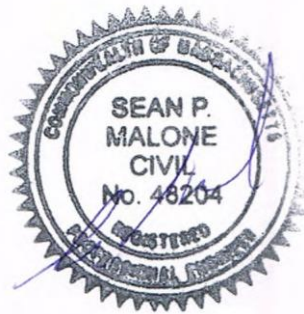


**STORMWATER MANAGEMENT STUDY
FOR
NORTHERN BANK TOWN COMMON**

Littleton, Massachusetts

Prepared for:

Northern Bank
275 Mishawum Road
Woburn, Massachusetts 01801



Prepared by:

Oak Consulting Group
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Project 18017
August 2022
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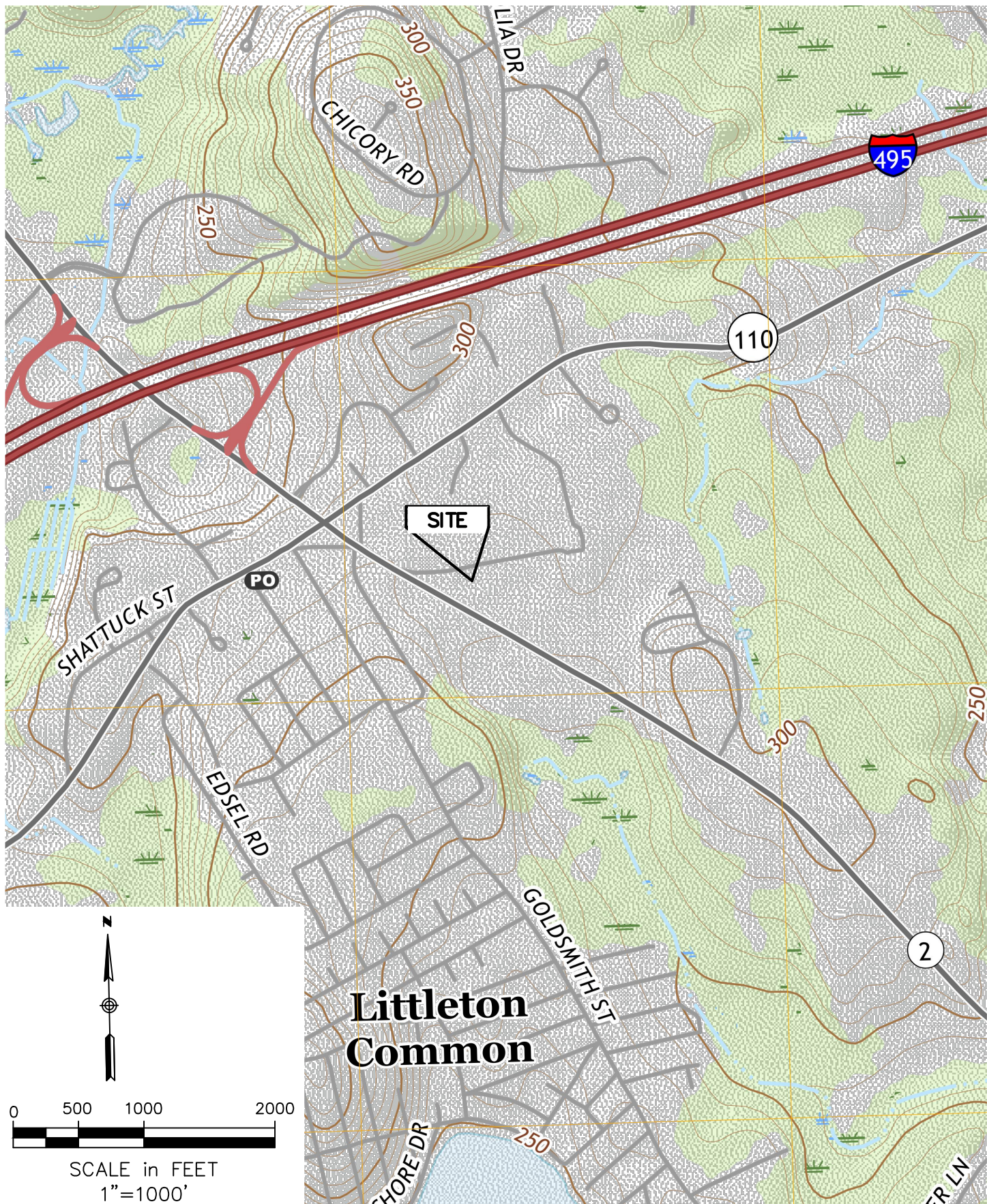
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Littleton Common

Northern Bank

289 Great Road
Littleton, Massachusetts

OCG

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SITE LOCATION USGS MAP

2018 Westford Quadrange
7.5 Minute Series

DRAWN BY:
SPM

PROJECT
18017

CHECKED BY:
SPM

DATE:
08/26/2022

FIGURE NO.

1

1.0 INTRODUCTION

Oak Consulting Group has prepared the following Stormwater Management Study for the proposed redevelopment of the property at 265, 277, 287, and 289 Great Road and 25 Robinson Road in Watertown, Massachusetts. The objective of this study was to engineer a drainage design using Best Management Practices (BMPs) that meet the Stormwater Management Standards set forth in the Massachusetts Department of Environmental Protection's (MA DEP's) Stormwater Policy, the Town of Littleton Stormwater Bylaw and standard engineering practice.

The project consists of redeveloping the project site with a commercial development to be known as Northern Bank Town Common.

The total area of disturbance is approximately 4.0 acres.

1.1 Existing Conditions

The Project Area is located on +/-3.83 acres, and is bounded by Great Road to the south and west, Robinson Road to the north, residential property to the northeast and commercial development to the southeast. The site is within the Village Common Zoning district.

The site is substantially developed with a Northern Bank branch, two commercial buildings, a residential building and a gas station as well as paved parking and loading areas, driveways, and lawn and landscape areas. There is also a wooded area with a non-jurisdictional wetland along the western boundary.

The site is characterized by four subcatchment areas. These areas are shown on the enclosed Pre-development Subcatchment Plan.

Subcatchment 1 consists of runoff from the central portion of the site. This subcatchment was divided into two smaller subcatchments to account for the runoff which flows into two small ponding areas. Runoff Subcatchment 1B flows to the low spot then overflows into Subcatchment 1A. This Subcatchment then flows to the rear of the site where it is retained in a larger ponding area. Once a depth of approximately 1.5 feet is reached, this ponding area outlets by the low point in the Northern Bank driveway where the overflow sheets to the Great Road drainage system.

Other than a deep sump catch basin in the Northern Bank parking area, there is no stormwater treatment for any paved or gravel parking and drives prior to stormwater being discharged to the low area in the rear of the site.

Subcatchment 2 consists of runoff from the southern portion of the site. This subcatchment was divided into two smaller subcatchments to account for the runoff which sheet into Great Road (Subcatchment 2A) and runoff which is piped directly into the Great Road drainage system (Subcatchment 2B).

There is no stormwater treatment for any paved or gravel parking and drives prior to stormwater being discharged to the Great Road drainage system.

Subcatchment 3 consists of a small catchment area in the northern portion of the site flowing to Robinson Road.

There is no stormwater treatment for any paved parking and drives prior to stormwater being discharged to the Robinson Road drainage system.

Subcatchment 4 consists of an offsite catchment area east of the site. This area is developed with a single-family home and drains to the ponding area described in Subcatchment 1A, thus combining with stormwater generated by the site.

There is no stormwater treatment for any paved parking and drives prior to stormwater being discharged to low area at the rear of the project site.

1.2 Site Geology and Hydrogeology

The NRCS has documented the site as having Woodbridge fine sandy loam with a Hydrologic Soil Group (HSG) C/D. In May 2022, six (6) test pits were conducted across the site. These test pits revealed the subsoils to be generally loamy and silty with shallow groundwater. Soils below the water table in the eastern portion of the site were coarse sands. The HSG C rating was used for site based on these results. Copies of the NCRS soils map and HSG map and test pit logs are enclosed in Appendix E.

The subsoils were classified as silt loam with a Rawl's infiltration rate of 0.27 inches/hour.

1.3 Proposed Condition

The project proposes to redevelop the site with a new commercial development consistent with the intents of the Village Common form-based code. The site will be redeveloped with a new bank branch and 4 commercial buildings as well as parking and loading areas needed to support the project. Hardscape outdoor gathering areas will be constructed with pervious pavers and all disturbed areas will be landscaped or created into lawn area.

The proposed drainage system has been designed to treat and detain stormwater so that the rate of discharge from the site is less than the existing condition at the same points of discharge to mimic the existing condition. The system has also been designed so as to not increase the ponding elevation of the low area to the east of the site.

Stormwater quality will be improved with the introduction of new pervious pavers as well as a closed drain system with new deep sump catchbasins, stormwater treatment units, subsurface infiltration areas and a subsurface detention area.

1.4 Methodology

Drainage conditions of the project area were analyzed in both the pre-development and post-development condition using the computer program HydroCAD. This program utilized the SCS TR-20 drainage model to generate estimated peak rates of runoff for the Subcatchment areas modeled. Rainfall Data for the 2-, 10-, and 25-year storm events was obtained from the NOAA Atlas 14, volume 10, version 2. The time of concentration was calculated using the SCS lag method.

Soils in the area of the proposed infiltration areas was found to be silty loams. The Rawl's Table for these soils indicates an infiltration rate of 0.27 in/hr which was used in the analysis.

2.0 STORMWATER MANAGEMENT STANDARDS

The plans included with this drainage study present the existing and proposed storm drain systems and erosion control measures proposed for the project. The stormwater BMPs were designed to meet and exceed the performance standards described in the MADEP Stormwater Handbook. The measures taken to address each of the standards are presented below.

2.1 No New Untreated Discharges (Standard 1)

The proposed project will not result in new untreated discharges. Runoff from new impervious areas will be captured, treated to remove total suspended solids (TSS). Treated runoff will be discharged at a rate not to exceed and at approximately the same location as the Pre-development condition.

2.2 Peak Rate Attenuation (Standard 2)

The Post-development rate of runoff from the site will be less than the Pre-development Conditions for all design storms. HydroCAD stormwater calculations are provided in Appendices A and B and are summarized in the table below. The existing and proposed drainage conditions were evaluated at the same points of discharge.

Table 1.2.1 - Rate of Discharge from Site

	Peak Rate of Runoff for 2-Year Storm Event (3.18") Pre/Post	Peak Rate of Runoff for 10-Year Storm Event (4.91") Pre/Post	Peak Rate of Runoff for 25-Year Storm Event (5.99") Pre/Post	Peak Rate of Runoff for 100-Year Storm Event (7.66") Pre/Post
Robinson Road	0.16/ 0.06 cfs	0.28/ 0.14 cfs	0.36/ 0.20 cfs	0.49/ 0.29 cfs
Great Road	2.47/ 2.30 cfs	4.23/ 3.45 cfs	5.36/ 4.15 cfs	9.29/ 5.23 cfs
Total Site	2.63/ 2.36 cfs	4.51/ 3.59 cfs	5.72/ 4.35 cfs	9.44/ 5.51 cfs
Total Site Change	-0.27 cfs (-10%)	-0.92 cfs (-20%)	-1.37 cfs (-24%)	-3.93 cfs (-42%)

As shown above, the rate of runoff from the site in the post-development condition will be less than pre-development conditions for all design storm events.

2.3 Groundwater Recharge (Standard 3)

The Massachusetts Department of Environmental Protection Stormwater performance standards require an approximate restoration of groundwater recharge in post-development conditions. Soil data was obtained from the NRC Web Soil Survey.

Below is a calculation of the required recharge volume for the site impervious area.

Volume required in HSG C Soils

$108,372 \text{ sf} \times (0.25 \text{ in}) / (12 \text{ in/ft}) = \underline{2,257.75}$ cubic feet

Total recharge volume required = 2,257.75 cubic feet

The project will use two subsurface infiltration systems consisting of HDPE perforated pipe embedded in crushed stone. These basins were sized to capture and hold a stormwater volume greater than the required recharge volume. The total recharge volume for the systems was calculated to 13,746 cf.

2.4 Water Quality (Standard 4)

Runoff generated by the site will be treated to reduce total annual load of Total Suspended Solids (TSS). BMP's used include, new pervious pavers, deep sump catchbasins, stormwater treatment units, and Stormwater Infiltration. Treatment train calculations can be found in Appendix C.

2.5 Land Use with Higher Potential Pollutant Loads (LUHPPLs) (Standard 5)

The proposed project consists of a shopping center with more than 1,000 vehicle trips per day and this use is associated with higher potential pollutant loads. The stormwater system has been designed to pretreat stormwater from all parking and driveways to at least 44% TSS removal prior to discharging to an infiltration area and provide treatment for all parking lot runoff.

2.6 Critical Areas (Standard 6)

The site does not contain critical environmental resource areas.

2.7 Redevelopments and Other Projects Subject to the Standards Only to the Maximum Extent Practicable (Standard 7)

The project area is developed with both commercial and residential development and nearly the entire project area has been previously disturbed. All new developed area is treated to full compliance with the stormwater rules with the exception of Subcatchment 2A. This subcatchment is along the perimeter of the project abutting the state Right-of-way which sheet flows to the street.

In the Pre-development condition, this subcatchment includes roof area, gravel and paved driveways, gravel and paved parking areas and some pervious area. In the Post-development condition, this subcatchment includes only roof area, sidewalks and some pervious area and the total impervious area is reduced. The Post-development condition will result in a significant improvement in stormwater quality.

2.8 Construction-Period Pollution Prevention and Erosion and Sedimentation Control (Standard 8)

Below is a summary of the erosion and sediment control procedures. Additional detail can be found on Sheet C-005, Erosion Control Notes, and details provided on the project plans.

Land-disturbing activities proposed under this project will include the items listed in, and be sequenced according to, the following preliminary construction schedule:

1. Installation of temporary erosion controls (construction entrances, sedimentation barriers, and catchbasin inlet protection).
2. Clearing and grubbing. Stockpile or remove topsoil. Demolish existing structures and infrastructure.
3. Excavation, rough grading of site.
4. Construction of building pads, parking areas, and drainage and utilities.
5. Install landscaping and final stabilization.
6. Removal of temporary erosion controls and any trapped sediment.

Erosion/sediment controls will be in place throughout the site during all phases of construction. All existing catchbasins in the project area will have a silt basket installed under the grate. The Contractor shall be responsible for checking all of the erosion/sediment control measures periodically and after every storm. The Contractor shall repair, replace, and maintain all erosion/sediment control measures throughout construction until all disturbed areas have been stabilized. Efforts will be made to establish vegetative cover over all disturbed areas as soon as possible after the work in that area is complete. All disturbed areas will be treated with a 4-inch depth of loam and seed or mulch and landscaping.

The occurrence of an extended shutdown during the construction phase of this project is not anticipated and is unlikely. Should unexpected events dictate, measures will be taken to stabilize the disturbed areas of the site as a last construction activity before the start of an extended shutdown. These measures will include careful planning of the immediate construction schedule so that further land disturbance is kept to a minimum and the re-stabilization of existing disturbed areas is maximized prior to the extended shutdown. Other measures will include the reinforcement and repair of all erosion/sediment controls in place at the time of the extended shutdown.

2.9 Operation and Maintenance Plan (Standard 9)

See Appendix C.

2.10 Prohibition of Illicit Discharges

Illicit discharges are prohibited. An Illicit Discharge Statement will be provided prior to the start of construction.

3.0 ISOLATED LAND SUBJECT TO FLOODING

The rear portion of the site contains a low area with no specific drain outlet. This area is bound by the commercial and residential development on the existing site as well as a residence to the east and has been documented by the abutting resident as an area that frequently floods both on their land as well as the project site.

This area was reviewed by Goddard Consulting in June of 2022. A portion of the area was flagged as an isolated non-jurisdictional wetland. With the documented flooding noted by the abutter, this area was reviewed to see if it met the criteria of 310 CMR 10.57(2)(b) and would be defined as Isolated Land Subject to Flooding (ILSF). The result of that analysis showed the area retained a volume of 14,251 cf for the 1-year storm event (2.62 inches). This volume exceeds the threshold of 0.25 acre/feet (10,890 cf) defining an ILSF and therefore the area is regulated as an ILSF.

The project proposes work with in the ILSF area as well as areas on the site flowing to it. The project will result in filling portions of the ILSF but also some redeveloped areas currently flowing to it, will be rerouted to new subsurface infiltration and detention areas. Below is a summary of the ILSF Performance Standards defined by 310 CMR 10.57(4)(b) and explanation on how the protect meets the standard.

A proposed project in Isolated Land Subject to Flooding shall not result in the following:

1. *“Flood damage due to filling which causes lateral displacement of water that would otherwise be confined within said area.”*

The proposed project will decrease the area contributing runoff to the ILSF as well as provide an outlet in the form of a catchbasin. The catchbasin rim will be at the same elevation as the existing outlet from the ILSF. Below is a summary the highwater elevation of the ILSF area before and after construction for the rainfall amounts defined in C10 CMR 10.57(4)(b) and 10.57(2)(b).

