fps)

Summary for Pond eFB2: Forebay-2

Inflow Area = 29,790 sf, 90.12% Impervious, Inflow Depth = 8.07" for 100-Year event
Inflow = 6.56 cfs @ 12.01 hrs, Volume= 20,043 cf
Outflow = 6.48 cfs @ 12.01 hrs, Volume= 19,576 cf, Atten= 1%, Lag= 0.4 min
Primary = 6.48 cfs @ 12.01 hrs, Volume= 19,576 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.40' @ 12.01 hrs Surf.Area= 340 sf Storage= 591 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 29.5 min calculated for 19,576 cf (98% of inflow)

Center-of-Mass det. time= 14.5 min (754.7 - 740.2)

Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	628 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	7	0	0
20.00	40	24	24
21.00	98	69	93
22.00	181	140	232
23.00	289	235	467
23.50	353	161	628

Device	Routing	Invert	Outlet Devices
#1	Primary	23.00'	10.0' long x 2.0' 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
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=6.32 cfs @ 12.01 hrs HW=23.39' TW=22.31' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 6.32 cfs @ 1.63 fps)

Summary for Pond eH1: Pre - Roof Header

Inflow Area = 11,932 sf, 100.00% Impervious, Inflow Depth = 8.36" for 100-Year event
Inflow = 2.38 cfs @ 12.07 hrs, Volume= 8,312 cf
Outflow = 2.38 cfs @ 12.07 hrs, Volume= 8,312 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.38 cfs @ 12.07 hrs, Volume= 8,312 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 32.56' @ 12.07 hrs
Flood Elev= 30.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	25.98'	6.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=2.34 cfs @ 12.07 hrs HW=32.36' TW=19.48' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 2.34 cfs @ 11.93 fps)

Summary for Reach eOP1: Outlet pipe-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 3.08" for 100-Year event
Inflow = 2.60 cfs @ 12.08 hrs, Volume= 12,141 cf
Outflow = 2.61 cfs @ 12.06 hrs, Volume= 12,142 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 7.03 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.03 fps, Avg. Travel Time= 0.1 min

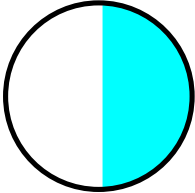
Peak Storage= 5 cf @ 12.06 hrs
Average Depth at Peak Storage= 0.48'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.63 cfs

12.0" Round Pipe

n= 0.013 Concrete pipe, bends & connections

Length= 14.0' Slope= 0.0250 '/'

Inlet Invert= 29.50', Outlet Invert= 29.15'



Summary for Reach eRD1: Pre - Roof Drain-1

Inflow Area =	15,575 sf, 100.00% Impervious,	Inflow Depth = 8.36"	for 100-Year event
Inflow =	3.11 cfs @ 12.07 hrs,	Volume=	10,850 cf
Outflow =	3.11 cfs @ 12.07 hrs,	Volume=	10,850 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 5.10 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 1.81 fps, Avg. Travel Time= 0.2 min

Peak Storage= 12 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.72'

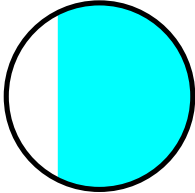
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 20.0' Slope= 0.0100 '/'

Inlet Invert= 25.70', Outlet Invert= 25.50'



Summary for Reach eRD2: Pre - Roof Drain-2

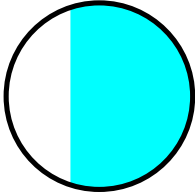
Inflow Area = 16,270 sf, 100.00% Impervious, Inflow Depth = 8.36" for 100-Year event
Inflow = 3.25 cfs @ 12.07 hrs, Volume= 11,335 cf
Outflow = 3.25 cfs @ 12.07 hrs, Volume= 11,335 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 5.96 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.08 fps, Avg. Travel Time= 0.2 min

Peak Storage= 15 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.65'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.26 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 28.0' Slope= 0.0143 '
Inlet Invert= 22.50', Outlet Invert= 22.10'



Summary for Subcatchment eRF1: Pre - Roof flow

Runoff = 3.11 cfs @ 12.07 hrs, Volume= 10,850 cf, Depth= 8.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
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Area (sf)	CN	Description
15,575	98	Roofs, HSG C
15,575	98	100.00% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description

5.0

Direct Entry, Roof runoff

Summary for Subcatchment eRF2: Pre - Roof flow

Runoff = 3.25 cfs @ 12.07 hrs, Volume= 11,335 cf, Depth= 8.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
16,270	98	Roofs, HSG C
16,270	98	100.00% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description

5.0

Direct Entry, Roof runoff

Summary for Subcatchment eRF3: Pre - Roof flow

Runoff = 2.38 cfs @ 12.07 hrs, Volume= 8,312 cf, Depth= 8.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
11,932	98	Roofs, HSG C
11,932	98	100.00% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Roof runoff

Summary for Subcatchment eS1: Pre - Northeastern Parking lot

Runoff = 3.15 cfs @ 12.07 hrs, Volume= 10,784 cf, Depth= 7.80"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
13,366	98	Paved parking, HSG C
3,232	74	>75% Grass cover, Good, HSG C
16,598	93	Weighted Average
3,232	74	19.47% Pervious Area
13,366	98	80.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Parking Runoff to CB

Summary for Subcatchment eS10: Pre - Flow to Swale-5

Runoff = 4.53 cfs @ 12.26 hrs, Volume= 20,899 cf, Depth= 5.83"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

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Area (sf)		CN	Description		
*	36,588	74	>75% Grass cover, Good, HSG C		
	937	89	Gravel Driveway		
	670	98	Paved parking, HSG C		
	4,746	98	Roofs, HSG C		
	76	70	Woods, Good, HSG C		
43,017		77	Weighted Average		
37,601		74	87.41% Pervious Area		
5,416		98	12.59% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
2.7	292	0.0650	1.78		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
19.0	342	Total			

Summary for Subcatchment eS11: Pre - Flow to playground catch basin

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 671 cf, Depth= 7.22"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)		CN	Description
128	98		Unconnected pavement, HSG C
441	74		>75% Grass cover, Good, HSG C
547	98		Rubber play surface
1,116	89		Weighted Average
441	74		39.52% Pervious Area
675	98		60.48% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to CB5

Summary for Subcatchment eS12: Pre - Area in front of bldg flowing to existing swale-4

Runoff = 2.75 cfs @ 12.08 hrs, Volume= 9,321 cf, Depth= 7.22"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
5,952	74	>75% Grass cover, Good, HSG C
530	98	Unconnected pavement, HSG C
2,376	98	Roofs, HSG C
6,205	98	Paved parking, HSG C
437	89	Gravel Area
*		
15,500	89	Weighted Average
6,389	75	41.22% Pervious Area
9,111	98	58.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.4 50 0.1600 0.15

Sheet Flow, AB

Grass: Bermuda n= 0.410 P2= 3.30"

Summary for Subcatchment eS13: Pre - Northeastern area flowing to proposed CB5

Runoff = 6.13 cfs @ 12.25 hrs, Volume= 27,346 cf, Depth= 5.57"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

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Area (sf)		CN	Description		
2,021	98	98	Roofs, HSG C		
52,854	74	74	>75% Grass cover, Good, HSG C		
93	98	98	Paved parking, HSG C		
3,952	70	70	Woods, Good, HSG C		
58,920	75	75	Weighted Average		
56,806	74	74	96.41% Pervious Area		
2,114	98	98	3.59% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	50	0.0200	0.07		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.7	70	0.0500	1.57		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
0.1	24	0.3300	4.02		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
4.9	206	0.0100	0.70		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.1	95	0.1900	18.24	72.98	Channel Flow, EF Area= 4.0 sf Perim= 8.2' r= 0.49' n= 0.022 Earth, clean & straight
18.2	445	Total			

Summary for Subcatchment eS14: Pre - Parking area-4 runoff

Runoff = 4.95 cfs @ 12.07 hrs, Volume= 15,953 cf, Depth= 6.44"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
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Area (sf)	CN	Description
16,413	74	>75% Grass cover, Good, HSG C
10,797	98	Paved parking, HSG C
2,515	70	Woods, Good, HSG C
29,725	82	Weighted Average
18,928	73	63.68% Pervious Area
10,797	98	36.32% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description
5.0		Direct Entry,

Summary for Subcatchment eS15: Pre - Flow to entrance area drain

Runoff = 0.24 cfs @ 12.07 hrs, Volume= 806 cf, Depth= 6.94"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
686	74	>75% Grass cover, Good, HSG C
709	98	Paved parking, HSG C
1,395	86	Weighted Average
686	74	49.18% Pervious Area
709	98	50.82% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description
5.0		Direct Entry, Flow to area drain

Summary for Subcatchment eS16: Pre - Flow to Sand Filter-2

Runoff = 1.40 cfs @ 12.07 hrs, Volume= 4,400 cf, Depth= 6.31"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description			
1,543	89	Gravel			
5,249	74	>75% Grass cover, Good, HSG C			
1,582	98	Paved parking, HSG C			
8,374	81	Weighted Average			
6,792	77	81.11% Pervious Area			
1,582	98	18.89% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

Summary for Subcatchment eS17: Pre - Area in front of bldg flowing to existing swale-3

Runoff = 1.14 cfs @ 12.09 hrs, Volume= 3,737 cf, Depth= 5.96"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
6,221	74	>75% Grass cover, Good, HSG C
* 172	98	Existing Wall
* 1,125	98	Existing Walk
7,518	78	Weighted Average
6,221	74	82.75% Pervious Area
1,297	98	17.25% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	38	0.0800	0.11		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.6	135	0.0400	4.06		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
6.3	173	Total			

Summary for Subcatchment eS18: Pre - Flow to Sand Filter-1

Runoff = 1.02 cfs @ 12.07 hrs, Volume= 3,127 cf, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
4,170	74	>75% Grass cover, Good, HSG C
2,013	89	Gravel
6,183	79	Weighted Average
6,183	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow into Basin

Summary for Subcatchment eS2: Pre - Flow to CB3

Runoff = 1.61 cfs @ 12.07 hrs, Volume= 5,048 cf, Depth= 6.01"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

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Area (sf)	CN	Description			
8,190	74	>75% Grass cover, Good, HSG C			
1,150	98	Paved parking, HSG C			
741	98	Walkway			
*					
10,081	79	Weighted Average			
8,190	74	81.24% Pervious Area			
1,891	98	18.76% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

Summary for Subcatchment eS20: Pre - Flow to Stone Detention Basin

Runoff = 0.58 cfs @ 12.07 hrs, Volume= 1,763 cf, Depth= 5.47"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description			
3,870	74	>75% Grass cover, Good, HSG C			
3,870	74	100.00% Pervious Area			
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description			
5.0					Direct Entry,

Summary for Subcatchment eS21: Pre - Flow along South side to Basin-2

Runoff = 7.49 cfs @ 12.17 hrs, Volume= 29,270 cf, Depth= 5.71"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

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Area (sf)		CN	Description				
	2,225	98	Roofs, HSG C				
	1,207	98	Paved parking, HSG C				
*	0	89	Gravel Path				
	1,823	98	Unconnected pavement, HSG C				
*	0	89	Gravel Area				
*	0	89	Stone pile				
	52,137	74	>75% Grass cover, Good, HSG C				
	4,089	70	Woods, Good, HSG C				
	61,481	76	Weighted Average				
	56,226	74	91.45% Pervious Area				
	5,255	98	8.55% Impervious Area				
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
7.5	50	0.0700	0.11		Sheet Flow, AB		
					Grass: Bermuda n= 0.410 P2= 3.30"		
0.4	50	0.1000	2.21		Shallow Concentrated Flow, BC		
					Short Grass Pasture Kv= 7.0 fps		
3.5	147	0.0100	0.70		Shallow Concentrated Flow, CD		
					Short Grass Pasture Kv= 7.0 fps		
0.2	40	0.1500	2.71		Shallow Concentrated Flow, DE		
					Short Grass Pasture Kv= 7.0 fps		
0.3	32	0.0600	1.71		Shallow Concentrated Flow, EF		
					Short Grass Pasture Kv= 7.0 fps		
0.2	31	0.1900	3.05		Shallow Concentrated Flow, FG		
					Short Grass Pasture Kv= 7.0 fps		
0.2	59	0.0170	5.53	55.30	Channel Flow, GH		
					Area= 10.0 sf Perim= 20.1' r= 0.50'		
					n= 0.022 Earth, clean & straight		
0.2	143	0.0700	11.22	112.21	Channel Flow, HI		
					Area= 10.0 sf Perim= 20.1' r= 0.50'		
					n= 0.022 Earth, clean & straight		
12.5	552	Total					

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Summary for Subcatchment eS3: Pre - Norther half or parking area-2

Runoff = 2.80 cfs @ 12.01 hrs, Volume= 8,523 cf, Depth= 7.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)		CN	Description		
1,657	74	>75% Grass cover, Good, HSG C			
11,151	98	Paved parking, HSG C			
12,808	95	Weighted Average			
1,657	74	12.94% Pervious Area			
11,151	98	87.06% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB
					Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC
					Paved Kv= 20.3 fps

Summary for Subcatchment eS4: Pre - Southern half of parking area-2

Runoff = 5.32 cfs @ 12.01 hrs, Volume= 16,158 cf, Depth= 7.93"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)		CN	Description
3,603	74	>75% Grass cover, Good, HSG C	
20,838	98	Paved parking, HSG C	
24,441	94	Weighted Average	
3,603	74	14.74% Pervious Area	
20,838	98	85.26% Impervious Area	

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment eS5: Pre - Norther half of parking area-3

Runoff = 6.87 cfs @ 12.01 hrs, Volume= 20,499 cf, Depth= 7.51"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
9,645	74	>75% Grass cover, Good, HSG C
23,119	98	Paved parking, HSG C
32,764	91	Weighted Average
9,645	74	29.44% Pervious Area
23,119	98	70.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment eS6: Pre - Southern half of parking area-3

Runoff = 6.56 cfs @ 12.01 hrs, Volume= 20,043 cf, Depth= 8.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
2,944	74	>75% Grass cover, Good, HSG C
26,846	98	Paved parking, HSG C
29,790	96	Weighted Average
2,944	74	9.88% Pervious Area
26,846	98	90.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment eS7: Pre - Flow to CB4

Runoff = 0.54 cfs @ 12.07 hrs, Volume= 1,868 cf, Depth= 8.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
2,681	98	Paved parking, HSG C
2,681	98	100.00% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment eS9: Pre - Flow to CB-4

Runoff	=	1.69 cfs @	12.19 hrs,	Volume=	6,837 cf,	Depth=	5.67"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
827	98	Unconnected pavement, HSG C
196	98	Paved parking, HSG C
446	89	Gravel path
13,000	74	>75% Grass cover, Good, HSG C
14,469	76	Weighted Average
13,446	74	92.93% Pervious Area
1,023	98	7.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

9.4	50	0.0400	0.09		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.5	64	0.1100	2.32		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
3.6	152	0.0100	0.70		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
0.4	72	0.1700	2.89		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.1	49	0.1000	13.41	134.11	Channel Flow, EF Area= 10.0 sf Perim= 20.1' r= 0.50' n= 0.022 Earth, clean & straight

14.0	387	Total

Summary for Pond eSF1: Pre - Sand Filter-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 6.56" for 100-Year event
 Inflow = 25.28 cfs @ 12.02 hrs, Volume= 95,633 cf
 Outflow = 26.55 cfs @ 12.03 hrs, Volume= 95,513 cf, Atten= 0%, Lag= 0.9 min
 Primary = 26.55 cfs @ 12.03 hrs, Volume= 95,513 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.51' @ 12.03 hrs Surf.Area= 9,493 sf Storage= 8,980 cf

Flood Elev= 22.20' Surf.Area= 9,493 sf Storage= 8,980 cf

Plug-Flow detention time= 28.6 min calculated for 95,513 cf (100% of inflow)

Center-of-Mass det. time= 27.7 min (808.4 - 780.7)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	5,566 cf	Open Storage (Prismatic) Listed below (Recalc)
#2	18.50'	3,390 cf	Sand Filter (Prismatic) Listed below (Recalc)
#3	18.58'	24 cf	10,295 cf Overall - 24 cf Embedded = 10,271 cf x 33.0% Voids
			4.0" Round Pipe Storage Inside #2
			L= 271.0'
		8,980 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	4,118	0	0
22.00	4,950	4,534	4,534
22.20	5,375	1,032	5,566

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	4,118	0	0
19.00	4,118	2,059	2,059
20.00	4,118	4,118	6,177
21.00	4,118	4,118	10,295

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Device Routing Invert Outlet Devices

#1	Primary	21.20'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 0.00													
			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
			Coef. (English)	2.54	2.61	2.61	2.60	2.66	2.70	2.77	2.89	2.88	2.85	3.07	3.20	3.32
#2	Primary	21.20'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28)													
			Head (feet)	0.00	1.00											
			Width (feet)	4.00	8.00											
#3	Device 4	18.50'	8.270 in/hr Exfiltration over Surface area													
#4	Primary	18.58'	4.0" Round Culvert X 2.00 L= 15.0' RCP, sq.cut end projecting, Ke= 0.500													
			Inlet / Outlet Invert=	18.58'	18.40'	S= 0.0120 '/'	Cc= 0.900									
			n=	0.013	Corrugated PE, smooth interior, Flow Area= 0.09 sf											

Primary OutFlow Max=26.01 cfs @ 12.03 hrs HW=22.48' TW=18.77' (Dynamic Tailwater)

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

2=Custom Weir/Orifice (Orifice Controls 24.58 cfs @ 4.10 fps)

4=Culvert (Outlet Controls 1.44 cfs @ 8.22 fps)

3=Exfiltration (Passes 1.44 cfs of 1.82 cfs potential flow)

Summary for Pond eSF2: Pre - Sand Filter-2

Inflow Area =	74,020 sf,	64.33% Impervious,	Inflow Depth = 7.33"	for 100-Year event
Inflow =	13.48 cfs @ 12.07 hrs,	Volume= 45,212 cf		
Outflow =	15.92 cfs @ 12.18 hrs,	Volume= 45,202 cf,	Atten= 0%,	Lag= 6.7 min
Primary =	15.58 cfs @ 12.18 hrs,	Volume= 22,664 cf		
Secondary =	0.45 cfs @ 11.82 hrs,	Volume= 22,576 cf		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.97' @ 12.16 hrs Surf.Area= 3,735 sf Storage= 4,691 cf

Flood Elev= 23.00' Surf.Area= 3,746 sf Storage= 4,765 cf

Plug-Flow detention time= 41.2 min calculated for 45,202 cf (100% of inflow)

Center-of-Mass det. time= 40.9 min (799.7 - 758.8)

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Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	1,020 cf	Sand Filter (Prismatic) Listed below (Recalc) 3,102 cf Overall - 11 cf Embedded = 3,091 cf x 33.0% Voids
#2	21.00'	3,734 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#3	19.00'	11 cf	4.0" Round Pipe Storage Inside #1 L= 123.0'
		4,765 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,551	0	0
20.00	1,551	1,551	1,551
21.00	1,551	1,551	3,102

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	1,551	0	0
22.00	1,861	1,706	1,706
23.00	2,195	2,028	3,734

Device	Routing	Invert	Outlet Devices
#1	Primary	22.15'	10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Device 3	19.00'	8.270 in/hr Exfiltration over Surface area
#3	Secondary	19.00'	4.0" Round Culvert L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.00' / 18.75' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=14.32 cfs @ 12.18 hrs HW=22.88' TW=22.47' (Dynamic Tailwater)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 14.32 cfs @ 1.95 fps)**Secondary OutFlow** Max=0.45 cfs @ 11.82 hrs HW=22.41' TW=19.08' (Dynamic Tailwater)↑**3=Culvert** (Barrel Controls 0.45 cfs @ 5.17 fps)↑**2=Exfiltration** (Passes 0.45 cfs of 0.68 cfs potential flow)

Summary for Pond eSTC1: Pre - Stormceptor-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 4.14" for 100-Year event
Inflow = 2.71 cfs @ 12.02 hrs, Volume= 16,320 cf
Outflow = 2.71 cfs @ 12.02 hrs, Volume= 16,320 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.71 cfs @ 12.02 hrs, Volume= 16,320 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 30.69' @ 12.03 hrs

Flood Elev= 33.20'

Device	Routing	Invert	Outlet Devices

#1	Primary	29.40'	12.0" Round Culvert L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.40' / 29.35' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.67 cfs @ 12.02 hrs HW=30.66' TW=30.17' (Dynamic Tailwater)

1=Culvert (Inlet Controls 2.67 cfs @ 3.40 fps)

Summary for Pond eSTC2: Pre - Stormceptor-2

Inflow Area = 32,406 sf, 41.59% Impervious, Inflow Depth = 6.60" for 100-Year event
Inflow = 5.48 cfs @ 12.07 hrs, Volume= 17,821 cf
Outflow = 5.48 cfs @ 12.07 hrs, Volume= 17,821 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.48 cfs @ 12.07 hrs, Volume= 17,821 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 27.12' @ 12.07 hrs

Flood Elev= 27.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	23.00'	12.0" Round Culvert L= 5.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.00' / 22.90' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=5.29 cfs @ 12.07 hrs HW=26.97' TW=25.01' (Dynamic Tailwater)

1=Culvert (Inlet Controls 5.29 cfs @ 6.74 fps)

Summary for Pond eSW1: Pre - Swale-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 7.16" for 100-Year event
 Inflow = 30.89 cfs @ 12.12 hrs, Volume= 104,391 cf
 Outflow = 28.10 cfs @ 12.12 hrs, Volume= 104,390 cf, Atten= 9%, Lag= 0.4 min
 Primary = 28.10 cfs @ 12.12 hrs, Volume= 104,390 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 18.81' @ 12.12 hrs Surf.Area= 2,318 sf Storage= 1,271 cf

Flood Elev= 19.40' Surf.Area= 3,367 sf Storage= 2,947 cf

Plug-Flow detention time= 1.2 min calculated for 104,390 cf (100% of inflow)

Center-of-Mass det. time= 1.2 min (803.5 - 802.3)

Volume Invert Avail.Storage Storage Description

#1 18.00' 2,947 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.00	814	0	0
19.00	2,666	1,740	1,740
19.40	3,367	1,207	2,947

Device Routing Invert Outlet Devices

#1 Primary 18.00' **Custom Weir/Orifice, Cv= 2.62 (C= 3.28)**
 Head (feet) 0.00 1.00 1.40
 Width (feet) 9.34 16.70 21.40

Primary OutFlow Max=27.65 cfs @ 12.12 hrs HW=18.80' TW=0.00' (Dynamic Tailwater)

1=Custom Weir/Orifice (Weir Controls 27.65 cfs @ 2.80 fps)

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Summary for Pond eSW2: Pre - Swale-2

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth = 7.33" for 100-Year event
Inflow = 13.04 cfs @ 12.11 hrs, Volume= 45,194 cf
Outflow = 12.26 cfs @ 12.12 hrs, Volume= 45,195 cf, Atten= 6%, Lag= 0.9 min
Primary = 7.97 cfs @ 12.12 hrs, Volume= 37,178 cf
Secondary = 12.26 cfs @ 12.12 hrs, Volume= 8,878 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 30.04' @ 12.12 hrs Surf.Area= 825 sf Storage= 945 cf

Flood Elev= 20.70' Surf.Area= 825 sf Storage= 945 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.6 min (807.0 - 806.4)

Volume	Invert	Avail.Storage	Storage	Description
#1	19.00'	945 cf	Custom Stage Data (Prismatic)	Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
19.00	263	0	0	
20.00	617	440	440	
20.70	825	505	945	

Device	Routing	Invert	Outlet Devices
#1	Primary	18.19'	18.0" Round Culvert L= 24.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.19' / 18.09' S= 0.0042 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	19.03'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.68' / 19.03' S= -0.0233 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=0.00 cfs @ 12.12 hrs HW=29.86' TW=32.47' (Dynamic Tailwater)
 1=Culvert (Controls 0.00 cfs)

Secondary OutFlow Max=12.25 cfs @ 12.12 hrs HW=30.03' TW=18.81' (Dynamic Tailwater)
 2=Culvert (Inlet Controls 12.25 cfs @ 15.60 fps)

Summary for Pond eSW3: Pre - Swale-3

Inflow Area = 81,538 sf, 59.99% Impervious, Inflow Depth = 6.02" for 100-Year event
Inflow = 9.05 cfs @ 12.12 hrs, Volume= 40,915 cf
Outflow = 13.13 cfs @ 12.12 hrs, Volume= 40,914 cf, Atten= 0%, Lag= 0.1 min
Primary = 13.13 cfs @ 12.12 hrs, Volume= 40,914 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 32.70' @ 12.12 hrs Surf.Area= 3,014 sf Storage= 2,902 cf

Flood Elev= 20.00' Surf.Area= 3,014 sf Storage= 2,902 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 4.2 min (823.7 - 819.5)

Volume	Invert	Avail.Storage	Storage Description
#1	18.50'	2,902 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	374	0	0
19.00	1,735	527	527
20.00	3,014	2,375	2,902

Device	Routing	Invert	Outlet Devices
#1	Primary	18.08'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.08' / 18.01' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=12.99 cfs @ 12.12 hrs HW=32.46' TW=20.66' (Dynamic Tailwater)

1=Culvert (Inlet Controls 12.99 cfs @ 16.54 fps)

Summary for Pond eSW4: Pre - Swale-4

Inflow Area = 108,970 sf, 64.20% Impervious, Inflow Depth = 6.45" for 100-Year event
Inflow = 17.52 cfs @ 12.12 hrs, Volume= 58,548 cf
Outflow = 13.04 cfs @ 12.14 hrs, Volume= 58,548 cf, Atten= 26%, Lag= 1.2 min
Primary = 13.04 cfs @ 12.14 hrs, Volume= 58,548 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 21.02' @ 12.14 hrs Surf.Area= 1,554 sf Storage= 1,361 cf

Flood Elev= 19.80' Surf.Area= 1,554 sf Storage= 1,361 cf

Plug-Flow detention time= 2.0 min calculated for 58,499 cf (100% of inflow)

Center-of-Mass det. time= 2.0 min (804.0 - 802.0)

Volume Invert Avail.Storage Storage Description

#1 18.00' 1,361 cf Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.00	27	0	0
19.00	851	439	439
19.50	1,190	510	949
19.80	1,554	412	1,361

Device Routing Invert Outlet Devices

#1 Primary 17.99' 18.0" Round Culvert L= 21.0' RCP, sq.cut end projecting, Ke= 0.500
Inlet / Outlet Invert= 17.99' / 17.82' S= 0.0081 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=12.30 cfs @ 12.14 hrs HW=20.83' TW=18.47' (Dynamic Tailwater)

1=Culvert (Inlet Controls 12.30 cfs @ 6.96 fps)

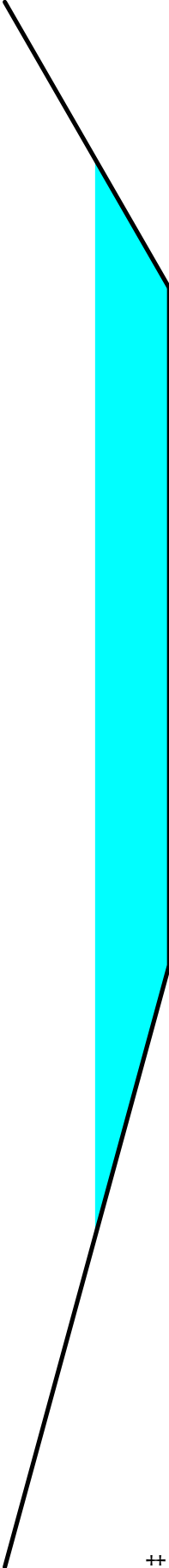
Summary for Reach eSW5: Pre - Swale-5

Inflow Area = 232,923 sf, 35.34% Impervious, Inflow Depth = 5.99" for 100-Year event
Inflow = 25.17 cfs @ 12.14 hrs, Volume= 116,358 cf
Outflow = 24.91 cfs @ 12.15 hrs, Volume= 116,357 cf, Atten= 1%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 3.16 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 0.72 fps, Avg. Travel Time= 3.4 min

Peak Storage= 1,141 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.68'
Bank-Full Depth= 1.50' Flow Area= 22.4 sf, Capacity= 110.11 cfs

Custom cross-section, Length= 145.0' Slope= 0.0050 '/
Constant n= 0.022 Earth, clean & straight
Inlet Invert= 17.82', Outlet Invert= 17.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-12.50	19.50	0.00
-4.50	18.00	1.50
4.50	18.00	1.50
8.30	19.50	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	9.0	0	0.00
1.50	22.4	21.2	3,241	110.11

Summary for Pond eUS1: Pre - Underground Recharge System-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 4.14" for 100-Year event
Inflow = 2.71 cfs @ 12.02 hrs, Volume= 16,320 cf
Outflow = 2.64 cfs @ 12.08 hrs, Volume= 16,322 cf, Atten= 2%, Lag= 3.9 min
Discarded = 0.04 cfs @ 2.58 hrs, Volume= 4,182 cf
Primary = 2.60 cfs @ 12.08 hrs, Volume= 12,141 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 30.21' @ 12.06 hrs Surf.Area= 1,736 sf Storage= 1,582 cf
Flood Elev= 30.90' Surf.Area= 1,736 sf Storage= 1,991 cf

Plug-Flow detention time= 70.9 min calculated for 16,308 cf (100% of inflow)
Center-of-Mass det. time= 71.2 min (830.9 - 759.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	28.57'	1,014 cf	21.50"W x 80.76"L x 2.33'H Field A 4,051 cf Overall - 978 cf Embedded = 3,073 cf x 33.0% Voids
#2A	29.07'	978 cf	ADS StormTech SC-310 x 66 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 6 rows
		1,992 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.57'	1.000 in/hr Exfiltration over Surface area
#2	Primary	29.36'	8.0" Round Culvert X 3.00 L= 2.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.36' / 29.30' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.04 cfs @ 2.58 hrs HW=28.60' (Free Discharge)
└─1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=2.42 cfs @ 12.08 hrs HW=30.19' TW=29.96' (Dynamic Tailwater)
└─2=Culvert (Inlet Controls 2.42 cfs @ 2.31 fps)

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Time span=0.00-36.00 hrs, dt=0.03 hrs, 1201 points x 2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond CB-1: CB-1

Peak Elev=39.25' Inflow=0.35 cfs 1,114 cf
Outflow=0.35 cfs 1,114 cf

Pond eA1: Pre - Analysis Point-1

Inflow=0.35 cfs 1,114 cf
Primary=0.35 cfs 1,114 cf

Pond eA2: Pre - Analysis Point-2

Inflow=0.61 cfs 4,172 cf
Primary=0.61 cfs 4,172 cf

Pond eA3: Post - Analysis Point-3

Inflow=0.85 cfs 6,587 cf
Primary=0.85 cfs 6,587 cf

Pond eAD: Pre - Area drain at main entrance

Peak Elev=24.07' Inflow=0.02 cfs 62 cf
12.0" Round Culvert n=0.013 L=69.0' S=0.0109 '/' Outflow=0.02 cfs 62 cf

Pond eCB1: Pre - CB1

Peak Elev=32.28' Inflow=0.33 cfs 924 cf
12.0" Round Culvert n=0.012 L=140.0' S=0.0143 '/' Outflow=0.33 cfs 924 cf

Pond eCB2: Pre - CB2

Peak Elev=32.57' Inflow=0.61 cfs 1,730 cf
15.0" Round Culvert n=0.013 L=10.0' S=0.0200 '/' Outflow=0.61 cfs 1,730 cf

Pond eCB3: Pre - CB3

Peak Elev=34.62' Inflow=0.05 cfs 197 cf
8.0" Round Culvert n=0.013 L=44.0' S=0.0318 '/' Outflow=0.05 cfs 197 cf

Pond eCB4: Pre - CB4

Peak Elev=24.64' Inflow=0.07 cfs 220 cf
8.0" Round Culvert n=0.013 L=55.0' S=0.0227 '/' Outflow=0.07 cfs 220 cf

Pond eCB5: Pre - CB5

Peak Elev=28.60' Inflow=0.04 cfs 466 cf
12.0" Round Culvert n=0.013 L=158.0' S=0.0100 '/' Outflow=0.04 cfs 466 cf

Pond eCB6: CB-6

Peak Elev=32.19' Inflow=0.02 cfs 153 cf
Primary=0.02 cfs 153 cf Secondary=0.00 cfs 0 cf Outflow=0.02 cfs 153 cf

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Pond eCB7: CB-7

4.0" Round Culvert n=0.013 L=14.3' S=-0.0392 '/'
Peak Elev=26.06' Inflow=0.02 cfs 58 cf
Outflow=0.02 cfs 58 cf

Pond eDB1: Pre - Detention Basin-1

Peak Elev=19.00' Storage=0 cf Inflow=0.00 cfs 0 cf
Outflow=0.00 cfs 0 cf

Pond eDB2: Pre - Stone Drainage extra storage Basin-2

Peak Elev=20.26' Storage=951 cf Inflow=0.14 cfs 951 cf
Outflow=0.00 cfs 0 cf

Pond eDM5: Pre - Field DMH

Peak Elev=23.78' Inflow=0.02 cfs 153 cf
6.0" Round Culvert n=0.013 L=95.0' S=0.0200 '/'
Outflow=0.02 cfs 153 cf

Pond eDMH1: Pre - DMH1

Peak Elev=32.25' Inflow=0.65 cfs 1,928 cf
Primary=0.57 cfs 1,894 cf Secondary=0.08 cfs 33 cf
Outflow=0.65 cfs 1,928 cf

Pond eDMH2: Pre - DMH2

Peak Elev=30.19' Inflow=0.89 cfs 2,819 cf
Primary=0.50 cfs 2,336 cf Secondary=0.40 cfs 482 cf
Outflow=0.89 cfs 2,819 cf

Pond eDMH3: Pre - DMH3

Peak Elev=26.41' Inflow=0.49 cfs 987 cf
18.0" Round Culvert n=0.013 L=105.0' S=0.0200 '/'
Outflow=0.49 cfs 987 cf

Pond eDMH4: Pre - DMH4

Peak Elev=24.11' Inflow=0.49 cfs 987 cf
18.0" Round Culvert n=0.013 L=75.0' S=0.0273 '/'
Outflow=0.49 cfs 987 cf

Pond eDMH5: Pre - DMH5

Peak Elev=22.30' Inflow=0.37 cfs 1,249 cf
12.0" Round Culvert n=0.013 L=3.5' S=0.0714 '/'
Outflow=0.37 cfs 1,249 cf

Pond eFB1: Forebay-1

Peak Elev=23.09' Storage=493 cf Inflow=0.68 cfs 1,949 cf
Outflow=0.67 cfs 1,482 cf

Pond eFB2: Forebay-2

Peak Elev=23.10' Storage=496 cf Inflow=0.79 cfs 2,220 cf
Outflow=0.77 cfs 1,753 cf

Pond eH1: Pre - Roof Header

Peak Elev=26.34' Inflow=0.31 cfs 980 cf
Outflow=0.31 cfs 980 cf

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Reach eOP1: Outlet pipe-1

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.03' Max Vel=1.42 fps Inflow=0.01 cfs 6 cf
L=14.0' S=0.0250 '/' Capacity=5.63 cfs Outflow=0.01 cfs 6 cf

Reach eRD1: Pre - Roof Drain-1

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.23' Max Vel=3.00 fps Inflow=0.40 cfs 1,279 cf
L=20.0' S=0.0100 '/' Capacity=3.56 cfs Outflow=0.40 cfs 1,279 cf

Reach eRD2: Pre - Roof Drain-2

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.21' Max Vel=3.44 fps Inflow=0.42 cfs 1,336 cf
L=28.0' S=0.0143 '/' Capacity=4.26 cfs Outflow=0.42 cfs 1,336 cf

Subcatchment eRF1: Pre - Roof flow

Runoff Area=15,575 sf 100.00% Impervious Runoff Depth=0.99"
Tc=5.0 min CN=0/98 Runoff=0.40 cfs 1,279 cf

Subcatchment eRF2: Pre - Roof flow

Runoff Area=16,270 sf 100.00% Impervious Runoff Depth=0.99"
Tc=5.0 min CN=0/98 Runoff=0.42 cfs 1,336 cf

Subcatchment eRF3: Pre - Roof flow

Runoff Area=11,932 sf 100.00% Impervious Runoff Depth=0.99"
Tc=5.0 min CN=0/98 Runoff=0.31 cfs 980 cf

Subcatchment eS1: Pre - Northeastern Parking lot

Runoff Area=16,598 sf 80.53% Impervious Runoff Depth=0.81"
Tc=5.0 min CN=74/98 Runoff=0.35 cfs 1,114 cf

Subcatchment eS10: Pre - Flow to Swale-5

Runoff Area=43,017 sf 12.59% Impervious Runoff Depth=0.18"
Flow Length=342' Tc=19.0 min CN=74/98 Runoff=0.09 cfs 638 cf

Subcatchment eS11: Pre - Flow to playground catch basin

Runoff Area=1,116 sf 60.48% Impervious Runoff Depth=0.62"
Tc=5.0 min CN=74/98 Runoff=0.02 cfs 58 cf

Subcatchment eS12: Pre - Area in front of bldg flowing to existing swale-4

Flow Length=50' Runoff Area=15,500 sf 58.78% Impervious Runoff Depth=0.61"
Slope=0.1600 '/' Tc=5.4 min CN=75/98 Runoff=0.23 cfs 788 cf

Subcatchment eS13: Pre - Northeastern area flowing to proposed CB5

Runoff Area=58,920 sf 3.59% Impervious Runoff Depth=0.09"
Flow Length=445' Tc=18.2 min CN=74/98 Runoff=0.04 cfs 466 cf

Subcatchment eS14: Pre - Parking area-4 runoff

Runoff Area=29,725 sf 36.32% Impervious Runoff Depth=0.39"
Tc=5.0 min CN=73/98 Runoff=0.28 cfs 967 cf

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Subcatchment eS15: Pre - Flow to entrance area drain

Runoff Area=1,395 sf 50.82% Impervious Runoff Depth=0.53"
Tc=5.0 min CN=74/98 Runoff=0.02 cfs 62 cf

Subcatchment eS16: Pre - Flow to Sand Filter-2

Runoff Area=8,374 sf 18.89% Impervious Runoff Depth=0.27"
Tc=5.0 min CN=77/98 Runoff=0.04 cfs 187 cf

Subcatchment eS17: Pre - Area in front of bldg flowing to existing swale-3

Runoff Area=7,518 sf 17.25% Impervious Runoff Depth=0.22"
Flow Length=173' Tc=6.3 min CN=74/98 Runoff=0.03 cfs 138 cf

Subcatchment eS18: Pre - Flow to Sand Filter-1

Runoff Area=6,183 sf 0.00% Impervious Runoff Depth=0.13"
Tc=5.0 min CN=79/0 Runoff=0.01 cfs 69 cf

Subcatchment eS2: Pre - Flow to CB3

Runoff Area=10,081 sf 18.76% Impervious Runoff Depth=0.23"
Tc=5.0 min CN=74/98 Runoff=0.05 cfs 197 cf

Subcatchment eS20: Pre - Flow to Stone Detention Basin

Runoff Area=3,870 sf 0.00% Impervious Runoff Depth=0.06"
Tc=5.0 min CN=74/0 Runoff=0.00 cfs 20 cf

Subcatchment eS21: Pre - Flow along South side to Basin-2

Runoff Area=61,481 sf 8.55% Impervious Runoff Depth=0.14"
Flow Length=552' Tc=12.5 min CN=74/98 Runoff=0.11 cfs 721 cf

Subcatchment eS3: Pre - Norther half of parking area-2

Runoff Area=12,808 sf 87.06% Impervious Runoff Depth=0.87"
Flow Length=117' Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=0.33 cfs 924 cf

Subcatchment eS4: Pre - Southern half of parking area-2

Runoff Area=24,441 sf 85.26% Impervious Runoff Depth=0.85"
Flow Length=117' Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=0.61 cfs 1,730 cf

Subcatchment eS5: Pre - Norther half of parking area-3

Runoff Area=32,764 sf 70.56% Impervious Runoff Depth=0.71"
Flow Length=117' Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=0.68 cfs 1,949 cf

Subcatchment eS6: Pre - Southern half of parking area-3

Runoff Area=29,790 sf 90.12% Impervious Runoff Depth=0.89"
Flow Length=117' Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=0.79 cfs 2,220 cf

Subcatchment eS7: Pre - Flow to CB4

Runoff Area=2,681 sf 100.00% Impervious Runoff Depth=0.99"
Tc=5.0 min CN=0/98 Runoff=0.07 cfs 220 cf

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Subcatchment eS9: Pre - Flow to CB-4

Runoff Area=14,469 sf 7.07% Impervious Runoff Depth=0.13"
Flow Length=387' Tc=14.0 min CN=74/98 Runoff=0.02 cfs 153 cf

Pond eSF1: Pre - Sand Filter-1

Peak Elev=19.40' Storage=1,244 cf Inflow=1.92 cfs 4,291 cf
Outflow=0.61 cfs 4,172 cf

Pond eSF2: Pre - Sand Filter-2

Peak Elev=21.04' Storage=1,093 cf Inflow=1.23 cfs 4,052 cf
Primary=0.00 cfs 0 cf Secondary=0.35 cfs 4,042 cf Outflow=0.35 cfs 4,042 cf

Pond eSTC1: Pre - Stormceptor-1

Peak Elev=29.81' Inflow=0.50 cfs 2,336 cf
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 '/' Outflow=0.50 cfs 2,336 cf

Pond eSTC2: Pre - Stormceptor-2

Peak Elev=23.31' Inflow=0.35 cfs 1,187 cf
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=0.35 cfs 1,187 cf

Pond eSW1: Pre - Swale-1

Peak Elev=18.07' Storage=64 cf Inflow=0.61 cfs 4,172 cf
Outflow=0.61 cfs 4,172 cf

Pond eSW2: Pre - Swale-2

Peak Elev=19.00' Storage=0 cf Inflow=0.35 cfs 4,042 cf
Primary=0.35 cfs 4,042 cf Secondary=0.00 cfs 0 cf Outflow=0.35 cfs 4,042 cf

Pond eSW3: Pre - Swale-3

Peak Elev=18.51' Storage=3 cf Inflow=0.36 cfs 4,180 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0047 '/' Outflow=0.38 cfs 4,181 cf

Pond eSW4: Pre - Swale-4

Peak Elev=18.43' Storage=89 cf Inflow=0.84 cfs 5,949 cf
18.0" Round Culvert n=0.013 L=21.0' S=0.0081 '/' Outflow=0.80 cfs 5,949 cf

Reach eSW5: Pre - Swale-5

Avg. Flow Depth=0.09' Max Vel=0.96 fps Inflow=0.87 cfs 6,587 cf
n=0.022 L=145.0' S=0.0050 '/' Capacity=110.11 cfs Outflow=0.85 cfs 6,587 cf

Pond eUS1: Pre - Underground Recharge System-1

Peak Elev=29.50' Storage=844 cf Inflow=0.50 cfs 2,336 cf
Discarded=0.04 cfs 2,333 cf Primary=0.01 cfs 6 cf Outflow=0.05 cfs 2,338 cf

Total Runoff Area = 424,508 sf Runoff Volume = 16,217 cf Average Runoff Depth = 0.46"
57.21% Pervious = 242,860 sf 42.79% Impervious = 181,648 sf

Summary for Pond CB-1: CB-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 0.81" for WQv event
Inflow = 0.35 cfs @ 12.07 hrs, Volume= 1,114 cf
Outflow = 0.35 cfs @ 12.07 hrs, Volume= 1,114 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.07 hrs, Volume= 1,114 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 39.25' @ 12.07 hrs
Flood Elev= 46.68'

Device Routing Invert Outlet Devices

#1 Primary 38.96' 12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.34 cfs @ 12.07 hrs HW=39.25' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.34 cfs @ 1.82 fps)

Summary for Pond eA1: Pre - Analysis Point-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 0.81" for WQv event
Inflow = 0.35 cfs @ 12.07 hrs, Volume= 1,114 cf
Primary = 0.35 cfs @ 12.07 hrs, Volume= 1,114 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond eA2: Pre - Analysis Point-2

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth > 0.29" for WQv event
Inflow = 0.61 cfs @ 12.28 hrs, Volume= 4,172 cf
Primary = 0.61 cfs @ 12.28 hrs, Volume= 4,172 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond eA3: Post - Analysis Point-3

Inflow Area = 232,923 sf, 35.34% Impervious, Inflow Depth > 0.34" for WQv event
Inflow = 0.85 cfs @ 12.15 hrs, Volume= 6,587 cf
Primary = 0.85 cfs @ 12.15 hrs, Volume= 6,587 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond eAD: Pre - Area drain at main entrance

Inflow Area = 1,395 sf, 50.82% Impervious, Inflow Depth = 0.53" for WQv event
Inflow = 0.02 cfs @ 12.07 hrs, Volume= 62 cf
Outflow = 0.02 cfs @ 12.07 hrs, Volume= 62 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 12.07 hrs, Volume= 62 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 24.07' @ 12.07 hrs
Flood Elev= 28.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.00'	12.0" Round Culvert L= 69.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.00' / 23.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.02 cfs @ 12.07 hrs HW=24.07' TW=22.30' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.02 cfs @ 1.21 fps)

Summary for Pond eCB1: Pre - CB1

Inflow Area = 12,808 sf, 87.06% Impervious, Inflow Depth = 0.87" for WQv event
Inflow = 0.33 cfs @ 12.01 hrs, Volume= 924 cf
Outflow = 0.33 cfs @ 12.01 hrs, Volume= 924 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 12.01 hrs, Volume= 924 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 32.28' @ 12.01 hrs

Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	32.00'	12.0" Round Culvert L= 140.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.00' / 30.00' S= 0.0143 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.32 cfs @ 12.01 hrs HW=32.28' TW=30.19' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.32 cfs @ 1.79 fps)

Summary for Pond eCB2: Pre - CB2

Inflow Area =	24,441 sf, 85.26% Impervious, Inflow Depth = 0.85" for WQv event
Inflow =	0.61 cfs @ 12.01 hrs, Volume= 1,730 cf
Outflow =	0.61 cfs @ 12.01 hrs, Volume= 1,730 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.61 cfs @ 12.01 hrs, Volume= 1,730 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 32.57' @ 12.01 hrs

Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	32.20'	15.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.20' / 32.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.60 cfs @ 12.01 hrs HW=32.56' TW=32.25' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.60 cfs @ 3.02 fps)

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Summary for Pond eCB3: Pre - CB3

Inflow Area = 10,081 sf, 18.76% Impervious, Inflow Depth = 0.23" for WQv event
Inflow = 0.05 cfs @ 12.07 hrs, Volume= 197 cf
Outflow = 0.05 cfs @ 12.07 hrs, Volume= 197 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.07 hrs, Volume= 197 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 34.62' @ 12.07 hrs

Flood Elev= 39.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	34.50'	8.0" Round Culvert L= 44.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 34.50' / 33.10' S= 0.0318 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.05 cfs @ 12.07 hrs HW=34.62' TW=32.20' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.05 cfs @ 1.17 fps)

Summary for Pond eCB4: Pre - CB4

Inflow Area = 2,681 sf,100.00% Impervious, Inflow Depth = 0.99" for WQv event
Inflow = 0.07 cfs @ 12.07 hrs, Volume= 220 cf
Outflow = 0.07 cfs @ 12.07 hrs, Volume= 220 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.07 cfs @ 12.07 hrs, Volume= 220 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.64' @ 12.07 hrs

Flood Elev= 28.25'

Device	Routing	Invert	Outlet Devices

#1	Primary	24.50'	8.0" Round Culvert L= 55.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.50' / 23.25' S= 0.0227 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

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Primary OutFlow Max=0.07 cfs @ 12.07 hrs HW=24.64' TW=23.31' (Dynamic Tailwater)

└─**1=Culvert** (Inlet Controls 0.07 cfs @ 1.28 fps)

Summary for Pond eCB5: Pre - CB5

Inflow Area = 58,920 sf, 3.59% Impervious, Inflow Depth = 0.09" for WQv event
Inflow = 0.04 cfs @ 12.27 hrs, Volume= 466 cf
Outflow = 0.04 cfs @ 12.27 hrs, Volume= 466 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.04 cfs @ 12.27 hrs, Volume= 466 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 28.60' @ 12.27 hrs

Flood Elev= 31.70'

Device	Routing	Invert	Outlet Devices

#1	Primary	28.50'	12.0" Round Culvert L= 158.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 28.50' / 26.92' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.04 cfs @ 12.27 hrs HW=28.60' TW=26.26' (Dynamic Tailwater)

└─**1=Culvert** (Barrel Controls 0.04 cfs @ 1.48 fps)

Summary for Pond eCB6: CB-6

Inflow Area = 14,469 sf, 7.07% Impervious, Inflow Depth = 0.13" for WQv event
Inflow = 0.02 cfs @ 12.19 hrs, Volume= 153 cf
Outflow = 0.02 cfs @ 12.19 hrs, Volume= 153 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 12.19 hrs, Volume= 153 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 32.19' @ 12.19 hrs

Flood Elev= 34.66'

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Device	Routing	Invert	Outlet Devices
#1	Primary	32.11'	6.0" Round Culvert L= 110.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.11' / 27.50' S= 0.0419 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	34.50'	2.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.02 cfs @ 12.19 hrs HW=32.19' TW=23.78' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.02 cfs @ 0.97 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=32.11' TW=19.00' (Dynamic Tailwater)

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

Summary for Pond eCB7: CB-7

Inflow Area = 1,116 sf, 60.48% Impervious, Inflow Depth = 0.62" for WQv event
Inflow = 0.02 cfs @ 12.07 hrs, Volume= 58 cf
Outflow = 0.02 cfs @ 12.07 hrs, Volume= 58 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 12.07 hrs, Volume= 58 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 26.06' @ 12.07 hrs

Flood Elev= 27.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	25.97'	4.0" Round Culvert L= 14.3' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 25.41' / 25.97' S= -0.0392 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.02 cfs @ 12.07 hrs HW=26.05' TW=19.29' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.02 cfs @ 0.99 fps)

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Summary for Pond eDB1: Pre - Detention Basin-1

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth = 0.00" for WQv event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.00' @ 0.00 hrs Surf.Area= 421 sf Storage= 0 cf

Flood Elev= 23.00' Surf.Area= 1,340 sf Storage= 3,397 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	3,397 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	421	0	0
20.00	613	517	517
21.00	830	722	1,239
22.00	1,073	952	2,190
23.00	1,340	1,207	3,397

Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32 4.0" Round Culvert X 3.00 L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 21.00' / 20.90' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Primary	21.00'	4.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.10' / 19.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Primary	19.10'	4.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.10' / 19.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

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Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=19.00' TW=19.00' (Dynamic Tailwater)

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

2=Culvert (Controls 0.00 cfs)

3=Culvert (Controls 0.00 cfs)

Summary for Pond eDB2: Pre - Stone Drainage extra storage Basin-2

Inflow Area = 80,936 sf, 8.59% Impervious, Inflow Depth = 0.14" for WQv event
Inflow = 0.14 cfs @ 12.16 hrs, Volume= 951 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 20.26' @ 24.84 hrs Surf.Area= 3,195 sf Storage= 951 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	20.00'	4,315 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	19.00'	647 cf	Stone Storage (Prismatic) Listed below (Recalc)
		1,962 cf Overall	x 33.0% Voids
		4,963 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
20.00	1,116	0	0
21.00	1,569	1,343	1,343
22.00	2,051	1,810	3,153
22.50	2,600	1,163	4,315

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,962	0	0
20.00	1,962	1,962	1,962

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Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	8.0' long x 6.0' 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) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#2	Primary	20.75'	6.0" Round Culvert L= 20.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 20.75' / 20.50' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Primary	21.25'	6.0" Round Culvert L= 20.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 21.25' / 21.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=19.00' TW=17.82' (Dynamic Tailwater)

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

└─**2=Culvert** (Controls 0.00 cfs)

└─**3=Culvert** (Controls 0.00 cfs)

Summary for Pond eDM5: Pre - Field DMH

Inflow Area = 14,469 sf, 7.07% Impervious, Inflow Depth = 0.13" for WQv event
Inflow = 0.02 cfs @ 12.19 hrs, Volume= 153 cf
Outflow = 0.02 cfs @ 12.19 hrs, Volume= 153 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 12.19 hrs, Volume= 153 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.78' @ 12.19 hrs

Flood Elev= 29.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.70'	6.0" Round Culvert L= 95.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.70' / 21.80' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.02 cfs @ 12.19 hrs HW=23.78' TW=19.37' (Dynamic Tailwater)

└─**1=Culvert** (Inlet Controls 0.02 cfs @ 0.97 fps)

Summary for Pond eDMH1: Pre - DMH1

Inflow Area = 34,522 sf, 65.84% Impervious, Inflow Depth = 0.67" for WQv event
Inflow = 0.65 cfs @ 12.01 hrs, Volume= 1,928 cf
Outflow = 0.65 cfs @ 12.01 hrs, Volume= 1,928 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.57 cfs @ 12.01 hrs, Volume= 1,894 cf
Secondary = 0.08 cfs @ 12.01 hrs, Volume= 33 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 32.25' @ 12.01 hrs
Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	31.90'	15.0" Round Culvert L= 67.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 31.90' / 29.90' S= 0.0299 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf
#2	Secondary	32.10'	8.0" Round Culvert L= 80.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.10' / 27.00' S= 0.0638 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.56 cfs @ 12.01 hrs HW=32.25' TW=30.19' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.56 cfs @ 2.00 fps)

Secondary OutFlow Max=0.07 cfs @ 12.01 hrs HW=32.25' TW=26.40' (Dynamic Tailwater)
└─**2=Culvert** (Inlet Controls 0.07 cfs @ 1.30 fps)

Summary for Pond eDMH2: Pre - DMH2

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 0.71" for WQv event
Inflow = 0.89 cfs @ 12.01 hrs, Volume= 2,819 cf
Outflow = 0.89 cfs @ 12.01 hrs, Volume= 2,819 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 12.01 hrs, Volume= 2,336 cf
Secondary = 0.40 cfs @ 12.01 hrs, Volume= 482 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 30.19' @ 12.01 hrs
Flood Elev= 33.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.80'	12.0" Round Culvert L= 17.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.80' / 29.65' S= 0.0088 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	29.90'	15.0" Round Culvert L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.90' / 29.55' S= 0.0140 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.49 cfs @ 12.01 hrs HW=30.19' TW=29.81' (Dynamic Tailwater)

└─1=Culvert (Barrel Controls 0.49 cfs @ 2.56 fps)

Secondary OutFlow Max=0.39 cfs @ 12.01 hrs HW=30.19' TW=26.40' (Dynamic Tailwater)

└─2=Culvert (Inlet Controls 0.39 cfs @ 1.82 fps)

Summary for Pond eDMH3: Pre - DMH3

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 0.11" for WQv event
Inflow = 0.49 cfs @ 12.01 hrs, Volume= 987 cf
Outflow = 0.49 cfs @ 12.01 hrs, Volume= 987 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.49 cfs @ 12.01 hrs, Volume= 987 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 26.41' @ 12.01 hrs
Flood Elev= 33.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	26.10'	18.0" Round Culvert L= 105.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.10' / 24.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.48 cfs @ 12.01 hrs HW=26.40' TW=24.10' (Dynamic Tailwater)

└─1=Culvert (Inlet Controls 0.48 cfs @ 1.88 fps)

Summary for Pond eDMH4: Pre - DMH4

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 0.11" for WQv event
Inflow = 0.49 cfs @ 12.01 hrs, Volume= 987 cf
Outflow = 0.49 cfs @ 12.01 hrs, Volume= 987 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.49 cfs @ 12.01 hrs, Volume= 987 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 24.11' @ 12.01 hrs
Flood Elev= 26.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.80'	18.0" Round Culvert L= 75.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.80' / 21.75' S= 0.0273 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.48 cfs @ 12.01 hrs HW=24.10' TW=19.09' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.48 cfs @ 1.88 fps)

Summary for Pond eDMH5: Pre - DMH5

Inflow Area = 33,801 sf, 41.97% Impervious, Inflow Depth = 0.44" for WQv event
Inflow = 0.37 cfs @ 12.07 hrs, Volume= 1,249 cf
Outflow = 0.37 cfs @ 12.07 hrs, Volume= 1,249 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.37 cfs @ 12.07 hrs, Volume= 1,249 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 22.30' @ 12.07 hrs
Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	22.00'	12.0" Round Culvert L= 3.5' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 22.00' / 21.75' S= 0.0714 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=0.36 cfs @ 12.07 hrs HW=22.30' TW=20.33' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.36 cfs @ 1.85 fps)

Summary for Pond eFB1: Forebay-1

Inflow Area = 32,764 sf, 70.56% Impervious, Inflow Depth = 0.71" for WQv event
Inflow = 0.68 cfs @ 12.01 hrs, Volume= 1,949 cf
Outflow = 0.67 cfs @ 12.02 hrs, Volume= 1,482 cf, Atten= 2%, Lag= 0.6 min
Primary = 0.67 cfs @ 12.02 hrs, Volume= 1,482 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.09' @ 12.02 hrs Surf.Area= 300 sf Storage= 493 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 142.3 min calculated for 1,482 cf (76% of inflow)

Center-of-Mass det. time= 57.3 min (839.5 - 782.3)

Volume Invert Avail.Storage Storage Description

#1 19.00' 628 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	7	0	0
20.00	40	24	24
21.00	98	69	93
22.00	181	140	232
23.00	289	235	467
23.50	353	161	628

Device Routing Invert Outlet Devices

#1 Primary 23.00' **10.0' long x 2.0' 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
Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

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Primary OutFlow Max=0.65 cfs @ 12.02 hrs HW=23.09' TW=19.13' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Weir Controls 0.65 cfs @ 0.75 fps)

Summary for Pond eFB2: Forebay-2

Inflow Area = 29,790 sf, 90.12% Impervious, Inflow Depth = 0.89" for WQv event
Inflow = 0.79 cfs @ 12.01 hrs, Volume= 2,220 cf
Outflow = 0.77 cfs @ 12.02 hrs, Volume= 1,753 cf, Atten= 2%, Lag= 0.6 min
Primary = 0.77 cfs @ 12.02 hrs, Volume= 1,753 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.10' @ 12.02 hrs Surf.Area= 301 sf Storage= 496 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 129.0 min calculated for 1,752 cf (79% of inflow)

Center-of-Mass det. time= 51.6 min (830.0 - 778.4)

Volume Invert Avail.Storage Storage Description

#1 19.00' 628 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	7	0	0
20.00	40	24	24
21.00	98	69	93
22.00	181	140	232
23.00	289	235	467
23.50	353	161	628

Device Routing Invert Outlet Devices

#1 Primary 23.00' **10.0' long x 2.0' 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
Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.75 cfs @ 12.02 hrs HW=23.10' TW=19.13' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 0.75 cfs @ 0.79 fps)

Summary for Pond eH1: Pre - Roof Header

Inflow Area = 11,932 sf, 100.00% Impervious, Inflow Depth = 0.99" for WQv event
Inflow = 0.31 cfs @ 12.07 hrs, Volume= 980 cf
Outflow = 0.31 cfs @ 12.07 hrs, Volume= 980 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.31 cfs @ 12.07 hrs, Volume= 980 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 26.34' @ 12.07 hrs
Flood Elev= 30.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	25.98'	6.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.30 cfs @ 12.07 hrs HW=26.34' TW=18.42' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.30 cfs @ 2.03 fps)

Summary for Reach eOP1: Outlet pipe-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 0.00" for WQv event
Inflow = 0.01 cfs @ 14.19 hrs, Volume= 6 cf
Outflow = 0.01 cfs @ 14.19 hrs, Volume= 6 cf, Atten= 21%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 1.42 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.94 fps, Avg. Travel Time= 0.2 min

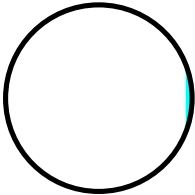
Peak Storage= 0 cf @ 14.19 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.63 cfs

12.0" Round Pipe

n= 0.013 Concrete pipe, bends & connections

Length= 14.0' Slope= 0.0250 '/'

Inlet Invert= 29.50', Outlet Invert= 29.15'



Summary for Reach eRD1: Pre - Roof Drain-1

Inflow Area =	15,575 sf, 100.00% Impervious,	Inflow Depth = 0.99"	for WQv event
Inflow =	0.40 cfs @ 12.07 hrs,	Volume=	1,279 cf
Outflow =	0.40 cfs @ 12.07 hrs,	Volume=	1,279 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 3.00 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 0.97 fps, Avg. Travel Time= 0.3 min

Peak Storage= 3 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.23'

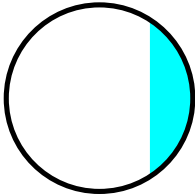
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 20.0' Slope= 0.0100 '/'

Inlet Invert= 25.70', Outlet Invert= 25.50'



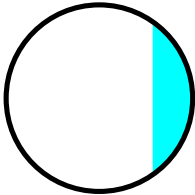
Summary for Reach eRD2: Pre - Roof Drain-2

Inflow Area = 16,270 sf, 100.00% Impervious, Inflow Depth = 0.99" for WQv event
Inflow = 0.42 cfs @ 12.07 hrs, Volume= 1,336 cf
Outflow = 0.42 cfs @ 12.07 hrs, Volume= 1,336 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 3.44 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.12 fps, Avg. Travel Time= 0.4 min

Peak Storage= 3 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.26 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 28.0' Slope= 0.0143 '/'
Inlet Invert= 22.50', Outlet Invert= 22.10'



Summary for Subcatchment eRF1: Pre - Roof flow

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 1,279 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

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Area (sf)	CN	Description
15,575	98	Roofs, HSG C
15,575	98	100.00% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description

5.0

Direct Entry, Roof runoff

Summary for Subcatchment eRF2: Pre - Roof flow

Runoff = 0.42 cfs @ 12.07 hrs, Volume= 1,336 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
16,270	98	Roofs, HSG C
16,270	98	100.00% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description

5.0

Direct Entry, Roof runoff

Summary for Subcatchment eRF3: Pre - Roof flow

Runoff = 0.31 cfs @ 12.07 hrs, Volume= 980 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
11,932	98	Roofs, HSG C
11,932	98	100.00% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Roof runoff

Summary for Subcatchment eS1: Pre - Northeastern Parking lot

Runoff = 0.35 cfs @ 12.07 hrs, Volume= 1,114 cf, Depth= 0.81"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
13,366	98	Paved parking, HSG C
3,232	74	>75% Grass cover, Good, HSG C
16,598	93	Weighted Average
3,232	74	19.47% Pervious Area
13,366	98	80.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Parking Runoff to CB

Summary for Subcatchment eS10: Pre - Flow to Swale-5

Runoff = 0.09 cfs @ 12.26 hrs, Volume= 638 cf, Depth= 0.18"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

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Area (sf)		CN	Description		
*	36,588	74	>75% Grass cover, Good, HSG C		
	937	89	Gravel Driveway		
	670	98	Paved parking, HSG C		
	4,746	98	Roofs, HSG C		
	76	70	Woods, Good, HSG C		
43,017		77	Weighted Average		
37,601		74	87.41% Pervious Area		
5,416		98	12.59% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, AB
					Grass: Bermuda n= 0.410 P2= 3.30"
2.7	292	0.0650	1.78		Shallow Concentrated Flow, BC
					Short Grass Pasture Kv= 7.0 fps
19.0	342	Total			

Summary for Subcatchment eS11: Pre - Flow to playground catch basin

Runoff = 0.02 cfs @ 12.07 hrs, Volume= 58 cf, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Type III 24-hr WQv Rainfall=1.20"

Area (sf)		CN	Description
128	98		Unconnected pavement, HSG C
441	74		>75% Grass cover, Good, HSG C
547	98		Rubber play surface
1,116	89		Weighted Average
441	74		39.52% Pervious Area
675	98		60.48% Impervious Area

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Type III 24-hr WQv Rainfall=1.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to CB5

Summary for Subcatchment eS12: Pre - Area in front of bldg flowing to existing swale-4

Runoff = 0.23 cfs @ 12.08 hrs, Volume= 788 cf, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
5,952	74	>75% Grass cover, Good, HSG C
530	98	Unconnected pavement, HSG C
2,376	98	Roofs, HSG C
6,205	98	Paved parking, HSG C
437	89	Gravel Area
15,500	89	Weighted Average
6,389	75	41.22% Pervious Area
9,111	98	58.78% Impervious Area

*

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.4

Sheet Flow, AB
Grass: Bermuda n= 0.410 P2= 3.30"

Summary for Subcatchment eS13: Pre - Northeastern area flowing to proposed CB5

Runoff = 0.04 cfs @ 12.27 hrs, Volume= 466 cf, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

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Area (sf)	CN	Description
2,021	98	Roofs, HSG C
52,854	74	>75% Grass cover, Good, HSG C
93	98	Paved parking, HSG C
3,952	70	Woods, Good, HSG C
58,920	75	Weighted Average
56,806	74	96.41% Pervious Area
2,114	98	3.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	50	0.0200	0.07		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.7	70	0.0500	1.57		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
0.1	24	0.3300	4.02		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
4.9	206	0.0100	0.70		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.1	95	0.1900	18.24	72.98	Channel Flow, EF Area= 4.0 sf Perim= 8.2' r= 0.49' n= 0.022 Earth, clean & straight
18.2	445	Total			

Summary for Subcatchment eS14: Pre - Parking area-4 runoff

Runoff = 0.28 cfs @ 12.07 hrs, Volume= 967 cf, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

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Area (sf)	CN	Description
16,413	74	>75% Grass cover, Good, HSG C
10,797	98	Paved parking, HSG C
2,515	70	Woods, Good, HSG C
29,725	82	Weighted Average
18,928	73	63.68% Pervious Area
10,797	98	36.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment eS15: Pre - Flow to entrance area drain

Runoff = 0.02 cfs @ 12.07 hrs, Volume= 62 cf, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
686	74	>75% Grass cover, Good, HSG C
709	98	Paved parking, HSG C
1,395	86	Weighted Average
686	74	49.18% Pervious Area
709	98	50.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to area drain

Summary for Subcatchment eS16: Pre - Flow to Sand Filter-2

Runoff = 0.04 cfs @ 12.08 hrs, Volume= 187 cf, Depth= 0.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
* 1,543	89	Gravel
5,249	74	>75% Grass cover, Good, HSG C
1,582	98	Paved parking, HSG C
8,374	81	Weighted Average
6,792	77	81.11% Pervious Area
1,582	98	18.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Runoff into Basin

Summary for Subcatchment eS17: Pre - Area in front of bldg flowing to existing swale-3

Runoff = 0.03 cfs @ 12.09 hrs, Volume= 138 cf, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
6,221	74	>75% Grass cover, Good, HSG C
* 172	98	Existing Wall
* 1,125	98	Existing Walk
7,518	78	Weighted Average
6,221	74	82.75% Pervious Area
1,297	98	17.25% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	38	0.0800	0.11		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.6	135	0.0400	4.06		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
6.3	173	Total			

Summary for Subcatchment eS18: Pre - Flow to Sand Filter-1

Runoff = 0.01 cfs @ 12.13 hrs, Volume= 69 cf, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
4,170	74	>75% Grass cover, Good, HSG C
2,013	89	Gravel
6,183	79	Weighted Average
6,183	79	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Flow into Basin

Summary for Subcatchment eS2: Pre - Flow to CB3

Runoff = 0.05 cfs @ 12.07 hrs, Volume= 197 cf, Depth= 0.23"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

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Area (sf)	CN	Description
8,190	74	>75% Grass cover, Good, HSG C
1,150	98	Paved parking, HSG C
741	98	Walkway
10,081	79	Weighted Average
8,190	74	81.24% Pervious Area
1,891	98	18.76% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description
5.0		

Direct Entry,

Summary for Subcatchment eS20: Pre - Flow to Stone Detention Basin

Runoff = 0.00 cfs @ 12.40 hrs, Volume= 20 cf, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
3,870	74	>75% Grass cover, Good, HSG C
3,870	74	100.00% Pervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description
5.0		

Direct Entry,

Summary for Subcatchment eS21: Pre - Flow along South side to Basin-2

Runoff = 0.11 cfs @ 12.17 hrs, Volume= 721 cf, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

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Area (sf)		CN	Description
	2,225	98	Roofs, HSG C
	1,207	98	Paved parking, HSG C
*	0	89	Gravel Path
	1,823	98	Unconnected pavement, HSG C
*	0	89	Gravel Area
*	0	89	Stone pile
	52,137	74	>75% Grass cover, Good, HSG C
	4,089	70	Woods, Good, HSG C
	61,481	76	Weighted Average
	56,226	74	91.45% Pervious Area
	5,255	98	8.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.4	50	0.1000	2.21		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
3.5	147	0.0100	0.70		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
0.2	40	0.1500	2.71		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0600	1.71		Shallow Concentrated Flow, EF Short Grass Pasture Kv= 7.0 fps
0.2	31	0.1900	3.05		Shallow Concentrated Flow, FG Short Grass Pasture Kv= 7.0 fps
0.2	59	0.0170	5.53	55.30	Channel Flow, GH Area= 10.0 sf Perim= 20.1' r= 0.50' n= 0.022 Earth, clean & straight
0.2	143	0.0700	11.22	112.21	Channel Flow, HI Area= 10.0 sf Perim= 20.1' r= 0.50' n= 0.022 Earth, clean & straight
12.5	552	Total			

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Summary for Subcatchment eS3: Pre - Norther half or parking area-2

Runoff = 0.33 cfs @ 12.01 hrs, Volume= 924 cf, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)		CN	Description		
1,657	74	>75% Grass cover, Good, HSG C			
11,151	98	Paved parking, HSG C			
12,808	95	Weighted Average			
1,657	74	12.94% Pervious Area			
11,151	98	87.06% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps

Summary for Subcatchment eS4: Pre - Southern half of parking area-2

Runoff = 0.61 cfs @ 12.01 hrs, Volume= 1,730 cf, Depth= 0.85"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)		CN	Description
3,603	74	>75% Grass cover, Good, HSG C	
20,838	98	Paved parking, HSG C	
24,441	94	Weighted Average	
3,603	74	14.74% Pervious Area	
20,838	98	85.26% Impervious Area	

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment eS5: Pre - Norther half of parking area-3

Runoff = 0.68 cfs @ 12.01 hrs, Volume= 1,949 cf, Depth= 0.71"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
 Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
9,645	74	>75% Grass cover, Good, HSG C
23,119	98	Paved parking, HSG C
32,764	91	Weighted Average
9,645	74	29.44% Pervious Area
23,119	98	70.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

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Summary for Subcatchment eS6: Pre - Southern half of parking area-3

Runoff = 0.79 cfs @ 12.01 hrs, Volume= 2,220 cf, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
2,944	74	>75% Grass cover, Good, HSG C
26,846	98	Paved parking, HSG C
29,790	96	Weighted Average
2,944	74	9.88% Pervious Area
26,846	98	90.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment eS7: Pre - Flow to CB4

Runoff = 0.07 cfs @ 12.07 hrs, Volume= 220 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
2,681	98	Paved parking, HSG C
2,681	98	100.00% Impervious Area

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

Summary for Subcatchment eS9: Pre - Flow to CB-4

Runoff = 0.02 cfs @ 12.19 hrs, Volume= 153 cf, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
827	98	Unconnected pavement, HSG C
196	98	Paved parking, HSG C
446	89	Gravel path
13,000	74	>75% Grass cover, Good, HSG C
14,469	76	Weighted Average
13,446	74	92.93% Pervious Area
1,023	98	7.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.5	64	0.1100	2.32		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
3.6	152	0.0100	0.70		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
0.4	72	0.1700	2.89		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.1	49	0.1000	13.41	134.11	Channel Flow, EF Area= 10.0 sf Perim= 20.1' r= 0.50' n= 0.022 Earth, clean & straight

14.0 387 Total

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Summary for Pond eSF1: Pre - Sand Filter-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 0.29" for WQv event
Inflow = 1.92 cfs @ 12.02 hrs, Volume= 4,291 cf
Outflow = 0.61 cfs @ 12.26 hrs, Volume= 4,172 cf, Atten= 68%, Lag= 14.8 min
Primary = 0.61 cfs @ 12.26 hrs, Volume= 4,172 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.40' @ 12.26 hrs Surf.Area= 4,118 sf Storage= 1,244 cf

Flood Elev= 22.20' Surf.Area= 9,493 sf Storage= 8,980 cf

Plug-Flow detention time= 57.7 min calculated for 4,168 cf (97% of inflow)

Center-of-Mass det. time= 42.4 min (874.7 - 832.2)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	5,566 cf	Open Storage (Prismatic) Listed below (Recalc)
#2	18.50'	3,390 cf	Sand Filter (Prismatic) Listed below (Recalc)
#3	18.58'	24 cf	10,295 cf Overall - 24 cf Embedded = 10,271 cf x 33.0% Voids
		L= 271.0'	4.0" Round Pipe Storage Inside #2
		8,980 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	4,118	0	0
22.00	4,950	4,534	4,534
22.20	5,375	1,032	5,566
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	4,118	0	0
19.00	4,118	2,059	2,059
20.00	4,118	4,118	6,177
21.00	4,118	4,118	10,295

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Device Routing Invert Outlet Devices

#1	Primary	21.20'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 0.00	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	Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.85 3.07 3.20 3.32
#2	Primary	21.20'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28)	Head (feet) 0.00 1.00	
#3	Device 4	18.50'	8.270 in/hr Exfiltration over Surface area	Width (feet) 4.00 8.00	
#4	Primary	18.58'	4.0" Round Culvert X 2.00 L= 15.0' RCP, sq.cut end projecting, Ke= 0.500	Inlet / Outlet Invert= 18.58' / 18.40' S= 0.0120 '/' Cc= 0.900	n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.61 cfs @ 12.26 hrs HW=19.40' TW=18.07' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Controls 0.00 cfs)

2=Custom Weir/Orifice (Controls 0.00 cfs)

4=Culvert (Barrel Controls 0.61 cfs @ 3.49 fps)

3=Exfiltration (Passes 0.61 cfs of 0.79 cfs potential flow)

Summary for Pond eSF2: Pre - Sand Filter-2

Inflow Area =	74,020 sf, 64.33% Impervious, Inflow Depth = 0.66" for WQv event
Inflow =	1.23 cfs @ 12.07 hrs, Volume= 4,052 cf
Outflow =	0.35 cfs @ 12.41 hrs, Volume= 4,042 cf, Atten= 72%, Lag= 20.4 min
Primary =	0.00 cfs @ 0.00 hrs, Volume= 0 cf
Secondary =	0.35 cfs @ 12.41 hrs, Volume= 4,042 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 21.04' @ 12.41 hrs Surf.Area= 3,114 sf Storage= 1,093 cf

Flood Elev= 23.00' Surf.Area= 3,746 sf Storage= 4,765 cf

Plug-Flow detention time= 45.1 min calculated for 4,042 cf (100% of inflow)

Center-of-Mass det. time= 43.4 min (831.7 - 788.2)

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Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	1,020 cf	Sand Filter (Prismatic) Listed below (Recalc) 3,102 cf Overall - 11 cf Embedded = 3,091 cf x 33.0% Voids
#2	21.00'	3,734 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#3	19.00'	11 cf	4.0" Round Pipe Storage Inside #1 L= 123.0'
		4,765 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,551	0	0
20.00	1,551	1,551	1,551
21.00	1,551	1,551	3,102

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	1,551	0	0
22.00	1,861	1,706	1,706
23.00	2,195	2,028	3,734

Device	Routing	Invert	Outlet Devices
#1	Primary	22.15'	10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Device 3	19.00'	8.270 in/hr Exfiltration over Surface area
#3	Secondary	19.00'	4.0" Round Culvert L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.00' / 18.75' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=19.00' TW=19.00' (Dynamic Tailwater)↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)**Secondary OutFlow** Max=0.35 cfs @ 12.41 hrs HW=21.04' TW=19.00' (Dynamic Tailwater)↑**3=Culvert** (Barrel Controls 0.35 cfs @ 3.96 fps)↑**2=Exfiltration** (Passes 0.35 cfs of 0.60 cfs potential flow)

Summary for Pond eSTC1: Pre - Stormceptor-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 0.59" for WQv event
 Inflow = 0.50 cfs @ 12.01 hrs, Volume= 2,336 cf
 Outflow = 0.50 cfs @ 12.01 hrs, Volume= 2,336 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.50 cfs @ 12.01 hrs, Volume= 2,336 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 29.81' @ 12.01 hrs