Table 3.1 – ILSF Elevations	1-Year Storm Peak Elevation (ft)	7” Storm Peak Elevation (ft)
Pre-development	277.15	277.67
Post-development	276.60	277.53

As shown above the Post-development peak elevation will be less than Pre-development peak elevation and therefore the lateral extent of the flooding will not be increased particularly as it relates to the abutting property to the east.

The above stormwater calculations for Peak Rate Attenuation (Standard 2) show that the peak rates from the site do no increase for all storms demonstrating that lateral extent of flooding is also not diverted off-site by the sites stormwater systems.

2. *An adverse effect on public and private water supply or ground water supply, where said area is underlain by pervious material.*

Test pits conducted in proximity to the ILSF area suggest at least portions of it are underlain by a sandy loam over a coarse sand and gravel layer within the water table. The project has been designed to provide a static storage volume on-site to match or exceed the pre-development storage volume of the ILSF. This is accomplished with the remaining open ILSF basin as well as new subsurface infiltration areas.

Table 3.2 – ILSF Volumes	1-Year Storm Volume (cf)	7” Storm Volume (cf)
Pre-development ILSF Basin	14,251	32,465
Post-development ILSF Basin	6,954	22,345

Post-development Basin 1B	5,964	7,964
Post-development Basin 1C	3,695	5,411

As shown above the total static storage for recharge in the Post-development condition will be 16,613 cf for the 1-year Storm and 35,720 cf for the 7" Storm. After subtracting the required 2,257.75 cf of recharge required by the redevelopment, the ILSF storage is still exceeds the existing condition. The elimination of untreated stormwater discharges to the ILSF while also adding the additional recharge will also protect natural groundwater supply in the area.

3. *An adverse effect on the capacity of said area to prevent pollution of the groundwater, where the area is underlain by pervious material which in turn is covered by a mat of organic peat and muck.*

All redeveloped areas are directed away from the ILSF area in the Post-development condition. The areas receive treatment in excess of the minimum requirements of the MADEP Stormwater Standards. With less stormwater being routed to the ILSF area and new treatment for other areas previously draining to it, there is no adverse effect of the ILSF areas capacity for pollution prevention.

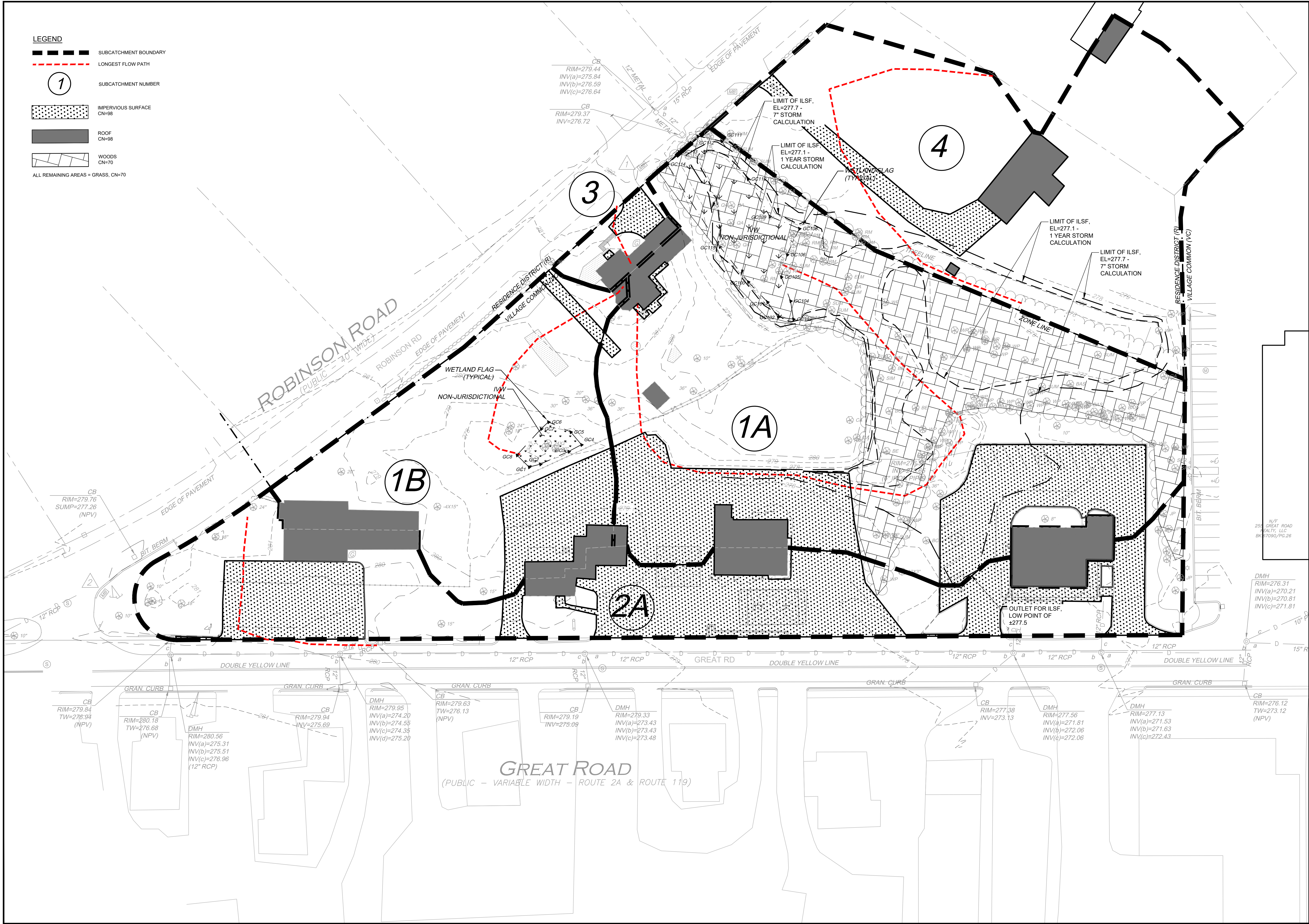
4. *An impairment of its capacity to provide wildlife habitat where said area is a vernal pool habitat, as determined by procedures contained within 310 CMR 10.60.*

No certified or potential vernal pools were identified in the ILSF area.

APPENDIX A

Pre-Development Drainage Calculations

Northern Bank Town Common
Littleton, Massachusetts



Site:

NORTHERN BANK TOWN COMMON

265-289 GREAT ROAD
LITTLETON, MASSACHUSETTS

Prepared for:

NORTHERN BANK AND TRUST COMPANY

275 MISHAWUM ROAD
WOBURN, MASSACHUSETTS

0 15 30 60

SCALE in FEET
1"=30'

OCG

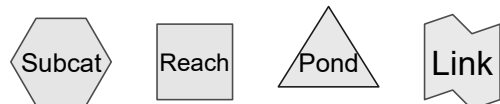
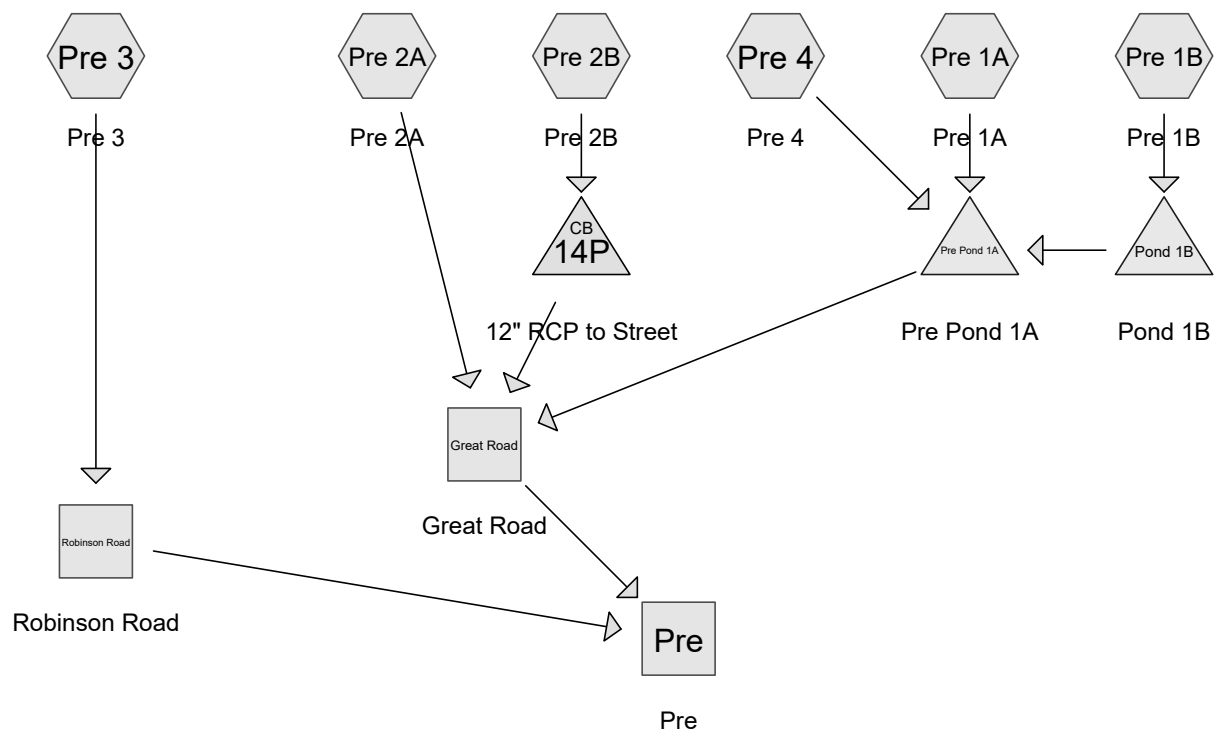
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PRE-DEVELOPMENT SUBCATCHMENT PLAN

No.	Revision/Issue	Date
3	Revised per Con-Com & Peer review	1/23/23
2	Revised per peer review	12/21/22
1	Revised per peer review	11/14/22

Design by:	Checked by:
SPM	SPM
Drawn by:	Approved by:
SPM	SPM
Project:	Date:
18017	September 7, 2022
Sheet:	

DR-01



18017 Pre-post-January 2023

Type III 24-hr 2-YR NOAA Rainfall=3.18"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

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

SubcatchmentPre 1A: Pre 1A Runoff Area=84,149 sf 25.13% Impervious Runoff Depth=1.42"
Flow Length=465' Slope=0.0360 '/' Tc=9.7 min CN=WQ Runoff=2.56 cfs 0.229 af

SubcatchmentPre 1B: Pre 1B Runoff Area=32,952 sf 24.30% Impervious Runoff Depth=1.49"
Flow Length=155' Slope=0.0300 '/' Tc=6.0 min CN=WQ Runoff=1.21 cfs 0.094 af

SubcatchmentPre 2A: Pre 2A Runoff Area=43,695 sf 58.46% Impervious Runoff Depth=2.14"
Flow Length=173' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=2.27 cfs 0.179 af

SubcatchmentPre 2B: Pre 2B Runoff Area=2,798 sf 100.00% Impervious Runoff Depth=2.95"
Flow Length=37' Slope=0.0100 '/' Tc=6.0 min CN=WQ Runoff=0.20 cfs 0.016 af

SubcatchmentPre 3: Pre 3 Runoff Area=3,249 sf 51.92% Impervious Runoff Depth=2.02"
Flow Length=44' Slope=0.0450 '/' Tc=6.0 min CN=WQ Runoff=0.16 cfs 0.013 af

SubcatchmentPre 4: Pre 4 Runoff Area=51,513 sf 11.10% Impervious Runoff Depth=1.24"
Flow Length=340' Slope=0.0450 '/' Tc=6.9 min CN=WQ Runoff=1.55 cfs 0.122 af

Reach Great Road: Great Road Inflow=2.47 cfs 0.195 af
Outflow=2.47 cfs 0.195 af

Reach Pre: Pre Inflow=2.63 cfs 0.208 af
Outflow=2.63 cfs 0.208 af

Reach Robinson Road: Robinson Road Inflow=0.16 cfs 0.013 af
Outflow=0.16 cfs 0.013 af

Pond 14P: 12" RCP to Street Peak Elev=272.96' Inflow=0.20 cfs 0.016 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=0.20 cfs 0.016 af

Pond Pond 1B: Pond 1B Peak Elev=278.20' Storage=1,445 cf Inflow=1.21 cfs 0.094 af
Outflow=0.73 cfs 0.068 af

Pond Pre Pond 1A: Pre Pond 1A Peak Elev=277.29' Storage=18,243 cf Inflow=4.60 cfs 0.419 af
Outflow=0.00 cfs 0.000 af

18017 Pre-post-January 2023*Type III 24-hr 2-YR NOAA Rainfall=3.18"*

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Summary for Subcatchment Pre 1A: Pre 1A

Runoff = 2.56 cfs @ 12.14 hrs, Volume= 0.229 af, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 2-YR NOAA Rainfall=3.18"

Area (sf)	CN	Description
2,349	98	Roofs, HSG C
18,796	98	Paved parking, HSG C
29,044	74	>75% Grass cover, Good, HSG C
33,960	70	Woods, Good, HSG C
84,149		Weighted Average
63,004		74.87% Pervious Area
21,145		25.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	465	0.0360	0.80		Lag/CN Method, Pre 1A

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Type III 24-hr 2-YR NOAA Rainfall=3.18"

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Summary for Subcatchment Pre 1B: Pre 1B

Runoff = 1.21 cfs @ 12.09 hrs, Volume= 0.094 af, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 2-YR NOAA Rainfall=3.18"

Area (sf)	CN	Description
2,684	98	Roofs, HSG C
5,324	98	Paved parking, HSG C
24,944	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
32,952		Weighted Average
24,944		75.70% Pervious Area
8,008		24.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	155	0.0300	0.63		Lag/CN Method, Pre 1B
4.1	155	Total, Increased to minimum Tc = 6.0 min			

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Type III 24-hr 2-YR NOAA Rainfall=3.18"

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Summary for Subcatchment Pre 2A: Pre 2A

Runoff = 2.27 cfs @ 12.09 hrs, Volume= 0.179 af, Depth= 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 2-YR NOAA Rainfall=3.18"

Area (sf)	CN	Description
3,784	98	Roofs, HSG C
21,760	98	Paved parking, HSG C
17,314	74	>75% Grass cover, Good, HSG C
837	70	Woods, Good, HSG C
43,695		Weighted Average
18,151		41.54% Pervious Area
25,544		58.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	173	0.0150	0.60		Lag/CN Method, Pre 2
4.8	173	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Pre 2B: Pre 2B

Runoff = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR NOAA Rainfall=3.18"

Area (sf)	CN	Description
2,798	98	Roofs, HSG C
0	98	Paved parking, HSG C
0	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
2,798		Weighted Average
2,798		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	37	0.0100	0.57		Lag/CN Method, Pre 2B
1.1	37	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Pre 3: Pre 3

Runoff = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR NOAA Rainfall=3.18"

Area (sf)	CN	Description
901	98	Roofs, HSG C
786	98	Paved parking, HSG C
1,562	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
3,249		Weighted Average
1,562		48.08% Pervious Area
1,687		51.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	44	0.0450	0.73		Lag/CN Method, Pre 3
1.0	44	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Pre 4: Pre 4

Runoff = 1.55 cfs @ 12.11 hrs, Volume= 0.122 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR NOAA Rainfall=3.18"

Area (sf)	CN	Description
2,572	98	Roofs, HSG C
3,144	98	Paved parking, HSG C
45,797	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
51,513		Weighted Average
45,797		88.90% Pervious Area
5,716		11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	340	0.0450	0.82		Lag/CN Method, Pre 4

Summary for Reach Great Road: Great Road

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

Inflow Area = 4.938 ac, 29.39% Impervious, Inflow Depth = 0.47" for 2-YR NOAA event
Inflow = 2.47 cfs @ 12.09 hrs, Volume= 0.195 af
Outflow = 2.47 cfs @ 12.09 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach Pre: Pre

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

Inflow Area = 5.013 ac, 29.72% Impervious, Inflow Depth = 0.50" for 2-YR NOAA event
Inflow = 2.63 cfs @ 12.09 hrs, Volume= 0.208 af
Outflow = 2.63 cfs @ 12.09 hrs, Volume= 0.208 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach Robinson Road: Robinson Road

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

Inflow Area = 0.075 ac, 51.92% Impervious, Inflow Depth = 2.02" for 2-YR NOAA event
Inflow = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af
Outflow = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 14P: 12" RCP to Street

[57] Hint: Peaked at 272.96' (Flood elevation advised)

Inflow Area = 0.064 ac, 100.00% Impervious, Inflow Depth = 2.95" for 2-YR NOAA event
 Inflow = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af
 Outflow = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 272.96' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.73'	12.0" Round Culvert L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.73' / 272.43' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.20 cfs @ 12.08 hrs HW=272.96' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 0.20 cfs @ 2.25 fps)