Flood Elev= 33.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.40'	12.0" Round Culvert L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.40' / 29.35' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.49 cfs @ 12.01 hrs HW=29.81' TW=29.14' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.49 cfs @ 2.39 fps)

Summary for Pond eSTC2: Pre - Stormceptor-2

Inflow Area = 32,406 sf, 41.59% Impervious, Inflow Depth = 0.44" for WQv event
 Inflow = 0.35 cfs @ 12.07 hrs, Volume= 1,187 cf
 Outflow = 0.35 cfs @ 12.07 hrs, Volume= 1,187 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.35 cfs @ 12.07 hrs, Volume= 1,187 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.31' @ 12.07 hrs

Flood Elev= 27.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.00'	12.0" Round Culvert L= 5.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.00' / 22.90' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.07 hrs HW=23.31' TW=22.30' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.34 cfs @ 2.48 fps)

Summary for Pond eSW1: Pre - Swale-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth > 0.29" for WQv event
 Inflow = 0.61 cfs @ 12.26 hrs, Volume= 4,172 cf
 Outflow = 0.61 cfs @ 12.28 hrs, Volume= 4,172 cf, Atten= 0%, Lag= 1.2 min
 Primary = 0.61 cfs @ 12.28 hrs, Volume= 4,172 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 18.07' @ 12.28 hrs Surf.Area= 948 sf Storage= 64 cf

Flood Elev= 19.40' Surf.Area= 3,367 sf Storage= 2,947 cf

Plug-Flow detention time= 2.8 min calculated for 4,168 cf (100% of inflow)

Center-of-Mass det. time= 2.8 min (877.4 - 874.7)

Volume Invert Avail.Storage Storage Description

#1 18.00' 2,947 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.00	814	0	0
19.00	2,666	1,740	1,740
19.40	3,367	1,207	2,947

Device Routing Invert Outlet Devices

#1 Primary 18.00' **Custom Weir/Orifice, Cv= 2.62 (C= 3.28)**
 Head (feet) 0.00 1.00 1.40
 Width (feet) 9.34 16.70 21.40

Primary OutFlow Max=0.61 cfs @ 12.28 hrs HW=18.07' TW=0.00' (Dynamic Tailwater)

1=Custom Weir/Orifice (Weir Controls 0.61 cfs @ 0.88 fps)

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Summary for Pond eSW2: Pre - Swale-2

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth > 0.66" for WQv event
Inflow = 0.35 cfs @ 12.41 hrs, Volume= 4,042 cf
Outflow = 0.35 cfs @ 12.41 hrs, Volume= 4,042 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.41 hrs, Volume= 4,042 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.00' @ 0.00 hrs Surf.Area= 263 sf Storage= 0 cf

Flood Elev= 20.70' Surf.Area= 825 sf Storage= 945 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	945 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	263	0	0
20.00	617	440	440
20.70	825	505	945

Device	Routing	Invert	Outlet Devices
#1	Primary	18.19'	18.0" Round Culvert L= 24.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.19' / 18.09' S= 0.0042 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	19.03'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.68' / 19.03' S= -0.0233 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=0.00 cfs @ 12.41 hrs HW=19.00' TW=18.50' (Dynamic Tailwater)

└─**1=Culvert** (Passes 0.00 cfs of 2.08 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=19.00' TW=18.00' (Dynamic Tailwater)

└─**2=Culvert** (Controls 0.00 cfs)

Summary for Pond eSW3: Pre - Swale-3

Inflow Area = 81,538 sf, 59.99% Impervious, Inflow Depth > 0.62" for WQv event
Inflow = 0.36 cfs @ 12.30 hrs, Volume= 4,180 cf
Outflow = 0.38 cfs @ 12.30 hrs, Volume= 4,181 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.30 hrs, Volume= 4,181 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 18.51' @ 12.13 hrs Surf.Area= 394 sf Storage= 3 cf

Flood Elev= 20.00' Surf.Area= 3,014 sf Storage= 2,902 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.1 min (831.8 - 831.6)

Volume	Invert	Avail.Storage	Storage Description
#1	18.50'	2,902 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	374	0	0
19.00	1,735	527	527
20.00	3,014	2,375	2,902

Device	Routing	Invert	Outlet Devices
#1	Primary	18.08'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.08' / 18.01' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=0.42 cfs @ 12.30 hrs HW=18.50' TW=18.36' (Dynamic Tailwater)

└─**1=Culvert** (Outlet Controls 0.42 cfs @ 1.99 fps)

Summary for Pond eSW4: Pre - Swale-4

Inflow Area = 108,970 sf, 64.20% Impervious, Inflow Depth > 0.66" for WQv event
Inflow = 0.84 cfs @ 12.08 hrs, Volume= 5,949 cf
Outflow = 0.80 cfs @ 12.11 hrs, Volume= 5,949 cf, Atten= 4%, Lag= 2.1 min
Primary = 0.80 cfs @ 12.11 hrs, Volume= 5,949 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 18.43' @ 12.11 hrs Surf.Area= 385 sf Storage= 89 cf

Flood Elev= 19.80' Surf.Area= 1,554 sf Storage= 1,361 cf

Plug-Flow detention time= 2.0 min calculated for 5,944 cf (100% of inflow)

Center-of-Mass det. time= 2.0 min (820.0 - 818.0)

Volume Invert Avail.Storage Storage Description

#1 18.00' 1,361 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.00	27	0	0
19.00	851	439	439
19.50	1,190	510	949
19.80	1,554	412	1,361

Device Routing Invert Outlet Devices

#1 Primary 17.99' **18.0" Round Culvert** L= 21.0' RCP, sq.cut end projecting, Ke= 0.500
Inlet / Outlet Invert= 17.99' / 17.82' S= 0.0081 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.80 cfs @ 12.11 hrs HW=18.43' TW=17.91' (Dynamic Tailwater)

└─**1=Culvert** (Barrel Controls 0.80 cfs @ 2.74 fps)

Summary for Reach eSW5: Pre - Swale-5

Inflow Area =

232,923 sf, 35.34% Impervious, Inflow Depth > 0.34" for WQv event

Inflow =

0.87 cfs @ 12.12 hrs, Volume= 6,587 cf

Outflow =

0.85 cfs @ 12.15 hrs, Volume= 6,587 cf, Atten= 2%, Lag= 1.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 0.96 fps, Min. Travel Time= 2.5 min

Avg. Velocity = 0.34 fps, Avg. Travel Time= 7.1 min

Peak Storage= 128 cf @ 12.15 hrs

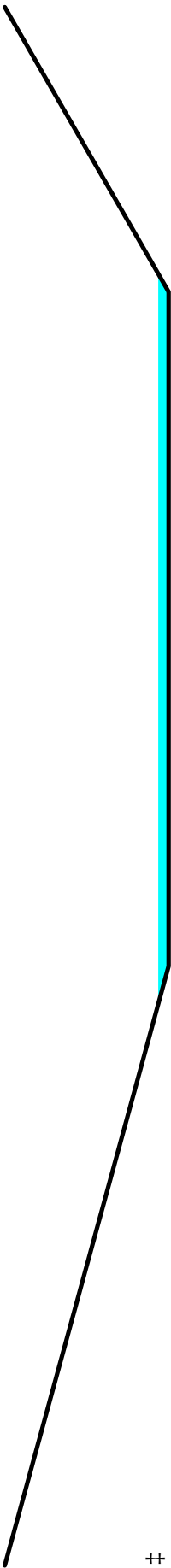
Average Depth at Peak Storage= 0.09'

Bank-Full Depth= 1.50' Flow Area= 22.4 sf, Capacity= 110.11 cfs

Custom cross-section, Length= 145.0' Slope= 0.0050 '/'

Constant n= 0.022 Earth, clean & straight

Inlet Invert= 17.82', Outlet Invert= 17.10'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-12.50	19.50	0.00
-4.50	18.00	1.50
4.50	18.00	1.50
8.30	19.50	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	9.0	0	0.00
1.50	22.4	21.2	3,241	110.11

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Summary for Pond eUS1: Pre - Underground Recharge System-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 0.59" for WQv event
Inflow = 0.50 cfs @ 12.01 hrs, Volume= 2,336 cf
Outflow = 0.05 cfs @ 14.19 hrs, Volume= 2,338 cf, Atten= 89%, Lag= 130.8 min
Discarded = 0.04 cfs @ 10.95 hrs, Volume= 2,333 cf
Primary = 0.01 cfs @ 14.19 hrs, Volume= 6 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 29.50' @ 14.17 hrs Surf.Area= 1,736 sf Storage= 844 cf

Flood Elev= 30.90' Surf.Area= 1,736 sf Storage= 1,991 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 181.1 min (976.3 - 795.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	28.57'	1,014 cf	21.50"W x 80.76'L x 2.33'H Field A 4,051 cf Overall - 978 cf Embedded = 3,073 cf x 33.0% Voids
#2A	29.07'	978 cf	ADS StormTech SC-310 x 66 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 6 rows
		1,992 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.57'	1.000 in/hr Exfiltration over Surface area
#2	Primary	29.36'	8.0" Round Culvert X 3.00 L= 2.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.36' / 29.30' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

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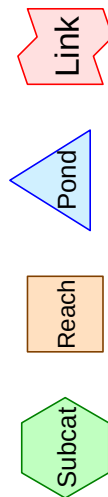
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⬇️ **Discarded OutFlow** Max=0.04 cfs @ 10.95 hrs HW=28.59' (Free Discharge)

⬇️ **1=Exfiltration** (Exfiltration Controls 0.04 cfs)

⬇️ **Primary OutFlow** Max=0.00 cfs @ 14.19 hrs HW=29.50' TW=29.53' (Dynamic Tailwater)

⬇️ **2=Culvert** (Controls 0.00 cfs)



Routing Diagram for 20014 HydroCAD Daycare_V2 6-1-2023
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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
218,206	74	>75% Grass cover, Good, HSG C (pS1, pS10, pS11, pS12, pS13, pS14, pS15, pS16, pS17, pS18, pS2, pS20, pS21, pS24, pS26, pS27, pS3, pS4, pS5, pS6, pS9)
116	98	Conc Pavillion Pad (pS20)
127	98	Curbing (pS25, pS26)
1,366	98	Existing Walk (pS17, pS27)
172	98	Existing Wall (pS17)
3,556	89	Gravel (pS16, pS18)
121,102	98	Paved parking, HSG C (pS1, pS12, pS13, pS14, pS15, pS16, pS2, pS20, pS25, pS26, pS3, pS4, pS5, pS6, pS7, pS9)
2,097	98	Pavillion (pS20)
2,867	98	Proposed Walkway (pS12, pS21, pS24, pS25, pS26)
86	98	Proposed Wall (pS21, pS24)
57,834	98	Roofs, HSG C (pRF1, pRF2, pRF3, pRF4, pRF5, pS10, pS13, pS27)
547	98	Rubber play surface (pS11)
1,862	98	Sidewalk (pS22)
1,448	98	Unconnected pavement, HSG C (pS11, pS12, pS23, pS9)
741	98	Walkway (pS2)
12,381	70	Woods, Good, HSG C (pS13, pS14, pS20, pS9)
424,508	85	TOTAL AREA

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Time span=0.00-36.00 hrs, dt=0.03 hrs, 1201 points x 2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond CB1: CB-1

Peak Elev=39.51' Inflow=1.11 cfs 3,714 cf
Outflow=1.11 cfs 3,714 cf

Pond CB4: Post - CB-4

Peak Elev=26.14' Inflow=0.06 cfs 213 cf
4.0" Round Culvert n=0.013 L=14.3' S=-0.0392 '/' Outflow=0.06 cfs 213 cf

Pond CO: Post - Cleanout

Peak Elev=22.36' Inflow=0.20 cfs 635 cf
8.0" Round Culvert n=0.013 L=74.0' S=0.0101 '/' Outflow=0.20 cfs 635 cf

Pond DMH1: Post - DMH1

Peak Elev=32.52' Inflow=2.16 cfs 6,894 cf
Primary=1.64 cfs 6,413 cf Secondary=0.52 cfs 481 cf Outflow=2.16 cfs 6,894 cf

Pond DMH10: Post - DMH-10

Peak Elev=25.70' Inflow=1.18 cfs 3,982 cf
12.0" Round Culvert n=0.013 L=21.0' S=0.0119 '/' Outflow=1.18 cfs 3,982 cf

Pond DMH11: Post - DMH-11

Peak Elev=25.26' Inflow=1.18 cfs 3,982 cf
12.0" Round Culvert n=0.013 L=3.0' S=0.0200 '/' Outflow=1.18 cfs 3,982 cf

Pond DMH2: Post- DMH2

Peak Elev=30.47' Inflow=2.65 cfs 9,416 cf
Primary=1.27 cfs 6,765 cf Secondary=1.38 cfs 2,651 cf Outflow=2.65 cfs 9,416 cf

Pond DMH3: Post - DMH3

Peak Elev=26.92' Inflow=3.05 cfs 12,037 cf
18.0" Round Culvert n=0.013 L=105.0' S=0.0200 '/' Outflow=3.05 cfs 12,037 cf

Pond DMH4: Post - DMH4

Peak Elev=24.62' Inflow=3.05 cfs 12,037 cf
18.0" Round Culvert n=0.013 L=75.0' S=0.0273 '/' Outflow=3.05 cfs 12,037 cf

Pond DMH5: Post - DMH5

Peak Elev=22.68' Inflow=1.61 cfs 5,341 cf
12.0" Round Culvert n=0.013 L=3.5' S=0.0714 '/' Outflow=1.61 cfs 5,341 cf

Pond DMH6: Post - DMH-6

Peak Elev=33.56' Inflow=0.99 cfs 4,391 cf
10.0" Round Culvert n=0.013 L=55.0' S=0.0182 '/' Outflow=0.99 cfs 4,391 cf

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Pond DMH7: Post - DMH-7

10.0" Round Culvert n=0.013 L=30.0' S=0.0200 '/' Peak Elev=31.46' Inflow=0.99 cfs 4,391 cf
Outflow=0.99 cfs 4,391 cf

Pond DMH8: Post - DMH-8

10.0" Round Culvert n=0.013 L=30.0' S=0.0200 '/' Peak Elev=27.11' Inflow=0.99 cfs 4,391 cf
Outflow=0.99 cfs 4,391 cf

Pond DMH9: Post - DMH-9

12.0" Round Culvert n=0.013 L=85.0' S=0.0118 '/' Peak Elev=24.06' Inflow=1.17 cfs 5,138 cf
Outflow=1.17 cfs 5,138 cf

Reach OP1: Outlet pipe-1

12.0" Round Pipe n=0.013 L=14.0' S=0.0250 '/' Avg. Flow Depth=0.25' Max Vel=5.00 fps Inflow=0.77 cfs 3,138 cf
Outflow=0.76 cfs 3,138 cf

Pond pA1: Post - Analysis Point-1

Inflow=1.11 cfs 3,714 cf
Primary=1.11 cfs 3,714 cf

Pond pA2: Pre - Analysis Point-2

Inflow=4.28 cfs 25,639 cf
Primary=4.28 cfs 25,639 cf

Pond pA3: Post - Analysis Point-3

Inflow=3.47 cfs 31,890 cf
Primary=3.47 cfs 31,890 cf

Pond pAD: Post - Area drain at main entrance

12.0" Round Culvert n=0.013 L=69.0' S=0.0109 '/' Peak Elev=24.13' Inflow=0.07 cfs 244 cf
Outflow=0.07 cfs 244 cf

Pond pAD2: Area Drain

8.0" Round Culvert n=0.013 L=10.0' S=0.0100 '/' Peak Elev=28.61' Inflow=0.03 cfs 111 cf
Outflow=0.03 cfs 111 cf

Pond pCB1: Post - CB1

12.0" Round Culvert n=0.012 L=140.0' S=0.0143 '/' Peak Elev=32.52' Inflow=1.01 cfs 3,003 cf
Outflow=1.01 cfs 3,003 cf

Pond pCB2: Post - CB2

15.0" Round Culvert n=0.013 L=10.0' S=0.0200 '/' Peak Elev=32.92' Inflow=1.90 cfs 5,658 cf
Outflow=1.90 cfs 5,658 cf

Pond pCB3: Post - CB3

8.0" Round Culvert n=0.013 L=44.0' S=0.0318 '/' Peak Elev=34.85' Inflow=0.38 cfs 1,237 cf
Outflow=0.38 cfs 1,237 cf

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Pond pCB4: Post - CB4

8.0" Round Culvert n=0.013 L=55.0' S=0.0227 '/' Inflow=0.20 cfs 685 cf
Outflow=0.20 cfs 685 cf

Pond pCB5: Post -CB5

12.0" Round Culvert n=0.013 L=158.0' S=0.0100 '/' Inflow=1.23 cfs 5,766 cf
Outflow=1.23 cfs 5,766 cf

Pond pCB6: Post - CB-6

Primary=0.99 cfs 4,391 cf Storage=35 cf Inflow=0.99 cfs 4,410 cf
Secondary=0.00 cfs 0 cf Outflow=0.99 cfs 4,391 cf

Pond pCB7: Post - CB-7

Peak Elev=28.83' Storage=55 cf Inflow=0.23 cfs 794 cf
Primary=0.22 cfs 747 cf Secondary=0.00 cfs 0 cf Outflow=0.22 cfs 747 cf

Pond pCB8: Post - CB-8

Peak Elev=29.57' Storage=49 cf Inflow=0.20 cfs 676 cf
Outflow=0.20 cfs 635 cf

Pond pDB1: Post - Detention Basin-1

Peak Elev=21.23' Storage=1,438 cf Inflow=2.67 cfs 2,521 cf
Outflow=0.83 cfs 2,476 cf

Pond pFB1: Forebay-1

Peak Elev=23.20' Storage=527 cf Inflow=2.30 cfs 6,796 cf
Outflow=2.27 cfs 6,329 cf

Pond pFB2: Forebay-2

Peak Elev=23.21' Storage=529 cf Inflow=2.40 cfs 7,133 cf
Outflow=2.36 cfs 6,666 cf

Pond pFB3: Post - Forebay-3

Peak Elev=21.72' Storage=337 cf Inflow=1.52 cfs 7,081 cf
Outflow=1.52 cfs 6,813 cf

Pond pH2: Post - Daycare Header

Peak Elev=28.32' Inflow=0.41 cfs 1,393 cf
12.0" Round Culvert n=0.013 L=70.0' S=0.0200 '/' Outflow=0.41 cfs 1,393 cf

Pond pH3: Post - Daycare Header

Peak Elev=27.09' Inflow=1.18 cfs 3,982 cf
12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=1.18 cfs 3,982 cf

Pond pH4: Post - Daycare Header

Peak Elev=26.12' Inflow=1.18 cfs 3,982 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=1.18 cfs 3,982 cf

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Pond pH5: Post - Roof Header

Peak Elev=26.31' Inflow=0.27 cfs 910 cf
Outflow=0.27 cfs 910 cf

Reach pRD1: Post - Roof Drain-1

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.40' Max Vel=4.06 fps Inflow=1.18 cfs 3,981 cf
L=20.0' S=0.0100 '/' Capacity=3.56 cfs Outflow=1.18 cfs 3,981 cf

Reach pRD2: Post - Roof Drain-2

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.37' Max Vel=4.68 fps Inflow=1.23 cfs 4,159 cf
L=28.0' S=0.0143 '/' Capacity=4.26 cfs Outflow=1.23 cfs 4,159 cf

Subcatchment pRF1: Post - Roof flow

Runoff Area=15,575 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=0/98 Runoff=1.18 cfs 3,981 cf

Subcatchment pRF2: Post - Roof flow

Runoff Area=16,270 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=0/98 Runoff=1.23 cfs 4,159 cf

Subcatchment pRF3: Post - Roof flow

Runoff Area=3,560 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=0/98 Runoff=0.27 cfs 910 cf

Subcatchment pRF4: Post - New Daycare Roof

Runoff Area=8,267 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=0/98 Runoff=0.63 cfs 2,113 cf

Subcatchment pRF5: Post - Existing Roof

Runoff Area=5,017 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=0/98 Runoff=0.38 cfs 1,282 cf

Subcatchment pS1: Post - Northeastern Parking lot

Runoff Area=16,598 sf 80.53% Impervious Runoff Depth=2.68"
Tc=5.0 min CN=74/98 Runoff=1.11 cfs 3,714 cf

Subcatchment pS10: Post - Flow to Area Drain

Runoff Area=14,310 sf 33.15% Impervious Runoff Depth=1.75"
Flow Length=126' Tc=17.0 min CN=74/98 Runoff=0.45 cfs 2,093 cf

Subcatchment pS11: Post - Flow to playground catch basin

Runoff Area=1,116 sf 60.48% Impervious Runoff Depth=2.29"
Tc=5.0 min CN=74/98 Runoff=0.06 cfs 213 cf

Subcatchment pS12: Post - Flow to Swale-5

Runoff Area=7,588 sf 72.14% Impervious Runoff Depth=2.52"
Tc=5.0 min CN=74/98 Runoff=0.48 cfs 1,594 cf

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Subcatchment pS13: Post - Northeastern area flowing to proposed CB5

Runoff Area=58,920 sf 3.59% Impervious Runoff Depth=1.17"
Flow Length=445' Tc=18.2 min CN=74/98 Runoff=1.23 cfs 5,766 cf

Subcatchment pS14: Post - Parking area-4 runoff

Runoff Area=29,725 sf 36.32% Impervious Runoff Depth=1.78"
Tc=5.0 min CN=73/98 Runoff=1.33 cfs 4,412 cf

Subcatchment pS15: Post - Flow to entrance area drain

Runoff Area=1,395 sf 50.82% Impervious Runoff Depth=2.10"
Tc=5.0 min CN=74/98 Runoff=0.07 cfs 244 cf

Subcatchment pS16: Post - Flow to Sand Filter-2

Runoff Area=8,374 sf 18.89% Impervious Runoff Depth=1.62"
Tc=5.0 min CN=77/98 Runoff=0.35 cfs 1,131 cf

Subcatchment pS17: Post - Area in front of bldg flowing to existing swale-3

Runoff Area=7,518 sf 17.25% Impervious Runoff Depth=1.44"
Flow Length=173' Tc=6.3 min CN=74/98 Runoff=0.27 cfs 904 cf

Subcatchment pS18: Post - Flow to Sand Filter-1

Runoff Area=6,183 sf 0.00% Impervious Runoff Depth=1.41"
Tc=5.0 min CN=79/0 Runoff=0.24 cfs 728 cf

Subcatchment pS2: Post - Flow to CB3

Runoff Area=10,081 sf 18.76% Impervious Runoff Depth=1.47"
Tc=5.0 min CN=74/98 Runoff=0.38 cfs 1,237 cf

Subcatchment pS20: Post - Flow along South side to Sand Filter-1

Runoff Area=60,165 sf 4.02% Impervious Runoff Depth=1.18"
Flow Length=552' Tc=12.5 min CN=74/98 Runoff=1.46 cfs 5,931 cf

Subcatchment pS21: Post - Surface Runoff to Swale

Runoff Area=8,243 sf 2.62% Impervious Runoff Depth=1.16"
Flow Length=57' Tc=7.9 min CN=74/98 Runoff=0.23 cfs 794 cf

Subcatchment pS22: Post - Daycare Walkway Runoff

Runoff Area=1,862 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=0/98 Runoff=0.14 cfs 476 cf

Subcatchment pS23: Post - Daycare Plaza Runoff

Runoff Area=433 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=0/98 Runoff=0.03 cfs 111 cf

Subcatchment pS24: Post - Runoff to Forebay

Runoff Area=5,161 sf 9.61% Impervious Runoff Depth=1.29"
Tc=5.0 min CN=74/98 Runoff=0.17 cfs 556 cf

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Subcatchment pS25: Post - Parking Lot Runoff to Forebay

Runoff Area=2,943 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=0/98 Runoff=0.22 cfs 752 cf

Subcatchment pS26: Post - Flow to CB3

Runoff Area=3,055 sf 78.95% Impervious Runoff Depth=2.65"
Tc=5.0 min CN=74/98 Runoff=0.20 cfs 676 cf

Subcatchment pS27: Post - Area in front of bldg flowing to existing swale-4

Runoff Area=6,230 sf 42.07% Impervious Runoff Depth=1.93"
Slope=0.1600 '/' Tc=5.4 min CN=74/98 Runoff=0.30 cfs 1,002 cf
Flow Length=50'

Subcatchment pS3: Post - Norther half of parking area-2

Runoff Area=12,808 sf 87.06% Impervious Runoff Depth=2.81"
Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=1.01 cfs 3,003 cf
Flow Length=117'

Subcatchment pS4: Post - Southern half of parking area-2

Runoff Area=24,441 sf 85.26% Impervious Runoff Depth=2.78"
Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=1.90 cfs 5,658 cf
Flow Length=117'

Subcatchment pS5: Post - Norther half of parking area-3

Runoff Area=32,764 sf 70.56% Impervious Runoff Depth=2.49"
Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=2.30 cfs 6,796 cf
Flow Length=117'

Subcatchment pS6: Post - Southern half of parking area-3

Runoff Area=29,790 sf 90.12% Impervious Runoff Depth=2.87"
Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=2.40 cfs 7,133 cf
Flow Length=117'

Subcatchment pS7: Post - Flow to CB4

Runoff Area=2,681 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=0/98 Runoff=0.20 cfs 685 cf

Subcatchment pS9: Post - Flow to Area Drain

Runoff Area=23,435 sf 4.22% Impervious Runoff Depth=1.19"
Flow Length=367' Tc=13.9 min CN=74/98 Runoff=0.55 cfs 2,318 cf

Pond pSF1: Post - Sand Filter-1

Peak Elev=21.55' Storage=5,787 cf Inflow=7.81 cfs 25,759 cf
Outflow=4.29 cfs 25,640 cf

Pond pSF2: Post - Sand Filter-2

Peak Elev=22.37' Storage=3,453 cf Inflow=4.37 cfs 14,612 cf
Primary=2.67 cfs 2,521 cf Secondary=0.45 cfs 12,080 cf Outflow=3.12 cfs 14,601 cf

Pond pSF3: Post - Sand Filter-3

Peak Elev=21.69' Storage=2,508 cf Inflow=3.00 cfs 12,957 cf
Outflow=2.05 cfs 12,925 cf

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Pond pSW1: Pre - Swale-1

Peak Elev=18.26' Storage=269 cf Inflow=4.29 cfs 25,640 cf
Outflow=4.28 cfs 25,639 cf

Pond pSW2: Pre - Swale-2

Peak Elev=19.00' Storage=0 cf Inflow=1.27 cfs 14,556 cf
Primary=1.27 cfs 14,556 cf Secondary=0.00 cfs 0 cf Outflow=1.27 cfs 14,556 cf

Pond pSW3: Pre - Swale-3

Peak Elev=18.83' Storage=269 cf Inflow=1.36 cfs 15,460 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0047 '/' Outflow=1.28 cfs 15,460 cf

Pond pSW4: Pre - Swale-4

Peak Elev=18.59' Storage=160 cf Inflow=1.39 cfs 17,372 cf
18.0" Round Culvert n=0.013 L=21.0' S=0.0081 '/' Outflow=1.39 cfs 17,372 cf

Reach pSW5: Pre - Swale-5

Avg. Flow Depth=0.22' Max Vel=1.62 fps Inflow=3.48 cfs 31,890 cf
n=0.022 L=145.0' S=0.0050 '/' Capacity=110.11 cfs Outflow=3.47 cfs 31,890 cf

Pond STC1: Post - Stormceptor-1

Peak Elev=30.11' Inflow=1.27 cfs 6,765 cf
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 '/' Outflow=1.27 cfs 6,765 cf

Pond STC2: Post - Stormceptor-2

Peak Elev=23.75' Inflow=1.53 cfs 5,097 cf
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=1.53 cfs 5,097 cf

Reach SW1: Post - Swale-1

Avg. Flow Depth=0.15' Max Vel=2.45 fps Inflow=0.23 cfs 794 cf
n=0.030 L=100.0' S=0.0800 '/' Capacity=34.60 cfs Outflow=0.23 cfs 794 cf

Reach SW2: Post - Swale-2

Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
n=0.030 L=80.0' S=0.0313 '/' Capacity=16.07 cfs Outflow=0.00 cfs 0 cf

Pond US1: Post - Underground Recharge System-1

Peak Elev=29.81' Storage=1,204 cf Inflow=1.27 cfs 6,765 cf
Discarded=0.04 cfs 3,633 cf Primary=0.77 cfs 3,138 cf Outflow=0.81 cfs 6,765 cf

Pond US2: Post - Underground Recharge System-2

Peak Elev=24.09' Storage=1,316 cf Inflow=1.18 cfs 3,982 cf
Discarded=0.12 cfs 3,982 cf Primary=0.00 cfs 0 cf Outflow=0.12 cfs 3,982 cf

Total Runoff Area = 424,508 sf Runoff Volume = 70,367 cf Average Runoff Depth = 1.99"
55.16% Pervious = 234,143 sf 44.84% Impervious = 190,365 sf

Summary for Pond CB1: CB-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 2.68" for 2-Year event
Inflow = 1.11 cfs @ 12.07 hrs, Volume= 3,714 cf
Outflow = 1.11 cfs @ 12.07 hrs, Volume= 3,714 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.11 cfs @ 12.07 hrs, Volume= 3,714 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 39.51' @ 12.07 hrs
Flood Elev= 46.68'

Device	Routing	Invert	Outlet Devices

#1	Primary	38.96'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.09 cfs @ 12.07 hrs HW=39.50' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 1.09 cfs @ 2.50 fps)

Summary for Pond CB4: Post - CB-4

Inflow Area = 1,116 sf, 60.48% Impervious, Inflow Depth = 2.29" for 2-Year event
Inflow = 0.06 cfs @ 12.07 hrs, Volume= 213 cf
Outflow = 0.06 cfs @ 12.07 hrs, Volume= 213 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.06 cfs @ 12.07 hrs, Volume= 213 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 26.14' @ 12.07 hrs
Flood Elev= 27.10'

Device	Routing	Invert	Outlet Devices

#1	Primary	25.97'	4.0" Round Culvert L= 14.3' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 25.41' / 25.97' S= -0.0392 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.06 cfs @ 12.07 hrs HW=26.14' TW=20.62' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.06 cfs @ 1.40 fps)

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Summary for Pond CO: Post - Cleanout

Inflow Area = 3,055 sf, 78.95% Impervious, Inflow Depth = 2.49" for 2-Year event
Inflow = 0.20 cfs @ 12.08 hrs, Volume= 635 cf
Outflow = 0.20 cfs @ 12.08 hrs, Volume= 635 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.08 hrs, Volume= 635 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.36' @ 12.08 hrs

Flood Elev= 27.80'

Device	Routing	Invert	Outlet Devices

#1	Primary	22.10'	8.0" Round Culvert L= 74.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 22.10' / 21.35' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.20 cfs @ 12.08 hrs HW=22.36' TW=21.66' (Dynamic Tailwater)

1=Culvert (Outlet Controls 0.20 cfs @ 2.32 fps)

Summary for Pond DMH1: Post - DMH1

Inflow Area = 34,522 sf, 65.84% Impervious, Inflow Depth = 2.40" for 2-Year event
Inflow = 2.16 cfs @ 12.01 hrs, Volume= 6,894 cf
Outflow = 2.16 cfs @ 12.01 hrs, Volume= 6,894 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.64 cfs @ 12.01 hrs, Volume= 6,413 cf
Secondary = 0.52 cfs @ 12.01 hrs, Volume= 481 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 32.52' @ 12.01 hrs

Flood Elev= 35.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	31.90'	15.0" Round Culvert L= 67.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 31.90' / 29.90' S= 0.0299 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

#2	Secondary	32.10'	8.0" Round Culvert L= 80.0' RCP, sq.cut end projecting, Ke= 0.500

Inlet / Outlet Invert= 32.10' / 27.00' S= 0.0638 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=1.61 cfs @ 12.01 hrs HW=32.52' TW=30.46' (Dynamic Tailwater)
└─1=Culvert (Inlet Controls 1.61 cfs @ 2.67 fps)

Secondary OutFlow Max=0.50 cfs @ 12.01 hrs HW=32.52' TW=26.91' (Dynamic Tailwater)
└─2=Culvert (Inlet Controls 0.50 cfs @ 2.19 fps)

Summary for Pond DMH10: Post - DMH-10

Inflow Area = 15,579 sf,100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 1.18 cfs @ 12.07 hrs, Volume= 3,982 cf
Outflow = 1.18 cfs @ 12.07 hrs, Volume= 3,982 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.18 cfs @ 12.07 hrs, Volume= 3,982 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 25.70' @ 12.07 hrs
Flood Elev= 29.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	25.10'	12.0" Round Culvert L= 21.0' RCP, sq.cut end projecting, Ke= 0.500

Inlet / Outlet Invert= 25.10' / 24.85' S= 0.0119 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.16 cfs @ 12.07 hrs HW=25.70' TW=25.26' (Dynamic Tailwater)
└─1=Culvert (Barrel Controls 1.16 cfs @ 3.40 fps)

Summary for Pond DMH11: Post - DMH-11

Inflow Area = 15,579 sf,100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 1.18 cfs @ 12.07 hrs, Volume= 3,982 cf
Outflow = 1.18 cfs @ 12.07 hrs, Volume= 3,982 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.18 cfs @ 12.07 hrs, Volume= 3,982 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 25.26' @ 12.07 hrs

Flood Elev= 28.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	24.60'	12.0" Round Culvert L= 3.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.60' / 24.54' S= 0.0200 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=1.16 cfs @ 12.07 hrs HW=25.26' TW=23.68' (Dynamic Tailwater)

1=Culvert (Barrel Controls 1.16 cfs @ 3.01 fps)

Summary for Pond DMH2: Post- DMH2

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 2.39" for 2-Year event
Inflow = 2.65 cfs @ 12.01 hrs, Volume= 9,416 cf
Outflow = 2.65 cfs @ 12.01 hrs, Volume= 9,416 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.27 cfs @ 12.01 hrs, Volume= 6,765 cf
Secondary = 1.38 cfs @ 12.01 hrs, Volume= 2,651 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 30.47' @ 12.01 hrs

Flood Elev= 33.20'

Device	Routing	Invert	Outlet Devices

#1	Primary	29.80'	12.0" Round Culvert L= 17.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.80' / 29.65' S= 0.0088 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	29.90'	15.0" Round Culvert L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.90' / 29.55' S= 0.0140 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.24 cfs @ 12.01 hrs HW=30.47' TW=30.10' (Dynamic Tailwater)

1=Culvert (Barrel Controls 1.24 cfs @ 3.16 fps)

Secondary OutFlow Max=1.35 cfs @ 12.01 hrs HW=30.47' TW=26.91' (Dynamic Tailwater)

2=Culvert (Barrel Controls 1.35 cfs @ 3.67 fps)

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Summary for Pond DMH3: Post - DMH3

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 1.36" for 2-Year event
Inflow = 3.05 cfs @ 12.01 hrs, Volume= 12,037 cf
Outflow = 3.05 cfs @ 12.01 hrs, Volume= 12,037 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.05 cfs @ 12.01 hrs, Volume= 12,037 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 26.92' @ 12.01 hrs

Flood Elev= 33.50'

Device Routing Invert Outlet Devices

#1	Primary	26.10'	18.0" Round Culvert L= 105.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.10' / 24.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.98 cfs @ 12.01 hrs HW=26.91' TW=24.61' (Dynamic Tailwater)

1=Culvert (Inlet Controls 2.98 cfs @ 3.06 fps)

Summary for Pond DMH4: Post - DMH4

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 1.36" for 2-Year event
Inflow = 3.05 cfs @ 12.01 hrs, Volume= 12,037 cf
Outflow = 3.05 cfs @ 12.01 hrs, Volume= 12,037 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.05 cfs @ 12.01 hrs, Volume= 12,037 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.62' @ 12.01 hrs

Flood Elev= 26.80'

Device Routing Invert Outlet Devices

#1	Primary	23.80'	18.0" Round Culvert L= 75.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.80' / 21.75' S= 0.0273 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.98 cfs @ 12.01 hrs HW=24.61' TW=21.23' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.98 cfs @ 3.06 fps)

Summary for Pond DMH5: Post - DMH5

Inflow Area = 33,801 sf, 41.97% Impervious, Inflow Depth = 1.90" for 2-Year event
Inflow = 1.61 cfs @ 12.07 hrs, Volume= 5,341 cf
Outflow = 1.61 cfs @ 12.07 hrs, Volume= 5,341 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.61 cfs @ 12.07 hrs, Volume= 5,341 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 22.68' @ 12.07 hrs
Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	22.00'	12.0" Round Culvert L= 3.5' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 22.00' / 21.75' S= 0.0714 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.58 cfs @ 12.07 hrs HW=22.68' TW=22.12' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.58 cfs @ 2.80 fps)

Summary for Pond DMH6: Post - DMH-6

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 1.40" for 2-Year event
Inflow = 0.99 cfs @ 12.22 hrs, Volume= 4,391 cf
Outflow = 0.99 cfs @ 12.22 hrs, Volume= 4,391 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.99 cfs @ 12.22 hrs, Volume= 4,391 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 33.56' @ 12.22 hrs
Flood Elev= 38.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	33.00'	10.0" Round Culvert L= 55.0' RCP, sq.cut end projecting, Ke= 0.500

Inlet / Outlet Invert= 33.00' / 32.00' S= 0.0182 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.98 cfs @ 12.22 hrs HW=33.56' TW=31.46' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.98 cfs @ 2.54 fps)

Summary for Pond DMH7: Post - DMH-7

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 1.40" for 2-Year event
Inflow = 0.99 cfs @ 12.22 hrs, Volume= 4,391 cf
Outflow = 0.99 cfs @ 12.22 hrs, Volume= 4,391 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.99 cfs @ 12.22 hrs, Volume= 4,391 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 31.46' @ 12.22 hrs
Flood Elev= 36.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	30.90'	10.0" Round Culvert L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 30.90' / 30.30' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.98 cfs @ 12.22 hrs HW=31.46' TW=27.11' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.98 cfs @ 2.54 fps)

Summary for Pond DMH8: Post - DMH-8

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 1.40" for 2-Year event
Inflow = 0.99 cfs @ 12.22 hrs, Volume= 4,391 cf
Outflow = 0.99 cfs @ 12.22 hrs, Volume= 4,391 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.99 cfs @ 12.22 hrs, Volume= 4,391 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 27.11' @ 12.22 hrs
Flood Elev= 32.50'

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Device Routing Invert Outlet Devices

#1	Primary	26.55'	10.0" Round Culvert L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.55' / 25.95' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.98 cfs @ 12.22 hrs HW=27.11' TW=24.06' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.98 cfs @ 2.54 fps)

Summary for Pond DMH9: Post - DMH-9

Inflow Area =	45,988 sf, 12.94% Impervious, Inflow Depth = 1.34" for 2-Year event
Inflow =	1.17 cfs @ 12.20 hrs, Volume= 5,138 cf
Outflow =	1.17 cfs @ 12.20 hrs, Volume= 5,138 cf, Atten= 0%, Lag= 0.0 min
Primary =	1.17 cfs @ 12.20 hrs, Volume= 5,138 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 24.06' @ 12.20 hrs
Flood Elev= 30.10'

Device Routing Invert Outlet Devices

#1	Primary	23.50'	12.0" Round Culvert L= 85.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.50' / 22.50' S= 0.0118 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.16 cfs @ 12.20 hrs HW=24.06' TW=21.67' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.16 cfs @ 2.56 fps)

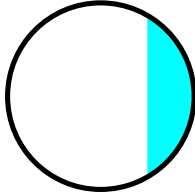
Summary for Reach OP1: Outlet pipe-1

Inflow Area =	47,330 sf, 71.58% Impervious, Inflow Depth = 0.80" for 2-Year event
Inflow =	0.77 cfs @ 12.12 hrs, Volume= 3,138 cf
Outflow =	0.76 cfs @ 12.33 hrs, Volume= 3,138 cf, Atten= 1%, Lag= 12.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 5.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.18 fps, Avg. Travel Time= 0.1 min

Peak Storage= 2 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.63 cfs

12.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 14.0' Slope= 0.0250 '/'
Inlet Invert= 29.50', Outlet Invert= 29.15'



Summary for Pond pA1: Post - Analysis Point-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 2.68" for 2-Year event
Inflow = 1.11 cfs @ 12.07 hrs, Volume= 3,714 cf
Primary = 1.11 cfs @ 12.07 hrs, Volume= 3,714 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond pA2: Pre - Analysis Point-2

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 1.76" for 2-Year event
Inflow = 4.28 cfs @ 12.22 hrs, Volume= 25,639 cf
Primary = 4.28 cfs @ 12.22 hrs, Volume= 25,639 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond pA3: Post - Analysis Point-3

Inflow Area = 232,923 sf, 39.09% Impervious, Inflow Depth = 1.64" for 2-Year event
Inflow = 3.47 cfs @ 12.41 hrs, Volume= 31,890 cf
Primary = 3.47 cfs @ 12.41 hrs, Volume= 31,890 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond pAD: Post - Area drain at main entrance

Inflow Area = 1,395 sf, 50.82% Impervious, Inflow Depth = 2.10" for 2-Year event
Inflow = 0.07 cfs @ 12.07 hrs, Volume= 244 cf
Outflow = 0.07 cfs @ 12.07 hrs, Volume= 244 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.07 cfs @ 12.07 hrs, Volume= 244 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 24.13' @ 12.07 hrs
Flood Elev= 28.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.00'	12.0" Round Culvert L= 69.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.00' / 23.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.07 cfs @ 12.07 hrs HW=24.13' TW=22.68' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.07 cfs @ 1.82 fps)

Summary for Pond pAD2: Area Drain

Inflow Area = 433 sf,100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 0.03 cfs @ 12.07 hrs, Volume= 111 cf
Outflow = 0.03 cfs @ 12.07 hrs, Volume= 111 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.03 cfs @ 12.07 hrs, Volume= 111 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 28.61' @ 12.07 hrs

Flood Elev= 30.80'

Device Routing Invert Outlet Devices

#1	Primary	28.50'	8.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 28.50' / 28.40' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.03 cfs @ 12.07 hrs HW=28.61' TW=28.32' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.03 cfs @ 1.39 fps)

Summary for Pond pCB1: Post - CB1

Inflow Area =	12,808 sf, 87.06% Impervious, Inflow Depth = 2.81" for 2-Year event
Inflow =	1.01 cfs @ 12.01 hrs, Volume= 3,003 cf
Outflow =	1.01 cfs @ 12.01 hrs, Volume= 3,003 cf, Atten= 0%, Lag= 0.0 min
Primary =	1.01 cfs @ 12.01 hrs, Volume= 3,003 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 32.52' @ 12.01 hrs

Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	32.00'	12.0" Round Culvert L= 140.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.00' / 30.00' S= 0.0143 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.99 cfs @ 12.01 hrs HW=32.51' TW=30.47' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.99 cfs @ 2.44 fps)

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Summary for Pond pCB2: Post - CB2

Inflow Area = 24,441 sf, 85.26% Impervious, Inflow Depth = 2.78" for 2-Year event
Inflow = 1.90 cfs @ 12.01 hrs, Volume= 5,658 cf
Outflow = 1.90 cfs @ 12.01 hrs, Volume= 5,658 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.90 cfs @ 12.01 hrs, Volume= 5,658 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 32.92' @ 12.01 hrs

Flood Elev= 35.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	32.20'	15.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.20' / 32.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.86 cfs @ 12.01 hrs HW=32.91' TW=32.52' (Dynamic Tailwater)

1=Culvert (Barrel Controls 1.86 cfs @ 3.71 fps)

Summary for Pond pCB3: Post - CB3

Inflow Area = 10,081 sf, 18.76% Impervious, Inflow Depth = 1.47" for 2-Year event
Inflow = 0.38 cfs @ 12.08 hrs, Volume= 1,237 cf
Outflow = 0.38 cfs @ 12.08 hrs, Volume= 1,237 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.08 hrs, Volume= 1,237 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 34.85' @ 12.08 hrs

Flood Elev= 39.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	34.50'	8.0" Round Culvert L= 44.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 34.50' / 33.10' S= 0.0318 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.37 cfs @ 12.08 hrs HW=34.85' TW=32.43' (Dynamic Tailwater)

└─**1=Culvert** (Inlet Controls 0.37 cfs @ 2.02 fps)

Summary for Pond pCB4: Post - CB4

Inflow Area = 2,681 sf, 100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 0.20 cfs @ 12.07 hrs, Volume= 685 cf
Outflow = 0.20 cfs @ 12.07 hrs, Volume= 685 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.07 hrs, Volume= 685 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.75' @ 12.07 hrs

Flood Elev= 28.25'

Device	Routing	Invert	Outlet Devices

#1	Primary	24.50'	8.0" Round Culvert L= 55.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.50' / 23.25' S= 0.0227 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.20 cfs @ 12.07 hrs HW=24.75' TW=23.74' (Dynamic Tailwater)

└─**1=Culvert** (Inlet Controls 0.20 cfs @ 1.69 fps)

Summary for Pond pCB5: Post -CB5

Inflow Area = 58,920 sf, 3.59% Impervious, Inflow Depth = 1.17" for 2-Year event
Inflow = 1.23 cfs @ 12.27 hrs, Volume= 5,766 cf
Outflow = 1.23 cfs @ 12.27 hrs, Volume= 5,766 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.23 cfs @ 12.27 hrs, Volume= 5,766 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 29.08' @ 12.27 hrs

Flood Elev= 31.70'

Device	Routing	Invert	Outlet Devices

#1	Primary	28.50'	12.0" Round Culvert L= 158.0' RCP, sq.cut end projecting, Ke= 0.500

Inlet / Outlet Invert= 28.50' / 26.92' S= 0.0100 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.22 cfs @ 12.27 hrs HW=29.08' TW=26.82' (Dynamic Tailwater)

1=Culvert (Inlet Controls 1.22 cfs @ 2.59 fps)

Summary for Pond pCB6: Post - CB-6

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 1.40" for 2-Year event
Inflow = 0.99 cfs @ 12.22 hrs, Volume= 4,410 cf
Outflow = 0.99 cfs @ 12.22 hrs, Volume= 4,391 cf, Atten= 0%, Lag= 0.2 min
Primary = 0.99 cfs @ 12.22 hrs, Volume= 4,391 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 37.11' @ 12.22 hrs Surf.Area= 96 sf Storage= 35 cf

Flood Elev= 38.00' Surf.Area= 311 sf Storage= 215 cf

Plug-Flow detention time= 5.9 min calculated for 4,391 cf (100% of inflow)

Center-of-Mass det. time= 3.2 min (837.4 - 834.2)

Volume Invert Avail.Storage Storage Description

#1 36.50' 215 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.50	35	0	0
37.00	68	26	26
38.00	311	190	215

Device Routing Invert Outlet Devices

#1	Primary	35.00'	8.0" Round Culvert L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 35.00' / 34.40' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	36.90'	12.0" Horiz. Orifice/Grate C= 0.600 in 9.1" x 9.1" Grate Limited to weir flow at low heads
#3	Secondary	37.50'	5.0' long x 2.0' breadth Broad-Crested Rectangular Weir

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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
Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.98 cfs @ 12.22 hrs HW=37.11' TW=33.56' (Dynamic Tailwater)

└─1=Culvert (Passes 0.98 cfs of 2.24 cfs potential flow)

└─2=Orifice/Grate (Weir Controls 0.98 cfs @ 1.51 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=36.50' TW=37.00' (Dynamic Tailwater)

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

Summary for Pond pCB7: Post - CB-7

Inflow Area = 8,243 sf, 2.62% Impervious, Inflow Depth = 1.16" for 2-Year event
Inflow = 0.23 cfs @ 12.13 hrs, Volume= 794 cf
Outflow = 0.22 cfs @ 12.14 hrs, Volume= 747 cf, Atten= 1%, Lag= 0.5 min
Primary = 0.22 cfs @ 12.14 hrs, Volume= 747 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 28.83' @ 12.14 hrs Surf.Area= 109 sf Storage= 55 cf

Flood Elev= 30.00' Surf.Area= 309 sf Storage= 293 cf

Plug-Flow detention time= 44.8 min calculated for 747 cf (94% of inflow)

Center-of-Mass det. time= 14.0 min (869.8 - 855.8)

Volume Invert Avail.Storage Storage Description

#1 28.00' 293 cf Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
28.00	23	0	0
29.00	127	75	75
30.00	309	218	293

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Device	Routing	Invert	Outlet Devices
#1	Device 2	28.75'	12.0" Horiz. Orifice/Grate C= 0.600 in 9.1" x 9.1" Grate Limited to weir flow at low heads
#2	Primary	26.10'	12.0" Round Culvert L= 11.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.10' / 25.90' S= 0.0182 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Secondary	29.50'	3.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.22 cfs @ 12.14 hrs HW=28.83' TW=24.03' (Dynamic Tailwater)

2=Culvert (Passes 0.22 cfs of 5.65 cfs potential flow)

1=Orifice/Grate (Weir Controls 0.22 cfs @ 0.92 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=28.00' TW=29.50' (Dynamic Tailwater)

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

Summary for Pond pCB8: Post - CB-8

Inflow Area = 3,055 sf, 78.95% Impervious, Inflow Depth = 2.65" for 2-Year event
Inflow = 0.20 cfs @ 12.07 hrs, Volume= 676 cf
Outflow = 0.20 cfs @ 12.08 hrs, Volume= 635 cf, Atten= 1%, Lag= 0.5 min
Primary = 0.20 cfs @ 12.08 hrs, Volume= 635 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 29.57' @ 12.08 hrs Surf.Area= 107 sf Storage= 49 cf

Flood Elev= 30.00' Surf.Area= 140 sf Storage= 102 cf

Plug-Flow detention time= 62.2 min calculated for 635 cf (94% of inflow)

Center-of-Mass det. time= 28.1 min (792.0 - 764.0)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	102 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)
29.00	63	0	0
30.00	140	102	102

Device Routing Invert Outlet Devices

#1	Device 2	29.50'	12.0" Horiz. Orifice/Grate	C= 0.600 in 9.1" x 9.1" Grate Limited to weir flow at low heads
#2	Primary	25.15'	8.0" Round Culvert	L= 13.0' RCP, sq.cut end projecting, Ke= 0.500
Inlet / Outlet Invert= 25.15' / 25.00' S= 0.0115 '/' Cc= 0.900				
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf				

Primary OutFlow Max=0.20 cfs @ 12.08 hrs HW=29.57' TW=22.36' (Dynamic Tailwater)

2=Culvert (Passes 0.20 cfs of 3.40 cfs potential flow)

1=Orifice/Grate (Weir Controls 0.20 cfs @ 0.89 fps)

Summary for Pond pDB1: Post - Detention Basin-1

Inflow Area =	74,020 sf, 64.33% Impervious, Inflow Depth = 0.41" for 2-Year event
Inflow =	2.67 cfs @ 12.15 hrs, Volume= 2,521 cf
Outflow =	0.83 cfs @ 12.44 hrs, Volume= 2,476 cf, Atten= 69%, Lag= 17.4 min
Primary =	0.83 cfs @ 12.44 hrs, Volume= 2,476 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 21.23' @ 12.44 hrs Surf.Area= 886 sf Storage= 1,438 cf

Flood Elev= 23.00' Surf.Area= 1,340 sf Storage= 3,397 cf

Plug-Flow detention time= 31.4 min calculated for 2,476 cf (98% of inflow)

Center-of-Mass det. time= 30.7 min (768.6 - 737.9)

Volume Invert Avail.Storage Storage Description

#1	19.00'	3,397 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)
19.00	421	0	0
20.00	613	517	517
21.00	830	722	1,239
22.00	1,073	952	2,190
23.00	1,340	1,207	3,397

Device Routing Invert Outlet Devices

#1	Primary	22.00'	10.0' long x 2.0' 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	
			Coef. (English)	2.54	2.61	2.61	2.61	2.60	2.66	2.70	2.77	2.89	2.88	2.85	3.07	3.20	3.32
#2	Primary	21.00'	4.0" Round Culvert X 3.00 L= 10.0' RCP, sq.cut end projecting, Ke= 0.500														
			Inlet / Outlet Invert=	21.00' / 20.90'	S= 0.0100 '/'	Cc= 0.900											
			n=	0.013	Corrugated PE, smooth interior, Flow Area= 0.09 sf												
#3	Primary	19.10'	4.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500														
			Inlet / Outlet Invert=	19.10' / 19.00'	S= 0.0100 '/'	Cc= 0.900											
			n=	0.013	Corrugated PE, smooth interior, Flow Area= 0.09 sf												

Primary OutFlow Max=0.83 cfs @ 12.44 hrs HW=21.23' TW=19.00' (Dynamic Tailwater)

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

2=Culvert (Barrel Controls 0.26 cfs @ 1.90 fps)

3=Culvert (Barrel Controls 0.57 cfs @ 6.54 fps)

Summary for Pond pFB1: Forebay-1

Inflow Area =	32,764 sf, 70.56% Impervious, Inflow Depth = 2.49" for 2-Year event
Inflow =	2.30 cfs @ 12.01 hrs, Volume= 6,796 cf
Outflow =	2.27 cfs @ 12.02 hrs, Volume= 6,329 cf, Atten= 1%, Lag= 0.5 min
Primary =	2.27 cfs @ 12.02 hrs, Volume= 6,329 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.20' @ 12.02 hrs Surf.Area= 315 sf Storage= 527 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 67.6 min calculated for 6,329 cf (93% of inflow)

Center-of-Mass det. time= 30.0 min (794.4 - 764.4)

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Volume		Invert	Avail.Storage	Storage Description	
#1		19.00'	628 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
19.00	7	0	0		
20.00	40	24	24		
21.00	98	69	93		
22.00	181	140	232		
23.00	289	235	467		
23.50	353	161	628		

Device	Routing	Invert	Outlet Devices									
#1	Primary	23.00'	10.0' long x 2.0' 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									
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32									

Primary OutFlow Max=2.21 cfs @ 12.02 hrs HW=23.20' TW=21.25' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Weir Controls 2.21 cfs @ 1.13 fps)

Summary for Pond pFB2: Forebay-2

Inflow Area = 29,790 sf, 90.12% Impervious, Inflow Depth = 2.87" for 2-Year event
Inflow = 2.40 cfs @ 12.01 hrs, Volume= 7,133 cf
Outflow = 2.36 cfs @ 12.02 hrs, Volume= 6,666 cf, Atten= 1%, Lag= 0.5 min
Primary = 2.36 cfs @ 12.02 hrs, Volume= 6,666 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.21' @ 12.02 hrs Surf.Area= 315 sf Storage= 529 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 65.4 min calculated for 6,666 cf (93% of inflow)

Center-of-Mass det. time= 29.2 min (784.0 - 754.7)

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Volume		Invert	Avail.Storage	Storage Description	
#1		19.00'	628 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
19.00	7	0	0		
20.00	40	24	24		
21.00	98	69	93		
22.00	181	140	232		
23.00	289	235	467		
23.50	353	161	628		

Device	Routing	Invert	Outlet Devices									
#1	Primary	23.00'	10.0' long x 2.0' 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									
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32									

Primary OutFlow Max=2.30 cfs @ 12.02 hrs HW=23.20' TW=21.24' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Weir Controls 2.30 cfs @ 1.14 fps)

Summary for Pond pFB3: Post - Forebay-3

Inflow Area = 57,147 sf, 20.65% Impervious, Inflow Depth = 1.49" for 2-Year event
Inflow = 1.52 cfs @ 12.15 hrs, Volume= 7,081 cf
Outflow = 1.52 cfs @ 12.16 hrs, Volume= 6,813 cf, Atten= 0%, Lag= 0.4 min
Primary = 1.52 cfs @ 12.16 hrs, Volume= 6,813 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 21.72' @ 12.36 hrs Surf.Area= 334 sf Storage= 337 cf

Flood Elev= 23.50' Surf.Area= 520 sf Storage= 1,114 cf

Plug-Flow detention time= 37.4 min calculated for 6,813 cf (96% of inflow)

Center-of-Mass det. time= 15.9 min (843.7 - 827.8)

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Volume				Storage Description	
#1	Invert	Avail. Storage	Inc. Store	Surf. Area	Cum. Store
	20.00'	1,114 cf			
Custom Stage Data (Prismatic) Listed below (Recalc)					
Elevation (feet)	Surf. Area (sq-ft)	Inc. Store (cubic-feet)	Cum. Store (cubic-feet)		
20.00	71	0	0		
21.00	211	141	141		
22.00	382	297	438		
23.50	520	677	1,114		

Device	Routing	Invert	Outlet Devices
#1	Primary	21.50'	8.0' long x 2.0' 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			
Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32			

Primary OutFlow Max=1.51 cfs @ 12.16 hrs HW=21.68' TW=21.16' (Dynamic Tailwater)

1=Broad-Crested Rectangular Weir (Weir Controls 1.51 cfs @ 1.07 fps)

Summary for Pond pH2: Post - Daycare Header

Inflow Area = 5,450 sf, 100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 0.41 cfs @ 12.07 hrs, Volume= 1,393 cf
Outflow = 0.41 cfs @ 12.07 hrs, Volume= 1,393 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.41 cfs @ 12.07 hrs, Volume= 1,393 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 28.32' @ 12.07 hrs

Flood Elev= 30.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	28.00'	12.0" Round Culvert L= 70.0' RCP, sq. cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 28.00' / 26.60' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.41 cfs @ 12.07 hrs HW=28.32' TW=27.08' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.41 cfs @ 1.91 fps)

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Summary for Pond pH3: Post - Daycare Header

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 1.18 cfs @ 12.07 hrs, Volume = 3,982 cf
Outflow = 1.18 cfs @ 12.07 hrs, Volume = 3,982 cf, Atten = 0%, Lag = 0.0 min
Primary = 1.18 cfs @ 12.07 hrs, Volume = 3,982 cf

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dt = 0.03 hrs / 2

Peak Elev = 27.09' @ 12.07 hrs

Flood Elev = 30.90'

Device Routing Invert Outlet Devices

#1	Primary	26.50'	12.0" Round Culvert L = 100.0' RCP, sq cut end projecting, Ke = 0.500 Inlet / Outlet Invert = 26.50' / 25.50' S = 0.0100 '/' Cc = 0.900 n = 0.013 Corrugated PE, smooth interior, Flow Area = 0.79 sf

Primary OutFlow Max = 1.15 cfs @ 12.07 hrs HW = 27.08' TW = 26.11' (Dynamic Tailwater)

1=Culvert (Outlet Controls 1.15 cfs @ 3.51 fps)

Summary for Pond pH4: Post - Daycare Header

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 1.18 cfs @ 12.07 hrs, Volume = 3,982 cf
Outflow = 1.18 cfs @ 12.07 hrs, Volume = 3,982 cf, Atten = 0%, Lag = 0.0 min
Primary = 1.18 cfs @ 12.07 hrs, Volume = 3,982 cf

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dt = 0.03 hrs / 2

Peak Elev = 26.12' @ 12.07 hrs

Flood Elev = 30.75'

Device Routing Invert Outlet Devices

#1	Primary	25.50'	12.0" Round Culvert L = 28.0' RCP, sq cut end projecting, Ke = 0.500 Inlet / Outlet Invert = 25.50' / 25.20' S = 0.0107 '/' Cc = 0.900 n = 0.013 Corrugated PE, smooth interior, Flow Area = 0.79 sf

Primary OutFlow Max=1.16 cfs @ 12.07 hrs HW=26.11' TW=25.70' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.16 cfs @ 3.30 fps)

Summary for Pond pH5: Post - Roof Header

Inflow Area = 3,560 sf, 100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 0.27 cfs @ 12.07 hrs, Volume= 910 cf
Outflow = 0.27 cfs @ 12.07 hrs, Volume= 910 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.27 cfs @ 12.07 hrs, Volume= 910 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 26.31' @ 12.07 hrs
Flood Elev= 30.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	25.98'	6.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.27 cfs @ 12.07 hrs HW=26.31' TW=18.48' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.27 cfs @ 1.95 fps)

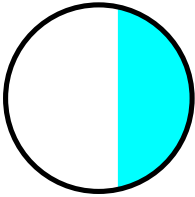
Summary for Reach pRD1: Post - Roof Drain-1

Inflow Area = 15,575 sf, 100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow = 1.18 cfs @ 12.07 hrs, Volume= 3,981 cf
Outflow = 1.18 cfs @ 12.07 hrs, Volume= 3,981 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 4.06 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.34 fps, Avg. Travel Time= 0.2 min

Peak Storage= 6 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 20.0' Slope= 0.0100 '/'
Inlet Invert= 25.70', Outlet Invert= 25.50'



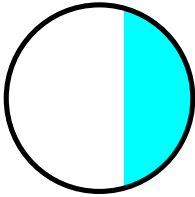
Summary for Reach pRD2: Post - Roof Drain-2

Inflow Area =	16,270 sf, 100.00% Impervious,	Inflow Depth = 3.07"	for 2-Year event
Inflow =	1.23 cfs @ 12.07 hrs,	Volume=	4,159 cf
Outflow =	1.23 cfs @ 12.07 hrs,	Volume=	4,159 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 4.68 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.54 fps, Avg. Travel Time= 0.3 min

Peak Storage= 7 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.37'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.26 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 28.0' Slope= 0.0143 '/'
Inlet Invert= 22.50', Outlet Invert= 22.10'



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Summary for Subcatchment pRF1: Post - Roof flow

Runoff = 1.18 cfs @ 12.07 hrs, Volume= 3,981 cf, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)		CN	Description		
15,575	98	Roofs, HSG C			
15,575	98	100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Roof runoff

Summary for Subcatchment pRF2: Post - Roof flow

Runoff = 1.23 cfs @ 12.07 hrs, Volume= 4,159 cf, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)		CN	Description		
16,270		98	Roofs, HSG C		
16,270		98	100.00% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Roof runoff

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Summary for Subcatchment pRF3: Post - Roof flow

Runoff = 0.27 cfs @ 12.07 hrs, Volume= 910 cf, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)		CN	Description		
3,560	98	Roofs, HSG C			
3,560	98	100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Roof runoff

Summary for Subcatchment pRF4: Post - New Daycare Roof

Runoff = 0.63 cfs @ 12.07 hrs, Volume= 2,113 cf, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)		CN	Description		
8,267	98	Roofs, HSG C			
8,267	98	100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

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Summary for Subcatchment pRF5: Post - Existing Roof

Runoff = 0.38 cfs @ 12.07 hrs, Volume= 1,282 cf, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)		CN	Description		
5,017		98	Roofs, HSG C		
5,017		98	100.00% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment pS1: Post - Northeastern Parking lot

Runoff = 1.11 cfs @ 12.07 hrs, Volume= 3,714 cf, Depth= 2.68"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)		CN	Description		
13,366	98	Paved parking, HSG C			
3,232	74	>75% Grass cover, Good, HSG C			
16,598	93	Weighted Average			
3,232	74	19.47% Pervious Area			
13,366	98	80.53% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Parking Runoff to CB

Summary for Subcatchment pS10: Post - Flow to Area Drain

Runoff = 0.45 cfs @ 12.23 hrs, Volume= 2,093 cf, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG C
0	98	Paved parking, HSG C
0	89	Gravel path
9,566	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
4,744	98	Roofs, HSG C
14,310	82	Weighted Average
9,566	74	66.85% Pervious Area
4,744	98	33.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

16.3	50	0.0100	0.05		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.7	76	0.0600	1.71		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps

17.0	126	Total			

Summary for Subcatchment pS11: Post - Flow to playground catch basin

Runoff = 0.06 cfs @ 12.07 hrs, Volume= 213 cf, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

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Area (sf)	CN	Description
128	98	Unconnected pavement, HSG C
441	74	>75% Grass cover, Good, HSG C
547	98	Rubber play surface
1,116	89	Weighted Average
441	74	39.52% Pervious Area
675	98	60.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to CB5

Summary for Subcatchment pS12: Post - Flow to Swale-5

Runoff = 0.48 cfs @ 12.07 hrs, Volume= 1,594 cf, Depth= 2.52"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
2,114	74	>75% Grass cover, Good, HSG C
558	98	Proposed Walkway
128	98	Unconnected pavement, HSG C
4,788	98	Paved parking, HSG C
7,588	91	Weighted Average
2,114	74	27.86% Pervious Area
5,474	98	72.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment pS13: Post - Northeastern area flowing to proposed CB5

Runoff = 1.23 cfs @ 12.27 hrs, Volume= 5,766 cf, Depth= 1.17"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description			
2,021	98	Roofs, HSG C			
52,854	74	>75% Grass cover, Good, HSG C			
93	98	Paved parking, HSG C			
3,952	70	Woods, Good, HSG C			
58,920	75	Weighted Average			
56,806	74	96.41% Pervious Area			
2,114	98	3.59% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	50	0.0200	0.07		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.7	70	0.0500	1.57		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
0.1	24	0.3300	4.02		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
4.9	206	0.0100	0.70		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.1	95	0.1900	18.24	72.98	Channel Flow, EF Area= 4.0 sf Perim= 8.2' r= 0.49' n= 0.022 Earth, clean & straight

Summary for Subcatchment pS14: Post - Parking area-4 runoff

Runoff = 1.33 cfs @ 12.08 hrs, Volume= 4,412 cf, Depth= 1.78"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
16,413	74	>75% Grass cover, Good, HSG C
10,797	98	Paved parking, HSG C
2,515	70	Woods, Good, HSG C
29,725	82	Weighted Average
18,928	73	63.68% Pervious Area
10,797	98	36.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment pS15: Post - Flow to entrance area drain

Runoff = 0.07 cfs @ 12.07 hrs, Volume= 244 cf, Depth= 2.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
686	74	>75% Grass cover, Good, HSG C
709	98	Paved parking, HSG C
1,395	86	Weighted Average
686	74	49.18% Pervious Area
709	98	50.82% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to area drain

Summary for Subcatchment pS16: Post - Flow to Sand Filter-2

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 1,131 cf, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description

*

1,543	89	Gravel
5,249	74	>75% Grass cover, Good, HSG C
1,582	98	Paved parking, HSG C
8,374	81	Weighted Average
6,792	77	81.11% Pervious Area
1,582	98	18.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Runoff into Basin

Summary for Subcatchment pS17: Post - Area in front of bldg flowing to existing swale-3

Runoff = 0.27 cfs @ 12.10 hrs, Volume= 904 cf, Depth= 1.44"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

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Area (sf)		CN	Description		
	6,221	74	>75% Grass cover, Good, HSG C		
*	172	98	Existing Wall		
*	1,125	98	Existing Walk		
	7,518	78	Weighted Average		
	6,221	74	82.75% Pervious Area		
	1,297	98	17.25% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	38	0.0800	0.11		Sheet Flow, AB
					Grass: Bermuda n= 0.410 P2= 3.30"
0.6	135	0.0400	4.06		Shallow Concentrated Flow, BC
					Paved Kv= 20.3 fps

Summary for Subcatchment pS18: Post - Flow to Sand Filter-1

Runoff = 0.24 cfs @ 12.08 hrs, Volume= 728 cf, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)		CN	Description		
4,170		74	>75% Grass cover, Good, HSG C		
*	2,013	89	Gravel		
6,183		79	Weighted Average		
6,183		79	100.00% Pervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry, Flow into Basin				

Summary for Subcatchment pS2: Post - Flow to CB3

Runoff = 0.38 cfs @ 12.08 hrs, Volume= 1,237 cf, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)		CN	Description		
8,190	74	>75% Grass cover, Good, HSG C			
1,150	98	Paved parking, HSG C			
741	98	Walkway			
*					
10,081	79	Weighted Average			
8,190	74	81.24% Pervious Area			
1,891	98	18.76% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

Summary for Subcatchment pS20: Post - Flow along South side to Sand Filter-1

Runoff = 1.46 cfs @ 12.18 hrs, Volume= 5,931 cf, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

	Area (sf)	CN	Description
	53,656	74	>75% Grass cover, Good, HSG C
	4,089	70	Woods, Good, HSG C
	207	98	Paved parking, HSG C
*	2,097	98	Pavillion
*	116	98	Conc Pavillion Pad
	60,165	75	Weighted Average
	57,745	74	95.98% Pervious Area
	2,420	98	4.02% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, AB
					Grass: Bermuda n= 0.410 P2= 3.30"
0.4	50	0.1000	2.21		Shallow Concentrated Flow, BC
					Short Grass Pasture Kv= 7.0 fps
3.5	147	0.0100	0.70		Shallow Concentrated Flow, CD
					Short Grass Pasture Kv= 7.0 fps
0.2	40	0.1500	2.71		Shallow Concentrated Flow, DE
					Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0600	1.71		Shallow Concentrated Flow, EF
					Short Grass Pasture Kv= 7.0 fps
0.2	31	0.1900	3.05		Shallow Concentrated Flow, FG
					Short Grass Pasture Kv= 7.0 fps
0.2	59	0.0170	5.53	55.30	Channel Flow, GH
					Area= 10.0 sf Perim= 20.1' r= 0.50'
					n= 0.022 Earth, clean & straight
0.2	143	0.0700	11.22	112.21	Channel Flow, HI
					Area= 10.0 sf Perim= 20.1' r= 0.50'
					n= 0.022 Earth, clean & straight
12.5	552	Total			

Summary for Subcatchment pS21: Post - Surface Runoff to Swale

Runoff = 0.23 cfs @ 12.12 hrs, Volume= 794 cf, Depth= 1.16"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

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Area (sf)		CN	Description		
8,027	74	>75% Grass cover, Good, HSG C			
0	70	Woods, Good, HSG C			
0	98	Paved parking, HSG C			
10	98	Proposed Wall			
206	98	Proposed Walkway			
8,243	75	Weighted Average			
8,027	74	97.38% Pervious Area			
216	98	2.62% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	38	0.1700	0.15		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
3.7	19	0.0556	0.09		Sheet Flow, BC Woods: Light underbrush n= 0.400 P2= 3.30"
7.9	57	Total			

Summary for Subcatchment pS22: Post - Daycare Walkway Runoff

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 476 cf, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
0	98	Paved parking, HSG C
1,862	98	Sidewalk
0	98	Curbing
0	98	Roofs, HSG C
1,862	98	Weighted Average
1,862	98	100.00% Impervious Area

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

Summary for Subcatchment pS23: Post - Daycare Plaza Runoff

Runoff = 0.03 cfs @ 12.07 hrs, Volume= 111 cf, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
433	98	Unconnected pavement, HSG C
433	98	100.00% Impervious Area

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

Summary for Subcatchment pS24: Post - Runoff to Forebay

Runoff = 0.17 cfs @ 12.08 hrs, Volume= 556 cf, Depth= 1.29"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
4,665	74	>75% Grass cover, Good, HSG C
76	98	Proposed Wall
420	98	Proposed Walkway
5,161	76	Weighted Average
4,665	74	90.39% Pervious Area
496	98	9.61% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment pS25: Post - Parking Lot Runoff to Forebay

Runoff = 0.22 cfs @ 12.07 hrs, Volume= 752 cf, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description

2,577	98	Paved parking, HSG C

291	98	Proposed Walkway

75	98	Curbing

2,943	98	Weighted Average

2,943	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment pS26: Post - Flow to CB3

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 676 cf, Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

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Area (sf)	CN	Description
968	98	Paved parking, HSG C
* 1,392	98	Proposed Walkway
643	74	>75% Grass cover, Good, HSG C
* 52	98	Curbing
3,055	93	Weighted Average
643	74	21.05% Pervious Area
2,412	98	78.95% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	

5.0

Direct Entry,

Summary for Subcatchment pS27: Post - Area in front of bldg flowing to existing swale-4

Runoff = 0.30 cfs @ 12.08 hrs, Volume= 1,002 cf, Depth= 1.93"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
3,609	74	>75% Grass cover, Good, HSG C
* 241	98	Existing Walk
2,380	98	Roofs, HSG C
0	98	Paved parking, HSG C
* 0	89	Gravel Area
6,230	84	Weighted Average
3,609	74	57.93% Pervious Area
2,621	98	42.07% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	

5.4 50 0.1600 0.15

Sheet Flow, AB

Grass: Bermuda n= 0.410 P2= 3.30"

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Summary for Subcatchment pS3: Post - Norther half or parking area-2

Runoff = 1.01 cfs @ 12.01 hrs, Volume= 3,003 cf, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)		CN	Description		
1,657	74	>75% Grass cover, Good, HSG C			
11,151	98	Paved parking, HSG C			
12,808	95	Weighted Average			
1,657	74	12.94% Pervious Area			
11,151	98	87.06% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps

Summary for Subcatchment pS4: Post - Southern half of parking area-2

Runoff = 1.90 cfs @ 12.01 hrs, Volume= 5,658 cf, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)		CN	Description
3,603	74	>75% Grass cover, Good, HSG C	
20,838	98	Paved parking, HSG C	
24,441	94	Weighted Average	
3,603	74	14.74% Pervious Area	
20,838	98	85.26% Impervious Area	

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment pS5: Post - Norther half of parking area-3

Runoff = 2.30 cfs @ 12.01 hrs, Volume= 6,796 cf, Depth= 2.49"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
9,645	74	>75% Grass cover, Good, HSG C
23,119	98	Paved parking, HSG C
32,764	91	Weighted Average
9,645	74	29.44% Pervious Area
23,119	98	70.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

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Summary for Subcatchment pS6: Post - Southern half of parking area-3

Runoff = 2.40 cfs @ 12.01 hrs, Volume= 7,133 cf, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
2,944	74	>75% Grass cover, Good, HSG C
26,846	98	Paved parking, HSG C
29,790	96	Weighted Average
2,944	74	9.88% Pervious Area
26,846	98	90.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment pS7: Post - Flow to CB4

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 685 cf, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
2,681	98	Paved parking, HSG C
2,681	98	100.00% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment pS9: Post - Flow to Area Drain

Runoff = 0.55 cfs @ 12.20 hrs, Volume= 2,318 cf, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
759	98	Unconnected pavement, HSG C
230	98	Paved parking, HSG C
0	89	Gravel path
20,621	74	>75% Grass cover, Good, HSG C
1,825	70	Woods, Good, HSG C
0	98	Roofs, HSG C
23,435	75	Weighted Average
22,446	74	95.78% Pervious Area
989	98	4.22% Impervious Area

*

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

9.4 50 0.0400 0.09

Sheet Flow, AB

Grass: Bermuda n= 0.410 P2= 3.30"

Shallow Concentrated Flow, BC

Short Grass Pasture Kv= 7.0 fps

Shallow Concentrated Flow, CD

Short Grass Pasture Kv= 7.0 fps

Shallow Concentrated Flow, DE

Short Grass Pasture Kv= 7.0 fps

Channel Flow, EF

Area= 10.0 sf Perim= 20.1' r= 0.50'

n= 0.022 Earth, clean & straight

13.9 367 Total

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Summary for Pond pSF1: Post - Sand Filter-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 1.77" for 2-Year event.
Inflow = 7.81 cfs @ 12.02 hrs, Volume= 25,759 cf
Outflow = 4.29 cfs @ 12.20 hrs, Volume= 25,640 cf, Atten= 45%, Lag= 11.3 min
Primary = 4.29 cfs @ 12.20 hrs, Volume= 25,640 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 21.55' @ 12.20 hrs Surf.Area= 8,690 sf Storage= 5,787 cf

Flood Elev= 22.20' Surf.Area= 9,493 sf Storage= 8,980 cf

Plug-Flow detention time= 41.8 min calculated for 25,640 cf (100% of inflow)

Center-of-Mass det. time= 38.9 min (838.6 - 799.7)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	5,566 cf	Open Storage (Prismatic) Listed below (Recalc)
#2	18.50'	3,390 cf	Sand Filter (Prismatic) Listed below (Recalc)
#3	18.58'	24 cf	10,295 cf Overall - 24 cf Embedded = 10,271 cf x 33.0% Voids 4.0" Round Pipe Storage Inside #2 L= 271.0'
		8,980 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	4,118	0	0
22.00	4,950	4,534	4,534
22.20	5,375	1,032	5,566

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	4,118	0	0
19.00	4,118	2,059	2,059
20.00	4,118	4,118	6,177
21.00	4,118	4,118	10,295

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Device Routing Invert Outlet Devices