Stage-Area-Storage for Pond 14P: 12" RCP to Street

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.73	0	273.25	0
272.74	0	273.26	0
272.75	0	273.27	0
272.76	0	273.28	0
272.77	0	273.29	0
272.78	0	273.30	0
272.79	0	273.31	0
272.80	0	273.32	0
272.81	0	273.33	0
272.82	0	273.34	0
272.83	0	273.35	0
272.84	0	273.36	0
272.85	0	273.37	0
272.86	0	273.38	0
272.87	0	273.39	0
272.88	0	273.40	0
272.89	0	273.41	0
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0		
273.23	0		
273.24	0		

Summary for Pond Pond 1B: Pond 1B

Inflow Area = 0.756 ac, 24.30% Impervious, Inflow Depth = 1.49" for 2-YR NOAA event
 Inflow = 1.21 cfs @ 12.09 hrs, Volume= 0.094 af
 Outflow = 0.73 cfs @ 12.20 hrs, Volume= 0.068 af, Atten= 40%, Lag= 6.7 min
 Primary = 0.73 cfs @ 12.20 hrs, Volume= 0.068 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 278.20' @ 12.20 hrs Surf.Area= 3,094 sf Storage= 1,445 cf

Plug-Flow detention time= 178.3 min calculated for 0.068 af (72% of inflow)
 Center-of-Mass det. time= 78.8 min (890.4 - 811.6)

Volume	Invert	Avail.Storage	Storage Description
#1	277.00'	2,558 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.00	71	0	0
277.50	672	186	186
278.00	2,215	722	908
278.50	4,385	1,650	2,558

Device	Routing	Invert	Outlet Devices
#1	Primary	278.10'	8.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.73 cfs @ 12.20 hrs HW=278.20' TW=276.73' (Dynamic Tailwater)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.73 cfs @ 0.90 fps)

Stage-Area-Storage for Pond Pond 1B: Pond 1B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.00	71	0	277.52	734	200
277.01	83	1	277.53	765	207
277.02	95	2	277.54	795	215
277.03	107	3	277.55	826	223
277.04	119	4	277.56	857	232
277.05	131	5	277.57	888	240
277.06	143	6	277.58	919	249
277.07	155	8	277.59	950	259
277.08	167	10	277.60	981	268
277.09	179	11	277.61	1,011	278
277.10	191	13	277.62	1,042	289
277.11	203	15	277.63	1,073	299
277.12	215	17	277.64	1,104	310
277.13	227	19	277.65	1,135	321
277.14	239	22	277.66	1,166	333
277.15	251	24	277.67	1,197	345
277.16	263	27	277.68	1,227	357
277.17	275	29	277.69	1,258	369
277.18	287	32	277.70	1,289	382
277.19	299	35	277.71	1,320	395
277.20	311	38	277.72	1,351	408
277.21	323	41	277.73	1,382	422
277.22	335	45	277.74	1,413	436
277.23	347	48	277.75	1,444	450
277.24	359	52	277.76	1,474	465
277.25	372	55	277.77	1,505	480
277.26	384	59	277.78	1,536	495
277.27	396	63	277.79	1,567	510
277.28	408	67	277.80	1,598	526
277.29	420	71	277.81	1,629	542
277.30	432	75	277.82	1,660	559
277.31	444	80	277.83	1,690	576
277.32	456	84	277.84	1,721	593
277.33	468	89	277.85	1,752	610
277.34	480	94	277.86	1,783	628
277.35	492	98	277.87	1,814	646
277.36	504	103	277.88	1,845	664
277.37	516	109	277.89	1,876	683
277.38	528	114	277.90	1,906	701
277.39	540	119	277.91	1,937	721
277.40	552	125	277.92	1,968	740
277.41	564	130	277.93	1,999	760
277.42	576	136	277.94	2,030	780
277.43	588	142	277.95	2,061	801
277.44	600	148	277.96	2,092	821
277.45	612	154	277.97	2,122	842
277.46	624	160	277.98	2,153	864
277.47	636	166	277.99	2,184	886
277.48	648	173	278.00	2,215	908
277.49	660	179	278.01	2,258	930
277.50	672	186	278.02	2,302	953
277.51	703	193	278.03	2,345	976

Stage-Area-Storage for Pond Pond 1B: Pond 1B (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
278.04	2,389	1,000
278.05	2,432	1,024
278.06	2,475	1,048
278.07	2,519	1,073
278.08	2,562	1,099
278.09	2,606	1,124
278.10	2,649	1,151
278.11	2,692	1,177
278.12	2,736	1,205
278.13	2,779	1,232
278.14	2,823	1,260
278.15	2,866	1,289
278.16	2,909	1,317
278.17	2,953	1,347
278.18	2,996	1,377
278.19	3,040	1,407
278.20	3,083	1,437
278.21	3,126	1,468
278.22	3,170	1,500
278.23	3,213	1,532
278.24	3,257	1,564
278.25	3,300	1,597
278.26	3,343	1,630
278.27	3,387	1,664
278.28	3,430	1,698
278.29	3,474	1,732
278.30	3,517	1,767
278.31	3,560	1,803
278.32	3,604	1,839
278.33	3,647	1,875
278.34	3,691	1,911
278.35	3,734	1,949
278.36	3,777	1,986
278.37	3,821	2,024
278.38	3,864	2,063
278.39	3,908	2,101
278.40	3,951	2,141
278.41	3,994	2,180
278.42	4,038	2,221
278.43	4,081	2,261
278.44	4,125	2,302
278.45	4,168	2,344
278.46	4,211	2,386
278.47	4,255	2,428
278.48	4,298	2,471
278.49	4,342	2,514
278.50	4,385	2,558

Summary for Pond Pre Pond 1A: Pre Pond 1A

Inflow Area = 3.871 ac, 20.68% Impervious, Inflow Depth = 1.30" for 2-YR NOAA event
 Inflow = 4.60 cfs @ 12.14 hrs, Volume= 0.419 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 277.29' @ 48.00 hrs Surf.Area= 30,997 sf Storage= 18,243 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	276.00'	47,715 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
276.00	4,053	0	0
276.50	8,187	3,060	3,060
277.00	22,091	7,570	10,630
277.50	37,615	14,927	25,556
278.00	51,019	22,159	47,715

Device	Routing	Invert	Outlet Devices
#1	Primary	277.50'	30.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=276.00' TW=0.00' (Dynamic Tailwater)
 ↑1=**Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Stage-Area-Storage for Pond Pre Pond 1A: Pre Pond 1A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
276.00	4,053	0	276.52	8,743	3,229
276.01	4,136	41	276.53	9,021	3,318
276.02	4,218	83	276.54	9,299	3,410
276.03	4,301	125	276.55	9,577	3,504
276.04	4,384	169	276.56	9,855	3,601
276.05	4,466	213	276.57	10,134	3,701
276.06	4,549	258	276.58	10,412	3,804
276.07	4,632	304	276.59	10,690	3,909
276.08	4,714	351	276.60	10,968	4,018
276.09	4,797	398	276.61	11,246	4,129
276.10	4,880	447	276.62	11,524	4,243
276.11	4,962	496	276.63	11,802	4,359
276.12	5,045	546	276.64	12,080	4,479
276.13	5,128	597	276.65	12,358	4,601
276.14	5,211	648	276.66	12,636	4,726
276.15	5,293	701	276.67	12,914	4,854
276.16	5,376	754	276.68	13,192	4,984
276.17	5,459	808	276.69	13,471	5,117
276.18	5,541	863	276.70	13,749	5,254
276.19	5,624	919	276.71	14,027	5,392
276.20	5,707	976	276.72	14,305	5,534
276.21	5,789	1,033	276.73	14,583	5,679
276.22	5,872	1,092	276.74	14,861	5,826
276.23	5,955	1,151	276.75	15,139	5,976
276.24	6,037	1,211	276.76	15,417	6,129
276.25	6,120	1,272	276.77	15,695	6,284
276.26	6,203	1,333	276.78	15,973	6,442
276.27	6,285	1,396	276.79	16,251	6,604
276.28	6,368	1,459	276.80	16,529	6,767
276.29	6,451	1,523	276.81	16,807	6,934
276.30	6,533	1,588	276.82	17,086	7,104
276.31	6,616	1,654	276.83	17,364	7,276
276.32	6,699	1,720	276.84	17,642	7,451
276.33	6,781	1,788	276.85	17,920	7,629
276.34	6,864	1,856	276.86	18,198	7,809
276.35	6,947	1,925	276.87	18,476	7,993
276.36	7,029	1,995	276.88	18,754	8,179
276.37	7,112	2,066	276.89	19,032	8,368
276.38	7,195	2,137	276.90	19,310	8,559
276.39	7,278	2,209	276.91	19,588	8,754
276.40	7,360	2,283	276.92	19,866	8,951
276.41	7,443	2,357	276.93	20,144	9,151
276.42	7,526	2,431	276.94	20,423	9,354
276.43	7,608	2,507	276.95	20,701	9,560
276.44	7,691	2,584	276.96	20,979	9,768
276.45	7,774	2,661	276.97	21,257	9,979
276.46	7,856	2,739	276.98	21,535	10,193
276.47	7,939	2,818	276.99	21,813	10,410
276.48	8,022	2,898	277.00	22,091	10,630
276.49	8,104	2,979	277.01	22,401	10,852
276.50	8,187	3,060	277.02	22,712	11,078
276.51	8,465	3,143	277.03	23,022	11,306

Stage-Area-Storage for Pond Pre Pond 1A: Pre Pond 1A (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.04	23,333	11,538	277.56	39,223	27,861
277.05	23,643	11,773	277.57	39,492	28,255
277.06	23,954	12,011	277.58	39,760	28,651
277.07	24,264	12,252	277.59	40,028	29,050
277.08	24,575	12,496	277.60	40,296	29,452
277.09	24,885	12,743	277.61	40,564	29,856
277.10	25,196	12,994	277.62	40,832	30,263
277.11	25,506	13,247	277.63	41,100	30,672
277.12	25,817	13,504	277.64	41,368	31,085
277.13	26,127	13,764	277.65	41,636	31,500
277.14	26,438	14,027	277.66	41,904	31,918
277.15	26,748	14,292	277.67	42,172	32,338
277.16	27,059	14,561	277.68	42,440	32,761
277.17	27,369	14,834	277.69	42,709	33,187
277.18	27,680	15,109	277.70	42,977	33,615
277.19	27,990	15,387	277.71	43,245	34,046
277.20	28,301	15,669	277.72	43,513	34,480
277.21	28,611	15,953	277.73	43,781	34,917
277.22	28,922	16,241	277.74	44,049	35,356
277.23	29,232	16,532	277.75	44,317	35,798
277.24	29,543	16,826	277.76	44,585	36,242
277.25	29,853	17,123	277.77	44,853	36,689
277.26	30,163	17,423	277.78	45,121	37,139
277.27	30,474	17,726	277.79	45,389	37,592
277.28	30,784	18,032	277.80	45,657	38,047
277.29	31,095	18,341	277.81	45,925	38,505
277.30	31,405	18,654	277.82	46,194	38,965
277.31	31,716	18,970	277.83	46,462	39,429
277.32	32,026	19,288	277.84	46,730	39,895
277.33	32,337	19,610	277.85	46,998	40,363
277.34	32,647	19,935	277.86	47,266	40,835
277.35	32,958	20,263	277.87	47,534	41,309
277.36	33,268	20,594	277.88	47,802	41,785
277.37	33,579	20,928	277.89	48,070	42,265
277.38	33,889	21,266	277.90	48,338	42,747
277.39	34,200	21,606	277.91	48,606	43,231
277.40	34,510	21,950	277.92	48,874	43,719
277.41	34,821	22,296	277.93	49,142	44,209
277.42	35,131	22,646	277.94	49,411	44,702
277.43	35,442	22,999	277.95	49,679	45,197
277.44	35,752	23,355	277.96	49,947	45,695
277.45	36,063	23,714	277.97	50,215	46,196
277.46	36,373	24,076	277.98	50,483	46,699
277.47	36,684	24,442	277.99	50,751	47,206
277.48	36,994	24,810	278.00	51,019	47,715
277.49	37,305	25,181			
277.50	37,615	25,556			
277.51	37,883	25,933			
277.52	38,151	26,314			
277.53	38,419	26,697			
277.54	38,687	27,082			
277.55	38,955	27,470			

18017 Pre-post-January 2023

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

Prepared by {enter your company name here}

Printed 1/24/2023

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

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

SubcatchmentPre 1A: Pre 1A Runoff Area=84,149 sf 25.13% Impervious Runoff Depth=2.76"
Flow Length=465' Slope=0.0360 '/' Tc=9.7 min CN=WQ Runoff=5.18 cfs 0.444 af

SubcatchmentPre 1B: Pre 1B Runoff Area=32,952 sf 24.30% Impervious Runoff Depth=2.87"
Flow Length=155' Slope=0.0300 '/' Tc=6.0 min CN=WQ Runoff=2.41 cfs 0.181 af

SubcatchmentPre 2A: Pre 2A Runoff Area=43,695 sf 58.46% Impervious Runoff Depth=3.68"
Flow Length=173' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=3.92 cfs 0.307 af

SubcatchmentPre 2B: Pre 2B Runoff Area=2,798 sf 100.00% Impervious Runoff Depth=4.67"
Flow Length=37' Slope=0.0100 '/' Tc=6.0 min CN=WQ Runoff=0.31 cfs 0.025 af

SubcatchmentPre 3: Pre 3 Runoff Area=3,249 sf 51.92% Impervious Runoff Depth=3.53"
Flow Length=44' Slope=0.0450 '/' Tc=6.0 min CN=WQ Runoff=0.28 cfs 0.022 af

SubcatchmentPre 4: Pre 4 Runoff Area=51,513 sf 11.10% Impervious Runoff Depth=2.56"
Flow Length=340' Slope=0.0450 '/' Tc=6.9 min CN=WQ Runoff=3.33 cfs 0.252 af

Reach Great Road: Great Road Inflow=4.23 cfs 0.597 af
Outflow=4.23 cfs 0.597 af

Reach Pre: Pre Inflow=4.51 cfs 0.619 af
Outflow=4.51 cfs 0.619 af

Reach Robinson Road: Robinson Road Inflow=0.28 cfs 0.022 af
Outflow=0.28 cfs 0.022 af

Pond 14P: 12" RCP to Street Peak Elev=273.02' Inflow=0.31 cfs 0.025 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=0.31 cfs 0.025 af

Pond Pond 1B: Pond 1B Peak Elev=278.30' Storage=1,776 cf Inflow=2.41 cfs 0.181 af
Outflow=2.04 cfs 0.155 af

Pond Pre Pond 1A: Pre Pond 1A Peak Elev=277.54' Storage=26,939 cf Inflow=10.39 cfs 0.851 af
Outflow=0.58 cfs 0.264 af

Summary for Subcatchment Pre 1A: Pre 1A

Runoff = 5.18 cfs @ 12.14 hrs, Volume= 0.444 af, Depth= 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

Area (sf)	CN	Description
2,349	98	Roofs, HSG C
18,796	98	Paved parking, HSG C
29,044	74	>75% Grass cover, Good, HSG C
33,960	70	Woods, Good, HSG C
84,149		Weighted Average
63,004		74.87% Pervious Area
21,145		25.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	465	0.0360	0.80		Lag/CN Method, Pre 1A

18017 Pre-post-January 2023

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

Prepared by {enter your company name here}

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Summary for Subcatchment Pre 1B: Pre 1B

Runoff = 2.41 cfs @ 12.09 hrs, Volume= 0.181 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

Area (sf)	CN	Description
2,684	98	Roofs, HSG C
5,324	98	Paved parking, HSG C
24,944	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
32,952		Weighted Average
24,944		75.70% Pervious Area
8,008		24.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	155	0.0300	0.63		Lag/CN Method, Pre 1B
4.1	155	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Pre 2A: Pre 2A

Runoff = 3.92 cfs @ 12.09 hrs, Volume= 0.307 af, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

Area (sf)	CN	Description
3,784	98	Roofs, HSG C
21,760	98	Paved parking, HSG C
17,314	74	>75% Grass cover, Good, HSG C
837	70	Woods, Good, HSG C
43,695		Weighted Average
18,151		41.54% Pervious Area
25,544		58.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	173	0.0150	0.60		Lag/CN Method, Pre 2
4.8	173	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Pre 2B: Pre 2B

Runoff = 0.31 cfs @ 12.08 hrs, Volume= 0.025 af, Depth= 4.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

Area (sf)	CN	Description
2,798	98	Roofs, HSG C
0	98	Paved parking, HSG C
0	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
2,798		Weighted Average
2,798		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	37	0.0100	0.57		Lag/CN Method, Pre 2B
1.1	37	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Pre 3: Pre 3

Runoff = 0.28 cfs @ 12.09 hrs, Volume= 0.022 af, Depth= 3.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