#1	Primary	21.20'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 0.00													
			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
			Coef. (English)	2.54	2.61	2.61	2.60	2.66	2.70	2.77	2.89	2.88	2.85	3.07	3.20	3.32
#2	Primary	21.20'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28)													
			Head (feet)	0.00	1.00											
			Width (feet)	4.00	8.00											
#3	Device 4	18.50'	8.270 in/hr Exfiltration over Surface area													
#4	Primary	18.58'	4.0" Round Culvert X 2.00 L= 15.0' RCP, sq.cut end projecting, Ke= 0.500													
			Inlet / Outlet Invert=	18.58'	18.40'	S= 0.0120 '/'	Cc= 0.900									
			n= 0.013	Corrugated PE, smooth interior, Flow Area= 0.09 sf												

Primary OutFlow Max=4.28 cfs @ 12.20 hrs HW=21.55' TW=18.26' (Dynamic Tailwater)

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

2=Custom Weir/Orifice (Weir Controls 3.04 cfs @ 1.87 fps)

4=Culvert (Barrel Controls 1.25 cfs @ 7.16 fps)

3=Exfiltration (Passes 1.25 cfs of 1.66 cfs potential flow)

Summary for Pond pSF2: Post - Sand Filter-2

Inflow Area =	74,020 sf,	64.33% Impervious,	Inflow Depth =	2.37"	for 2-Year event
Inflow =	4.37 cfs @	12.07 hrs,	Volume=	14,612 cf	
Outflow =	3.12 cfs @	12.15 hrs,	Volume=	14,601 cf,	Atten= 29%, Lag= 4.9 min
Primary =	2.67 cfs @	12.15 hrs,	Volume=	2,521 cf	
Secondary =	0.45 cfs @	12.16 hrs,	Volume=	12,080 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.37' @ 12.16 hrs Surf.Area= 3,536 sf Storage= 3,453 cf

Flood Elev= 23.00' Surf.Area= 3,746 sf Storage= 4,765 cf

Plug-Flow detention time= 55.9 min calculated for 14,601 cf (100% of inflow)

Center-of-Mass det. time= 55.4 min (827.6 - 772.3)

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Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	1,020 cf	Sand Filter (Prismatic) Listed below (Recalc) 3,102 cf Overall - 11 cf Embedded = 3,091 cf x 33.0% Voids
#2	21.00'	3,734 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#3	19.00'	11 cf	4.0" Round Pipe Storage Inside #1 L= 123.0'

4,765 cf Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,551	0	0
20.00	1,551	1,551	1,551
21.00	1,551	1,551	3,102

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	1,551	0	0
22.00	1,861	1,706	1,706
23.00	2,195	2,028	3,734

Device Routing Invert Outlet Devices

#1	Primary	22.15'	10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Device 3	19.00'	8.270 in/hr Exfiltration over Surface area
#3	Secondary	19.00'	4.0" Round Culvert L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.00' / 18.75' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=2.62 cfs @ 12.15 hrs HW=22.37' TW=19.88' (Dynamic Tailwater)

1=Broad-Crested Rectangular Weir (Weir Controls 2.62 cfs @ 1.19 fps)

Secondary OutFlow Max=0.45 cfs @ 12.16 hrs HW=22.37' TW=19.00' (Dynamic Tailwater)

3=Culvert (Barrel Controls 0.45 cfs @ 5.14 fps)

2=Exfiltration (Passes 0.45 cfs of 0.68 cfs potential flow)

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Summary for Pond pSF3: Post - Sand Filter-3

Inflow Area = 134,007 sf, 22.74% Impervious, Inflow Depth = 1.16" for 2-Year event
Inflow = 3.00 cfs @ 12.18 hrs, Volume= 12,957 cf
Outflow = 2.05 cfs @ 12.38 hrs, Volume= 12,925 cf, Atten= 32%, Lag= 12.0 min
Primary = 2.05 cfs @ 12.38 hrs, Volume= 12,925 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 21.69' @ 12.38 hrs Surf.Area= 2,690 sf Storage= 2,508 cf

Flood Elev= 23.50' Surf.Area= 3,390 sf Storage= 5,030 cf

Plug-Flow detention time= 36.0 min calculated for 12,925 cf (100% of inflow)

Center-of-Mass det. time= 34.5 min (882.3 - 847.9)

Volume	Invert	Avail.Storage	Storage Description
#1	20.50'	4,063 cf	Open Storage (Prismatic) Listed below (Recalc)
#2	18.00'	953 cf	Sand Filter (Prismatic) Listed below (Recalc)
#3	18.08'	13 cf	2,903 cf Overall - 13 cf Embedded = 2,889 cf x 33.0% Voids
			4.0" Round Pipe Storage Inside #2
			L= 153.0'
		5,030 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
20.50	1,161	0	0
21.50	1,365	1,263	1,263
22.00	1,792	789	2,052
23.00	2,229	2,011	4,063

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.00	1,161	0	0
20.00	1,161	2,322	2,322
20.50	1,161	581	2,903

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Device	Routing	Invert	Outlet Devices
#1	Device 2	18.00'	8.270 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	18.08'	4.0" Round Culvert X 2.00 L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.08' / 17.85' S= 0.0092 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Primary	20.75'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 1.80 Width (feet) 0.25 1.50
#4	Primary	21.85'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 1.00 Width (feet) 6.00 8.00

Primary OutFlow Max=2.05 cfs @ 12.38 hrs HW=21.69' TW=18.04' (Dynamic Tailwater)

└─2=Culvert (Passes 0.51 cfs of 1.19 cfs potential flow)

└─1=Exfiltration (Exfiltration Controls 0.51 cfs)

└─3=Custom Weir/Orifice (Weir Controls 1.53 cfs @ 2.82 fps)

└─4=Custom Weir/Orifice (Controls 0.00 cfs)

Summary for Pond pSW1: Pre - Swale-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 1.76" for 2-Year event
Inflow = 4.29 cfs @ 12.20 hrs, Volume= 25,640 cf
Outflow = 4.28 cfs @ 12.22 hrs, Volume= 25,639 cf, Atten= 0%, Lag= 0.8 min
Primary = 4.28 cfs @ 12.22 hrs, Volume= 25,639 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 18.26' @ 12.22 hrs Surf.Area= 1,288 sf Storage= 269 cf

Flood Elev= 19.40' Surf.Area= 3,367 sf Storage= 2,947 cf

Plug-Flow detention time= 1.7 min calculated for 25,639 cf (100% of inflow)

Center-of-Mass det. time= 1.7 min (840.3 - 838.6)

Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	2,947 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)
18.00	814	0	0
19.00	2,666	1,740	1,740
19.40	3,367	1,207	2,947

Device Routing Invert Outlet Devices#1 Primary 18.00' **Custom Weir/Orifice, Cv= 2.62 (C= 3.28)**

Head (feet) 0.00 1.00 1.40

Width (feet) 9.34 16.70 21.40

Primary OutFlow Max=4.28 cfs @ 12.22 hrs HW=18.26' TW=0.00' (Dynamic Tailwater)**1=Custom Weir/Orifice** (Weir Controls 4.28 cfs @ 1.63 fps)**Summary for Pond pSW2: Pre - Swale-2**

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth > 2.36" for 2-Year event
Inflow = 1.27 cfs @ 12.44 hrs, Volume= 14,556 cf
Outflow = 1.27 cfs @ 12.44 hrs, Volume= 14,556 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.27 cfs @ 12.44 hrs, Volume= 14,556 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.00' @ 12.47 hrs Surf.Area= 263 sf Storage= 0 cf

Flood Elev= 20.70' Surf.Area= 825 sf Storage= 945 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.0 min (833.1 - 833.1)

Volume Invert Avail.Storage Storage Description#1 19.00' 945 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)
19.00	263	0	0
20.00	617	440	440
20.70	825	505	945

Device Routing Invert Outlet Devices

#1	Primary	18.19'	18.0" Round Culvert L= 24.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.19' / 18.09' S= 0.0042 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	19.03'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.68' / 19.03' S= -0.0233 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.62 cfs @ 12.44 hrs HW=19.00' TW=18.82' (Dynamic Tailwater)

↑ **1=Culvert** (Outlet Controls 1.62 cfs @ 2.42 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=19.00' TW=18.00' (Dynamic Tailwater)

↑ **2=Culvert** (Controls 0.00 cfs)

Summary for Pond pSW3: Pre - Swale-3

Inflow Area =	81,538 sf, 59.99% Impervious, Inflow Depth > 2.28" for 2-Year event
Inflow =	1.36 cfs @ 12.43 hrs, Volume= 15,460 cf
Outflow =	1.28 cfs @ 12.52 hrs, Volume= 15,460 cf, Atten= 6%, Lag= 4.9 min
Primary =	1.28 cfs @ 12.52 hrs, Volume= 15,460 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 18.83' @ 12.51 hrs Surf.Area= 1,268 sf Storage= 269 cf

Flood Elev= 20.00' Surf.Area= 3,014 sf Storage= 2,902 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.9 min (833.4 - 832.5)

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Volume	Invert	Avail.Storage	Storage Description
#1	18.50'	2,902 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	374	0	0
19.00	1,735	527	527
20.00	3,014	2,375	2,902

Device	Routing	Invert	Outlet Devices
#1	Primary	18.08'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.08' / 18.01' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.28 cfs @ 12.52 hrs HW=18.83' TW=18.59' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.28 cfs @ 2.82 fps)

Summary for Pond pSW4: Pre - Swale-4

Inflow Area = 91,328 sf, 60.32% Impervious, Inflow Depth > 2.28" for 2-Year event
Inflow = 1.39 cfs @ 12.48 hrs, Volume= 17,372 cf
Outflow = 1.39 cfs @ 12.52 hrs, Volume= 17,372 cf, Atten= 1%, Lag= 2.0 min
Primary = 1.39 cfs @ 12.52 hrs, Volume= 17,372 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 18.59' @ 12.52 hrs Surf.Area= 513 sf Storage= 160 cf

Flood Elev= 19.80' Surf.Area= 1,554 sf Storage= 1,361 cf

Plug-Flow detention time= 1.9 min calculated for 17,372 cf (100% of inflow)

Center-of-Mass det. time= 1.9 min (828.7 - 826.7)

Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	1,361 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)
18.00	27	0	0
19.00	851	439	439
19.50	1,190	510	949
19.80	1,554	412	1,361

Device Routing Invert Outlet Devices

#1	Primary	17.99'	18.0" Round Culvert L= 21.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 17.99' / 17.82' S= 0.0081 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.38 cfs @ 12.52 hrs HW=18.59' TW=18.03' (Dynamic Tailwater)

1=Culvert (Barrel Controls 1.38 cfs @ 3.11 fps)

Summary for Reach pSW5: Pre - Swale-5

Inflow Area =	232,923 sf, 39.09% Impervious, Inflow Depth = 1.64" for 2-Year event
Inflow =	3.48 cfs @ 12.40 hrs, Volume= 31,890 cf
Outflow =	3.47 cfs @ 12.41 hrs, Volume= 31,890 cf, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 1.62 fps, Min. Travel Time= 1.5 min

Avg. Velocity = 0.49 fps, Avg. Travel Time= 4.9 min

Peak Storage= 311 cf @ 12.41 hrs

Average Depth at Peak Storage= 0.22'

Bank-Full Depth= 1.50' Flow Area= 22.4 sf, Capacity= 110.11 cfs

Custom cross-section, Length= 145.0' Slope= 0.0050 '/'

Constant n= 0.022 Earth, clean & straight

Inlet Invert= 17.82', Outlet Invert= 17.10'

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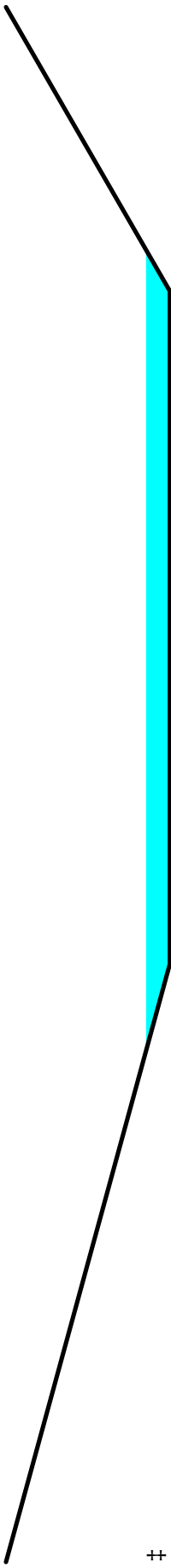
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#

Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-12.50	19.50	0.00
-4.50	18.00	1.50
4.50	18.00	1.50
8.30	19.50	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	9.0	0	0.00
1.50	22.4	21.2	3,241	110.11

Summary for Pond STC1: Post - Stormceptor-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 1.72" for 2-Year event
Inflow = 1.27 cfs @ 12.01 hrs, Volume= 6,765 cf
Outflow = 1.27 cfs @ 12.01 hrs, Volume= 6,765 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.27 cfs @ 12.01 hrs, Volume= 6,765 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 30.11' @ 12.01 hrs
Flood Elev= 33.20'

Device Routing Invert Outlet Devices

#1	Primary	29.40'	12.0" Round Culvert L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.40' / 29.35' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=1.24 cfs @ 12.01 hrs HW=30.10' TW=29.72' (Dynamic Tailwater)

└─**1=Culvert** (Barrel Controls 1.24 cfs @ 2.98 fps)

Summary for Pond STC2: Post - Stormceptor-2

Inflow Area = 32,406 sf, 41.59% Impervious, Inflow Depth = 1.89" for 2-Year event
Inflow = 1.53 cfs @ 12.07 hrs, Volume= 5,097 cf
Outflow = 1.53 cfs @ 12.07 hrs, Volume= 5,097 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.53 cfs @ 12.07 hrs, Volume= 5,097 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.75' @ 12.07 hrs

Flood Elev= 27.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	23.00'	12.0" Round Culvert L= 5.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.00' / 22.90' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.51 cfs @ 12.07 hrs HW=23.74' TW=22.68' (Dynamic Tailwater)

└─**1=Culvert** (Barrel Controls 1.51 cfs @ 3.35 fps)

Summary for Reach SW1: Post - Swale-1

Inflow Area = 8,243 sf, 2.62% Impervious, Inflow Depth = 1.16" for 2-Year event
Inflow = 0.23 cfs @ 12.12 hrs, Volume= 794 cf
Outflow = 0.23 cfs @ 12.13 hrs, Volume= 794 cf, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 2.45 fps, Min. Travel Time= 0.7 min

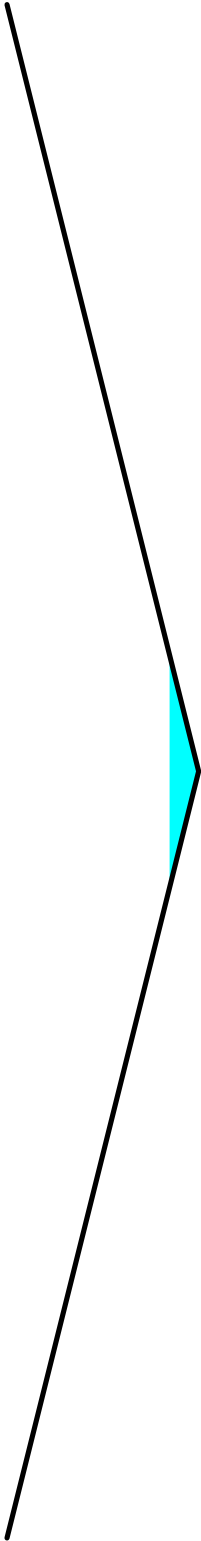
Avg. Velocity = 0.88 fps, Avg. Travel Time= 1.9 min

Peak Storage= 9 cf @ 12.13 hrs

Average Depth at Peak Storage= 0.15'

Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 34.60 cfs

Custom cross-section, Length= 100.0' Slope= 0.0800 '/'
 Constant n= 0.030 Short grass
 Inlet Invert= 37.00', Outlet Invert= 29.00'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-4.00	1.00	0.00
0.00	0.00	1.00
4.00	1.00	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
1.00	4.0	8.2	400	34.60

Summary for Reach SW2: Post - Swale-2

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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= 0.75' Flow Area= 3.0 sf, Capacity= 16.07 cfs

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Custom cross-section, Length= 80.0' Slope= 0.0313 '/
Constant n= 0.030 Short grass
Inlet Invert= 29.50', Outlet Invert= 27.00'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-3.00	0.75	0.00
-1.00	0.00	0.75
1.00	0.00	0.75
3.00	0.75	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	2.0	0	0.00
0.75	3.0	6.3	240	16.07

Summary for Pond US1: Post - Underground Recharge System-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 1.72" for 2-Year event
Inflow = 1.27 cfs @ 12.01 hrs, Volume= 6,765 cf
Outflow = 0.81 cfs @ 12.12 hrs, Volume= 6,765 cf, Atten= 36%, Lag= 6.6 min
Discarded = 0.04 cfs @ 7.53 hrs, Volume= 3,633 cf
Primary = 0.77 cfs @ 12.12 hrs, Volume= 3,138 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 29.81' @ 12.10 hrs Surf.Area= 1,736 sf Storage= 1,204 cf
Flood Elev= 30.90' Surf.Area= 1,736 sf Storage= 1,991 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 123.6 min (903.0 - 779.3)

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Volume	Invert	Avail. Storage	Storage Description
#1A	28.57'	1,014 cf	21.50'W x 80.76'L x 2.33'H Field A 4,051 cf Overall - 978 cf Embedded = 3,073 cf x 33.0% Voids
#2A	29.07'	978 cf	ADS_StormTech SC-310 x 66 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 6 rows
		1,992 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.57'	1.000 in/hr Exfiltration over Surface area
#2	Primary	29.36'	8.0" Round Culvert X 3.00 L= 2.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.36' / 29.30' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.04 cfs @ 7.53 hrs HW=28.59' (Free Discharge)

↳ **1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.80 cfs @ 12.12 hrs HW=29.80' TW=29.75' (Dynamic Tailwater)

↳ **2=Culvert** (Outlet Controls 0.80 cfs @ 1.53 fps)

Summary for Pond US2: Post - Underground Recharge System-2

Inflow Area =	15,579 sf, 100.00% Impervious, Inflow Depth = 3.07" for 2-Year event
Inflow =	1.18 cfs @ 12.07 hrs, Volume= 3,982 cf
Outflow =	0.12 cfs @ 11.64 hrs, Volume= 3,982 cf, Atten= 90%, Lag= 0.0 min
Discarded =	0.12 cfs @ 11.64 hrs, Volume= 3,982 cf
Primary =	0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.09' @ 12.81 hrs Surf.Area= 2,064 sf Storage= 1,316 cf

Flood Elev= 25.50' Surf.Area= 2,064 sf Storage= 3,331 cf

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Plug-Flow detention time= 75.8 min calculated for 3,979 cf (100% of inflow)

Center-of-Mass det. time= 75.8 min (830.6 - 754.8)

Volume	Invert	Avail. Storage	Storage Description
#1A	23.00'	1,529 cf	34.75'W x 59.40'L x 3.50'H Field A 7,224 cf Overall - 2,592 cf Embedded = 4,632 cf x 33.0% Voids
#2A	23.50'	2,592 cf	ADS_StormTech SC-740 x 56 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
		4,121 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	23.00'	2.410 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	24.71'	10.0" Round Culvert L= 37.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.71' / 24.25' S= 0.0124 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.12 cfs @ 11.64 hrs HW=23.04' (Free Discharge)

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

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=23.00' TW=18.00' (Dynamic Tailwater)

←**2=Culvert** (Controls 0.00 cfs)

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Time span=0.00-36.00 hrs, dt=0.03 hrs, 1201 points x 2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond CB1: CB-1

Peak Elev=39.67' Inflow=1.72 cfs 5,810 cf
Outflow=1.72 cfs 5,810 cf

Pond CB4: Post - CB-4

Peak Elev=26.20' Inflow=0.10 cfs 346 cf
4.0" Round Culvert n=0.013 L=14.3' S=-0.0392 '/' Outflow=0.10 cfs 346 cf

Pond CO: Post - Cleanout

Peak Elev=22.44' Inflow=0.31 cfs 1,019 cf
8.0" Round Culvert n=0.013 L=74.0' S=0.0101 '/' Outflow=0.31 cfs 1,019 cf

Pond DMH1: Post - DMH1

Peak Elev=32.71' Inflow=3.44 cfs 11,078 cf
Primary=2.55 cfs 10,063 cf Secondary=0.88 cfs 1,015 cf Outflow=3.44 cfs 11,078 cf

Pond DMH10: Post - DMH-10

Peak Elev=25.88' Inflow=1.76 cfs 6,054 cf
12.0" Round Culvert n=0.013 L=21.0' S=0.0119 '/' Outflow=1.76 cfs 6,054 cf

Pond DMH11: Post - DMH-11

Peak Elev=25.45' Inflow=1.76 cfs 6,054 cf
12.0" Round Culvert n=0.013 L=3.0' S=0.0200 '/' Outflow=1.76 cfs 6,054 cf

Pond DMH2: Post- DMH2

Peak Elev=30.66' Inflow=4.09 cfs 14,711 cf
Primary=1.88 cfs 9,878 cf Secondary=2.22 cfs 4,834 cf Outflow=4.09 cfs 14,711 cf

Pond DMH3: Post - DMH3

Peak Elev=27.25' Inflow=5.30 cfs 23,481 cf
18.0" Round Culvert n=0.013 L=105.0' S=0.0200 '/' Outflow=5.30 cfs 23,481 cf

Pond DMH4: Post - DMH4

Peak Elev=24.95' Inflow=5.30 cfs 23,481 cf
18.0" Round Culvert n=0.013 L=75.0' S=0.0273 '/' Outflow=5.30 cfs 23,481 cf

Pond DMH5: Post - DMH5

Peak Elev=23.07' Inflow=2.79 cfs 9,118 cf
12.0" Round Culvert n=0.013 L=3.5' S=0.0714 '/' Outflow=2.79 cfs 9,118 cf

Pond DMH6: Post - DMH-6

Peak Elev=33.95' Inflow=1.91 cfs 8,304 cf
10.0" Round Culvert n=0.013 L=55.0' S=0.0182 '/' Outflow=1.91 cfs 8,304 cf

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Pond DMH7: Post - DMH-7

10.0" Round Culvert n=0.013 L=30.0' S=0.0200 '/' Peak Elev=31.85' Inflow=1.91 cfs 8,304 cf
Outflow=1.91 cfs 8,304 cf

Pond DMH8: Post - DMH-8

10.0" Round Culvert n=0.013 L=30.0' S=0.0200 '/' Peak Elev=27.50' Inflow=1.91 cfs 8,304 cf
Outflow=1.91 cfs 8,304 cf

Pond DMH9: Post - DMH-9

12.0" Round Culvert n=0.013 L=85.0' S=0.0118 '/' Peak Elev=24.36' Inflow=2.27 cfs 9,869 cf
Outflow=2.27 cfs 9,869 cf

Reach OP1: Outlet pipe-1

12.0" Round Pipe n=0.013 L=14.0' S=0.0250 '/' Avg. Flow Depth=0.36' Max Vel=6.08 fps Inflow=1.65 cfs 5,995 cf
Outflow=1.54 cfs 5,995 cf

Pond pA1: Post - Analysis Point-1

Inflow=1.72 cfs 5,810 cf
Primary=1.72 cfs 5,810 cf

Pond pA2: Pre - Analysis Point-2

Inflow=10.42 cfs 46,740 cf
Primary=10.42 cfs 46,740 cf

Pond pA3: Post - Analysis Point-3

Inflow=8.78 cfs 54,808 cf
Primary=8.78 cfs 54,808 cf

Pond pAD: Post - Area drain at main entrance

12.0" Round Culvert n=0.013 L=69.0' S=0.0109 '/' Peak Elev=24.17' Inflow=0.12 cfs 406 cf
Outflow=0.12 cfs 406 cf

Pond pAD2: Area Drain

8.0" Round Culvert n=0.013 L=10.0' S=0.0100 '/' Peak Elev=28.63' Inflow=0.05 cfs 168 cf
Outflow=0.05 cfs 168 cf

Pond pCB1: Post - CB1

12.0" Round Culvert n=0.012 L=140.0' S=0.0143 '/' Peak Elev=32.67' Inflow=1.55 cfs 4,649 cf
Outflow=1.55 cfs 4,649 cf

Pond pCB2: Post - CB2

15.0" Round Culvert n=0.013 L=10.0' S=0.0200 '/' Peak Elev=33.15' Inflow=2.93 cfs 8,784 cf
Outflow=2.93 cfs 8,784 cf

Pond pCB3: Post - CB3

8.0" Round Culvert n=0.013 L=44.0' S=0.0318 '/' Peak Elev=35.02' Inflow=0.73 cfs 2,294 cf
Outflow=0.73 cfs 2,294 cf

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Pond pCB4: Post - CB4

8.0" Round Culvert n=0.013 L=55.0' S=0.0227 '/' Inflow=0.30 cfs 1,042 cf
Outflow=0.30 cfs 1,042 cf

Pond pCB5: Post -CB5

12.0" Round Culvert n=0.013 L=158.0' S=0.0100 '/' Inflow=2.59 cfs 11,637 cf
Outflow=2.59 cfs 11,637 cf

Pond pCB6: Post - CB-6

Primary=1.91 cfs 8,304 cf Storage=69 cf Inflow=1.93 cfs 8,323 cf
Secondary=0.00 cfs 0 cf Outflow=1.91 cfs 8,304 cf

Pond pCB7: Post - CB-7

Primary=0.48 cfs 1,566 cf Storage=61 cf Inflow=0.48 cfs 1,612 cf
Secondary=0.00 cfs 0 cf Outflow=0.48 cfs 1,566 cf

Pond pCB8: Post - CB-8

Peak Elev=29.60' Storage=52 cf Inflow=0.31 cfs 1,060 cf
Outflow=0.31 cfs 1,019 cf

Pond pDB1: Post - Detention Basin-1

Peak Elev=22.26' Storage=2,477 cf Inflow=6.31 cfs 7,538 cf
Outflow=5.21 cfs 7,494 cf

Pond pFB1: Forebay-1

Peak Elev=23.27' Storage=550 cf Inflow=3.65 cfs 10,821 cf
Outflow=3.60 cfs 10,354 cf

Pond pFB2: Forebay-2

Peak Elev=23.27' Storage=550 cf Inflow=3.65 cfs 10,993 cf
Outflow=3.60 cfs 10,526 cf

Pond pFB3: Post - Forebay-3

Peak Elev=22.09' Storage=472 cf Inflow=2.86 cfs 13,113 cf
Outflow=2.77 cfs 12,845 cf

Pond pH2: Post - Daycare Header

12.0" Round Culvert n=0.013 L=70.0' S=0.0200 '/' Inflow=0.62 cfs 2,118 cf
Outflow=0.62 cfs 2,118 cf

Pond pH3: Post - Daycare Header

12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Inflow=1.76 cfs 6,054 cf
Outflow=1.76 cfs 6,054 cf

Pond pH4: Post - Daycare Header

12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Inflow=1.76 cfs 6,054 cf
Outflow=1.76 cfs 6,054 cf

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Pond pH5: Post - Roof Header

Peak Elev=26.41' Inflow=0.40 cfs 1,383 cf
Outflow=0.40 cfs 1,383 cf

Reach pRD1: Post - Roof Drain-1

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.50' Max Vel=4.51 fps Inflow=1.76 cfs 6,053 cf
L=20.0' S=0.0100 '/' Capacity=3.56 cfs Outflow=1.76 cfs 6,053 cf

Reach pRD2: Post - Roof Drain-2

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.46' Max Vel=5.21 fps Inflow=1.84 cfs 6,323 cf
L=28.0' S=0.0143 '/' Capacity=4.26 cfs Outflow=1.84 cfs 6,323 cf

Subcatchment pRF1: Post - Roof flow

Runoff Area=15,575 sf 100.00% Impervious Runoff Depth=4.66"
Tc=5.0 min CN=0/98 Runoff=1.76 cfs 6,053 cf

Subcatchment pRF2: Post - Roof flow

Runoff Area=16,270 sf 100.00% Impervious Runoff Depth=4.66"
Tc=5.0 min CN=0/98 Runoff=1.84 cfs 6,323 cf

Subcatchment pRF3: Post - Roof flow

Runoff Area=3,560 sf 100.00% Impervious Runoff Depth=4.66"
Tc=5.0 min CN=0/98 Runoff=0.40 cfs 1,383 cf

Subcatchment pRF4: Post - New Daycare Roof

Runoff Area=8,267 sf 100.00% Impervious Runoff Depth=4.66"
Tc=5.0 min CN=0/98 Runoff=0.94 cfs 3,213 cf

Subcatchment pRF5: Post - Existing Roof

Runoff Area=5,017 sf 100.00% Impervious Runoff Depth=4.66"
Tc=5.0 min CN=0/98 Runoff=0.57 cfs 1,950 cf

Subcatchment pS1: Post - Northeastern Parking lot

Runoff Area=16,598 sf 80.53% Impervious Runoff Depth=4.20"
Tc=5.0 min CN=74/98 Runoff=1.72 cfs 5,810 cf

Subcatchment pS10: Post - Flow to Area Drain

Runoff Area=14,310 sf 33.15% Impervious Runoff Depth=3.07"
Flow Length=126' Tc=17.0 min CN=74/98 Runoff=0.80 cfs 3,665 cf

Subcatchment pS11: Post - Flow to playground catch basin

Runoff Area=1,116 sf 60.48% Impervious Runoff Depth=3.72"
Tc=5.0 min CN=74/98 Runoff=0.10 cfs 346 cf

Subcatchment pS12: Post - Flow to Swale-5

Runoff Area=7,588 sf 72.14% Impervious Runoff Depth=4.00"
Tc=5.0 min CN=74/98 Runoff=0.75 cfs 2,530 cf

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Subcatchment pS13: Post - Northeastern area flowing to proposed CB5

Runoff Area=58,920 sf 3.59% Impervious Runoff Depth=2.37"
Flow Length=445' Tc=18.2 min CN=74/98 Runoff=2.59 cfs 11,637 cf

Subcatchment pS14: Post - Parking area-4 runoff

Runoff Area=29,725 sf 36.32% Impervious Runoff Depth=3.10"
Tc=5.0 min CN=73/98 Runoff=2.37 cfs 7,670 cf

Subcatchment pS15: Post - Flow to entrance area drain

Runoff Area=1,395 sf 50.82% Impervious Runoff Depth=3.49"
Tc=5.0 min CN=74/98 Runoff=0.12 cfs 406 cf

Subcatchment pS16: Post - Flow to Sand Filter-2

Runoff Area=8,374 sf 18.89% Impervious Runoff Depth=2.94"
Tc=5.0 min CN=77/98 Runoff=0.66 cfs 2,052 cf

Subcatchment pS17: Post - Area in front of bldg flowing to existing swale-3

Runoff Area=7,518 sf 17.25% Impervious Runoff Depth=2.70"
Flow Length=173' Tc=6.3 min CN=74/98 Runoff=0.51 cfs 1,688 cf

Subcatchment pS18: Post - Flow to Sand Filter-1

Runoff Area=6,183 sf 0.00% Impervious Runoff Depth=2.72"
Tc=5.0 min CN=79/0 Runoff=0.46 cfs 1,399 cf

Subcatchment pS2: Post - Flow to CB3

Runoff Area=10,081 sf 18.76% Impervious Runoff Depth=2.73"
Tc=5.0 min CN=74/98 Runoff=0.73 cfs 2,294 cf

Subcatchment pS20: Post - Flow along South side to Sand Filter-1

Runoff Area=60,165 sf 4.02% Impervious Runoff Depth=2.38"
Flow Length=552' Tc=12.5 min CN=74/98 Runoff=3.06 cfs 11,935 cf

Subcatchment pS21: Post - Surface Runoff to Swale

Runoff Area=8,243 sf 2.62% Impervious Runoff Depth=2.35"
Flow Length=57' Tc=7.9 min CN=74/98 Runoff=0.48 cfs 1,612 cf

Subcatchment pS22: Post - Daycare Walkway Runoff

Runoff Area=1,862 sf 100.00% Impervious Runoff Depth=4.66"
Tc=5.0 min CN=0/98 Runoff=0.21 cfs 724 cf

Subcatchment pS23: Post - Daycare Plaza Runoff

Runoff Area=433 sf 100.00% Impervious Runoff Depth=4.66"
Tc=5.0 min CN=0/98 Runoff=0.05 cfs 168 cf

Subcatchment pS24: Post - Runoff to Forebay

Runoff Area=5,161 sf 9.61% Impervious Runoff Depth=2.51"
Tc=5.0 min CN=74/98 Runoff=0.35 cfs 1,081 cf

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Subcatchment pS25: Post - Parking Lot Runoff to Forebay

Runoff Area=2,943 sf 100.00% Impervious Runoff Depth=4.66"
Tc=5.0 min CN=0/98 Runoff=0.33 cfs 1,144 cf

Subcatchment pS26: Post - Flow to CB3

Runoff Area=3,055 sf 78.95% Impervious Runoff Depth=4.16"
Tc=5.0 min CN=74/98 Runoff=0.31 cfs 1,060 cf

Subcatchment pS27: Post - Area in front of bldg flowing to existing swale-4

Runoff Area=6,230 sf 42.07% Impervious Runoff Depth=3.29"
Slope=0.1600 '/' Tc=5.4 min CN=74/98 Runoff=0.52 cfs 1,706 cf
Flow Length=50'

Subcatchment pS3: Post - Norther half of parking area-2

Runoff Area=12,808 sf 87.06% Impervious Runoff Depth=4.36"
Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=1.55 cfs 4,649 cf
Flow Length=117'

Subcatchment pS4: Post - Southern half of parking area-2

Runoff Area=24,441 sf 85.26% Impervious Runoff Depth=4.31"
Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=2.93 cfs 8,784 cf
Flow Length=117'

Subcatchment pS5: Post - Norther half of parking area-3

Runoff Area=32,764 sf 70.56% Impervious Runoff Depth=3.96"
Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=3.65 cfs 10,821 cf
Flow Length=117'

Subcatchment pS6: Post - Southern half of parking area-3

Runoff Area=29,790 sf 90.12% Impervious Runoff Depth=4.43"
Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=3.65 cfs 10,993 cf
Flow Length=117'

Subcatchment pS7: Post - Flow to CB4

Runoff Area=2,681 sf 100.00% Impervious Runoff Depth=4.66"
Tc=5.0 min CN=0/98 Runoff=0.30 cfs 1,042 cf

Subcatchment pS9: Post - Flow to Area Drain

Runoff Area=23,435 sf 4.22% Impervious Runoff Depth=2.39"
Flow Length=367' Tc=13.9 min CN=74/98 Runoff=1.15 cfs 4,658 cf

Pond pSF1: Post - Sand Filter-1

Peak Elev=21.87' Storage=7,314 cf Inflow=12.72 cfs 45,761 cf
Outflow=10.45 cfs 45,641 cf

Pond pSF2: Post - Sand Filter-2

Peak Elev=22.54' Storage=3,787 cf Inflow=7.05 cfs 23,545 cf
Primary=6.31 cfs 7,538 cf Secondary=0.46 cfs 15,996 cf Outflow=6.77 cfs 23,535 cf

Pond pSF3: Post - Sand Filter-3

Peak Elev=22.07' Storage=3,149 cf Inflow=5.87 cfs 25,143 cf
Outflow=5.75 cfs 25,111 cf

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Pond pSW1: Pre - Swale-1

Peak Elev=18.45' Storage=548 cf Inflow=10.44 cfs 46,740 cf
Outflow=10.42 cfs 46,740 cf

Pond pSW2: Pre - Swale-2

Peak Elev=19.52' Storage=183 cf Inflow=5.65 cfs 23,490 cf
Primary=4.28 cfs 22,390 cf Secondary=0.90 cfs 1,099 cf Outflow=5.18 cfs 23,490 cf

Pond pSW3: Pre - Swale-3

Peak Elev=19.37' Storage=1,255 cf Inflow=4.64 cfs 24,079 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0047 '/' Outflow=2.57 cfs 24,078 cf

Pond pSW4: Pre - Swale-4

Peak Elev=18.91' Storage=364 cf Inflow=2.93 cfs 27,167 cf
18.0" Round Culvert n=0.013 L=21.0' S=0.0081 '/' Outflow=2.90 cfs 27,167 cf

Reach pSW5: Pre - Swale-5

Avg. Flow Depth=0.37' Max Vel=2.25 fps Inflow=8.79 cfs 54,808 cf
n=0.022 L=145.0' S=0.0050 '/' Capacity=110.11 cfs Outflow=8.78 cfs 54,808 cf

Pond STC1: Post - Stormceptor-1

Peak Elev=30.30' Inflow=1.88 cfs 9,878 cf
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 '/' Outflow=1.88 cfs 9,878 cf

Pond STC2: Post - Stormceptor-2

Peak Elev=24.10' Inflow=2.67 cfs 8,711 cf
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=2.67 cfs 8,711 cf

Reach SW1: Post - Swale-1

Avg. Flow Depth=0.20' Max Vel=2.97 fps Inflow=0.48 cfs 1,612 cf
n=0.030 L=100.0' S=0.0800 '/' Capacity=34.60 cfs Outflow=0.48 cfs 1,612 cf

Reach SW2: Post - Swale-2

Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
n=0.030 L=80.0' S=0.0313 '/' Capacity=16.07 cfs Outflow=0.00 cfs 0 cf

Pond US1: Post - Underground Recharge System-1

Peak Elev=29.98' Storage=1,381 cf Inflow=1.88 cfs 9,878 cf
Discarded=0.04 cfs 3,953 cf Primary=1.65 cfs 5,995 cf Outflow=1.69 cfs 9,880 cf

Pond US2: Post - Underground Recharge System-2

Peak Elev=24.75' Storage=2,338 cf Inflow=1.76 cfs 6,054 cf
Discarded=0.12 cfs 6,037 cf Primary=0.01 cfs 17 cf Outflow=0.12 cfs 6,054 cf

Total Runoff Area = 424,508 sf Runoff Volume = 118,794 cf Average Runoff Depth = 3.36"
55.16% Pervious = 234,143 sf 44.84% Impervious = 190,365 sf

Summary for Pond CB1: CB-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 4.20" for 10-Year event
Inflow = 1.72 cfs @ 12.07 hrs, Volume= 5,810 cf
Outflow = 1.72 cfs @ 12.07 hrs, Volume= 5,810 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.72 cfs @ 12.07 hrs, Volume= 5,810 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 39.67' @ 12.07 hrs
Flood Elev= 46.68'

Device	Routing	Invert	Outlet Devices

#1	Primary	38.96'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.69 cfs @ 12.07 hrs HW=39.66' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 1.69 cfs @ 2.86 fps)

Summary for Pond CB4: Post - CB-4

Inflow Area = 1,116 sf, 60.48% Impervious, Inflow Depth = 3.72" for 10-Year event
Inflow = 0.10 cfs @ 12.07 hrs, Volume= 346 cf
Outflow = 0.10 cfs @ 12.07 hrs, Volume= 346 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 12.07 hrs, Volume= 346 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 26.20' @ 12.07 hrs
Flood Elev= 27.10'

Device	Routing	Invert	Outlet Devices

#1	Primary	25.97'	4.0" Round Culvert L= 14.3' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 25.41' / 25.97' S= -0.0392 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.10 cfs @ 12.07 hrs HW=26.20' TW=21.73' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.10 cfs @ 1.62 fps)

Summary for Pond CO: Post - Cleanout

Inflow Area = 3,055 sf, 78.95% Impervious, Inflow Depth = 4.00" for 10-Year event
 Inflow = 0.31 cfs @ 12.08 hrs, Volume= 1,019 cf
 Outflow = 0.31 cfs @ 12.08 hrs, Volume= 1,019 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.31 cfs @ 12.08 hrs, Volume= 1,019 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.44' @ 12.09 hrs

Flood Elev= 27.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	22.10'	8.0" Round Culvert L= 74.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 22.10' / 21.35' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.29 cfs @ 12.08 hrs HW=22.44' TW=21.84' (Dynamic Tailwater)

1=Culvert (Outlet Controls 0.29 cfs @ 2.41 fps)

Summary for Pond DMH1: Post - DMH1

Inflow Area = 34,522 sf, 65.84% Impervious, Inflow Depth = 3.85" for 10-Year event
 Inflow = 3.44 cfs @ 12.01 hrs, Volume= 11,078 cf
 Outflow = 3.44 cfs @ 12.01 hrs, Volume= 11,078 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.55 cfs @ 12.01 hrs, Volume= 10,063 cf
 Secondary = 0.88 cfs @ 12.01 hrs, Volume= 1,015 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 32.71' @ 12.01 hrs

Flood Elev= 35.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	31.90'	15.0" Round Culvert L= 67.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 31.90' / 29.90' S= 0.0299 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf
#2	Secondary	32.10'	8.0" Round Culvert L= 80.0' RCP, sq.cut end projecting, Ke= 0.500

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Inlet / Outlet Invert= 32.10' / 27.00' S= 0.0638 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=2.49 cfs @ 12.01 hrs HW=32.69' TW=30.65' (Dynamic Tailwater)
└─1=Culvert (Inlet Controls 2.49 cfs @ 3.03 fps)

Secondary OutFlow Max=0.86 cfs @ 12.01 hrs HW=32.69' TW=27.22' (Dynamic Tailwater)
└─2=Culvert (Inlet Controls 0.86 cfs @ 2.62 fps)

Summary for Pond DMH10: Post - DMH-10

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 1.76 cfs @ 12.07 hrs, Volume= 6,054 cf
Outflow = 1.76 cfs @ 12.07 hrs, Volume= 6,054 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.76 cfs @ 12.07 hrs, Volume= 6,054 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 25.88' @ 12.07 hrs
Flood Elev= 29.40'

Device	Routing	Invert	Outlet Devices

#1	Primary	25.10'	12.0" Round Culvert L= 21.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 25.10' / 24.85' S= 0.0119 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.73 cfs @ 12.07 hrs HW=25.88' TW=25.44' (Dynamic Tailwater)
└─1=Culvert (Outlet Controls 1.73 cfs @ 3.66 fps)

Summary for Pond DMH11: Post - DMH-11

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 1.76 cfs @ 12.07 hrs, Volume= 6,054 cf
Outflow = 1.76 cfs @ 12.07 hrs, Volume= 6,054 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.76 cfs @ 12.07 hrs, Volume= 6,054 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 25.45' @ 12.07 hrs

Flood Elev= 28.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.60'	12.0" Round Culvert L= 3.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.60' / 24.54' S= 0.0200 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=1.73 cfs @ 12.07 hrs HW=25.44' TW=23.98' (Dynamic Tailwater)

1=Culvert (Barrel Controls 1.73 cfs @ 3.32 fps)

Summary for Pond DMH2: Post- DMH2

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 3.73" for 10-Year event
Inflow = 4.09 cfs @ 12.01 hrs, Volume= 14,711 cf
Outflow = 4.09 cfs @ 12.01 hrs, Volume= 14,711 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.88 cfs @ 12.01 hrs, Volume= 9,878 cf
Secondary = 2.22 cfs @ 12.01 hrs, Volume= 4,834 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 30.66' @ 12.01 hrs

Flood Elev= 33.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	29.80'	12.0" Round Culvert L= 17.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.80' / 29.65' S= 0.0088 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	29.90'	15.0" Round Culvert L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.90' / 29.55' S= 0.0140 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.83 cfs @ 12.01 hrs HW=30.65' TW=30.29' (Dynamic Tailwater)

1=Culvert (Barrel Controls 1.83 cfs @ 3.46 fps)

Secondary OutFlow Max=2.16 cfs @ 12.01 hrs HW=30.65' TW=27.21' (Dynamic Tailwater)

2=Culvert (Barrel Controls 2.16 cfs @ 4.02 fps)

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Summary for Pond DMH3: Post - DMH3

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 2.65" for 10-Year event
Inflow = 5.30 cfs @ 12.05 hrs, Volume= 23,481 cf
Outflow = 5.30 cfs @ 12.05 hrs, Volume= 23,481 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.30 cfs @ 12.05 hrs, Volume= 23,481 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 27.25' @ 12.05 hrs

Flood Elev= 33.50'

Device Routing Invert Outlet Devices

#1	Primary	26.10'	18.0" Round Culvert L= 105.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.10' / 24.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.26 cfs @ 12.05 hrs HW=27.24' TW=24.94' (Dynamic Tailwater)

1=Culvert (Inlet Controls 5.26 cfs @ 3.64 fps)

Summary for Pond DMH4: Post - DMH4

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 2.65" for 10-Year event
Inflow = 5.30 cfs @ 12.05 hrs, Volume= 23,481 cf
Outflow = 5.30 cfs @ 12.05 hrs, Volume= 23,481 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.30 cfs @ 12.05 hrs, Volume= 23,481 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.95' @ 12.05 hrs

Flood Elev= 26.80'

Device Routing Invert Outlet Devices

#1	Primary	23.80'	18.0" Round Culvert L= 75.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.80' / 21.75' S= 0.0273 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

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Primary OutFlow Max=5.26 cfs @ 12.05 hrs HW=24.94' TW=21.84' (Dynamic Tailwater)

└─**1=Culvert** (Inlet Controls 5.26 cfs @ 3.64 fps)

Summary for Pond DMH5: Post - DMH5

Inflow Area = 33,801 sf, 41.97% Impervious, Inflow Depth = 3.24" for 10-Year event
Inflow = 2.79 cfs @ 12.07 hrs, Volume= 9,118 cf
Outflow = 2.79 cfs @ 12.07 hrs, Volume= 9,118 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.79 cfs @ 12.07 hrs, Volume= 9,118 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.07' @ 12.08 hrs

Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	22.00'	12.0" Round Culvert L= 3.5' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 22.00' / 21.75' S= 0.0714 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.74 cfs @ 12.07 hrs HW=23.05' TW=22.52' (Dynamic Tailwater)

└─**1=Culvert** (Inlet Controls 2.74 cfs @ 3.49 fps)

Summary for Pond DMH6: Post - DMH-6

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 2.64" for 10-Year event
Inflow = 1.91 cfs @ 12.23 hrs, Volume= 8,304 cf
Outflow = 1.91 cfs @ 12.23 hrs, Volume= 8,304 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.91 cfs @ 12.23 hrs, Volume= 8,304 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 33.95' @ 12.23 hrs

Flood Elev= 38.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	33.00'	10.0" Round Culvert L= 55.0' RCP, sq.cut end projecting, Ke= 0.500

Inlet / Outlet Invert= 33.00' / 32.00' S= 0.0182 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.91 cfs @ 12.23 hrs HW=33.94' TW=31.84' (Dynamic Tailwater)

1=Culvert (Inlet Controls 1.91 cfs @ 3.50 fps)

Summary for Pond DMH7: Post - DMH-7

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 2.64" for 10-Year event
Inflow = 1.91 cfs @ 12.23 hrs, Volume= 8,304 cf
Outflow = 1.91 cfs @ 12.23 hrs, Volume= 8,304 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.91 cfs @ 12.23 hrs, Volume= 8,304 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 31.85' @ 12.23 hrs

Flood Elev= 36.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	30.90'	10.0" Round Culvert L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 30.90' / 30.30' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.91 cfs @ 12.23 hrs HW=31.84' TW=27.49' (Dynamic Tailwater)

1=Culvert (Inlet Controls 1.91 cfs @ 3.50 fps)

Summary for Pond DMH8: Post - DMH-8

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 2.64" for 10-Year event
Inflow = 1.91 cfs @ 12.23 hrs, Volume= 8,304 cf
Outflow = 1.91 cfs @ 12.23 hrs, Volume= 8,304 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.91 cfs @ 12.23 hrs, Volume= 8,304 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 27.50' @ 12.23 hrs

Flood Elev= 32.50'

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Device Routing Invert Outlet Devices

#1	Primary	26.55'	10.0" Round Culvert L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.55' / 25.95' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.91 cfs @ 12.23 hrs HW=27.49' TW=24.35' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.91 cfs @ 3.50 fps)

Summary for Pond DMH9: Post - DMH-9

Inflow Area =	45,988 sf, 12.94% Impervious, Inflow Depth = 2.58" for 10-Year event
Inflow =	2.27 cfs @ 12.21 hrs, Volume= 9,869 cf
Outflow =	2.27 cfs @ 12.21 hrs, Volume= 9,869 cf, Atten= 0%, Lag= 0.0 min
Primary =	2.27 cfs @ 12.21 hrs, Volume= 9,869 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 24.36' @ 12.21 hrs
Flood Elev= 30.10'

Device Routing Invert Outlet Devices

#1	Primary	23.50'	12.0" Round Culvert L= 85.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.50' / 22.50' S= 0.0118 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.27 cfs @ 12.21 hrs HW=24.36' TW=22.09' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.27 cfs @ 3.16 fps)

Summary for Reach OP1: Outlet pipe-1

Inflow Area =	47,330 sf, 71.58% Impervious, Inflow Depth = 1.52" for 10-Year event
Inflow =	1.65 cfs @ 12.09 hrs, Volume= 5,995 cf
Outflow =	1.54 cfs @ 12.07 hrs, Volume= 5,995 cf, Atten= 6%, Lag= 0.0 min

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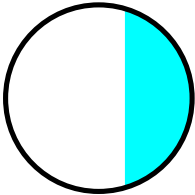
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Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 6.08 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.40 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.36'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.63 cfs

12.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 14.0' Slope= 0.0250 '/'
Inlet Invert= 29.50', Outlet Invert= 29.15'



Summary for Pond pA1: Post - Analysis Point-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 4.20" for 10-Year event
Inflow = 1.72 cfs @ 12.07 hrs, Volume= 5,810 cf
Primary = 1.72 cfs @ 12.07 hrs, Volume= 5,810 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond pA2: Pre - Analysis Point-2

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 3.21" for 10-Year event
Inflow = 10.42 cfs @ 12.09 hrs, Volume= 46,740 cf
Primary = 10.42 cfs @ 12.09 hrs, Volume= 46,740 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond pA3: Post - Analysis Point-3

Inflow Area = 232,923 sf, 39.09% Impervious, Inflow Depth = 2.82" for 10-Year event
Inflow = 8.78 cfs @ 12.24 hrs, Volume= 54,808 cf
Primary = 8.78 cfs @ 12.24 hrs, Volume= 54,808 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond pAD: Post - Area drain at main entrance

Inflow Area = 1,395 sf, 50.82% Impervious, Inflow Depth = 3.49" for 10-Year event
Inflow = 0.12 cfs @ 12.07 hrs, Volume= 406 cf
Outflow = 0.12 cfs @ 12.07 hrs, Volume= 406 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 12.07 hrs, Volume= 406 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 24.17' @ 12.07 hrs
Flood Elev= 28.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.00'	12.0" Round Culvert L= 69.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.00' / 23.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.12 cfs @ 12.07 hrs HW=24.17' TW=23.05' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.12 cfs @ 2.10 fps)

Summary for Pond pAD2: Area Drain

Inflow Area = 433 sf,100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 0.05 cfs @ 12.07 hrs, Volume= 168 cf
Outflow = 0.05 cfs @ 12.07 hrs, Volume= 168 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.07 hrs, Volume= 168 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 28.63' @ 12.07 hrs

Flood Elev= 30.80'

Device Routing Invert Outlet Devices

#1	Primary	28.50'	8.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 28.50' / 28.40' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.05 cfs @ 12.07 hrs HW=28.63' TW=28.39' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.05 cfs @ 1.54 fps)

Summary for Pond pCB1: Post - CB1

Inflow Area = 12,808 sf, 87.06% Impervious, Inflow Depth = 4.36" for 10-Year event
Inflow = 1.55 cfs @ 12.01 hrs, Volume= 4,649 cf
Outflow = 1.55 cfs @ 12.01 hrs, Volume= 4,649 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.55 cfs @ 12.01 hrs, Volume= 4,649 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 32.67' @ 12.01 hrs

Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	32.00'	12.0" Round Culvert L= 140.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.00' / 30.00' S= 0.0143 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.51 cfs @ 12.01 hrs HW=32.66' TW=30.65' (Dynamic Tailwater)

1=Culvert (Inlet Controls 1.51 cfs @ 2.76 fps)

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Summary for Pond pCB2: Post - CB2

Inflow Area = 24,441 sf, 85.26% Impervious, Inflow Depth = 4.31" for 10-Year event
Inflow = 2.93 cfs @ 12.01 hrs, Volume= 8,784 cf
Outflow = 2.93 cfs @ 12.01 hrs, Volume= 8,784 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.93 cfs @ 12.01 hrs, Volume= 8,784 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 33.15' @ 12.01 hrs

Flood Elev= 35.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	32.20'	15.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.20' / 32.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.86 cfs @ 12.01 hrs HW=33.14' TW=32.69' (Dynamic Tailwater)

1=Culvert (Barrel Controls 2.86 cfs @ 4.04 fps)

Summary for Pond pCB3: Post - CB3

Inflow Area = 10,081 sf, 18.76% Impervious, Inflow Depth = 2.73" for 10-Year event
Inflow = 0.73 cfs @ 12.08 hrs, Volume= 2,294 cf
Outflow = 0.73 cfs @ 12.08 hrs, Volume= 2,294 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.73 cfs @ 12.08 hrs, Volume= 2,294 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 35.02' @ 12.08 hrs

Flood Elev= 39.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	34.50'	8.0" Round Culvert L= 44.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 34.50' / 33.10' S= 0.0318 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

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Primary OutFlow Max=0.72 cfs @ 12.08 hrs HW=35.02' TW=32.58' (Dynamic Tailwater)

└─**1=Culvert** (Inlet Controls 0.72 cfs @ 2.45 fps)

Summary for Pond pCB4: Post - CB4

Inflow Area = 2,681 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 0.30 cfs @ 12.07 hrs, Volume= 1,042 cf
Outflow = 0.30 cfs @ 12.07 hrs, Volume= 1,042 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.07 hrs, Volume= 1,042 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.81' @ 12.07 hrs

Flood Elev= 28.25'

Device	Routing	Invert	Outlet Devices

#1	Primary	24.50'	8.0" Round Culvert L= 55.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.50' / 23.25' S= 0.0227 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.30 cfs @ 12.07 hrs HW=24.81' TW=24.08' (Dynamic Tailwater)

└─**1=Culvert** (Inlet Controls 0.30 cfs @ 1.89 fps)

Summary for Pond pCB5: Post -CB5

Inflow Area = 58,920 sf, 3.59% Impervious, Inflow Depth = 2.37" for 10-Year event
Inflow = 2.59 cfs @ 12.26 hrs, Volume= 11,637 cf
Outflow = 2.59 cfs @ 12.26 hrs, Volume= 11,637 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.59 cfs @ 12.26 hrs, Volume= 11,637 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 29.46' @ 12.26 hrs

Flood Elev= 31.70'

Device	Routing	Invert	Outlet Devices

#1	Primary	28.50'	12.0" Round Culvert L= 158.0' RCP, sq.cut end projecting, Ke= 0.500

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Inlet / Outlet Invert= 28.50' / 26.92' S= 0.0100 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.58 cfs @ 12.26 hrs HW=29.46' TW=27.12' (Dynamic Tailwater)

1=Culvert (Inlet Controls 2.58 cfs @ 3.33 fps)

Summary for Pond pCB6: Post - CB-6

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 2.65" for 10-Year event
Inflow = 1.93 cfs @ 12.21 hrs, Volume= 8,323 cf
Outflow = 1.91 cfs @ 12.23 hrs, Volume= 8,304 cf, Atten= 1%, Lag= 1.2 min
Primary = 1.91 cfs @ 12.23 hrs, Volume= 8,304 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 37.38' @ 12.23 hrs Surf.Area= 160 sf Storage= 69 cf

Flood Elev= 38.00' Surf.Area= 311 sf Storage= 215 cf

Plug-Flow detention time= 3.5 min calculated for 8,304 cf (100% of inflow)

Center-of-Mass det. time= 2.0 min (824.9 - 822.9)

Volume Invert Avail.Storage Storage Description

#1 36.50' 215 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.50	35	0	0
37.00	68	26	26
38.00	311	190	215

Device Routing Invert Outlet Devices

#1	Primary	35.00'	8.0" Round Culvert L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 35.00' / 34.40' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	36.90'	12.0" Horiz. Orifice/Grate C= 0.600 in 9.1" x 9.1" Grate Limited to weir flow at low heads
#3	Secondary	37.50'	5.0' long x 2.0' breadth Broad-Crested Rectangular Weir

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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
Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.91 cfs @ 12.23 hrs HW=37.37' TW=33.94' (Dynamic Tailwater)

└─1=Culvert (Passes 1.91 cfs of 2.40 cfs potential flow)

└─2=Orifice/Grate (Orifice Controls 1.91 cfs @ 3.32 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=36.50' TW=37.00' (Dynamic Tailwater)

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

Summary for Pond pCB7: Post - CB-7

Inflow Area = 8,243 sf, 2.62% Impervious, Inflow Depth = 2.35" for 10-Year event
Inflow = 0.48 cfs @ 12.12 hrs, Volume= 1,612 cf
Outflow = 0.48 cfs @ 12.13 hrs, Volume= 1,566 cf, Atten= 0%, Lag= 0.4 min
Primary = 0.48 cfs @ 12.13 hrs, Volume= 1,566 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 28.88' @ 12.13 hrs Surf.Area= 115 sf Storage= 61 cf

Flood Elev= 30.00' Surf.Area= 309 sf Storage= 293 cf

Plug-Flow detention time= 25.0 min calculated for 1,564 cf (97% of inflow)

Center-of-Mass det. time= 8.8 min (845.3 - 836.5)

Volume				Storage Description		
#1	Invert	Avail.Storage	293 cf	Custom Stage Data (Prismatic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
28.00	23	0	0			
29.00	127	75	75			
30.00	309	218	293			

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Device	Routing	Invert	Outlet Devices
#1	Device 2	28.75'	12.0" Horiz. Orifice/Grate C= 0.600 in 9.1" x 9.1" Grate Limited to weir flow at low heads
#2	Primary	26.10'	12.0" Round Culvert L= 11.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.10' / 25.90' S= 0.0182 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Secondary	29.50'	3.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.47 cfs @ 12.13 hrs HW=28.88' TW=24.30' (Dynamic Tailwater)

2=Culvert (Passes 0.47 cfs of 5.71 cfs potential flow)

1=Orifice/Grate (Weir Controls 0.47 cfs @ 1.18 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=28.00' TW=29.50' (Dynamic Tailwater)

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

Summary for Pond pCB8: Post - CB-8

Inflow Area = 3,055 sf, 78.95% Impervious, Inflow Depth = 4.16" for 10-Year event
Inflow = 0.31 cfs @ 12.07 hrs, Volume= 1,060 cf
Outflow = 0.31 cfs @ 12.08 hrs, Volume= 1,019 cf, Atten= 1%, Lag= 0.5 min
Primary = 0.31 cfs @ 12.08 hrs, Volume= 1,019 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 29.60' @ 12.08 hrs Surf.Area= 109 sf Storage= 52 cf

Flood Elev= 30.00' Surf.Area= 140 sf Storage= 102 cf

Plug-Flow detention time= 44.6 min calculated for 1,019 cf (96% of inflow)

Center-of-Mass det. time= 21.2 min (779.0 - 757.8)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	102 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)
29.00	63	0	0
30.00	140	102	102

Device Routing Invert Outlet Devices

#1	Device 2	29.50'	12.0" Horiz. Orifice/Grate	C= 0.600 in 9.1" x 9.1" Grate	Limited to weir flow at low heads
#2	Primary	25.15'	8.0" Round Culvert	L= 13.0' RCP, sq.cut end projecting, Ke= 0.500	
Inlet / Outlet Invert= 25.15' / 25.00' S= 0.0115 '/' Cc= 0.900					
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf					

Primary OutFlow Max=0.31 cfs @ 12.08 hrs HW=29.60' TW=22.44' (Dynamic Tailwater)

└─2=Culvert (Passes 0.31 cfs of 3.41 cfs potential flow)

└─1=Orifice/Grate (Weir Controls 0.31 cfs @ 1.03 fps)

Summary for Pond pDB1: Post - Detention Basin-1

Inflow Area =	74,020 sf, 64.33% Impervious, Inflow Depth = 1.22" for 10-Year event
Inflow =	6.31 cfs @ 12.10 hrs, Volume= 7,538 cf
Outflow =	5.21 cfs @ 12.16 hrs, Volume= 7,494 cf, Atten= 17%, Lag= 3.9 min
Primary =	5.21 cfs @ 12.16 hrs, Volume= 7,494 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.26' @ 12.16 hrs Surf.Area= 1,142 sf Storage= 2,477 cf

Flood Elev= 23.00' Surf.Area= 1,340 sf Storage= 3,397 cf

Plug-Flow detention time= 19.7 min calculated for 7,487 cf (99% of inflow)

Center-of-Mass det. time= 19.6 min (755.8 - 736.2)

Volume Invert Avail.Storage Storage Description

#1	19.00'	3,397 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)
19.00	421	0	0
20.00	613	517	517
21.00	830	722	1,239
22.00	1,073	952	2,190
23.00	1,340	1,207	3,397

Device Routing Invert Outlet Devices

#1	Primary	22.00'	10.0' long x 2.0' 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
			Coef. (English)	2.54	2.61	2.61	2.61	2.60	2.66	2.70	2.77	2.89	2.88	2.85	3.07	3.20 3.32
#2	Primary	21.00'	4.0" Round Culvert X 3.00 L= 10.0' RCP, sq.cut end projecting, Ke= 0.500													
			Inlet / Outlet Invert=	21.00' / 20.90'	S= 0.0100 '/'	Cc= 0.900										
			n=	0.013	Corrugated PE, smooth interior, Flow Area= 0.09 sf											
#3	Primary	19.10'	4.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500													
			Inlet / Outlet Invert=	19.10' / 19.00'	S= 0.0100 '/'	Cc= 0.900										
			n=	0.013	Corrugated PE, smooth interior, Flow Area= 0.09 sf											

Primary OutFlow Max=4.82 cfs @ 12.16 hrs HW=22.23' TW=19.43' (Dynamic Tailwater)

- 1=Broad-Crested Rectangular Weir (Weir Controls 2.88 cfs @ 1.23 fps)
- 2=Culvert (Barrel Controls 1.24 cfs @ 4.75 fps)
- 3=Culvert (Outlet Controls 0.69 cfs @ 7.95 fps)

Summary for Pond pFB1: Forebay-1

Inflow Area =	32,764 sf, 70.56% Impervious, Inflow Depth = 3.96" for 10-Year event
Inflow =	3.65 cfs @ 12.01 hrs, Volume= 10,821 cf
Outflow =	3.60 cfs @ 12.02 hrs, Volume= 10,354 cf, Atten= 1%, Lag= 0.4 min
Primary =	3.60 cfs @ 12.02 hrs, Volume= 10,354 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.27' @ 12.02 hrs Surf.Area= 324 sf Storage= 550 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 48.0 min calculated for 10,354 cf (96% of inflow)

Center-of-Mass det. time= 22.4 min (781.1 - 758.6)

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Volume		Invert	Avail.Storage	Storage Description	
#1		19.00'	628 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
19.00	7	0	0		
20.00	40	24	24		
21.00	98	69	93		
22.00	181	140	232		
23.00	289	235	467		
23.50	353	161	628		

Device	Routing	Invert	Outlet Devices	
#1	Primary	23.00'	10.0' long x 2.0' 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
			Coef. (English)	2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=3.51 cfs @ 12.02 hrs HW=23.27' TW=21.77' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Weir Controls 3.51 cfs @ 1.32 fps)

Summary for Pond pFB2: Forebay-2

Inflow Area = 29,790 sf, 90.12% Impervious, Inflow Depth = 4.43" for 10-Year event
Inflow = 3.65 cfs @ 12.01 hrs, Volume= 10,993 cf
Outflow = 3.60 cfs @ 12.01 hrs, Volume= 10,526 cf, Atten= 1%, Lag= 0.4 min
Primary = 3.60 cfs @ 12.01 hrs, Volume= 10,526 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.27' @ 12.01 hrs Surf.Area= 324 sf Storage= 550 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 47.6 min calculated for 10,517 cf (96% of inflow)

Center-of-Mass det. time= 22.4 min (770.4 - 747.9)

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Volume		Invert	Avail.Storage	Storage Description	
#1		19.00'	628 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
19.00	7	0	0		
20.00	40	24	24		
21.00	98	69	93		
22.00	181	140	232		
23.00	289	235	467		
23.50	353	161	628		

Device	Routing	Invert	Outlet Devices									
#1	Primary	23.00'	10.0' long x 2.0' 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									
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32									

Primary OutFlow Max=3.51 cfs @ 12.01 hrs HW=23.27' TW=21.77' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Weir Controls 3.51 cfs @ 1.32 fps)

Summary for Pond pFB3: Post - Forebay-3

Inflow Area = 57,147 sf, 20.65% Impervious, Inflow Depth = 2.75" for 10-Year event
Inflow = 2.86 cfs @ 12.13 hrs, Volume= 13,113 cf
Outflow = 2.77 cfs @ 12.20 hrs, Volume= 12,845 cf, Atten= 3%, Lag= 4.2 min
Primary = 2.77 cfs @ 12.20 hrs, Volume= 12,845 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.09' @ 12.21 hrs Surf.Area= 390 sf Storage= 472 cf

Flood Elev= 23.50' Surf.Area= 520 sf Storage= 1,114 cf

Plug-Flow detention time= 23.0 min calculated for 12,845 cf (98% of inflow)

Center-of-Mass det. time= 10.8 min (827.5 - 816.7)

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Volume				Storage Description	
#1	Invert	Avail.Storage	Inc.Storage	Custom Stage Data (Prismatic) Listed below (Recalc)	
	20.00'		1,114 cf		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
20.00	71	0	0		
21.00	211	141	141		
22.00	382	297	438		
23.50	520	677	1,114		

Device	Routing	Invert	Outlet Devices
#1	Primary	21.50'	8.0' long x 2.0' 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
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=2.90 cfs @ 12.20 hrs HW=22.09' TW=22.07' (Dynamic Tailwater)

1=Broad-Crested Rectangular Weir (Weir Controls 2.90 cfs @ 0.62 fps)

Summary for Pond pH2: Post - Daycare Header

Inflow Area = 5,450 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 0.62 cfs @ 12.07 hrs, Volume= 2,118 cf
Outflow = 0.62 cfs @ 12.07 hrs, Volume= 2,118 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.62 cfs @ 12.07 hrs, Volume= 2,118 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 28.40' @ 12.07 hrs
Flood Elev= 30.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	28.00'	12.0" Round Culvert L= 70.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 28.00' / 26.60' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.61 cfs @ 12.07 hrs HW=28.39' TW=27.25' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.61 cfs @ 2.13 fps)

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Summary for Pond pH3: Post - Daycare Header

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 1.76 cfs @ 12.07 hrs, Volume = 6,054 cf
Outflow = 1.76 cfs @ 12.07 hrs, Volume = 6,054 cf, Atten = 0%, Lag = 0.0 min
Primary = 1.76 cfs @ 12.07 hrs, Volume = 6,054 cf

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dt = 0.03 hrs / 2

Peak Elev = 27.26' @ 12.07 hrs

Flood Elev = 30.90'

Device	Routing	Invert	Outlet Devices

#1	Primary	26.50'	12.0" Round Culvert L = 100.0' RCP, sq cut end projecting, Ke = 0.500 Inlet / Outlet Invert = 26.50' / 25.50' S = 0.0100 '/' Cc = 0.900 n = 0.013 Corrugated PE, smooth interior, Flow Area = 0.79 sf

Primary OutFlow Max = 1.72 cfs @ 12.07 hrs HW = 27.25' TW = 26.30' (Dynamic Tailwater)

1=Culvert (Outlet Controls 1.72 cfs @ 3.75 fps)

Summary for Pond pH4: Post - Daycare Header

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 1.76 cfs @ 12.07 hrs, Volume = 6,054 cf
Outflow = 1.76 cfs @ 12.07 hrs, Volume = 6,054 cf, Atten = 0%, Lag = 0.0 min
Primary = 1.76 cfs @ 12.07 hrs, Volume = 6,054 cf

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dt = 0.03 hrs / 2

Peak Elev = 26.31' @ 12.07 hrs

Flood Elev = 30.75'

Device	Routing	Invert	Outlet Devices

#1	Primary	25.50'	12.0" Round Culvert L = 28.0' RCP, sq cut end projecting, Ke = 0.500 Inlet / Outlet Invert = 25.50' / 25.20' S = 0.0107 '/' Cc = 0.900 n = 0.013 Corrugated PE, smooth interior, Flow Area = 0.79 sf

Primary OutFlow Max=1.73 cfs @ 12.07 hrs HW=26.30' TW=25.88' (Dynamic Tailwater)

1=Culvert (Outlet Controls 1.73 cfs @ 3.49 fps)

Summary for Pond pH5: Post - Roof Header

Inflow Area = 3,560 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 0.40 cfs @ 12.07 hrs, Volume= 1,383 cf
Outflow = 0.40 cfs @ 12.07 hrs, Volume= 1,383 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.40 cfs @ 12.07 hrs, Volume= 1,383 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 26.41' @ 12.07 hrs

Flood Elev= 30.00'

Device Routing Invert Outlet Devices

#1 Primary 25.98' 6.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.40 cfs @ 12.07 hrs HW=26.41' TW=18.63' (Dynamic Tailwater)

1=Orifice/Grate (Orifice Controls 0.40 cfs @ 2.22 fps)

Summary for Reach pRD1: Post - Roof Drain-1

Inflow Area = 15,575 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 1.76 cfs @ 12.07 hrs, Volume= 6,053 cf
Outflow = 1.76 cfs @ 12.07 hrs, Volume= 6,053 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 4.51 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 1.52 fps, Avg. Travel Time= 0.2 min

Peak Storage= 8 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.50'

Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

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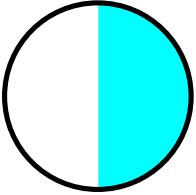
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12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 20.0' Slope= 0.0100 '/'

Inlet Invert= 25.70', Outlet Invert= 25.50'



Summary for Reach pRD2: Post - Roof Drain-2

Inflow Area = 16,270 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 1.84 cfs @ 12.07 hrs, Volume= 6,323 cf
Outflow = 1.84 cfs @ 12.07 hrs, Volume= 6,323 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 5.21 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 1.74 fps, Avg. Travel Time= 0.3 min

Peak Storage= 10 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.46'

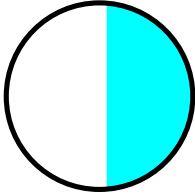
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.26 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 28.0' Slope= 0.0143 '/'

Inlet Invert= 22.50', Outlet Invert= 22.10'



Summary for Subcatchment pRF1: Post - Roof flow

Runoff = 1.76 cfs @ 12.07 hrs, Volume= 6,053 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)		CN	Description		
15,575		98	Roofs, HSG C		
15,575		98	100.00% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Roof runoff

Summary for Subcatchment pRF2: Post - Roof flow

Runoff = 1.84 cfs @ 12.07 hrs, Volume= 6,323 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)		CN	Description		
16,270		98	Roofs, HSG C		
16,270		98	100.00% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Roof runoff

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Summary for Subcatchment pRF3: Post - Roof flow

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 1,383 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)		CN	Description		
3,560	98	Roofs, HSG C			
3,560	98	100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry, Roof runoff				

Summary for Subcatchment pRF4: Post - New Daycare Roof

Runoff = 0.94 cfs @ 12.07 hrs, Volume= 3,213 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)		CN	Description		
8,267	98	Roofs, HSG C			
8,267	98	100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry,				

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Summary for Subcatchment pRF5: Post - Existing Roof

Runoff = 0.57 cfs @ 12.07 hrs, Volume= 1,950 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description			
5,017	98	Roofs, HSG C			
5,017	98	100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment pS1: Post - Northeastern Parking lot

Runoff = 1.72 cfs @ 12.07 hrs, Volume= 5,810 cf, Depth= 4.20"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description			
13,366	98	Paved parking, HSG C			
3,232	74	>75% Grass cover, Good, HSG C			
16,598	93	Weighted Average			
3,232	74	19.47% Pervious Area			
13,366	98	80.53% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Parking Runoff to CB

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Summary for Subcatchment pS10: Post - Flow to Area Drain

Runoff = 0.80 cfs @ 12.23 hrs, Volume= 3,665 cf, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG C
0	98	Paved parking, HSG C
0	89	Gravel path
9,566	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
4,744	98	Roofs, HSG C
14,310	82	Weighted Average
9,566	74	66.85% Pervious Area
4,744	98	33.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.7	76	0.0600	1.71		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
17.0	126	Total			

Summary for Subcatchment pS11: Post - Flow to playground catch basin

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 346 cf, Depth= 3.72"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

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Area (sf)	CN	Description
128	98	Unconnected pavement, HSG C
441	74	>75% Grass cover, Good, HSG C
547	98	Rubber play surface
1,116	89	Weighted Average
441	74	39.52% Pervious Area
675	98	60.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to CB5

Summary for Subcatchment pS12: Post - Flow to Swale-5

Runoff = 0.75 cfs @ 12.07 hrs, Volume= 2,530 cf, Depth= 4.00"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
2,114	74	>75% Grass cover, Good, HSG C
558	98	Proposed Walkway
128	98	Unconnected pavement, HSG C
4,788	98	Paved parking, HSG C
7,588	91	Weighted Average
2,114	74	27.86% Pervious Area
5,474	98	72.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

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Summary for Subcatchment pS13: Post - Northeastern area flowing to proposed CB5

Runoff = 2.59 cfs @ 12.26 hrs, Volume= 11,637 cf, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
2,021	98	Roofs, HSG C
52,854	74	>75% Grass cover, Good, HSG C
93	98	Paved parking, HSG C
3,952	70	Woods, Good, HSG C
58,920	75	Weighted Average
56,806	74	96.41% Pervious Area
2,114	98	3.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	50	0.0200	0.07		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.7	70	0.0500	1.57		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
0.1	24	0.3300	4.02		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
4.9	206	0.0100	0.70		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.1	95	0.1900	18.24	72.98	Channel Flow, EF Area= 4.0 sf Perim= 8.2' r= 0.49' n= 0.022 Earth, clean & straight
18.2	445	Total			

Summary for Subcatchment pS14: Post - Parking area-4 runoff

Runoff = 2.37 cfs @ 12.07 hrs, Volume= 7,670 cf, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
16,413	74	>75% Grass cover, Good, HSG C
10,797	98	Paved parking, HSG C
2,515	70	Woods, Good, HSG C
29,725	82	Weighted Average
18,928	73	63.68% Pervious Area
10,797	98	36.32% Impervious Area

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

Summary for Subcatchment pS15: Post - Flow to entrance area drain

Runoff = 0.12 cfs @ 12.07 hrs, Volume= 406 cf, Depth= 3.49"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
686	74	>75% Grass cover, Good, HSG C
709	98	Paved parking, HSG C
1,395	86	Weighted Average
686	74	49.18% Pervious Area
709	98	50.82% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to area drain

Summary for Subcatchment pS16: Post - Flow to Sand Filter-2

Runoff = 0.66 cfs @ 12.07 hrs, Volume= 2,052 cf, Depth= 2.94"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description

*

1,543	89	Gravel
5,249	74	>75% Grass cover, Good, HSG C
1,582	98	Paved parking, HSG C
8,374	81	Weighted Average
6,792	77	81.11% Pervious Area
1,582	98	18.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Runoff into Basin

Summary for Subcatchment pS17: Post - Area in front of bldg flowing to existing swale-3

Runoff = 0.51 cfs @ 12.09 hrs, Volume= 1,688 cf, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

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Area (sf)		CN	Description		
	6,221	74	>75% Grass cover, Good, HSG C		
*	172	98	Existing Wall		
*	1,125	98	Existing Walk		
	7,518	78	Weighted Average		
	6,221	74	82.75% Pervious Area		
	1,297	98	17.25% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	38	0.0800	0.11		Sheet Flow, AB
					Grass: Bermuda n= 0.410 P2= 3.30"
0.6	135	0.0400	4.06		Shallow Concentrated Flow, BC
					Paved Kv= 20.3 fps

Summary for Subcatchment pS18: Post - Flow to Sand Filter-1

Runoff = 0.46 cfs @ 12.08 hrs, Volume= 1,399 cf, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)					CN	Description
	4,170	74	>75% Grass cover, Good, HSG C			
*	2,013	89	Gravel			
	6,183	79	Weighted Average			
	6,183	79	100.00% Pervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
5.0					Direct Entry, Flow into Basin	

Summary for Subcatchment pS2: Post - Flow to CB3

Runoff = 0.73 cfs @ 12.08 hrs, Volume= 2,294 cf, Depth= 2.73"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

		Area (sf)	CN	Description	
*		8,190	74	>75% Grass cover, Good, HSG C	
		1,150	98	Paved parking, HSG C	
		741	98	Walkway	
		10,081	79	Weighted Average	
		8,190	74	81.24% Pervious Area	
		1,891	98	18.76% Impervious Area	
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment pS20: Post - Flow along South side to Sand Filter-1

Runoff = 3.06 cfs @ 12.18 hrs, Volume= 11,935 cf, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

		Area (sf)	CN	Description
*		53,656	74	>75% Grass cover, Good, HSG C
		4,089	70	Woods, Good, HSG C
		207	98	Paved parking, HSG C
		2,097	98	Pavillion
*		116	98	Conc Pavillion Pad
		60,165	75	Weighted Average
		57,745	74	95.98% Pervious Area
		2,420	98	4.02% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, AB
					Grass: Bermuda n= 0.410 P2= 3.30"
0.4	50	0.1000	2.21		Shallow Concentrated Flow, BC
					Short Grass Pasture Kv= 7.0 fps
3.5	147	0.0100	0.70		Shallow Concentrated Flow, CD
					Short Grass Pasture Kv= 7.0 fps
0.2	40	0.1500	2.71		Shallow Concentrated Flow, DE
					Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0600	1.71		Shallow Concentrated Flow, EF
					Short Grass Pasture Kv= 7.0 fps
0.2	31	0.1900	3.05		Shallow Concentrated Flow, FG
					Short Grass Pasture Kv= 7.0 fps
0.2	59	0.0170	5.53	55.30	Channel Flow, GH
					Area= 10.0 sf Perim= 20.1' r= 0.50'
					n= 0.022 Earth, clean & straight
0.2	143	0.0700	11.22	112.21	Channel Flow, HI
					Area= 10.0 sf Perim= 20.1' r= 0.50'
					n= 0.022 Earth, clean & straight
12.5	552	Total			

Summary for Subcatchment pS21: Post - Surface Runoff to Swale

Runoff = 0.48 cfs @ 12.12 hrs, Volume= 1,612 cf, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

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Area (sf)	CN	Description
8,027	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
0	98	Paved parking, HSG C
10	98	Proposed Wall
206	98	Proposed Walkway
8,243	75	Weighted Average
8,027	74	97.38% Pervious Area
216	98	2.62% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description
4.2	38	0.1700 0.15 Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
3.7	19	0.0556 0.09 Sheet Flow, BC Woods: Light underbrush n= 0.400 P2= 3.30"
7.9	57	Total

Summary for Subcatchment pS22: Post - Daycare Walkway Runoff

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 724 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
0	98	Paved parking, HSG C
1,862	98	Sidewalk
0	98	Curbing
0	98	Roofs, HSG C
1,862	98	Weighted Average
1,862	98	100.00% Impervious Area

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Type III 24-hr 10-Year Rainfall=4.90"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment pS23: Post - Daycare Plaza Runoff

Runoff = 0.05 cfs @ 12.07 hrs, Volume= 168 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
433	98	Unconnected pavement, HSG C
433	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment pS24: Post - Runoff to Forebay

Runoff = 0.35 cfs @ 12.08 hrs, Volume= 1,081 cf, Depth= 2.51"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
4,665	74	>75% Grass cover, Good, HSG C
76	98	Proposed Wall
420	98	Proposed Walkway
5,161	76	Weighted Average
4,665	74	90.39% Pervious Area
496	98	9.61% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment pS25: Post - Parking Lot Runoff to Forebay

Runoff = 0.33 cfs @ 12.07 hrs, Volume= 1,144 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description

2,577	98	Paved parking, HSG C

291	98	Proposed Walkway

75	98	Curbing

2,943	98	Weighted Average

2,943	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment pS26: Post - Flow to CB3

Runoff = 0.31 cfs @ 12.07 hrs, Volume= 1,060 cf, Depth= 4.16"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

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Area (sf)	CN	Description
968	98	Paved parking, HSG C
* 1,392	98	Proposed Walkway
643	74	>75% Grass cover, Good, HSG C
* 52	98	Curbing
3,055	93	Weighted Average
643	74	21.05% Pervious Area
2,412	98	78.95% Impervious Area

Tc Length Slope Velocity Capacity Description
(min) (feet) (ft/ft) (ft/sec) (cfs)

5.0

Direct Entry,

Summary for Subcatchment pS27: Post - Area in front of bldg flowing to existing swale-4

Runoff = 0.52 cfs @ 12.08 hrs, Volume= 1,706 cf, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
3,609	74	>75% Grass cover, Good, HSG C
* 241	98	Existing Walk
2,380	98	Roofs, HSG C
0	98	Paved parking, HSG C
* 0	89	Gravel Area
6,230	84	Weighted Average
3,609	74	57.93% Pervious Area
2,621	98	42.07% Impervious Area

Tc Length Slope Velocity Capacity Description
(min) (feet) (ft/ft) (ft/sec) (cfs)

5.4 50 0.1600 0.15

Sheet Flow, AB

Grass: Bermuda n= 0.410 P2= 3.30"

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Summary for Subcatchment pS3: Post - Norther half or parking area-2

Runoff = 1.55 cfs @ 12.01 hrs, Volume= 4,649 cf, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)		CN	Description		
1,657	74	>75% Grass cover, Good, HSG C			
11,151	98	Paved parking, HSG C			
12,808	95	Weighted Average			
1,657	74	12.94% Pervious Area			
11,151	98	87.06% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB
					Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC
					Paved Kv= 20.3 fps

Summary for Subcatchment pS4: Post - Southern half of parking area-2

Runoff = 2.93 cfs @ 12.01 hrs, Volume= 8,784 cf, Depth= 4.31"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)		CN	Description
3,603	74	>75% Grass cover, Good, HSG C	
20,838	98	Paved parking, HSG C	
24,441	94	Weighted Average	
3,603	74	14.74% Pervious Area	
20,838	98	85.26% Impervious Area	

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment pS5: Post - Norther half of parking area-3

Runoff = 3.65 cfs @ 12.01 hrs, Volume= 10,821 cf, Depth= 3.96"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
9,645	74	>75% Grass cover, Good, HSG C
23,119	98	Paved parking, HSG C
32,764	91	Weighted Average
9,645	74	29.44% Pervious Area
23,119	98	70.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

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Summary for Subcatchment pS6: Post - Southern half of parking area-3

Runoff = 3.65 cfs @ 12.01 hrs, Volume= 10,993 cf, Depth= 4.43"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
2,944	74	>75% Grass cover, Good, HSG C
26,846	98	Paved parking, HSG C
29,790	96	Weighted Average
2,944	74	9.88% Pervious Area
26,846	98	90.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment pS7: Post - Flow to CB4

Runoff = 0.30 cfs @ 12.07 hrs, Volume= 1,042 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
2,681	98	Paved parking, HSG C
2,681	98	100.00% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,**Summary for Subcatchment pS9: Post - Flow to Area Drain**

Runoff = 1.15 cfs @ 12.19 hrs, Volume= 4,658 cf, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
759	98	Unconnected pavement, HSG C
230	98	Paved parking, HSG C
0	89	Gravel path
20,621	74	>75% Grass cover, Good, HSG C
1,825	70	Woods, Good, HSG C
0	98	Roofs, HSG C
23,435	75	Weighted Average
22,446	74	95.78% Pervious Area
989	98	4.22% Impervious Area

*

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

9.4	50	0.0400	0.09		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.5	64	0.1100	2.32		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
3.6	152	0.0100	0.70		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
0.4	72	0.1700	2.89		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.0	29	0.1000	13.41	134.11	Channel Flow, EF Area= 10.0 sf Perim= 20.1' r= 0.50' n= 0.022 Earth, clean & straight

13.9 367 Total

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Summary for Pond pSF1: Post - Sand Filter-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 3.14" for 10-Year event
 Inflow = 12.72 cfs @ 12.02 hrs, Volume= 45,761 cf
 Outflow = 10.45 cfs @ 12.08 hrs, Volume= 45,641 cf, Atten= 18%, Lag= 3.3 min
 Primary = 10.45 cfs @ 12.08 hrs, Volume= 45,641 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 21.87' @ 12.08 hrs Surf.Area= 8,960 sf Storage= 7,314 cf

Flood Elev= 22.20' Surf.Area= 9,493 sf Storage= 8,980 cf

Plug-Flow detention time= 34.9 min calculated for 45,641 cf (100% of inflow)

Center-of-Mass det. time= 33.2 min (825.8 - 792.6)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	5,566 cf	Open Storage (Prismatic) Listed below (Recalc)
#2	18.50'	3,390 cf	Sand Filter (Prismatic) Listed below (Recalc)
#3	18.58'	24 cf	10,295 cf Overall - 24 cf Embedded = 10,271 cf x 33.0% Voids
			4.0" Round Pipe Storage Inside #2
			L= 271.0'
		8,980 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	4,118	0	0
22.00	4,950	4,534	4,534
22.20	5,375	1,032	5,566
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	4,118	0	0
19.00	4,118	2,059	2,059
20.00	4,118	4,118	6,177
21.00	4,118	4,118	10,295

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Device Routing Invert Outlet Devices

#1	Primary	21.20'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 0.00														
			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	
			Coef. (English)	2.54	2.61	2.61	2.60	2.66	2.70	2.77	2.89	2.88	2.85	3.07	3.20	3.32	
#2	Primary	21.20'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28)														
			Head (feet)	0.00	1.00												
			Width (feet)	4.00	8.00												
#3	Device 4	18.50'	8.270 in/hr Exfiltration over Surface area														
#4	Primary	18.58'	4.0" Round Culvert X 2.00 L= 15.0' RCP, sq.cut end projecting, Ke= 0.500														
			Inlet / Outlet Invert=	18.58'	18.40'	S= 0.0120 '/'	Cc= 0.900										
			n=	0.013	Corrugated PE, smooth interior, Flow Area= 0.09 sf												

Primary OutFlow Max=10.37 cfs @ 12.08 hrs HW=21.87' TW=18.44' (Dynamic Tailwater)

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

2=Custom Weir/Orifice (Weir Controls 9.05 cfs @ 2.54 fps)

4=Culvert (Barrel Controls 1.32 cfs @ 7.55 fps)

3=Exfiltration (Passes 1.32 cfs of 1.71 cfs potential flow)

Summary for Pond pSF2: Post - Sand Filter-2

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth = 3.82" for 10-Year event
Inflow = 7.05 cfs @ 12.07 hrs, Volume= 23,545 cf
Outflow = 6.77 cfs @ 12.10 hrs, Volume= 23,535 cf, Atten= 4%, Lag= 1.4 min
Primary = 6.31 cfs @ 12.10 hrs, Volume= 7,538 cf
Secondary = 0.46 cfs @ 12.09 hrs, Volume= 15,996 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.54' @ 12.10 hrs Surf.Area= 3,592 sf Storage= 3,787 cf

Flood Elev= 23.00' Surf.Area= 3,746 sf Storage= 4,765 cf

Plug-Flow detention time= 49.1 min calculated for 23,535 cf (100% of inflow)

Center-of-Mass det. time= 48.7 min (815.4 - 766.7)

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Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	1,020 cf	Sand Filter (Prismatic) Listed below (Recalc) 3,102 cf Overall - 11 cf Embedded = 3,091 cf x 33.0% Voids
#2	21.00'	3,734 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#3	19.00'	11 cf	4.0" Round Pipe Storage Inside #1 L= 123.0'
		4,765 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,551	0	0
20.00	1,551	1,551	1,551
21.00	1,551	1,551	3,102

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	1,551	0	0
22.00	1,861	1,706	1,706
23.00	2,195	2,028	3,734

Device	Routing	Invert	Outlet Devices
#1	Primary	22.15'	10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Device 3	19.00'	8.270 in/hr Exfiltration over Surface area
#3	Secondary	19.00'	4.0" Round Culvert L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.00' / 18.75' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=6.23 cfs @ 12.10 hrs HW=22.54' TW=21.67' (Dynamic Tailwater)↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 6.23 cfs @ 1.62 fps)**Secondary OutFlow** Max=0.46 cfs @ 12.09 hrs HW=22.54' TW=19.03' (Dynamic Tailwater)↑ **3=Culvert** (Barrel Controls 0.46 cfs @ 5.27 fps)↑ **2=Exfiltration** (Passes 0.46 cfs of 0.69 cfs potential flow)

Summary for Pond pSF3: Post - Sand Filter-3

Inflow Area = 134,007 sf, 22.74% Impervious, Inflow Depth = 2.25" for 10-Year event
 Inflow = 5.87 cfs @ 12.18 hrs, Volume= 25,143 cf
 Outflow = 5.75 cfs @ 12.22 hrs, Volume= 25,111 cf, Atten= 2%, Lag= 2.1 min
 Primary = 5.75 cfs @ 12.22 hrs, Volume= 25,111 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.07' @ 12.22 hrs Surf.Area= 2,984 sf Storage= 3,149 cf

Flood Elev= 23.50' Surf.Area= 3,390 sf Storage= 5,030 cf

Plug-Flow detention time= 29.2 min calculated for 25,090 cf (100% of inflow)

Center-of-Mass det. time= 28.6 min (859.9 - 831.4)

Volume	Invert	Avail.Storage	Storage Description
#1	20.50'	4,063 cf	Open Storage (Prismatic) Listed below (Recalc)
#2	18.00'	953 cf	Sand Filter (Prismatic) Listed below (Recalc)
#3	18.08'	13 cf	2,903 cf Overall - 13 cf Embedded = 2,889 cf x 33.0% Voids
			4.0" Round Pipe Storage Inside #2
			L= 153.0'
		5,030 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
20.50	1,161	0	0
21.50	1,365	1,263	1,263
22.00	1,792	789	2,052
23.00	2,229	2,011	4,063

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.00	1,161	0	0
20.00	1,161	2,322	2,322
20.50	1,161	581	2,903

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Device	Routing	Invert	Outlet Devices
#1	Device 2	18.00'	8.270 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	18.08'	4.0" Round Culvert X 2.00 L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.08' / 17.85' S= 0.0092 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Primary	20.75'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 1.80 Width (feet) 0.25 1.50
#4	Primary	21.85'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 1.00 Width (feet) 6.00 8.00

Primary OutFlow Max=5.73 cfs @ 12.22 hrs HW=22.07' TW=18.19' (Dynamic Tailwater)

—2=Culvert (Passes 0.57 cfs of 1.25 cfs potential flow)

—1=Exfiltration (Exfiltration Controls 0.57 cfs)

—3=Custom Weir/Orifice (Weir Controls 3.06 cfs @ 3.28 fps)

—4=Custom Weir/Orifice (Weir Controls 2.09 cfs @ 1.53 fps)

Summary for Pond pSW1: Pre - Swale-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 3.21" for 10-Year event
Inflow = 10.44 cfs @ 12.08 hrs, Volume= 46,740 cf
Outflow = 10.42 cfs @ 12.09 hrs, Volume= 46,740 cf, Atten= 0%, Lag= 0.9 min
Primary = 10.42 cfs @ 12.09 hrs, Volume= 46,740 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 18.45' @ 12.09 hrs Surf.Area= 1,641 sf Storage= 548 cf

Flood Elev= 19.40' Surf.Area= 3,367 sf Storage= 2,947 cf

Plug-Flow detention time= 1.5 min calculated for 46,740 cf (100% of inflow)

Center-of-Mass det. time= 1.4 min (825.3 - 823.8)

Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	2,947 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)
18.00	814	0	0
19.00	2,666	1,740	1,740
19.40	3,367	1,207	2,947

Device Routing Invert Outlet Devices

#1 Primary 18.00' **Custom Weir/Orifice, Cv= 2.62 (C= 3.28)**

Head (feet) 0.00 1.00 1.40

Width (feet) 9.34 16.70 21.40

Primary OutFlow Max=10.38 cfs @ 12.09 hrs HW=18.45' TW=0.00' (Dynamic Tailwater)

1=Custom Weir/Orifice (Weir Controls 10.38 cfs @ 2.12 fps)

Summary for Pond pSW2: Pre - Swale-2

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth = 3.81" for 10-Year event
Inflow = 5.65 cfs @ 12.16 hrs, Volume= 23,490 cf
Outflow = 5.18 cfs @ 12.18 hrs, Volume= 23,490 cf, Atten= 8%, Lag= 1.2 min
Primary = 4.28 cfs @ 12.18 hrs, Volume= 22,390 cf
Secondary = 0.90 cfs @ 12.18 hrs, Volume= 1,099 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.52' @ 12.18 hrs Surf.Area= 446 sf Storage= 183 cf

Flood Elev= 20.70' Surf.Area= 825 sf Storage= 945 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.2 min (822.0 - 821.8)

Volume Invert Avail.Storage Storage Description

#1 19.00' 945 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)
19.00	263	0	0
20.00	617	440	440
20.70	825	505	945

Device	Routing	Invert	Outlet Devices
#1	Primary	18.19'	18.0" Round Culvert L= 24.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.19' / 18.09' S= 0.0042 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	19.03'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.68' / 19.03' S= -0.0233 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.27 cfs @ 12.18 hrs HW=19.51' TW=19.16' (Dynamic Tailwater)

↑ **1=Culvert** (Outlet Controls 4.27 cfs @ 3.46 fps)

Secondary OutFlow Max=0.90 cfs @ 12.18 hrs HW=19.52' TW=18.42' (Dynamic Tailwater)

↑ **2=Culvert** (Inlet Controls 0.90 cfs @ 2.38 fps)

Summary for Pond pSW3: Pre - Swale-3

Inflow Area = 81,538 sf, 59.99% Impervious, Inflow Depth = 3.54" for 10-Year event
Inflow = 4.64 cfs @ 12.18 hrs, Volume= 24,079 cf
Outflow = 2.57 cfs @ 12.31 hrs, Volume= 24,078 cf, Atten= 45%, Lag= 7.9 min
Primary = 2.57 cfs @ 12.31 hrs, Volume= 24,078 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.37' @ 12.31 hrs Surf.Area= 2,207 sf Storage= 1,255 cf

Flood Elev= 20.00' Surf.Area= 3,014 sf Storage= 2,902 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 2.2 min (827.2 - 825.0)

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Volume	Invert	Avail.Storage	Storage Description
#1	18.50'	2,902 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	374	0	0
19.00	1,735	527	527
20.00	3,014	2,375	2,902

Device Routing Invert Outlet Devices

#1 Primary 18.08' **12.0" Round Culvert** L= 15.0' RCP, sq.cut end projecting, Ke= 0.500
Inlet / Outlet Invert= 18.08' / 18.01' S= 0.0047 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.57 cfs @ 12.31 hrs HW=19.37' TW=18.91' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.57 cfs @ 3.27 fps)

Summary for Pond pSW4: Pre - Swale-4

Inflow Area = 91,328 sf, 60.32% Impervious, Inflow Depth > 3.57" for 10-Year event
Inflow = 2.93 cfs @ 12.27 hrs, Volume= 27,167 cf
Outflow = 2.90 cfs @ 12.32 hrs, Volume= 27,167 cf, Atten= 1%, Lag= 3.1 min
Primary = 2.90 cfs @ 12.32 hrs, Volume= 27,167 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 18.91' @ 12.32 hrs Surf.Area= 775 sf Storage= 364 cf
Flood Elev= 19.80' Surf.Area= 1,554 sf Storage= 1,361 cf

Plug-Flow detention time= 1.9 min calculated for 27,145 cf (100% of inflow)
Center-of-Mass det. time= 1.9 min (822.3 - 820.4)

Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	1,361 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)
18.00	27	0	0
19.00	851	439	439
19.50	1,190	510	949
19.80	1,554	412	1,361

Device Routing Invert Outlet Devices

#1	Primary	17.99'	18.0" Round Culvert L= 21.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 17.99' / 17.82' S= 0.0081 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.90 cfs @ 12.32 hrs HW=18.91' TW=18.18' (Dynamic Tailwater)

1-1=Culvert (Barrel Controls 2.90 cfs @ 3.67 fps)

Summary for Reach pSW5: Pre - Swale-5

Inflow Area =	232,923 sf, 39.09% Impervious, Inflow Depth = 2.82" for 10-Year event
Inflow =	8.79 cfs @ 12.23 hrs, Volume= 54,808 cf
Outflow =	8.78 cfs @ 12.24 hrs, Volume= 54,808 cf, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 2.25 fps, Min. Travel Time= 1.1 min

Avg. Velocity = 0.57 fps, Avg. Travel Time= 4.2 min

Peak Storage= 567 cf @ 12.24 hrs

Average Depth at Peak Storage= 0.37'

Bank-Full Depth= 1.50' Flow Area= 22.4 sf, Capacity= 110.11 cfs

Custom cross-section, Length= 145.0' Slope= 0.0050 '/'

Constant n= 0.022 Earth, clean & straight

Inlet Invert= 17.82', Outlet Invert= 17.10'

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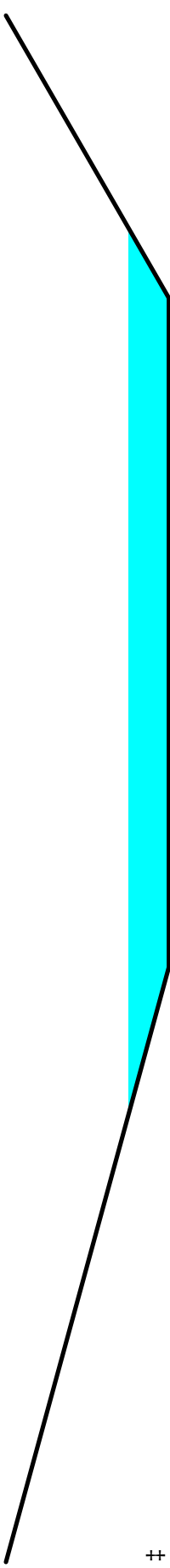
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Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-12.50	19.50	0.00
-4.50	18.00	1.50
4.50	18.00	1.50
8.30	19.50	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	9.0	0	0.00
1.50	22.4	21.2	3,241	110.11

Summary for Pond STC1: Post - Stormceptor-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 2.50" for 10-Year event
Inflow = 1.88 cfs @ 12.01 hrs, Volume= 9,878 cf
Outflow = 1.88 cfs @ 12.01 hrs, Volume= 9,878 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.88 cfs @ 12.01 hrs, Volume= 9,878 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 30.30' @ 12.01 hrs
Flood Elev= 33.20'

Device Routing Invert Outlet Devices

#1	Primary	29.40'	12.0" Round Culvert L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.40' / 29.35' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=1.83 cfs @ 12.01 hrs HW=30.29' TW=29.90' (Dynamic Tailwater)

└─**1=Culvert** (Barrel Controls 1.83 cfs @ 3.30 fps)

Summary for Pond STC2: Post - Stormceptor-2

Inflow Area = 32,406 sf, 41.59% Impervious, Inflow Depth = 3.23" for 10-Year event
Inflow = 2.67 cfs @ 12.07 hrs, Volume= 8,711 cf
Outflow = 2.67 cfs @ 12.07 hrs, Volume= 8,711 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.67 cfs @ 12.07 hrs, Volume= 8,711 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.10' @ 12.07 hrs

Flood Elev= 27.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	23.00'	12.0" Round Culvert L= 5.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.00' / 22.90' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.62 cfs @ 12.07 hrs HW=24.08' TW=23.05' (Dynamic Tailwater)

└─**1=Culvert** (Barrel Controls 2.62 cfs @ 3.84 fps)

Summary for Reach SW1: Post - Swale-1

Inflow Area = 8,243 sf, 2.62% Impervious, Inflow Depth = 2.35" for 10-Year event
Inflow = 0.48 cfs @ 12.12 hrs, Volume= 1,612 cf
Outflow = 0.48 cfs @ 12.12 hrs, Volume= 1,612 cf, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 2.97 fps, Min. Travel Time= 0.6 min

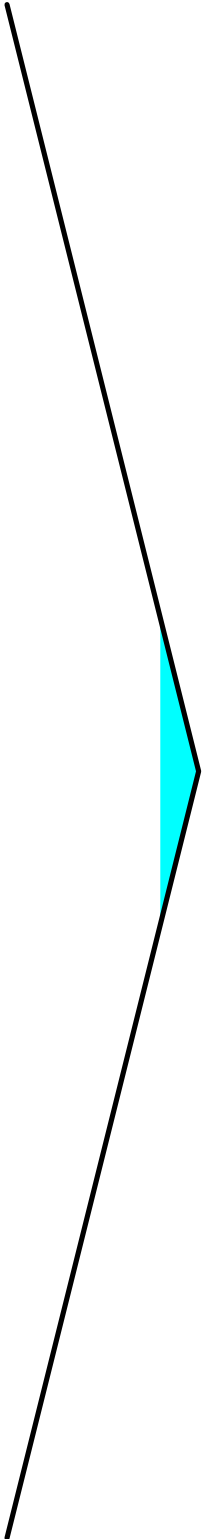
Avg. Velocity = 1.02 fps, Avg. Travel Time= 1.6 min

Peak Storage= 16 cf @ 12.12 hrs

Average Depth at Peak Storage= 0.20'

Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 34.60 cfs

Custom cross-section, Length= 100.0' Slope= 0.0800 '/'
Constant n= 0.030 Short grass
Inlet Invert= 37.00', Outlet Invert= 29.00'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-4.00	1.00	0.00
0.00	0.00	1.00
4.00	1.00	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
1.00	4.0	8.2	400	34.60

Summary for Reach SW2: Post - Swale-2

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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= 0.75' Flow Area= 3.0 sf, Capacity= 16.07 cfs

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Custom cross-section, Length= 80.0' Slope= 0.0313 '/
Constant n= 0.030 Short grass
Inlet Invert= 29.50', Outlet Invert= 27.00'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-3.00	0.75	0.00
-1.00	0.00	0.75
1.00	0.00	0.75
3.00	0.75	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	2.0	0	0.00
0.75	3.0	6.3	240	16.07

Summary for Pond US1: Post - Underground Recharge System-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 2.50" for 10-Year event
Inflow = 1.88 cfs @ 12.01 hrs, Volume= 9,878 cf
Outflow = 1.69 cfs @ 12.09 hrs, Volume= 9,880 cf, Atten= 10%, Lag= 4.7 min
Discarded = 0.04 cfs @ 5.58 hrs, Volume= 3,953 cf
Primary = 1.65 cfs @ 12.09 hrs, Volume= 5,995 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 29.98' @ 12.06 hrs Surf.Area= 1,736 sf Storage= 1,381 cf
Flood Elev= 30.90' Surf.Area= 1,736 sf Storage= 1,991 cf

Plug-Flow detention time= 97.4 min calculated for 9,871 cf (100% of inflow)
Center-of-Mass det. time= 97.7 min (869.2 - 771.5)

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Volume	Invert	Avail. Storage	Storage Description
#1A	28.57'	1,014 cf	21.50'W x 80.76'L x 2.33'H Field A 4,051 cf Overall - 978 cf Embedded = 3,073 cf x 33.0% Voids
#2A	29.07'	978 cf	ADS_StormTech SC-310 x 66 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 6 rows
		1,992 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.57'	1.000 in/hr Exfiltration over Surface area
#2	Primary	29.36'	8.0" Round Culvert X 3.00 L= 2.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.36' / 29.30' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.04 cfs @ 5.58 hrs HW=28.59' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=1.59 cfs @ 12.09 hrs HW=29.96' TW=29.85' (Dynamic Tailwater)

↑ **2=Culvert** (Inlet Controls 1.59 cfs @ 1.60 fps)

Summary for Pond US2: Post - Underground Recharge System-2

Inflow Area =	15,579 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow =	1.76 cfs @ 12.07 hrs, Volume= 6,054 cf
Outflow =	0.12 cfs @ 13.26 hrs, Volume= 6,054 cf, Atten= 93%, Lag= 71.4 min
Discarded =	0.12 cfs @ 11.22 hrs, Volume= 6,037 cf
Primary =	0.01 cfs @ 13.26 hrs, Volume= 17 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.75' @ 13.26 hrs Surf.Area= 2,064 sf Storage= 2,338 cf

Flood Elev= 25.50' Surf.Area= 2,064 sf Storage= 3,331 cf

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Plug-Flow detention time= 151.1 min calculated for 6,049 cf (100% of inflow)
Center-of-Mass det. time= 151.0 min (898.4 - 747.4)

Volume	Invert	Avail. Storage	Storage Description
#1A	23.00'	1,529 cf	34.75'W x 59.40'L x 3.50'H Field A 7,224 cf Overall - 2,592 cf Embedded = 4,632 cf x 33.0% Voids
#2A	23.50'	2,592 cf	ADS_StormTech SC-740 x 56 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
		4,121 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	23.00'	2.410 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	24.71'	10.0" Round Culvert L= 37.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.71' / 24.25' S= 0.0124 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.12 cfs @ 11.22 hrs HW=23.04' (Free Discharge)

└─**1=Exfiltration** (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=0.01 cfs @ 13.26 hrs HW=24.75' TW=21.23' (Dynamic Tailwater)

└─**2=Culvert** (Barrel Controls 0.01 cfs @ 0.92 fps)

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Time span=0.00-36.00 hrs, dt=0.03 hrs, 1201 points x 2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond CB1: CB-1

Peak Elev=39.79' Inflow=2.18 cfs 7,410 cf
Outflow=2.18 cfs 7,410 cf

Pond CB4: Post - CB-4

Peak Elev=26.24' Inflow=0.14 cfs 450 cf
4.0" Round Culvert n=0.013 L=14.3' S=-0.0392 ' Outflow=0.14 cfs 450 cf

Pond CO: Post - Cleanout

Peak Elev=22.53' Inflow=0.40 cfs 1,312 cf
8.0" Round Culvert n=0.013 L=74.0' S=0.0101 ' Outflow=0.40 cfs 1,312 cf

Pond DMH1: Post - DMH1

Peak Elev=32.85' Inflow=4.42 cfs 14,315 cf
Primary=3.33 cfs 12,846 cf Secondary=1.09 cfs 1,469 cf Outflow=4.42 cfs 14,315 cf

Pond DMH10: Post - DMH-10

Peak Elev=26.03' Inflow=2.20 cfs 7,610 cf
12.0" Round Culvert n=0.013 L=21.0' S=0.0119 ' Outflow=2.20 cfs 7,610 cf

Pond DMH11: Post - DMH-11

Peak Elev=25.58' Inflow=2.20 cfs 7,610 cf
12.0" Round Culvert n=0.013 L=3.0' S=0.0200 ' Outflow=2.20 cfs 7,610 cf

Pond DMH2: Post- DMH2

Peak Elev=30.82' Inflow=5.27 cfs 18,744 cf
Primary=2.30 cfs 12,085 cf Secondary=2.98 cfs 6,659 cf Outflow=5.27 cfs 18,744 cf

Pond DMH3: Post - DMH3

Peak Elev=27.61' Inflow=7.43 cfs 32,732 cf
18.0" Round Culvert n=0.013 L=105.0' S=0.0200 ' Outflow=7.43 cfs 32,732 cf

Pond DMH4: Post - DMH4

Peak Elev=25.31' Inflow=7.43 cfs 32,732 cf
18.0" Round Culvert n=0.013 L=75.0' S=0.0273 ' Outflow=7.43 cfs 32,732 cf

Pond DMH5: Post - DMH5

Peak Elev=23.57' Inflow=3.73 cfs 12,120 cf
12.0" Round Culvert n=0.013 L=3.5' S=0.0714 ' Outflow=3.73 cfs 12,120 cf

Pond DMH6: Post - DMH-6

Peak Elev=34.19' Inflow=2.31 cfs 11,329 cf
10.0" Round Culvert n=0.013 L=55.0' S=0.0182 ' Outflow=2.31 cfs 11,329 cf

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Pond DMH7: Post - DMH-7

10.0" Round Culvert n=0.013 L=30.0' S=0.0200 '/' Inflow=2.31 cfs 11,329 cf
Peak Elev=32.09' Outflow=2.31 cfs 11,329 cf

Pond DMH8: Post - DMH-8

10.0" Round Culvert n=0.013 L=30.0' S=0.0200 '/' Inflow=2.31 cfs 11,329 cf
Peak Elev=27.74' Outflow=2.31 cfs 11,329 cf

Pond DMH9: Post - DMH-9

12.0" Round Culvert n=0.013 L=85.0' S=0.0118 '/' Inflow=3.21 cfs 13,748 cf
Peak Elev=24.72' Outflow=3.21 cfs 13,748 cf

Reach OP1: Outlet pipe-1

12.0" Round Pipe n=0.013 L=14.0' S=0.0250 '/' Avg. Flow Depth=0.42' Max Vel=6.57 fps Inflow=2.15 cfs 8,094 cf
Capacity=5.63 cfs Outflow=2.03 cfs 8,095 cf

Pond pA1: Post - Analysis Point-1

Inflow=2.18 cfs 7,410 cf
Primary=2.18 cfs 7,410 cf

Pond pA2: Pre - Analysis Point-2

Inflow=15.43 cfs 64,655 cf
Primary=15.43 cfs 64,655 cf

Pond pA3: Post - Analysis Point-3

Inflow=12.24 cfs 72,753 cf
Primary=12.24 cfs 72,753 cf

Pond pAD: Post - Area drain at main entrance

12.0" Round Culvert n=0.013 L=69.0' S=0.0109 '/' Peak Elev=24.20' Inflow=0.16 cfs 533 cf
Outflow=0.16 cfs 533 cf

Pond pAD2: Area Drain

8.0" Round Culvert n=0.013 L=10.0' S=0.0100 '/' Peak Elev=28.65' Inflow=0.06 cfs 212 cf
Outflow=0.06 cfs 212 cf

Pond pCB1: Post - CB1

12.0" Round Culvert n=0.012 L=140.0' S=0.0143 '/' Peak Elev=32.77' Inflow=1.95 cfs 5,898 cf
Outflow=1.95 cfs 5,898 cf

Pond pCB2: Post - CB2

15.0" Round Culvert n=0.013 L=10.0' S=0.0200 '/' Peak Elev=33.32' Inflow=3.70 cfs 11,160 cf
Outflow=3.70 cfs 11,160 cf

Pond pCB3: Post - CB3

8.0" Round Culvert n=0.013 L=44.0' S=0.0318 '/' Peak Elev=35.19' Inflow=1.01 cfs 3,155 cf
Outflow=1.01 cfs 3,155 cf

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Pond pCB4: Post - CB4

8.0" Round Culvert n=0.013 L=55.0' S=0.0227 '/' Inflow=0.38 cfs 1,310 cf
Outflow=0.38 cfs 1,310 cf

Pond pCB5: Post -CB5

12.0" Round Culvert n=0.013 L=158.0' S=0.0100 '/' Inflow=3.70 cfs 16,508 cf
Outflow=3.70 cfs 16,508 cf

Pond pCB6: Post - CB-6

Primary=2.31 cfs 11,329 cf Storage=109 cf Inflow=2.70 cfs 11,521 cf
Secondary=0.38 cfs 173 cf Outflow=2.69 cfs 11,502 cf

Pond pCB7: Post - CB-7

Primary=0.90 cfs 2,419 cf Storage=69 cf Inflow=0.90 cfs 2,466 cf
Secondary=0.00 cfs 0 cf Outflow=0.90 cfs 2,419 cf

Pond pCB8: Post - CB-8

Peak Elev=29.62' Storage=54 cf Inflow=0.40 cfs 1,353 cf
Outflow=0.40 cfs 1,312 cf

Pond pDB1: Post - Detention Basin-1

Peak Elev=22.37' Storage=2,604 cf Inflow=7.94 cfs 11,997 cf
Outflow=7.81 cfs 11,952 cf

Pond pFB1: Forebay-1

Peak Elev=23.32' Storage=565 cf Inflow=4.68 cfs 13,921 cf
Outflow=4.62 cfs 13,454 cf

Pond pFB2: Forebay-2

Peak Elev=23.31' Storage=564 cf Inflow=4.59 cfs 13,916 cf
Outflow=4.53 cfs 13,449 cf

Pond pFB3: Post - Forebay-3

Peak Elev=22.21' Storage=519 cf Inflow=3.88 cfs 18,011 cf
Outflow=3.88 cfs 17,743 cf

Pond pH2: Post - Daycare Header

Peak Elev=28.45' Inflow=0.77 cfs 2,662 cf
12.0" Round Culvert n=0.013 L=70.0' S=0.0200 '/' Outflow=0.77 cfs 2,662 cf

Pond pH3: Post - Daycare Header

Peak Elev=27.40' Inflow=2.20 cfs 7,610 cf
12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=2.20 cfs 7,610 cf

Pond pH4: Post - Daycare Header

Peak Elev=26.46' Inflow=2.20 cfs 7,610 cf
12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Outflow=2.20 cfs 7,610 cf

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Pond pH5: Post - Roof Header

Peak Elev=26.51' Inflow=0.50 cfs 1,739 cf
Outflow=0.50 cfs 1,739 cf

Reach pRD1: Post - Roof Drain-1

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.57' Max Vel=4.76 fps Inflow=2.20 cfs 7,608 cf
L=20.0' S=0.0100 '/' Capacity=3.56 cfs Outflow=2.20 cfs 7,608 cf

Reach pRD2: Post - Roof Drain-2

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.52' Max Vel=5.51 fps Inflow=2.30 cfs 7,948 cf
L=28.0' S=0.0143 '/' Capacity=4.26 cfs Outflow=2.30 cfs 7,948 cf

Subcatchment pRF1: Post - Roof flow

Runoff Area=15,575 sf 100.00% Impervious Runoff Depth=5.86"
Tc=5.0 min CN=0/98 Runoff=2.20 cfs 7,608 cf

Subcatchment pRF2: Post - Roof flow

Runoff Area=16,270 sf 100.00% Impervious Runoff Depth=5.86"
Tc=5.0 min CN=0/98 Runoff=2.30 cfs 7,948 cf

Subcatchment pRF3: Post - Roof flow

Runoff Area=3,560 sf 100.00% Impervious Runoff Depth=5.86"
Tc=5.0 min CN=0/98 Runoff=0.50 cfs 1,739 cf

Subcatchment pRF4: Post - New Daycare Roof

Runoff Area=8,267 sf 100.00% Impervious Runoff Depth=5.86"
Tc=5.0 min CN=0/98 Runoff=1.17 cfs 4,038 cf

Subcatchment pRF5: Post - Existing Roof

Runoff Area=5,017 sf 100.00% Impervious Runoff Depth=5.86"
Tc=5.0 min CN=0/98 Runoff=0.71 cfs 2,451 cf

Subcatchment pS1: Post - Northeastern Parking lot

Runoff Area=16,598 sf 80.53% Impervious Runoff Depth=5.36"
Tc=5.0 min CN=74/98 Runoff=2.18 cfs 7,410 cf

Subcatchment pS10: Post - Flow to Area Drain

Runoff Area=14,310 sf 33.15% Impervious Runoff Depth=4.13"
Flow Length=126' Tc=17.0 min CN=74/98 Runoff=1.08 cfs 4,923 cf

Subcatchment pS11: Post - Flow to playground catch basin

Runoff Area=1,116 sf 60.48% Impervious Runoff Depth=4.84"
Tc=5.0 min CN=74/98 Runoff=0.14 cfs 450 cf

Subcatchment pS12: Post - Flow to Swale-5

Runoff Area=7,588 sf 72.14% Impervious Runoff Depth=5.14"
Tc=5.0 min CN=74/98 Runoff=0.96 cfs 3,250 cf

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Subcatchment pS13: Post - Northeastern area flowing to proposed CB5

Runoff Area=58,920 sf 3.59% Impervious Runoff Depth=3.36"
Flow Length=445' Tc=18.2 min CN=74/98 Runoff=3.70 cfs 16,508 cf

Subcatchment pS14: Post - Parking area-4 runoff

Runoff Area=29,725 sf 36.32% Impervious Runoff Depth=4.15"
Tc=5.0 min CN=73/98 Runoff=3.19 cfs 10,277 cf

Subcatchment pS15: Post - Flow to entrance area drain

Runoff Area=1,395 sf 50.82% Impervious Runoff Depth=4.59"
Tc=5.0 min CN=74/98 Runoff=0.16 cfs 533 cf

Subcatchment pS16: Post - Flow to Sand Filter-2

Runoff Area=8,374 sf 18.89% Impervious Runoff Depth=4.00"
Tc=5.0 min CN=77/98 Runoff=0.89 cfs 2,791 cf

Subcatchment pS17: Post - Area in front of bldg flowing to existing swale-3

Runoff Area=7,518 sf 17.25% Impervious Runoff Depth=3.72"
Flow Length=173' Tc=6.3 min CN=74/98 Runoff=0.71 cfs 2,328 cf

Subcatchment pS18: Post - Flow to Sand Filter-1

Runoff Area=6,183 sf 0.00% Impervious Runoff Depth=3.77"
Tc=5.0 min CN=79/0 Runoff=0.64 cfs 1,942 cf

Subcatchment pS2: Post - Flow to CB3

Runoff Area=10,081 sf 18.76% Impervious Runoff Depth=3.76"
Tc=5.0 min CN=74/98 Runoff=1.01 cfs 3,155 cf

Subcatchment pS20: Post - Flow along South side to Sand Filter-1

Runoff Area=60,165 sf 4.02% Impervious Runoff Depth=3.37"
Flow Length=552' Tc=12.5 min CN=74/98 Runoff=4.37 cfs 16,914 cf

Subcatchment pS21: Post - Surface Runoff to Swale

Runoff Area=8,243 sf 2.62% Impervious Runoff Depth=3.34"
Flow Length=57' Tc=7.9 min CN=74/98 Runoff=0.69 cfs 2,292 cf

Subcatchment pS22: Post - Daycare Walkway Runoff

Runoff Area=1,862 sf 100.00% Impervious Runoff Depth=5.86"
Tc=5.0 min CN=0/98 Runoff=0.26 cfs 910 cf

Subcatchment pS23: Post - Daycare Plaza Runoff

Runoff Area=433 sf 100.00% Impervious Runoff Depth=5.86"
Tc=5.0 min CN=0/98 Runoff=0.06 cfs 212 cf

Subcatchment pS24: Post - Runoff to Forebay

Runoff Area=5,161 sf 9.61% Impervious Runoff Depth=3.52"
Tc=5.0 min CN=74/98 Runoff=0.49 cfs 1,513 cf

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Subcatchment pS25: Post - Parking Lot Runoff to Forebay

Runoff Area=2,943 sf 100.00% Impervious Runoff Depth=5.86"
Tc=5.0 min CN=0/98 Runoff=0.42 cfs 1,438 cf

Subcatchment pS26: Post - Flow to CB3

Runoff Area=3,055 sf 78.95% Impervious Runoff Depth=5.32"
Tc=5.0 min CN=74/98 Runoff=0.40 cfs 1,353 cf

Subcatchment pS27: Post - Area in front of bldg flowing to existing swale-4

Runoff Area=6,230 sf 42.07% Impervious Runoff Depth=4.36"
Slope=0.1600 '/' Tc=5.4 min CN=74/98 Runoff=0.69 cfs 2,264 cf
Flow Length=50'

Subcatchment pS3: Post - Norther half of parking area-2

Runoff Area=12,808 sf 87.06% Impervious Runoff Depth=5.53"
Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=1.95 cfs 5,898 cf
Flow Length=117'

Subcatchment pS4: Post - Southern half of parking area-2

Runoff Area=24,441 sf 85.26% Impervious Runoff Depth=5.48"
Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=3.70 cfs 11,160 cf
Flow Length=117'

Subcatchment pS5: Post - Norther half of parking area-3

Runoff Area=32,764 sf 70.56% Impervious Runoff Depth=5.10"
Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=4.68 cfs 13,921 cf
Flow Length=117'

Subcatchment pS6: Post - Southern half of parking area-3

Runoff Area=29,790 sf 90.12% Impervious Runoff Depth=5.61"
Slope=0.0900 '/' Tc=0.6 min CN=74/98 Runoff=4.59 cfs 13,916 cf
Flow Length=117'

Subcatchment pS7: Post - Flow to CB4

Runoff Area=2,681 sf 100.00% Impervious Runoff Depth=5.86"
Tc=5.0 min CN=0/98 Runoff=0.38 cfs 1,310 cf

Subcatchment pS9: Post - Flow to Area Drain

Runoff Area=23,435 sf 4.22% Impervious Runoff Depth=3.38"
Flow Length=367' Tc=13.9 min CN=74/98 Runoff=1.64 cfs 6,598 cf

Pond pSF1: Post - Sand Filter-1

Peak Elev=22.03' Storage=8,112 cf Inflow=16.98 cfs 61,576 cf
Outflow=14.63 cfs 61,456 cf

Pond pSF2: Post - Sand Filter-2

Peak Elev=22.65' Storage=4,008 cf Inflow=9.12 cfs 30,467 cf
Primary=7.94 cfs 11,997 cf Secondary=0.46 cfs 18,459 cf Outflow=8.36 cfs 30,456 cf

Pond pSF3: Post - Sand Filter-3

Peak Elev=22.18' Storage=3,358 cf Inflow=8.28 cfs 35,992 cf
Outflow=8.21 cfs 35,960 cf

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Pond pSW1: Pre - Swale-1

Peak Elev=18.57' Storage=761 cf Inflow=15.53 cfs 64,655 cf
Outflow=15.43 cfs 64,655 cf

Pond pSW2: Pre - Swale-2

Peak Elev=19.93' Storage=397 cf Inflow=8.23 cfs 30,412 cf
Primary=5.61 cfs 27,213 cf Secondary=2.40 cfs 3,199 cf Outflow=7.72 cfs 30,412 cf

Pond pSW3: Pre - Swale-3

Peak Elev=19.73' Storage=2,143 cf Inflow=6.29 cfs 29,542 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0047 '/' Outflow=3.14 cfs 29,541 cf

Pond pSW4: Pre - Swale-4

Peak Elev=19.04' Storage=476 cf Inflow=3.69 cfs 33,544 cf
18.0" Round Culvert n=0.013 L=21.0' S=0.0081 '/' Outflow=3.65 cfs 33,544 cf

Reach pSW5: Pre - Swale-5

Avg. Flow Depth=0.45' Max Vel=2.51 fps Inflow=12.26 cfs 72,754 cf
n=0.022 L=145.0' S=0.0050 '/' Capacity=110.11 cfs Outflow=12.24 cfs 72,753 cf

Pond STC1: Post - Stormceptor-1

Peak Elev=30.43' Inflow=2.30 cfs 12,085 cf
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 '/' Outflow=2.30 cfs 12,085 cf

Pond STC2: Post - Stormceptor-2

Peak Elev=24.44' Inflow=3.56 cfs 11,587 cf
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=3.56 cfs 11,587 cf

Reach SW1: Post - Swale-1

Avg. Flow Depth=0.25' Max Vel=3.47 fps Inflow=0.91 cfs 2,466 cf
n=0.030 L=100.0' S=0.0800 '/' Capacity=34.60 cfs Outflow=0.90 cfs 2,466 cf

Reach SW2: Post - Swale-2

Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
n=0.030 L=80.0' S=0.0313 '/' Capacity=16.07 cfs Outflow=0.00 cfs 0 cf

Pond US1: Post - Underground Recharge System-1

Peak Elev=30.08' Storage=1,479 cf Inflow=2.30 cfs 12,085 cf
Discarded=0.04 cfs 4,056 cf Primary=2.15 cfs 8,094 cf Outflow=2.19 cfs 12,085 cf

Pond US2: Post - Underground Recharge System-2

Peak Elev=25.02' Storage=2,715 cf Inflow=2.20 cfs 7,610 cf
Discarded=0.12 cfs 6,725 cf Primary=0.34 cfs 885 cf Outflow=0.46 cfs 7,610 cf

Total Runoff Area = 424,508 sf Runoff Volume = 157,049 cf Average Runoff Depth = 4.44"
55.16% Pervious = 234,143 sf 44.84% Impervious = 190,365 sf

Summary for Pond CB1: CB-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 5.36" for 25-Year event
Inflow = 2.18 cfs @ 12.07 hrs, Volume= 7,410 cf
Outflow = 2.18 cfs @ 12.07 hrs, Volume= 7,410 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.18 cfs @ 12.07 hrs, Volume= 7,410 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 39.79' @ 12.07 hrs
Flood Elev= 46.68'

Device	Routing	Invert	Outlet Devices

#1	Primary	38.96'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=2.14 cfs @ 12.07 hrs HW=39.78' TW=0.00' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 2.14 cfs @ 3.09 fps)

Summary for Pond CB4: Post - CB-4

Inflow Area = 1,116 sf, 60.48% Impervious, Inflow Depth = 4.84" for 25-Year event
Inflow = 0.14 cfs @ 12.07 hrs, Volume= 450 cf
Outflow = 0.14 cfs @ 12.07 hrs, Volume= 450 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 12.07 hrs, Volume= 450 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 26.24' @ 12.07 hrs
Flood Elev= 27.10'

Device	Routing	Invert	Outlet Devices

#1	Primary	25.97'	4.0" Round Culvert L= 14.3' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 25.41' / 25.97' S= -0.0392 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.13 cfs @ 12.07 hrs HW=26.24' TW=22.04' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.13 cfs @ 1.76 fps)

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Summary for Pond CO: Post - Cleanout

Inflow Area = 3,055 sf, 78.95% Impervious, Inflow Depth = 5.15" for 25-Year event
Inflow = 0.40 cfs @ 12.08 hrs, Volume= 1,312 cf
Outflow = 0.40 cfs @ 12.08 hrs, Volume= 1,312 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.40 cfs @ 12.08 hrs, Volume= 1,312 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.53' @ 12.09 hrs

Flood Elev= 27.80'

Device	Routing	Invert	Outlet Devices

#1	Primary	22.10'	8.0" Round Culvert L= 74.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 22.10' / 21.35' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.37 cfs @ 12.08 hrs HW=22.52' TW=22.09' (Dynamic Tailwater)

1=Culvert (Outlet Controls 0.37 cfs @ 2.23 fps)

Summary for Pond DMH1: Post - DMH1

Inflow Area = 34,522 sf, 65.84% Impervious, Inflow Depth = 4.98" for 25-Year event
Inflow = 4.42 cfs @ 12.01 hrs, Volume= 14,315 cf
Outflow = 4.42 cfs @ 12.01 hrs, Volume= 14,315 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.33 cfs @ 12.01 hrs, Volume= 12,846 cf
Secondary = 1.09 cfs @ 12.01 hrs, Volume= 1,469 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 32.85' @ 12.01 hrs

Flood Elev= 35.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	31.90'	15.0" Round Culvert L= 67.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 31.90' / 29.90' S= 0.0299 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

#2	Secondary	32.10'	8.0" Round Culvert L= 80.0' RCP, sq.cut end projecting, Ke= 0.500

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Inlet / Outlet Invert= 32.10' / 27.00' S= 0.0638 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=3.24 cfs @ 12.01 hrs HW=32.83' TW=30.80' (Dynamic Tailwater)
 └─1=Culvert (Inlet Controls 3.24 cfs @ 3.29 fps)

Secondary OutFlow Max=1.07 cfs @ 12.01 hrs HW=32.83' TW=27.55' (Dynamic Tailwater)
 └─2=Culvert (Inlet Controls 1.07 cfs @ 3.05 fps)

Summary for Pond DMH10: Post - DMH-10

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 2.20 cfs @ 12.07 hrs, Volume= 7,610 cf
Outflow = 2.20 cfs @ 12.07 hrs, Volume= 7,610 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.20 cfs @ 12.07 hrs, Volume= 7,610 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 26.03' @ 12.07 hrs
Flood Elev= 29.40'

Device	Routing	Invert	Outlet Devices

#1	Primary	25.10'	12.0" Round Culvert L= 21.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 25.10' / 24.85' S= 0.0119 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.16 cfs @ 12.07 hrs HW=26.02' TW=25.57' (Dynamic Tailwater)
 └─1=Culvert (Outlet Controls 2.16 cfs @ 3.75 fps)

Summary for Pond DMH11: Post - DMH-11

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 2.20 cfs @ 12.07 hrs, Volume= 7,610 cf
Outflow = 2.20 cfs @ 12.07 hrs, Volume= 7,610 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.20 cfs @ 12.07 hrs, Volume= 7,610 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 25.58' @ 12.07 hrs

Flood Elev= 28.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	24.60'	12.0" Round Culvert L= 3.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.60' / 24.54' S= 0.0200 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=2.16 cfs @ 12.07 hrs HW=25.57' TW=24.25' (Dynamic Tailwater)

1=Culvert (Barrel Controls 2.16 cfs @ 3.52 fps)

Summary for Pond DMH2: Post- DMH2

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 4.75" for 25-Year event
Inflow = 5.27 cfs @ 12.01 hrs, Volume= 18,744 cf
Outflow = 5.27 cfs @ 12.01 hrs, Volume= 18,744 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.30 cfs @ 12.01 hrs, Volume= 12,085 cf
Secondary = 2.98 cfs @ 12.01 hrs, Volume= 6,659 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 30.82' @ 12.01 hrs

Flood Elev= 33.20'

Device	Routing	Invert	Outlet Devices

#1	Primary	29.80'	12.0" Round Culvert L= 17.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.80' / 29.65' S= 0.0088 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	29.90'	15.0" Round Culvert L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.90' / 29.55' S= 0.0140 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.27 cfs @ 12.01 hrs HW=30.80' TW=30.42' (Dynamic Tailwater)

1=Culvert (Outlet Controls 2.27 cfs @ 3.59 fps)

Secondary OutFlow Max=2.89 cfs @ 12.01 hrs HW=30.80' TW=27.54' (Dynamic Tailwater)

2=Culvert (Barrel Controls 2.89 cfs @ 4.26 fps)

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Summary for Pond DMH3: Post - DMH3

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 3.70" for 25-Year event
Inflow = 7.43 cfs @ 12.03 hrs, Volume= 32,732 cf
Outflow = 7.43 cfs @ 12.03 hrs, Volume= 32,732 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.43 cfs @ 12.03 hrs, Volume= 32,732 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 27.61' @ 12.03 hrs

Flood Elev= 33.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	26.10'	18.0" Round Culvert L= 105.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.10' / 24.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.39 cfs @ 12.03 hrs HW=27.60' TW=25.30' (Dynamic Tailwater)

1=Culvert (Inlet Controls 7.39 cfs @ 4.18 fps)

Summary for Pond DMH4: Post - DMH4

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 3.70" for 25-Year event
Inflow = 7.43 cfs @ 12.03 hrs, Volume= 32,732 cf
Outflow = 7.43 cfs @ 12.03 hrs, Volume= 32,732 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.43 cfs @ 12.03 hrs, Volume= 32,732 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 25.31' @ 12.03 hrs

Flood Elev= 26.80'

Device	Routing	Invert	Outlet Devices

#1	Primary	23.80'	18.0" Round Culvert L= 75.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.80' / 21.75' S= 0.0273 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

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Primary OutFlow Max=7.39 cfs @ 12.03 hrs HW=25.30' TW=22.00' (Dynamic Tailwater)

└─**1=Culvert** (Inlet Controls 7.39 cfs @ 4.18 fps)

Summary for Pond DMH5: Post - DMH5

Inflow Area = 33,801 sf, 41.97% Impervious, Inflow Depth = 4.30" for 25-Year event
Inflow = 3.73 cfs @ 12.07 hrs, Volume= 12,120 cf
Outflow = 3.73 cfs @ 12.07 hrs, Volume= 12,120 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.73 cfs @ 12.07 hrs, Volume= 12,120 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.57' @ 12.08 hrs

Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	22.00'	12.0" Round Culvert L= 3.5' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 22.00' / 21.75' S= 0.0714 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.64 cfs @ 12.07 hrs HW=23.54' TW=22.61' (Dynamic Tailwater)

└─**1=Culvert** (Inlet Controls 3.64 cfs @ 4.64 fps)

Summary for Pond DMH6: Post - DMH-6

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 3.60" for 25-Year event
Inflow = 2.31 cfs @ 12.21 hrs, Volume= 11,329 cf
Outflow = 2.31 cfs @ 12.21 hrs, Volume= 11,329 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.31 cfs @ 12.21 hrs, Volume= 11,329 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 34.19' @ 12.21 hrs

Flood Elev= 38.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	33.00'	10.0" Round Culvert L= 55.0' RCP, sq.cut end projecting, Ke= 0.500

Inlet / Outlet Invert= 33.00' / 32.00' S= 0.0182 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=2.31 cfs @ 12.21 hrs HW=34.19' TW=32.09' (Dynamic Tailwater)

└─1=Culvert (Inlet Controls 2.31 cfs @ 4.23 fps)

Summary for Pond DMH7: Post - DMH-7

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 3.60" for 25-Year event
Inflow = 2.31 cfs @ 12.21 hrs, Volume= 11,329 cf
Outflow = 2.31 cfs @ 12.21 hrs, Volume= 11,329 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.31 cfs @ 12.21 hrs, Volume= 11,329 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 32.09' @ 12.21 hrs

Flood Elev= 36.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	30.90'	10.0" Round Culvert L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 30.90' / 30.30' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=2.31 cfs @ 12.21 hrs HW=32.09' TW=27.74' (Dynamic Tailwater)

└─1=Culvert (Inlet Controls 2.31 cfs @ 4.23 fps)

Summary for Pond DMH8: Post - DMH-8

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 3.60" for 25-Year event
Inflow = 2.31 cfs @ 12.21 hrs, Volume= 11,329 cf
Outflow = 2.31 cfs @ 12.21 hrs, Volume= 11,329 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.31 cfs @ 12.21 hrs, Volume= 11,329 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 27.74' @ 12.21 hrs

Flood Elev= 32.50'

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Device Routing Invert Outlet Devices

#1	Primary	26.55'	10.0" Round Culvert L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.55' / 25.95' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=2.31 cfs @ 12.21 hrs HW=27.74' TW=24.72' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.31 cfs @ 4.23 fps)

Summary for Pond DMH9: Post - DMH-9

Inflow Area =	45,988 sf, 12.94% Impervious, Inflow Depth = 3.59" for 25-Year event
Inflow =	3.21 cfs @ 12.21 hrs, Volume= 13,748 cf
Outflow =	3.21 cfs @ 12.21 hrs, Volume= 13,748 cf, Atten= 0%, Lag= 0.0 min
Primary =	3.21 cfs @ 12.21 hrs, Volume= 13,748 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 24.72' @ 12.21 hrs
Flood Elev= 30.10'

Device Routing Invert Outlet Devices

#1	Primary	23.50'	12.0" Round Culvert L= 85.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.50' / 22.50' S= 0.0118 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.21 cfs @ 12.21 hrs HW=24.72' TW=22.21' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.21 cfs @ 4.08 fps)

Summary for Reach OP1: Outlet pipe-1

Inflow Area =	47,330 sf, 71.58% Impervious, Inflow Depth = 2.05" for 25-Year event
Inflow =	2.15 cfs @ 12.06 hrs, Volume= 8,094 cf
Outflow =	2.03 cfs @ 12.08 hrs, Volume= 8,095 cf, Atten= 5%, Lag= 1.2 min

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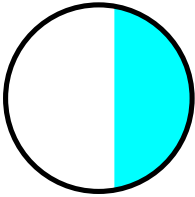
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Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 6.57 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.68 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.42'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.63 cfs

12.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 14.0' Slope= 0.0250 '/'
Inlet Invert= 29.50', Outlet Invert= 29.15'



Summary for Pond pA1: Post - Analysis Point-1

Inflow Area =	16,598 sf,	80.53% Impervious,	Inflow Depth = 5.36"	for 25-Year event
Inflow =	2.18 cfs @	12.07 hrs,	Volume= 7,410 cf	
Primary =	2.18 cfs @	12.07 hrs,	Volume= 7,410 cf,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond pA2: Pre - Analysis Point-2

Inflow Area =	174,987 sf,	49.12% Impervious,	Inflow Depth = 4.43"	for 25-Year event
Inflow =	15.43 cfs @	12.11 hrs,	Volume= 64,655 cf	
Primary =	15.43 cfs @	12.11 hrs,	Volume= 64,655 cf,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond pA3: Post - Analysis Point-3

Inflow Area = 232,923 sf, 39.09% Impervious, Inflow Depth = 3.75" for 25-Year event
Inflow = 12.24 cfs @ 12.22 hrs, Volume= 72,753 cf
Primary = 12.24 cfs @ 12.22 hrs, Volume= 72,753 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond pAD: Post - Area drain at main entrance

Inflow Area = 1,395 sf, 50.82% Impervious, Inflow Depth = 4.59" for 25-Year event
Inflow = 0.16 cfs @ 12.07 hrs, Volume= 533 cf
Outflow = 0.16 cfs @ 12.07 hrs, Volume= 533 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.07 hrs, Volume= 533 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 24.20' @ 12.08 hrs
Flood Elev= 28.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.00'	12.0" Round Culvert L= 69.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.00' / 23.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.15 cfs @ 12.07 hrs HW=24.20' TW=23.54' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.15 cfs @ 2.10 fps)

Summary for Pond pAD2: Area Drain

Inflow Area = 433 sf,100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 0.06 cfs @ 12.07 hrs, Volume= 212 cf
Outflow = 0.06 cfs @ 12.07 hrs, Volume= 212 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.06 cfs @ 12.07 hrs, Volume= 212 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 28.65' @ 12.07 hrs
Flood Elev= 30.80'

Device Routing Invert Outlet Devices

#1	Primary	28.50'	8.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 28.50' / 28.40' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.06 cfs @ 12.07 hrs HW=28.64' TW=28.44' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.06 cfs @ 1.62 fps)

Summary for Pond pCB1: Post - CB1

Inflow Area =	12,808 sf, 87.06% Impervious, Inflow Depth = 5.53" for 25-Year event
Inflow =	1.95 cfs @ 12.01 hrs, Volume= 5,898 cf
Outflow =	1.95 cfs @ 12.01 hrs, Volume= 5,898 cf, Atten= 0%, Lag= 0.0 min
Primary =	1.95 cfs @ 12.01 hrs, Volume= 5,898 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 32.77' @ 12.01 hrs
Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	32.00'	12.0" Round Culvert L= 140.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.00' / 30.00' S= 0.0143 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.91 cfs @ 12.01 hrs HW=32.76' TW=30.80' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.91 cfs @ 2.97 fps)

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Summary for Pond pCB2: Post - CB2

Inflow Area = 24,441 sf, 85.26% Impervious, Inflow Depth = 5.48" for 25-Year event
Inflow = 3.70 cfs @ 12.01 hrs, Volume= 11,160 cf
Outflow = 3.70 cfs @ 12.01 hrs, Volume= 11,160 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.70 cfs @ 12.01 hrs, Volume= 11,160 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 33.32' @ 12.01 hrs

Flood Elev= 35.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	32.20'	15.0" Round Culvert L= 10.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.20' / 32.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.61 cfs @ 12.01 hrs HW=33.30' TW=32.84' (Dynamic Tailwater)

└─**1=Culvert** (Outlet Controls 3.61 cfs @ 4.20 fps)

Summary for Pond pCB3: Post - CB3

Inflow Area = 10,081 sf, 18.76% Impervious, Inflow Depth = 3.76" for 25-Year event
Inflow = 1.01 cfs @ 12.07 hrs, Volume= 3,155 cf
Outflow = 1.01 cfs @ 12.07 hrs, Volume= 3,155 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.01 cfs @ 12.07 hrs, Volume= 3,155 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 35.19' @ 12.07 hrs

Flood Elev= 39.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	34.50'	8.0" Round Culvert L= 44.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 34.50' / 33.10' S= 0.0318 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.99 cfs @ 12.07 hrs HW=35.18' TW=32.70' (Dynamic Tailwater)

└─**1=Culvert** (Inlet Controls 0.99 cfs @ 2.84 fps)

Summary for Pond pCB4: Post - CB4

Inflow Area = 2,681 sf, 100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 0.38 cfs @ 12.07 hrs, Volume= 1,310 cf
Outflow = 0.38 cfs @ 12.07 hrs, Volume= 1,310 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.07 hrs, Volume= 1,310 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.90' @ 12.07 hrs

Flood Elev= 28.25'

Device	Routing	Invert	Outlet Devices

#1	Primary	24.50'	8.0" Round Culvert L= 55.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.50' / 23.25' S= 0.0227 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.37 cfs @ 12.07 hrs HW=24.89' TW=24.41' (Dynamic Tailwater)

└─**1=Culvert** (Outlet Controls 0.37 cfs @ 2.53 fps)

Summary for Pond pCB5: Post -CB5

Inflow Area = 58,920 sf, 3.59% Impervious, Inflow Depth = 3.36" for 25-Year event
Inflow = 3.70 cfs @ 12.25 hrs, Volume= 16,508 cf
Outflow = 3.70 cfs @ 12.25 hrs, Volume= 16,508 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.70 cfs @ 12.25 hrs, Volume= 16,508 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 30.15' @ 12.25 hrs

Flood Elev= 31.70'

Device	Routing	Invert	Outlet Devices

#1	Primary	28.50'	12.0" Round Culvert L= 158.0' RCP, sq.cut end projecting, Ke= 0.500

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Inlet / Outlet Invert= 28.50' / 26.92' S= 0.0100 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.69 cfs @ 12.25 hrs HW=30.13' TW=27.35' (Dynamic Tailwater)

1=Culvert (Barrel Controls 3.69 cfs @ 4.70 fps)

Summary for Pond pCB6: Post - CB-6

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 3.66" for 25-Year event
Inflow = 2.70 cfs @ 12.21 hrs, Volume= 11,521 cf
Outflow = 2.69 cfs @ 12.21 hrs, Volume= 11,502 cf, Atten= 0%, Lag= 0.4 min
Primary = 2.31 cfs @ 12.21 hrs, Volume= 11,329 cf
Secondary = 0.38 cfs @ 12.21 hrs, Volume= 173 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 37.60' @ 12.21 hrs Surf.Area= 213 sf Storage= 109 cf

Flood Elev= 38.00' Surf.Area= 311 sf Storage= 215 cf

Plug-Flow detention time= 2.6 min calculated for 11,493 cf (100% of inflow)

Center-of-Mass det. time= 1.6 min (818.0 - 816.4)

Volume Invert Avail.Storage Storage Description

#1 36.50' 215 cf Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.50	35	0	0
37.00	68	26	26
38.00	311	190	215

Device Routing Invert Outlet Devices

#1 Primary 35.00' 8.0" Round Culvert L= 30.0' RCP, sq.cut end projecting, Ke= 0.500

Inlet / Outlet Invert= 35.00' / 34.40' S= 0.0200 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

#2 Device 1 36.90' 12.0" Horiz. Orifice/Grate C= 0.600 in 9.1" x 9.1" Grate Limited to weir flow at low heads

#3 Secondary 37.50' 5.0' long x 2.0' breadth Broad-Crested Rectangular Weir

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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
Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=2.31 cfs @ 12.21 hrs HW=37.60' TW=34.19' (Dynamic Tailwater)

└─1=Culvert (Passes 2.31 cfs of 2.52 cfs potential flow)

└─2=Orifice/Grate (Orifice Controls 2.31 cfs @ 4.02 fps)

Secondary OutFlow Max=0.38 cfs @ 12.21 hrs HW=37.60' TW=37.25' (Dynamic Tailwater)

└─3=Broad-Crested Rectangular Weir (Weir Controls 0.38 cfs @ 0.79 fps)

Summary for Pond pCB7: Post - CB-7

Inflow Area = 8,243 sf, 2.62% Impervious, Inflow Depth = 3.59" for 25-Year event
Inflow = 0.90 cfs @ 12.20 hrs, Volume= 2,466 cf
Outflow = 0.90 cfs @ 12.21 hrs, Volume= 2,419 cf, Atten= 0%, Lag= 0.4 min
Primary = 0.90 cfs @ 12.21 hrs, Volume= 2,419 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 28.95' @ 12.21 hrs Surf.Area= 122 sf Storage= 69 cf

Flood Elev= 30.00' Surf.Area= 309 sf Storage= 293 cf

Plug-Flow detention time= 17.6 min calculated for 2,417 cf (98% of inflow)

Center-of-Mass det. time= 6.6 min (826.9 - 820.4)

Volume				Storage Description		
#1	Invert	Avail.Storage	293 cf	Custom Stage Data (Prismatic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
28.00	23	0	0			
29.00	127	75	75			
30.00	309	218	293			

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Device	Routing	Invert	Outlet Devices
#1	Device 2	28.75'	12.0" Horiz. Orifice/Grate C= 0.600 in 9.1" x 9.1" Grate Limited to weir flow at low heads
#2	Primary	26.10'	12.0" Round Culvert L= 11.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.10' / 25.90' S= 0.0182 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Secondary	29.50'	3.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.90 cfs @ 12.21 hrs HW=28.95' TW=24.72' (Dynamic Tailwater)

2=Culvert (Passes 0.90 cfs of 5.80 cfs potential flow)

1=Orifice/Grate (Weir Controls 0.90 cfs @ 1.47 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=28.00' TW=29.50' (Dynamic Tailwater)

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

Summary for Pond pCB8: Post - CB-8

Inflow Area = 3,055 sf, 78.95% Impervious, Inflow Depth = 5.32" for 25-Year event
Inflow = 0.40 cfs @ 12.07 hrs, Volume= 1,353 cf
Outflow = 0.40 cfs @ 12.08 hrs, Volume= 1,312 cf, Atten= 1%, Lag= 0.5 min
Primary = 0.40 cfs @ 12.08 hrs, Volume= 1,312 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 29.62' @ 12.08 hrs Surf.Area= 111 sf Storage= 54 cf

Flood Elev= 30.00' Surf.Area= 140 sf Storage= 102 cf

Plug-Flow detention time= 36.8 min calculated for 1,312 cf (97% of inflow)

Center-of-Mass det. time= 17.9 min (772.6 - 754.7)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	102 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)
29.00	63	0	0
30.00	140	102	102

Device Routing Invert Outlet Devices

#1	Device 2	29.50'	12.0" Horiz. Orifice/Grate	C= 0.600 in 9.1" x 9.1" Grate	Limited to weir flow at low heads
#2	Primary	25.15'	8.0" Round Culvert	L= 13.0' RCP, sq.cut end projecting, Ke= 0.500	
Inlet / Outlet Invert= 25.15' / 25.00' S= 0.0115 '/' Cc= 0.900					
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf					

Primary OutFlow Max=0.39 cfs @ 12.08 hrs HW=29.62' TW=22.52' (Dynamic Tailwater)↑ **2=Culvert** (Passes 0.39 cfs of 3.42 cfs potential flow)↑ **1=Orifice/Grate** (Weir Controls 0.39 cfs @ 1.11 fps)**Summary for Pond pDB1: Post - Detention Basin-1**

Inflow Area =	74,020 sf, 64.33% Impervious, Inflow Depth = 1.94" for 25-Year event
Inflow =	7.94 cfs @ 12.11 hrs, Volume= 11,997 cf
Outflow =	7.81 cfs @ 12.11 hrs, Volume= 11,952 cf, Atten= 2%, Lag= 0.3 min
Primary =	7.81 cfs @ 12.11 hrs, Volume= 11,952 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.37' @ 12.11 hrs Surf.Area= 1,171 sf Storage= 2,604 cf

Flood Elev= 23.00' Surf.Area= 1,340 sf Storage= 3,397 cf

Plug-Flow detention time= 16.6 min calculated for 11,952 cf (100% of inflow)

Center-of-Mass det. time= 15.9 min (753.1 - 737.2)

Volume Invert Avail.Storage Storage Description

#1	19.00'	3,397 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)
19.00	421	0	0
20.00	613	517	517
21.00	830	722	1,239
22.00	1,073	952	2,190
23.00	1,340	1,207	3,397

Device Routing Invert Outlet Devices

#1	Primary	22.00'	10.0' long x 2.0' 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	
			Coef. (English)	2.54	2.61	2.61	2.61	2.60	2.66	2.70	2.77	2.89	2.88	2.85	3.07	3.20	3.32
#2	Primary	21.00'	4.0" Round Culvert X 3.00 L= 10.0' RCP, sq.cut end projecting, Ke= 0.500														
			Inlet / Outlet Invert=	21.00' / 20.90'	S= 0.0100 '/'	Cc= 0.900											
			n=	0.013	Corrugated PE, smooth interior, Flow Area= 0.09 sf												
#3	Primary	19.10'	4.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500														
			Inlet / Outlet Invert=	19.10' / 19.00'	S= 0.0100 '/'	Cc= 0.900											
			n=	0.013	Corrugated PE, smooth interior, Flow Area= 0.09 sf												

Primary OutFlow Max=7.75 cfs @ 12.11 hrs HW=22.37' TW=19.79' (Dynamic Tailwater)

1=Broad-Crested Rectangular Weir (Weir Controls 5.76 cfs @ 1.57 fps)

2=Culvert (Barrel Controls 1.32 cfs @ 5.05 fps)

3=Culvert (Outlet Controls 0.67 cfs @ 7.62 fps)

Summary for Pond pFB1: Forebay-1

Inflow Area =	32,764 sf,	70.56% Impervious,	Inflow Depth = 5.10"	for 25-Year event
Inflow =	4.68 cfs @	12.01 hrs,	Volume=	13,921 cf
Outflow =	4.62 cfs @	12.01 hrs,	Volume=	13,454 cf, Atten= 1%, Lag= 0.4 min
Primary =	4.62 cfs @	12.01 hrs,	Volume=	13,454 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.32' @ 12.01 hrs Surf.Area= 330 sf Storage= 565 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 39.4 min calculated for 13,454 cf (97% of inflow)

Center-of-Mass det. time= 18.9 min (774.5 - 755.6)

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Volume		Invert	Avail.Storage	Storage Description	
#1		19.00'	628 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
19.00	7	0	0		
20.00	40	24	24		
21.00	98	69	93		
22.00	181	140	232		
23.00	289	235	467		
23.50	353	161	628		

Device	Routing	Invert	Outlet Devices	
#1	Primary	23.00'	10.0' long x 2.0' 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
			Coef. (English)	2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=4.51 cfs @ 12.01 hrs HW=23.31' TW=21.94' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Weir Controls 4.51 cfs @ 1.44 fps)

Summary for Pond pFB2: Forebay-2

Inflow Area = 29,790 sf, 90.12% Impervious, Inflow Depth = 5.61" for 25-Year event
Inflow = 4.59 cfs @ 12.01 hrs, Volume= 13,916 cf
Outflow = 4.53 cfs @ 12.01 hrs, Volume= 13,449 cf, Atten= 1%, Lag= 0.4 min
Primary = 4.53 cfs @ 12.01 hrs, Volume= 13,449 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 23.31' @ 12.01 hrs Surf.Area= 329 sf Storage= 564 cf
Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 39.6 min calculated for 13,438 cf (97% of inflow)
Center-of-Mass det. time= 19.1 min (763.7 - 744.7)

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Volume		Invert	Avail.Storage	Storage Description	
#1		19.00'	628 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
19.00	7	0	0		
20.00	40	24	24		
21.00	98	69	93		
22.00	181	140	232		
23.00	289	235	467		
23.50	353	161	628		

Device	Routing	Invert	Outlet Devices									
#1	Primary	23.00'	10.0' long x 2.0' 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									
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32									

Primary OutFlow Max=4.42 cfs @ 12.01 hrs HW=23.31' TW=21.94' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Weir Controls 4.42 cfs @ 1.43 fps)

Summary for Pond pFB3: Post - Forebay-3

Inflow Area = 57,147 sf, 20.65% Impervious, Inflow Depth = 3.78" for 25-Year event
Inflow = 3.88 cfs @ 12.18 hrs, Volume= 18,011 cf
Outflow = 3.88 cfs @ 12.20 hrs, Volume= 17,743 cf, Atten= 0%, Lag= 1.1 min
Primary = 3.88 cfs @ 12.20 hrs, Volume= 17,743 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.21' @ 12.20 hrs Surf.Area= 401 sf Storage= 519 cf

Flood Elev= 23.50' Surf.Area= 520 sf Storage= 1,114 cf

Plug-Flow detention time= 17.7 min calculated for 17,728 cf (98% of inflow)

Center-of-Mass det. time= 8.8 min (819.2 - 810.4)

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Volume				Storage Description	
#1	Invert	Avail.Storage	Inc.Storage	Custom Stage Data (Prismatic) Listed below (Recalc)	
	20.00'		1,114 cf		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
20.00	71	0	0		
21.00	211	141	141		
22.00	382	297	438		
23.50	520	677	1,114		

Device	Routing	Invert	Outlet Devices
#1	Primary	21.50'	8.0' long x 2.0' 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
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=3.92 cfs @ 12.20 hrs HW=22.21' TW=22.18' (Dynamic Tailwater)