Area (sf)	CN	Description
901	98	Roofs, HSG C
786	98	Paved parking, HSG C
1,562	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
3,249		Weighted Average
1,562		48.08% Pervious Area
1,687		51.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	44	0.0450	0.73		Lag/CN Method, Pre 3
1.0	44	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Pre 4: Pre 4

Runoff = 3.33 cfs @ 12.10 hrs, Volume= 0.252 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

Area (sf)	CN	Description
2,572	98	Roofs, HSG C
3,144	98	Paved parking, HSG C
45,797	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
51,513		Weighted Average
45,797		88.90% Pervious Area
5,716		11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	340	0.0450	0.82		Lag/CN Method, Pre 4

Summary for Reach Great Road: Great Road

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

Inflow Area = 4.938 ac, 29.39% Impervious, Inflow Depth = 1.45" for 10-YR-NOAA event
Inflow = 4.23 cfs @ 12.09 hrs, Volume= 0.597 af
Outflow = 4.23 cfs @ 12.09 hrs, Volume= 0.597 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach Pre: Pre

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

Inflow Area = 5.013 ac, 29.72% Impervious, Inflow Depth = 1.48" for 10-YR-NOAA event
Inflow = 4.51 cfs @ 12.09 hrs, Volume= 0.619 af
Outflow = 4.51 cfs @ 12.09 hrs, Volume= 0.619 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach Robinson Road: Robinson Road

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

Inflow Area = 0.075 ac, 51.92% Impervious, Inflow Depth = 3.53" for 10-YR-NOAA event
Inflow = 0.28 cfs @ 12.09 hrs, Volume= 0.022 af
Outflow = 0.28 cfs @ 12.09 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 14P: 12" RCP to Street

[57] Hint: Peaked at 273.02' (Flood elevation advised)

Inflow Area = 0.064 ac, 100.00% Impervious, Inflow Depth = 4.67" for 10-YR-NOAA event
 Inflow = 0.31 cfs @ 12.08 hrs, Volume= 0.025 af
 Outflow = 0.31 cfs @ 12.08 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.31 cfs @ 12.08 hrs, Volume= 0.025 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 273.02' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.73'	12.0" Round Culvert L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.73' / 272.43' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.31 cfs @ 12.08 hrs HW=273.01' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 0.31 cfs @ 2.51 fps)

Stage-Area-Storage for Pond 14P: 12" RCP to Street

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.73	0	273.25	0
272.74	0	273.26	0
272.75	0	273.27	0
272.76	0	273.28	0
272.77	0	273.29	0
272.78	0	273.30	0
272.79	0	273.31	0
272.80	0	273.32	0
272.81	0	273.33	0
272.82	0	273.34	0
272.83	0	273.35	0
272.84	0	273.36	0
272.85	0	273.37	0
272.86	0	273.38	0
272.87	0	273.39	0
272.88	0	273.40	0
272.89	0	273.41	0
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0		
273.23	0		
273.24	0		

Summary for Pond Pond 1B: Pond 1B

Inflow Area = 0.756 ac, 24.30% Impervious, Inflow Depth = 2.87" for 10-YR-NOAA event
 Inflow = 2.41 cfs @ 12.09 hrs, Volume= 0.181 af
 Outflow = 2.04 cfs @ 12.14 hrs, Volume= 0.155 af, Atten= 15%, Lag= 3.0 min
 Primary = 2.04 cfs @ 12.14 hrs, Volume= 0.155 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 278.30' @ 12.14 hrs Surf.Area= 3,528 sf Storage= 1,776 cf

Plug-Flow detention time= 114.5 min calculated for 0.155 af (85% of inflow)
 Center-of-Mass det. time= 49.3 min (852.0 - 802.7)

Volume	Invert	Avail.Storage	Storage Description
#1	277.00'	2,558 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.00	71	0	0
277.50	672	186	186
278.00	2,215	722	908
278.50	4,385	1,650	2,558

Device	Routing	Invert	Outlet Devices
#1	Primary	278.10'	8.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.04 cfs @ 12.14 hrs HW=278.30' TW=277.04' (Dynamic Tailwater)

↑1=**Broad-Crested Rectangular Weir**(Weir Controls 2.04 cfs @ 1.26 fps)

Stage-Area-Storage for Pond Pond 1B: Pond 1B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.00	71	0	277.52	734	200
277.01	83	1	277.53	765	207
277.02	95	2	277.54	795	215
277.03	107	3	277.55	826	223
277.04	119	4	277.56	857	232
277.05	131	5	277.57	888	240
277.06	143	6	277.58	919	249
277.07	155	8	277.59	950	259
277.08	167	10	277.60	981	268
277.09	179	11	277.61	1,011	278
277.10	191	13	277.62	1,042	289
277.11	203	15	277.63	1,073	299
277.12	215	17	277.64	1,104	310
277.13	227	19	277.65	1,135	321
277.14	239	22	277.66	1,166	333
277.15	251	24	277.67	1,197	345
277.16	263	27	277.68	1,227	357
277.17	275	29	277.69	1,258	369
277.18	287	32	277.70	1,289	382
277.19	299	35	277.71	1,320	395
277.20	311	38	277.72	1,351	408
277.21	323	41	277.73	1,382	422
277.22	335	45	277.74	1,413	436
277.23	347	48	277.75	1,444	450
277.24	359	52	277.76	1,474	465
277.25	372	55	277.77	1,505	480
277.26	384	59	277.78	1,536	495
277.27	396	63	277.79	1,567	510
277.28	408	67	277.80	1,598	526
277.29	420	71	277.81	1,629	542
277.30	432	75	277.82	1,660	559
277.31	444	80	277.83	1,690	576
277.32	456	84	277.84	1,721	593
277.33	468	89	277.85	1,752	610
277.34	480	94	277.86	1,783	628
277.35	492	98	277.87	1,814	646
277.36	504	103	277.88	1,845	664
277.37	516	109	277.89	1,876	683
277.38	528	114	277.90	1,906	701
277.39	540	119	277.91	1,937	721
277.40	552	125	277.92	1,968	740
277.41	564	130	277.93	1,999	760
277.42	576	136	277.94	2,030	780
277.43	588	142	277.95	2,061	801
277.44	600	148	277.96	2,092	821
277.45	612	154	277.97	2,122	842
277.46	624	160	277.98	2,153	864
277.47	636	166	277.99	2,184	886
277.48	648	173	278.00	2,215	908
277.49	660	179	278.01	2,258	930
277.50	672	186	278.02	2,302	953
277.51	703	193	278.03	2,345	976

Stage-Area-Storage for Pond Pond 1B: Pond 1B (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
278.04	2,389	1,000
278.05	2,432	1,024
278.06	2,475	1,048
278.07	2,519	1,073
278.08	2,562	1,099
278.09	2,606	1,124
278.10	2,649	1,151
278.11	2,692	1,177
278.12	2,736	1,205
278.13	2,779	1,232
278.14	2,823	1,260
278.15	2,866	1,289
278.16	2,909	1,317
278.17	2,953	1,347
278.18	2,996	1,377
278.19	3,040	1,407
278.20	3,083	1,437
278.21	3,126	1,468
278.22	3,170	1,500
278.23	3,213	1,532
278.24	3,257	1,564
278.25	3,300	1,597
278.26	3,343	1,630
278.27	3,387	1,664
278.28	3,430	1,698
278.29	3,474	1,732
278.30	3,517	1,767
278.31	3,560	1,803
278.32	3,604	1,839
278.33	3,647	1,875
278.34	3,691	1,911
278.35	3,734	1,949
278.36	3,777	1,986
278.37	3,821	2,024
278.38	3,864	2,063
278.39	3,908	2,101
278.40	3,951	2,141
278.41	3,994	2,180
278.42	4,038	2,221
278.43	4,081	2,261
278.44	4,125	2,302
278.45	4,168	2,344
278.46	4,211	2,386
278.47	4,255	2,428
278.48	4,298	2,471
278.49	4,342	2,514
278.50	4,385	2,558

Summary for Pond Pre Pond 1A: Pre Pond 1A

Inflow Area = 3.871 ac, 20.68% Impervious, Inflow Depth = 2.64" for 10-YR-NOAA event
 Inflow = 10.39 cfs @ 12.12 hrs, Volume= 0.851 af
 Outflow = 0.58 cfs @ 15.06 hrs, Volume= 0.264 af, Atten= 94%, Lag= 176.1 min
 Primary = 0.58 cfs @ 15.06 hrs, Volume= 0.264 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 277.54' @ 15.06 hrs Surf.Area= 38,588 sf Storage= 26,939 cf

Plug-Flow detention time= 427.2 min calculated for 0.264 af (31% of inflow)
 Center-of-Mass det. time= 277.6 min (1,096.6 - 819.0)

Volume	Invert	Avail.Storage	Storage Description
#1	276.00'	47,715 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
276.00	4,053	0	0
276.50	8,187	3,060	3,060
277.00	22,091	7,570	10,630
277.50	37,615	14,927	25,556
278.00	51,019	22,159	47,715

Device	Routing	Invert	Outlet Devices
#1	Primary	277.50'	30.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.58 cfs @ 15.06 hrs HW=277.54' TW=0.00' (Dynamic Tailwater)
 ↑1=**Broad-Crested Rectangular Weir**(Weir Controls 0.58 cfs @ 0.53 fps)

Stage-Area-Storage for Pond Pre Pond 1A: Pre Pond 1A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
276.00	4,053	0	276.52	8,743	3,229
276.01	4,136	41	276.53	9,021	3,318
276.02	4,218	83	276.54	9,299	3,410
276.03	4,301	125	276.55	9,577	3,504
276.04	4,384	169	276.56	9,855	3,601
276.05	4,466	213	276.57	10,134	3,701
276.06	4,549	258	276.58	10,412	3,804
276.07	4,632	304	276.59	10,690	3,909
276.08	4,714	351	276.60	10,968	4,018
276.09	4,797	398	276.61	11,246	4,129
276.10	4,880	447	276.62	11,524	4,243
276.11	4,962	496	276.63	11,802	4,359
276.12	5,045	546	276.64	12,080	4,479
276.13	5,128	597	276.65	12,358	4,601
276.14	5,211	648	276.66	12,636	4,726
276.15	5,293	701	276.67	12,914	4,854
276.16	5,376	754	276.68	13,192	4,984
276.17	5,459	808	276.69	13,471	5,117
276.18	5,541	863	276.70	13,749	5,254
276.19	5,624	919	276.71	14,027	5,392
276.20	5,707	976	276.72	14,305	5,534
276.21	5,789	1,033	276.73	14,583	5,679
276.22	5,872	1,092	276.74	14,861	5,826
276.23	5,955	1,151	276.75	15,139	5,976
276.24	6,037	1,211	276.76	15,417	6,129
276.25	6,120	1,272	276.77	15,695	6,284
276.26	6,203	1,333	276.78	15,973	6,442
276.27	6,285	1,396	276.79	16,251	6,604
276.28	6,368	1,459	276.80	16,529	6,767
276.29	6,451	1,523	276.81	16,807	6,934
276.30	6,533	1,588	276.82	17,086	7,104
276.31	6,616	1,654	276.83	17,364	7,276
276.32	6,699	1,720	276.84	17,642	7,451
276.33	6,781	1,788	276.85	17,920	7,629
276.34	6,864	1,856	276.86	18,198	7,809
276.35	6,947	1,925	276.87	18,476	7,993
276.36	7,029	1,995	276.88	18,754	8,179
276.37	7,112	2,066	276.89	19,032	8,368
276.38	7,195	2,137	276.90	19,310	8,559
276.39	7,278	2,209	276.91	19,588	8,754
276.40	7,360	2,283	276.92	19,866	8,951
276.41	7,443	2,357	276.93	20,144	9,151
276.42	7,526	2,431	276.94	20,423	9,354
276.43	7,608	2,507	276.95	20,701	9,560
276.44	7,691	2,584	276.96	20,979	9,768
276.45	7,774	2,661	276.97	21,257	9,979
276.46	7,856	2,739	276.98	21,535	10,193
276.47	7,939	2,818	276.99	21,813	10,410
276.48	8,022	2,898	277.00	22,091	10,630
276.49	8,104	2,979	277.01	22,401	10,852
276.50	8,187	3,060	277.02	22,712	11,078
276.51	8,465	3,143	277.03	23,022	11,306

Stage-Area-Storage for Pond Pre Pond 1A: Pre Pond 1A (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.04	23,333	11,538	277.56	39,223	27,861
277.05	23,643	11,773	277.57	39,492	28,255
277.06	23,954	12,011	277.58	39,760	28,651
277.07	24,264	12,252	277.59	40,028	29,050
277.08	24,575	12,496	277.60	40,296	29,452
277.09	24,885	12,743	277.61	40,564	29,856
277.10	25,196	12,994	277.62	40,832	30,263
277.11	25,506	13,247	277.63	41,100	30,672
277.12	25,817	13,504	277.64	41,368	31,085
277.13	26,127	13,764	277.65	41,636	31,500
277.14	26,438	14,027	277.66	41,904	31,918
277.15	26,748	14,292	277.67	42,172	32,338
277.16	27,059	14,561	277.68	42,440	32,761
277.17	27,369	14,834	277.69	42,709	33,187
277.18	27,680	15,109	277.70	42,977	33,615
277.19	27,990	15,387	277.71	43,245	34,046
277.20	28,301	15,669	277.72	43,513	34,480
277.21	28,611	15,953	277.73	43,781	34,917
277.22	28,922	16,241	277.74	44,049	35,356
277.23	29,232	16,532	277.75	44,317	35,798
277.24	29,543	16,826	277.76	44,585	36,242
277.25	29,853	17,123	277.77	44,853	36,689
277.26	30,163	17,423	277.78	45,121	37,139
277.27	30,474	17,726	277.79	45,389	37,592
277.28	30,784	18,032	277.80	45,657	38,047
277.29	31,095	18,341	277.81	45,925	38,505
277.30	31,405	18,654	277.82	46,194	38,965
277.31	31,716	18,970	277.83	46,462	39,429
277.32	32,026	19,288	277.84	46,730	39,895
277.33	32,337	19,610	277.85	46,998	40,363
277.34	32,647	19,935	277.86	47,266	40,835
277.35	32,958	20,263	277.87	47,534	41,309
277.36	33,268	20,594	277.88	47,802	41,785
277.37	33,579	20,928	277.89	48,070	42,265
277.38	33,889	21,266	277.90	48,338	42,747
277.39	34,200	21,606	277.91	48,606	43,231
277.40	34,510	21,950	277.92	48,874	43,719
277.41	34,821	22,296	277.93	49,142	44,209
277.42	35,131	22,646	277.94	49,411	44,702
277.43	35,442	22,999	277.95	49,679	45,197
277.44	35,752	23,355	277.96	49,947	45,695
277.45	36,063	23,714	277.97	50,215	46,196
277.46	36,373	24,076	277.98	50,483	46,699
277.47	36,684	24,442	277.99	50,751	47,206
277.48	36,994	24,810	278.00	51,019	47,715
277.49	37,305	25,181			
277.50	37,615	25,556			
277.51	37,883	25,933			
277.52	38,151	26,314			
277.53	38,419	26,697			
277.54	38,687	27,082			
277.55	38,955	27,470			

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPre 1A: Pre 1A Runoff Area=84,149 sf 25.13% Impervious Runoff Depth=3.67"
Flow Length=465' Slope=0.0360 '/' Tc=9.7 min CN=WQ Runoff=6.95 cfs 0.591 af

SubcatchmentPre 1B: Pre 1B Runoff Area=32,952 sf 24.30% Impervious Runoff Depth=3.80"
Flow Length=155' Slope=0.0300 '/' Tc=6.0 min CN=WQ Runoff=3.21 cfs 0.240 af

SubcatchmentPre 2A: Pre 2A Runoff Area=43,695 sf 58.46% Impervious Runoff Depth=4.67"
Flow Length=173' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=4.98 cfs 0.391 af

SubcatchmentPre 2B: Pre 2B Runoff Area=2,798 sf 100.00% Impervious Runoff Depth=5.75"
Flow Length=37' Slope=0.0100 '/' Tc=6.0 min CN=WQ Runoff=0.38 cfs 0.031 af

SubcatchmentPre 3: Pre 3 Runoff Area=3,249 sf 51.92% Impervious Runoff Depth=4.51"
Flow Length=44' Slope=0.0450 '/' Tc=6.0 min CN=WQ Runoff=0.36 cfs 0.028 af

SubcatchmentPre 4: Pre 4 Runoff Area=51,513 sf 11.10% Impervious Runoff Depth=3.46"
Flow Length=340' Slope=0.0450 '/' Tc=6.9 min CN=WQ Runoff=4.54 cfs 0.341 af

Reach Great Road: Great Road Inflow=5.36 cfs 0.980 af
Outflow=5.36 cfs 0.980 af

Reach Pre: Pre Inflow=5.72 cfs 1.008 af
Outflow=5.72 cfs 1.008 af

Reach Robinson Road: Robinson Road Inflow=0.36 cfs 0.028 af
Outflow=0.36 cfs 0.028 af

Pond 14P: 12" RCP to Street Peak Elev=273.05' Inflow=0.38 cfs 0.031 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=0.38 cfs 0.031 af

Pond Pond 1B: Pond 1B Peak Elev=278.35' Storage=1,934 cf Inflow=3.21 cfs 0.240 af
Outflow=2.76 cfs 0.213 af

Pond Pre Pond 1A: Pre Pond 1A Peak Elev=277.58' Storage=28,545 cf Inflow=14.03 cfs 1.145 af
Outflow=1.81 cfs 0.559 af

Summary for Subcatchment Pre 1A: Pre 1A

Runoff = 6.95 cfs @ 12.13 hrs, Volume= 0.591 af, Depth= 3.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 25-YR NOAA Rainfall=5.99"

Area (sf)	CN	Description
2,349	98	Roofs, HSG C
18,796	98	Paved parking, HSG C
29,044	74	>75% Grass cover, Good, HSG C
33,960	70	Woods, Good, HSG C
84,149		Weighted Average
63,004		74.87% Pervious Area
21,145		25.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	465	0.0360	0.80		Lag/CN Method, Pre 1A

18017 Pre-post-January 2023

Type III 24-hr 25-YR NOAA Rainfall=5.99"

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Summary for Subcatchment Pre 1B: Pre 1B

Runoff = 3.21 cfs @ 12.09 hrs, Volume= 0.240 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 25-YR NOAA Rainfall=5.99"

Area (sf)	CN	Description
2,684	98	Roofs, HSG C
5,324	98	Paved parking, HSG C
24,944	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
32,952		Weighted Average
24,944		75.70% Pervious Area
8,008		24.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	155	0.0300	0.63		Lag/CN Method, Pre 1B
4.1	155	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Pre 2A: Pre 2A

Runoff = 4.98 cfs @ 12.09 hrs, Volume= 0.391 af, Depth= 4.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR NOAA Rainfall=5.99"

Area (sf)	CN	Description
3,784	98	Roofs, HSG C
21,760	98	Paved parking, HSG C
17,314	74	>75% Grass cover, Good, HSG C
837	70	Woods, Good, HSG C
43,695		Weighted Average
18,151		41.54% Pervious Area
25,544		58.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	173	0.0150	0.60		Lag/CN Method, Pre 2
4.8	173	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Pre 2B: Pre 2B

Runoff = 0.38 cfs @ 12.08 hrs, Volume= 0.031 af, Depth= 5.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 25-YR NOAA Rainfall=5.99"

Area (sf)	CN	Description
2,798	98	Roofs, HSG C
0	98	Paved parking, HSG C
0	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
2,798		Weighted Average
2,798		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	37	0.0100	0.57		Lag/CN Method, Pre 2B
1.1	37	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Pre 3: Pre 3

Runoff = 0.36 cfs @ 12.09 hrs, Volume= 0.028 af, Depth= 4.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR NOAA Rainfall=5.99"

Area (sf)	CN	Description
901	98	Roofs, HSG C
786	98	Paved parking, HSG C
1,562	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
3,249		Weighted Average
1,562		48.08% Pervious Area
1,687		51.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	44	0.0450	0.73		Lag/CN Method, Pre 3
1.0	44	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Pre 4: Pre 4

Runoff = 4.54 cfs @ 12.10 hrs, Volume= 0.341 af, Depth= 3.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 25-YR NOAA Rainfall=5.99"

Area (sf)	CN	Description
2,572	98	Roofs, HSG C
3,144	98	Paved parking, HSG C
45,797	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
51,513		Weighted Average
45,797		88.90% Pervious Area
5,716		11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	340	0.0450	0.82		Lag/CN Method, Pre 4

Summary for Reach Great Road: Great Road

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

Inflow Area = 4.938 ac, 29.39% Impervious, Inflow Depth = 2.38" for 25-YR NOAA event
Inflow = 5.36 cfs @ 12.09 hrs, Volume= 0.980 af
Outflow = 5.36 cfs @ 12.09 hrs, Volume= 0.980 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach Pre: Pre

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

Inflow Area = 5.013 ac, 29.72% Impervious, Inflow Depth = 2.41" for 25-YR NOAA event
Inflow = 5.72 cfs @ 12.09 hrs, Volume= 1.008 af
Outflow = 5.72 cfs @ 12.09 hrs, Volume= 1.008 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach Robinson Road: Robinson Road

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

Inflow Area = 0.075 ac, 51.92% Impervious, Inflow Depth = 4.51" for 25-YR NOAA event
Inflow = 0.36 cfs @ 12.09 hrs, Volume= 0.028 af
Outflow = 0.36 cfs @ 12.09 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 14P: 12" RCP to Street

[57] Hint: Peaked at 273.05' (Flood elevation advised)

Inflow Area = 0.064 ac, 100.00% Impervious, Inflow Depth = 5.75" for 25-YR NOAA event
 Inflow = 0.38 cfs @ 12.08 hrs, Volume= 0.031 af
 Outflow = 0.38 cfs @ 12.08 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.38 cfs @ 12.08 hrs, Volume= 0.031 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 273.05' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.73'	12.0" Round Culvert L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.73' / 272.43' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.38 cfs @ 12.08 hrs HW=273.05' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 0.38 cfs @ 2.63 fps)

Stage-Area-Storage for Pond 14P: 12" RCP to Street

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.73	0	273.25	0
272.74	0	273.26	0
272.75	0	273.27	0
272.76	0	273.28	0
272.77	0	273.29	0
272.78	0	273.30	0
272.79	0	273.31	0
272.80	0	273.32	0
272.81	0	273.33	0
272.82	0	273.34	0
272.83	0	273.35	0
272.84	0	273.36	0
272.85	0	273.37	0
272.86	0	273.38	0
272.87	0	273.39	0
272.88	0	273.40	0
272.89	0	273.41	0
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0		
273.23	0		
273.24	0		

Summary for Pond Pond 1B: Pond 1B

Inflow Area = 0.756 ac, 24.30% Impervious, Inflow Depth = 3.80" for 25-YR NOAA event
 Inflow = 3.21 cfs @ 12.09 hrs, Volume= 0.240 af
 Outflow = 2.76 cfs @ 12.13 hrs, Volume= 0.213 af, Atten= 14%, Lag= 2.9 min
 Primary = 2.76 cfs @ 12.13 hrs, Volume= 0.213 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 278.35' @ 12.13 hrs Surf.Area= 3,717 sf Storage= 1,934 cf

Plug-Flow detention time= 95.6 min calculated for 0.213 af (89% of inflow)
 Center-of-Mass det. time= 42.3 min (840.4 - 798.1)

Volume	Invert	Avail.Storage	Storage Description
#1	277.00'	2,558 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.00	71	0	0
277.50	672	186	186
278.00	2,215	722	908
278.50	4,385	1,650	2,558

Device	Routing	Invert	Outlet Devices
#1	Primary	278.10'	8.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.76 cfs @ 12.13 hrs HW=278.35' TW=277.23' (Dynamic Tailwater)

↑1=**Broad-Crested Rectangular Weir**(Weir Controls 2.76 cfs @ 1.40 fps)

Stage-Area-Storage for Pond Pond 1B: Pond 1B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.00	71	0	277.52	734	200
277.01	83	1	277.53	765	207
277.02	95	2	277.54	795	215
277.03	107	3	277.55	826	223
277.04	119	4	277.56	857	232
277.05	131	5	277.57	888	240
277.06	143	6	277.58	919	249
277.07	155	8	277.59	950	259
277.08	167	10	277.60	981	268
277.09	179	11	277.61	1,011	278
277.10	191	13	277.62	1,042	289
277.11	203	15	277.63	1,073	299
277.12	215	17	277.64	1,104	310
277.13	227	19	277.65	1,135	321
277.14	239	22	277.66	1,166	333
277.15	251	24	277.67	1,197	345
277.16	263	27	277.68	1,227	357
277.17	275	29	277.69	1,258	369
277.18	287	32	277.70	1,289	382
277.19	299	35	277.71	1,320	395
277.20	311	38	277.72	1,351	408
277.21	323	41	277.73	1,382	422
277.22	335	45	277.74	1,413	436
277.23	347	48	277.75	1,444	450
277.24	359	52	277.76	1,474	465
277.25	372	55	277.77	1,505	480
277.26	384	59	277.78	1,536	495
277.27	396	63	277.79	1,567	510
277.28	408	67	277.80	1,598	526
277.29	420	71	277.81	1,629	542
277.30	432	75	277.82	1,660	559
277.31	444	80	277.83	1,690	576
277.32	456	84	277.84	1,721	593
277.33	468	89	277.85	1,752	610
277.34	480	94	277.86	1,783	628
277.35	492	98	277.87	1,814	646
277.36	504	103	277.88	1,845	664
277.37	516	109	277.89	1,876	683
277.38	528	114	277.90	1,906	701
277.39	540	119	277.91	1,937	721
277.40	552	125	277.92	1,968	740
277.41	564	130	277.93	1,999	760
277.42	576	136	277.94	2,030	780
277.43	588	142	277.95	2,061	801
277.44	600	148	277.96	2,092	821
277.45	612	154	277.97	2,122	842
277.46	624	160	277.98	2,153	864
277.47	636	166	277.99	2,184	886
277.48	648	173	278.00	2,215	908
277.49	660	179	278.01	2,258	930
277.50	672	186	278.02	2,302	953
277.51	703	193	278.03	2,345	976

Stage-Area-Storage for Pond Pond 1B: Pond 1B (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
278.04	2,389	1,000
278.05	2,432	1,024
278.06	2,475	1,048
278.07	2,519	1,073
278.08	2,562	1,099
278.09	2,606	1,124
278.10	2,649	1,151
278.11	2,692	1,177
278.12	2,736	1,205
278.13	2,779	1,232
278.14	2,823	1,260
278.15	2,866	1,289
278.16	2,909	1,317
278.17	2,953	1,347
278.18	2,996	1,377
278.19	3,040	1,407
278.20	3,083	1,437
278.21	3,126	1,468
278.22	3,170	1,500
278.23	3,213	1,532
278.24	3,257	1,564
278.25	3,300	1,597
278.26	3,343	1,630
278.27	3,387	1,664
278.28	3,430	1,698
278.29	3,474	1,732
278.30	3,517	1,767
278.31	3,560	1,803
278.32	3,604	1,839
278.33	3,647	1,875
278.34	3,691	1,911
278.35	3,734	1,949
278.36	3,777	1,986
278.37	3,821	2,024
278.38	3,864	2,063
278.39	3,908	2,101
278.40	3,951	2,141
278.41	3,994	2,180
278.42	4,038	2,221
278.43	4,081	2,261
278.44	4,125	2,302
278.45	4,168	2,344
278.46	4,211	2,386
278.47	4,255	2,428
278.48	4,298	2,471
278.49	4,342	2,514
278.50	4,385	2,558

Summary for Pond Pre Pond 1A: Pre Pond 1A

Inflow Area = 3.871 ac, 20.68% Impervious, Inflow Depth = 3.55" for 25-YR NOAA event
 Inflow = 14.03 cfs @ 12.12 hrs, Volume= 1.145 af
 Outflow = 1.81 cfs @ 12.89 hrs, Volume= 0.559 af, Atten= 87%, Lag= 46.1 min
 Primary = 1.81 cfs @ 12.89 hrs, Volume= 0.559 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 277.58' @ 12.89 hrs Surf.Area= 39,688 sf Storage= 28,545 cf

Plug-Flow detention time= 288.5 min calculated for 0.559 af (49% of inflow)
 Center-of-Mass det. time= 165.8 min (978.8 - 812.9)

Volume	Invert	Avail.Storage	Storage Description
#1	276.00'	47,715 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
276.00	4,053	0	0
276.50	8,187	3,060	3,060
277.00	22,091	7,570	10,630
277.50	37,615	14,927	25,556
278.00	51,019	22,159	47,715

Device	Routing	Invert	Outlet Devices
#1	Primary	277.50'	30.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.81 cfs @ 12.89 hrs HW=277.58' TW=0.00' (Dynamic Tailwater)
 ↑1=**Broad-Crested Rectangular Weir**(Weir Controls 1.81 cfs @ 0.78 fps)

Stage-Area-Storage for Pond Pre Pond 1A: Pre Pond 1A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
276.00	4,053	0	276.52	8,743	3,229
276.01	4,136	41	276.53	9,021	3,318
276.02	4,218	83	276.54	9,299	3,410
276.03	4,301	125	276.55	9,577	3,504
276.04	4,384	169	276.56	9,855	3,601
276.05	4,466	213	276.57	10,134	3,701
276.06	4,549	258	276.58	10,412	3,804
276.07	4,632	304	276.59	10,690	3,909
276.08	4,714	351	276.60	10,968	4,018
276.09	4,797	398	276.61	11,246	4,129
276.10	4,880	447	276.62	11,524	4,243
276.11	4,962	496	276.63	11,802	4,359
276.12	5,045	546	276.64	12,080	4,479
276.13	5,128	597	276.65	12,358	4,601
276.14	5,211	648	276.66	12,636	4,726
276.15	5,293	701	276.67	12,914	4,854
276.16	5,376	754	276.68	13,192	4,984
276.17	5,459	808	276.69	13,471	5,117
276.18	5,541	863	276.70	13,749	5,254
276.19	5,624	919	276.71	14,027	5,392
276.20	5,707	976	276.72	14,305	5,534
276.21	5,789	1,033	276.73	14,583	5,679
276.22	5,872	1,092	276.74	14,861	5,826
276.23	5,955	1,151	276.75	15,139	5,976
276.24	6,037	1,211	276.76	15,417	6,129
276.25	6,120	1,272	276.77	15,695	6,284
276.26	6,203	1,333	276.78	15,973	6,442
276.27	6,285	1,396	276.79	16,251	6,604
276.28	6,368	1,459	276.80	16,529	6,767
276.29	6,451	1,523	276.81	16,807	6,934
276.30	6,533	1,588	276.82	17,086	7,104
276.31	6,616	1,654	276.83	17,364	7,276
276.32	6,699	1,720	276.84	17,642	7,451
276.33	6,781	1,788	276.85	17,920	7,629
276.34	6,864	1,856	276.86	18,198	7,809
276.35	6,947	1,925	276.87	18,476	7,993
276.36	7,029	1,995	276.88	18,754	8,179
276.37	7,112	2,066	276.89	19,032	8,368
276.38	7,195	2,137	276.90	19,310	8,559
276.39	7,278	2,209	276.91	19,588	8,754
276.40	7,360	2,283	276.92	19,866	8,951
276.41	7,443	2,357	276.93	20,144	9,151
276.42	7,526	2,431	276.94	20,423	9,354
276.43	7,608	2,507	276.95	20,701	9,560
276.44	7,691	2,584	276.96	20,979	9,768
276.45	7,774	2,661	276.97	21,257	9,979
276.46	7,856	2,739	276.98	21,535	10,193
276.47	7,939	2,818	276.99	21,813	10,410
276.48	8,022	2,898	277.00	22,091	10,630
276.49	8,104	2,979	277.01	22,401	10,852
276.50	8,187	3,060	277.02	22,712	11,078
276.51	8,465	3,143	277.03	23,022	11,306

Stage-Area-Storage for Pond Pre Pond 1A: Pre Pond 1A (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.04	23,333	11,538	277.56	39,223	27,861
277.05	23,643	11,773	277.57	39,492	28,255
277.06	23,954	12,011	277.58	39,760	28,651
277.07	24,264	12,252	277.59	40,028	29,050
277.08	24,575	12,496	277.60	40,296	29,452
277.09	24,885	12,743	277.61	40,564	29,856
277.10	25,196	12,994	277.62	40,832	30,263
277.11	25,506	13,247	277.63	41,100	30,672
277.12	25,817	13,504	277.64	41,368	31,085
277.13	26,127	13,764	277.65	41,636	31,500
277.14	26,438	14,027	277.66	41,904	31,918
277.15	26,748	14,292	277.67	42,172	32,338
277.16	27,059	14,561	277.68	42,440	32,761
277.17	27,369	14,834	277.69	42,709	33,187
277.18	27,680	15,109	277.70	42,977	33,615
277.19	27,990	15,387	277.71	43,245	34,046
277.20	28,301	15,669	277.72	43,513	34,480
277.21	28,611	15,953	277.73	43,781	34,917
277.22	28,922	16,241	277.74	44,049	35,356
277.23	29,232	16,532	277.75	44,317	35,798
277.24	29,543	16,826	277.76	44,585	36,242
277.25	29,853	17,123	277.77	44,853	36,689
277.26	30,163	17,423	277.78	45,121	37,139
277.27	30,474	17,726	277.79	45,389	37,592
277.28	30,784	18,032	277.80	45,657	38,047
277.29	31,095	18,341	277.81	45,925	38,505
277.30	31,405	18,654	277.82	46,194	38,965
277.31	31,716	18,970	277.83	46,462	39,429
277.32	32,026	19,288	277.84	46,730	39,895
277.33	32,337	19,610	277.85	46,998	40,363
277.34	32,647	19,935	277.86	47,266	40,835
277.35	32,958	20,263	277.87	47,534	41,309
277.36	33,268	20,594	277.88	47,802	41,785
277.37	33,579	20,928	277.89	48,070	42,265
277.38	33,889	21,266	277.90	48,338	42,747
277.39	34,200	21,606	277.91	48,606	43,231
277.40	34,510	21,950	277.92	48,874	43,719
277.41	34,821	22,296	277.93	49,142	44,209
277.42	35,131	22,646	277.94	49,411	44,702
277.43	35,442	22,999	277.95	49,679	45,197
277.44	35,752	23,355	277.96	49,947	45,695
277.45	36,063	23,714	277.97	50,215	46,196
277.46	36,373	24,076	277.98	50,483	46,699
277.47	36,684	24,442	277.99	50,751	47,206
277.48	36,994	24,810	278.00	51,019	47,715
277.49	37,305	25,181			
277.50	37,615	25,556			
277.51	37,883	25,933			
277.52	38,151	26,314			
277.53	38,419	26,697			
277.54	38,687	27,082			
277.55	38,955	27,470			