1=Broad-Crested Rectangular Weir (Weir Controls 3.92 cfs @ 0.69 fps)

Summary for Pond pH2: Post - Daycare Header

Inflow Area = 5,450 sf, 100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 0.77 cfs @ 12.07 hrs, Volume= 2,662 cf
Outflow = 0.77 cfs @ 12.07 hrs, Volume= 2,662 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.77 cfs @ 12.07 hrs, Volume= 2,662 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 28.45' @ 12.07 hrs

Flood Elev= 30.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	28.00'	12.0" Round Culvert L= 70.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 28.00' / 26.60' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.76 cfs @ 12.07 hrs HW=28.44' TW=27.39' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.76 cfs @ 2.26 fps)

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Summary for Pond pH3: Post - Daycare Header

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 2.20 cfs @ 12.07 hrs, Volume = 7,610 cf
Outflow = 2.20 cfs @ 12.07 hrs, Volume = 7,610 cf, Atten = 0%, Lag = 0.0 min
Primary = 2.20 cfs @ 12.07 hrs, Volume = 7,610 cf

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dt = 0.03 hrs / 2

Peak Elev = 27.40' @ 12.07 hrs

Flood Elev = 30.90'

Device	Routing	Invert	Outlet Devices

#1	Primary	26.50'	12.0" Round Culvert L = 100.0' RCP, sq cut end projecting, Ke = 0.500 Inlet / Outlet Invert = 26.50' / 25.50' S = 0.0100 '/' Cc = 0.900 n = 0.013 Corrugated PE, smooth interior, Flow Area = 0.79 sf

Primary OutFlow Max = 2.14 cfs @ 12.07 hrs HW = 27.39' TW = 26.45' (Dynamic Tailwater)

1=Culvert (Outlet Controls 2.14 cfs @ 3.86 fps)

Summary for Pond pH4: Post - Daycare Header

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 2.20 cfs @ 12.07 hrs, Volume = 7,610 cf
Outflow = 2.20 cfs @ 12.07 hrs, Volume = 7,610 cf, Atten = 0%, Lag = 0.0 min
Primary = 2.20 cfs @ 12.07 hrs, Volume = 7,610 cf

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dt = 0.03 hrs / 2

Peak Elev = 26.46' @ 12.07 hrs

Flood Elev = 30.75'

Device	Routing	Invert	Outlet Devices

#1	Primary	25.50'	12.0" Round Culvert L = 28.0' RCP, sq cut end projecting, Ke = 0.500 Inlet / Outlet Invert = 25.50' / 25.20' S = 0.0107 '/' Cc = 0.900 n = 0.013 Corrugated PE, smooth interior, Flow Area = 0.79 sf

Primary OutFlow Max=2.13 cfs @ 12.07 hrs HW=26.45' TW=26.02' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.13 cfs @ 3.56 fps)

Summary for Pond pH5: Post - Roof Header

Inflow Area = 3,560 sf, 100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 0.50 cfs @ 12.07 hrs, Volume= 1,739 cf
Outflow = 0.50 cfs @ 12.07 hrs, Volume= 1,739 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 12.07 hrs, Volume= 1,739 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 26.51' @ 12.07 hrs
Flood Elev= 30.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	25.98'	6.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.49 cfs @ 12.07 hrs HW=26.50' TW=18.81' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.49 cfs @ 2.52 fps)

Summary for Reach pRD1: Post - Roof Drain-1

Inflow Area = 15,575 sf, 100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow = 2.20 cfs @ 12.07 hrs, Volume= 7,608 cf
Outflow = 2.20 cfs @ 12.07 hrs, Volume= 7,608 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 4.76 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.63 fps, Avg. Travel Time= 0.2 min

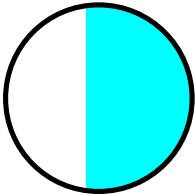
Peak Storage= 9 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.57'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

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12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 20.0' Slope= 0.0100 '/'
Inlet Invert= 25.70', Outlet Invert= 25.50'



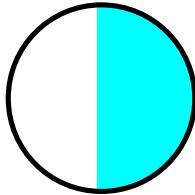
Summary for Reach pRD2: Post - Roof Drain-2

Inflow Area =	16,270 sf, 100.00% Impervious,	Inflow Depth = 5.86"	for 25-Year event
Inflow =	2.30 cfs @ 12.07 hrs,	Volume= 7,948 cf	
Outflow =	2.30 cfs @ 12.07 hrs,	Volume= 7,948 cf,	Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 5.51 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.87 fps, Avg. Travel Time= 0.2 min

Peak Storage= 12 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.52'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.26 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 28.0' Slope= 0.0143 '/'
Inlet Invert= 22.50', Outlet Invert= 22.10'



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Summary for Subcatchment pRF1: Post - Roof flow

Runoff = 2.20 cfs @ 12.07 hrs, Volume= 7,608 cf, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)		CN	Description		
15,575	98	Roofs, HSG C			
15,575	98	100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Roof runoff

Summary for Subcatchment pRF2: Post - Roof flow

Runoff = 2.30 cfs @ 12.07 hrs, Volume= 7,948 cf, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)		CN	Description		
16,270		98	Roofs, HSG C		
16,270		98	100.00% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Roof runoff

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Summary for Subcatchment pRF3: Post - Roof flow

Runoff = 0.50 cfs @ 12.07 hrs, Volume= 1,739 cf, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)		CN	Description		
3,560	98	Roofs, HSG C			
3,560	98	100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry, Roof runoff				

Summary for Subcatchment pRF4: Post - New Daycare Roof

Runoff = 1.17 cfs @ 12.07 hrs, Volume= 4,038 cf, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)		CN	Description		
8,267	98	Roofs, HSG C			
8,267	98	100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry,				

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Summary for Subcatchment pRF5: Post - Existing Roof

Runoff = 0.71 cfs @ 12.07 hrs, Volume= 2,451 cf, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)		CN	Description		
5,017		98	Roofs, HSG C		
5,017		98	100.00% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment pS1: Post - Northeastern Parking lot

Runoff = 2.18 cfs @ 12.07 hrs, Volume= 7,410 cf, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description		
13,366	98	Paved parking, HSG C		
3,232	74	>75% Grass cover, Good, HSG C		
16,598	93	Weighted Average		
3,232	74	19.47% Pervious Area		
13,366	98	80.53% Impervious Area		
Tc (min)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0				Direct Entry, Parking Runoff to CB

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Summary for Subcatchment pS10: Post - Flow to Area Drain

Runoff = 1.08 cfs @ 12.23 hrs, Volume= 4,923 cf, Depth= 4.13"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG C
0	98	Paved parking, HSG C
0	89	Gravel path
9,566	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
4,744	98	Roofs, HSG C
14,310	82	Weighted Average
9,566	74	66.85% Pervious Area
4,744	98	33.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.7	76	0.0600	1.71		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps

17.0	126	Total

Summary for Subcatchment pS11: Post - Flow to playground catch basin

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 450 cf, Depth= 4.84"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

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Area (sf)	CN	Description
128	98	Unconnected pavement, HSG C
441	74	>75% Grass cover, Good, HSG C
547	98	Rubber play surface
1,116	89	Weighted Average
441	74	39.52% Pervious Area
675	98	60.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to CB5

Summary for Subcatchment pS12: Post - Flow to Swale-5

Runoff = 0.96 cfs @ 12.07 hrs, Volume= 3,250 cf, Depth= 5.14"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
2,114	74	>75% Grass cover, Good, HSG C
558	98	Proposed Walkway
128	98	Unconnected pavement, HSG C
4,788	98	Paved parking, HSG C
7,588	91	Weighted Average
2,114	74	27.86% Pervious Area
5,474	98	72.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment pS13: Post - Northeastern area flowing to proposed CB5

Runoff = 3.70 cfs @ 12.25 hrs, Volume= 16,508 cf, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description			
2,021	98	Roofs, HSG C			
52,854	74	>75% Grass cover, Good, HSG C			
93	98	Paved parking, HSG C			
3,952	70	Woods, Good, HSG C			
58,920	75	Weighted Average			
56,806	74	96.41% Pervious Area			
2,114	98	3.59% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	50	0.0200	0.07		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.7	70	0.0500	1.57		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
0.1	24	0.3300	4.02		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
4.9	206	0.0100	0.70		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.1	95	0.1900	18.24	72.98	Channel Flow, EF Area= 4.0 sf Perim= 8.2' r= 0.49' n= 0.022 Earth, clean & straight

Summary for Subcatchment pS14: Post - Parking area-4 runoff

Runoff = 3.19 cfs @ 12.07 hrs, Volume= 10,277 cf, Depth= 4.15"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
16,413	74	>75% Grass cover, Good, HSG C
10,797	98	Paved parking, HSG C
2,515	70	Woods, Good, HSG C
29,725	82	Weighted Average
18,928	73	63.68% Pervious Area
10,797	98	36.32% Impervious Area

Tc Length Slope Velocity Capacity Description
(min) (feet) (ft/ft) (ft/sec) (cfs)

5.0

Direct Entry,

Summary for Subcatchment pS15: Post - Flow to entrance area drain

Runoff = 0.16 cfs @ 12.07 hrs, Volume= 533 cf, Depth= 4.59"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
686	74	>75% Grass cover, Good, HSG C
709	98	Paved parking, HSG C
1,395	86	Weighted Average
686	74	49.18% Pervious Area
709	98	50.82% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to area drain

Summary for Subcatchment pS16: Post - Flow to Sand Filter-2

Runoff = 0.89 cfs @ 12.07 hrs, Volume= 2,791 cf, Depth= 4.00"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description

*

1,543	89	Gravel
5,249	74	>75% Grass cover, Good, HSG C
1,582	98	Paved parking, HSG C
8,374	81	Weighted Average
6,792	77	81.11% Pervious Area
1,582	98	18.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Runoff into Basin

Summary for Subcatchment pS17: Post - Area in front of bldg flowing to existing swale-3

Runoff = 0.71 cfs @ 12.09 hrs, Volume= 2,328 cf, Depth= 3.72"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

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Type III 24-hr 25-Year Rainfall=6.10"

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Area (sf)		CN	Description		
	6,221	74	>75% Grass cover, Good, HSG C		
*	172	98	Existing Wall		
*	1,125	98	Existing Walk		
	7,518	78	Weighted Average		
	6,221	74	82.75% Pervious Area		
	1,297	98	17.25% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	38	0.0800	0.11		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.6	135	0.0400	4.06		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps

Summary for Subcatchment pS18: Post - Flow to Sand Filter-1

Runoff = 0.64 cfs @ 12.07 hrs, Volume= 1,942 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)		CN	Description		
4,170	74	>75% Grass cover, Good, HSG C			
* 2,013	89	Gravel			
6,183	79	Weighted Average			
6,183	79	100.00% Pervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Flow into Basin

Summary for Subcatchment pS2: Post - Flow to CB3

Runoff = 1.01 cfs @ 12.07 hrs, Volume= 3,155 cf, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description			
8,190	74	>75% Grass cover, Good, HSG C			
1,150	98	Paved parking, HSG C			
741	98	Walkway			
10,081	79	Weighted Average			
8,190	74	81.24% Pervious Area			
1,891	98	18.76% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

Summary for Subcatchment pS20: Post - Flow along South side to Sand Filter-1

Runoff = 4.37 cfs @ 12.17 hrs, Volume= 16,914 cf, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
53,656	74	>75% Grass cover, Good, HSG C
4,089	70	Woods, Good, HSG C
207	98	Paved parking, HSG C
2,097	98	Pavillion
116	98	Conc Pavillion Pad
60,165	75	Weighted Average
57,745	74	95.98% Pervious Area
2,420	98	4.02% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, AB
					Grass: Bermuda n= 0.410 P2= 3.30"
0.4	50	0.1000	2.21		Shallow Concentrated Flow, BC
					Short Grass Pasture Kv= 7.0 fps
3.5	147	0.0100	0.70		Shallow Concentrated Flow, CD
					Short Grass Pasture Kv= 7.0 fps
0.2	40	0.1500	2.71		Shallow Concentrated Flow, DE
					Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0600	1.71		Shallow Concentrated Flow, EF
					Short Grass Pasture Kv= 7.0 fps
0.2	31	0.1900	3.05		Shallow Concentrated Flow, FG
					Short Grass Pasture Kv= 7.0 fps
0.2	59	0.0170	5.53	55.30	Channel Flow, GH
					Area= 10.0 sf Perim= 20.1' r= 0.50'
					n= 0.022 Earth, clean & straight
0.2	143	0.0700	11.22	112.21	Channel Flow, HI
					Area= 10.0 sf Perim= 20.1' r= 0.50'
					n= 0.022 Earth, clean & straight
12.5	552	Total			

Summary for Subcatchment pS21: Post - Surface Runoff to Swale

Runoff = 0.69 cfs @ 12.11 hrs, Volume= 2,292 cf, Depth= 3.34"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

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Area (sf)		CN	Description		
8,027	74	>75% Grass cover, Good, HSG C			
0	70	Woods, Good, HSG C			
0	98	Paved parking, HSG C			
10	98	Proposed Wall			
206	98	Proposed Walkway			
8,243	75	Weighted Average			
8,027	74	97.38% Pervious Area			
216	98	2.62% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	38	0.1700	0.15		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
3.7	19	0.0556	0.09		Sheet Flow, BC Woods: Light underbrush n= 0.400 P2= 3.30"
7.9	57	Total			

Summary for Subcatchment pS22: Post - Daycare Walkway Runoff

Runoff = 0.26 cfs @ 12.07 hrs, Volume= 910 cf, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
0	98	Paved parking, HSG C
1,862	98	Sidewalk
0	98	Curbing
0	98	Roofs, HSG C
1,862	98	Weighted Average
1,862	98	100.00% Impervious Area

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Type III 24-hr 25-Year Rainfall=6.10"

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

Summary for Subcatchment pS23: Post - Daycare Plaza Runoff

Runoff = 0.06 cfs @ 12.07 hrs, Volume= 212 cf, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
433	98	Unconnected pavement, HSG C
433	98	100.00% Impervious Area

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

Summary for Subcatchment pS24: Post - Runoff to Forebay

Runoff = 0.49 cfs @ 12.08 hrs, Volume= 1,513 cf, Depth= 3.52"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
4,665	74	>75% Grass cover, Good, HSG C
76	98	Proposed Wall
420	98	Proposed Walkway
5,161	76	Weighted Average
4,665	74	90.39% Pervious Area
496	98	9.61% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment pS25: Post - Parking Lot Runoff to Forebay

Runoff = 0.42 cfs @ 12.07 hrs, Volume= 1,438 cf, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
2,577	98	Paved parking, HSG C
* 291	98	Proposed Walkway
* 75	98	Curbing
2,943	98	Weighted Average
2,943	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment pS26: Post - Flow to CB3

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 1,353 cf, Depth= 5.32"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

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Area (sf)	CN	Description
968	98	Paved parking, HSG C
* 1,392	98	Proposed Walkway
643	74	>75% Grass cover, Good, HSG C
* 52	98	Curbing
3,055	93	Weighted Average
643	74	21.05% Pervious Area
2,412	98	78.95% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	

5.0

Direct Entry,

Summary for Subcatchment pS27: Post - Area in front of bldg flowing to existing swale-4

Runoff = 0.69 cfs @ 12.08 hrs, Volume= 2,264 cf, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
3,609	74	>75% Grass cover, Good, HSG C
* 241	98	Existing Walk
2,380	98	Roofs, HSG C
0	98	Paved parking, HSG C
* 0	89	Gravel Area
6,230	84	Weighted Average
3,609	74	57.93% Pervious Area
2,621	98	42.07% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	

5.4 50 0.1600 0.15

Sheet Flow, AB

Grass: Bermuda n= 0.410 P2= 3.30"

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Summary for Subcatchment pS3: Post - Norther half or parking area-2

Runoff = 1.95 cfs @ 12.01 hrs, Volume= 5,898 cf, Depth= 5.53"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)		CN	Description		
1,657	74	>75% Grass cover, Good, HSG C			
11,151	98	Paved parking, HSG C			
12,808	95	Weighted Average			
1,657	74	12.94% Pervious Area			
11,151	98	87.06% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB
					Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC
					Paved Kv= 20.3 fps

Summary for Subcatchment pS4: Post - Southern half of parking area-2

Runoff = 3.70 cfs @ 12.01 hrs, Volume= 11,160 cf, Depth= 5.48"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)		CN	Description
3,603	74	>75% Grass cover, Good, HSG C	
20,838	98	Paved parking, HSG C	
24,441	94	Weighted Average	
3,603	74	14.74% Pervious Area	
20,838	98	85.26% Impervious Area	

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment pS5: Post - Norther half of parking area-3

Runoff = 4.68 cfs @ 12.01 hrs, Volume= 13,921 cf, Depth= 5.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
9,645	74	>75% Grass cover, Good, HSG C
23,119	98	Paved parking, HSG C
32,764	91	Weighted Average
9,645	74	29.44% Pervious Area
23,119	98	70.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

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Type III 24-hr 25-Year Rainfall=6.10"

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Summary for Subcatchment pS6: Post - Southern half of parking area-3

Runoff = 4.59 cfs @ 12.01 hrs, Volume= 13,916 cf, Depth= 5.61"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
2,944	74	>75% Grass cover, Good, HSG C
26,846	98	Paved parking, HSG C
29,790	96	Weighted Average
2,944	74	9.88% Pervious Area
26,846	98	90.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment pS7: Post - Flow to CB4

Runoff = 0.38 cfs @ 12.07 hrs, Volume= 1,310 cf, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
2,681	98	Paved parking, HSG C
2,681	98	100.00% Impervious Area

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Type III 24-hr 25-Year Rainfall=6.10"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment pS9: Post - Flow to Area Drain

Runoff = 1.64 cfs @ 12.19 hrs, Volume= 6,598 cf, Depth= 3.38"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.10"

Area (sf)	CN	Description
759	98	Unconnected pavement, HSG C
230	98	Paved parking, HSG C
0	89	Gravel path
20,621	74	>75% Grass cover, Good, HSG C
1,825	70	Woods, Good, HSG C
0	98	Roofs, HSG C
23,435	75	Weighted Average
22,446	74	95.78% Pervious Area
989	98	4.22% Impervious Area

*

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.5	64	0.1100	2.32		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
3.6	152	0.0100	0.70		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
0.4	72	0.1700	2.89		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.0	29	0.1000	13.41	134.11	Channel Flow, EF Area= 10.0 sf Perim= 20.1' r= 0.50' n= 0.022 Earth, clean & straight
13.9	367	Total			

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Summary for Pond pSF1: Post - Sand Filter-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 4.22" for 25-Year event
Inflow = 16.98 cfs @ 12.02 hrs, Volume= 61,576 cf
Outflow = 14.63 cfs @ 12.07 hrs, Volume= 61,456 cf, Atten= 14%, Lag= 2.8 min
Primary = 14.63 cfs @ 12.07 hrs, Volume= 61,456 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.03' @ 12.07 hrs Surf.Area= 9,138 sf Storage= 8,112 cf

Flood Elev= 22.20' Surf.Area= 9,493 sf Storage= 8,980 cf

Plug-Flow detention time= 32.1 min calculated for 61,456 cf (100% of inflow)

Center-of-Mass det. time= 30.8 min (819.1 - 788.4)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	5,566 cf	Open Storage (Prismatic) Listed below (Recalc)
#2	18.50'	3,390 cf	Sand Filter (Prismatic) Listed below (Recalc)
#3	18.58'	24 cf	10,295 cf Overall - 24 cf Embedded = 10,271 cf x 33.0% Voids 4.0" Round Pipe Storage Inside #2 L= 271.0'
		8,980 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	4,118	0	0
22.00	4,950	4,534	4,534
22.20	5,375	1,032	5,566

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	4,118	0	0
19.00	4,118	2,059	2,059
20.00	4,118	4,118	6,177
21.00	4,118	4,118	10,295

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Device Routing Invert Outlet Devices

#1	Primary	21.20'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 0.00													
			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
			Coef. (English)	2.54	2.61	2.61	2.60	2.66	2.70	2.77	2.89	2.88	2.85	3.07	3.20	3.32
#2	Primary	21.20'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28)													
			Head (feet)	0.00	1.00											
			Width (feet)	4.00	8.00											
#3	Device 4	18.50'	8.270 in/hr Exfiltration over Surface area													
#4	Primary	18.58'	4.0" Round Culvert X 2.00 L= 15.0' RCP, sq.cut end projecting, Ke= 0.500													
			Inlet / Outlet Invert= 18.58' / 18.40'				S= 0.0120 '/'				Cc= 0.900					
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf													

Primary OutFlow Max=14.50 cfs @ 12.07 hrs HW=22.03' TW=18.55' (Dynamic Tailwater)

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

2=Custom Weir/Orifice (Weir Controls 13.14 cfs @ 2.81 fps)

4=Culvert (Barrel Controls 1.35 cfs @ 7.75 fps)

3=Exfiltration (Passes 1.35 cfs of 1.75 cfs potential flow)

Summary for Pond pSF2: Post - Sand Filter-2

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth = 4.94" for 25-Year event
Inflow = 9.12 cfs @ 12.07 hrs, Volume= 30,467 cf
Outflow = 8.36 cfs @ 12.11 hrs, Volume= 30,456 cf, Atten= 8%, Lag= 2.2 min
Primary = 7.94 cfs @ 12.11 hrs, Volume= 11,997 cf
Secondary = 0.46 cfs @ 12.02 hrs, Volume= 18,459 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.65' @ 12.11 hrs Surf.Area= 3,628 sf Storage= 4,008 cf

Flood Elev= 23.00' Surf.Area= 3,746 sf Storage= 4,765 cf

Plug-Flow detention time= 45.5 min calculated for 30,431 cf (100% of inflow)

Center-of-Mass det. time= 45.5 min (809.1 - 763.6)

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Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	1,020 cf	Sand Filter (Prismatic) Listed below (Recalc) 3,102 cf Overall - 11 cf Embedded = 3,091 cf x 33.0% Voids
#2	21.00'	3,734 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#3	19.00'	11 cf	4.0" Round Pipe Storage Inside #1 L= 123.0'
		4,765 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,551	0	0
20.00	1,551	1,551	1,551
21.00	1,551	1,551	3,102

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	1,551	0	0
22.00	1,861	1,706	1,706
23.00	2,195	2,028	3,734

Device	Routing	Invert	Outlet Devices
#1	Primary	22.15'	10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Device 3	19.00'	8.270 in/hr Exfiltration over Surface area
#3	Secondary	19.00'	4.0" Round Culvert L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.00' / 18.75' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=7.85 cfs @ 12.11 hrs HW=22.64' TW=22.37' (Dynamic Tailwater)↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 7.85 cfs @ 1.60 fps)**Secondary OutFlow** Max=0.46 cfs @ 12.02 hrs HW=22.52' TW=19.05' (Dynamic Tailwater)↑ **3=Culvert** (Barrel Controls 0.46 cfs @ 5.25 fps)↑ **2=Exfiltration** (Passes 0.46 cfs of 0.69 cfs potential flow)

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Summary for Pond pSF3: Post - Sand Filter-3

Inflow Area = 134,007 sf, 22.74% Impervious, Inflow Depth = 3.22" for 25-Year event
Inflow = 8.28 cfs @ 12.18 hrs, Volume= 35,992 cf
Outflow = 8.21 cfs @ 12.20 hrs, Volume= 35,960 cf, Atten= 1%, Lag= 1.4 min
Primary = 8.21 cfs @ 12.20 hrs, Volume= 35,960 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.18' @ 12.20 hrs Surf.Area= 3,034 sf Storage= 3,358 cf

Flood Elev= 23.50' Surf.Area= 3,390 sf Storage= 5,030 cf

Plug-Flow detention time= 27.1 min calculated for 35,960 cf (100% of inflow)

Center-of-Mass det. time= 26.4 min (848.1 - 821.6)

Volume	Invert	Avail.Storage	Storage Description
#1	20.50'	4,063 cf	Open Storage (Prismatic) Listed below (Recalc)
#2	18.00'	953 cf	Sand Filter (Prismatic) Listed below (Recalc)
#3	18.08'	13 cf	2,903 cf Overall - 13 cf Embedded = 2,889 cf x 33.0% Voids
		L= 153.0'	4.0" Round Pipe Storage Inside #2
		5,030 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
20.50	1,161	0	0
21.50	1,365	1,263	1,263
22.00	1,792	789	2,052
23.00	2,229	2,011	4,063

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.00	1,161	0	0
20.00	1,161	2,322	2,322
20.50	1,161	581	2,903

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Device	Routing	Invert	Outlet Devices
#1	Device 2	18.00'	8.270 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	18.08'	4.0" Round Culvert X 2.00 L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.08' / 17.85' S= 0.0092 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Primary	20.75'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 1.80 Width (feet) 0.25 1.50
#4	Primary	21.85'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 1.00 Width (feet) 6.00 8.00

Primary OutFlow Max=8.18 cfs @ 12.20 hrs HW=22.18' TW=18.27' (Dynamic Tailwater)

—2=Culvert (Passes 0.58 cfs of 1.25 cfs potential flow)

—1=Exfiltration (Exfiltration Controls 0.58 cfs)

—3=Custom Weir/Orifice (Weir Controls 3.64 cfs @ 3.40 fps)

—4=Custom Weir/Orifice (Weir Controls 3.96 cfs @ 1.87 fps)

Summary for Pond pSW1: Pre - Swale-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 4.43" for 25-Year event
Inflow = 15.53 cfs @ 12.09 hrs, Volume= 64,655 cf
Outflow = 15.43 cfs @ 12.11 hrs, Volume= 64,655 cf, Atten= 1%, Lag= 0.7 min
Primary = 15.43 cfs @ 12.11 hrs, Volume= 64,655 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 18.57' @ 12.11 hrs Surf.Area= 1,866 sf Storage= 761 cf
Flood Elev= 19.40' Surf.Area= 3,367 sf Storage= 2,947 cf

Plug-Flow detention time= 1.3 min calculated for 64,601 cf (100% of inflow)
Center-of-Mass det. time= 1.3 min (816.5 - 815.2)

Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	2,947 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)
18.00	814	0	0
19.00	2,666	1,740	1,740
19.40	3,367	1,207	2,947

Device Routing Invert Outlet Devices

#1 Primary 18.00' **Custom Weir/Orifice, Cv= 2.62 (C= 3.28)**

Head (feet) 0.00 1.00 1.40

Width (feet) 9.34 16.70 21.40

Primary OutFlow Max=15.34 cfs @ 12.11 hrs HW=18.57' TW=0.00' (Dynamic Tailwater)

1=Custom Weir/Orifice (Weir Controls 15.34 cfs @ 2.37 fps)

Summary for Pond pSW2: Pre - Swale-2

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth = 4.93" for 25-Year event
Inflow = 8.23 cfs @ 12.11 hrs, Volume= 30,412 cf
Outflow = 7.72 cfs @ 12.13 hrs, Volume= 30,412 cf, Atten= 6%, Lag= 1.0 min
Primary = 5.61 cfs @ 12.11 hrs, Volume= 27,213 cf
Secondary = 2.40 cfs @ 12.17 hrs, Volume= 3,199 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.93' @ 12.17 hrs Surf.Area= 592 sf Storage= 397 cf

Flood Elev= 20.70' Surf.Area= 825 sf Storage= 945 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.3 min (815.8 - 815.5)

Volume Invert Avail.Storage Storage Description

#1 19.00' 945 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)
19.00	263	0	0
20.00	617	440	440
20.70	825	505	945

Device Routing Invert Outlet Devices

#1	Primary	18.19'	18.0" Round Culvert L= 24.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.19' / 18.09' S= 0.0042 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	19.03'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.68' / 19.03' S= -0.0233 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=5.66 cfs @ 12.11 hrs HW=19.80' TW=19.35' (Dynamic Tailwater)

↑ **1=Culvert** (Inlet Controls 5.66 cfs @ 3.20 fps)

Secondary OutFlow Max=2.39 cfs @ 12.17 hrs HW=19.92' TW=18.54' (Dynamic Tailwater)

↑ **2=Culvert** (Inlet Controls 2.39 cfs @ 3.22 fps)

Summary for Pond pSW3: Pre - Swale-3

Inflow Area =	81,538 sf, 59.99% Impervious, Inflow Depth = 4.35" for 25-Year event
Inflow =	6.29 cfs @ 12.11 hrs, Volume= 29,542 cf
Outflow =	3.14 cfs @ 12.25 hrs, Volume= 29,541 cf, Atten= 50%, Lag= 8.5 min
Primary =	3.14 cfs @ 12.25 hrs, Volume= 29,541 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.73' @ 12.25 hrs Surf.Area= 2,673 sf Storage= 2,143 cf

Flood Elev= 20.00' Surf.Area= 3,014 sf Storage= 2,902 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 3.0 min (826.3 - 823.4)

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Volume	Invert	Avail.Storage	Storage Description
#1	18.50'	2,902 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	374	0	0
19.00	1,735	527	527
20.00	3,014	2,375	2,902

Device Routing Invert Outlet Devices

#1	Primary	18.08'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.08' / 18.01' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.14 cfs @ 12.25 hrs HW=19.73' TW=19.04' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.14 cfs @ 3.99 fps)

Summary for Pond pSW4: Pre - Swale-4

Inflow Area =	91,328 sf, 60.32% Impervious, Inflow Depth = 4.41" for 25-Year event
Inflow =	3.69 cfs @ 12.21 hrs, Volume= 33,544 cf
Outflow =	3.65 cfs @ 12.26 hrs, Volume= 33,544 cf, Atten= 1%, Lag= 3.1 min
Primary =	3.65 cfs @ 12.26 hrs, Volume= 33,544 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.04' @ 12.26 hrs Surf.Area= 880 sf Storage= 476 cf

Flood Elev= 19.80' Surf.Area= 1,554 sf Storage= 1,361 cf

Plug-Flow detention time= 1.9 min calculated for 33,516 cf (100% of inflow)

Center-of-Mass det. time= 1.9 min (820.9 - 819.0)

Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	1,361 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)
18.00	27	0	0
19.00	851	439	439
19.50	1,190	510	949
19.80	1,554	412	1,361

Device Routing Invert Outlet Devices

#1	Primary	17.99'	18.0" Round Culvert L= 21.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 17.99' / 17.82' S= 0.0081 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.64 cfs @ 12.26 hrs HW=19.04' TW=18.26' (Dynamic Tailwater)

1-1=Culvert (Barrel Controls 3.64 cfs @ 3.86 fps)

Summary for Reach pSW5: Pre - Swale-5

Inflow Area =	232,923 sf, 39.09% Impervious, Inflow Depth = 3.75" for 25-Year event
Inflow =	12.26 cfs @ 12.20 hrs, Volume= 72,754 cf
Outflow =	12.24 cfs @ 12.22 hrs, Volume= 72,753 cf, Atten= 0%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 2.51 fps, Min. Travel Time= 1.0 min

Avg. Velocity = 0.62 fps, Avg. Travel Time= 3.9 min

Peak Storage= 706 cf @ 12.22 hrs

Average Depth at Peak Storage= 0.45'

Bank-Full Depth= 1.50' Flow Area= 22.4 sf, Capacity= 110.11 cfs

Custom cross-section, Length= 145.0' Slope= 0.0050 '/'

Constant n= 0.022 Earth, clean & straight

Inlet Invert= 17.82', Outlet Invert= 17.10'

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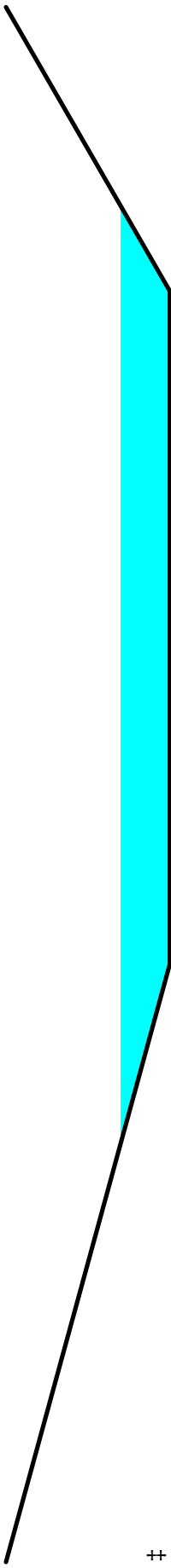
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Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-12.50	19.50	0.00
-4.50	18.00	1.50
4.50	18.00	1.50
8.30	19.50	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	9.0	0	0.00
1.50	22.4	21.2	3,241	110.11

Summary for Pond STC1: Post - Stormceptor-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 3.06" for 25-Year event
Inflow = 2.30 cfs @ 12.01 hrs, Volume= 12,085 cf
Outflow = 2.30 cfs @ 12.01 hrs, Volume= 12,085 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.30 cfs @ 12.01 hrs, Volume= 12,085 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 30.43' @ 12.01 hrs
Flood Elev= 33.20'

Device Routing Invert Outlet Devices

#1	Primary	29.40'	12.0" Round Culvert L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.40' / 29.35' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=2.25 cfs @ 12.01 hrs HW=30.42' TW=30.04' (Dynamic Tailwater)

└─1=Culvert (Barrel Controls 2.25 cfs @ 3.50 fps)

Summary for Pond STC2: Post - Stormceptor-2

Inflow Area = 32,406 sf, 41.59% Impervious, Inflow Depth = 4.29" for 25-Year event
Inflow = 3.56 cfs @ 12.07 hrs, Volume= 11,587 cf
Outflow = 3.56 cfs @ 12.07 hrs, Volume= 11,587 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.56 cfs @ 12.07 hrs, Volume= 11,587 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.44' @ 12.07 hrs

Flood Elev= 27.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	23.00'	12.0" Round Culvert L= 5.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.00' / 22.90' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.50 cfs @ 12.07 hrs HW=24.41' TW=23.54' (Dynamic Tailwater)

└─1=Culvert (Barrel Controls 3.50 cfs @ 4.46 fps)

Summary for Reach SW1: Post - Swale-1

Inflow Area = 8,243 sf, 2.62% Impervious, Inflow Depth = 3.59" for 25-Year event
Inflow = 0.91 cfs @ 12.19 hrs, Volume= 2,466 cf
Outflow = 0.90 cfs @ 12.20 hrs, Volume= 2,466 cf, Atten= 2%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 3.47 fps, Min. Travel Time= 0.5 min

Avg. Velocity = 1.11 fps, Avg. Travel Time= 1.5 min

Peak Storage= 26 cf @ 12.20 hrs

Average Depth at Peak Storage= 0.25'

Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 34.60 cfs

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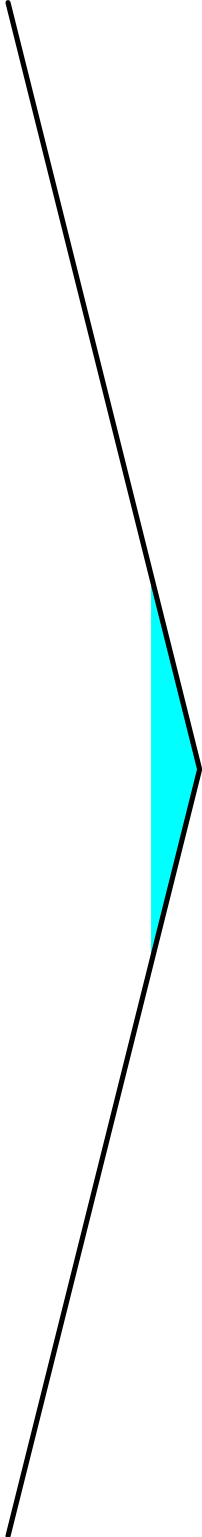
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Custom cross-section, Length= 100.0' Slope= 0.0800 '/'
Constant n= 0.030 Short grass
Inlet Invert= 37.00', Outlet Invert= 29.00'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-4.00	1.00	0.00
0.00	0.00	1.00
4.00	1.00	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
1.00	4.0	8.2	400	34.60

Summary for Reach SW2: Post - Swale-2

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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= 0.75' Flow Area= 3.0 sf, Capacity= 16.07 cfs

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Custom cross-section, Length= 80.0' Slope= 0.0313 '/
Constant n= 0.030 Short grass
Inlet Invert= 29.50', Outlet Invert= 27.00'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-3.00	0.75	0.00
-1.00	0.00	0.75
1.00	0.00	0.75
3.00	0.75	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	2.0	0	0.00
0.75	3.0	6.3	240	16.07

Summary for Pond US1: Post - Underground Recharge System-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 3.06" for 25-Year event
Inflow = 2.30 cfs @ 12.01 hrs, Volume= 12,085 cf
Outflow = 2.19 cfs @ 12.06 hrs, Volume= 12,085 cf, Atten= 5%, Lag= 2.9 min
Discarded = 0.04 cfs @ 4.20 hrs, Volume= 4,056 cf
Primary = 2.15 cfs @ 12.06 hrs, Volume= 8,094 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 30.08' @ 12.05 hrs Surf.Area= 1,736 sf Storage= 1,479 cf
Flood Elev= 30.90' Surf.Area= 1,736 sf Storage= 1,991 cf

Plug-Flow detention time= 85.4 min calculated for 12,075 cf (100% of inflow)
Center-of-Mass det. time= 85.7 min (852.3 - 766.7)

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Volume	Invert	Avail. Storage	Storage Description
#1A	28.57'	1,014 cf	21.50'W x 80.76'L x 2.33'H Field A 4,051 cf Overall - 978 cf Embedded = 3,073 cf x 33.0% Voids
#2A	29.07'	978 cf	ADS_StormTech SC-310 x 66 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 6 rows
		1,992 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.57'	1.000 in/hr Exfiltration over Surface area
#2	Primary	29.36'	8.0" Round Culvert X 3.00 L= 2.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.36' / 29.30' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.04 cfs @ 4.20 hrs HW=28.59' (Free Discharge)

↳ **1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=2.10 cfs @ 12.06 hrs HW=30.08' TW=29.91' (Dynamic Tailwater)

↳ **2=Culvert** (Inlet Controls 2.10 cfs @ 2.00 fps)

Summary for Pond US2: Post - Underground Recharge System-2

Inflow Area =	15,579 sf, 100.00% Impervious, Inflow Depth = 5.86" for 25-Year event
Inflow =	2.20 cfs @ 12.07 hrs, Volume= 7,610 cf
Outflow =	0.46 cfs @ 12.48 hrs, Volume= 7,610 cf, Atten= 79%, Lag= 24.5 min
Discarded =	0.12 cfs @ 10.71 hrs, Volume= 6,725 cf
Primary =	0.34 cfs @ 12.48 hrs, Volume= 885 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 25.02' @ 12.48 hrs Surf.Area= 2,064 sf Storage= 2,715 cf

Flood Elev= 25.50' Surf.Area= 2,064 sf Storage= 3,331 cf

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Plug-Flow detention time= 142.8 min calculated for 7,604 cf (100% of inflow)
Center-of-Mass det. time= 142.7 min (886.6 - 744.0)

Volume	Invert	Avail. Storage	Storage Description
#1A	23.00'	1,529 cf	34.75'W x 59.40'L x 3.50'H Field A 7,224 cf Overall - 2,592 cf Embedded = 4,632 cf x 33.0% Voids
#2A	23.50'	2,592 cf	ADS_StormTech SC-740 x 56 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
		4,121 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	23.00'	2.410 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	24.71'	10.0" Round Culvert L= 37.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.71' / 24.25' S= 0.0124 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.12 cfs @ 10.71 hrs HW=23.04' (Free Discharge)

└─**1=Exfiltration** (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=0.34 cfs @ 12.48 hrs HW=25.02' TW=22.02' (Dynamic Tailwater)

└─**2=Culvert** (Inlet Controls 0.34 cfs @ 1.88 fps)

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Time span=0.00-36.00 hrs, dt=0.03 hrs, 1201 points x 2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond CB1: CB-1

Peak Elev=40.15' Inflow=3.15 cfs 10,784 cf
Outflow=3.15 cfs 10,784 cf

Pond CB4: Post - CB-4

Peak Elev=26.37' Inflow=0.20 cfs 671 cf
4.0" Round Culvert n=0.013 L=14.3' S=-0.0392 '/' Outflow=0.20 cfs 671 cf

Pond CO: Post - Cleanout

Peak Elev=22.68' Inflow=0.58 cfs 1,932 cf
8.0" Round Culvert n=0.013 L=74.0' S=0.0101 '/' Outflow=0.58 cfs 1,932 cf

Pond DMH1: Post - DMH1

Peak Elev=33.23' Inflow=6.48 cfs 21,206 cf
Primary=4.98 cfs 18,678 cf Secondary=1.50 cfs 2,527 cf Outflow=6.48 cfs 21,206 cf

Pond DMH10: Post - DMH-10

Peak Elev=26.58' Inflow=3.11 cfs 10,853 cf
12.0" Round Culvert n=0.013 L=21.0' S=0.0119 '/' Outflow=3.11 cfs 10,853 cf

Pond DMH11: Post - DMH-11

Peak Elev=25.91' Inflow=3.11 cfs 10,853 cf
12.0" Round Culvert n=0.013 L=3.0' S=0.0200 '/' Outflow=3.11 cfs 10,853 cf

Pond DMH2: Post- DMH2

Peak Elev=31.25' Inflow=7.77 cfs 27,202 cf
Primary=2.71 cfs 16,320 cf Secondary=5.07 cfs 10,882 cf Outflow=7.77 cfs 27,202 cf

Pond DMH3: Post - DMH3

Peak Elev=28.61' Inflow=11.29 cfs 52,898 cf
18.0" Round Culvert n=0.013 L=105.0' S=0.0200 '/' Outflow=11.29 cfs 52,898 cf

Pond DMH4: Post - DMH4

Peak Elev=26.31' Inflow=11.29 cfs 52,898 cf
18.0" Round Culvert n=0.013 L=75.0' S=0.0273 '/' Outflow=11.29 cfs 52,898 cf

Pond DMH5: Post - DMH5

Peak Elev=25.09' Inflow=5.73 cfs 18,627 cf
12.0" Round Culvert n=0.013 L=3.5' S=0.0714 '/' Outflow=5.73 cfs 18,627 cf

Pond DMH6: Post - DMH-6

Peak Elev=34.38' Inflow=2.58 cfs 16,991 cf
10.0" Round Culvert n=0.013 L=55.0' S=0.0182 '/' Outflow=2.58 cfs 16,991 cf

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Pond DMH7: Post - DMH-7

10.0" Round Culvert n=0.013 L=30.0' S=0.0200 '/' Inflow=2.58 cfs 16,991 cf
Peak Elev=32.28'

Pond DMH8: Post - DMH-8

10.0" Round Culvert n=0.013 L=30.0' S=0.0200 '/' Inflow=2.58 cfs 16,991 cf
Peak Elev=27.93'

Pond DMH9: Post - DMH-9

12.0" Round Culvert n=0.013 L=85.0' S=0.0118 '/' Inflow=5.06 cfs 22,303 cf
Peak Elev=26.19'

Reach OP1: Outlet pipe-1

12.0" Round Pipe n=0.013 L=14.0' S=0.0250 '/' Capacity=5.63 cfs 12,142 cf
Avg. Flow Depth=0.48' Max Vel=7.03 fps Inflow=2.60 cfs 12,141 cf
Outflow=2.61 cfs 12,142 cf

Pond pA1: Post - Analysis Point-1

Inflow=3.15 cfs 10,784 cf
Primary=3.15 cfs 10,784 cf

Pond pA2: Pre - Analysis Point-2

Inflow=26.55 cfs 103,591 cf
Primary=26.55 cfs 103,591 cf

Pond pA3: Post - Analysis Point-3

Inflow=21.18 cfs 111,866 cf
Primary=21.18 cfs 111,866 cf

Pond pAD: Post - Area drain at main entrance

12.0" Round Culvert n=0.013 L=69.0' S=0.0109 '/' Inflow=0.24 cfs 806 cf
Peak Elev=25.02' Outflow=0.24 cfs 806 cf

Pond pAD2: Area Drain

8.0" Round Culvert n=0.013 L=10.0' S=0.0100 '/' Inflow=0.09 cfs 302 cf
Peak Elev=28.70' Outflow=0.09 cfs 302 cf

Pond pCB1: Post - CB1

12.0" Round Culvert n=0.012 L=140.0' S=0.0143 '/' Inflow=2.80 cfs 8,523 cf
Peak Elev=33.05' Outflow=2.80 cfs 8,523 cf

Pond pCB2: Post - CB2

15.0" Round Culvert n=0.013 L=10.0' S=0.0200 '/' Inflow=5.32 cfs 16,158 cf
Peak Elev=34.03' Outflow=5.32 cfs 16,158 cf

Pond pCB3: Post - CB3

8.0" Round Culvert n=0.013 L=44.0' S=0.0318 '/' Inflow=1.61 cfs 5,048 cf
Peak Elev=35.75' Outflow=1.61 cfs 5,048 cf

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Pond pCB4: Post - CB4

8.0" Round Culvert n=0.013 L=55.0' S=0.0227 '/' Inflow=0.54 cfs 1,868 cf
Outflow=0.54 cfs 1,868 cf

Pond pCB5: Post -CB5

12.0" Round Culvert n=0.013 L=158.0' S=0.0100 '/' Inflow=6.13 cfs 27,346 cf
Outflow=6.13 cfs 27,346 cf

Pond pCB6: Post - CB-6

Primary=2.58 cfs 16,991 cf Storage=149 cf Inflow=4.35 cfs 18,574 cf
Secondary=1.77 cfs 1,564 cf Outflow=4.35 cfs 18,555 cf

Pond pCB7: Post - CB-7

Primary=2.49 cfs 5,311 cf Storage=174 cf Inflow=2.62 cfs 5,370 cf
Secondary=0.09 cfs 12 cf Outflow=2.57 cfs 5,324 cf

Pond pCB8: Post - CB-8

Peak Elev=29.65' Storage=57 cf Inflow=0.58 cfs 1,973 cf
Outflow=0.58 cfs 1,932 cf

Pond pDB1: Post - Detention Basin-1

Peak Elev=22.53' Storage=2,802 cf Inflow=12.34 cfs 22,631 cf
Outflow=12.19 cfs 22,586 cf

Pond pFB1: Forebay-1

Peak Elev=23.41' Storage=595 cf Inflow=6.87 cfs 20,499 cf
Outflow=6.78 cfs 20,032 cf

Pond pFB2: Forebay-2

Peak Elev=23.40' Storage=591 cf Inflow=6.56 cfs 20,043 cf
Outflow=6.48 cfs 19,576 cf

Pond pFB3: Post - Forebay-3

Peak Elev=22.45' Storage=617 cf Inflow=6.08 cfs 28,768 cf
Outflow=6.07 cfs 28,500 cf

Pond pH2: Post - Daycare Header

12.0" Round Culvert n=0.013 L=70.0' S=0.0200 '/' Inflow=1.09 cfs 3,797 cf
Outflow=1.09 cfs 3,797 cf

Pond pH3: Post - Daycare Header

12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Inflow=3.11 cfs 10,853 cf
Outflow=3.11 cfs 10,853 cf

Pond pH4: Post - Daycare Header

12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Inflow=3.11 cfs 10,853 cf
Outflow=3.11 cfs 10,853 cf

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Pond pH5: Post - Roof Header

Peak Elev=26.79' Inflow=0.71 cfs 2,480 cf
Outflow=0.71 cfs 2,480 cf

Reach pRD1: Post - Roof Drain-1

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.72' Max Vel=5.10 fps Inflow=3.11 cfs 10,850 cf
L=20.0' S=0.0100 '/' Capacity=3.56 cfs Outflow=3.11 cfs 10,850 cf

Reach pRD2: Post - Roof Drain-2

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.65' Max Vel=5.96 fps Inflow=3.25 cfs 11,335 cf
L=28.0' S=0.0143 '/' Capacity=4.26 cfs Outflow=3.25 cfs 11,335 cf

Subcatchment pRF1: Post - Roof flow

Runoff Area=15,575 sf 100.00% Impervious Runoff Depth=8.36"
Tc=5.0 min CN=0/98 Runoff=3.11 cfs 10,850 cf

Subcatchment pRF2: Post - Roof flow

Runoff Area=16,270 sf 100.00% Impervious Runoff Depth=8.36"
Tc=5.0 min CN=0/98 Runoff=3.25 cfs 11,335 cf

Subcatchment pRF3: Post - Roof flow

Runoff Area=3,560 sf 100.00% Impervious Runoff Depth=8.36"
Tc=5.0 min CN=0/98 Runoff=0.71 cfs 2,480 cf

Subcatchment pRF4: Post - New Daycare Roof

Runoff Area=8,267 sf 100.00% Impervious Runoff Depth=8.36"
Tc=5.0 min CN=0/98 Runoff=1.65 cfs 5,759 cf

Subcatchment pRF5: Post - Existing Roof

Runoff Area=5,017 sf 100.00% Impervious Runoff Depth=8.36"
Tc=5.0 min CN=0/98 Runoff=1.00 cfs 3,495 cf

Subcatchment pS1: Post - Northeastern Parking lot

Runoff Area=16,598 sf 80.53% Impervious Runoff Depth=7.80"
Tc=5.0 min CN=74/98 Runoff=3.15 cfs 10,784 cf

Subcatchment pS10: Post - Flow to Area Drain

Runoff Area=14,310 sf 33.15% Impervious Runoff Depth=6.43"
Flow Length=126' Tc=17.0 min CN=74/98 Runoff=1.68 cfs 7,662 cf

Subcatchment pS11: Post - Flow to playground catch basin

Runoff Area=1,116 sf 60.48% Impervious Runoff Depth=7.22"
Tc=5.0 min CN=74/98 Runoff=0.20 cfs 671 cf

Subcatchment pS12: Post - Flow to Swale-5

Runoff Area=7,588 sf 72.14% Impervious Runoff Depth=7.55"
Tc=5.0 min CN=74/98 Runoff=1.41 cfs 4,776 cf

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Subcatchment pS13: Post - Northeastern area flowing to proposed CB5

Runoff Area=58,920 sf 3.59% Impervious Runoff Depth=5.57"
Flow Length=445' Tc=18.2 min CN=74/98 Runoff=6.13 cfs 27,346 cf

Subcatchment pS14: Post - Parking area-4 runoff

Runoff Area=29,725 sf 36.32% Impervious Runoff Depth=6.44"
Tc=5.0 min CN=73/98 Runoff=4.95 cfs 15,953 cf

Subcatchment pS15: Post - Flow to entrance area drain

Runoff Area=1,395 sf 50.82% Impervious Runoff Depth=6.94"
Tc=5.0 min CN=74/98 Runoff=0.24 cfs 806 cf

Subcatchment pS16: Post - Flow to Sand Filter-2

Runoff Area=8,374 sf 18.89% Impervious Runoff Depth=6.31"
Tc=5.0 min CN=77/98 Runoff=1.40 cfs 4,400 cf

Subcatchment pS17: Post - Area in front of bldg flowing to existing swale-3

Runoff Area=7,518 sf 17.25% Impervious Runoff Depth=5.96"
Flow Length=173' Tc=6.3 min CN=74/98 Runoff=1.14 cfs 3,737 cf

Subcatchment pS18: Post - Flow to Sand Filter-1

Runoff Area=6,183 sf 0.00% Impervious Runoff Depth=6.07"
Tc=5.0 min CN=79/0 Runoff=1.02 cfs 3,127 cf

Subcatchment pS2: Post - Flow to CB3

Runoff Area=10,081 sf 18.76% Impervious Runoff Depth=6.01"
Tc=5.0 min CN=74/98 Runoff=1.61 cfs 5,048 cf

Subcatchment pS20: Post - Flow along South side to Sand Filter-1

Runoff Area=60,165 sf 4.02% Impervious Runoff Depth=5.58"
Flow Length=552' Tc=12.5 min CN=74/98 Runoff=7.22 cfs 27,987 cf

Subcatchment pS21: Post - Surface Runoff to Swale

Runoff Area=8,243 sf 2.62% Impervious Runoff Depth=5.54"
Flow Length=57' Tc=7.9 min CN=74/98 Runoff=1.13 cfs 3,807 cf

Subcatchment pS22: Post - Daycare Walkway Runoff

Runoff Area=1,862 sf 100.00% Impervious Runoff Depth=8.36"
Tc=5.0 min CN=0/98 Runoff=0.37 cfs 1,297 cf

Subcatchment pS23: Post - Daycare Plaza Runoff

Runoff Area=433 sf 100.00% Impervious Runoff Depth=8.36"
Tc=5.0 min CN=0/98 Runoff=0.09 cfs 302 cf

Subcatchment pS24: Post - Runoff to Forebay

Runoff Area=5,161 sf 9.61% Impervious Runoff Depth=5.74"
Tc=5.0 min CN=74/98 Runoff=0.80 cfs 2,470 cf

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Subcatchment pS25: Post - Parking Lot Runoff to Forebay

Runoff Area=2,943 sf 100.00% Impervious Runoff Depth=8.36"
Tc=5.0 min CN=0/98 Runoff=0.59 cfs 2,050 cf

Subcatchment pS26: Post - Flow to CB3

Runoff Area=3,055 sf 78.95% Impervious Runoff Depth=7.75"
Tc=5.0 min CN=74/98 Runoff=0.58 cfs 1,973 cf

Subcatchment pS27: Post - Area in front of bldg flowing to existing swale-4

Runoff Area=6,230 sf 42.07% Impervious Runoff Depth=6.68"
Slope=0.1600 '/ Tc=5.4 min CN=74/98 Runoff=1.05 cfs 3,470 cf
Flow Length=50'

Subcatchment pS3: Post - Norther half of parking area-2

Runoff Area=12,808 sf 87.06% Impervious Runoff Depth=7.99"
Slope=0.0900 '/ Tc=0.6 min CN=74/98 Runoff=2.80 cfs 8,523 cf
Flow Length=117'

Subcatchment pS4: Post - Southern half of parking area-2

Runoff Area=24,441 sf 85.26% Impervious Runoff Depth=7.93"
Slope=0.0900 '/ Tc=0.6 min CN=74/98 Runoff=5.32 cfs 16,158 cf
Flow Length=117'

Subcatchment pS5: Post - Norther half of parking area-3

Runoff Area=32,764 sf 70.56% Impervious Runoff Depth=7.51"
Slope=0.0900 '/ Tc=0.6 min CN=74/98 Runoff=6.87 cfs 20,499 cf
Flow Length=117'

Subcatchment pS6: Post - Southern half of parking area-3

Runoff Area=29,790 sf 90.12% Impervious Runoff Depth=8.07"
Slope=0.0900 '/ Tc=0.6 min CN=74/98 Runoff=6.56 cfs 20,043 cf
Flow Length=117'

Subcatchment pS7: Post - Flow to CB4

Runoff Area=2,681 sf 100.00% Impervious Runoff Depth=8.36"
Tc=5.0 min CN=0/98 Runoff=0.54 cfs 1,868 cf

Subcatchment pS9: Post - Flow to Area Drain

Runoff Area=23,435 sf 4.22% Impervious Runoff Depth=5.59"
Flow Length=367' Tc=13.9 min CN=74/98 Runoff=2.71 cfs 10,912 cf

Pond pSF1: Post - Sand Filter-1

Peak Elev=22.51' Storage=8,980 cf Inflow=25.28 cfs 95,633 cf
Outflow=26.55 cfs 95,513 cf

Pond pSF2: Post - Sand Filter-2

Peak Elev=22.85' Storage=4,432 cf Inflow=13.48 cfs 45,212 cf
Primary=12.34 cfs 22,631 cf Secondary=0.45 cfs 22,571 cf Outflow=12.72 cfs 45,202 cf

Pond pSF3: Post - Sand Filter-3

Peak Elev=22.41' Storage=3,800 cf Inflow=14.69 cfs 60,201 cf
Outflow=14.58 cfs 60,169 cf

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Pond pSW1: Pre - Swale-1

Peak Elev=18.79' Storage=1,210 cf Inflow=28.94 cfs 103,591 cf
Outflow=26.55 cfs 103,591 cf

Pond pSW2: Pre - Swale-2

Peak Elev=27.19' Storage=945 cf Inflow=12.57 cfs 45,157 cf
Primary=6.57 cfs 37,234 cf Secondary=10.52 cfs 8,078 cf Outflow=12.57 cfs 45,158 cf

Pond pSW3: Pre - Swale-3

Peak Elev=22.67' Storage=2,902 cf Inflow=7.71 cfs 40,971 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0047 '/' Outflow=6.94 cfs 40,970 cf

Pond pSW4: Pre - Swale-4

Peak Elev=19.47' Storage=910 cf Inflow=7.82 cfs 46,920 cf
18.0" Round Culvert n=0.013 L=21.0' S=0.0081 '/' Outflow=6.14 cfs 46,920 cf

Reach pSW5: Pre - Swale-5

Avg. Flow Depth=0.62' Max Vel=3.01 fps Inflow=21.24 cfs 111,866 cf
n=0.022 L=145.0' S=0.0050 '/' Capacity=110.11 cfs Outflow=21.18 cfs 111,866 cf

Pond STC1: Post - Stormceptor-1

Peak Elev=30.69' Inflow=2.71 cfs 16,320 cf
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 '/' Outflow=2.71 cfs 16,320 cf

Pond STC2: Post - Stormceptor-2

Peak Elev=27.12' Inflow=5.48 cfs 17,821 cf
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=5.48 cfs 17,821 cf

Reach SW1: Post - Swale-1

Avg. Flow Depth=0.38' Max Vel=4.54 fps Inflow=2.62 cfs 5,370 cf
n=0.030 L=100.0' S=0.0800 '/' Capacity=34.60 cfs Outflow=2.62 cfs 5,370 cf

Reach SW2: Post - Swale-2

Avg. Flow Depth=0.03' Max Vel=0.83 fps Inflow=0.09 cfs 12 cf
n=0.030 L=80.0' S=0.0313 '/' Capacity=16.07 cfs Outflow=0.05 cfs 12 cf

Pond US1: Post - Underground Recharge System-1

Peak Elev=30.21' Storage=1,582 cf Inflow=2.71 cfs 16,320 cf
Discarded=0.04 cfs 4,182 cf Primary=2.60 cfs 12,141 cf Outflow=2.64 cfs 16,322 cf

Pond US2: Post - Underground Recharge System-2

Peak Elev=25.40' Storage=3,211 cf Inflow=3.11 cfs 10,853 cf
Discarded=0.12 cfs 7,810 cf Primary=1.36 cfs 3,043 cf Outflow=1.47 cfs 10,853 cf

Total Runoff Area = 424,508 sf Runoff Volume = 239,589 cf Average Runoff Depth = 6.77"
55.16% Pervious = 234,143 sf 44.84% Impervious = 190,365 sf

Summary for Pond CB1: CB-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 7.80" for 100-Year event
Inflow = 3.15 cfs @ 12.07 hrs, Volume= 10,784 cf
Outflow = 3.15 cfs @ 12.07 hrs, Volume= 10,784 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.15 cfs @ 12.07 hrs, Volume= 10,784 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 40.15' @ 12.07 hrs

Flood Elev= 46.68'

Device	Routing	Invert	Outlet Devices

#1	Primary	38.96'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=3.10 cfs @ 12.07 hrs HW=40.13' TW=0.00' (Dynamic Tailwater)

└─**1=Orifice/Grate** (Orifice Controls 3.10 cfs @ 3.95 fps)

Summary for Pond CB4: Post - CB-4

Inflow Area = 1,116 sf, 60.48% Impervious, Inflow Depth = 7.22" for 100-Year event
Inflow = 0.20 cfs @ 12.07 hrs, Volume= 671 cf
Outflow = 0.20 cfs @ 12.07 hrs, Volume= 671 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.07 hrs, Volume= 671 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 26.37' @ 12.07 hrs

Flood Elev= 27.10'

Device	Routing	Invert	Outlet Devices

#1	Primary	25.97'	4.0" Round Culvert L= 14.3' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 25.41' / 25.97' S= -0.0392 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.20 cfs @ 12.07 hrs HW=26.36' TW=22.24' (Dynamic Tailwater)

└─**1=Culvert** (Inlet Controls 0.20 cfs @ 2.26 fps)

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Summary for Pond CO: Post - Cleanout

Inflow Area = 3,055 sf, 78.95% Impervious, Inflow Depth = 7.59" for 100-Year event
Inflow = 0.58 cfs @ 12.08 hrs, Volume= 1,932 cf
Outflow = 0.58 cfs @ 12.08 hrs, Volume= 1,932 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.58 cfs @ 12.08 hrs, Volume= 1,932 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.68' @ 12.10 hrs

Flood Elev= 27.80'

Device	Routing	Invert	Outlet Devices

#1	Primary	22.10'	8.0" Round Culvert L= 74.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 22.10' / 21.35' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.53 cfs @ 12.08 hrs HW=22.67' TW=22.29' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.53 cfs @ 2.24 fps)

Summary for Pond DMH1: Post - DMH1

Inflow Area = 34,522 sf, 65.84% Impervious, Inflow Depth = 7.37" for 100-Year event
Inflow = 6.48 cfs @ 12.01 hrs, Volume= 21,206 cf
Outflow = 6.48 cfs @ 12.01 hrs, Volume= 21,206 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.98 cfs @ 12.01 hrs, Volume= 18,678 cf
Secondary = 1.50 cfs @ 12.01 hrs, Volume= 2,527 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 33.23' @ 12.01 hrs

Flood Elev= 35.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	31.90'	15.0" Round Culvert L= 67.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 31.90' / 29.90' S= 0.0299 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

#2	Secondary	32.10'	8.0" Round Culvert L= 80.0' RCP, sq.cut end projecting, Ke= 0.500

Inlet / Outlet Invert= 32.10' / 27.00' S= 0.0638 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=4.85 cfs @ 12.01 hrs HW=33.20' TW=31.21' (Dynamic Tailwater)
└─1=Culvert (Inlet Controls 4.85 cfs @ 3.96 fps)

Secondary OutFlow Max=1.47 cfs @ 12.01 hrs HW=33.20' TW=28.57' (Dynamic Tailwater)
└─2=Culvert (Inlet Controls 1.47 cfs @ 4.22 fps)

Summary for Pond DMH10: Post - DMH-10

Inflow Area = 15,579 sf,100.00% Impervious, Inflow Depth = 8.36" for 100-Year event
Inflow = 3.11 cfs @ 12.07 hrs, Volume= 10,853 cf
Outflow = 3.11 cfs @ 12.07 hrs, Volume= 10,853 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.11 cfs @ 12.07 hrs, Volume= 10,853 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 26.58' @ 12.07 hrs
Flood Elev= 29.40'

Device	Routing	Invert	Outlet Devices

#1	Primary	25.10'	12.0" Round Culvert L= 21.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 25.10' / 24.85' S= 0.0119 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.06 cfs @ 12.07 hrs HW=26.54' TW=25.88' (Dynamic Tailwater)
└─1=Culvert (Inlet Controls 3.06 cfs @ 3.89 fps)

Summary for Pond DMH11: Post - DMH-11

Inflow Area = 15,579 sf,100.00% Impervious, Inflow Depth = 8.36" for 100-Year event
Inflow = 3.11 cfs @ 12.07 hrs, Volume= 10,853 cf
Outflow = 3.11 cfs @ 12.07 hrs, Volume= 10,853 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.11 cfs @ 12.07 hrs, Volume= 10,853 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 25.91' @ 12.07 hrs

Flood Elev= 28.00'

Device Routing Invert Outlet Devices

#1	Primary	24.60'	12.0" Round Culvert L= 3.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.60' / 24.54' S= 0.0200 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=3.06 cfs @ 12.07 hrs HW=25.88' TW=24.94' (Dynamic Tailwater)

1=Culvert (Barrel Controls 3.06 cfs @ 3.94 fps)

Summary for Pond DMH2: Post- DMH2

Inflow Area =	47,330 sf, 71.58% Impervious, Inflow Depth = 6.90" for 100-Year event
Inflow =	7.77 cfs @ 12.01 hrs, Volume= 27,202 cf
Outflow =	7.77 cfs @ 12.01 hrs, Volume= 27,202 cf, Atten= 0%, Lag= 0.0 min
Primary =	2.71 cfs @ 12.02 hrs, Volume= 16,320 cf
Secondary =	5.07 cfs @ 12.01 hrs, Volume= 10,882 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 31.25' @ 12.01 hrs

Flood Elev= 33.20'

Device Routing Invert Outlet Devices

#1	Primary	29.80'	12.0" Round Culvert L= 17.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.80' / 29.65' S= 0.0088 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	29.90'	15.0" Round Culvert L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.90' / 29.55' S= 0.0140 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.76 cfs @ 12.02 hrs HW=31.20' TW=30.66' (Dynamic Tailwater)

1=Culvert (Inlet Controls 2.76 cfs @ 3.52 fps)

Secondary OutFlow Max=4.91 cfs @ 12.01 hrs HW=31.22' TW=28.57' (Dynamic Tailwater)

2=Culvert (Inlet Controls 4.91 cfs @ 4.00 fps)

Summary for Pond DMH3: Post - DMH3

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 5.97" for 100-Year event
Inflow = 11.29 cfs @ 12.03 hrs, Volume= 52,898 cf
Outflow = 11.29 cfs @ 12.03 hrs, Volume= 52,898 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.29 cfs @ 12.03 hrs, Volume= 52,898 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 28.61' @ 12.03 hrs
Flood Elev= 33.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	26.10'	18.0" Round Culvert L= 105.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.10' / 24.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=11.26 cfs @ 12.03 hrs HW=28.60' TW=26.30' (Dynamic Tailwater)
1=Culvert (Inlet Controls 11.26 cfs @ 6.37 fps)

Summary for Pond DMH4: Post - DMH4

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 5.97" for 100-Year event
Inflow = 11.29 cfs @ 12.03 hrs, Volume= 52,898 cf
Outflow = 11.29 cfs @ 12.03 hrs, Volume= 52,898 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.29 cfs @ 12.03 hrs, Volume= 52,898 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 26.31' @ 12.03 hrs
Flood Elev= 26.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.80'	18.0" Round Culvert L= 75.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.80' / 21.75' S= 0.0273 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=11.26 cfs @ 12.03 hrs HW=26.30' TW=22.46' (Dynamic Tailwater)

1=Culvert (Inlet Controls 11.26 cfs @ 6.37 fps)

Summary for Pond DMH5: Post - DMH5

Inflow Area = 33,801 sf, 41.97% Impervious, Inflow Depth = 6.61" for 100-Year event
Inflow = 5.73 cfs @ 12.07 hrs, Volume= 18,627 cf
Outflow = 5.73 cfs @ 12.07 hrs, Volume= 18,627 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.73 cfs @ 12.07 hrs, Volume= 18,627 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 25.09' @ 12.07 hrs

Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	22.00'	12.0" Round Culvert L= 3.5' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 22.00' / 21.75' S= 0.0714 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=5.61 cfs @ 12.07 hrs HW=25.01' TW=22.81' (Dynamic Tailwater)

1=Culvert (Inlet Controls 5.61 cfs @ 7.14 fps)

Summary for Pond DMH6: Post - DMH-6

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 5.40" for 100-Year event
Inflow = 2.58 cfs @ 12.21 hrs, Volume= 16,991 cf
Outflow = 2.58 cfs @ 12.21 hrs, Volume= 16,991 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.58 cfs @ 12.21 hrs, Volume= 16,991 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 34.38' @ 12.21 hrs

Flood Elev= 38.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	33.00'	10.0" Round Culvert L= 55.0' RCP, sq.cut end projecting, Ke= 0.500

Inlet / Outlet Invert= 33.00' / 32.00' S= 0.0182 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=2.58 cfs @ 12.21 hrs HW=34.38' TW=32.28' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.58 cfs @ 4.73 fps)

Summary for Pond DMH7: Post - DMH-7

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 5.40" for 100-Year event
Inflow = 2.58 cfs @ 12.21 hrs, Volume= 16,991 cf
Outflow = 2.58 cfs @ 12.21 hrs, Volume= 16,991 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.58 cfs @ 12.21 hrs, Volume= 16,991 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 32.28' @ 12.21 hrs
Flood Elev= 36.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	30.90'	10.0" Round Culvert L= 30.0' RCP, sq.cut end projecting, Ke= 0.500

Inlet / Outlet Invert= 30.90' / 30.30' S= 0.0200 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=2.58 cfs @ 12.21 hrs HW=32.28' TW=27.93' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.58 cfs @ 4.73 fps)

Summary for Pond DMH8: Post - DMH-8

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 5.40" for 100-Year event
Inflow = 2.58 cfs @ 12.21 hrs, Volume= 16,991 cf
Outflow = 2.58 cfs @ 12.21 hrs, Volume= 16,991 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.58 cfs @ 12.21 hrs, Volume= 16,991 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 27.93' @ 12.21 hrs
Flood Elev= 32.50'

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Device Routing Invert Outlet Devices

#1	Primary	26.55'	10.0" Round Culvert L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.55' / 25.95' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=2.58 cfs @ 12.21 hrs HW=27.93' TW=26.18' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.58 cfs @ 4.73 fps)

Summary for Pond DMH9: Post - DMH-9

Inflow Area =	45,988 sf,	12.94% Impervious,	Inflow Depth = 5.82"	for 100-Year event
Inflow =	5.06 cfs @	12.22 hrs, Volume=	22,303 cf	
Outflow =	5.06 cfs @	12.22 hrs, Volume=	22,303 cf,	Atten= 0%, Lag= 0.0 min
Primary =	5.06 cfs @	12.22 hrs, Volume=	22,303 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 26.19' @ 12.22 hrs
Flood Elev= 30.10'

Device Routing Invert Outlet Devices

#1	Primary	23.50'	12.0" Round Culvert L= 85.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.50' / 22.50' S= 0.0118 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=5.05 cfs @ 12.22 hrs HW=26.18' TW=22.44' (Dynamic Tailwater)
1=Culvert (Barrel Controls 5.05 cfs @ 6.43 fps)

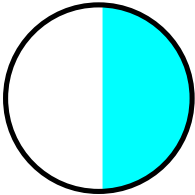
Summary for Reach OP1: Outlet pipe-1

Inflow Area =	47,330 sf,	71.58% Impervious,	Inflow Depth = 3.08"	for 100-Year event
Inflow =	2.60 cfs @	12.08 hrs, Volume=	12,141 cf	
Outflow =	2.61 cfs @	12.06 hrs, Volume=	12,142 cf,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 7.03 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.03 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 12.06 hrs
Average Depth at Peak Storage= 0.48'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.63 cfs

12.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 14.0' Slope= 0.0250 '/'
Inlet Invert= 29.50', Outlet Invert= 29.15'



Summary for Pond pA1: Post - Analysis Point-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 7.80" for 100-Year event
Inflow = 3.15 cfs @ 12.07 hrs, Volume= 10,784 cf
Primary = 3.15 cfs @ 12.07 hrs, Volume= 10,784 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond pA2: Pre - Analysis Point-2

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 7.10" for 100-Year event
Inflow = 26.55 cfs @ 12.15 hrs, Volume= 103,591 cf
Primary = 26.55 cfs @ 12.15 hrs, Volume= 103,591 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond pA3: Post - Analysis Point-3

Inflow Area = 232,923 sf, 39.09% Impervious, Inflow Depth = 5.76" for 100-Year event
Inflow = 21.18 cfs @ 12.22 hrs, Volume= 111,866 cf
Primary = 21.18 cfs @ 12.22 hrs, Volume= 111,866 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond pAD: Post - Area drain at main entrance

Inflow Area = 1,395 sf, 50.82% Impervious, Inflow Depth = 6.94" for 100-Year event
Inflow = 0.24 cfs @ 12.07 hrs, Volume= 806 cf
Outflow = 0.24 cfs @ 12.07 hrs, Volume= 806 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.07 hrs, Volume= 806 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 25.02' @ 12.08 hrs
Flood Elev= 28.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.00'	12.0" Round Culvert L= 69.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.00' / 23.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=24.95' TW=25.01' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond pAD2: Area Drain

Inflow Area = 433 sf,100.00% Impervious, Inflow Depth = 8.36" for 100-Year event
Inflow = 0.09 cfs @ 12.07 hrs, Volume= 302 cf
Outflow = 0.09 cfs @ 12.07 hrs, Volume= 302 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.09 cfs @ 12.07 hrs, Volume= 302 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 28.70' @ 12.11 hrs

Flood Elev= 30.80'

Device Routing Invert Outlet Devices

#1	Primary	28.50'	8.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 28.50' / 28.40' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.08 cfs @ 12.07 hrs HW=28.68' TW=28.57' (Dynamic Tailwater)

1=Culvert (Outlet Controls 0.08 cfs @ 1.58 fps)

Summary for Pond pCB1: Post - CB1

Inflow Area =	12,808 sf, 87.06% Impervious, Inflow Depth = 7.99" for 100-Year event
Inflow =	2.80 cfs @ 12.01 hrs, Volume= 8,523 cf
Outflow =	2.80 cfs @ 12.01 hrs, Volume= 8,523 cf, Atten= 0%, Lag= 0.0 min
Primary =	2.80 cfs @ 12.01 hrs, Volume= 8,523 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 33.05' @ 12.01 hrs

Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	32.00'	12.0" Round Culvert L= 140.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.00' / 30.00' S= 0.0143 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=2.73 cfs @ 12.01 hrs HW=33.02' TW=31.22' (Dynamic Tailwater)

1=Culvert (Inlet Controls 2.73 cfs @ 3.48 fps)

Summary for Pond pCB2: Post - CB2

Inflow Area = 24,441 sf, 85.26% Impervious, Inflow Depth = 7.93" for 100-Year event
Inflow = 5.32 cfs @ 12.01 hrs, Volume= 16,158 cf
Outflow = 5.32 cfs @ 12.01 hrs, Volume= 16,158 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.32 cfs @ 12.01 hrs, Volume= 16,158 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 34.03' @ 12.01 hrs
Flood Elev= 35.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	32.20'	15.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.20' / 32.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.20 cfs @ 12.01 hrs HW=33.97' TW=33.20' (Dynamic Tailwater)
1=Culvert (Inlet Controls 5.20 cfs @ 4.23 fps)

Summary for Pond pCB3: Post - CB3

Inflow Area = 10,081 sf, 18.76% Impervious, Inflow Depth = 6.01" for 100-Year event
Inflow = 1.61 cfs @ 12.07 hrs, Volume= 5,048 cf
Outflow = 1.61 cfs @ 12.07 hrs, Volume= 5,048 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.61 cfs @ 12.07 hrs, Volume= 5,048 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 35.75' @ 12.07 hrs
Flood Elev= 39.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	34.50'	8.0" Round Culvert L= 44.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 34.50' / 33.10' S= 0.0318 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=1.58 cfs @ 12.07 hrs HW=35.72' TW=32.95' (Dynamic Tailwater)**1=Culvert** (Inlet Controls 1.58 cfs @ 4.53 fps)**Summary for Pond pCB4: Post - CB4**

Inflow Area = 2,681 sf, 100.00% Impervious, Inflow Depth = 8.36" for 100-Year event
Inflow = 0.54 cfs @ 12.07 hrs, Volume= 1,868 cf
Outflow = 0.54 cfs @ 12.07 hrs, Volume= 1,868 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.54 cfs @ 12.07 hrs, Volume= 1,868 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 27.16' @ 12.09 hrs

Flood Elev= 28.25'

Device	Routing	Invert	Outlet Devices

#1	Primary	24.50'	8.0" Round Culvert L= 55.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.50' / 23.25' S= 0.0227 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.00 cfs @ 12.07 hrs HW=26.77' TW=26.97' (Dynamic Tailwater)**1=Culvert** (Controls 0.00 cfs)**Summary for Pond pCB5: Post -CB5**

Inflow Area = 58,920 sf, 3.59% Impervious, Inflow Depth = 5.57" for 100-Year event
Inflow = 6.13 cfs @ 12.25 hrs, Volume= 27,346 cf
Outflow = 6.13 cfs @ 12.25 hrs, Volume= 27,346 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.13 cfs @ 12.25 hrs, Volume= 27,346 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 34.21' @ 12.24 hrs

Flood Elev= 31.70'

Device	Routing	Invert	Outlet Devices

#1	Primary	28.50'	12.0" Round Culvert L= 158.0' RCP, sq.cut end projecting, Ke= 0.500

Inlet / Outlet Invert= 28.50' / 26.92' S= 0.0100 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=6.09 cfs @ 12.25 hrs HW=34.14' TW=28.11' (Dynamic Tailwater)

1=Culvert (Outlet Controls 6.09 cfs @ 7.76 fps)

Summary for Pond pCB6: Post - CB-6

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 5.91" for 100-Year event
Inflow = 4.35 cfs @ 12.20 hrs, Volume= 18,574 cf
Outflow = 4.35 cfs @ 12.21 hrs, Volume= 18,555 cf, Atten= 0%, Lag= 0.4 min
Primary = 2.58 cfs @ 12.21 hrs, Volume= 16,991 cf
Secondary = 1.77 cfs @ 12.21 hrs, Volume= 1,564 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 37.77' @ 12.21 hrs Surf.Area= 254 sf Storage= 149 cf

Flood Elev= 38.00' Surf.Area= 311 sf Storage= 215 cf

Plug-Flow detention time= 1.8 min calculated for 18,540 cf (100% of inflow)

Center-of-Mass det. time= 1.2 min (807.3 - 806.2)

Volume Invert Avail.Storage Storage Description

#1 36.50' 215 cf **Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.50	35	0	0
37.00	68	26	26
38.00	311	190	215

Device Routing Invert Outlet Devices

#1	Primary	35.00'	8.0" Round Culvert L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 35.00' / 34.40' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	36.90'	12.0" Horiz. Orifice/Grate C= 0.600 in 9.1" x 9.1" Grate Limited to weir flow at low heads
#3	Secondary	37.50'	5.0' long x 2.0' breadth Broad-Crested Rectangular Weir

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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
Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=2.58 cfs @ 12.21 hrs HW=37.77' TW=34.38' (Dynamic Tailwater)

└─1=Culvert (Passes 2.58 cfs of 2.61 cfs potential flow)

└─2=Orifice/Grate (Orifice Controls 2.58 cfs @ 4.48 fps)

Secondary OutFlow Max=1.77 cfs @ 12.21 hrs HW=37.77' TW=37.38' (Dynamic Tailwater)

└─3=Broad-Crested Rectangular Weir (Weir Controls 1.77 cfs @ 1.32 fps)

Summary for Pond pCB7: Post - CB-7

Inflow Area = 8,243 sf, 2.62% Impervious, Inflow Depth = 7.82" for 100-Year event
Inflow = 2.62 cfs @ 12.19 hrs, Volume= 5,370 cf
Outflow = 2.57 cfs @ 12.22 hrs, Volume= 5,324 cf, Atten= 2%, Lag= 1.6 min
Primary = 2.49 cfs @ 12.22 hrs, Volume= 5,311 cf
Secondary = 0.09 cfs @ 12.21 hrs, Volume= 12 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 29.56' @ 12.22 hrs Surf.Area= 228 sf Storage= 174 cf

Flood Elev= 30.00' Surf.Area= 309 sf Storage= 293 cf

Plug-Flow detention time= 9.1 min calculated for 5,319 cf (99% of inflow)

Center-of-Mass det. time= 3.8 min (794.0 - 790.2)

Volume				Storage Description		
#1	Invert	Avail.Storage	293 cf	Custom Stage Data (Prismatic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
28.00	23	0	0			
29.00	127	75	75			
30.00	309	218	293			

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Device	Routing	Invert	Outlet Devices
#1	Device 2	28.75'	12.0" Horiz. Orifice/Grate C= 0.600 in 9.1" x 9.1" Grate Limited to weir flow at low heads
#2	Primary	26.10'	12.0" Round Culvert L= 11.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.10' / 25.90' S= 0.0182 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Secondary	29.50'	3.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=2.48 cfs @ 12.22 hrs HW=29.55' TW=26.18' (Dynamic Tailwater)

2=Culvert (Passes 2.48 cfs of 6.49 cfs potential flow)

1=Orifice/Grate (Orifice Controls 2.48 cfs @ 4.30 fps)

Secondary OutFlow Max=0.08 cfs @ 12.21 hrs HW=29.55' TW=29.52' (Dynamic Tailwater)

3=Broad-Crested Rectangular Weir (Weir Controls 0.08 cfs @ 0.52 fps)

Summary for Pond pCB8: Post - CB-8

Inflow Area = 3,055 sf, 78.95% Impervious, Inflow Depth = 7.75" for 100-Year event
Inflow = 0.58 cfs @ 12.07 hrs, Volume= 1,973 cf
Outflow = 0.58 cfs @ 12.08 hrs, Volume= 1,932 cf, Atten= 1%, Lag= 0.4 min
Primary = 0.58 cfs @ 12.08 hrs, Volume= 1,932 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 29.65' @ 12.08 hrs Surf.Area= 113 sf Storage= 57 cf

Flood Elev= 30.00' Surf.Area= 140 sf Storage= 102 cf

Plug-Flow detention time= 26.9 min calculated for 1,932 cf (98% of inflow)

Center-of-Mass det. time= 13.5 min (763.7 - 750.2)

Volume	Invert	Avail.Storage	Storage Description
#1	29.00'	102 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)
29.00	63	0	0
30.00	140	102	102

Device Routing Invert Outlet Devices

#1	Device 2	29.50'	12.0" Horiz. Orifice/Grate	C= 0.600 in 9.1" x 9.1" Grate	Limited to weir flow at low heads
#2	Primary	25.15'	8.0" Round Culvert	L= 13.0' RCP, sq.cut end projecting, Ke= 0.500	
Inlet / Outlet Invert= 25.15' / 25.00' S= 0.0115 '/' Cc= 0.900					
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf					

Primary OutFlow Max=0.57 cfs @ 12.08 hrs HW=29.65' TW=22.67' (Dynamic Tailwater)

└─2=Culvert (Passes 0.57 cfs of 3.43 cfs potential flow)

└─1=Orifice/Grate (Weir Controls 0.57 cfs @ 1.26 fps)

Summary for Pond pDB1: Post - Detention Basin-1

Inflow Area =	74,020 sf, 64.33% Impervious, Inflow Depth = 3.67"	for 100-Year event
Inflow =	12.34 cfs @ 12.10 hrs, Volume=	22,631 cf
Outflow =	12.19 cfs @ 12.11 hrs, Volume=	22,586 cf, Atten= 1%, Lag= 0.7 min
Primary =	12.19 cfs @ 12.11 hrs, Volume=	22,586 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.53' @ 12.11 hrs Surf.Area= 1,216 sf Storage= 2,802 cf

Flood Elev= 23.00' Surf.Area= 1,340 sf Storage= 3,397 cf

Plug-Flow detention time= 13.5 min calculated for 22,567 cf (100% of inflow)

Center-of-Mass det. time= 13.3 min (753.5 - 740.2)

Volume Invert Avail.Storage Storage Description

#1	19.00'	3,397 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)
19.00	421	0	0
20.00	613	517	517
21.00	830	722	1,239
22.00	1,073	952	2,190
23.00	1,340	1,207	3,397

Device Routing Invert Outlet Devices

#1	Primary	22.00'	10.0' long x 2.0' 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
			Coef. (English)	2.54	2.61	2.61	2.61	2.66	2.70	2.77	2.89	2.88	2.85	3.07	3.20	3.32
#2	Primary	21.00'	4.0" Round Culvert X 3.00 L= 10.0' RCP, sq.cut end projecting, Ke= 0.500													
			Inlet / Outlet Invert=	21.00' / 20.90'	S= 0.0100 '/'		Cc= 0.900									
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf													
#3	Primary	19.10'	4.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500													
			Inlet / Outlet Invert=	19.10' / 19.00'	S= 0.0100 '/'		Cc= 0.900									
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf													

Primary OutFlow Max=11.65 cfs @ 12.11 hrs HW=22.53' TW=21.58' (Dynamic Tailwater)

1=Broad-Crested Rectangular Weir (Weir Controls 10.04 cfs @ 1.90 fps)

2=Culvert (Outlet Controls 1.21 cfs @ 4.63 fps)

3=Culvert (Outlet Controls 0.40 cfs @ 4.63 fps)

Summary for Pond pFB1: Forebay-1

Inflow Area =	32,764 sf, 70.56% Impervious, Inflow Depth = 7.51" for 100-Year event
Inflow =	6.87 cfs @ 12.01 hrs, Volume= 20,499 cf
Outflow =	6.78 cfs @ 12.01 hrs, Volume= 20,032 cf, Atten= 1%, Lag= 0.4 min
Primary =	6.78 cfs @ 12.01 hrs, Volume= 20,032 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.41' @ 12.01 hrs Surf.Area= 341 sf Storage= 595 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 28.7 min calculated for 20,032 cf (98% of inflow)

Center-of-Mass det. time= 14.1 min (765.1 - 751.0)

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Volume		Invert	Avail.Storage	Storage Description	
#1		19.00'	628 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
19.00	7	0	0		
20.00	40	24	24		
21.00	98	69	93		
22.00	181	140	232		
23.00	289	235	467		
23.50	353	161	628		

Device	Routing	Invert	Outlet Devices	
#1	Primary	23.00'	10.0' long x 2.0' 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
			Coef. (English)	2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=6.61 cfs @ 12.01 hrs HW=23.40' TW=22.31' (Dynamic Tailwater)**1-Broad-Crested Rectangular Weir** (Weir Controls 6.61 cfs @ 1.65 fps)**Summary for Pond pFB2: Forebay-2**

Inflow Area = 29,790 sf, 90.12% Impervious, Inflow Depth = 8.07" for 100-Year event
Inflow = 6.56 cfs @ 12.01 hrs, Volume= 20,043 cf
Outflow = 6.48 cfs @ 12.01 hrs, Volume= 19,576 cf, Atten= 1%, Lag= 0.4 min
Primary = 6.48 cfs @ 12.01 hrs, Volume= 19,576 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 23.40' @ 12.01 hrs Surf.Area= 340 sf Storage= 591 cf
Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 29.5 min calculated for 19,576 cf (98% of inflow)
Center-of-Mass det. time= 14.5 min (754.7 - 740.2)

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Volume		Invert	Avail.Storage	Storage Description	
#1		19.00'	628 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
19.00	7	0	0		
20.00	40	24	24		
21.00	98	69	93		
22.00	181	140	232		
23.00	289	235	467		
23.50	353	161	628		

Device	Routing	Invert	Outlet Devices									
#1	Primary	23.00'	10.0' long x 2.0' 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									
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32									

Primary OutFlow Max=6.32 cfs @ 12.01 hrs HW=23.39' TW=22.31' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Weir Controls 6.32 cfs @ 1.63 fps)

Summary for Pond pFB3: Post - Forebay-3

Inflow Area = 57,147 sf, 20.65% Impervious, Inflow Depth = 6.04" for 100-Year event
Inflow = 6.08 cfs @ 12.17 hrs, Volume= 28,768 cf
Outflow = 6.07 cfs @ 12.21 hrs, Volume= 28,500 cf, Atten= 0%, Lag= 2.1 min
Primary = 6.07 cfs @ 12.21 hrs, Volume= 28,500 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.45' @ 12.20 hrs Surf.Area= 423 sf Storage= 617 cf

Flood Elev= 23.50' Surf.Area= 520 sf Storage= 1,114 cf

Plug-Flow detention time= 12.2 min calculated for 28,476 cf (99% of inflow)

Center-of-Mass det. time= 6.4 min (807.0 - 800.6)

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Volume				Storage Description	
#1	Invert	Avail. Storage	Inc. Store	Surf. Area	Cum. Store
	20.00'	1,114 cf			
Custom Stage Data (Prismatic) Listed below (Recalc)					
Elevation (feet)	Surf. Area (sq-ft)	Inc. Store (cubic-feet)	Cum. Store (cubic-feet)		
20.00	71	0	0		
21.00	211	141	141		
22.00	382	297	438		
23.50	520	677	1,114		

Device	Routing	Invert	Outlet Devices
#1	Primary	21.50'	8.0' long x 2.0' 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
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=6.11 cfs @ 12.21 hrs HW=22.44' TW=22.41' (Dynamic Tailwater)

1=Broad-Crested Rectangular Weir (Weir Controls 6.11 cfs @ 0.81 fps)

Summary for Pond pH2: Post - Daycare Header

Inflow Area = 5,450 sf, 100.00% Impervious, Inflow Depth = 8.36" for 100-Year event
Inflow = 1.09 cfs @ 12.07 hrs, Volume= 3,797 cf
Outflow = 1.09 cfs @ 12.07 hrs, Volume= 3,797 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.09 cfs @ 12.07 hrs, Volume= 3,797 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 28.63' @ 12.09 hrs

Flood Elev= 30.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	28.00'	12.0" Round Culvert L= 70.0' RCP, sq. cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 28.00' / 26.60' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.88 cfs @ 12.07 hrs HW=28.57' TW=28.10' (Dynamic Tailwater)

1=Culvert (Outlet Controls 0.88 cfs @ 2.74 fps)

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Summary for Pond pH3: Post - Daycare Header

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 8.36" for 100-Year event
Inflow = 3.11 cfs @ 12.07 hrs, Volume = 10,853 cf
Outflow = 3.11 cfs @ 12.07 hrs, Volume = 10,853 cf, Atten = 0%, Lag = 0.0 min
Primary = 3.11 cfs @ 12.07 hrs, Volume = 10,853 cf

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dt = 0.03 hrs / 2

Peak Elev = 28.27' @ 12.08 hrs

Flood Elev = 30.90'

Device	Routing	Invert	Outlet Devices

#1	Primary	26.50'	12.0" Round Culvert L = 100.0' RCP, sq cut end projecting, Ke = 0.500 Inlet / Outlet Invert = 26.50' / 25.50' S = 0.0100 '/' Cc = 0.900 n = 0.013 Corrugated PE, smooth interior, Flow Area = 0.79 sf

Primary OutFlow Max = 2.93 cfs @ 12.07 hrs HW = 28.10' TW = 27.10' (Dynamic Tailwater)

1=Culvert (Outlet Controls 2.93 cfs @ 3.72 fps)

Summary for Pond pH4: Post - Daycare Header

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 8.36" for 100-Year event
Inflow = 3.11 cfs @ 12.07 hrs, Volume = 10,853 cf
Outflow = 3.11 cfs @ 12.07 hrs, Volume = 10,853 cf, Atten = 0%, Lag = 0.0 min
Primary = 3.11 cfs @ 12.07 hrs, Volume = 10,853 cf

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dt = 0.03 hrs / 2

Peak Elev = 27.18' @ 12.08 hrs

Flood Elev = 30.75'

Device	Routing	Invert	Outlet Devices

#1	Primary	25.50'	12.0" Round Culvert L = 28.0' RCP, sq cut end projecting, Ke = 0.500 Inlet / Outlet Invert = 25.50' / 25.20' S = 0.0107 '/' Cc = 0.900 n = 0.013 Corrugated PE, smooth interior, Flow Area = 0.79 sf

Primary OutFlow Max=2.84 cfs @ 12.07 hrs HW=27.10' TW=26.54' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.84 cfs @ 3.62 fps)

Summary for Pond pH5: Post - Roof Header

Inflow Area = 3,560 sf, 100.00% Impervious, Inflow Depth = 8.36" for 100-Year event
Inflow = 0.71 cfs @ 12.07 hrs, Volume = 2,480 cf
Outflow = 0.71 cfs @ 12.07 hrs, Volume = 2,480 cf, Atten = 0%, Lag = 0.0 min
Primary = 0.71 cfs @ 12.07 hrs, Volume = 2,480 cf

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dt = 0.03 hrs / 2
Peak Elev = 26.79' @ 12.07 hrs
Flood Elev = 30.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	25.98'	6.0" Vert. Orifice/Grate C = 0.600

Primary OutFlow Max=0.70 cfs @ 12.07 hrs HW=26.78' TW=19.13' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.70 cfs @ 3.56 fps)

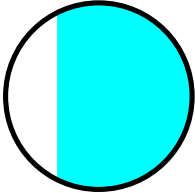
Summary for Reach pRD1: Post - Roof Drain-1

Inflow Area = 15,575 sf, 100.00% Impervious, Inflow Depth = 8.36" for 100-Year event
Inflow = 3.11 cfs @ 12.07 hrs, Volume = 10,850 cf
Outflow = 3.11 cfs @ 12.07 hrs, Volume = 10,850 cf, Atten = 0%, Lag = 0.1 min

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dt = 0.03 hrs / 2
Max. Velocity = 5.10 fps, Min. Travel Time = 0.1 min
Avg. Velocity = 1.81 fps, Avg. Travel Time = 0.2 min

Peak Storage = 12 cf @ 12.07 hrs
Average Depth at Peak Storage = 0.72'
Bank-Full Depth = 1.00' Flow Area = 0.8 sf, Capacity = 3.56 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 20.0' Slope= 0.0100 '/'
Inlet Invert= 25.70', Outlet Invert= 25.50'



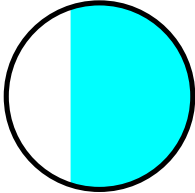
Summary for Reach pRD2: Post - Roof Drain-2

Inflow Area =	16,270 sf, 100.00% Impervious,	Inflow Depth = 8.36"	for 100-Year event
Inflow =	3.25 cfs @ 12.07 hrs,	Volume=	11,335 cf
Outflow =	3.25 cfs @ 12.07 hrs,	Volume=	11,335 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 5.96 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.08 fps, Avg. Travel Time= 0.2 min

Peak Storage= 15 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.65'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.26 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 28.0' Slope= 0.0143 '/'
Inlet Invert= 22.50', Outlet Invert= 22.10'



Summary for Subcatchment pRF1: Post - Roof flow

Runoff = 3.11 cfs @ 12.07 hrs, Volume= 10,850 cf, Depth= 8.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)		CN	Description		
15,575		98	Roofs, HSG C		
15,575		98	100.00% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					
Direct Entry, Roof runoff					

Summary for Subcatchment pRF2: Post - Roof flow

Runoff = 3.25 cfs @ 12.07 hrs, Volume= 11,335 cf, Depth= 8.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)		CN	Description		
16,270		98	Roofs, HSG C		
16,270		98	100.00% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					
Direct Entry, Roof runoff					

Summary for Subcatchment pRF3: Post - Roof flow

Runoff = 0.71 cfs @ 12.07 hrs, Volume= 2,480 cf, Depth= 8.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)		CN	Description		
3,560		98	Roofs, HSG C		
3,560		98	100.00% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry, Roof runoff				

Summary for Subcatchment pRF4: Post - New Daycare Roof

Runoff = 1.65 cfs @ 12.07 hrs, Volume= 5,759 cf, Depth= 8.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)		CN	Description		
8,267	98	Roofs, HSG C			
8,267	98	100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry,				

Summary for Subcatchment pRF5: Post - Existing Roof

Runoff = 1.00 cfs @ 12.07 hrs, Volume= 3,495 cf, Depth= 8.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description			
5,017	98	Roofs, HSG C			
5,017	98	100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment pS1: Post - Northeastern Parking lot

Runoff = 3.15 cfs @ 12.07 hrs, Volume= 10,784 cf, Depth= 7.80"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description			
13,366	98	Paved parking, HSG C			
3,232	74	>75% Grass cover, Good, HSG C			
16,598	93	Weighted Average			
3,232	74	19.47% Pervious Area			
13,366	98	80.53% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Parking Runoff to CB

Summary for Subcatchment pS10: Post - Flow to Area Drain

Runoff = 1.68 cfs @ 12.23 hrs, Volume= 7,662 cf, Depth= 6.43"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG C
0	98	Paved parking, HSG C
0	89	Gravel path
9,566	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
4,744	98	Roofs, HSG C
14,310	82	Weighted Average
9,566	74	66.85% Pervious Area
4,744	98	33.15% Impervious Area

*

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.3	50	0.0100	0.05		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.7	76	0.0600	1.71		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
17.0	126	Total			

Summary for Subcatchment pS11: Post - Flow to playground catch basin

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 671 cf, Depth= 7.22"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

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Area (sf)	CN	Description
128	98	Unconnected pavement, HSG C
441	74	>75% Grass cover, Good, HSG C
547	98	Rubber play surface
1,116	89	Weighted Average
441	74	39.52% Pervious Area
675	98	60.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Flow to CB5

Summary for Subcatchment pS12: Post - Flow to Swale-5

Runoff = 1.41 cfs @ 12.07 hrs, Volume= 4,776 cf, Depth= 7.55"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
2,114	74	>75% Grass cover, Good, HSG C
558	98	Proposed Walkway
128	98	Unconnected pavement, HSG C
4,788	98	Paved parking, HSG C
7,588	91	Weighted Average
2,114	74	27.86% Pervious Area
5,474	98	72.14% Impervious Area

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

Summary for Subcatchment pS13: Post - Northeastern area flowing to proposed CB5

Runoff = 6.13 cfs @ 12.25 hrs, Volume= 27,346 cf, Depth= 5.57"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description			
2,021	98	Roofs, HSG C			
52,854	74	>75% Grass cover, Good, HSG C			
93	98	Paved parking, HSG C			
3,952	70	Woods, Good, HSG C			
58,920	75	Weighted Average			
56,806	74	96.41% Pervious Area			
2,114	98	3.59% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	50	0.0200	0.07		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.7	70	0.0500	1.57		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
0.1	24	0.3300	4.02		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
4.9	206	0.0100	0.70		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.1	95	0.1900	18.24	72.98	Channel Flow, EF Area= 4.0 sf Perim= 8.2' r= 0.49' n= 0.022 Earth, clean & straight

Summary for Subcatchment pS14: Post - Parking area-4 runoff

Runoff = 4.95 cfs @ 12.07 hrs, Volume= 15,953 cf, Depth= 6.44"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
16,413	74	>75% Grass cover, Good, HSG C
10,797	98	Paved parking, HSG C
2,515	70	Woods, Good, HSG C
29,725	82	Weighted Average
18,928	73	63.68% Pervious Area
10,797	98	36.32% Impervious Area

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

Summary for Subcatchment pS15: Post - Flow to entrance area drain

Runoff = 0.24 cfs @ 12.07 hrs, Volume= 806 cf, Depth= 6.94"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
686	74	>75% Grass cover, Good, HSG C
709	98	Paved parking, HSG C
1,395	86	Weighted Average
686	74	49.18% Pervious Area
709	98	50.82% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to area drain

Summary for Subcatchment pS16: Post - Flow to Sand Filter-2

Runoff = 1.40 cfs @ 12.07 hrs, Volume= 4,400 cf, Depth= 6.31"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description

*

1,543	89	Gravel
5,249	74	>75% Grass cover, Good, HSG C
1,582	98	Paved parking, HSG C
8,374	81	Weighted Average
6,792	77	81.11% Pervious Area
1,582	98	18.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Runoff into Basin

Summary for Subcatchment pS17: Post - Area in front of bldg flowing to existing swale-3

Runoff = 1.14 cfs @ 12.09 hrs, Volume= 3,737 cf, Depth= 5.96"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

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Area (sf)		CN	Description		
	6,221	74	>75% Grass cover, Good, HSG C		
*	172	98	Existing Wall		
*	1,125	98	Existing Walk		
	7,518	78	Weighted Average		
	6,221	74	82.75% Pervious Area		
	1,297	98	17.25% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	38	0.0800	0.11		Sheet Flow, AB
					Grass: Bermuda n= 0.410 P2= 3.30"
0.6	135	0.0400	4.06		Shallow Concentrated Flow, BC
					Paved Kv= 20.3 fps

Summary for Subcatchment pS18: Post - Flow to Sand Filter-1

Runoff = 1.02 cfs @ 12.07 hrs, Volume= 3,127 cf, Depth= 6.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)		CN	Description		
4,170	74	>75% Grass cover, Good, HSG C			
* 2,013	89	Gravel			
6,183	79	Weighted Average			
6,183	79	100.00% Pervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry, Flow into Basin				

Summary for Subcatchment pS2: Post - Flow to CB3

Runoff = 1.61 cfs @ 12.07 hrs, Volume= 5,048 cf, Depth= 6.01"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
8,190	74	>75% Grass cover, Good, HSG C
1,150	98	Paved parking, HSG C
741	98	Walkway

10,081 79 Weighted Average
8,190 74 81.24% Pervious Area
1,891 98 18.76% Impervious Area

Tc Length Slope Velocity Capacity Description
(min) (feet) (ft/ft) (ft/sec) (cfs)

5.0

Direct Entry,

Summary for Subcatchment pS20: Post - Flow along South side to Sand Filter-1

Runoff = 7.22 cfs @ 12.17 hrs, Volume= 27,987 cf, Depth= 5.58"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
53,656	74	>75% Grass cover, Good, HSG C
4,089	70	Woods, Good, HSG C
207	98	Paved parking, HSG C
2,097	98	Pavillion
116	98	Conc Pavillion Pad
60,165	75	Weighted Average
57,745	74	95.98% Pervious Area
2,420	98	4.02% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, AB
					Grass: Bermuda n= 0.410 P2= 3.30"
0.4	50	0.1000	2.21		Shallow Concentrated Flow, BC
					Short Grass Pasture Kv= 7.0 fps
3.5	147	0.0100	0.70		Shallow Concentrated Flow, CD
					Short Grass Pasture Kv= 7.0 fps
0.2	40	0.1500	2.71		Shallow Concentrated Flow, DE
					Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0600	1.71		Shallow Concentrated Flow, EF
					Short Grass Pasture Kv= 7.0 fps
0.2	31	0.1900	3.05		Shallow Concentrated Flow, FG
					Short Grass Pasture Kv= 7.0 fps
0.2	59	0.0170	5.53	55.30	Channel Flow, GH
					Area= 10.0 sf Perim= 20.1' r= 0.50'
					n= 0.022 Earth, clean & straight
0.2	143	0.0700	11.22	112.21	Channel Flow, HI
					Area= 10.0 sf Perim= 20.1' r= 0.50'
					n= 0.022 Earth, clean & straight
12.5	552	Total			

Summary for Subcatchment pS21: Post - Surface Runoff to Swale

Runoff = 1.13 cfs @ 12.11 hrs, Volume= 3,807 cf, Depth= 5.54"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

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Area (sf)		CN	Description		
8,027	74	>75% Grass cover, Good, HSG C			
0	70	Woods, Good, HSG C			
0	98	Paved parking, HSG C			
10	98	Proposed Wall			
206	98	Proposed Walkway			
8,243	75	Weighted Average			
8,027	74	97.38% Pervious Area			
216	98	2.62% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	38	0.1700	0.15		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
3.7	19	0.0556	0.09		Sheet Flow, BC Woods: Light underbrush n= 0.400 P2= 3.30"
7.9	57	Total			

Summary for Subcatchment pS22: Post - Daycare Walkway Runoff

Runoff = 0.37 cfs @ 12.07 hrs, Volume= 1,297 cf, Depth= 8.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
0	98	Paved parking, HSG C
1,862	98	Sidewalk
0	98	Curbing
0	98	Roofs, HSG C
1,862	98	Weighted Average
1,862	98	100.00% Impervious Area

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Type III 24-hr 100-Year Rainfall=8.60"

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

Summary for Subcatchment pS23: Post - Daycare Plaza Runoff

Runoff = 0.09 cfs @ 12.07 hrs, Volume= 302 cf, Depth= 8.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
433	98	Unconnected pavement, HSG C
433	98	100.00% Impervious Area

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

Summary for Subcatchment pS24: Post - Runoff to Forebay

Runoff = 0.80 cfs @ 12.07 hrs, Volume= 2,470 cf, Depth= 5.74"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
4,665	74	>75% Grass cover, Good, HSG C
76	98	Proposed Wall
420	98	Proposed Walkway
5,161	76	Weighted Average
4,665	74	90.39% Pervious Area
496	98	9.61% Impervious Area

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

Summary for Subcatchment pS25: Post - Parking Lot Runoff to Forebay

Runoff = 0.59 cfs @ 12.07 hrs, Volume= 2,050 cf, Depth= 8.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
2,577	98	Paved parking, HSG C
* 291	98	Proposed Walkway
* 75	98	Curbing
2,943	98	Weighted Average
2,943	98	100.00% Impervious Area

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

Summary for Subcatchment pS26: Post - Flow to CB3

Runoff = 0.58 cfs @ 12.07 hrs, Volume= 1,973 cf, Depth= 7.75"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

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Type III 24-hr 100-Year Rainfall=8.60"

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Area (sf)	CN	Description
968	98	Paved parking, HSG C
* 1,392	98	Proposed Walkway
643	74	>75% Grass cover, Good, HSG C
* 52	98	Curbing
3,055	93	Weighted Average
643	74	21.05% Pervious Area
2,412	98	78.95% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	

5.0

Direct Entry,

Summary for Subcatchment pS27: Post - Area in front of bldg flowing to existing swale-4

Runoff = 1.05 cfs @ 12.08 hrs, Volume= 3,470 cf, Depth= 6.68"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
3,609	74	>75% Grass cover, Good, HSG C
* 241	98	Existing Walk
2,380	98	Roofs, HSG C
0	98	Paved parking, HSG C
* 0	89	Gravel Area
6,230	84	Weighted Average
3,609	74	57.93% Pervious Area
2,621	98	42.07% Impervious Area

Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	

5.4 50 0.1600 0.15

Sheet Flow, AB

Grass: Bermuda n= 0.410 P2= 3.30"

Summary for Subcatchment pS3: Post - Norther half or parking area-2

Runoff = 2.80 cfs @ 12.01 hrs, Volume= 8,523 cf, Depth= 7.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)		CN	Description		
1,657	74	>75% Grass cover, Good, HSG C			
11,151	98	Paved parking, HSG C			
12,808	95	Weighted Average			
1,657	74	12.94% Pervious Area			
11,151	98	87.06% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB
					Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC
					Paved Kv= 20.3 fps

Summary for Subcatchment pS4: Post - Southern half of parking area-2

Runoff = 5.32 cfs @ 12.01 hrs, Volume= 16,158 cf, Depth= 7.93"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)		CN	Description
3,603	74	>75% Grass cover, Good, HSG C	
20,838	98	Paved parking, HSG C	
24,441	94	Weighted Average	
3,603	74	14.74% Pervious Area	
20,838	98	85.26% Impervious Area	

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment pS5: Post - Norther half of parking area-3

Runoff = 6.87 cfs @ 12.01 hrs, Volume= 20,499 cf, Depth= 7.51"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
9,645	74	>75% Grass cover, Good, HSG C
23,119	98	Paved parking, HSG C
32,764	91	Weighted Average
9,645	74	29.44% Pervious Area
23,119	98	70.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

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Summary for Subcatchment pS6: Post - Southern half of parking area-3

Runoff = 6.56 cfs @ 12.01 hrs, Volume= 20,043 cf, Depth= 8.07"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
2,944	74	>75% Grass cover, Good, HSG C
26,846	98	Paved parking, HSG C

29,790 96 Weighted Average

2,944 74 9.88% Pervious Area

26,846 98 90.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment pS7: Post - Flow to CB4

Runoff = 0.54 cfs @ 12.07 hrs, Volume= 1,868 cf, Depth= 8.36"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
2,681	98	Paved parking, HSG C
2,681	98	100.00% Impervious Area

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

Summary for Subcatchment pS9: Post - Flow to Area Drain

Runoff = 2.71 cfs @ 12.19 hrs, Volume= 10,912 cf, Depth= 5.59"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.60"

Area (sf)	CN	Description
759	98	Unconnected pavement, HSG C
230	98	Paved parking, HSG C
0	89	Gravel path
20,621	74	>75% Grass cover, Good, HSG C
1,825	70	Woods, Good, HSG C
0	98	Roofs, HSG C
23,435	75	Weighted Average
22,446	74	95.78% Pervious Area
989	98	4.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	50	0.0400	0.09		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.5	64	0.1100	2.32		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
3.6	152	0.0100	0.70		Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
0.4	72	0.1700	2.89		Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.0	29	0.1000	13.41	134.11	Channel Flow, EF Area= 10.0 sf Perim= 20.1' r= 0.50' n= 0.022 Earth, clean & straight
13.9	367				Total

Summary for Pond pSF1: Post - Sand Filter-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 6.56" for 100-Year event
 Inflow = 25.28 cfs @ 12.02 hrs, Volume= 95,633 cf
 Outflow = 26.55 cfs @ 12.03 hrs, Volume= 95,513 cf, Atten= 0%, Lag= 0.9 min
 Primary = 26.55 cfs @ 12.03 hrs, Volume= 95,513 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.51' @ 12.03 hrs Surf.Area= 9,493 sf Storage= 8,980 cf

Flood Elev= 22.20' Surf.Area= 9,493 sf Storage= 8,980 cf

Plug-Flow detention time= 28.3 min calculated for 95,433 cf (100% of inflow)

Center-of-Mass det. time= 27.7 min (808.4 - 780.7)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	5,566 cf	Open Storage (Prismatic) Listed below (Recalc)
#2	18.50'	3,390 cf	Sand Filter (Prismatic) Listed below (Recalc)
#3	18.58'	24 cf	10,295 cf Overall - 24 cf Embedded = 10,271 cf x 33.0% Voids
			4.0" Round Pipe Storage Inside #2
			L= 271.0'
		8,980 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	4,118	0	0
22.00	4,950	4,534	4,534
22.20	5,375	1,032	5,566

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	4,118	0	0
19.00	4,118	2,059	2,059
20.00	4,118	4,118	6,177
21.00	4,118	4,118	10,295

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Device	Routing	Invert	Outlet Devices
#1	Primary	21.20'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 0.00 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	21.20'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 1.00 Width (feet) 4.00 8.00
#3	Device 4	18.50'	8.270 in/hr Exfiltration over Surface area
#4	Primary	18.58'	4.0" Round Culvert X 2.00 L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.58' / 18.40' S= 0.0120 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
Primary OutFlow Max=26.01 cfs @ 12.03 hrs HW=22.48' TW=18.76' (Dynamic Tailwater)			
└─1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)			
└─2=Custom Weir/Orifice (Orifice Controls 24.58 cfs @ 4.10 fps)			
└─4=Culvert (Outlet Controls 1.44 cfs @ 8.23 fps)			
└─3=Exfiltration (Passes 1.44 cfs of 1.82 cfs potential flow)			

Summary for Pond pSF2: Post - Sand Filter-2

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth = 7.33" for 100-Year event
Inflow = 13.48 cfs @ 12.07 hrs, Volume= 45,212 cf
Outflow = 12.72 cfs @ 12.10 hrs, Volume= 45,202 cf, Atten= 6%, Lag= 1.5 min
Primary = 12.34 cfs @ 12.10 hrs, Volume= 22,631 cf
Secondary = 0.45 cfs @ 11.84 hrs, Volume= 22,571 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 22.85' @ 12.10 hrs Surf.Area= 3,695 sf Storage= 4,432 cf
Flood Elev= 23.00' Surf.Area= 3,746 sf Storage= 4,765 cf

Plug-Flow detention time= 41.1 min calculated for 45,202 cf (100% of inflow)
Center-of-Mass det. time= 40.8 min (799.7 - 758.8)

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Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	1,020 cf	Sand Filter (Prismatic) Listed below (Recalc) 3,102 cf Overall - 11 cf Embedded = 3,091 cf x 33.0% Voids
#2	21.00'	3,734 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#3	19.00'	11 cf	4.0" Round Pipe Storage Inside #1 L= 123.0'
		4,765 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,551	0	0
20.00	1,551	1,551	1,551
21.00	1,551	1,551	3,102

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	1,551	0	0
22.00	1,861	1,706	1,706
23.00	2,195	2,028	3,734

Device	Routing	Invert	Outlet Devices
#1	Primary	22.15'	10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Device 3	19.00'	8.270 in/hr Exfiltration over Surface area
#3	Secondary	19.00'	4.0" Round Culvert L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.00' / 18.75' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=12.27 cfs @ 12.10 hrs HW=22.84' TW=22.53' (Dynamic Tailwater)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 12.27 cfs @ 1.78 fps)**Secondary OutFlow** Max=0.45 cfs @ 11.84 hrs HW=22.43' TW=19.09' (Dynamic Tailwater)↑**3=Culvert** (Outlet Controls 0.45 cfs @ 5.18 fps)↑**2=Exfiltration** (Passes 0.45 cfs of 0.68 cfs potential flow)

Summary for Pond pSF3: Post - Sand Filter-3

Inflow Area = 134,007 sf, 22.74% Impervious, Inflow Depth = 5.39" for 100-Year event
Inflow = 14.69 cfs @ 12.18 hrs, Volume= 60,201 cf
Outflow = 14.58 cfs @ 12.20 hrs, Volume= 60,169 cf, Atten= 1%, Lag= 1.1 min
Primary = 14.58 cfs @ 12.20 hrs, Volume= 60,169 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 22.41' @ 12.20 hrs Surf.Area= 3,134 sf Storage= 3,800 cf
Flood Elev= 23.50' Surf.Area= 3,390 sf Storage= 5,030 cf

Plug-Flow detention time= 22.9 min calculated for 60,169 cf (100% of inflow)
Center-of-Mass det. time= 22.4 min (830.4 - 807.9)

Volume	Invert	Avail.Storage	Storage Description
#1	20.50'	4,063 cf	Open Storage (Prismatic) Listed below (Recalc)
#2	18.00'	953 cf	Sand Filter (Prismatic) Listed below (Recalc)
#3	18.08'	13 cf	2,903 cf Overall - 13 cf Embedded = 2,889 cf x 33.0% Voids
		L= 153.0'	4.0" Round Pipe Storage Inside #2
		5,030 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
20.50	1,161	0	0
21.50	1,365	1,263	1,263
22.00	1,792	789	2,052
23.00	2,229	2,011	4,063

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.00	1,161	0	0
20.00	1,161	2,322	2,322
20.50	1,161	581	2,903

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Device	Routing	Invert	Outlet Devices
#1	Device 2	18.00'	8.270 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	18.08'	4.0" Round Culvert X 2.00 L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.08' / 17.85' S= 0.0092 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Primary	20.75'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 1.80 Width (feet) 0.25 1.50
#4	Primary	21.85'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 1.00 Width (feet) 6.00 8.00

Primary OutFlow Max=14.53 cfs @ 12.20 hrs HW=22.41' TW=18.43' (Dynamic Tailwater)

—2=Culvert (Passes 0.60 cfs of 1.26 cfs potential flow)

—1=Exfiltration (Exfiltration Controls 0.60 cfs)

—3=Custom Weir/Orifice (Weir Controls 5.00 cfs @ 3.63 fps)

—4=Custom Weir/Orifice (Weir Controls 8.93 cfs @ 2.42 fps)

Summary for Pond pSW1: Pre - Swale-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 7.10" for 100-Year event
Inflow = 28.94 cfs @ 12.03 hrs, Volume= 103,591 cf
Outflow = 26.55 cfs @ 12.15 hrs, Volume= 103,591 cf, Atten= 8%, Lag= 6.8 min
Primary = 26.55 cfs @ 12.15 hrs, Volume= 103,591 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 18.79' @ 12.15 hrs Surf.Area= 2,268 sf Storage= 1,210 cf
Flood Elev= 19.40' Surf.Area= 3,367 sf Storage= 2,947 cf

Plug-Flow detention time= 1.2 min calculated for 103,591 cf (100% of inflow)
Center-of-Mass det. time= 1.2 min (804.0 - 802.8)

Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	2,947 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)
18.00	814	0	0
19.00	2,666	1,740	1,740
19.40	3,367	1,207	2,947

Device Routing Invert Outlet Devices#1 Primary 18.00' **Custom Weir/Orifice, Cv= 2.62 (C= 3.28)**

Head (feet) 0.00 1.00 1.40

Width (feet) 9.34 16.70 21.40

Primary OutFlow Max=26.34 cfs @ 12.15 hrs HW=18.78' TW=0.00' (Dynamic Tailwater)**1=Custom Weir/Orifice** (Weir Controls 26.34 cfs @ 2.76 fps)**Summary for Pond pSW2: Pre - Swale-2**

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth = 7.32" for 100-Year event
Inflow = 12.57 cfs @ 12.11 hrs, Volume= 45,157 cf
Outflow = 12.57 cfs @ 12.14 hrs, Volume= 45,158 cf, Atten= 0%, Lag= 2.1 min
Primary = 6.57 cfs @ 12.09 hrs, Volume= 37,234 cf
Secondary = 10.52 cfs @ 12.15 hrs, Volume= 8,078 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 27.19' @ 12.15 hrs Surf.Area= 825 sf Storage= 945 cf

Flood Elev= 20.70' Surf.Area= 825 sf Storage= 945 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.5 min (806.9 - 806.4)

Volume Invert Avail.Storage Storage Description#1 19.00' 945 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)
19.00	263	0	0
20.00	617	440	440
20.70	825	505	945

Device Routing Invert Outlet Devices

#1	Primary	18.19'	18.0" Round Culvert L= 24.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.19' / 18.09' S= 0.0042 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	19.03'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.68' / 19.03' S= -0.0233 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=6.48 cfs @ 12.09 hrs HW=20.42' TW=19.84' (Dynamic Tailwater)

↑ **1=Culvert** (Inlet Controls 6.48 cfs @ 3.67 fps)

Secondary OutFlow Max=10.04 cfs @ 12.15 hrs HW=26.58' TW=18.78' (Dynamic Tailwater)

↑ **2=Culvert** (Inlet Controls 10.04 cfs @ 12.79 fps)

Summary for Pond pSW3: Pre - Swale-3

Inflow Area =	81,538 sf, 59.99% Impervious, Inflow Depth = 6.03" for 100-Year event
Inflow =	7.71 cfs @ 12.09 hrs, Volume= 40,971 cf
Outflow =	6.94 cfs @ 12.21 hrs, Volume= 40,970 cf, Atten= 10%, Lag= 7.4 min
Primary =	6.94 cfs @ 12.21 hrs, Volume= 40,970 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.67' @ 12.21 hrs Surf.Area= 3,014 sf Storage= 2,902 cf

Flood Elev= 20.00' Surf.Area= 3,014 sf Storage= 2,902 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 3.8 min (823.3 - 819.5)

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Volume	Invert	Avail.Storage	Storage Description
#1	18.50'	2,902 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	374	0	0
19.00	1,735	527	527
20.00	3,014	2,375	2,902

Device	Routing	Invert	Outlet Devices
#1	Primary	18.08'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.08' / 18.01' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=6.71 cfs @ 12.21 hrs HW=22.59' TW=19.44' (Dynamic Tailwater)
1=Culvert (Inlet Controls 6.71 cfs @ 8.55 fps)

Summary for Pond pSW4: Pre - Swale-4

Inflow Area = 91,328 sf, 60.32% Impervious, Inflow Depth = 6.17" for 100-Year event
Inflow = 7.82 cfs @ 12.21 hrs, Volume= 46,920 cf
Outflow = 6.14 cfs @ 12.23 hrs, Volume= 46,920 cf, Atten= 21%, Lag= 1.3 min
Primary = 6.14 cfs @ 12.23 hrs, Volume= 46,920 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 19.47' @ 12.23 hrs Surf.Area= 1,167 sf Storage= 910 cf
Flood Elev= 19.80' Surf.Area= 1,554 sf Storage= 1,361 cf

Plug-Flow detention time= 2.0 min calculated for 46,881 cf (100% of inflow)
Center-of-Mass det. time= 2.0 min (817.2 - 815.2)

Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	1,361 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)
18.00	27	0	0
19.00	851	439	439
19.50	1,190	510	949
19.80	1,554	412	1,361

Device Routing Invert Outlet Devices

#1	Primary	17.99'	18.0" Round Culvert L= 21.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 17.99' / 17.82' S= 0.0081 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.07 cfs @ 12.23 hrs HW=19.45' TW=18.43' (Dynamic Tailwater)

1-1=Culvert (Barrel Controls 6.07 cfs @ 4.38 fps)

Summary for Reach pSW5: Pre - Swale-5

Inflow Area =	232,923 sf,	39.09% Impervious,	Inflow Depth = 5.76"	for 100-Year event
Inflow =	21.24 cfs @	12.21 hrs,	Volume=	111,866 cf
Outflow =	21.18 cfs @	12.22 hrs,	Volume=	111,866 cf, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 3.01 fps, Min. Travel Time= 0.8 min

Avg. Velocity = 0.71 fps, Avg. Travel Time= 3.4 min

Peak Storage= 1,021 cf @ 12.22 hrs

Average Depth at Peak Storage= 0.62'

Bank-Full Depth= 1.50' Flow Area= 22.4 sf, Capacity= 110.11 cfs

Custom cross-section, Length= 145.0' Slope= 0.0050 '/'

Constant n= 0.022 Earth, clean & straight

Inlet Invert= 17.82', Outlet Invert= 17.10'

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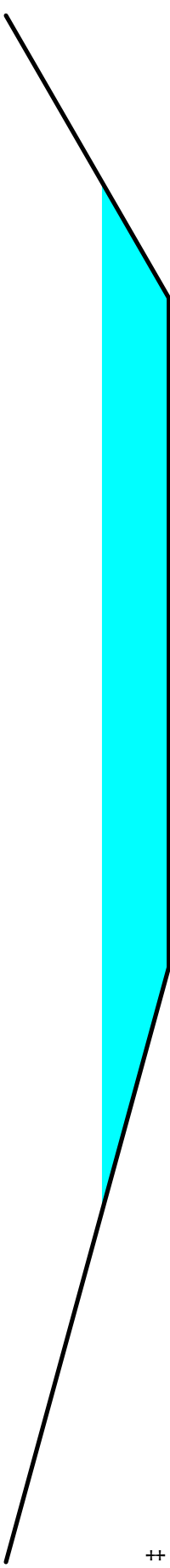
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Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-12.50	19.50	0.00
-4.50	18.00	1.50
4.50	18.00	1.50
8.30	19.50	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	9.0	0	0.00
1.50	22.4	21.2	3,241	110.11

Summary for Pond STC1: Post - Stormceptor-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 4.14" for 100-Year event
Inflow = 2.71 cfs @ 12.02 hrs, Volume= 16,320 cf
Outflow = 2.71 cfs @ 12.02 hrs, Volume= 16,320 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.71 cfs @ 12.02 hrs, Volume= 16,320 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 30.69' @ 12.03 hrs
Flood Elev= 33.20'

Device Routing Invert Outlet Devices

#1	Primary	29.40'	12.0" Round Culvert L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.40' / 29.35' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.67 cfs @ 12.02 hrs HW=30.66' TW=30.17' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.67 cfs @ 3.40 fps)

Summary for Pond STC2: Post - Stormceptor-2

Inflow Area = 32,406 sf, 41.59% Impervious, Inflow Depth = 6.60" for 100-Year event
Inflow = 5.48 cfs @ 12.07 hrs, Volume= 17,821 cf
Outflow = 5.48 cfs @ 12.07 hrs, Volume= 17,821 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.48 cfs @ 12.07 hrs, Volume= 17,821 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 27.12' @ 12.07 hrs
Flood Elev= 27.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	23.00'	12.0" Round Culvert L= 5.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.00' / 22.90' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=5.29 cfs @ 12.07 hrs HW=26.97' TW=25.01' (Dynamic Tailwater)
1=Culvert (Inlet Controls 5.29 cfs @ 6.74 fps)

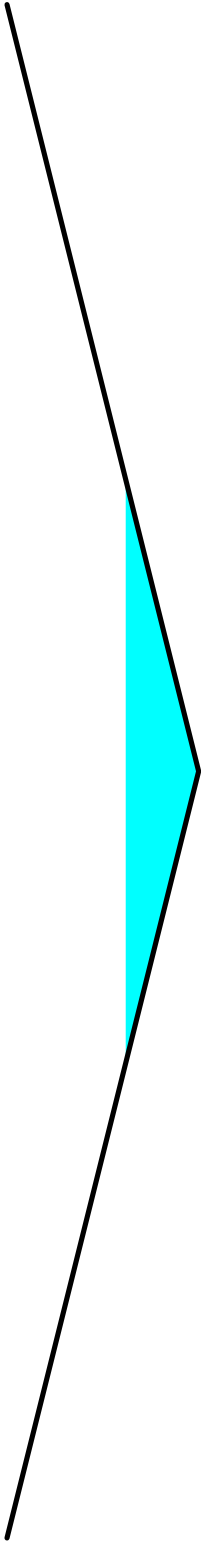
Summary for Reach SW1: Post - Swale-1

Inflow Area = 8,243 sf, 2.62% Impervious, Inflow Depth = 7.82" for 100-Year event
Inflow = 2.62 cfs @ 12.18 hrs, Volume= 5,370 cf
Outflow = 2.62 cfs @ 12.19 hrs, Volume= 5,370 cf, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 4.54 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.28 fps, Avg. Travel Time= 1.3 min

Peak Storage= 58 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.38'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 34.60 cfs

Custom cross-section, Length= 100.0' Slope= 0.0800 '/
Constant n= 0.030 Short grass
Inlet Invert= 37.00', Outlet Invert= 29.00'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-4.00	1.00	0.00
0.00	0.00	1.00
4.00	1.00	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
1.00	4.0	8.2	400	34.60

Summary for Reach SW2: Post - Swale-2

Inflow = 0.09 cfs @ 12.21 hrs, Volume= 12 cf
Outflow = 0.05 cfs @ 12.24 hrs, Volume= 12 cf, Atten= 38%, Lag= 1.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 0.83 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 0.40 fps, Avg. Travel Time= 3.3 min

Peak Storage= 5 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 0.75' Flow Area= 3.0 sf, Capacity= 16.07 cfs

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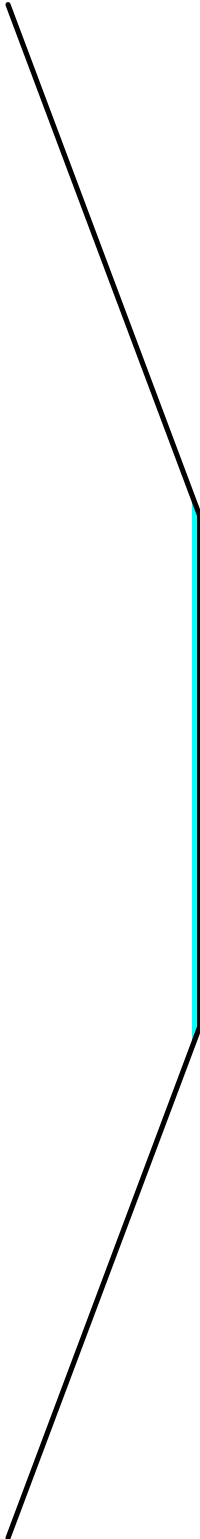
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Custom cross-section, Length= 80.0' Slope= 0.0313 '/
Constant n= 0.030 Short grass
Inlet Invert= 29.50', Outlet Invert= 27.00'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-3.00	0.75	0.00
-1.00	0.00	0.75
1.00	0.00	0.75
3.00	0.75	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	2.0	0	0.00
0.75	3.0	6.3	240	16.07

Summary for Pond US1: Post - Underground Recharge System-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 4.14" for 100-Year event
Inflow = 2.71 cfs @ 12.02 hrs, Volume= 16,320 cf
Outflow = 2.64 cfs @ 12.08 hrs, Volume= 16,322 cf, Atten= 2%, Lag= 3.9 min
Discarded = 0.04 cfs @ 2.58 hrs, Volume= 4,182 cf
Primary = 2.60 cfs @ 12.08 hrs, Volume= 12,141 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 30.21' @ 12.06 hrs Surf.Area= 1,736 sf Storage= 1,582 cf
Flood Elev= 30.90' Surf.Area= 1,736 sf Storage= 1,991 cf

Plug-Flow detention time= 70.9 min calculated for 16,308 cf (100% of inflow)
Center-of-Mass det. time= 71.2 min (830.9 - 759.7)

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Volume	Invert	Avail. Storage	Storage Description
#1A	28.57'	1,014 cf	21.50'W x 80.76'L x 2.33'H Field A 4,051 cf Overall - 978 cf Embedded = 3,073 cf x 33.0% Voids
#2A	29.07'	978 cf	ADS_StormTech SC-310 x 66 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 6 rows
		1,992 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.57'	1.000 in/hr Exfiltration over Surface area
#2	Primary	29.36'	8.0" Round Culvert X 3.00 L= 2.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.36' / 29.30' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.04 cfs @ 2.58 hrs HW=28.60' (Free Discharge)

↳ **1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=2.42 cfs @ 12.08 hrs HW=30.19' TW=29.96' (Dynamic Tailwater)

↳ **2=Culvert** (Inlet Controls 2.42 cfs @ 2.31 fps)

Summary for Pond US2: Post - Underground Recharge System-2

Inflow Area =	15,579 sf, 100.00% Impervious, Inflow Depth = 8.36" for 100-Year event
Inflow =	3.11 cfs @ 12.07 hrs, Volume= 10,853 cf
Outflow =	1.47 cfs @ 12.21 hrs, Volume= 10,853 cf, Atten= 53%, Lag= 8.6 min
Discarded =	0.12 cfs @ 9.63 hrs, Volume= 7,810 cf
Primary =	1.36 cfs @ 12.21 hrs, Volume= 3,043 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 25.40' @ 12.21 hrs Surf.Area= 2,064 sf Storage= 3,211 cf

Flood Elev= 25.50' Surf.Area= 2,064 sf Storage= 3,331 cf

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Plug-Flow detention time= 124.2 min calculated for 10,844 cf (100% of inflow)
Center-of-Mass det. time= 124.1 min (863.5 - 739.4)

Volume	Invert	Avail. Storage	Storage Description
#1A	23.00'	1,529 cf	34.75'W x 59.40'L x 3.50'H Field A 7,224 cf Overall - 2,592 cf Embedded = 4,632 cf x 33.0% Voids
#2A	23.50'	2,592 cf	ADS_StormTech SC-740 x 56 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
		4,121 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	23.00'	2.410 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	24.71'	10.0" Round Culvert L= 37.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.71' / 24.25' S= 0.0124 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.12 cfs @ 9.63 hrs HW=23.04' (Free Discharge)
└─1=Exfiltration (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=1.36 cfs @ 12.21 hrs HW=25.40' TW=22.41' (Dynamic Tailwater)
└─2=Culvert (Inlet Controls 1.36 cfs @ 2.82 fps)

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Time span=0.00-36.00 hrs, dt=0.03 hrs, 1201 points x 2

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Pond CB1: CB-1

Peak Elev=39.25' Inflow=0.35 cfs 1,114 cf
Outflow=0.35 cfs 1,114 cf

Pond CB4: Post - CB-4

Peak Elev=26.06' Inflow=0.02 cfs 58 cf
4.0" Round Culvert n=0.013 L=14.3' S=-0.0392 '/' Outflow=0.02 cfs 58 cf

Pond CO: Post - Cleanout

Peak Elev=22.24' Inflow=0.06 cfs 160 cf
8.0" Round Culvert n=0.013 L=74.0' S=0.0101 '/' Outflow=0.06 cfs 160 cf

Pond DMH1: Post - DMH1

Peak Elev=32.25' Inflow=0.65 cfs 1,928 cf
Primary=0.57 cfs 1,894 cf Secondary=0.08 cfs 33 cf Outflow=0.65 cfs 1,928 cf

Pond DMH10: Post - DMH-10

Peak Elev=25.43' Inflow=0.40 cfs 1,280 cf
12.0" Round Culvert n=0.013 L=21.0' S=0.0119 '/' Outflow=0.40 cfs 1,280 cf

Pond DMH11: Post - DMH-11

Peak Elev=24.96' Inflow=0.40 cfs 1,280 cf
12.0" Round Culvert n=0.013 L=3.0' S=0.0200 '/' Outflow=0.40 cfs 1,280 cf

Pond DMH2: Post- DMH2

Peak Elev=30.19' Inflow=0.89 cfs 2,819 cf
Primary=0.50 cfs 2,336 cf Secondary=0.40 cfs 482 cf Outflow=0.89 cfs 2,819 cf

Pond DMH3: Post - DMH3

Peak Elev=26.41' Inflow=0.49 cfs 987 cf
18.0" Round Culvert n=0.013 L=105.0' S=0.0200 '/' Outflow=0.49 cfs 987 cf

Pond DMH4: Post - DMH4

Peak Elev=24.11' Inflow=0.49 cfs 987 cf
18.0" Round Culvert n=0.013 L=75.0' S=0.0273 '/' Outflow=0.49 cfs 987 cf

Pond DMH5: Post - DMH5

Peak Elev=22.30' Inflow=0.37 cfs 1,249 cf
12.0" Round Culvert n=0.013 L=3.5' S=0.0714 '/' Outflow=0.37 cfs 1,249 cf

Pond DMH6: Post - DMH-6

Peak Elev=33.16' Inflow=0.11 cfs 616 cf
10.0" Round Culvert n=0.013 L=55.0' S=0.0182 '/' Outflow=0.11 cfs 616 cf

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Pond DMH7: Post - DMH-7

10.0" Round Culvert n=0.013 L=30.0' S=0.0200 '/' Peak Elev=31.06' Inflow=0.11 cfs 616 cf
Outflow=0.11 cfs 616 cf

Pond DMH8: Post - DMH-8

10.0" Round Culvert n=0.013 L=30.0' S=0.0200 '/' Peak Elev=26.71' Inflow=0.11 cfs 616 cf
Outflow=0.11 cfs 616 cf

Pond DMH9: Post - DMH-9

12.0" Round Culvert n=0.013 L=85.0' S=0.0118 '/' Peak Elev=23.66' Inflow=0.11 cfs 629 cf
Outflow=0.11 cfs 629 cf

Reach OP1: Outlet pipe-1

12.0" Round Pipe n=0.013 L=14.0' S=0.0250 '/' Avg. Flow Depth=0.03' Max Vel=1.42 fps Inflow=0.01 cfs 6 cf
Capacity=5.63 cfs Outflow=0.01 cfs 6 cf

Pond pA1: Post - Analysis Point-1

Inflow=0.35 cfs 1,114 cf
Primary=0.35 cfs 1,114 cf

Pond pA2: Pre - Analysis Point-2

Inflow=0.61 cfs 4,172 cf
Primary=0.61 cfs 4,172 cf

Pond pA3: Post - Analysis Point-3

Inflow=0.68 cfs 6,516 cf
Primary=0.68 cfs 6,516 cf

Pond pAD: Post - Area drain at main entrance

12.0" Round Culvert n=0.013 L=69.0' S=0.0109 '/' Peak Elev=24.07' Inflow=0.02 cfs 62 cf
Outflow=0.02 cfs 62 cf

Pond pAD2: Area Drain

8.0" Round Culvert n=0.013 L=10.0' S=0.0100 '/' Peak Elev=28.56' Inflow=0.01 cfs 36 cf
Outflow=0.01 cfs 36 cf

Pond pCB1: Post - CB1

12.0" Round Culvert n=0.012 L=140.0' S=0.0143 '/' Peak Elev=32.28' Inflow=0.33 cfs 924 cf
Outflow=0.33 cfs 924 cf

Pond pCB2: Post - CB2

15.0" Round Culvert n=0.013 L=10.0' S=0.0200 '/' Peak Elev=32.57' Inflow=0.61 cfs 1,730 cf
Outflow=0.61 cfs 1,730 cf

Pond pCB3: Post - CB3

8.0" Round Culvert n=0.013 L=44.0' S=0.0318 '/' Peak Elev=34.62' Inflow=0.05 cfs 197 cf
Outflow=0.05 cfs 197 cf

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Pond pCB4: Post - CB4

8.0" Round Culvert n=0.013 L=55.0' S=0.0227 '/' Inflow=0.07 cfs 220 cf
Outflow=0.07 cfs 220 cf

Pond pCB5: Post -CB5

12.0" Round Culvert n=0.013 L=158.0' S=0.0100 '/' Inflow=0.04 cfs 466 cf
Outflow=0.04 cfs 466 cf

Pond pCB6: Post - CB-6

Primary=0.11 cfs 616 cf Peak Elev=36.95' Storage=22 cf Inflow=0.11 cfs 635 cf
Secondary=0.00 cfs 0 cf Outflow=0.11 cfs 616 cf

Pond pCB7: Post - CB-7

Primary=0.00 cfs 12 cf Peak Elev=28.75' Storage=47 cf Inflow=0.00 cfs 59 cf
Secondary=0.00 cfs 0 cf Outflow=0.00 cfs 12 cf

Pond pCB8: Post - CB-8

Peak Elev=29.53' Storage=45 cf Inflow=0.06 cfs 201 cf
Outflow=0.06 cfs 160 cf

Pond pDB1: Post - Detention Basin-1

Peak Elev=19.00' Storage=0 cf Inflow=0.00 cfs 0 cf
Outflow=0.00 cfs 0 cf

Pond pFB1: Forebay-1

Peak Elev=23.09' Storage=493 cf Inflow=0.68 cfs 1,949 cf
Outflow=0.67 cfs 1,482 cf

Pond pFB2: Forebay-2

Peak Elev=23.10' Storage=496 cf Inflow=0.79 cfs 2,220 cf
Outflow=0.77 cfs 1,753 cf

Pond pFB3: Post - Forebay-3

Peak Elev=21.55' Storage=283 cf Inflow=0.22 cfs 1,095 cf
Outflow=0.23 cfs 827 cf

Pond pH2: Post - Daycare Header

12.0" Round Culvert n=0.013 L=70.0' S=0.0200 '/' Inflow=0.14 cfs 448 cf
Outflow=0.14 cfs 448 cf

Pond pH3: Post - Daycare Header

12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Inflow=0.40 cfs 1,280 cf
Outflow=0.40 cfs 1,280 cf

Pond pH4: Post - Daycare Header

12.0" Round Culvert n=0.013 L=28.0' S=0.0107 '/' Inflow=0.40 cfs 1,280 cf
Outflow=0.40 cfs 1,280 cf

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Pond pH5: Post - Roof Header

Peak Elev=26.16' Inflow=0.09 cfs 292 cf
Outflow=0.09 cfs 292 cf

Reach pRD1: Post - Roof Drain-1

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.23' Max Vel=3.00 fps Inflow=0.40 cfs 1,279 cf
L=20.0' S=0.0100 '/' Capacity=3.56 cfs Outflow=0.40 cfs 1,279 cf

Reach pRD2: Post - Roof Drain-2

12.0" Round Pipe n=0.013 Avg. Flow Depth=0.21' Max Vel=3.44 fps Inflow=0.42 cfs 1,336 cf
L=28.0' S=0.0143 '/' Capacity=4.26 cfs Outflow=0.42 cfs 1,336 cf

Subcatchment pRF1: Post - Roof flow

Runoff Area=15,575 sf 100.00% Impervious Runoff Depth=0.99"
Tc=5.0 min CN=0/98 Runoff=0.40 cfs 1,279 cf

Subcatchment pRF2: Post - Roof flow

Runoff Area=16,270 sf 100.00% Impervious Runoff Depth=0.99"
Tc=5.0 min CN=0/98 Runoff=0.42 cfs 1,336 cf

Subcatchment pRF3: Post - Roof flow

Runoff Area=3,560 sf 100.00% Impervious Runoff Depth=0.99"
Tc=5.0 min CN=0/98 Runoff=0.09 cfs 292 cf

Subcatchment pRF4: Post - New Daycare Roof

Runoff Area=8,267 sf 100.00% Impervious Runoff Depth=0.99"
Tc=5.0 min CN=0/98 Runoff=0.21 cfs 679 cf

Subcatchment pRF5: Post - Existing Roof

Runoff Area=5,017 sf 100.00% Impervious Runoff Depth=0.99"
Tc=5.0 min CN=0/98 Runoff=0.13 cfs 412 cf

Subcatchment pS1: Post - Northeastern Parking lot

Runoff Area=16,598 sf 80.53% Impervious Runoff Depth=0.81"
Tc=5.0 min CN=74/98 Runoff=0.35 cfs 1,114 cf

Subcatchment pS10: Post - Flow to Area Drain

Runoff Area=14,310 sf 33.15% Impervious Runoff Depth=0.37"
Flow Length=126' Tc=17.0 min CN=74/98 Runoff=0.09 cfs 439 cf

Subcatchment pS11: Post - Flow to playground catch basin

Runoff Area=1,116 sf 60.48% Impervious Runoff Depth=0.62"
Tc=5.0 min CN=74/98 Runoff=0.02 cfs 58 cf

Subcatchment pS12: Post - Flow to Swale-5

Runoff Area=7,588 sf 72.14% Impervious Runoff Depth=0.73"
Tc=5.0 min CN=74/98 Runoff=0.14 cfs 460 cf

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Subcatchment pS13: Post - Northeastern area flowing to proposed CB5

Runoff Area=58,920 sf 3.59% Impervious Runoff Depth=0.09"
Flow Length=445' Tc=18.2 min CN=74/98 Runoff=0.04 cfs 466 cf

Subcatchment pS14: Post - Parking area-4 runoff

Runoff Area=29,725 sf 36.32% Impervious Runoff Depth=0.39"
Tc=5.0 min CN=73/98 Runoff=0.28 cfs 967 cf

Subcatchment pS15: Post - Flow to entrance area drain

Runoff Area=1,395 sf 50.82% Impervious Runoff Depth=0.53"
Tc=5.0 min CN=74/98 Runoff=0.02 cfs 62 cf

Subcatchment pS16: Post - Flow to Sand Filter-2

Runoff Area=8,374 sf 18.89% Impervious Runoff Depth=0.27"
Tc=5.0 min CN=77/98 Runoff=0.04 cfs 187 cf

Subcatchment pS17: Post - Area in front of bldg flowing to existing swale-3

Runoff Area=7,518 sf 17.25% Impervious Runoff Depth=0.22"
Flow Length=173' Tc=6.3 min CN=74/98 Runoff=0.03 cfs 138 cf

Subcatchment pS18: Post - Flow to Sand Filter-1

Runoff Area=6,183 sf 0.00% Impervious Runoff Depth=0.13"
Tc=5.0 min CN=79/0 Runoff=0.01 cfs 69 cf

Subcatchment pS2: Post - Flow to CB3

Runoff Area=10,081 sf 18.76% Impervious Runoff Depth=0.23"
Tc=5.0 min CN=74/98 Runoff=0.05 cfs 197 cf

Subcatchment pS20: Post - Flow along South side to Sand Filter-1

Runoff Area=60,165 sf 4.02% Impervious Runoff Depth=0.10"
Flow Length=552' Tc=12.5 min CN=74/98 Runoff=0.05 cfs 495 cf

Subcatchment pS21: Post - Surface Runoff to Swale

Runoff Area=8,243 sf 2.62% Impervious Runoff Depth=0.09"
Flow Length=57' Tc=7.9 min CN=74/98 Runoff=0.01 cfs 59 cf

Subcatchment pS22: Post - Daycare Walkway Runoff

Runoff Area=1,862 sf 100.00% Impervious Runoff Depth=0.99"
Tc=5.0 min CN=0/98 Runoff=0.05 cfs 153 cf

Subcatchment pS23: Post - Daycare Plaza Runoff

Runoff Area=433 sf 100.00% Impervious Runoff Depth=0.99"
Tc=5.0 min CN=0/98 Runoff=0.01 cfs 36 cf

Subcatchment pS24: Post - Runoff to Forebay

Runoff Area=5,161 sf 9.61% Impervious Runoff Depth=0.15"
Tc=5.0 min CN=74/98 Runoff=0.01 cfs 65 cf

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Subcatchment pS25: Post - Parking Lot Runoff to Forebay

Runoff Area=2,943 sf 100.00% Impervious Runoff Depth=0.99"
Tc=5.0 min CN=0/98 Runoff=0.08 cfs 242 cf

Subcatchment pS26: Post - Flow to CB3

Runoff Area=3,055 sf 78.95% Impervious Runoff Depth=0.79"
Tc=5.0 min CN=74/98 Runoff=0.06 cfs 201 cf

Subcatchment pS27: Post - Area in front of bldg flowing to existing swale-4

Runoff Area=6,230 sf 42.07% Impervious Runoff Depth=0.45"
Flow Length=50' Tc=5.4 min CN=74/98 Runoff=0.07 cfs 234 cf

Subcatchment pS3: Post - Norther half of parking area-2

Runoff Area=12,808 sf 87.06% Impervious Runoff Depth=0.87"
Flow Length=117' Tc=0.6 min CN=74/98 Runoff=0.33 cfs 924 cf

Subcatchment pS4: Post - Southern half of parking area-2

Runoff Area=24,441 sf 85.26% Impervious Runoff Depth=0.85"
Flow Length=117' Tc=0.6 min CN=74/98 Runoff=0.61 cfs 1,730 cf

Subcatchment pS5: Post - Norther half of parking area-3

Runoff Area=32,764 sf 70.56% Impervious Runoff Depth=0.71"
Flow Length=117' Tc=0.6 min CN=74/98 Runoff=0.68 cfs 1,949 cf

Subcatchment pS6: Post - Southern half of parking area-3

Runoff Area=29,790 sf 90.12% Impervious Runoff Depth=0.89"
Flow Length=117' Tc=0.6 min CN=74/98 Runoff=0.79 cfs 2,220 cf

Subcatchment pS7: Post - Flow to CB4

Runoff Area=2,681 sf 100.00% Impervious Runoff Depth=0.99"
Tc=5.0 min CN=0/98 Runoff=0.07 cfs 220 cf

Subcatchment pS9: Post - Flow to Area Drain

Runoff Area=23,435 sf 4.22% Impervious Runoff Depth=0.10"
Flow Length=367' Tc=13.9 min CN=74/98 Runoff=0.02 cfs 197 cf

Pond pSF1: Post - Sand Filter-1

Peak Elev=19.40' Storage=1,244 cf Inflow=1.92 cfs 4,291 cf
Outflow=0.61 cfs 4,172 cf

Pond pSF2: Post - Sand Filter-2

Peak Elev=21.04' Storage=1,093 cf Inflow=1.23 cfs 4,052 cf
Primary=0.00 cfs 0 cf Secondary=0.35 cfs 4,042 cf Outflow=0.35 cfs 4,042 cf

Pond pSF3: Post - Sand Filter-3

Peak Elev=18.33' Storage=135 cf Inflow=0.29 cfs 1,381 cf
Outflow=0.21 cfs 1,349 cf

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Pond pSW1: Pre - Swale-1

Peak Elev=18.07' Storage=64 cf Inflow=0.61 cfs 4,172 cf
Outflow=0.61 cfs 4,172 cf

Pond pSW2: Pre - Swale-2

Peak Elev=19.00' Storage=0 cf Inflow=0.35 cfs 4,042 cf
Primary=0.35 cfs 4,042 cf Secondary=0.00 cfs 0 cf Outflow=0.35 cfs 4,042 cf

Pond pSW3: Pre - Swale-3

Peak Elev=18.50' Storage=0 cf Inflow=0.36 cfs 4,180 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0047 '/' Outflow=0.36 cfs 4,180 cf

Pond pSW4: Pre - Swale-4

Peak Elev=18.32' Storage=51 cf Inflow=0.48 cfs 4,707 cf
18.0" Round Culvert n=0.013 L=21.0' S=0.0081 '/' Outflow=0.46 cfs 4,707 cf

Reach pSW5: Pre - Swale-5

Avg. Flow Depth=0.08' Max Vel=0.88 fps Inflow=0.68 cfs 6,516 cf
n=0.022 L=145.0' S=0.0050 '/' Capacity=110.11 cfs Outflow=0.68 cfs 6,516 cf

Pond STC1: Post - Stormceptor-1

Peak Elev=29.81' Inflow=0.50 cfs 2,336 cf
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 '/' Outflow=0.50 cfs 2,336 cf

Pond STC2: Post - Stormceptor-2

Peak Elev=23.31' Inflow=0.35 cfs 1,187 cf
12.0" Round Culvert n=0.013 L=5.0' S=0.0200 '/' Outflow=0.35 cfs 1,187 cf

Reach SW1: Post - Swale-1

Avg. Flow Depth=0.04' Max Vel=0.96 fps Inflow=0.01 cfs 59 cf
n=0.030 L=100.0' S=0.0800 '/' Capacity=34.60 cfs Outflow=0.00 cfs 59 cf

Reach SW2: Post - Swale-2

Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0 cf
n=0.030 L=80.0' S=0.0313 '/' Capacity=16.07 cfs Outflow=0.00 cfs 0 cf

Pond US1: Post - Underground Recharge System-1

Peak Elev=29.50' Storage=844 cf Inflow=0.50 cfs 2,336 cf
Discarded=0.04 cfs 2,333 cf Primary=0.01 cfs 6 cf Outflow=0.05 cfs 2,338 cf

Pond US2: Post - Underground Recharge System-2

Peak Elev=23.32' Storage=219 cf Inflow=0.40 cfs 1,280 cf
Discarded=0.12 cfs 1,280 cf Primary=0.00 cfs 0 cf Outflow=0.12 cfs 1,280 cf

Total Runoff Area = 424,508 sf Runoff Volume = 16,882 cf Average Runoff Depth = 0.48"
55.16% Pervious = 234,143 sf 44.84% Impervious = 190,365 sf

Summary for Pond CB1: CB-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 0.81" for WQv event
Inflow = 0.35 cfs @ 12.07 hrs, Volume= 1,114 cf
Outflow = 0.35 cfs @ 12.07 hrs, Volume= 1,114 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.07 hrs, Volume= 1,114 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 39.25' @ 12.07 hrs
Flood Elev= 46.68'

Device	Routing	Invert	Outlet Devices

#1	Primary	38.96'	12.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.34 cfs @ 12.07 hrs HW=39.25' TW=0.00' (Dynamic Tailwater)
↳ **1=Orifice/Grate** (Orifice Controls 0.34 cfs @ 1.82 fps)

Summary for Pond CB4: Post - CB-4

Inflow Area = 1,116 sf, 60.48% Impervious, Inflow Depth = 0.62" for WQv event
Inflow = 0.02 cfs @ 12.07 hrs, Volume= 58 cf
Outflow = 0.02 cfs @ 12.07 hrs, Volume= 58 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 12.07 hrs, Volume= 58 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 26.06' @ 12.07 hrs
Flood Elev= 27.10'

Device	Routing	Invert	Outlet Devices

#1	Primary	25.97'	4.0" Round Culvert L= 14.3' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 25.41' / 25.97' S= -0.0392 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.02 cfs @ 12.07 hrs HW=26.05' TW=18.17' (Dynamic Tailwater)
↳ **1=Culvert** (Inlet Controls 0.02 cfs @ 0.99 fps)

Summary for Pond CO: Post - Cleanout

Inflow Area = 3,055 sf, 78.95% Impervious, Inflow Depth = 0.63" for WQv event
 Inflow = 0.06 cfs @ 12.08 hrs, Volume= 160 cf
 Outflow = 0.06 cfs @ 12.08 hrs, Volume= 160 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.06 cfs @ 12.08 hrs, Volume= 160 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 22.24' @ 12.09 hrs
 Flood Elev= 27.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	22.10'	8.0" Round Culvert L= 74.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 22.10' / 21.35' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.06 cfs @ 12.08 hrs HW=22.24' TW=21.52' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.06 cfs @ 1.73 fps)

Summary for Pond DMH1: Post - DMH1

Inflow Area = 34,522 sf, 65.84% Impervious, Inflow Depth = 0.67" for WQv event
 Inflow = 0.65 cfs @ 12.01 hrs, Volume= 1,928 cf
 Outflow = 0.65 cfs @ 12.01 hrs, Volume= 1,928 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.57 cfs @ 12.01 hrs, Volume= 1,894 cf
 Secondary = 0.08 cfs @ 12.01 hrs, Volume= 33 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 32.25' @ 12.01 hrs
 Flood Elev= 35.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	31.90'	15.0" Round Culvert L= 67.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 31.90' / 29.90' S= 0.0299 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf
#2	Secondary	32.10'	8.0" Round Culvert L= 80.0' RCP, sq.cut end projecting, Ke= 0.500

Inlet / Outlet Invert= 32.10' / 27.00' S= 0.0638 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.56 cfs @ 12.01 hrs HW=32.25' TW=30.19' (Dynamic Tailwater)
└─1=Culvert (Inlet Controls 0.56 cfs @ 2.00 fps)

Secondary OutFlow Max=0.07 cfs @ 12.01 hrs HW=32.25' TW=26.40' (Dynamic Tailwater)
└─2=Culvert (Inlet Controls 0.07 cfs @ 1.30 fps)

Summary for Pond DMH10: Post - DMH-10

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 0.99" for WQv event
 Inflow = 0.40 cfs @ 12.07 hrs, Volume= 1,280 cf
 Outflow = 0.40 cfs @ 12.07 hrs, Volume= 1,280 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.40 cfs @ 12.07 hrs, Volume= 1,280 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 25.43' @ 12.07 hrs
 Flood Elev= 29.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	25.10'	12.0" Round Culvert L= 21.0' RCP, sq. cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 25.10' / 24.85' S= 0.0119 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.40 cfs @ 12.07 hrs HW=25.42' TW=24.95' (Dynamic Tailwater)
└─1=Culvert (Barrel Controls 0.40 cfs @ 2.71 fps)