18017 Pre-post-January 2023

Type III 24-hr 100-YR NOAA Rainfall=7.66"

Prepared by {enter your company name here}

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

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

SubcatchmentPre 1A: Pre 1A Runoff Area=84,149 sf 25.13% Impervious Runoff Depth=5.14"
Flow Length=465' Slope=0.0360 '/' Tc=9.7 min CN=WQ Runoff=9.78 cfs 0.828 af

SubcatchmentPre 1B: Pre 1B Runoff Area=32,952 sf 24.30% Impervious Runoff Depth=5.30"
Flow Length=155' Slope=0.0300 '/' Tc=6.0 min CN=WQ Runoff=4.48 cfs 0.334 af

SubcatchmentPre 2A: Pre 2A Runoff Area=43,695 sf 58.46% Impervious Runoff Depth=6.25"
Flow Length=173' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=6.65 cfs 0.522 af

SubcatchmentPre 2B: Pre 2B Runoff Area=2,798 sf 100.00% Impervious Runoff Depth=7.42"
Flow Length=37' Slope=0.0100 '/' Tc=6.0 min CN=WQ Runoff=0.48 cfs 0.040 af

SubcatchmentPre 3: Pre 3 Runoff Area=3,249 sf 51.92% Impervious Runoff Depth=6.08"
Flow Length=44' Slope=0.0450 '/' Tc=6.0 min CN=WQ Runoff=0.49 cfs 0.038 af

SubcatchmentPre 4: Pre 4 Runoff Area=51,513 sf 11.10% Impervious Runoff Depth=4.93"
Flow Length=340' Slope=0.0450 '/' Tc=6.9 min CN=WQ Runoff=6.47 cfs 0.486 af

Reach Great Road: Great Road Inflow=9.29 cfs 1.598 af
Outflow=9.29 cfs 1.598 af

Reach Pre: Pre Inflow=9.44 cfs 1.635 af
Outflow=9.44 cfs 1.635 af

Reach Robinson Road: Robinson Road Inflow=0.49 cfs 0.038 af
Outflow=0.49 cfs 0.038 af

Pond 14P: 12" RCP to Street Peak Elev=273.09' Inflow=0.48 cfs 0.040 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=0.48 cfs 0.040 af

Pond Pond 1B: Pond 1B Peak Elev=278.41' Storage=2,171 cf Inflow=4.48 cfs 0.334 af
Outflow=3.91 cfs 0.308 af

Pond Pre Pond 1A: Pre Pond 1A Peak Elev=277.69' Storage=33,388 cf Inflow=19.85 cfs 1.622 af
Outflow=7.22 cfs 1.035 af

18017 Pre-post-January 2023

Type III 24-hr 100-YR NOAA Rainfall=7.66"

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Summary for Subcatchment Pre 1A: Pre 1A

Runoff = 9.78 cfs @ 12.13 hrs, Volume= 0.828 af, Depth= 5.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 100-YR NOAA Rainfall=7.66"

Area (sf)	CN	Description
2,349	98	Roofs, HSG C
18,796	98	Paved parking, HSG C
29,044	74	>75% Grass cover, Good, HSG C
33,960	70	Woods, Good, HSG C
84,149		Weighted Average
63,004		74.87% Pervious Area
21,145		25.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	465	0.0360	0.80		Lag/CN Method, Pre 1A

Summary for Subcatchment Pre 1B: Pre 1B

Runoff = 4.48 cfs @ 12.09 hrs, Volume= 0.334 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR NOAA Rainfall=7.66"

Area (sf)	CN	Description
2,684	98	Roofs, HSG C
5,324	98	Paved parking, HSG C
24,944	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
32,952		Weighted Average
24,944		75.70% Pervious Area
8,008		24.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	155	0.0300	0.63		Lag/CN Method, Pre 1B
4.1	155	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Pre 2A: Pre 2A

Runoff = 6.65 cfs @ 12.08 hrs, Volume= 0.522 af, Depth= 6.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR NOAA Rainfall=7.66"

Area (sf)	CN	Description
3,784	98	Roofs, HSG C
21,760	98	Paved parking, HSG C
17,314	74	>75% Grass cover, Good, HSG C
837	70	Woods, Good, HSG C
43,695		Weighted Average
18,151		41.54% Pervious Area
25,544		58.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	173	0.0150	0.60		Lag/CN Method, Pre 2
4.8	173	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Pre 2B: Pre 2B

Runoff = 0.48 cfs @ 12.08 hrs, Volume= 0.040 af, Depth= 7.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 100-YR NOAA Rainfall=7.66"

Area (sf)	CN	Description
2,798	98	Roofs, HSG C
0	98	Paved parking, HSG C
0	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
2,798		Weighted Average
2,798		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	37	0.0100	0.57		Lag/CN Method, Pre 2B
1.1	37	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Pre 3: Pre 3

Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.038 af, Depth= 6.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR NOAA Rainfall=7.66"

Area (sf)	CN	Description
901	98	Roofs, HSG C
786	98	Paved parking, HSG C
1,562	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
3,249		Weighted Average
1,562		48.08% Pervious Area
1,687		51.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	44	0.0450	0.73		Lag/CN Method, Pre 3
1.0	44	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Pre 4: Pre 4

Runoff = 6.47 cfs @ 12.10 hrs, Volume= 0.486 af, Depth= 4.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 100-YR NOAA Rainfall=7.66"

Area (sf)	CN	Description
2,572	98	Roofs, HSG C
3,144	98	Paved parking, HSG C
45,797	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
51,513		Weighted Average
45,797		88.90% Pervious Area
5,716		11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	340	0.0450	0.82		Lag/CN Method, Pre 4

Summary for Reach Great Road: Great Road

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

Inflow Area = 4.938 ac, 29.39% Impervious, Inflow Depth = 3.88" for 100-YR NOAA event
Inflow = 9.29 cfs @ 12.39 hrs, Volume= 1.598 af
Outflow = 9.29 cfs @ 12.39 hrs, Volume= 1.598 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach Pre: Pre

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

Inflow Area = 5.013 ac, 29.72% Impervious, Inflow Depth = 3.91" for 100-YR NOAA event
Inflow = 9.44 cfs @ 12.39 hrs, Volume= 1.635 af
Outflow = 9.44 cfs @ 12.39 hrs, Volume= 1.635 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach Robinson Road: Robinson Road

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

Inflow Area = 0.075 ac, 51.92% Impervious, Inflow Depth = 6.08" for 100-YR NOAA event
Inflow = 0.49 cfs @ 12.09 hrs, Volume= 0.038 af
Outflow = 0.49 cfs @ 12.09 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 14P: 12" RCP to Street

[57] Hint: Peaked at 273.09' (Flood elevation advised)

Inflow Area = 0.064 ac, 100.00% Impervious, Inflow Depth = 7.42" for 100-YR NOAA event
 Inflow = 0.48 cfs @ 12.08 hrs, Volume= 0.040 af
 Outflow = 0.48 cfs @ 12.08 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.48 cfs @ 12.08 hrs, Volume= 0.040 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 273.09' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.73'	12.0" Round Culvert L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.73' / 272.43' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.48 cfs @ 12.08 hrs HW=273.09' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 0.48 cfs @ 2.79 fps)

Stage-Area-Storage for Pond 14P: 12" RCP to Street

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.73	0	273.25	0
272.74	0	273.26	0
272.75	0	273.27	0
272.76	0	273.28	0
272.77	0	273.29	0
272.78	0	273.30	0
272.79	0	273.31	0
272.80	0	273.32	0
272.81	0	273.33	0
272.82	0	273.34	0
272.83	0	273.35	0
272.84	0	273.36	0
272.85	0	273.37	0
272.86	0	273.38	0
272.87	0	273.39	0
272.88	0	273.40	0
272.89	0	273.41	0
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0		
273.23	0		
273.24	0		

Summary for Pond Pond 1B: Pond 1B

Inflow Area = 0.756 ac, 24.30% Impervious, Inflow Depth = 5.30" for 100-YR NOAA event
 Inflow = 4.48 cfs @ 12.09 hrs, Volume= 0.334 af
 Outflow = 3.91 cfs @ 12.13 hrs, Volume= 0.308 af, Atten= 13%, Lag= 2.7 min
 Primary = 3.91 cfs @ 12.13 hrs, Volume= 0.308 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 278.41' @ 12.13 hrs Surf.Area= 3,984 sf Storage= 2,171 cf

Plug-Flow detention time= 77.0 min calculated for 0.308 af (92% of inflow)
 Center-of-Mass det. time= 35.5 min (827.7 - 792.1)

Volume	Invert	Avail.Storage	Storage Description
#1	277.00'	2,558 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.00	71	0	0
277.50	672	186	186
278.00	2,215	722	908
278.50	4,385	1,650	2,558

Device	Routing	Invert	Outlet Devices
#1	Primary	278.10'	8.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=3.91 cfs @ 12.13 hrs HW=278.41' TW=277.48' (Dynamic Tailwater)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 3.91 cfs @ 1.59 fps)

Stage-Area-Storage for Pond Pond 1B: Pond 1B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.00	71	0	277.52	734	200
277.01	83	1	277.53	765	207
277.02	95	2	277.54	795	215
277.03	107	3	277.55	826	223
277.04	119	4	277.56	857	232
277.05	131	5	277.57	888	240
277.06	143	6	277.58	919	249
277.07	155	8	277.59	950	259
277.08	167	10	277.60	981	268
277.09	179	11	277.61	1,011	278
277.10	191	13	277.62	1,042	289
277.11	203	15	277.63	1,073	299
277.12	215	17	277.64	1,104	310
277.13	227	19	277.65	1,135	321
277.14	239	22	277.66	1,166	333
277.15	251	24	277.67	1,197	345
277.16	263	27	277.68	1,227	357
277.17	275	29	277.69	1,258	369
277.18	287	32	277.70	1,289	382
277.19	299	35	277.71	1,320	395
277.20	311	38	277.72	1,351	408
277.21	323	41	277.73	1,382	422
277.22	335	45	277.74	1,413	436
277.23	347	48	277.75	1,444	450
277.24	359	52	277.76	1,474	465
277.25	372	55	277.77	1,505	480
277.26	384	59	277.78	1,536	495
277.27	396	63	277.79	1,567	510
277.28	408	67	277.80	1,598	526
277.29	420	71	277.81	1,629	542
277.30	432	75	277.82	1,660	559
277.31	444	80	277.83	1,690	576
277.32	456	84	277.84	1,721	593
277.33	468	89	277.85	1,752	610
277.34	480	94	277.86	1,783	628
277.35	492	98	277.87	1,814	646
277.36	504	103	277.88	1,845	664
277.37	516	109	277.89	1,876	683
277.38	528	114	277.90	1,906	701
277.39	540	119	277.91	1,937	721
277.40	552	125	277.92	1,968	740
277.41	564	130	277.93	1,999	760
277.42	576	136	277.94	2,030	780
277.43	588	142	277.95	2,061	801
277.44	600	148	277.96	2,092	821
277.45	612	154	277.97	2,122	842
277.46	624	160	277.98	2,153	864
277.47	636	166	277.99	2,184	886
277.48	648	173	278.00	2,215	908
277.49	660	179	278.01	2,258	930
277.50	672	186	278.02	2,302	953
277.51	703	193	278.03	2,345	976

Stage-Area-Storage for Pond Pond 1B: Pond 1B (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
278.04	2,389	1,000
278.05	2,432	1,024
278.06	2,475	1,048
278.07	2,519	1,073
278.08	2,562	1,099
278.09	2,606	1,124
278.10	2,649	1,151
278.11	2,692	1,177
278.12	2,736	1,205
278.13	2,779	1,232
278.14	2,823	1,260
278.15	2,866	1,289
278.16	2,909	1,317
278.17	2,953	1,347
278.18	2,996	1,377
278.19	3,040	1,407
278.20	3,083	1,437
278.21	3,126	1,468
278.22	3,170	1,500
278.23	3,213	1,532
278.24	3,257	1,564
278.25	3,300	1,597
278.26	3,343	1,630
278.27	3,387	1,664
278.28	3,430	1,698
278.29	3,474	1,732
278.30	3,517	1,767
278.31	3,560	1,803
278.32	3,604	1,839
278.33	3,647	1,875
278.34	3,691	1,911
278.35	3,734	1,949
278.36	3,777	1,986
278.37	3,821	2,024
278.38	3,864	2,063
278.39	3,908	2,101
278.40	3,951	2,141
278.41	3,994	2,180
278.42	4,038	2,221
278.43	4,081	2,261
278.44	4,125	2,302
278.45	4,168	2,344
278.46	4,211	2,386
278.47	4,255	2,428
278.48	4,298	2,471
278.49	4,342	2,514
278.50	4,385	2,558

Summary for Pond Pre Pond 1A: Pre Pond 1A

Inflow Area = 3.871 ac, 20.68% Impervious, Inflow Depth = 5.03" for 100-YR NOAA event
 Inflow = 19.85 cfs @ 12.12 hrs, Volume= 1.622 af
 Outflow = 7.22 cfs @ 12.45 hrs, Volume= 1.035 af, Atten= 64%, Lag= 19.6 min
 Primary = 7.22 cfs @ 12.45 hrs, Volume= 1.035 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 277.69' @ 12.45 hrs Surf.Area= 42,834 sf Storage= 33,388 cf

Plug-Flow detention time= 212.6 min calculated for 1.035 af (64% of inflow)
 Center-of-Mass det. time= 108.4 min (913.8 - 805.4)

Volume	Invert	Avail.Storage	Storage Description
#1	276.00'	47,715 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
276.00	4,053	0	0
276.50	8,187	3,060	3,060
277.00	22,091	7,570	10,630
277.50	37,615	14,927	25,556
278.00	51,019	22,159	47,715

Device	Routing	Invert	Outlet Devices
#1	Primary	277.50'	30.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=7.22 cfs @ 12.45 hrs HW=277.69' TW=0.00' (Dynamic Tailwater)
 ↑1=**Broad-Crested Rectangular Weir**(Weir Controls 7.22 cfs @ 1.24 fps)

18017 Pre-post-January 2023

Type III 24-hr 100-YR NOAA Rainfall=7.66"

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Stage-Area-Storage for Pond Pre Pond 1A: Pre Pond 1A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
276.00	4,053	0	276.52	8,743	3,229
276.01	4,136	41	276.53	9,021	3,318
276.02	4,218	83	276.54	9,299	3,410
276.03	4,301	125	276.55	9,577	3,504
276.04	4,384	169	276.56	9,855	3,601
276.05	4,466	213	276.57	10,134	3,701
276.06	4,549	258	276.58	10,412	3,804
276.07	4,632	304	276.59	10,690	3,909
276.08	4,714	351	276.60	10,968	4,018
276.09	4,797	398	276.61	11,246	4,129
276.10	4,880	447	276.62	11,524	4,243
276.11	4,962	496	276.63	11,802	4,359
276.12	5,045	546	276.64	12,080	4,479
276.13	5,128	597	276.65	12,358	4,601
276.14	5,211	648	276.66	12,636	4,726
276.15	5,293	701	276.67	12,914	4,854
276.16	5,376	754	276.68	13,192	4,984
276.17	5,459	808	276.69	13,471	5,117
276.18	5,541	863	276.70	13,749	5,254
276.19	5,624	919	276.71	14,027	5,392
276.20	5,707	976	276.72	14,305	5,534
276.21	5,789	1,033	276.73	14,583	5,679
276.22	5,872	1,092	276.74	14,861	5,826
276.23	5,955	1,151	276.75	15,139	5,976
276.24	6,037	1,211	276.76	15,417	6,129
276.25	6,120	1,272	276.77	15,695	6,284
276.26	6,203	1,333	276.78	15,973	6,442
276.27	6,285	1,396	276.79	16,251	6,604
276.28	6,368	1,459	276.80	16,529	6,767
276.29	6,451	1,523	276.81	16,807	6,934
276.30	6,533	1,588	276.82	17,086	7,104
276.31	6,616	1,654	276.83	17,364	7,276
276.32	6,699	1,720	276.84	17,642	7,451
276.33	6,781	1,788	276.85	17,920	7,629
276.34	6,864	1,856	276.86	18,198	7,809
276.35	6,947	1,925	276.87	18,476	7,993
276.36	7,029	1,995	276.88	18,754	8,179
276.37	7,112	2,066	276.89	19,032	8,368
276.38	7,195	2,137	276.90	19,310	8,559
276.39	7,278	2,209	276.91	19,588	8,754
276.40	7,360	2,283	276.92	19,866	8,951
276.41	7,443	2,357	276.93	20,144	9,151
276.42	7,526	2,431	276.94	20,423	9,354
276.43	7,608	2,507	276.95	20,701	9,560
276.44	7,691	2,584	276.96	20,979	9,768
276.45	7,774	2,661	276.97	21,257	9,979
276.46	7,856	2,739	276.98	21,535	10,193
276.47	7,939	2,818	276.99	21,813	10,410
276.48	8,022	2,898	277.00	22,091	10,630
276.49	8,104	2,979	277.01	22,401	10,852
276.50	8,187	3,060	277.02	22,712	11,078
276.51	8,465	3,143	277.03	23,022	11,306