Summary for Pond DMH11: Post - DMH-11

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 0.99" for WQv event
 Inflow = 0.40 cfs @ 12.07 hrs, Volume= 1,280 cf
 Outflow = 0.40 cfs @ 12.07 hrs, Volume= 1,280 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.40 cfs @ 12.07 hrs, Volume= 1,280 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 24.96' @ 12.07 hrs

Flood Elev= 28.00'

Device Routing Invert Outlet Devices

#1	Primary	24.60'	12.0" Round Culvert L= 3.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.60' / 24.54' S= 0.0200 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=0.40 cfs @ 12.07 hrs HW=24.95' TW=23.15' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.40 cfs @ 2.38 fps)

Summary for Pond DMH2: Post- DMH2

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 0.71" for WQv event
Inflow = 0.89 cfs @ 12.01 hrs, Volume= 2,819 cf
Outflow = 0.89 cfs @ 12.01 hrs, Volume= 2,819 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 12.01 hrs, Volume= 2,336 cf
Secondary = 0.40 cfs @ 12.01 hrs, Volume= 482 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 30.19' @ 12.01 hrs

Flood Elev= 33.20'

Device Routing Invert Outlet Devices

#1	Primary	29.80'	12.0" Round Culvert L= 17.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.80' / 29.65' S= 0.0088 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	29.90'	15.0" Round Culvert L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.90' / 29.55' S= 0.0140 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.49 cfs @ 12.01 hrs HW=30.19' TW=29.81' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.49 cfs @ 2.56 fps)

Secondary OutFlow Max=0.39 cfs @ 12.01 hrs HW=30.19' TW=26.40' (Dynamic Tailwater)

2=Culvert (Inlet Controls 0.39 cfs @ 1.82 fps)

Summary for Pond DMH3: Post - DMH3

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 0.11" for WQv event
Inflow = 0.49 cfs @ 12.01 hrs, Volume= 987 cf
Outflow = 0.49 cfs @ 12.01 hrs, Volume= 987 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.49 cfs @ 12.01 hrs, Volume= 987 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 26.41' @ 12.01 hrs

Flood Elev= 33.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	26.10'	18.0" Round Culvert L= 105.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.10' / 24.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.48 cfs @ 12.01 hrs HW=26.40' TW=24.10' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.48 cfs @ 1.88 fps)

Summary for Pond DMH4: Post - DMH4

Inflow Area = 106,250 sf, 33.88% Impervious, Inflow Depth = 0.11" for WQv event
Inflow = 0.49 cfs @ 12.01 hrs, Volume= 987 cf
Outflow = 0.49 cfs @ 12.01 hrs, Volume= 987 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.49 cfs @ 12.01 hrs, Volume= 987 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 24.11' @ 12.01 hrs

Flood Elev= 26.80'

Device	Routing	Invert	Outlet Devices

#1	Primary	23.80'	18.0" Round Culvert L= 75.0' RCP, sq cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.80' / 21.75' S= 0.0273 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.48 cfs @ 12.01 hrs HW=24.10' TW=19.09' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.48 cfs @ 1.88 fps)

Summary for Pond DMH5: Post - DMH5

Inflow Area = 33,801 sf, 41.97% Impervious, Inflow Depth = 0.44" for WQv event
Inflow = 0.37 cfs @ 12.07 hrs, Volume= 1,249 cf
Outflow = 0.37 cfs @ 12.07 hrs, Volume= 1,249 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.37 cfs @ 12.07 hrs, Volume= 1,249 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 22.30' @ 12.07 hrs

Flood Elev= 25.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	22.00'	12.0" Round Culvert L= 3.5' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 22.00' / 21.75' S= 0.0714 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.36 cfs @ 12.07 hrs HW=22.30' TW=20.33' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.36 cfs @ 1.85 fps)

Summary for Pond DMH6: Post - DMH-6

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 0.20" for WQv event
Inflow = 0.11 cfs @ 12.22 hrs, Volume= 616 cf
Outflow = 0.11 cfs @ 12.22 hrs, Volume= 616 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 12.22 hrs, Volume= 616 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 33.16' @ 12.22 hrs

Flood Elev= 38.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	33.00'	10.0" Round Culvert L= 55.0' RCP, sq.cut end projecting, Ke= 0.500

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Inlet / Outlet Invert= 33.00' / 32.00' S= 0.0182 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.11 cfs @ 12.22 hrs HW=33.16' TW=31.06' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.11 cfs @ 1.38 fps)

Summary for Pond DMH7: Post - DMH-7

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 0.20" for WQv event
Inflow = 0.11 cfs @ 12.22 hrs, Volume= 616 cf
Outflow = 0.11 cfs @ 12.22 hrs, Volume= 616 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 12.22 hrs, Volume= 616 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 31.06' @ 12.22 hrs

Flood Elev= 36.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	30.90'	10.0" Round Culvert L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 30.90' / 30.30' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.11 cfs @ 12.22 hrs HW=31.06' TW=26.71' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.11 cfs @ 1.38 fps)

Summary for Pond DMH8: Post - DMH-8

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 0.20" for WQv event
Inflow = 0.11 cfs @ 12.22 hrs, Volume= 616 cf
Outflow = 0.11 cfs @ 12.22 hrs, Volume= 616 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 12.22 hrs, Volume= 616 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 26.71' @ 12.22 hrs

Flood Elev= 32.50'

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Device Routing Invert Outlet Devices

#1	Primary	26.55'	10.0" Round Culvert L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.55' / 25.95' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.11 cfs @ 12.22 hrs HW=26.71' TW=23.66' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.11 cfs @ 1.38 fps)

Summary for Pond DMH9: Post - DMH-9

Inflow Area =	45,988 sf, 12.94% Impervious, Inflow Depth = 0.16" for WQv event
Inflow =	0.11 cfs @ 12.22 hrs, Volume= 629 cf
Outflow =	0.11 cfs @ 12.22 hrs, Volume= 629 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.11 cfs @ 12.22 hrs, Volume= 629 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 23.66' @ 12.22 hrs
Flood Elev= 30.10'

Device Routing Invert Outlet Devices

#1	Primary	23.50'	12.0" Round Culvert L= 85.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.50' / 22.50' S= 0.0118 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.11 cfs @ 12.22 hrs HW=23.66' TW=21.54' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.11 cfs @ 1.34 fps)

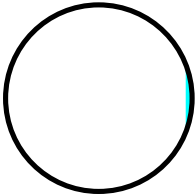
Summary for Reach OP1: Outlet pipe-1

Inflow Area =	47,330 sf, 71.58% Impervious, Inflow Depth = 0.00" for WQv event
Inflow =	0.01 cfs @ 14.19 hrs, Volume= 6 cf
Outflow =	0.01 cfs @ 14.19 hrs, Volume= 6 cf, Atten= 21%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 1.42 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.94 fps, Avg. Travel Time= 0.2 min

Peak Storage= 0 cf @ 14.19 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.63 cfs

12.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 14.0' Slope= 0.0250 '/'
Inlet Invert= 29.50', Outlet Invert= 29.15'



Summary for Pond pA1: Post - Analysis Point-1

Inflow Area = 16,598 sf, 80.53% Impervious, Inflow Depth = 0.81" for WQv event
Inflow = 0.35 cfs @ 12.07 hrs, Volume= 1,114 cf
Primary = 0.35 cfs @ 12.07 hrs, Volume= 1,114 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond pA2: Pre - Analysis Point-2

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth > 0.29" for WQv event
Inflow = 0.61 cfs @ 12.28 hrs, Volume= 4,172 cf
Primary = 0.61 cfs @ 12.28 hrs, Volume= 4,172 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond pA3: Post - Analysis Point-3

Inflow Area = 232,923 sf, 39.09% Impervious, Inflow Depth > 0.34" for WQv event
Inflow = 0.68 cfs @ 12.33 hrs, Volume= 6,516 cf
Primary = 0.68 cfs @ 12.33 hrs, Volume= 6,516 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Summary for Pond pAD: Post - Area drain at main entrance

Inflow Area = 1,395 sf, 50.82% Impervious, Inflow Depth = 0.53" for WQv event
Inflow = 0.02 cfs @ 12.07 hrs, Volume= 62 cf
Outflow = 0.02 cfs @ 12.07 hrs, Volume= 62 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 12.07 hrs, Volume= 62 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 24.07' @ 12.07 hrs
Flood Elev= 28.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	24.00'	12.0" Round Culvert L= 69.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.00' / 23.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.02 cfs @ 12.07 hrs HW=24.07' TW=22.30' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.02 cfs @ 1.21 fps)

Summary for Pond pAD2: Area Drain

Inflow Area = 433 sf,100.00% Impervious, Inflow Depth = 0.99" for WQv event
Inflow = 0.01 cfs @ 12.07 hrs, Volume= 36 cf
Outflow = 0.01 cfs @ 12.07 hrs, Volume= 36 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 12.07 hrs, Volume= 36 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

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Peak Elev= 28.56' @ 12.07 hrs

Flood Elev= 30.80'

Device Routing Invert Outlet Devices

#1	Primary	28.50'	8.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 28.50' / 28.40' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.01 cfs @ 12.07 hrs HW=28.56' TW=28.18' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.01 cfs @ 1.04 fps)

Summary for Pond pCB1: Post - CB1

Inflow Area =	12,808 sf, 87.06% Impervious, Inflow Depth = 0.87" for WQv event
Inflow =	0.33 cfs @ 12.01 hrs, Volume= 924 cf
Outflow =	0.33 cfs @ 12.01 hrs, Volume= 924 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.33 cfs @ 12.01 hrs, Volume= 924 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 32.28' @ 12.01 hrs

Flood Elev= 35.50'

Device Routing Invert Outlet Devices

#1	Primary	32.00'	12.0" Round Culvert L= 140.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.00' / 30.00' S= 0.0143 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.32 cfs @ 12.01 hrs HW=32.28' TW=30.19' (Dynamic Tailwater)

1=Culvert (Inlet Controls 0.32 cfs @ 1.79 fps)

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Summary for Pond pCB2: Post - CB2

Inflow Area = 24,441 sf, 85.26% Impervious, Inflow Depth = 0.85" for WQv event
Inflow = 0.61 cfs @ 12.01 hrs, Volume= 1,730 cf
Outflow = 0.61 cfs @ 12.01 hrs, Volume= 1,730 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.61 cfs @ 12.01 hrs, Volume= 1,730 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 32.57' @ 12.01 hrs

Flood Elev= 35.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	32.20'	15.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 32.20' / 32.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.60 cfs @ 12.01 hrs HW=32.56' TW=32.25' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.60 cfs @ 3.02 fps)

Summary for Pond pCB3: Post - CB3

Inflow Area = 10,081 sf, 18.76% Impervious, Inflow Depth = 0.23" for WQv event
Inflow = 0.05 cfs @ 12.07 hrs, Volume= 197 cf
Outflow = 0.05 cfs @ 12.07 hrs, Volume= 197 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.07 hrs, Volume= 197 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 34.62' @ 12.07 hrs

Flood Elev= 39.50'

Device	Routing	Invert	Outlet Devices

#1	Primary	34.50'	8.0" Round Culvert L= 44.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 34.50' / 33.10' S= 0.0318 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.05 cfs @ 12.07 hrs HW=34.62' TW=32.20' (Dynamic Tailwater)**1=Culvert** (Inlet Controls 0.05 cfs @ 1.17 fps)**Summary for Pond pCB4: Post - CB4**

Inflow Area = 2,681 sf, 100.00% Impervious, Inflow Depth = 0.99" for WQv event
Inflow = 0.07 cfs @ 12.07 hrs, Volume = 220 cf
Outflow = 0.07 cfs @ 12.07 hrs, Volume = 220 cf, Atten = 0%, Lag = 0.0 min
Primary = 0.07 cfs @ 12.07 hrs, Volume = 220 cf

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dt = 0.03 hrs / 2

Peak Elev = 24.64' @ 12.07 hrs

Flood Elev = 28.25'

Device	Routing	Invert	Outlet Devices

#1	Primary	24.50'	8.0" Round Culvert L = 55.0' RCP, sq. cut end projecting, Ke = 0.500 Inlet / Outlet Invert = 24.50' / 23.25' S = 0.0227 '/' Cc = 0.900 n = 0.013 Corrugated PE, smooth interior, Flow Area = 0.35 sf

Primary OutFlow Max=0.07 cfs @ 12.07 hrs HW=24.64' TW=23.31' (Dynamic Tailwater)**1=Culvert** (Inlet Controls 0.07 cfs @ 1.28 fps)**Summary for Pond pCB5: Post -CB5**

Inflow Area = 58,920 sf, 3.59% Impervious, Inflow Depth = 0.09" for WQv event
Inflow = 0.04 cfs @ 12.27 hrs, Volume = 466 cf
Outflow = 0.04 cfs @ 12.27 hrs, Volume = 466 cf, Atten = 0%, Lag = 0.0 min
Primary = 0.04 cfs @ 12.27 hrs, Volume = 466 cf

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dt = 0.03 hrs / 2

Peak Elev = 28.60' @ 12.27 hrs

Flood Elev = 31.70'

Device	Routing	Invert	Outlet Devices

#1	Primary	28.50'	12.0" Round Culvert L = 158.0' RCP, sq. cut end projecting, Ke = 0.500

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Inlet / Outlet Invert= 28.50' / 26.92' S= 0.0100 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.04 cfs @ 12.27 hrs HW=28.60' TW=26.26' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.04 cfs @ 1.48 fps)

Summary for Pond pCB6: Post - CB-6

Inflow Area = 37,745 sf, 15.19% Impervious, Inflow Depth = 0.20" for WQv event
Inflow = 0.11 cfs @ 12.22 hrs, Volume= 635 cf
Outflow = 0.11 cfs @ 12.22 hrs, Volume= 616 cf, Atten= 0%, Lag= 0.3 min
Primary = 0.11 cfs @ 12.22 hrs, Volume= 616 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 36.95' @ 12.22 hrs Surf.Area= 65 sf Storage= 22 cf

Flood Elev= 38.00' Surf.Area= 311 sf Storage= 215 cf

Plug-Flow detention time= 31.2 min calculated for 616 cf (97% of inflow)

Center-of-Mass det. time= 13.7 min (858.7 - 844.9)

Volume	Invert	Avail.Storage	Storage Description
#1	36.50'	215 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.50	35	0	0
37.00	68	26	26
38.00	311	190	215

Device	Routing	Invert	Outlet Devices
#1	Primary	35.00'	8.0" Round Culvert L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 35.00' / 34.40' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	36.90'	12.0" Horiz. Orifice/Grate C= 0.600 in 9.1" x 9.1" Grate Limited to weir flow at low heads
#3	Secondary	37.50'	5.0' long x 2.0' breadth Broad-Crested Rectangular Weir

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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
Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.11 cfs @ 12.22 hrs HW=36.95' TW=33.16' (Dynamic Tailwater)

1=Culvert (Passes 0.11 cfs of 2.14 cfs potential flow)

2=Orifice/Grate (Weir Controls 0.11 cfs @ 0.72 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=36.50' TW=37.00' (Dynamic Tailwater)

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

Summary for Pond pCB7: Post - CB-7

Inflow Area = 8,243 sf, 2.62% Impervious, Inflow Depth = 0.09" for WQv event
Inflow = 0.00 cfs @ 12.13 hrs, Volume= 59 cf
Outflow = 0.00 cfs @ 18.98 hrs, Volume= 12 cf, Atten= 85%, Lag= 410.9 min
Primary = 0.00 cfs @ 18.98 hrs, Volume= 12 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 28.75' @ 18.98 hrs Surf.Area= 101 sf Storage= 47 cf

Flood Elev= 30.00' Surf.Area= 309 sf Storage= 293 cf

Plug-Flow detention time= 586.2 min calculated for 12 cf (21% of inflow)

Center-of-Mass det. time= 347.4 min (1,278.3 - 931.0)

Volume				Storage Description		
#1	Invert	Avail.Storage	293 cf	Custom Stage Data (Prismatic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
28.00	23	0	0			
29.00	127	75	75			
30.00	309	218	293			

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Device Routing Invert Outlet Devices

#1	Device 2	28.75'	12.0" Horiz. Orifice/Grate	C= 0.600 in 9.1" x 9.1" Grate	Limited to weir flow at low heads
#2	Primary	26.10'	12.0" Round Culvert	L= 11.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 26.10' / 25.90' S= 0.0182 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf	
#3	Secondary	29.50'	3.0' long x 2.0' 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		
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32		

Primary OutFlow Max=0.00 cfs @ 18.98 hrs HW=28.75' TW=23.54' (Dynamic Tailwater)

2=Culvert (Passes 0.00 cfs of 5.55 cfs potential flow)

1=Orifice/Grate (Weir Controls 0.00 cfs @ 0.14 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=28.00' TW=29.50' (Dynamic Tailwater)

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

Summary for Pond pCB8: Post - CB-8

Inflow Area =	3,055 sf,	78.95% Impervious,	Inflow Depth = 0.79" for WQv event
Inflow =	0.06 cfs @ 12.07 hrs,	Volume= 201 cf	
Outflow =	0.06 cfs @ 12.08 hrs,	Volume= 160 cf,	Atten= 1%, Lag= 0.8 min
Primary =	0.06 cfs @ 12.08 hrs,	Volume= 160 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 29.53' @ 12.08 hrs Surf.Area= 104 sf Storage= 45 cf

Flood Elev= 30.00' Surf.Area= 140 sf Storage= 102 cf

Plug-Flow detention time= 128.8 min calculated for 160 cf (80% of inflow)

Center-of-Mass det. time= 51.4 min (835.9 - 784.5)

Volume Invert Avail.Storage Storage Description

#1	29.00'	102 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)
29.00	63	0	0
30.00	140	102	102

Device Routing Invert Outlet Devices

#1	Device 2	29.50'	12.0" Horiz. Orifice/Grate	C= 0.600 in 9.1" x 9.1" Grate	Limited to weir flow at low heads
#2	Primary	25.15'	8.0" Round Culvert	L= 13.0' RCP, sq.cut end projecting, Ke= 0.500	
Inlet / Outlet Invert= 25.15' / 25.00' S= 0.0115 '/' Cc= 0.900					
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf					

Primary OutFlow Max=0.06 cfs @ 12.08 hrs HW=29.53' TW=22.24' (Dynamic Tailwater)

2=Culvert (Passes 0.06 cfs of 3.38 cfs potential flow)

1=Orifice/Grate (Weir Controls 0.06 cfs @ 0.60 fps)

Summary for Pond pDB1: Post - Detention Basin-1

Inflow Area =	74,020 sf,	64.33% Impervious,	Inflow Depth =	0.00"	for WQv event
Inflow =	0.00 cfs @	0.00 hrs,	Volume=	0 cf	
Outflow =	0.00 cfs @	0.00 hrs,	Volume=	0 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.00' @ 0.00 hrs Surf.Area= 421 sf Storage= 0 cf

Flood Elev= 23.00' Surf.Area= 1,340 sf Storage= 3,397 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no inflow)

Volume Invert Avail.Storage Storage Description

#1	19.00'	3,397 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)
19.00	421	0	0
20.00	613	517	517
21.00	830	722	1,239
22.00	1,073	952	2,190
23.00	1,340	1,207	3,397

Device Routing Invert Outlet Devices

#1	Primary	22.00'	10.0' long x 2.0' 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	
			Coef. (English)	2.54	2.61	2.61	2.61	2.60	2.66	2.70	2.77	2.89	2.88	2.85	3.07	3.20	3.32
#2	Primary	21.00'	4.0" Round Culvert X 3.00 L= 10.0' RCP, sq.cut end projecting, Ke= 0.500														
			Inlet / Outlet Invert=	21.00' / 20.90'	S= 0.0100 '/'	Cc= 0.900											
			n=	0.013	Corrugated PE, smooth interior, Flow Area= 0.09 sf												
#3	Primary	19.10'	4.0" Round Culvert L= 10.0' RCP, sq.cut end projecting, Ke= 0.500														
			Inlet / Outlet Invert=	19.10' / 19.00'	S= 0.0100 '/'	Cc= 0.900											
			n=	0.013	Corrugated PE, smooth interior, Flow Area= 0.09 sf												

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=19.00' TW=19.00' (Dynamic Tailwater)

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

2=Culvert (Controls 0.00 cfs)

3=Culvert (Controls 0.00 cfs)

Summary for Pond pFB1: Forebay-1

Inflow Area =	32,764 sf, 70.56% Impervious, Inflow Depth = 0.71" for WQv event
Inflow =	0.68 cfs @ 12.01 hrs, Volume= 1,949 cf
Outflow =	0.67 cfs @ 12.02 hrs, Volume= 1,482 cf, Atten= 2%, Lag= 0.6 min
Primary =	0.67 cfs @ 12.02 hrs, Volume= 1,482 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.09' @ 12.02 hrs Surf.Area= 300 sf Storage= 493 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 142.3 min calculated for 1,482 cf (76% of inflow)

Center-of-Mass det. time= 57.3 min (839.5 - 782.3)

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Volume		Invert	Avail.Storage	Storage Description	
#1		19.00'	628 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
19.00	7	0	0		
20.00	40	24	24		
21.00	98	69	93		
22.00	181	140	232		
23.00	289	235	467		
23.50	353	161	628		

Device	Routing	Invert	Outlet Devices									
#1	Primary	23.00'	10.0' long x 2.0' 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									
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32									

Primary OutFlow Max=0.65 cfs @ 12.02 hrs HW=23.09' TW=19.13' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Weir Controls 0.65 cfs @ 0.75 fps)

Summary for Pond pFB2: Forebay-2

Inflow Area = 29,790 sf, 90.12% Impervious, Inflow Depth = 0.89" for WQv event
Inflow = 0.79 cfs @ 12.01 hrs, Volume= 2,220 cf
Outflow = 0.77 cfs @ 12.02 hrs, Volume= 1,753 cf, Atten= 2%, Lag= 0.6 min
Primary = 0.77 cfs @ 12.02 hrs, Volume= 1,753 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.10' @ 12.02 hrs Surf.Area= 301 sf Storage= 496 cf

Flood Elev= 23.50' Surf.Area= 353 sf Storage= 628 cf

Plug-Flow detention time= 129.0 min calculated for 1,752 cf (79% of inflow)

Center-of-Mass det. time= 51.6 min (830.0 - 778.4)

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Volume		Invert	Avail.Storage	Storage Description	
#1		19.00'	628 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
19.00	7	0	0		
20.00	40	24	24		
21.00	98	69	93		
22.00	181	140	232		
23.00	289	235	467		
23.50	353	161	628		

Device	Routing	Invert	Outlet Devices									
#1	Primary	23.00'	10.0' long x 2.0' 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									
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32									

Primary OutFlow Max=0.75 cfs @ 12.02 hrs HW=23.10' TW=19.13' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Weir Controls 0.75 cfs @ 0.79 fps)

Summary for Pond pFB3: Post - Forebay-3

Inflow Area = 57,147 sf, 20.65% Impervious, Inflow Depth = 0.23" for WQv event
Inflow = 0.22 cfs @ 12.09 hrs, Volume= 1,095 cf
Outflow = 0.23 cfs @ 12.13 hrs, Volume= 827 cf, Atten= 0%, Lag= 2.2 min
Primary = 0.23 cfs @ 12.13 hrs, Volume= 827 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 21.55' @ 12.13 hrs Surf.Area= 305 sf Storage= 283 cf

Flood Elev= 23.50' Surf.Area= 520 sf Storage= 1,114 cf

Plug-Flow detention time= 157.2 min calculated for 827 cf (76% of inflow)

Center-of-Mass det. time= 58.9 min (901.9 - 842.9)

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Volume				Storage Description	
#1	Invert	Avail. Storage	Inc. Store	Surf. Area	Cum. Store
	20.00'	1,114 cf			
Custom Stage Data (Prismatic) Listed below (Recalc)					
Elevation (feet)	Surf. Area (sq-ft)	Inc. Store (cubic-feet)	Cum. Store (cubic-feet)		
20.00	71	0	0		
21.00	211	141	141		
22.00	382	297	438		
23.50	520	677	1,114		

Device	Routing	Invert	Outlet Devices
#1	Primary	21.50'	8.0' long x 2.0' 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
		Coef. (English)	2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.22 cfs @ 12.13 hrs HW=21.55' TW=18.24' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Weir Controls 0.22 cfs @ 0.56 fps)

Summary for Pond pH2: Post - Daycare Header

Inflow Area = 5,450 sf, 100.00% Impervious, Inflow Depth = 0.99" for WQv event
Inflow = 0.14 cfs @ 12.07 hrs, Volume= 448 cf
Outflow = 0.14 cfs @ 12.07 hrs, Volume= 448 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 12.07 hrs, Volume= 448 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 28.18' @ 12.07 hrs

Flood Elev= 30.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	28.00'	12.0" Round Culvert L= 70.0' RCP, sq. cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 28.00' / 26.60' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.14 cfs @ 12.07 hrs HW=28.18' TW=26.82' (Dynamic Tailwater)

1-Culvert (Inlet Controls 0.14 cfs @ 1.44 fps)

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Summary for Pond pH3: Post - Daycare Header

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 0.99" for WQv event
Inflow = 0.40 cfs @ 12.07 hrs, Volume = 1,280 cf
Outflow = 0.40 cfs @ 12.07 hrs, Volume = 1,280 cf, Atten = 0%, Lag = 0.0 min
Primary = 0.40 cfs @ 12.07 hrs, Volume = 1,280 cf

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dt = 0.03 hrs / 2

Peak Elev = 26.82' @ 12.07 hrs

Flood Elev = 30.90'

Device	Routing	Invert	Outlet Devices

#1	Primary	26.50'	12.0" Round Culvert L = 100.0' RCP, sq cut end projecting, Ke = 0.500 Inlet / Outlet Invert = 26.50' / 25.50' S = 0.0100 '/' Cc = 0.900 n = 0.013 Corrugated PE, smooth interior, Flow Area = 0.79 sf

Primary OutFlow Max = 0.40 cfs @ 12.07 hrs HW = 26.82' TW = 25.82' (Dynamic Tailwater)

1=Culvert (Outlet Controls 0.40 cfs @ 2.78 fps)

Summary for Pond pH4: Post - Daycare Header

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 0.99" for WQv event
Inflow = 0.40 cfs @ 12.07 hrs, Volume = 1,280 cf
Outflow = 0.40 cfs @ 12.07 hrs, Volume = 1,280 cf, Atten = 0%, Lag = 0.0 min
Primary = 0.40 cfs @ 12.07 hrs, Volume = 1,280 cf

Routing by Dyn-Stor-Ind method, Time Span = 0.00-36.00 hrs, dt = 0.03 hrs / 2

Peak Elev = 25.83' @ 12.07 hrs

Flood Elev = 30.75'

Device	Routing	Invert	Outlet Devices

#1	Primary	25.50'	12.0" Round Culvert L = 28.0' RCP, sq cut end projecting, Ke = 0.500 Inlet / Outlet Invert = 25.50' / 25.20' S = 0.0107 '/' Cc = 0.900 n = 0.013 Corrugated PE, smooth interior, Flow Area = 0.79 sf

Primary OutFlow Max=0.40 cfs @ 12.07 hrs HW=25.82' TW=25.42' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.40 cfs @ 2.70 fps)

Summary for Pond pH5: Post - Roof Header

Inflow Area = 3,560 sf, 100.00% Impervious, Inflow Depth = 0.99" for WQv event
Inflow = 0.09 cfs @ 12.07 hrs, Volume= 292 cf
Outflow = 0.09 cfs @ 12.07 hrs, Volume= 292 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.09 cfs @ 12.07 hrs, Volume= 292 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 26.16' @ 12.07 hrs
Flood Elev= 30.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	25.98'	6.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.09 cfs @ 12.07 hrs HW=26.16' TW=18.30' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.09 cfs @ 1.44 fps)

Summary for Reach pRD1: Post - Roof Drain-1

Inflow Area = 15,575 sf, 100.00% Impervious, Inflow Depth = 0.99" for WQv event
Inflow = 0.40 cfs @ 12.07 hrs, Volume= 1,279 cf
Outflow = 0.40 cfs @ 12.07 hrs, Volume= 1,279 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Max. Velocity= 3.00 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 0.97 fps, Avg. Travel Time= 0.3 min

Peak Storage= 3 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.56 cfs

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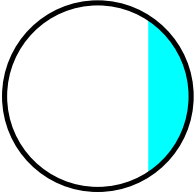
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12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 20.0' Slope= 0.0100 '/'

Inlet Invert= 25.70', Outlet Invert= 25.50'



Summary for Reach pRD2: Post - Roof Drain-2

Inflow Area =	16,270 sf, 100.00% Impervious,	Inflow Depth = 0.99"	for WQv event
Inflow =	0.42 cfs @ 12.07 hrs,	Volume=	1,336 cf
Outflow =	0.42 cfs @ 12.07 hrs,	Volume=	1,336 cf, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 3.44 fps, Min. Travel Time= 0.1 min

Avg. Velocity = 1.12 fps, Avg. Travel Time= 0.4 min

Peak Storage= 3 cf @ 12.07 hrs

Average Depth at Peak Storage= 0.21'

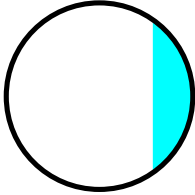
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.26 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 28.0' Slope= 0.0143 '/'

Inlet Invert= 22.50', Outlet Invert= 22.10'



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Summary for Subcatchment pRF1: Post - Roof flow

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 1,279 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)		CN	Description		
15,575		98	Roofs, HSG C		
15,575		98	100.00% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Roof runoff

Summary for Subcatchment pRF2: Post - Roof flow

Runoff = 0.42 cfs @ 12.07 hrs, Volume= 1,336 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)		CN	Description		
16,270		98	Roofs, HSG C		
16,270		98	100.00% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Roof runoff

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Summary for Subcatchment pRF3: Post - Roof flow

Runoff = 0.09 cfs @ 12.07 hrs, Volume= 292 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)		CN	Description		
3,560		98	Roofs, HSG C		
3,560		98	100.00% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry, Roof runoff				

Summary for Subcatchment pRF4: Post - New Daycare Roof

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 679 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)		CN	Description		
8,267		98	Roofs, HSG C		
8,267		98	100.00% Impervious Area		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	Direct Entry,				

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Summary for Subcatchment pRF5: Post - Existing Roof

Runoff = 0.13 cfs @ 12.07 hrs, Volume= 412 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)		CN	Description		
5,017	98	Roofs, HSG C			
5,017	98	100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment pS1: Post - Northeastern Parking lot

Runoff = 0.35 cfs @ 12.07 hrs, Volume= 1,114 cf, Depth= 0.81"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)		CN	Description		
13,366	98	Paved parking, HSG C			
3,232	74	>75% Grass cover, Good, HSG C			
16,598	93	Weighted Average			
3,232	74	19.47% Pervious Area			
13,366	98	80.53% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Parking Runoff to CB

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Summary for Subcatchment pS10: Post - Flow to Area Drain

Runoff = 0.09 cfs @ 12.22 hrs, Volume= 439 cf, Depth= 0.37"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
0	98	Unconnected pavement, HSG C
0	98	Paved parking, HSG C
0	89	Gravel path
9,566	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
4,744	98	Roofs, HSG C
14,310	82	Weighted Average
9,566	74	66.85% Pervious Area
4,744	98	33.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

16.3	50	0.0100	0.05		Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"

0.7	76	0.0600	1.71		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps

17.0	126	Total			

Summary for Subcatchment pS11: Post - Flow to playground catch basin

Runoff = 0.02 cfs @ 12.07 hrs, Volume= 58 cf, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

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Area (sf)	CN	Description
128	98	Unconnected pavement, HSG C
441	74	>75% Grass cover, Good, HSG C
547	98	Rubber play surface
1,116	89	Weighted Average
441	74	39.52% Pervious Area
675	98	60.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to CB5

Summary for Subcatchment pS12: Post - Flow to Swale-5

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 460 cf, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
2,114	74	>75% Grass cover, Good, HSG C
558	98	Proposed Walkway
128	98	Unconnected pavement, HSG C
4,788	98	Paved parking, HSG C
7,588	91	Weighted Average
2,114	74	27.86% Pervious Area
5,474	98	72.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

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Type III 24-hr WQv Rainfall=1.20"

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Summary for Subcatchment pS13: Post - Northeastern area flowing to proposed CB5

Runoff = 0.04 cfs @ 12.27 hrs, Volume= 466 cf, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
2,021	98	Roofs, HSG C
52,854	74	>75% Grass cover, Good, HSG C
93	98	Paved parking, HSG C
3,952	70	Woods, Good, HSG C
58,920	75	Weighted Average
56,806	74	96.41% Pervious Area
2,114	98	3.59% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description
12.4	50	0.0200 0.07 Sheet Flow, AB Grass: Bermuda n= 0.410 P2= 3.30"
0.7	70	0.0500 1.57 Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
0.1	24	0.3300 4.02 Shallow Concentrated Flow, CD Short Grass Pasture Kv= 7.0 fps
4.9	206	0.0100 0.70 Shallow Concentrated Flow, DE Short Grass Pasture Kv= 7.0 fps
0.1	95	0.1900 18.24 72.98 Channel Flow, EF Area= 4.0 sf Perim= 8.2' r= 0.49' n= 0.022 Earth, clean & straight
18.2	445	Total

Summary for Subcatchment pS14: Post - Parking area-4 runoff

Runoff = 0.28 cfs @ 12.07 hrs, Volume= 967 cf, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
16,413	74	>75% Grass cover, Good, HSG C
10,797	98	Paved parking, HSG C
2,515	70	Woods, Good, HSG C
29,725	82	Weighted Average
18,928	73	63.68% Pervious Area
10,797	98	36.32% Impervious Area

Tc Length Slope Velocity Capacity Description
(min) (feet) (ft/ft) (ft/sec) (cfs)

5.0

Direct Entry,

Summary for Subcatchment pS15: Post - Flow to entrance area drain

Runoff = 0.02 cfs @ 12.07 hrs, Volume= 62 cf, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
686	74	>75% Grass cover, Good, HSG C
709	98	Paved parking, HSG C
1,395	86	Weighted Average
686	74	49.18% Pervious Area
709	98	50.82% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Flow to area drain

Summary for Subcatchment pS16: Post - Flow to Sand Filter-2

Runoff = 0.04 cfs @ 12.08 hrs, Volume= 187 cf, Depth= 0.27"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description

*

1,543	89	Gravel
5,249	74	>75% Grass cover, Good, HSG C
1,582	98	Paved parking, HSG C
8,374	81	Weighted Average
6,792	77	81.11% Pervious Area
1,582	98	18.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry, Runoff into Basin

Summary for Subcatchment pS17: Post - Area in front of bldg flowing to existing swale-3

Runoff = 0.03 cfs @ 12.09 hrs, Volume= 138 cf, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

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Area (sf) CN Description				
	6,221	74	>75% Grass cover, Good, HSG C	
*	172	98	Existing Wall	
*	1,125	98	Existing Walk	
	7,518	78	Weighted Average	
	6,221	74	82.75% Pervious Area	
	1,297	98	17.25% Impervious Area	
Tc	Length	Slope	Velocity	Capacity
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)
5.7	38	0.0800	0.11	
Sheet Flow, AB				
				Grass: Bermuda n= 0.410 P2= 3.30"
0.6	135	0.0400	4.06	
Shallow Concentrated Flow, BC				
				Paved Kv= 20.3 fps

Summary for Subcatchment pS18: Post - Flow to Sand Filter-1

Runoff = 0.01 cfs @ 12.13 hrs, Volume= 69 cf, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf) CN Description				
	4,170	74	>75% Grass cover, Good, HSG C	
*	2,013	89	Gravel	
	6,183	79	Weighted Average	
	6,183	79	100.00% Pervious Area	
Tc	Length	Slope	Velocity	Capacity
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)
5.0				
Direct Entry, Flow into Basin				

Summary for Subcatchment pS2: Post - Flow to CB3

Runoff = 0.05 cfs @ 12.07 hrs, Volume= 197 cf, Depth= 0.23"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)		CN	Description	
8,190		74	>75% Grass cover, Good, HSG C	
1,150		98	Paved parking, HSG C	
741		98	Walkway	
10,081		79	Weighted Average	
8,190		74	81.24% Pervious Area	
1,891		98	18.76% Impervious Area	
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs) Description

Summary for Subcatchment pS20: Post - Flow along South side to Sand Filter-1

Runoff = 0.05 cfs @ 12.17 hrs, Volume= 495 cf, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

	Area (sf)	CN	Description
	53,656	74	>75% Grass cover, Good, HSG C
	4,089	70	Woods, Good, HSG C
	207	98	Paved parking, HSG C
*	2,097	98	Pavillion
*	116	98	Conc Pavillion Pad
	60,165	75	Weighted Average
	57,745	74	95.98% Pervious Area
	2,420	98	4.02% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0700	0.11		Sheet Flow, AB
					Grass: Bermuda n= 0.410 P2= 3.30"
0.4	50	0.1000	2.21		Shallow Concentrated Flow, BC
					Short Grass Pasture Kv= 7.0 fps
3.5	147	0.0100	0.70		Shallow Concentrated Flow, CD
					Short Grass Pasture Kv= 7.0 fps
0.2	40	0.1500	2.71		Shallow Concentrated Flow, DE
					Short Grass Pasture Kv= 7.0 fps
0.3	32	0.0600	1.71		Shallow Concentrated Flow, EF
					Short Grass Pasture Kv= 7.0 fps
0.2	31	0.1900	3.05		Shallow Concentrated Flow, FG
					Short Grass Pasture Kv= 7.0 fps
0.2	59	0.0170	5.53	55.30	Channel Flow, GH
					Area= 10.0 sf Perim= 20.1' r= 0.50'
					n= 0.022 Earth, clean & straight
0.2	143	0.0700	11.22	112.21	Channel Flow, HI
					Area= 10.0 sf Perim= 20.1' r= 0.50'
					n= 0.022 Earth, clean & straight
12.5	552	Total			

Summary for Subcatchment pS21: Post - Surface Runoff to Swale

Runoff = 0.01 cfs @ 12.11 hrs, Volume= 59 cf, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

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Area (sf)		CN	Description		
8,027	74	>75% Grass cover, Good, HSG C			
0	70	Woods, Good, HSG C			
0	98	Paved parking, HSG C			
10	98	Proposed Wall			
206	98	Proposed Walkway			
8,243	75	Weighted Average			
8,027	74	97.38% Pervious Area			
216	98	2.62% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	38	0.1700	0.15		Sheet Flow, AB
					Grass: Bermuda n= 0.410 P2= 3.30"
3.7	19	0.0556	0.09		Sheet Flow, BC
					Woods: Light underbrush n= 0.400 P2= 3.30"
7.9	57	Total			

Summary for Subcatchment pS22: Post - Daycare Walkway Runoff

Runoff = 0.05 cfs @ 12.07 hrs, Volume= 153 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
0	98	Paved parking, HSG C
1,862	98	Sidewalk
0	98	Curbing
0	98	Roofs, HSG C
1,862	98	Weighted Average
1,862	98	100.00% Impervious Area

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

Summary for Subcatchment pS23: Post - Daycare Plaza Runoff

Runoff = 0.01 cfs @ 12.07 hrs, Volume= 36 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
433	98	Unconnected pavement, HSG C
433	98	100.00% Impervious Area

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

Summary for Subcatchment pS24: Post - Runoff to Forebay

Runoff = 0.01 cfs @ 12.07 hrs, Volume= 65 cf, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
4,665	74	>75% Grass cover, Good, HSG C
76	98	Proposed Wall
420	98	Proposed Walkway
5,161	76	Weighted Average
4,665	74	90.39% Pervious Area
496	98	9.61% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment pS25: Post - Parking Lot Runoff to Forebay

Runoff = 0.08 cfs @ 12.07 hrs, Volume= 242 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description

2,577	98	Paved parking, HSG C

291	98	Proposed Walkway

75	98	Curbing

2,943	98	Weighted Average

2,943	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment pS26: Post - Flow to CB3

Runoff = 0.06 cfs @ 12.07 hrs, Volume= 201 cf, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

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Area (sf)	CN	Description
968	98	Paved parking, HSG C
* 1,392	98	Proposed Walkway
643	74	>75% Grass cover, Good, HSG C
* 52	98	Curbing
3,055	93	Weighted Average
643	74	21.05% Pervious Area
2,412	98	78.95% Impervious Area

Tc Length Slope Velocity Capacity Description
(min) (feet) (ft/ft) (ft/sec) (cfs)

5.0

Direct Entry,

Summary for Subcatchment pS27: Post - Area in front of bldg flowing to existing swale-4

Runoff = 0.07 cfs @ 12.08 hrs, Volume= 234 cf, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
3,609	74	>75% Grass cover, Good, HSG C
* 241	98	Existing Walk
2,380	98	Roofs, HSG C
0	98	Paved parking, HSG C
* 0	89	Gravel Area
6,230	84	Weighted Average
3,609	74	57.93% Pervious Area
2,621	98	42.07% Impervious Area

Tc Length Slope Velocity Capacity Description
(min) (feet) (ft/ft) (ft/sec) (cfs)

5.4 50 0.1600 0.15

Sheet Flow, AB

Grass: Bermuda n= 0.410 P2= 3.30"

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Summary for Subcatchment pS3: Post - Norther half or parking area-2

Runoff = 0.33 cfs @ 12.01 hrs, Volume= 924 cf, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
1,657	74	>75% Grass cover, Good, HSG C
11,151	98	Paved parking, HSG C
12,808	95	Weighted Average
1,657	74	12.94% Pervious Area
11,151	98	87.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment pS4: Post - Southern half of parking area-2

Runoff = 0.61 cfs @ 12.01 hrs, Volume= 1,730 cf, Depth= 0.85"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
3,603	74	>75% Grass cover, Good, HSG C
20,838	98	Paved parking, HSG C
24,441	94	Weighted Average
3,603	74	14.74% Pervious Area
20,838	98	85.26% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment pS5: Post - Norther half of parking area-3

Runoff = 0.68 cfs @ 12.01 hrs, Volume= 1,949 cf, Depth= 0.71"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
 Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
9,645	74	>75% Grass cover, Good, HSG C
23,119	98	Paved parking, HSG C
32,764	91	Weighted Average
9,645	74	29.44% Pervious Area
23,119	98	70.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

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Summary for Subcatchment pS6: Post - Southern half of parking area-3

Runoff = 0.79 cfs @ 12.01 hrs, Volume= 2,220 cf, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
2,944	74	>75% Grass cover, Good, HSG C
26,846	98	Paved parking, HSG C
29,790	96	Weighted Average
2,944	74	9.88% Pervious Area
26,846	98	90.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0900	2.22		Sheet Flow, AB Smooth surfaces n= 0.011 P2= 3.30"
0.2	67	0.0900	6.09		Shallow Concentrated Flow, BC Paved Kv= 20.3 fps
0.6	117	Total			

Summary for Subcatchment pS7: Post - Flow to CB4

Runoff = 0.07 cfs @ 12.07 hrs, Volume= 220 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description
2,681	98	Paved parking, HSG C
2,681	98	100.00% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

5.0

Direct Entry,

Summary for Subcatchment pS9: Post - Flow to Area Drain

Runoff = 0.02 cfs @ 12.19 hrs, Volume= 197 cf, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr WQv Rainfall=1.20"

Area (sf)	CN	Description

759	98	Unconnected pavement, HSG C

230	98	Paved parking, HSG C

0	89	Gravel path

20,621	74	>75% Grass cover, Good, HSG C

1,825	70	Woods, Good, HSG C

0	98	Roofs, HSG C

23,435	75	Weighted Average

22,446	74	95.78% Pervious Area

989	98	4.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

9.4	50	0.0400	0.09		

Sheet Flow, AB

Grass: Bermuda n= 0.410 P2= 3.30"

Shallow Concentrated Flow, BC

Short Grass Pasture Kv= 7.0 fps

Shallow Concentrated Flow, CD

Short Grass Pasture Kv= 7.0 fps

Shallow Concentrated Flow, DE

Short Grass Pasture Kv= 7.0 fps

Channel Flow, EF

Area= 10.0 sf Perim= 20.1' r= 0.50'

n= 0.022 Earth, clean & straight

13.9	367	Total

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Summary for Pond pSF1: Post - Sand Filter-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth = 0.29" for WQv event
Inflow = 1.92 cfs @ 12.02 hrs, Volume= 4,291 cf
Outflow = 0.61 cfs @ 12.26 hrs, Volume= 4,172 cf, Atten= 68%, Lag= 14.8 min
Primary = 0.61 cfs @ 12.26 hrs, Volume= 4,172 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.40' @ 12.26 hrs Surf.Area= 4,118 sf Storage= 1,244 cf

Flood Elev= 22.20' Surf.Area= 9,493 sf Storage= 8,980 cf

Plug-Flow detention time= 57.7 min calculated for 4,168 cf (97% of inflow)

Center-of-Mass det. time= 42.4 min (874.7 - 832.2)

Volume	Invert	Avail.Storage	Storage Description
#1	21.00'	5,566 cf	Open Storage (Prismatic) Listed below (Recalc)
#2	18.50'	3,390 cf	Sand Filter (Prismatic) Listed below (Recalc)
#3	18.58'	24 cf	10,295 cf Overall - 24 cf Embedded = 10,271 cf x 33.0% Voids 4.0" Round Pipe Storage Inside #2 L= 271.0'
		8,980 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	4,118	0	0
22.00	4,950	4,534	4,534
22.20	5,375	1,032	5,566

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	4,118	0	0
19.00	4,118	2,059	2,059
20.00	4,118	4,118	6,177
21.00	4,118	4,118	10,295

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Device Routing Invert Outlet Devices

#1	Primary	21.20'	10.0' long x 2.0' breadth Broad-Crested Rectangular Weir X 0.00	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	Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.85 3.07 3.20 3.32
#2	Primary	21.20'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28)	Head (feet) 0.00 1.00	
#3	Device 4	18.50'	8.270 in/hr Exfiltration over Surface area	Width (feet) 4.00 8.00	
#4	Primary	18.58'	4.0" Round Culvert X 2.00 L= 15.0' RCP, sq.cut end projecting, Ke= 0.500	Inlet / Outlet Invert= 18.58' / 18.40' S= 0.0120 '/' Cc= 0.900	
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf		

Primary OutFlow Max=0.61 cfs @ 12.26 hrs HW=19.40' TW=18.07' (Dynamic Tailwater)

1-Broad-Crested Rectangular Weir (Controls 0.00 cfs)

2=Custom Weir/Orifice (Controls 0.00 cfs)

4=Culvert (Barrel Controls 0.61 cfs @ 3.49 fps)

3=Exfiltration (Passes 0.61 cfs of 0.79 cfs potential flow)

Summary for Pond pSF2: Post - Sand Filter-2

Inflow Area =	74,020 sf, 64.33% Impervious, Inflow Depth = 0.66" for WQv event
Inflow =	1.23 cfs @ 12.07 hrs, Volume= 4,052 cf
Outflow =	0.35 cfs @ 12.41 hrs, Volume= 4,042 cf, Atten= 72%, Lag= 20.4 min
Primary =	0.00 cfs @ 0.00 hrs, Volume= 0 cf
Secondary =	0.35 cfs @ 12.41 hrs, Volume= 4,042 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 21.04' @ 12.41 hrs Surf.Area= 3,114 sf Storage= 1,093 cf

Flood Elev= 23.00' Surf.Area= 3,746 sf Storage= 4,765 cf

Plug-Flow detention time= 45.1 min calculated for 4,042 cf (100% of inflow)

Center-of-Mass det. time= 43.4 min (831.7 - 788.2)

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Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	1,020 cf	Sand Filter (Prismatic) Listed below (Recalc) 3,102 cf Overall - 11 cf Embedded = 3,091 cf x 33.0% Voids
#2	21.00'	3,734 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#3	19.00'	11 cf	4.0" Round Pipe Storage Inside #1 L= 123.0'
		4,765 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,551	0	0
20.00	1,551	1,551	1,551
21.00	1,551	1,551	3,102

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
21.00	1,551	0	0
22.00	1,861	1,706	1,706
23.00	2,195	2,028	3,734

Device	Routing	Invert	Outlet Devices
#1	Primary	22.15'	10.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Device 3	19.00'	8.270 in/hr Exfiltration over Surface area
#3	Secondary	19.00'	4.0" Round Culvert L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 19.00' / 18.75' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=19.00' TW=19.00' (Dynamic Tailwater)↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)**Secondary OutFlow** Max=0.35 cfs @ 12.41 hrs HW=21.04' TW=19.00' (Dynamic Tailwater)↑**3=Culvert** (Barrel Controls 0.35 cfs @ 3.96 fps)↑**2=Exfiltration** (Passes 0.35 cfs of 0.60 cfs potential flow)

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Summary for Pond pSF3: Post - Sand Filter-3

Inflow Area = 134,007 sf, 22.74% Impervious, Inflow Depth = 0.12" for WQv event
Inflow = 0.29 cfs @ 12.13 hrs, Volume= 1,381 cf
Outflow = 0.21 cfs @ 12.30 hrs, Volume= 1,349 cf, Atten= 28%, Lag= 10.1 min
Primary = 0.21 cfs @ 12.30 hrs, Volume= 1,349 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 18.33' @ 12.30 hrs Surf.Area= 1,161 sf Storage= 135 cf

Flood Elev= 23.50' Surf.Area= 3,390 sf Storage= 5,030 cf

Plug-Flow detention time= 39.4 min calculated for 1,349 cf (98% of inflow)

Center-of-Mass det. time= 27.2 min (928.0 - 900.8)

Volume	Invert	Avail.Storage	Storage Description
#1	20.50'	4,063 cf	Open Storage (Prismatic) Listed below (Recalc)
#2	18.00'	953 cf	Sand Filter (Prismatic) Listed below (Recalc)
#3	18.08'	13 cf	2,903 cf Overall - 13 cf Embedded = 2,889 cf x 33.0% Voids
		L= 153.0'	4.0" Round Pipe Storage Inside #2
		5,030 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
20.50	1,161	0	0
21.50	1,365	1,263	1,263
22.00	1,792	789	2,052
23.00	2,229	2,011	4,063

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.00	1,161	0	0
20.00	1,161	2,322	2,322
20.50	1,161	581	2,903

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Device	Routing	Invert	Outlet Devices
#1	Device 2	18.00'	8.270 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	18.08'	4.0" Round Culvert X 2.00 L= 25.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.08' / 17.85' S= 0.0092 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Primary	20.75'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 1.80 Width (feet) 0.25 1.50
#4	Primary	21.85'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 1.00 Width (feet) 6.00 8.00
Primary OutFlow Max=0.21 cfs @ 12.30 hrs HW=18.33' TW=17.90' (Dynamic Tailwater)			
└─2=Culvert (Barrel Controls 0.21 cfs @ 2.04 fps)			
└─1=Exfiltration (Passes 0.21 cfs of 0.22 cfs potential flow)			
└─3=Custom Weir/Orifice (Controls 0.00 cfs)			
└─4=Custom Weir/Orifice (Controls 0.00 cfs)			

Summary for Pond pSW1: Pre - Swale-1

Inflow Area = 174,987 sf, 49.12% Impervious, Inflow Depth > 0.29" for WQv event
Inflow = 0.61 cfs @ 12.26 hrs, Volume= 4,172 cf
Outflow = 0.61 cfs @ 12.28 hrs, Volume= 4,172 cf, Atten= 0%, Lag= 1.2 min
Primary = 0.61 cfs @ 12.28 hrs, Volume= 4,172 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 18.07' @ 12.28 hrs Surf.Area= 948 sf Storage= 64 cf
Flood Elev= 19.40' Surf.Area= 3,367 sf Storage= 2,947 cf

Plug-Flow detention time= 2.8 min calculated for 4,168 cf (100% of inflow)
Center-of-Mass det. time= 2.8 min (877.4 - 874.7)

Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	2,947 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)
18.00	814	0	0
19.00	2,666	1,740	1,740
19.40	3,367	1,207	2,947

Device Routing Invert Outlet Devices

#1 Primary 18.00' **Custom Weir/Orifice, Cv= 2.62 (C= 3.28)**

Head (feet) 0.00 1.00 1.40

Width (feet) 9.34 16.70 21.40

Primary OutFlow Max=0.61 cfs @ 12.28 hrs HW=18.07' TW=0.00' (Dynamic Tailwater)

1=Custom Weir/Orifice (Weir Controls 0.61 cfs @ 0.88 fps)

Summary for Pond pSW2: Pre - Swale-2

Inflow Area = 74,020 sf, 64.33% Impervious, Inflow Depth > 0.66" for WQv event
Inflow = 0.35 cfs @ 12.41 hrs, Volume= 4,042 cf
Outflow = 0.35 cfs @ 12.41 hrs, Volume= 4,042 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.41 hrs, Volume= 4,042 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 19.00' @ 0.00 hrs Surf.Area= 263 sf Storage= 0 cf

Flood Elev= 20.70' Surf.Area= 825 sf Storage= 945 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume Invert Avail.Storage Storage Description

#1 19.00' 945 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)
19.00	263	0	0
20.00	617	440	440
20.70	825	505	945

Device Routing Invert Outlet Devices

#1	Primary	18.19'	18.0" Round Culvert L= 24.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.19' / 18.09' S= 0.0042 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	19.03'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.68' / 19.03' S= -0.0233 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.41 hrs HW=19.00' TW=18.50' (Dynamic Tailwater)

↑ **1=Culvert** (Passes 0.00 cfs of 2.08 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=19.00' TW=18.00' (Dynamic Tailwater)

↑ **2=Culvert** (Controls 0.00 cfs)

Summary for Pond pSW3: Pre - Swale-3

Inflow Area =	81,538 sf, 59.99% Impervious, Inflow Depth > 0.62" for WQv event
Inflow =	0.36 cfs @ 12.30 hrs, Volume= 4,180 cf
Outflow =	0.36 cfs @ 12.30 hrs, Volume= 4,180 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.36 cfs @ 12.30 hrs, Volume= 4,180 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 18.50' @ 12.30 hrs Surf.Area= 374 sf Storage= 0 cf

Flood Elev= 20.00' Surf.Area= 3,014 sf Storage= 2,902 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 0.0 min (831.6 - 831.6)

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Volume	Invert	Avail.Storage	Storage Description
#1	18.50'	2,902 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.50	374	0	0
19.00	1,735	527	527
20.00	3,014	2,375	2,902

Device	Routing	Invert	Outlet Devices
#1	Primary	18.08'	12.0" Round Culvert L= 15.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 18.08' / 18.01' S= 0.0047 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.48 cfs @ 12.30 hrs HW=18.50' TW=18.30' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.48 cfs @ 2.24 fps)

Summary for Pond pSW4: Pre - Swale-4

Inflow Area = 91,328 sf, 60.32% Impervious, Inflow Depth > 0.62" for WQv event
Inflow = 0.48 cfs @ 12.09 hrs, Volume= 4,707 cf
Outflow = 0.46 cfs @ 12.12 hrs, Volume= 4,707 cf, Atten= 3%, Lag= 1.8 min
Primary = 0.46 cfs @ 12.12 hrs, Volume= 4,707 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 18.32' @ 12.12 hrs Surf.Area= 291 sf Storage= 51 cf
Flood Elev= 19.80' Surf.Area= 1,554 sf Storage= 1,361 cf

Plug-Flow detention time= 2.0 min calculated for 4,707 cf (100% of inflow)
Center-of-Mass det. time= 2.0 min (828.8 - 826.8)

Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	1,361 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)
18.00	27	0	0
19.00	851	439	439
19.50	1,190	510	949
19.80	1,554	412	1,361

Device Routing Invert Outlet Devices

#1	Primary	17.99'	18.0" Round Culvert L= 21.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 17.99' / 17.82' S= 0.0081 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.46 cfs @ 12.12 hrs HW=18.32' TW=17.90' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.46 cfs @ 2.42 fps)

Summary for Reach pSW5: Pre - Swale-5

Inflow Area =	232,923 sf, 39.09% Impervious, Inflow Depth > 0.34" for WQv event
Inflow =	0.68 cfs @ 12.30 hrs, Volume= 6,516 cf
Outflow =	0.68 cfs @ 12.33 hrs, Volume= 6,516 cf, Atten= 1%, Lag= 1.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 0.88 fps, Min. Travel Time= 2.7 min

Avg. Velocity = 0.34 fps, Avg. Travel Time= 7.1 min

Peak Storage= 111 cf @ 12.33 hrs

Average Depth at Peak Storage= 0.08'

Bank-Full Depth= 1.50' Flow Area= 22.4 sf, Capacity= 110.11 cfs

Custom cross-section, Length= 145.0' Slope= 0.0050 '/'

Constant n= 0.022 Earth, clean & straight

Inlet Invert= 17.82', Outlet Invert= 17.10'

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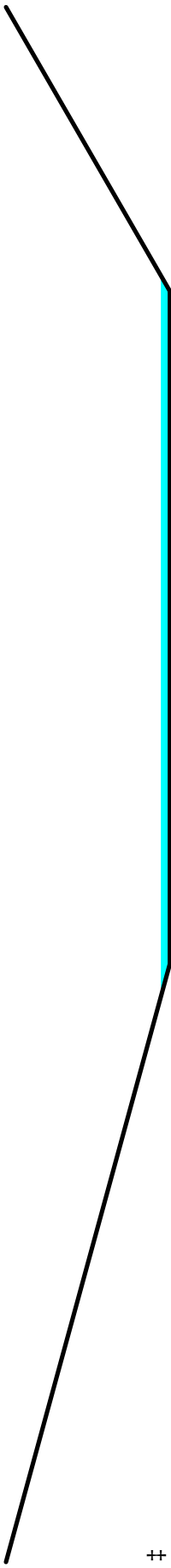
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#

Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-12.50	19.50	0.00
-4.50	18.00	1.50
4.50	18.00	1.50
8.30	19.50	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	9.0	0	0.00
1.50	22.4	21.2	3,241	110.11

Summary for Pond STC1: Post - Stormceptor-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 0.59" for WQv event
Inflow = 0.50 cfs @ 12.01 hrs, Volume= 2,336 cf
Outflow = 0.50 cfs @ 12.01 hrs, Volume= 2,336 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 12.01 hrs, Volume= 2,336 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 29.81' @ 12.01 hrs
Flood Elev= 33.20'

Device Routing Invert Outlet Devices

#1	Primary	29.40'	12.0" Round Culvert L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.40' / 29.35' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=0.49 cfs @ 12.01 hrs HW=29.81' TW=29.14' (Dynamic Tailwater)

└─**1=Culvert** (Barrel Controls 0.49 cfs @ 2.39 fps)

Summary for Pond STC2: Post - Stormceptor-2

Inflow Area = 32,406 sf, 41.59% Impervious, Inflow Depth = 0.44" for WQv event
Inflow = 0.35 cfs @ 12.07 hrs, Volume= 1,187 cf
Outflow = 0.35 cfs @ 12.07 hrs, Volume= 1,187 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.07 hrs, Volume= 1,187 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.31' @ 12.07 hrs

Flood Elev= 27.00'

Device	Routing	Invert	Outlet Devices

#1	Primary	23.00'	12.0" Round Culvert L= 5.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 23.00' / 22.90' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 12.07 hrs HW=23.31' TW=22.30' (Dynamic Tailwater)

└─**1=Culvert** (Barrel Controls 0.34 cfs @ 2.48 fps)

Summary for Reach SW1: Post - Swale-1

Inflow Area = 8,243 sf, 2.62% Impervious, Inflow Depth = 0.09" for WQv event
Inflow = 0.01 cfs @ 12.11 hrs, Volume= 59 cf
Outflow = 0.00 cfs @ 12.13 hrs, Volume= 59 cf, Atten= 3%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Max. Velocity= 0.96 fps, Min. Travel Time= 1.7 min

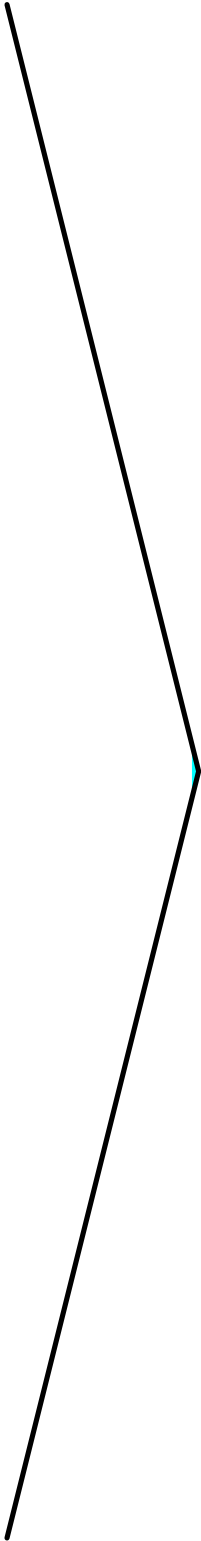
Avg. Velocity = 0.60 fps, Avg. Travel Time= 2.8 min

Peak Storage= 1 cf @ 12.13 hrs

Average Depth at Peak Storage= 0.04'

Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 34.60 cfs

Custom cross-section, Length= 100.0' Slope= 0.0800 '/
Constant n= 0.030 Short grass
Inlet Invert= 37.00', Outlet Invert= 29.00'



Offset (feet)	Elevation (feet)	Chan. Depth (feet)
-4.00	1.00	0.00
0.00	0.00	1.00
4.00	1.00	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	0.0	0	0.00
1.00	4.0	8.2	400	34.60

Summary for Reach SW2: Post - Swale-2

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
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= 0.75' Flow Area= 3.0 sf, Capacity= 16.07 cfs

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Custom cross-section, Length= 80.0' Slope= 0.0313 '/
Constant n= 0.030 Short grass
Inlet Invert= 29.50', Outlet Invert= 27.00'



Offset (feet)	Elevation (feet)	Chan.Depth (feet)
-3.00	0.75	0.00
-1.00	0.00	0.75
1.00	0.00	0.75
3.00	0.75	0.00

Depth (feet)	End Area (sq-ft)	Perim. (feet)	Storage (cubic-feet)	Discharge (cfs)
0.00	0.0	2.0	0	0.00
0.75	3.0	6.3	240	16.07

Summary for Pond US1: Post - Underground Recharge System-1

Inflow Area = 47,330 sf, 71.58% Impervious, Inflow Depth = 0.59" for WQv event
Inflow = 0.50 cfs @ 12.01 hrs, Volume= 2,336 cf
Outflow = 0.05 cfs @ 14.19 hrs, Volume= 2,338 cf, Atten= 89%, Lag= 130.8 min
Discarded = 0.04 cfs @ 10.95 hrs, Volume= 2,333 cf
Primary = 0.01 cfs @ 14.19 hrs, Volume= 6 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 29.50' @ 14.17 hrs Surf.Area= 1,736 sf Storage= 844 cf
Flood Elev= 30.90' Surf.Area= 1,736 sf Storage= 1,991 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 181.1 min (976.3 - 795.3)

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Volume	Invert	Avail. Storage	Storage Description
#1A	28.57'	1,014 cf	21.50'W x 80.76'L x 2.33'H Field A 4,051 cf Overall - 978 cf Embedded = 3,073 cf x 33.0% Voids
#2A	29.07'	978 cf	ADS_StormTech SC-310 x 66 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 6 rows
		1,992 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	28.57'	1.000 in/hr Exfiltration over Surface area
#2	Primary	29.36'	8.0" Round Culvert X 3.00 L= 2.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 29.36' / 29.30' S= 0.0300 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Discarded OutFlow Max=0.04 cfs @ 10.95 hrs HW=28.59' (Free Discharge)

1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 14.19 hrs HW=29.50' TW=29.53' (Dynamic Tailwater)

2=Culvert (Controls 0.00 cfs)

Summary for Pond US2: Post - Underground Recharge System-2

Inflow Area = 15,579 sf, 100.00% Impervious, Inflow Depth = 0.99" for WQv event
Inflow = 0.40 cfs @ 12.07 hrs, Volume= 1,280 cf
Outflow = 0.12 cfs @ 11.97 hrs, Volume= 1,280 cf, Atten= 71%, Lag= 0.0 min
Discarded = 0.12 cfs @ 11.97 hrs, Volume= 1,280 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 23.32' @ 12.40 hrs Surf.Area= 2,064 sf Storage= 219 cf

Flood Elev= 25.50' Surf.Area= 2,064 sf Storage= 3,331 cf

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Plug-Flow detention time= 9.0 min calculated for 1,280 cf (100% of inflow)

Center-of-Mass det. time= 9.0 min (790.1 - 781.1)

Volume	Invert	Avail. Storage	Storage Description
#1A	23.00'	1,529 cf	34.75'W x 59.40'L x 3.50'H Field A 7,224 cf Overall - 2,592 cf Embedded = 4,632 cf x 33.0% Voids
#2A	23.50'	2,592 cf	ADS_StormTech SC-740 x 56 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
		4,121 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	23.00'	2.410 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	24.71'	10.0" Round Culvert L= 37.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 24.71' / 24.25' S= 0.0124 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.12 cfs @ 11.97 hrs HW=23.04' (Free Discharge)

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

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=23.00' TW=18.00' (Dynamic Tailwater)

←**2=Culvert** (Controls 0.00 cfs)

Commercial Site Redevelopment

792 Valley Road - Middletown, RI

STORMWATER MANAGEMENT

STORMWATER RUNOFF VOLUME & FLOW RATES SUMMARY

SDE Job No.: 20014
Prepared by: SJE

Date: 1/18/2023

Revised: 6/1/2023
Checked by: MER

PRE-DEVELOPMENT

Analysis Points (Subcatchment/Pond)	Storm Event									
	1.2 inch Storm		*2.25 inch Storm		2-yr		10-yr		25-yr	
	Rate (cfs)	Vol. (cf)	Rate (cfs)	Vol. (cf)	Rate (cfs)	Vol. (cf)	Rate (cfs)	Vol. (cf)	Rate (cfs)	Vol. (cf)
eA1	0.35	1,114	0.72	2,380	1.11	3,714	1.72	5,810	2.18	7,410
eA2	0.61	4,172	1.28	13,922	4.28	25,639	10.43	47,071	15.65	65,188
eA3	0.85	6,587	1.66	18,200	3.47	33,254	9.03	57,608	13.01	75,892
Totals	1.81	11,873	3.66	34,502	8.86	62,607	21.18	110,489	30.84	148,490
									56.16	231,531

POST-DEVELOPMENT

Analysis Points (Subcatchment/Pond)	Storm Event									
	1.2 inch Storm		*2.25 inch Storm		2-yr		10-yr		25-yr	
	Rate (cfs)	Vol. (cf)	Rate (cfs)	Vol. (cf)	Rate (cfs)	Vol. (cf)	Rate (cfs)	Vol. (cf)	Rate (cfs)	Vol. (cf)
pA1	0.35	1,114	0.72	2,380	1.11	3,714	1.72	5,810	2.18	7,410
pA2	0.61	4,172	1.28	13,922	4.28	25,639	10.42	46,740	15.43	64,655
pA3	0.68	6,516	1.24	17,903	3.47	31,890	8.78	54,808	12.24	72,753
Totals	1.64	11,802	3.24	34,205	8.86	61,243	20.92	107,358	29.85	144,818
									50.88	226,241

Notes:

Totals are the summations of the Analysis points values (Overall combine values leaving the site).

Analysis points **eA2** & **pA2** are pre-development and post-development comparisons. (Site's runoff flow toward Northern Swale on Valley Rd.)

Analysis points **eA3** & **pA3** are pre-development and post-development comparisons. (Site's runoff flow toward Southern Swale on Valley Rd.)

*2.25" storm event produces 2" of runoff required to evaluate 200% WQV.

Refer to Hydrocad® calculations for additional information.

Commercial Site Redevelopment
792 Valley Road - Middletown, RI
STORMWATER MANAGEMENT
STORMWATER RECHARGE CALCULATION WORKSHEET

SDE Job No.: 20014
Prepared by: SJE

Date: 1/18/2023
Checked by: MER

Revised: 6/1/2023

Hydrologic Group	A	B	C	D	ReV
Target Runoff Depth Factor (Inches of Runoff)	0.60	0.35	0.25	0.10	(cf)
Total Increase of Impervious Areas, (sf):					
Proposed Driveway & Parking			14,755		
Proposed Buildings			4,916		
X inches of runoff, (cf)	0	0	410	0	410
Total Recharge Volume Required = $1" \times F \times Ai / 12$, (ac-ft.)			Total ReV (cf) =		410

Structure	Infiltration Rate (inches / hour)	Recharged Volume (cu.ft.)	ReV Volume Below Outlet Structure (cu.ft.)
Underground System-2	1.00	3,335	2,279
Total Recharge Volume Provided, (cf) =		3,336	2,279

Note:

1. System Infiltration rates are derived from the 1982 Rawls rates based on field observed soil texture (HSG C).
2. Recharged volume are calculated utilizing Simple Dynamic Method : Automated
3. Calculations are based on 1-Yr , 24-Hr storm event.

Commercial Site Redevelopment

792 Valley Road - Middletown, RI

STORMWATER MANAGEMENT

WATER QUALITY VOLUME - WATERSHED BREAKDOWN WORKSHEET

SDE Job No.: 20014
Prepared by: SJE

Date: 1/18/2023
Checked by: MER

Revised: 6/1/2023

	Impervious Area (sf)			WQv (cf)	pS20	Impervious Area (sf)			WQv (cf)	
	Total Proposed =	0	New (200% WQv) =	0		Total Proposed =	2,420	New (200% WQv) =	0	
	Total Existing =	0	Re-dev. (50% WQv) =	0		Total Existing =	2,420	Re-dev. (50% WQv) =	2,420	
Total =				0.0	Total =				100.8	
pS9	Impervious Area (sf)			WQv (cf)	pS21	Impervious Area (sf)			WQv (cf)	
	Total Proposed =	989	New (200% WQv) =	230		38.3	Total Proposed =	216	New (200% WQv) =	216
	Total Existing =	759	Re-dev. (50% WQv) =	759		31.6	Total Existing =	0	Re-dev. (50% WQv) =	0
Total =				70.0	Total =				36.0	
pS10	Impervious Area (sf)			WQv (cf)	pS22	Impervious Area (sf)			WQv (cf)	
	Total Proposed =	4,744	New (200% WQv) =	0		0.0	Total Proposed =	1,862	New (200% WQv) =	1,862
	Total Existing =	4,744	Re-dev. (50% WQv) =	4,744		197.7	Total Existing =	0	Re-dev. (50% WQv) =	0
Total =				197.7	Total =				310.3	
pS11	Impervious Area (sf)			WQv (cf)	pS23	Impervious Area (sf)			WQv (cf)	
	Total Proposed =	675	New (200% WQv) =	0		0.0	Total Proposed =	433	New (200% WQv) =	433
	Total Existing =	675	Re-dev. (50% WQv) =	675		28.1	Total Existing =	0	Re-dev. (50% WQv) =	0
Total =				28.1	Total =				72.2	
pS12	Impervious Area (sf)			WQv (cf)	pS24	Impervious Area (sf)			WQv (cf)	
	Total Proposed =	5,474	New (200% WQv) =	1,118		186.3	Total Proposed =	496	New (200% WQv) =	496
	Total Existing =	4,356	Re-dev. (50% WQv) =	4,356		181.5	Total Existing =	0	Re-dev. (50% WQv) =	0
Total =				367.8	Total =				82.7	
pS17	Impervious Area (sf)			WQv (cf)	pS25	Impervious Area (sf)			WQv (cf)	
	Total Proposed =	0	New (200% WQv) =	0		0.0	Total Proposed =	2,943	New (200% WQv) =	2,312
	Total Existing =	0	Re-dev. (50% WQv) =	0		0.0	Total Existing =	631	Re-dev. (50% WQv) =	631
Total =				0.0	Total =				26.3	
									411.6	
								Total WQv (cf) =		1,677.2

Note:

1. Refer to HydroCAD report for additional information.

Commercial Site Redevelopment

792 Valley Road - Middletown, RI

STORMWATER MANAGEMENT

WATER QUALITY VOLUME - WATERSHED BREAKDOWN WORKSHEET

SDE Job No.: 20014
Prepared by: SJE

Date: 1/18/2023
Checked by: MER

Revised: 6/1/2023

pS26	Impervious Area (sf)			WQv (cf)	Impervious Area (sf)			WQv (cf)	
	Total Proposed =	2,412	New (200% WQv) =		277	0	New (200% WQv) =		0
	Total Existing =	2,135	Re-dev. (50% WQv) =		2,135	0	Re-dev. (50% WQv) =		0
	Total =				2,412	Total =			
pS27	Impervious Area (sf)			WQv (cf)	Impervious Area (sf)			WQv (cf)	
	Total Proposed =	2,621	New (200% WQv) =		0	0	New (200% WQv) =		0
	Total Existing =	2,621	Re-dev. (50% WQv) =		2,621	0	Re-dev. (50% WQv) =		0
	Total =				2,621	Total =			
pRF3	Impervious Area (sf)			WQv (cf)	Impervious Area (sf)			WQv (cf)	
	Total Proposed =	3,560	New (200% WQv) =		0	0	New (200% WQv) =		0
	Total Existing =	3,560	Re-dev. (50% WQv) =		3,560	0	Re-dev. (50% WQv) =		0
	Total =				3,560	Total =			
pRF4	Impervious Area (sf)			WQv (cf)	Impervious Area (sf)			WQv (cf)	
	Total Proposed =	8,267	New (200% WQv) =		4,916	819.3	New (200% WQv) =		0
	Total Existing =	3,351	Re-dev. (50% WQv) =		3,351	139.6	Re-dev. (50% WQv) =		0
	Total =				8,267	Total =			
pRF5	Impervious Area (sf)			WQv (cf)	Impervious Area (sf)			WQv (cf)	
	Total Proposed =	5,017	New (200% WQv) =		0	0.0	New (200% WQv) =		0
	Total Existing =	5,017	Re-dev. (50% WQv) =		5,017	209.0	Re-dev. (50% WQv) =		0
	Total =				5,017	Total =			
	Impervious Area (sf)			WQv (cf)	Impervious Area (sf)			WQv (cf)	
	Total Proposed =	0	New (200% WQv) =		0	0.0	New (200% WQv) =		0
	Total Existing =	0	Re-dev. (50% WQv) =		0	0.0	Re-dev. (50% WQv) =		0
	Total =				0	Total =			
Total WQv (cf) =					1,560.7				

Note:

1. Refer to HydroCAD report for additional information.

Commercial Site Redevelopment
792 Valley Road - Middletown, RI
 STORMWATER MANAGEMENT
WATER QUALITY TREATMENT VOLUME CALCULATION WORKSHEET

SDE Job No.: 20014
 Prepared by: SJE

Date: 1/18/2023
 Checked by: MER

Revised: 6/1/2023

Total Water Quality Volume , (cf) = (See WQv - Watershed Breakdown Worksheet)			(1,677.2+1,560.7) 3,238		1.2 inch rainfall (cf) 8,881
<u>System Water Quality Volume</u> (volumes below lowest outlet device)	<i>Contributing Watersheds</i>	WQv	Treatment Required (cf)	Pretreatment Provided (cf)	Extended Treatment (cf)
(US1) Underground Recharge System-2 =	pRF4, pRF5, pS22, pS23	1551	100% = 1,551		2,279
(FB1) Forebay-3 =	pS9, pS10, pS21, pS24-26,	933	25% = 233 75% = 700	268	
(pD1b) Sand Filter-3 =	pS11, pS20	129	100% = 129		1,036
Total =				268	3,315
Total Water Quality Volume Available , (cf) =			3,583		

Note:

1. 200% WQv was met through the analysis of a 2" runoff storm event (2.25" rain depth) being contained below the outlets of Sand Filter-3 & underground recharge system-2
(See HydroCAD analysis in appendix 1)
2. Recharged volume are calculated utilizing Simple Dynamic Method : Automated
3. Refer to HydroCAD report for additional information.