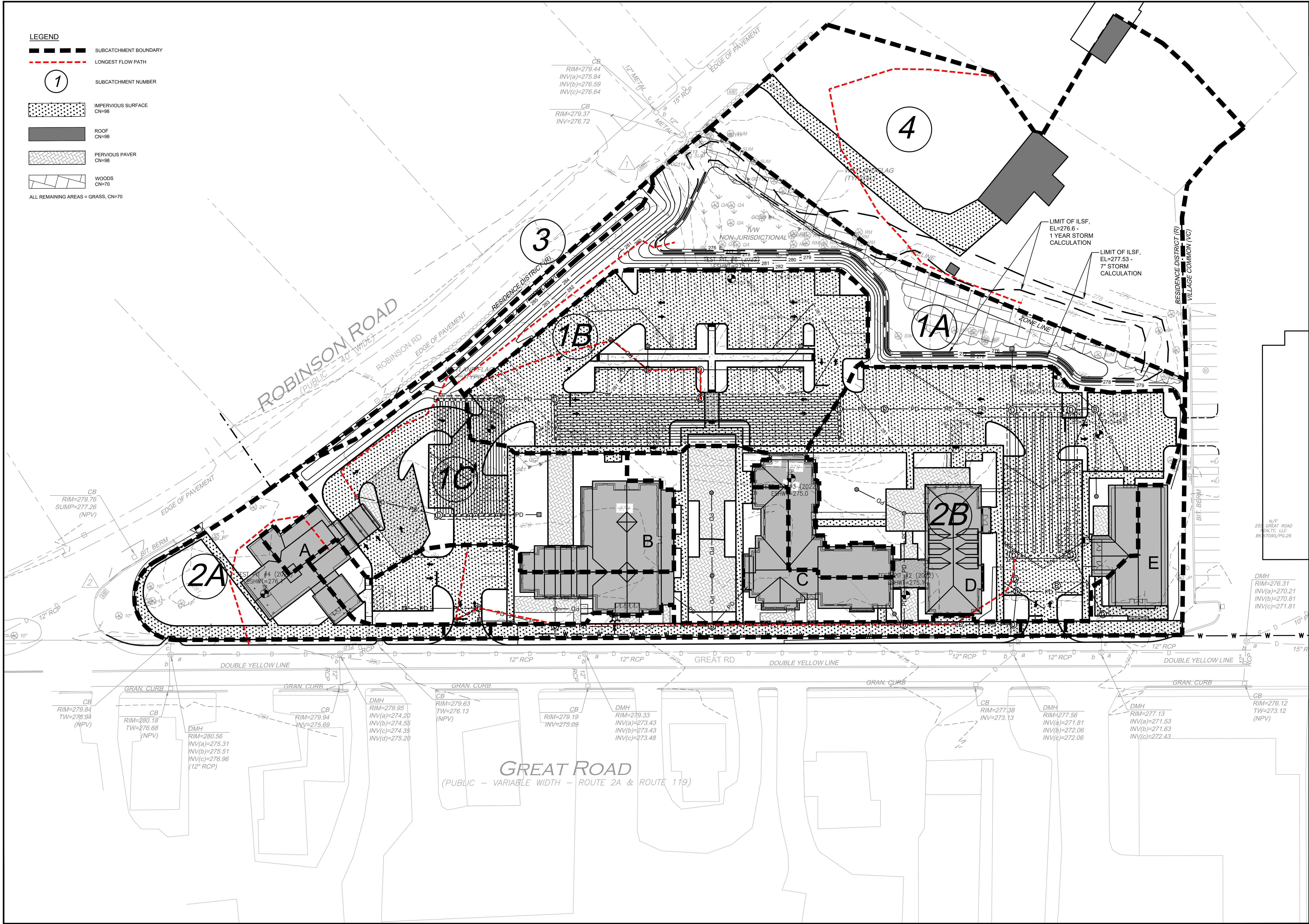
Stage-Area-Storage for Pond Pre Pond 1A: Pre Pond 1A (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.04	23,333	11,538	277.56	39,223	27,861
277.05	23,643	11,773	277.57	39,492	28,255
277.06	23,954	12,011	277.58	39,760	28,651
277.07	24,264	12,252	277.59	40,028	29,050
277.08	24,575	12,496	277.60	40,296	29,452
277.09	24,885	12,743	277.61	40,564	29,856
277.10	25,196	12,994	277.62	40,832	30,263
277.11	25,506	13,247	277.63	41,100	30,672
277.12	25,817	13,504	277.64	41,368	31,085
277.13	26,127	13,764	277.65	41,636	31,500
277.14	26,438	14,027	277.66	41,904	31,918
277.15	26,748	14,292	277.67	42,172	32,338
277.16	27,059	14,561	277.68	42,440	32,761
277.17	27,369	14,834	277.69	42,709	33,187
277.18	27,680	15,109	277.70	42,977	33,615
277.19	27,990	15,387	277.71	43,245	34,046
277.20	28,301	15,669	277.72	43,513	34,480
277.21	28,611	15,953	277.73	43,781	34,917
277.22	28,922	16,241	277.74	44,049	35,356
277.23	29,232	16,532	277.75	44,317	35,798
277.24	29,543	16,826	277.76	44,585	36,242
277.25	29,853	17,123	277.77	44,853	36,689
277.26	30,163	17,423	277.78	45,121	37,139
277.27	30,474	17,726	277.79	45,389	37,592
277.28	30,784	18,032	277.80	45,657	38,047
277.29	31,095	18,341	277.81	45,925	38,505
277.30	31,405	18,654	277.82	46,194	38,965
277.31	31,716	18,970	277.83	46,462	39,429
277.32	32,026	19,288	277.84	46,730	39,895
277.33	32,337	19,610	277.85	46,998	40,363
277.34	32,647	19,935	277.86	47,266	40,835
277.35	32,958	20,263	277.87	47,534	41,309
277.36	33,268	20,594	277.88	47,802	41,785
277.37	33,579	20,928	277.89	48,070	42,265
277.38	33,889	21,266	277.90	48,338	42,747
277.39	34,200	21,606	277.91	48,606	43,231
277.40	34,510	21,950	277.92	48,874	43,719
277.41	34,821	22,296	277.93	49,142	44,209
277.42	35,131	22,646	277.94	49,411	44,702
277.43	35,442	22,999	277.95	49,679	45,197
277.44	35,752	23,355	277.96	49,947	45,695
277.45	36,063	23,714	277.97	50,215	46,196
277.46	36,373	24,076	277.98	50,483	46,699
277.47	36,684	24,442	277.99	50,751	47,206
277.48	36,994	24,810	278.00	51,019	47,715
277.49	37,305	25,181			
277.50	37,615	25,556			
277.51	37,883	25,933			
277.52	38,151	26,314			
277.53	38,419	26,697			
277.54	38,687	27,082			
277.55	38,955	27,470			

APPENDIX B

Post-Development Drainage Calculations

Northern Bank Town Common
Littleton, Massachusetts



Site:

**NORTHERN BANK
TOWN COMMON**

265-289 GREAT ROAD
LITTLETON, MASSACHUSETTS

Prepared for:

**NORTHERN BANK AND
TRUST COMPANY**

275 MISHAWUM ROAD
WOBURN, MASSACHUSETTS

SCALE in FEET
1"=30'

OCG

Oak Consulting Group
P.O. Box 1123
Newburyport, MA 01950
Ph. 978.312.3120

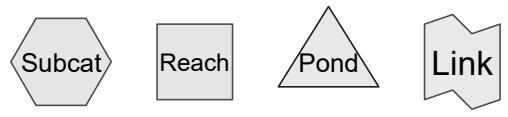
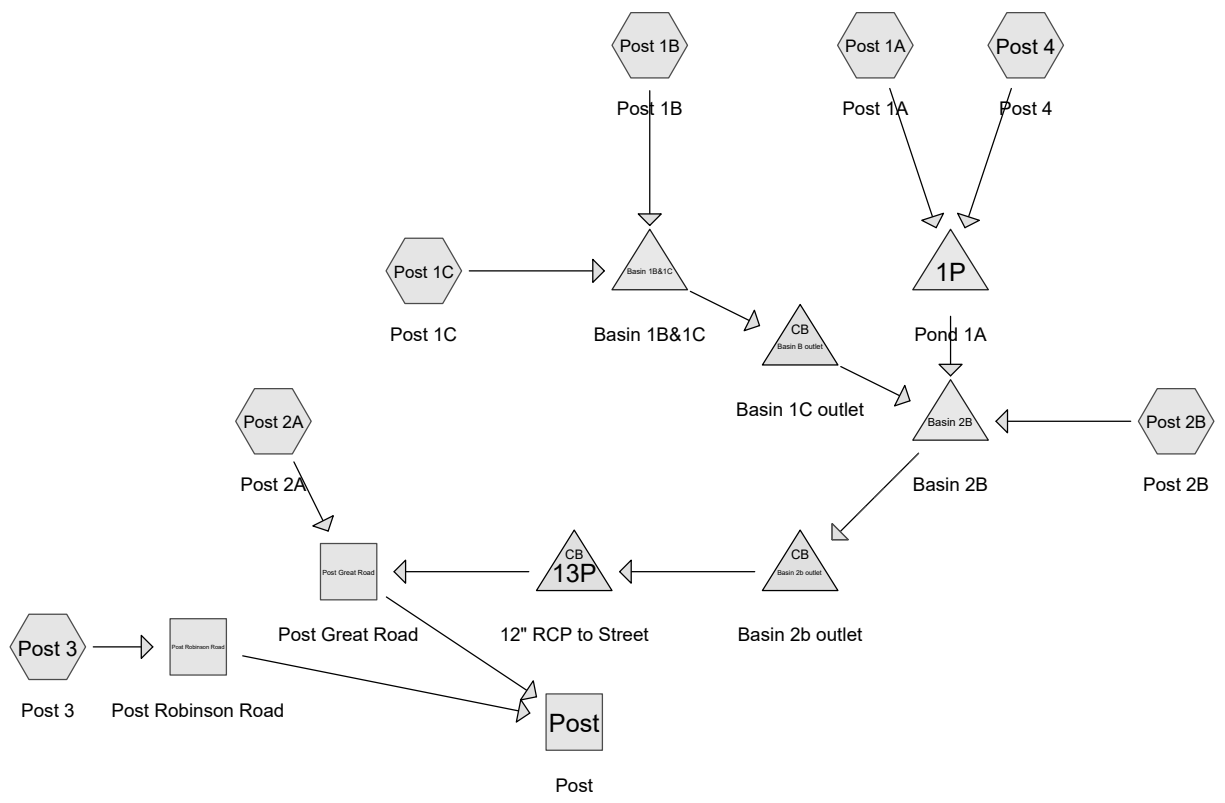
**POST-DEVELOPMENT
SUBCATCHMENT
PLAN**

No.	Revision/Issue	Date
3	Revised per Con-Com & Peer review	1/23/23
2	Revised per peer review	12/21/22
1	Revised per peer review	11/14/22

Design by:	SPM	Checked by:	SPM
Drawn by:	SPM	Approved by:	SPM
Project:	18017	Date:	September 7, 2022

Sheet:

DR-02



Routing Diagram for 18017 Pre-post-January 2023
 Prepared by {enter your company name here}, Printed 1/24/2023
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18017 Pre-post-January 2023

Type III 24-hr 2-YR NOAA Rainfall=3.18"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

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

SubcatchmentPost 1A: Post 1A Runoff Area=24,895 sf 0.00% Impervious Runoff Depth=0.97"
Flow Length=41' Slope=0.0350 '/' Tc=6.0 min CN=WQ Runoff=0.60 cfs 0.046 af

SubcatchmentPost 1B: Post 1B Runoff Area=33,788 sf 83.79% Impervious Runoff Depth=2.64"
Flow Length=210' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=2.15 cfs 0.170 af

SubcatchmentPost 1C: Post 1C Runoff Area=23,406 sf 71.27% Impervious Runoff Depth=2.40"
Flow Length=128' Slope=0.0125 '/' Tc=6.0 min CN=WQ Runoff=1.36 cfs 0.107 af

SubcatchmentPost 2A: Post 2A Runoff Area=21,838 sf 90.53% Impervious Runoff Depth=2.77"
Flow Length=207' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=1.45 cfs 0.116 af

SubcatchmentPost 2B: Post 2B Runoff Area=60,622 sf 71.93% Impervious Runoff Depth=2.41"
Flow Length=479' Slope=0.0150 '/' Tc=9.7 min CN=WQ Runoff=3.12 cfs 0.279 af

SubcatchmentPost 3: Post 3 Runoff Area=2,294 sf 0.00% Impervious Runoff Depth=1.02"
Flow Length=20' Slope=0.2500 '/' Tc=6.0 min CN=WQ Runoff=0.06 cfs 0.004 af

SubcatchmentPost 4: Post 4 Runoff Area=51,513 sf 11.10% Impervious Runoff Depth=1.24"
Flow Length=340' Slope=0.0450 '/' Tc=6.9 min CN=WQ Runoff=1.55 cfs 0.122 af

Reach Post: Post Inflow=2.36 cfs 0.399 af
Outflow=2.36 cfs 0.399 af

Reach Post Great Road: Post Great Road Inflow=2.30 cfs 0.394 af
Outflow=2.30 cfs 0.394 af

Reach Post Robinson Road: Post Robinson Road Inflow=0.06 cfs 0.004 af
Outflow=0.06 cfs 0.004 af

Pond 1P: Pond 1A Peak Elev=276.62' Storage=7,317 cf Inflow=2.15 cfs 0.168 af
Outflow=0.00 cfs 0.000 af

Pond 13P: 12" RCP to Street Peak Elev=273.34' Inflow=1.18 cfs 0.279 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=1.18 cfs 0.279 af

Pond Basin 1B&1C: Basin 1B&1C Peak Elev=278.67' Storage=7,779 cf Inflow=3.50 cfs 0.278 af
Discarded=0.07 cfs 0.253 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.253 af

Pond Basin 2B: Basin 2B Peak Elev=274.11' Storage=3,152 cf Inflow=3.12 cfs 0.279 af
Primary=1.18 cfs 0.279 af Secondary=0.00 cfs 0.000 af Outflow=1.18 cfs 0.279 af

Pond Basin 2b outlet: Basin 2b outlet Peak Elev=273.62' Inflow=1.18 cfs 0.279 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0050 '/' Outflow=1.18 cfs 0.279 af

Pond Basin B outlet: Basin 1C outlet Peak Elev=275.10' Inflow=0.00 cfs 0.000 af
18.0" Round Culvert n=0.012 L=86.0' S=0.0151 '/' Outflow=0.00 cfs 0.000 af

18017 Pre-post-January 2023

Type III 24-hr 2-YR NOAA Rainfall=3.18"

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Summary for Subcatchment Post 1A: Post 1A

Runoff = 0.60 cfs @ 12.10 hrs, Volume= 0.046 af, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 2-YR NOAA Rainfall=3.18"

Area (sf)	CN	Description
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
17,878	74	>75% Grass cover, Good, HSG C
7,017	70	Woods, Good, HSG C
24,895		Weighted Average
24,895		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	41	0.0350	0.42		Lag/CN Method, Post 1A
1.6	41	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 1B: Post 1B

Runoff = 2.15 cfs @ 12.08 hrs, Volume= 0.170 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR NOAA Rainfall=3.18"

Area (sf)	CN	Description
3,457	98	Roofs, HSG C
24,854	98	Paved parking, HSG C
5,477	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
33,788		Weighted Average
5,477		16.21% Pervious Area
28,311		83.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	210	0.0150	0.80		Lag/CN Method, Post 1B
4.4	210	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 1C: Post 1C