Commercial Site Redevelopment
792 Valley Road - Middletown, RI
STORMWATER MANAGEMENT
TSS REMOVAL CALCULATION WORKSHEET

SDE Job No.: 20014
Prepared by: SJE

Date: 1/18/2023
Checked by: MER

Revised: 6/1/2023

Design Point pA3 - Valley Rd. Northern Swale

A BMP	B TSS Removal Rate	C Starting TSS Load*	D Amount Removed (BxC)	E Remaining Load (C-D)
Forebay	25.0%	1.000	0.250	0.750
Sand Filter-3	86.0%	0.750	0.645	0.105
		0.105	0.000	0.105
Total TSS Removal =			89.5%	

Commercial Site Redevelopment
792 Valley Road - Middletown, RI
STORMWATER MANAGEMENT
TOTAL PHOSPHORUS REMOVAL - DISTURBED AREA

SDE Job No.: 20014

Date: 12/28/2022

Revised:

Prepared by: SJE

Checked by: MER

Phosphorus Loading
$L = [(P)(P_j)(R_v)/12](C)(A)(2.72)$
P = Rainfall Depth (in.) P _j = Rainfall Correction Factor R _v = Runoff Coefficient C = Flow-weighted mean concentration A = Contributing drainage area (acres)

Pre-Development			
Area	1.26	(Acres)	

Post-Development			
Area	1.26	(Acres)	

R _v = 0.05+0.009(%I)	R _v = 0.2849
%I = % Impervious	%I = 26.1%

R _v = 0.05+0.009(%I)	R _v = 0.4748
%I = % Impervious	%I = 47.2%

P =	47	C =	0.2
P _j =	0.9	R _v =	0.2849
A =	1.26		

P =	47	C =	0.2
P _j =	0.9	R _v =	0.4748
A =	1.26		

Phosphorus Loading Pre-Dev			
$L = [(47)(0.9)(0.504)/12](0.2)(5.08)(2.72)$			
L =	0.69	lbs/year	

Phosphorus Loading Post-Dev			
$L = [(47)(0.9)(0.589)/12](0.2)(5.08)(2.72)$			
L =	1.15	lbs/year	

Phosphorus Removed		
Infiltration System-2	0.217	lbs/year
Sand Filter-3	0.264	lbs/year
Total Removed	0.481	lbs/year

Post-Development Total Phosphorus Remaining

$$1.15 - 0.481 = 0.67 \text{ lbs/year}$$

Reduction Compared to Pre-Dev

$$1 - (0.67 / 0.69) = 3\%$$

Reduction Compared to Un-Mitigated Post-Dev

$$1 - (0.67 / 1.15) = 42\%$$

Notes:

Pollutant Loading Analysis Method taken from RIDEM Rhode Island Stormwater Design and Installation Standards Manual, Appendix H.3

Commercial Site Redevelopment
792 Valley Road - Middletown, RI
STORMWATER MANAGEMENT
INFILTRATION CHAMBER PHOSPHORUS LOADING

SDE Job No.: 20014

Date: 12/28/2022

Revised:

Prepared by: SJE

Checked by: MER

Underground Infiltration System-2

Phosphorus Loading
$L = [(P)(P_j)(R_v)/12](C)(A)(2.72)$
P = Rainfall Depth (in.) P _j = Rainfall Correction Factor R _v = Runoff Coefficient C = Flow-weighted mean concentration A = Contributing drainage area (acres)

R _v = 0.05+0.009(%I)	%I =	100	P =	47	C =	0.2
%I = % Impervious	A =	0.146	P _j =	0.9	R _v =	0.950

Phosphorus Loading
$L = [(47)(0.9)(0.950)/12](0.2)(0.32)(2.72)$
L = 0.27 lbs/year

A BMP	B Phosphorus Removal Rate	C Starting Phosphorus Load	D Amount Removed (BxC)	E Remaining Load (C-D)
Infiltration Chambers	55%	0.27	0.146	0.120
Sand Filter-3	59%	0.120	0.071	0.049
		0.049	0.000	0.049
Total Phosphorus Removal =			0.217 lbs/year	81.55%
Total Phosphorus Remaining =			0.049 lbs/year	18.45%

Notes:

Pollutant Loading Analysis Method taken from RIDEM Rhode Island Stormwater Design and Installation Standards Manual, Appendix H.3

Commercial Site Redevelopment
792 Valley Road - Middletown, RI
STORMWATER MANAGEMENT
SAND FILTER-3 PHOSPHORUS LOADING

SDE Job No.: 20014
Prepared by: SJE

Date: 12/28/2022 Revised:
Checked by: MER

Sand Filter-3

Phosphorus Loading
$L = [(P)(P_j)(R_v)/12](C)(A)(2.72)$
P = Rainfall Depth (in.) P _j = Rainfall Correction Factor R _v = Runoff Coefficient C = Flow-weighted mean concentration A = Contributing drainage area (acres)

R _v = 0.05+0.009(%I)	%I =	47.2	P =	47	C =	0.2
%I = % Impervious	A =	0.466	P _j =	0.9	R _v =	0.475

Phosphorus Loading
$L = [(47)(0.9)(0.489)/12](0.2)(2.45)(2.72)$
L = 0.42 lbs/year

A BMP	B Phosphorus Removal Rate	C Starting Phosphorus Load	D Amount Removed (BxC)	E Remaining Load (C-D)
Forebay	8%	0.42	0.034	0.390
Sand Filter-3	59%	0.390	0.230	0.160
		0.160	0.000	0.160
Total Phosphorus Removal = Total Phosphorus Remaining =			0.264 lbs/year 0.160 lbs/year	62.28% 37.72%

Notes:

Pollutant Loading Analysis Method taken from RIDEM Rhode Island Stormwater Design and Installation Standards Manual, Appendix H.3

SAGE Environmental, Inc. Boring Logs

PROJECT: <u>S3522</u> LOCATION: <u>792 Valley Road, Middletown, RI</u> DRILLING CO: <u>SAGE EnviroTech Drilling</u> EQUIPMENT: <u>7822 DT</u> DRILLED BY: <u>SP/TP</u>	BORING NO. <u>B-1</u> PAGE 1 OF <u>1</u> DATE STARTED: <u>4/29/2020</u> DATE FINISHED: <u>4/29/2020</u>

GROUNDWATER OBSERVATIONS

At 6.5' after 2 hours

SAMPLE DATA

DEPTH (ft)	SAMPLE TYPE	HAMMER BLOWS ON SAMPLER (Inches)				Sample ID			LITHOLOGY (Description of material)
		0-6	6-12	12-18	18-24	No.	Pen (in)	Rec (in)	
0-2	S/S	1	1	2	2	1	24	18	Surface: Grass Soft, brown to dark brown topsoil, consisting of SAND and SILT (moist). Transition from topsoil to native soil at ~4'.
5-7	S/S	8	7	6	6	2	24	18	Medium dense, light grey, fine SAND and silt, trace gravel, and fractured rock.
10-12	S/S	8	9	14	33	3	24	18	Medium dense, light grey, fine SAND, with some silt and fractured rock (moist).
14-6	S/S	13	34	72	39	4	24	24	Very dense, dark brown, fine to medium SAND with little to some silt, trace gavel, and fractured rock (wet)
19-21	S/S	20	46	75	85	5	24	24	Very dense, light grey to brown, fine SAND, with some silt and fractured rock (moist).
21-27	S/S	90	196	100	-	6	12	12	Very dense, brown to grey, fine SAND with some silt, trace gravel, and medium sand.

GENERAL REMARKS:

NA - Not Analyzed
 ND - Not Detected (sample < 1ppm)
 BSG - Below Surface Grade

SAGE Environmental, Inc. Boring Logs

PROJECT: S3522

LOCATION: 792 Valley Road, Middletown, RI

DRILLING CO: SAGE EnviroTech Drilling

EQUIPMENT: 7822 DT

DRILLED BY: SP/TP/MP

BORING NO. B-2

PAGE 1 OF 1

DATE STARTED: 4/29/2020

DATE FINISHED: 4/29/2020

GROUNDWATER OBSERVATIONS

At 10' after 0 hours

SAMPLE DATA

DEPTH (ft)	SAMPLE TYPE	HAMMER BLOWS ON SAMPLER (Inches)				Sample ID			LITHOLOGY (Description of material)
		0-6	6-12	12-18	18-24	No.	Pen (in)	Rec (in)	
0-2	S/S	1	3	6	6	1	24	18	Surface: Grass Topsoil consisting of fine to medium SAND, little silt, and little gravel. Asphalt noted at ~4'.
4-6	S/S	16	16	15	35	2	24	18	Dense, dark brown, fine to coarse SAND, some fractured rock (moist). Transition to apparent native soil consisting of light brown, fine SAND with some silt at ~5.5' and fractured rock.
9-11	S/S	27	16	12	7	3	24	18	Medium dense, light brown to grey, fine SAND, with some silt, and fractured rock (moist).
14-16	S/S	12	7	9	10	4	24	54	Medium dense, brown, fine to medium SAND, with little silt and trace gravel (moist).
19-21	S/S	50	48	54	60	5	24	54	Very dense, brown, fine to medium SAND with little silt, and trace gravel (moist).
21-23	S/S	70	50	48	70	6	24	12	Very dense, grey, fine SAND with some silt, and fractured rock (dry).
23-25	S/S	115	105	100	-	7	12	8	Very dense, grey, fine SAND with some silt, and fractured rock (dry).

GENERAL REMARKS:

NA - Not Analyzed
 ND - Not Detected (sample < 1ppm)
 BSG - Below Surface Grade

SAGE Environmental, Inc. Boring Logs

PROJECT: <u>S3522</u> LOCATION: <u>792 Valley Road, Middletown, RI</u> DRILLING CO: <u>SAGE EnviroTech Drilling</u> EQUIPMENT: <u>7822 DT</u> DRILLED BY: <u>SP/TP/MP</u>	BORING NO. <u>B-3(MW)</u> PAGE 1 OF <u>1</u> DATE STARTED: <u>4/29/2020</u> DATE FINISHED: <u>4/29/2020</u>

GROUNDWATER OBSERVATIONS

At 7.5' after 0 hours
 At 6.03' after 96 hours

SAMPLE DATA

DEPTH (ft)	SAMPLE TYPE	HAMMER BLOWS ON SAMPLER (Inches)				Sample ID			LITHOLOGY (Description of material)
		0-6	6-12	12-18	18-24	No.	Pen (in)	Rec (in)	
0-2	S/S	3	4	9	9	1	24	18	Surface: Grass Medium dense, brown, fine to medium SAND with trace silt, topsoil (moist). Transition to apparent native fine SAND with some silt at 3.5-4'.
4-6	S/S	18	18	32	18	2	24	12	Dense, grey to brown, fine to medium SAND, with little to some silt, fractured rock (dry).
9-11	S/S	13	11	15	12	3	24	18	Medium dense, light brown, fine to medium SAND, with little silt, and trace gravel (wet).
14-16	S/S	23	29	34	39	4	24	18	Very dense, brownish grey, fine SAND with some silt, and little gravel (wet).
19-21	S/S	31	25	27	29	5	24	12	Very dense, brown to grey, fine SAND with some silt, and fractured rock (moist).
23-24	S/S	59	72	100		6	12	8	Very dense, brown to grey, fine SAND with some silt, and fractured rock (moist).

GENERAL REMARKS:

NA - Not Analyzed
 ND - Not Detected (sample < 1ppm)
 BSG - Below Surface Grade

SAGE Environmental, Inc. Boring Logs

PROJECT: S3522

LOCATION: 792 Valley Road, Middletown, RI

DRILLING CO: SAGE EnviroTech Drilling

EQUIPMENT: 7822 DT

DRILLED BY: SP/TP

BORING NO. B-4

PAGE 1 OF 1

DATE STARTED: 4/29/2020

DATE FINISHED: 4/29/2020

GROUNDWATER OBSERVATIONS

At 9.50' after 0 hours

SAMPLE DATA

DEPTH (ft)	SAMPLE TYPE	HAMMER BLOWS ON SAMPLER (Inches)				Sample ID			LITHOLOGY (Description of material)
		0-6	6-12	12-18	18-24	No.	Pen (in)	Rec (in)	
0-2	S/S	1	1	1	9	1	24	18	Surface: Grass Very loose, dark brown, fine to medium SAND with little silt, and topsoil (moist).
4-6	S/S	13	17	13	12	2	24	12	Medium dense, light brown, fine to medium SAND with little silt, and trace gravel (moist). Transition to apparent native soil around 6'.
9-11	S/S	7	8	10	12	3	24	18	Medium dense, light brown to grey, fine to medium SAND with little to some silt, and trace gravel (moist).
14-16	S/S	12	14	20	25	4	24	24	Dense, light brown, fine SAND with some silt, and fractured rock (wet).
19-21	S/S	61	95	200		5	16	8	Very dense, dark brown, fine SAND with some silt (moist).

GENERAL REMARKS:

NA - Not Analyzed
 ND - Not Detected (sample < 1ppm)
 BSG - Below Surface Grade



SOIL BORING/MONITORING WELL LOG: B-5(MW)

WELL NAME: B-5(MW)
PROJECT NUMBER: S3522
PROJECT ADDRESS: 732 Valley Road, Middletown, RI
SCREENING EQUIPMENT: Not Applicable
SAMPLE METHOD: 5' MACROCORE
DRILLING DATE: 04/30/2020
DRILL METHOD: GEOPROBE w. AIR HAMMER

BORING TOTAL DEPTH: 20'
MW DIAMETER: 2"
DRILLED BY: SAGE ENVIROTECH
LOGGED BY: Daniel Boynes
LENGTH OF RISER: 7'
LENGTH OF SCREEN: 10'

GROUNDWATER OBSERVATION
AT 17' AFTER 0 HOURS
AT 14.5' AFTER 5 HOURS
AT 10.14' AFTER 96 HOURS

DEPTH (FEET BSG)	SAMPLE INTERVAL	PID (PPMV)	RECOVERY (INCHES)	LITHOLOGY GRAPHIC LOG	MATERIAL DESCRIPTION	DTW (FEET BSG)	WELL CONSTRUCTION	Legend
0	0-5	NS	48		Topsoil consisting of fine to medium SAND, with some silt, gravel, and fractured rock (moist). Brown, loamy sand. Topsoil is noted to approximately 2' and fill material to approximately 5'.	10.14' ▼		
1								
2								
3								
4								
5	5-10	NS	55		Brown to light grey, fine to medium SAND with some silt, fractured rock, and gravel (moist). Sandy loam.			
6								
7								
8								
9								
10	10-15	NS	45		Light brown to grey, fine SAND with some to and silt, fractured rock, and gravel. Loamy sand to sandy loam (moist).			
11								
12								
13								
14								
15	15-20	NS	60		Light brown, fine SAND with some silt. Wet to approximately 17'. Light brown to grey, fine SAND with some silt, and little fractured rock (dry). Loamy sand.			
16								
17								
18								
19								
20								

COMMENTS:
NS = Not Sampled
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.



SOIL BORING/MONITORING WELL LOG: B-6

WELL NAME: B-6

PROJECT NUMBER: S3522

PROJECT ADDRESS: 732 Valley Road, Middletown, RI

SCREENING EQUIPMENT: Not Applicable

SAMPLE METHOD: 5' MACROCORE

DRILLING DATE: 04/30/2020

DRILL METHOD: GEOPROBE w. AIR HAMMER

BORING TOTAL DEPTH: 11.5'

MW DIAMETER: Not Applicable

DRILLED BY: SAGE ENVIROTECH

LOGGED BY: Daniel Boynes

LENGTH OF RISER: Not Applicable

LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BSG)	SAMPLE INTERVAL	PID (PPMV)	RECOVERY (INCHES)	LITHOLOGY GRAPHIC LOG	MATERIAL DESCRIPTION	DTW (FEET BSG)	WELL CONSTRUCTION
0	0-5	NS	48		Topsoil consisting of fine to medium SAND, some silt, gravel, and fractured rock (moist). Loamy sand. Topsoil to approximately 2 and fill material to approximately 4'-5'.		NO WELL
1							
2							
3							
4							
5	5-10	NS	48		Brown to light grey, fine to medium SAND and some silt, fractured rock, and trace gravel (moist). Loamy sand. Appears to be native. Sandy loam.		
6							
7							
8							
9							
10	10-11.5	NS	16		Brown to light grey, fine SAND with some silt and fractured rock (wet). Refusal at 11.5'.		
11							
12							

COMMENTS:
NS = Not Sampled
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.



SOIL BORING/MONITORING WELL LOG: B-7

WELL NAME: B-7

PROJECT NUMBER: S3522

PROJECT ADDRESS: 732 Valley Road, Middletown, RI

SCREENING EQUIPMENT: Not Applicable

SAMPLE METHOD: 5' MACROCORE

DRILLING DATE: 04/30/2020

DRILL METHOD: GEOPROBE w. AIR HAMMER

BORING TOTAL DEPTH: 15'

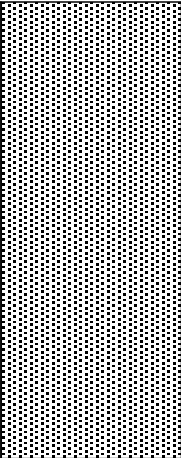
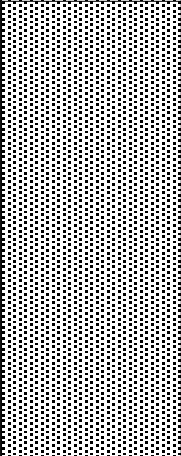
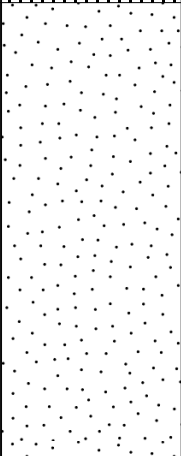
MW DIAMETER: Not Applicable

DRILLED BY: SAGE ENVIROTECH

LOGGED BY: Daniel Boynes

LENGTH OF RISER: Not Applicable

LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BSG)	SAMPLE INTERVAL	PID (PPMV)	RECOVERY (INCHES)	LITHOLOGY GRAPHIC LOG	MATERIAL DESCRIPTION	DTW (FEET BSG)	WELL CONSTRUCTION
0	0-5	NS	48		Dark brown, topsoil consisting of fine to medium SAND and little gravel (moist), little to some silt. Loamy sand. Topsoil to approximately 2', fill material noted to apprioximately 5'.		NO WELL
1							
2							
3							
4							
5	5-10	NS	50		Brown to light grey, fine to medium SAND and silt and trace gravel (moist). Sandy loam. Appears to be native.		
6							
7							
8							
9							
10	10-15	NS	48		Brown to light grey, fine SAND, with some silt, trace gravel, and fractured rock (moist). Refusal at 15'.		
11							
12							
13							
14							
15							

COMMENTS:
NS = Not Sampled
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.



SOIL BORING/MONITORING WELL LOG: B-8

WELL NAME: B-8

PROJECT NUMBER: S3522

PROJECT ADDRESS: 732 Valley Road, Middletown, RI

SCREENING EQUIPMENT: Not Applicable

SAMPLE METHOD: 5' MACROCORE

DRILLING DATE: 04/30/2020

DRILL METHOD: GEOPROBE w. AIR HAMMER

BORING TOTAL DEPTH: 20'

MW DIAMETER: Not Applicable

DRILLED BY: SAGE ENVIROTECH

LOGGED BY: Daniel Boynes

LENGTH OF RISER: Not Applicable

LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BSG)	SAMPLE INTERVAL	PID (PPMV)	RECOVERY (INCHES)	LITHOLOGY GRAPHIC LOG	MATERIAL DESCRIPTION	DTW (FEET BSG)	WELL CONSTRUCTION
0	0-5	NS	48		Dark brown topsoil consisting of fine to medium SAND, some silt, and gravel (moist). Sandy loam to loamy sand.		NO WELL
1							
2							
3							
4							
5	5-10	NS	48		Dark brown to grey, fine to medium SAND and silt, trace gravel, and fractured rock (moist). Appears to be native material, sandy loam.		
6							
7							
8							
9							
10	10-15	NS	55		Brown to grey, fine to medium SAND, with some silt, trace gravel, and fractured rock (moist).		
11							
12							
13							
14							
15	15-20	NS	45		Light brown to grey, fine SAND, with some silt and fractured rock (heavily fractured) (moist).		
16							
17							
18							
19							
20							

COMMENTS:
NS = Not Sampled
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.

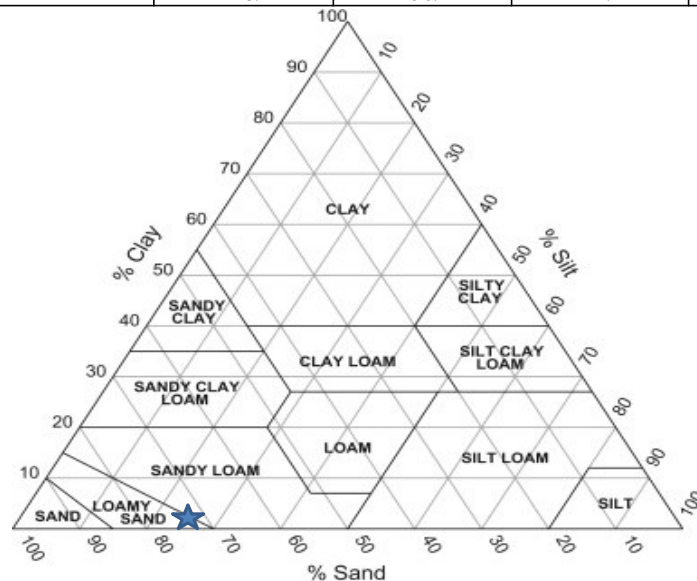
SIEVE ANALYSIS
USING MECHANICAL AND HYDROMETER METHODS

GENERAL DATA			USDA Description: Loamy Sand	
Project:	792 Valley Rd		Test Pit Number	TP-1
Location:	Middletown, RI		Sample Number:	
Date:	1/5/2023		Tested By:	JC

MECHANICAL ANALYSIS I						
Container Number:		40	Container Mass, g:		177.69	
Container & Wet Soil, g:		1970.84	Dry Soil Mass, g:		1604.66	
Container & Dry Soil, g:		1782.35	Moisture Content, %:		11.7%	
Mass of Water, g:		188.49	Control Sieve:		#270	
Sieve	Opening (mm)	Log Opening	Weight Retain (g)	Percent Retained	Total Percent Finer by Mass	Total Percent Finer by Mass (-#10 Sieve)
1"	25.400	1.405	49.53	3.09%	96.91%	100.00%
3/4"	19.100	1.281	75.30	4.69%	95.31%	100.00%
1/2"	12.700	1.104	158.95	9.91%	90.09%	100.00%
3/8"	9.525	0.979	215.10	13.40%	86.60%	100.00%
#4	4.760	0.678	309.55	19.29%	80.71%	100.00%
#10	2.000	0.301	418.48	26.08%	73.92%	100.00%
#20	0.840	-0.076	551.96	34.40%	65.60%	88.75%
#40	0.420	-0.377	728.29	45.39%	54.61%	73.88%
#60	0.250	-0.602	870.15	54.23%	45.77%	61.92%
#100	0.149	-0.827	1053.82	65.67%	34.33%	46.44%
#200	0.074	-1.131	1254.65	78.19%	21.81%	29.51%
#270	0.053	-1.276	1276.01	79.52%	20.48%	27.71%
PAN	0	----	1604.66	100.00%	0.00%	0.00%

HYDROMETER ANALYSIS													
Hydrometer Type:		152H		Dispersing Agent: Sodium Hexametaphosphate									
Zero Correction:		6.5		Amount: 125 ml at 4 Percent Concentration									
Meniscus:		0.5		Specific Gravity of Solids: 2.65 (Assumed)									
Dry Mass of Sample, g:		20.00		Specific Gravity Correction Factor, a: 1									
Hygroscopic Correction Factor: 1													
Date	Time of Reading	Time (min)	Temp (C)	Act Hyd	Cor Hyd	Act % Finer	Adj % Finer	Min Cor	L	L/t	A	Diameter (mm)	Total % Finer
12-Jan	8:42:00 AM	0	18.0										
12-Jan	8:42:30 AM	0.5	18.0	24.0	17.15	85.75%	25.30%	24.5	12.28	24.559	0.01397	0.0692	25.30%
12-Jan	8:43:00 AM	1	18.0	23.5	16.65	83.25%	24.56%	24.0	12.36	12.362	0.01397	0.0491	24.56%
12-Jan	8:44:00 AM	2	18.0	21.5	14.65	73.25%	21.61%	22.0	12.69	6.345	0.01397	0.0352	21.61%
12-Jan	8:46:00 AM	4	18.0	18.0	11.15	55.75%	16.45%	18.5	13.26	3.316	0.01397	0.0254	16.45%
12-Jan	8:50:00 AM	8	18.1	16.0	9.18	45.88%	13.54%	16.5	13.59	1.699	0.01395	0.0182	13.54%
12-Jan	8:57:00 AM	15	18.2	14.0	7.20	36.00%	10.62%	14.5	13.92	0.928	0.01394	0.0134	10.62%
12-Jan	9:12:00 AM	30	18.4	12.0	5.25	26.25%	7.75%	12.5	14.25	0.475	0.01391	0.0096	7.75%
12-Jan	9:42:00 AM	60	19.0	10.5	3.90	19.50%	5.75%	11.0	14.49	0.242	0.01381	0.0068	5.75%
12-Jan	10:42:00 AM	120	19.7	9.0	2.58	12.88%	3.80%	9.5	14.74	0.123	0.01369	0.0048	3.80%
12-Jan	12:42:00 PM	240	20.7	1.5	-4.68	-23.38%	-6.90%	2.0	15.97	0.067	0.01353	0.0035	-6.90%
12-Jan	4:42:00 PM	480	20.4	7.0	0.75	3.75%	1.11%	7.5	15.07	0.031	0.01358	0.0024	1.11%
13-Jan	8:42:00 AM	1440	17.8	7.0	0.10	0.50%	0.15%	7.5	15.07	0.010	0.01400	0.0014	0.15%

GRAINSIZE SUMMARY					
From Split Sample - Percent Passing #270 Sieve					
Percent Gravel		Percent Sand		Percent Clay	
Total		72.3%	26.6%	1.1%	



APPENDIX A: STORMWATER MANAGEMENT PLAN CHECKLIST AND LID PLANNING REPORT – STORMWATER DESIGN SUMMARY

PROJECT NAME YMCA REDEVELOPMENT	(RIDEM USE ONLY) STW/WQC File #: Date Received:
TOWN Middletown	
BRIEF PROJECT DESCRIPTION: YMCA Daycare addition and site re-development.	

Stormwater Management Plan (SMP) Elements – Minimum Standards

Submit **four separately bound** documents: Appendix A Checklist; Stormwater Site Planning, Analysis and Design Report with Plan Set/Drawings; Soil Erosion and Sediment Control (SESC) Plan, and Post Construction Operations and Maintenance (O&M) Plan. Please refer to [Suggestions to Promote Brevity](#).

Note: All stormwater construction projects must submit a Stormwater Management Plan (SMP). However, not every element listed below is required per the [RIDEM Stormwater Rules](#) and the [RIPDES Construction General Permit \(CGP\)](#). This checklist will help identify the required elements to be submitted with an Application for Stormwater Construction Permit & Water Quality Certification.

PART 1. PROJECT AND SITE INFORMATION

PROJECT TYPE (Check all that apply)

☐ Residential	☒ Commercial	☐ Federal	☐ Retrofit	☐ Restoration
☒ Road	☒ Utility	☐ Fill	☐ Dredge	☒ Mine
☐ Other (specify):				

SITE INFORMATION

☒ Vicinity Map

INITIAL DISCHARGE LOCATION(S): The WQv discharges to: (You may choose more than one answer if several discharge points are associated with the project.) See [Guidance to identify receiving waters](#).

☒ Groundwater	☒ Surface Water	☐ MS4
☐ GAA	☐ Isolated Wetland	☐ RIDOT
☒ GA	☒ Named Waterbody: North Easton Pond (Green End Pond)	☐ RIDOT Alteration Permit is Approved
☐ GB	☐ Unnamed Waterbody Connected to Named Waterbody	☐ Town
		☐ Other (specify):

ULTIMATE RECEIVING WATERBODY LOCATION(S): Include pertinent information that applies to both WQ_v and flow from larger storm events including overflows. Choose all that apply, and repeat table for each waterbody.

☒ Groundwater or Disconnected Wetland	☒ SRWP
☒ Waterbody Name: North Easton Pond (Green End Pond)	☐ Coldwater ☒ Warmwater ☐ Unassessed
☒ Waterbody ID: RI0007035I-03	☒ 4 th order stream of pond 50 acres or more
☒ TMDL for: Total Phosphorus & Chlorophyll	☐ Watershed of flood prone river (e.g., Pocasset River)
☐ Contributes to a priority outfall listed in the TMDL	☐ Contributes stormwater to a public beach
☒ 303(d) list – Impairment(s) for: Total Phosphorus, Chlorophyll a, Other flow regime alterations, Total Organic Carbon	☐ Contributes to shellfishing grounds

PROJECT HISTORY		
☐ RIDEM Pre- Application Meeting	Meeting Date:	☐ Minutes Attached
☐ Municipal Master Plan Approval	Approval Date:	☐ Minutes Attached
☐ Subdivision Suitability Required	Approval #:	
☐ Previous Enforcement Action has been taken on the property	Enforcement #:	
FLOODPLAIN & FLOODWAY See Guidance Pertaining to Floodplain and Floodways		
☐ Riverine 100-year floodplain: FEMA FLOODPLAIN FIRMETTE has been reviewed and the 100-year floodplain is on site		
☐ Delineated from FEMA Maps		
NOTE: Per Rule 250-RICR-150-10-8-1.1(B)(5)(d)(3), provide volumetric floodplain compensation calculations for cut and fill/displacement calculated by qualified professional		
☐ Calculated by Professional Engineer		
☐ Calculations are provided for cut vs. fill/displacement volumes proposed within the 100-year floodplain	Amount of Fill (CY):	
	Amount of Cut (CY):	
☐ Restrictions or modifications are proposed to the flow path or velocities in a floodway		
☐ Floodplain storage capacity is impacted		
☐ Project area is not within 100-year floodplain as defined by RIDEM		

CRMC JURISDICTION
☐ CRMC Assent required
☐ Property subject to a Special Area Management Plan (SAMP). If so, specify which SAMP:
☐ Sea level rise mitigation has been designed into this project

LUHPPL IDENTIFICATION - MINIMUM STANDARD 8:		
1. OFFICE OF WASTE MANAGEMENT (OWM)		
☐ Known or suspected releases of HAZARDOUS MATERIAL are present at the site (Hazardous Material is defined in Rule 1.4(A)(33) of 250-140-30-1 of the RIDEM Rules and Regulations for Investigation and Remediation of Hazardous Materials (the Remediation Regulations))		RIDEM CONTACT:
☐ Known or suspected releases of PETROLEUM PRODUCT are present at the site (Petroleum Product as defined in Rule 1.5(A)(84) of 250-140-25-1 of the RIDEM Rules and Regulations for Underground Storage Facilities Used for Regulated Substances and Hazardous Materials)		
☐ This site is identified on the RIDEM Environmental Resources Map as one of the following regulated facilities		SITE ID#:
☐ CERCLIS/Superfund (NPL)		
☐ State Hazardous Waste Site (SHWS)		
☐ Environmental Land Usage Restriction (ELUR)		
☐ Leaking Underground Storage Tank (LUST)		
☐ Closed Landfill		
Note: If any boxes in 1 above are checked, the applicant must contact the RIDEM OWM Project Manager associated with the Site to determine if subsurface infiltration of stormwater is allowable for the project. Indicate if the infiltration corresponds to "Red," "Yellow" or "Green" as described in Section 3.2.8 of the RISDISM Guidance (Subsurface Contamination Guidance). Also, note and reference approval in PART 3, Minimum Standard 2: Groundwater Recharge/Infiltration.		
2. PER MINIMUM STANDARD 8 of RICR 8.14.C.1-6 "LUHPPLS," THE SITE IS/HAS:		
☐ Industrial Site with RIPDES MSGP, except where No Exposure Certification exists. http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/status.php		
☐ Auto Fueling Facility (e.g., gas station)		
☐ Exterior Vehicles Service, Maintenance, or Equipment Cleaning Area		

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

☐	Road Salt Storage and Loading Areas (exposed to rainwater)	
☐	Outdoor Storage and Loading/Unloading of Hazardous Substances	
3. STORMWATER INDUSTRIAL PERMITTING		
☐	The site is associated with existing or proposed activities that are considered Land Uses with Higher Potential Pollutant Loads (LUHPPLS) (see RICR 8.14.C)	Activities: Sector:
☐	Construction is proposed on a site that is subject to THE MULTI-SECTOR GENERAL PERMIT (MSGP) UNDER RULE 31(B)15 OF THE RIPDES REGULATIONS.	MSGP permit #
☐	Additional stormwater treatment is required by the MSGP Explain:	

REDEVELOPMENT STANDARD – MINIMUM STANDARD 6		
☒ Pre Construction Impervious Area		
☒	Total Pre-Construction Impervious Area (TIA): 188,883 SF	
☒	Total Site Area (TSA): 348,476 SF	
☒	Jurisdictional Wetlands (JW): 0 SF	
☒	Conservation Land (CL): 0 SF	
☒ Calculate the Site Size (defined as contiguous properties under same ownership)		
☒	Site Size (SS) = (TSA) – (JW) – (CL)	
☒	(TIA) / (SS) = 0.54	☒ (TIA) / (SS) >0.4?
☒ YES, Redevelopment		

PART 2. LOW IMPACT DEVELOPMENT ASSESSMENT – MINIMUM STANDARD 1
(NOT REQUIRED FOR REDEVELOPMENT OR RETROFITS)
This section may be deleted if not required.

Note: A written description must be provided specifying why each method is not being used or is not applicable at the Site. Appropriate answers may include:

- Town requires ... (state the specific local requirement)
- Meets Town's dimensional requirement of ...
- Not practical for site because ...
- Applying for waiver/variance to achieve this (pending/approved/denied)
- Applying for wavier/variance to seek relief from this (pending/approved/denied)

A) PRESERVATION OF UNDISTURBED AREAS, BUFFERS, AND FLOODPLAINS

- ☒ Sensitive resource areas and site constraints are identified (required)
- ☒ Local development regulations have been reviewed (required)
- ☒ All vegetated buffers and coastal and freshwater wetlands will be protected during and after construction
- ☐ Conservation Development or another site design technique has been incorporated to protect open space and pre-development hydrology. **Note:** If Conservation Development has been used, check box and skip to Subpart C
- ☒ As much natural vegetation and pre-development hydrology as possible has been maintained

IF NOT IMPLEMENTED, EXPLAIN HERE

B) LOCATE DEVELOPMENT IN LESS SENSITIVE AREAS AND WORK WITH THE NATURAL LANDSCAPE CONDITIONS, HYDROLOGY, AND SOILS ☒ Development sites and building envelopes have been appropriately distanced from wetlands and waterbodies ☒ Development and stormwater systems have been located in areas with greatest infiltration capacity (e.g., soil groups A and B) ☐ Plans show measures to prevent soil compaction in areas designated as Qualified Pervious Areas (QPA's) ☒ Development sites and building envelopes have been positioned outside of floodplains ☒ Site design positions buildings, roadways and parking areas in a manner that avoids impacts to surface water features ☐ Development sites and building envelopes have been located to minimize impacts to steep slopes ($\geq 15\%$) ☐ Other (describe):	
C) MINIMIZE CLEARING AND GRADING ☒ Site clearing has been restricted to <u>minimum area needed</u> for building footprints, development activities, construction access, and safety. ☐ Site has been designed to position buildings, roadways, and parking areas in a manner that minimizes grading (cut and fill quantities) ☐ Protection for stands of trees and individual trees and their root zones to be preserved has been specified, and such protection extends at least to the tree canopy drip line(s) ☐ Plan notes specify that public trees removed or damaged during construction shall be replaced with equivalent	
D) REDUCE IMPERVIOUS COVER ☐ Reduced roadway widths (≤ 22 feet for ADT ≤ 400; ≤ 26 feet for ADT 400 - 2,000) ☐ Reduced driveway areas (length minimized via reduced ROW width (≤ 45 ft.) and/or reduced (or absolute minimum) front yard setback; width minimized to ≤ 9 ft. wide one lane; ≤ 18 ft. wide two lanes; shared driveways; pervious surface) ☐ Reduced building footprint: Explain approach: ☐ Reduced sidewalk area (≤ 4 ft. wide; one side of the street; unpaved path; pervious surface) ☐ Reduced cul-de-sacs (radius < 45 ft; vegetated island; alternative turn-around) ☐ Reduced parking lot area: Explain approach ☒ Use of pervious surfaces for driveways, sidewalks, parking areas/overflow parking areas, etc. ☐ Minimized impervious surfaces (project meets or is less than maximum specified by Zoning Ordinance) ☐ Other (describe):	
E) DISCONNECT IMPERVIOUS AREA ☐ Impervious surfaces have been disconnected, and runoff has been diverted to QPAs to the maximum extent possible ☒ Residential street edges allow side-of-the-road drainage into vegetated open swales ☒ Parking lot landscaping breaks up impervious expanse AND accepts runoff ☐ Other (describe):	
F) MITIGATE RUNOFF AT THE POINT OF GENERATION ☒ Small-scale BMPs have been designated to treat runoff as close as possible to the source	

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

G) PROVIDE LOW-MAINTENANCE NATIVE VEGETATION ☐ Low-maintenance landscaping has been proposed using native species and cultivars ☐ Plantings of native trees and shrubs in areas previously cleared of native vegetation are shown on site plan ☐ Lawn areas have been limited/minimized, and yards have been kept undisturbed to the maximum extent practicable on residential lots	
H) RESTORE STREAMS/WETLANDS ☐ Historic drainage patterns have been restored by removing closed drainage systems, daylighting buried streams, and/or restoring degraded stream channels and/or wetlands ☐ Removal of invasive species ☐ Other	

PART 3. SUMMARY OF REMAINING STANDARDS

GROUNDWATER RECHARGE – MINIMUM STANDARD 2		
YES	NO	
☒	☐	The project has been designed to meet the groundwater recharge standard.
☐	☐	If “No,” the justification for groundwater recharge criterion waiver has been explained in the Narrative (e.g., threat of groundwater contamination or physical limitation), if applicable (see RICR 8.8.D);
☐	☐	Your waiver request has been explained in the Narrative, if applicable.
☐	☒	Is this site identified as a Regulated Facility in Part 1, Minimum Standard 8: LUHPPL Identification?
☐	☐	If “Yes,” has approval for infiltration by the Office of Waste Management Site Project Manager, per Part 1, Minimum Standard 8, been requested?

TABLE 2-1: Summary of Recharge (see RISDISM Section 3.3.2)

(Add or Subtract Rows as Necessary)

Design Point	Impervious Area Treated (sq ft)	Total Re _v Required (cu ft)	LID Stormwater Credits (see RISDISM Section 4.6.1)	Recharge Required by Remaining BMPs (cu ft)	Recharge Provided by BMPs (cu ft)
			Portion of Re _v directed to a QPA (cu ft)		
DP-1:	19,671	410	0	410	3,335
DP-2:					
DP-3:					
DP-4:					
TOTALS:					

Notes:

- Only BMPs listed in RISDISM Table 3-5 “List of BMPs Acceptable for Recharge” may be used to meet the recharge requirement.
- Recharge requirement must be satisfied for each waterbody ID.

☒ Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.):

See Appendix 2 in the stormwater Management Report

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

WATER QUALITY – MINIMUM STANDARD 3		
YES	NO	
☒	☐	Does this project meet or exceed the required water quality volume WQv (see RICR 8.9.E-I)?
☒	☐	Is the proposed final impervious cover greater than 20% of the disturbed area (see RICR 8.9.E-I)?
☒	☐	If “Yes,” either the Modified Curve Number Method or the Split Pervious/Impervious method in Hydro-CAD was used to calculate WQv; or,
☐	☐	If “Yes,” either TR-55 or TR-20 was used to calculate WQv; and,
☐	☐	If “No,” the project meets the minimum WQv of 0.2 watershed inches over the entire disturbed area.
☐	☐	Not Applicable
☒	☐	Does this project meet or exceed the ability to treat required water quality flow WQf (see RICR 8.9.I.1-3)?
☐	☒	Does this project propose an increase of impervious cover to a receiving water body with impairments? If “Yes,” please indicate below the method that was used to address the water quality requirements of no further degradation to a low-quality water.
☒	☐	RICR 8.36. A Pollutant Loading Analysis is needed and has been completed.
☒	☐	The Water Quality Guidance Document (Water Quality Goals and Pollutant Loading Analysis Guidance for Discharges to Impaired Waters) has been followed as applicable.
☐	☒	BMPs are proposed that are on the approved technology list . If “Yes,” please provide all required worksheets from the manufacturer.
☐	☒	Additional pollutant-specific requirements and/or pollutant removal efficiencies are applicable to the site as the result of a TMDL, SAMP, or other watershed-specific requirements. If “Yes,” please describe:

TABLE 3-1: Summary of Water Quality (see RICR 8.9)					
Design Point and WB ID	Impervious area treated (sq ft)	Total WQv Required (cu ft)	LID Stormwater Credits (see RICR 8.18)	Water Quality Treatment Remaining (cu ft)	Water Quality Provided by BMPs (cu ft)
			WQv directed to a QPA (cu ft)		
DP-1:	See Appendix 2 in Stormwater Management Report	3,238	0	3,238	3,583
DP-2:					
DP-3:					
TOTALS:					
Notes: 1. Only BMPs listed in RICR 8.20 and 8.25 or the Approved Technologies List of BMPs is Acceptable for Water Quality treatment. 2. For each Design Point, the Water Quality Volume Standard must be met for each Waterbody ID.					
☒ YES ☐ NO		This project has met the setback requirements for each BMP. If “No,” please explain:			
☒ Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.): See Appendix 2 in the stormwater Management Report					

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

CONVEYANCE AND NATURAL CHANNEL PROTECTION (RICR 8.10) – MINIMUM STANDARD 4		
YES	NO	
☒	☐	Is this standard waived? If “Yes,” please indicate one or more of the reasons below:
		☒ The project directs discharge to a large river (i.e., 4th-order stream or larger. See RISDISM Appendix I for State-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters. ☐ The project directs is a small facility with impervious cover of less than or equal to 1 acre. ☐ The project has a post-development peak discharge rate from the facility that is less than 2 cfs for the 1-year, 24-hour Type III design storm event (prior to any attenuation). (<u>Note</u> : LID design strategies can greatly reduce the peak discharge rate).
☐	☐	Conveyance and natural channel protection for the site have been met. If “No,” explain why:

TABLE 4-1: Summary of Channel Protection Volumes (see RICR 8.10)					
Design Point	Receiving Water Body Name	Coldwater Fishery? (Y/N)	Total CPv Required (cu ft)	Total CPv Provided (cu ft)	Average Release Rate Modeled in the 1-yr storm (cfs)
DP-1:					
DP-2:					
DP-3:					
DP-4:					
TOTALS:					
<u>Note</u> : The Channel Protection Volume Standard must be met in each waterbody ID.					
☐ YES ☐ NO	The CPv is released at roughly a uniform rate over a 24-hour duration (see examples of sizing calculations in Appendix D of the RISDISM).				
☐ YES ☐ NO	Do additional design restrictions apply resulting from any discharge to cold-water fisheries; If “Yes,” please indicate restrictions and solutions below.				
☐ Indicate below where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.).					

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

OVERBANK FLOOD PROTECTION (RICR 8.11) AND OTHER POTENTIAL HIGH FLOWS – MINIMUM STANDARD 5			
YES	NO		
☒	☐	Is this standard waived? If yes, please indicate one or more of the reasons below:	
		☒	The project directs discharge to a large river (i.e., 4th-order stream or larger. See Appendix I for state-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters.
		☐	A Downstream Analysis (see RICR 8.11.D and E) indicates that peak discharge control would not be beneficial or would exacerbate peak flows in a downstream tributary of a particular site (e.g., through coincident peaks).
☐	☐	Does the project flow to an MS4 system or subject to other stormwater requirements? If “Yes,” indicate as follows:	
		☐	RIDOT
		☐	Other (specify):
Note: The project could be approved by RIDEM but not meet RIDOT or Town standards. RIDOT’s regulations indicate that post-volumes must be less than pre-volumes for the 10-yr storm at the design point entering the RIDOT system. If you have not already received approval for the discharge to an MS4, please explain below your strategy to comply with RIDEM and the MS4.			
		Indicate below which model was used for your analysis. ☐ TR-55 ☐ TR-20 ☐ HydroCAD ☐ Bentley/Haestad ☐ Intellisolve ☐ Other (Specify):	
YES	NO		
☐	☐	Does the drainage design demonstrate that flows from the 100-year storm event through a BMP will safely manage and convey the 100-year storm? If “No,” please explain briefly below and reference where in the application further documentation can be found (i.e., name of report/document, page numbers, appendices, etc.):	
☐	☐	Do off-site areas contribute to the sub-watersheds and design points? If “Yes,”	
☐	☐	Are the areas modeled as “present condition” for both pre- and post-development analysis?	
☐	☐	Are the off-site areas shown on the subwatershed maps?	
☐	☐	Does the drainage design confirm safe passage of the 100-year flow through the site for off-site runoff?	
☐	☐	Is a Downstream Analysis required (see RICR 8.11.E.1)?	
☐	☐	Calculate the following:	
		☐	Area of disturbance within the sub-watershed (areas)
		☐	Impervious cover (%)
☐	☐	Is a dam breach analysis required (earthen embankments over six (6) feet in height, or a capacity of 15 acre-feet or more, and contributes to a significant or high hazard dam)?	
☐	☐	Does this project meet the overbank flood protection standard?	

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

Table 5-1 Hydraulic Analysis Summary

Subwatershed (Design Point)	1.2" Peak Flow (cfs) **		1-yr Peak Flow (cfs)		10-yr Peak Flow (cfs)		100-yr Peak Flow (cfs)	
	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)
eA2/pA2:	0.61	0.61	2.90	2.90	10.43	10.42	28.10	26.55
eA3/pA3:	0.85	0.68	2.32	2.32	9.03	8.78	24.91	21.18
TOTALS:								
** Utilize modified curve number method or split pervious /impervious method in HydroCAD. Note: The hydraulic analysis must demonstrate no impact to each individual subwatershed DP unless each DP discharges to the same wetland or water resource.								
Indicate as follows where the pertinent calculations and/or information for the items above are provided						Name of report/document, page numbers, appendices, etc.		
Existing conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, and water surface elevations showing methodologies used and supporting calculations.						See Appendix 1 of the Stormwater Management Report		
Proposed conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, water surface elevations, and routing showing the methodologies used and supporting calculations.						See Appendix 1 of the Stormwater Management Report		
Final sizing calculations for structural stormwater BMPs, including contributing drainage area, storage, and outlet configuration.						See Appendix 1 of the Stormwater Management Report		
Stage-storage, inflow and outflow hydrographs for storage facilities (e.g., detention, retention, or infiltration facilities).						See Appendix 1 of the Stormwater Management Report		

Table 5-2 Summary of Best Management Practices

BMP ID	DP #	BMP Type (e.g., bioretention, tree filter)	BMP Functions					Bypass Type	Horizontal Setback Criteria are met per RICR 8.21.B.10, 8.22.D.11, and 8.35.B.4		
			Pre-Treatment (Y/N/NA)	Re v	WQ _v (cf)	CP _v (Y/N/NA)	Overbank Flood Reduction (Y/N/NA)		Yes /No	Technical Justification (Design Report page number)	Distance Provided
pA2	FB1	Forebay-3	Y		268		N/a	N/a			
pA2	pSF1	Sand Filter-3			1,036		N/a	N/a			
pA2	US1	Underground Recharge System-2			2,279		N/a	N/a			
TOTALS:					3,583						

Table 5-3 Summary of Soils to Evaluate Each BMP

DP #	BMP ID	BMP Type (e.g., bioretention, tree filter)	Soils Analysis for Each BMP						Exfiltration Rate Applied (in/hr)
			Test Pit ID# and Ground Elevation		SHWT Elevation (ft)	Bottom of Practice Elevation* (ft)	Separation Distance Provided (ft)	Hydrologic Soil Group (A, B, C, D)	
			Primary	Secondary					
pA2	FB1	Forebay-3	TH-5		18	20	2'	C	N/a
pA2	pSF1	Sand Filter-3	TH-5		18	18	0'	C	N/a

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

pA2	US1	Underground Recharge System-2	TH-4		<20.0	23	>3'	B	2.41
		TOTALS:							
* For underground infiltration systems (UICs) bottom equals bottom of stone, for surface infiltration basins bottom equals bottom of basin, for filters bottom equals interface of storage and top of filter layer									

LAND USES WITH HIGHER POTENTIAL POLLUTANTS LOADS (LUHPPLs) – MINIMUM STANDARD 8			
YES	NO	N/A	
☐	☐	☐	Describe any LUHPPLs identified in Part 1, Minimum Standard 8, Section 2. If not applicable, continue to Minimum Standard 9.
☐	☐	☐	Are these activities already covered under an MSGP? If “No,” please explain if you have applied for an MSGP or intend to do so?
☐	☐	☐	List the specific BMPs that are proposed for this project that receive stormwater from LUHPPL drainage areas. These BMP types must be listed in RISDISM Table 3-3, “Acceptable BMPs for Use at LUHPPLs.” Please list BMPs:
☐	☐	☐	Additional BMPs, or additional pretreatment BMP’s if any, that meet RIPDES MSGP requirements; Please list BMPs:
			Indicate below where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.).

ILLICIT DISCHARGES – MINIMUM STANDARD 9			
Illicit discharges are defined as unpermitted discharges to Waters of the State that do not consist entirely of stormwater or uncontaminated groundwater, except for certain discharges identified in the RIPDES Phase II Stormwater General Permit.			
YES	NO	N/A	
☒	☐	☐	Have you checked for illicit discharges?
☐	☒	☐	Have any been found and/or corrected? If “Yes,” please identify.
☐	☐	☐	Does your report explain preventative measures that keep non-stormwater discharges out of the Waters of the State (during and after construction)?

SOIL EROSION AND SEDIMENT CONTROL (SESC) – MINIMUM STANDARD 10			
YES	NO	N/A	
☒	☐	☐	Have you included a Soil Erosion and Sediment Control Plan Set and/or Complete Construction Plan Set?
☒	☐	☐	Have you provided a separately-bound document based upon the SESC Template ? If yes, proceed to Minimum Standard 11 (the following items can be assumed to be addressed).
			If “No,” include a document with your submittal that addresses the following elements of an SESC Plan:
			☐ Soil Erosion and Sediment Control Plan Project Narrative, including a description of how the fifteen (15) Performance Criteria have been met:
			☐ Provide Natural Buffers and Maintain Existing Vegetation
			☐ Minimize Area of Disturbance

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

☐	Minimize the Disturbance of Steep Slopes
☐	Preserve Topsoil
☐	Stabilize Soils
☐	Protect Storm Drain Inlets
☐	Protect Storm Drain Outlets
☐	Establish Temporary Controls for the Protection of Post-Construction Stormwater Control Measures
☐	Establish Perimeter Controls and Sediment Barriers
☐	Divert or Manage Run-On from Up-Gradient Areas
☐	Properly Design Constructed Stormwater Conveyance Channels
☐	Retain Sediment On-Site
☐	Control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows
☐	Apply Construction Activity Pollution Prevention Control Measures
☐	Install, Inspect, and Maintain Control Measures and Take Corrective Actions
☐	Qualified SESC Plan Preparer's Information and Certification
☐	Operator's Information and Certification; if not known at the time of application, the Operator must certify the SESC Plan upon selection and prior to initiating site activities
☐	Description of Control Measures, such as Temporary Sediment Trapping and Conveyance Practices, including design calculations and supporting documentation, as required

STORMWATER MANAGEMENT SYSTEM OPERATION, MAINTENANCE, AND POLLUTION PREVENTION PLAN – MINIMUM STANDARDS 7 AND 9

Operation and Maintenance Section

YES	NO	
☒	☐	Have you minimized all sources of pollutant contact with stormwater runoff, to the maximum extent practicable?
☒	☐	Have you provided a separately-bound Operation and Maintenance Plan for the site and for all of the BMPs, and does it address each element of RICR 8.17 and RISDISM Appendix C and E?
☒	☐	Lawn, Garden, and Landscape Management meet the requirements of RISDISM Section G.7? If "No," why not?
☒	☐	Is the property owner or homeowner's association responsible for the stormwater maintenance of all BMP's? If "No," you must provide a legally binding and enforceable maintenance agreement (see RISDISM Appendix E, page 26) that identifies the entity that will be responsible for maintenance of the stormwater. Indicate where this agreement can be found in your report (i.e., name of report/document, page numbers, appendices, etc.).
☐	☒	Do you anticipate that you will need legal agreements related to the stormwater structures? (e.g. off-site easements, deed restrictions, covenants, or ELUR per the Remediation Regulations). If "Yes," have you obtained them? Or please explain your plan to obtain them:
☐	☒	Is stormwater being directed from public areas to private property? If "Yes," note the following: <u>Note:</u> This is not allowed unless a funding mechanism is in place to provide the finances for the long-term maintenance of the BMP and drainage, or a funding mechanism is demonstrated that can guarantee the long-term maintenance of a stormwater BMP by an individual homeowner.

Pollution Prevention Section

☐	☒	Designated snow stockpile locations?
☐	☒	Trash racks to prevent floatables, trash, and debris from discharging to Waters of the State?
☐	☒	Asphalt-only based sealants?
☐	☒	Pet waste stations? (<u>Note:</u> If a receiving water has a bacterial impairment, and the project involves housing units, then this could be an important part of your pollution prevention plan).

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

☐	☒	Regular sweeping? Please describe:
☐	☒	De-icing specifications, in accordance with RISDISM Appendix G. (NOTE: If the groundwater is GAA, or this area contributes to a drinking water supply, then this could be an important part of your pollution prevention plan).
☐	☒	A prohibition of phosphate-based fertilizers? (Note: If the site discharges to a phosphorus impaired waterbody, then this could be an important part of your pollution prevention plan).

PART 4. SUBWATERSHED MAPPING AND SITE-PLAN DETAILS

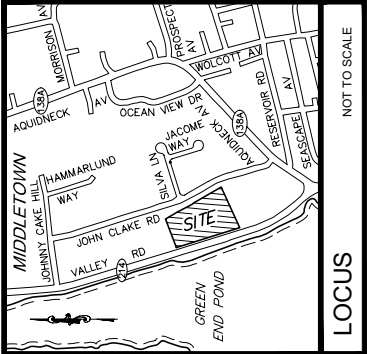
Existing and Proposed Subwatershed Mapping (REQUIRED)		
YES	NO	
☒	☐	Existing and proposed drainage area delineations
☒	☐	Locations of all streams and drainage swales
☒	☐	Drainage flow paths, mapped according to the DEM <i>Guidance for Preparation of Drainage Area Maps</i> (included in RISDISM Appendix K)
☒	☐	Complete drainage area boundaries; include off-site areas in both mapping and analyses, as applicable
☒	☐	Logs of borings and/or test pit investigations along with supporting soils/geotechnical report
☒	☐	Mapped seasonal high-water-table test pit locations
☒	☐	Mapped locations of the site-specific borings and/or test pits and soils information from the test pits at the locations of the BMPs
☒	☐	Mapped locations of the BMPs, with the BMPs consistently identified on the Site Construction Plans
☒	☐	Mapped bedrock outcrops adjacent to any infiltration BMP
☒	☐	Soils were logged by a:
	☒	Geotechnical study by Sage Environmental & Laboratory Testing by Thielsch Engineering
	☒	RI-registered P.E. Name: Michael E. Russell, P.E.

Subwatershed and Impervious Area Summary				
Subwatershed (area to each design point)	First Receiving Water ID or MS4	Area Disturbed (units)	Existing Impervious (units)	Proposed Impervious (units)
pA3	RI0007035I-03	54,704 sf	14,256 sf	25,845 sf
TOTALS:				

Site Construction Plans (Indicate that the following applicable specifications are provided)		
YES	NO	
☒	☐	Existing and proposed plans (scale not greater than 1" = 40') with North arrow
☒	☐	Existing and proposed site topography (with 1 or 2-foot contours); 10-foot contours accepted for off-site areas
☒	☐	Boundaries of existing predominant vegetation and proposed limits of clearing
☒	☐	Site Location clarification
☒	☐	Location and field-verified boundaries of resource protection areas such as: ▶ freshwater and coastal wetlands, including lakes and ponds ▶ coastal shoreline features Perennial and intermittent streams, in addition to Areas Subject to Storm Flowage (ASSFs)
☒	☐	All required setbacks (e.g., buffers, water-supply wells, septic systems)
☒	☐	Representative cross-section and profile drawings, and notes and details of structural stormwater management practices and conveyances (i.e., storm drains, open channels, swales, etc.), which include: ▶ Location and size of the stormwater treatment practices (type of practice, depth, area). Stormwater treatment practices (BMPs) must have labels that correspond to RISDISM Table 5-2;

Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8)

		▶ Design water surface elevations (applicable storms); ▶ Structural details of outlet structures, embankments, spillways, stilling basins, grade-control structures, conveyance channels, etc.; ▶ Existing and proposed structural elevations (e.g., inverts of pipes, manholes, etc.); ▶ Location of floodplain and, if applicable, floodway limits and relationship of site to upstream and downstream properties or drainage that could be affected by work in the floodplain; ▶ Planting plans for structural stormwater BMPs, including species, size, planting methods, and maintenance requirements of proposed planting
☒	☐	Logs of borings and/or test pit investigations along with supporting soils/geotechnical report and corresponding water tables
☒	☐	Mapping of any OWM-approved remedial actions/systems (including ELURs)
☒	☐	Location of existing and proposed roads, buildings, and other structures including limits of disturbance; ▶ Existing and proposed utilities (e.g., water, sewer, gas, electric) and easements; ▶ Location of existing and proposed conveyance systems, such as grass channels, swales, and storm drains, and location(s) of final discharge point(s) (wetland, waterbody, etc.); ▶ Cross sections of roadways, with edge details such as curbs and sidewalks; ▶ Location and dimensions of channel modifications, such as bridge or culvert crossings
☒	☐	Locations, cross sections, and profiles of all stream or wetland crossings and their method of stabilization

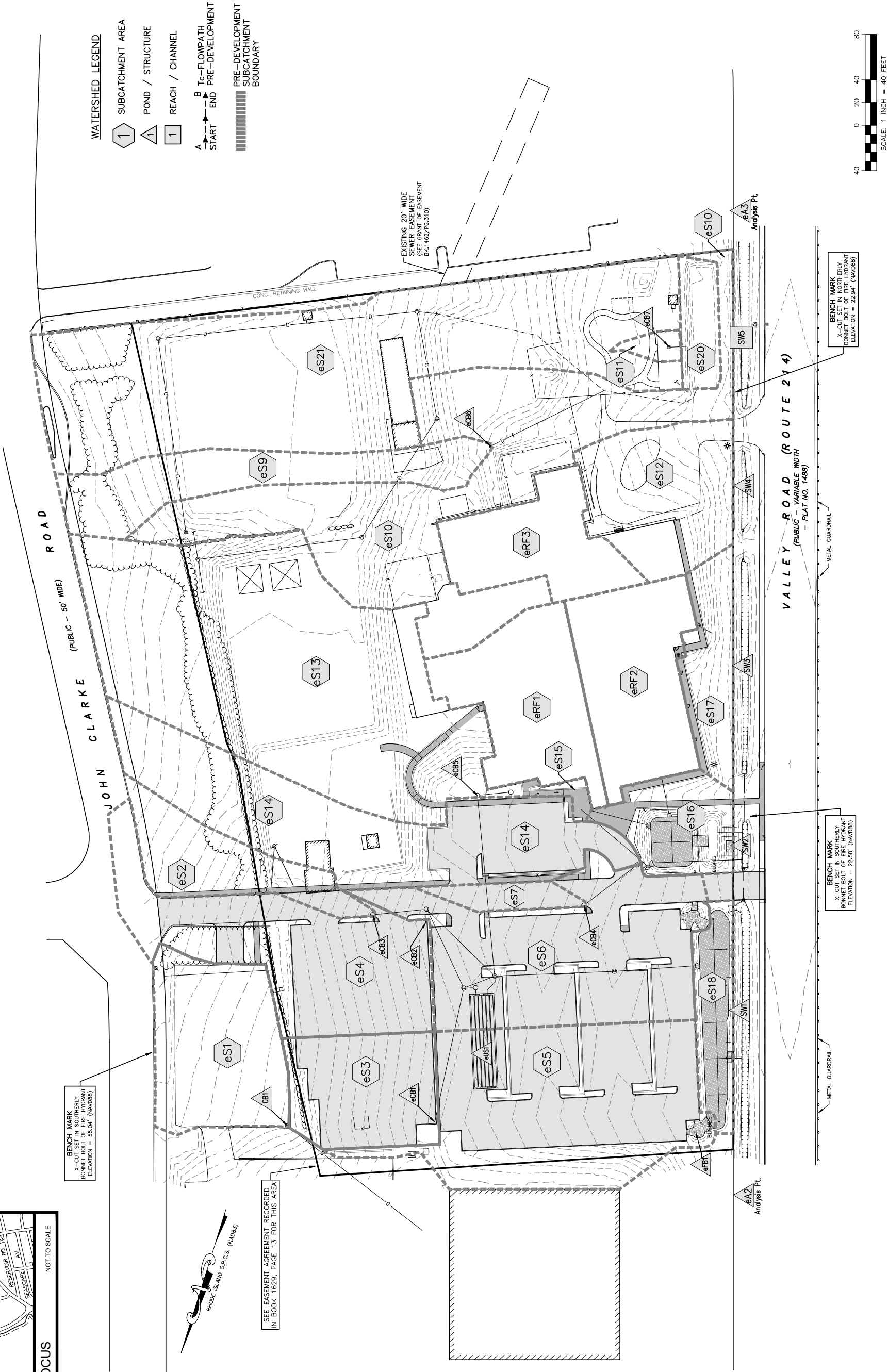


SEE EASEMENT AGREEMENT RECORDED
IN BOOK 1629, PAGE 13 FOR THIS AREA

BENCH MARK
X-CUT SET IN SOUTHERLY
BONNET BOLT OF FIRE HYDRANT
ELEVATION = 55.04' (NAVD83)

BENCH MARK
X-CUT SET IN SOUTHERLY
BONNET BOLT OF FIRE HYDRANT
ELEVATION = 22.58' (NAVD83)

BENCH MARK
X-CUT SET IN SOUTHERLY
BONNET BOLT OF FIRE HYDRANT
ELEVATION = 22.94' (NAVD83)



WATERSHED LEGEND

- 1** SUBCATCHMENT AREA
- A** POND / STRUCTURE
- 1** REACH / CHANNEL
- A** **B** **T_c** **END** **START** **PRE-DEVELOPMENT**
- PRE-DEVELOPMENT** **SUBCATCHMENT** **BOUNDARY**



207 High Point Avenue, Unit 6
Pawtucket, RI 02871
T: 401-354-2050 F: 401-388-9775
WWW.SDE-LDEC.COM

NO.	DATE	DESCRIPTION	APPROVED
1.	2/14/2023	GENERAL REVISIONS PER RIDEM COMMENTS	MER
2.	6/6/2023	GENERAL REVISIONS PER TOWN COMMENTS	MER

PLAN REVISIONS

DATE: DECEMBER 7, 2022

DRAWN BY: COMPS. BY: CHECK BY: SJE SJE MER

PROJECT NO. 20014

ISSUED FOR: PERMITTING

PRE DEVELOPMENT
WATERSHED PLAN
792 VALLEY ROAD
MIDDLETOWN, RHODE ISLAND
ASSESSORS MAP 115, PARCEL 1
PREPARED FOR
NEWPORT COUNTY REGIONAL YMCA

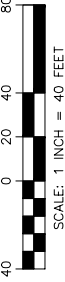
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PRE DEVELOPMENT
WATERSHED PLAN

SCALE: **1" = 40'**

SHEET NO.

1 of 2





207 High Point Avenue, Unit 6
Portsmouth, RI 02871
T: 401-354-2050 F: 401-369-9777
WWW.SDE-LDEC.COM

[illegible]

DATE: DECEMBER 7, 2022

DRAWN BY: SJE	COMPS. BY: SJE	CHECK BY: MER

PROJECT NO.	20014

ISSUED FOR:

PERMITTING

PERMITTING

POST DEVELOPMENT
WATERSHED PLAN
792 VALLEY ROAD
MIDDLETOWN, RHODE ISLAND
ASSESSORS MAP 115, PARCEL 1
PREPARED FOR
NEWPORT COUNTY REGIONAL YMCA

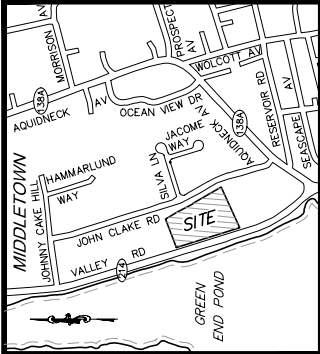
DRAWING TITLE:

POST DEVELOPMENT WATERSHED PLAN

SCALE: 1" = 40'

SHEET NO.

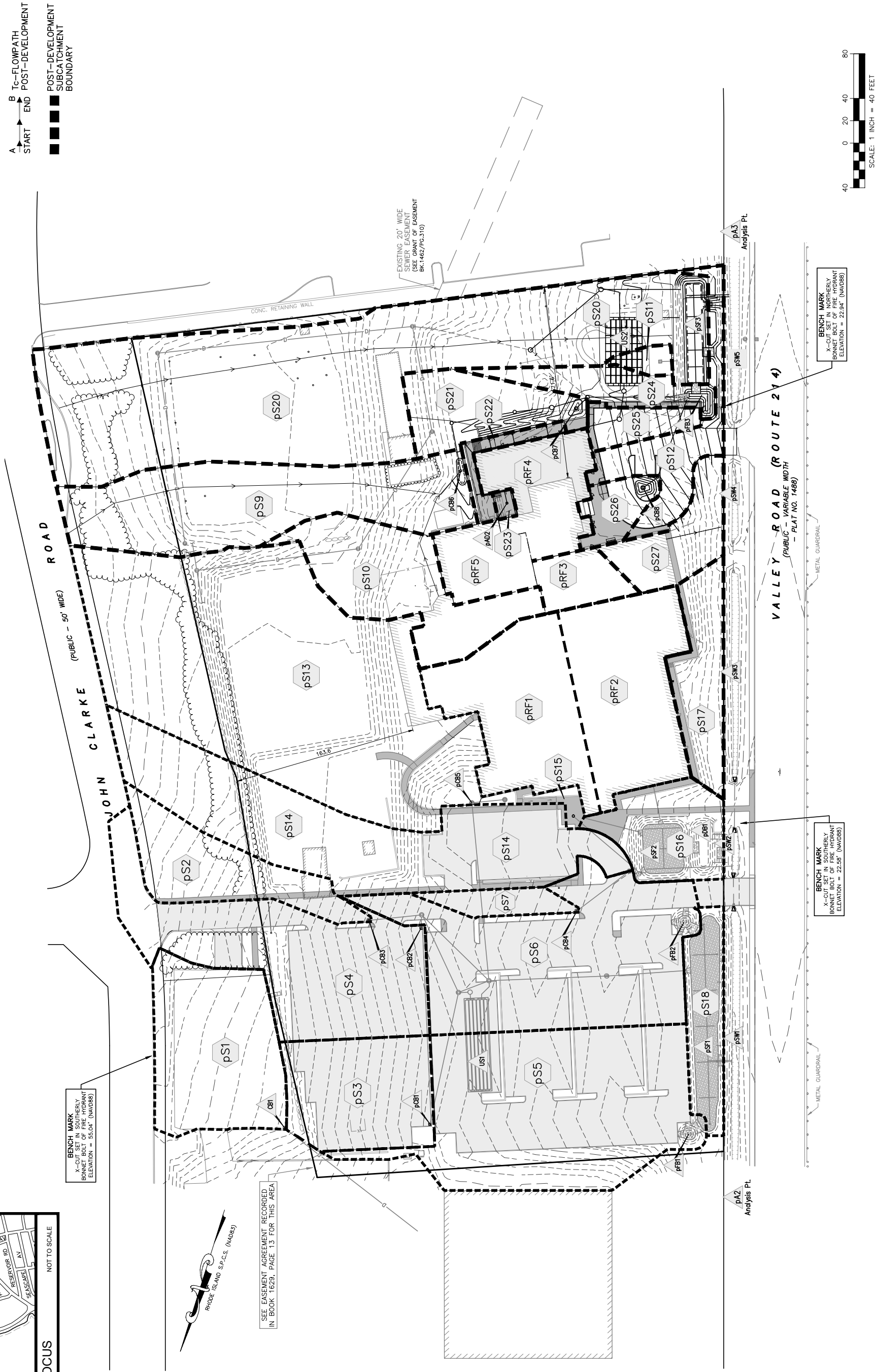
2 OF 2

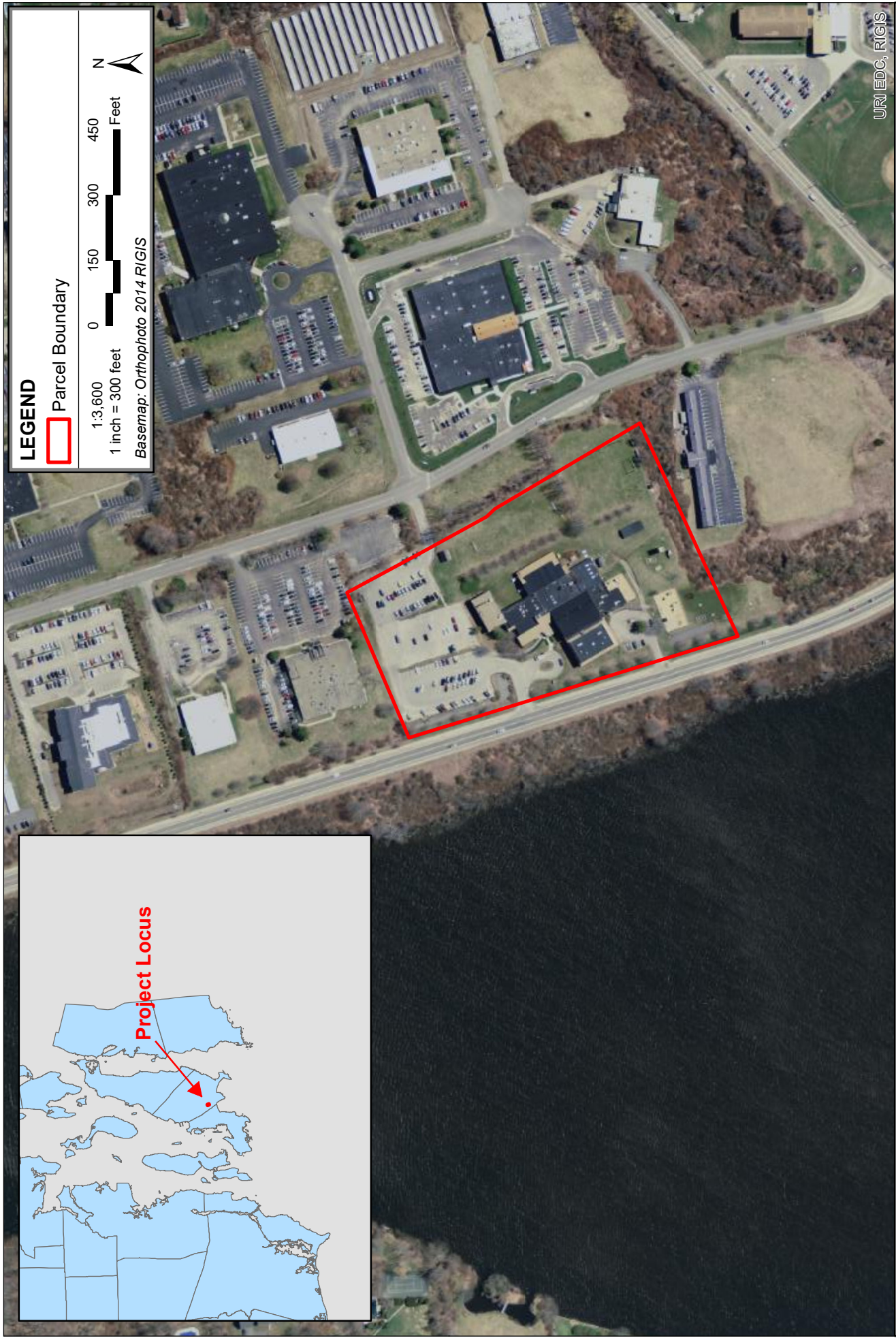


LOCUS



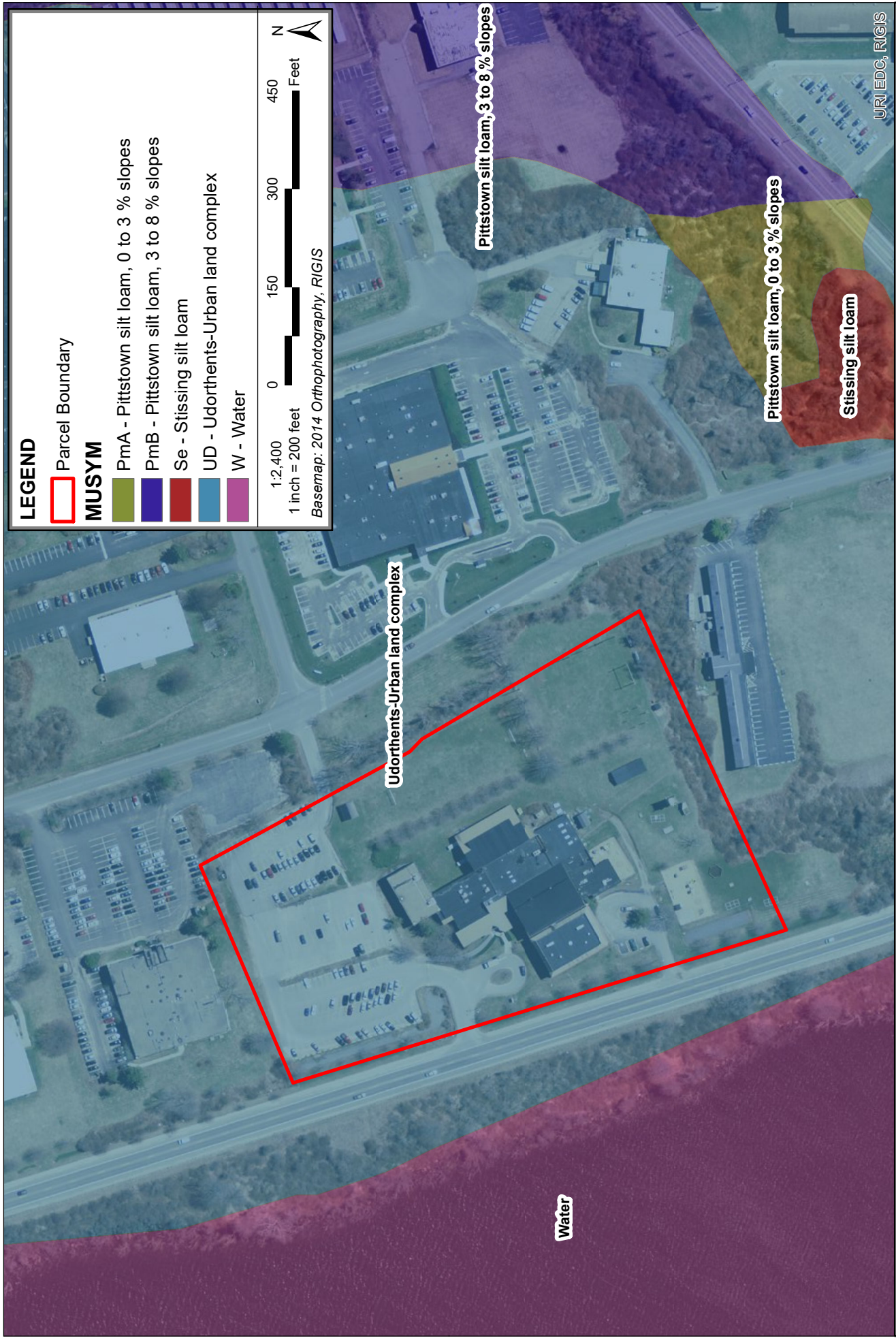
SEE EASEMENT AGREEMENT RECORDED
IN BOOK 1629, PAGE 13 FOR THIS AREA





792 Valley Road - Middletown, Rhode Island
Map 115 Parcel 1
LDEC Project No. 20014

Figure 2 - Site Locus
June 10, 2020



792 Valley Road - Middletown, Rhode Island
Map 115 Parcel 1
LDEC Project No. 20014