Runoff = 1.36 cfs @ 12.09 hrs, Volume= 0.107 af, Depth= 2.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR NOAA Rainfall=3.18"

Area (sf)	CN	Description
6,958	98	Roofs, HSG C
9,724	98	Paved parking, HSG C
6,724	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
23,406		Weighted Average
6,724		28.73% Pervious Area
16,682		71.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	128	0.0125	0.58		Lag/CN Method, Post 1C
3.7	128	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 2A: Post 2A

Runoff = 1.45 cfs @ 12.08 hrs, Volume= 0.116 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR NOAA Rainfall=3.18"

Area (sf)	CN	Description
4,331	98	Roofs, HSG C
15,145	98	Paved parking, HSG C
295	98	Paved parking, HSG C
2,067	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
21,838		Weighted Average
2,067		9.47% Pervious Area
19,771		90.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	207	0.0150	0.88		Lag/CN Method, Post 2A
3.9	207	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 2B: Post 2B

Runoff = 3.12 cfs @ 12.13 hrs, Volume= 0.279 af, Depth= 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR NOAA Rainfall=3.18"

Area (sf)	CN	Description
12,010	98	Roofs, HSG C
26,052	98	Paved parking, HSG C
5,546	98	Paved parking, HSG C
17,014	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
60,622		Weighted Average
17,014		28.07% Pervious Area
43,608		71.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	479	0.0150	0.82		Lag/CN Method, Post 2B

Summary for Subcatchment Post 3: Post 3

Runoff = 0.06 cfs @ 12.10 hrs, Volume= 0.004 af, Depth= 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 2-YR NOAA Rainfall=3.18"

Area (sf)	CN	Description
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
2,294	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
2,294		Weighted Average
2,294		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.2500	1.00		Lag/CN Method, Post 3
0.3	20	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 4: Post 4

Runoff = 1.55 cfs @ 12.11 hrs, Volume= 0.122 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR NOAA Rainfall=3.18"

Area (sf)	CN	Description
2,572	98	Roofs, HSG C
3,144	98	Paved parking, HSG C
45,797	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
51,513		Weighted Average
45,797		88.90% Pervious Area
5,716		11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	340	0.0450	0.82		Lag/CN Method, Pre 4

Summary for Reach Post: Post

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

Inflow Area = 5.013 ac, 52.25% Impervious, Inflow Depth = 0.96" for 2-YR NOAA event
Inflow = 2.36 cfs @ 12.09 hrs, Volume= 0.399 af
Outflow = 2.36 cfs @ 12.09 hrs, Volume= 0.399 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach Post Great Road: Post Great Road

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

Inflow Area = 4.960 ac, 52.80% Impervious, Inflow Depth = 0.95" for 2-YR NOAA event
Inflow = 2.30 cfs @ 12.09 hrs, Volume= 0.394 af
Outflow = 2.30 cfs @ 12.09 hrs, Volume= 0.394 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach Post Robinson Road: Post Robinson Road

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

Inflow Area = 0.053 ac, 0.00% Impervious, Inflow Depth = 1.02" for 2-YR NOAA event
Inflow = 0.06 cfs @ 12.10 hrs, Volume= 0.004 af
Outflow = 0.06 cfs @ 12.10 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 1P: Pond 1A

Inflow Area = 1.754 ac, 7.48% Impervious, Inflow Depth = 1.15" for 2-YR NOAA event
 Inflow = 2.15 cfs @ 12.10 hrs, Volume= 0.168 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 276.62' @ 24.41 hrs Surf.Area= 13,598 sf Storage= 7,317 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	276.00'	32,320 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
276.00	9,903	0	0
276.50	12,805	5,677	5,677
277.00	15,998	7,201	12,878
277.50	19,310	8,827	21,705
278.00	23,151	10,615	32,320

Device	Routing	Invert	Outlet Devices
#1	Primary	277.50'	2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=276.00' TW=273.00' (Dynamic Tailwater)

↑ **1=Orifice/Grate** (Controls 0.00 cfs)

Stage-Area-Storage for Pond 1P: Pond 1A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
276.00	9,903	0	276.52	12,933	5,934
276.01	9,961	99	276.53	12,997	6,064
276.02	10,019	199	276.54	13,060	6,194
276.03	10,077	300	276.55	13,124	6,325
276.04	10,135	401	276.56	13,188	6,457
276.05	10,193	502	276.57	13,252	6,589
276.06	10,251	605	276.58	13,316	6,722
276.07	10,309	707	276.59	13,380	6,855
276.08	10,367	811	276.60	13,444	6,989
276.09	10,425	915	276.61	13,507	7,124
276.10	10,483	1,019	276.62	13,571	7,260
276.11	10,541	1,124	276.63	13,635	7,396
276.12	10,599	1,230	276.64	13,699	7,532
276.13	10,658	1,336	276.65	13,763	7,670
276.14	10,716	1,443	276.66	13,827	7,808
276.15	10,774	1,551	276.67	13,891	7,946
276.16	10,832	1,659	276.68	13,954	8,085
276.17	10,890	1,767	276.69	14,018	8,225
276.18	10,948	1,877	276.70	14,082	8,366
276.19	11,006	1,986	276.71	14,146	8,507
276.20	11,064	2,097	276.72	14,210	8,649
276.21	11,122	2,208	276.73	14,274	8,791
276.22	11,180	2,319	276.74	14,338	8,934
276.23	11,238	2,431	276.75	14,402	9,078
276.24	11,296	2,544	276.76	14,465	9,222
276.25	11,354	2,657	276.77	14,529	9,367
276.26	11,412	2,771	276.78	14,593	9,513
276.27	11,470	2,885	276.79	14,657	9,659
276.28	11,528	3,000	276.80	14,721	9,806
276.29	11,586	3,116	276.81	14,785	9,953
276.30	11,644	3,232	276.82	14,849	10,102
276.31	11,702	3,349	276.83	14,912	10,250
276.32	11,760	3,466	276.84	14,976	10,400
276.33	11,818	3,584	276.85	15,040	10,550
276.34	11,876	3,702	276.86	15,104	10,701
276.35	11,934	3,822	276.87	15,168	10,852
276.36	11,992	3,941	276.88	15,232	11,004
276.37	12,050	4,061	276.89	15,296	11,157
276.38	12,109	4,182	276.90	15,359	11,310
276.39	12,167	4,304	276.91	15,423	11,464
276.40	12,225	4,426	276.92	15,487	11,618
276.41	12,283	4,548	276.93	15,551	11,774
276.42	12,341	4,671	276.94	15,615	11,929
276.43	12,399	4,795	276.95	15,679	12,086
276.44	12,457	4,919	276.96	15,743	12,243
276.45	12,515	5,044	276.97	15,806	12,401
276.46	12,573	5,169	276.98	15,870	12,559
276.47	12,631	5,295	276.99	15,934	12,718
276.48	12,689	5,422	277.00	15,998	12,878
276.49	12,747	5,549	277.01	16,064	13,038
276.50	12,805	5,677	277.02	16,130	13,199
276.51	12,869	5,805	277.03	16,197	13,361

Stage-Area-Storage for Pond 1P: Pond 1A (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.04	16,263	13,523	277.56	19,771	22,877
277.05	16,329	13,686	277.57	19,848	23,075
277.06	16,395	13,850	277.58	19,925	23,274
277.07	16,462	14,014	277.59	20,001	23,474
277.08	16,528	14,179	277.60	20,078	23,674
277.09	16,594	14,344	277.61	20,155	23,875
277.10	16,660	14,511	277.62	20,232	24,077
277.11	16,727	14,678	277.63	20,309	24,280
277.12	16,793	14,845	277.64	20,385	24,483
277.13	16,859	15,013	277.65	20,462	24,688
277.14	16,925	15,182	277.66	20,539	24,893
277.15	16,992	15,352	277.67	20,616	25,098
277.16	17,058	15,522	277.68	20,693	25,305
277.17	17,124	15,693	277.69	20,770	25,512
277.18	17,190	15,865	277.70	20,846	25,720
277.19	17,257	16,037	277.71	20,923	25,929
277.20	17,323	16,210	277.72	21,000	26,139
277.21	17,389	16,383	277.73	21,077	26,349
277.22	17,455	16,558	277.74	21,154	26,560
277.23	17,522	16,732	277.75	21,231	26,772
277.24	17,588	16,908	277.76	21,307	26,985
277.25	17,654	17,084	277.77	21,384	27,198
277.26	17,720	17,261	277.78	21,461	27,413
277.27	17,786	17,439	277.79	21,538	27,628
277.28	17,853	17,617	277.80	21,615	27,843
277.29	17,919	17,796	277.81	21,691	28,060
277.30	17,985	17,975	277.82	21,768	28,277
277.31	18,051	18,155	277.83	21,845	28,495
277.32	18,118	18,336	277.84	21,922	28,714
277.33	18,184	18,518	277.85	21,999	28,934
277.34	18,250	18,700	277.86	22,076	29,154
277.35	18,316	18,883	277.87	22,152	29,375
277.36	18,383	19,066	277.88	22,229	29,597
277.37	18,449	19,250	277.89	22,306	29,820
277.38	18,515	19,435	277.90	22,383	30,043
277.39	18,581	19,621	277.91	22,460	30,268
277.40	18,648	19,807	277.92	22,536	30,493
277.41	18,714	19,994	277.93	22,613	30,718
277.42	18,780	20,181	277.94	22,690	30,945
277.43	18,846	20,369	277.95	22,767	31,172
277.44	18,913	20,558	277.96	22,844	31,400
277.45	18,979	20,748	277.97	22,921	31,629
277.46	19,045	20,938	277.98	22,997	31,859
277.47	19,111	21,128	277.99	23,074	32,089
277.48	19,178	21,320	278.00	23,151	32,320
277.49	19,244	21,512			
277.50	19,310	21,705			
277.51	19,387	21,898			
277.52	19,464	22,092			
277.53	19,540	22,288			
277.54	19,617	22,483			
277.55	19,694	22,680			

Summary for Pond 13P: 12" RCP to Street

[57] Hint: Peaked at 273.34' (Flood elevation advised)

Inflow Area = 4.459 ac, 48.56% Impervious, Inflow Depth > 0.75" for 2-YR NOAA event
 Inflow = 1.18 cfs @ 12.44 hrs, Volume= 0.279 af
 Outflow = 1.18 cfs @ 12.44 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.18 cfs @ 12.44 hrs, Volume= 0.279 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 273.34' @ 12.44 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.73'	12.0" Round Culvert L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.73' / 272.43' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.18 cfs @ 12.44 hrs HW=273.34' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 1.18 cfs @ 3.39 fps)

Stage-Area-Storage for Pond 13P: 12" RCP to Street

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.73	0	273.25	0
272.74	0	273.26	0
272.75	0	273.27	0
272.76	0	273.28	0
272.77	0	273.29	0
272.78	0	273.30	0
272.79	0	273.31	0
272.80	0	273.32	0
272.81	0	273.33	0
272.82	0	273.34	0
272.83	0	273.35	0
272.84	0	273.36	0
272.85	0	273.37	0
272.86	0	273.38	0
272.87	0	273.39	0
272.88	0	273.40	0
272.89	0	273.41	0
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0		
273.23	0		
273.24	0		

Summary for Pond Basin 1B&1C: Basin 1B&1C

Inflow Area = 1.313 ac, 78.67% Impervious, Inflow Depth = 2.54" for 2-YR NOAA event
 Inflow = 3.50 cfs @ 12.08 hrs, Volume= 0.278 af
 Outflow = 0.07 cfs @ 9.36 hrs, Volume= 0.253 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.07 cfs @ 9.36 hrs, Volume= 0.253 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 278.67' @ 17.58 hrs Surf.Area= 11,472 sf Storage= 7,779 cf

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

Center-of-Mass det. time= 828.7 min (1,594.4 - 765.7)

Volume	Invert	Avail.Storage	Storage Description
#1	277.33'	9,555 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 28,680 cf Overall - 4,792 cf Embedded = 23,888 cf x 40.0% Voids
#2	277.83'	4,792 cf	18.0" Round Pipe Storage Inside #1 L= 2,712.0'
		14,347 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.33	11,472	0	0
279.83	11,472	28,680	28,680

Device	Routing	Invert	Outlet Devices
#1	Discarded	277.33'	0.270 in/hr Exfiltration over Surface area
#2	Primary	279.20'	6.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.07 cfs @ 9.36 hrs HW=277.36' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=277.33' TW=275.10' (Dynamic Tailwater)

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

Stage-Area-Storage for Pond Basin 1B&1C: Basin 1B&1C

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.33	11,472	0	277.85	11,472	2,394
277.34	11,472	46	277.86	11,472	2,446
277.35	11,472	92	277.87	11,472	2,499
277.36	11,472	138	277.88	11,472	2,553
277.37	11,472	184	277.89	11,472	2,608
277.38	11,472	229	277.90	11,472	2,664
277.39	11,472	275	277.91	11,472	2,721
277.40	11,472	321	277.92	11,472	2,778
277.41	11,472	367	277.93	11,472	2,836
277.42	11,472	413	277.94	11,472	2,894
277.43	11,472	459	277.95	11,472	2,953
277.44	11,472	505	277.96	11,472	3,012
277.45	11,472	551	277.97	11,472	3,072
277.46	11,472	597	277.98	11,472	3,132
277.47	11,472	642	277.99	11,472	3,193
277.48	11,472	688	278.00	11,472	3,254
277.49	11,472	734	278.01	11,472	3,316
277.50	11,472	780	278.02	11,472	3,378
277.51	11,472	826	278.03	11,472	3,440
277.52	11,472	872	278.04	11,472	3,503
277.53	11,472	918	278.05	11,472	3,566
277.54	11,472	964	278.06	11,472	3,629
277.55	11,472	1,010	278.07	11,472	3,693
277.56	11,472	1,055	278.08	11,472	3,757
277.57	11,472	1,101	278.09	11,472	3,821
277.58	11,472	1,147	278.10	11,472	3,885
277.59	11,472	1,193	278.11	11,472	3,950
277.60	11,472	1,239	278.12	11,472	4,015
277.61	11,472	1,285	278.13	11,472	4,080
277.62	11,472	1,331	278.14	11,472	4,146
277.63	11,472	1,377	278.15	11,472	4,212
277.64	11,472	1,423	278.16	11,472	4,278
277.65	11,472	1,468	278.17	11,472	4,344
277.66	11,472	1,514	278.18	11,472	4,410
277.67	11,472	1,560	278.19	11,472	4,477
277.68	11,472	1,606	278.20	11,472	4,544
277.69	11,472	1,652	278.21	11,472	4,611
277.70	11,472	1,698	278.22	11,472	4,678
277.71	11,472	1,744	278.23	11,472	4,745
277.72	11,472	1,790	278.24	11,472	4,813
277.73	11,472	1,836	278.25	11,472	4,881
277.74	11,472	1,881	278.26	11,472	4,949
277.75	11,472	1,927	278.27	11,472	5,017
277.76	11,472	1,973	278.28	11,472	5,085
277.77	11,472	2,019	278.29	11,472	5,153
277.78	11,472	2,065	278.30	11,472	5,222
277.79	11,472	2,111	278.31	11,472	5,290
277.80	11,472	2,157	278.32	11,472	5,359
277.81	11,472	2,203	278.33	11,472	5,428
277.82	11,472	2,249	278.34	11,472	5,497
277.83	11,472	2,294	278.35	11,472	5,566
277.84	11,472	2,343	278.36	11,472	5,635

Stage-Area-Storage for Pond Basin 1B&1C: Basin 1B&1C (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
278.37	11,472	5,704	278.89	11,472	9,331
278.38	11,472	5,774	278.90	11,472	9,399
278.39	11,472	5,843	278.91	11,472	9,467
278.40	11,472	5,913	278.92	11,472	9,534
278.41	11,472	5,982	278.93	11,472	9,602
278.42	11,472	6,052	278.94	11,472	9,669
278.43	11,472	6,122	278.95	11,472	9,737
278.44	11,472	6,192	278.96	11,472	9,804
278.45	11,472	6,261	278.97	11,472	9,870
278.46	11,472	6,331	278.98	11,472	9,937
278.47	11,472	6,401	278.99	11,472	10,004
278.48	11,472	6,472	279.00	11,472	10,070
278.49	11,472	6,542	279.01	11,472	10,136
278.50	11,472	6,612	279.02	11,472	10,202
278.51	11,472	6,682	279.03	11,472	10,267
278.52	11,472	6,752	279.04	11,472	10,332
278.53	11,472	6,822	279.05	11,472	10,397
278.54	11,472	6,893	279.06	11,472	10,462
278.55	11,472	6,963	279.07	11,472	10,527
278.56	11,472	7,033	279.08	11,472	10,591
278.57	11,472	7,103	279.09	11,472	10,655
278.58	11,472	7,174	279.10	11,472	10,718
278.59	11,472	7,244	279.11	11,472	10,782
278.60	11,472	7,314	279.12	11,472	10,845
278.61	11,472	7,385	279.13	11,472	10,907
278.62	11,472	7,455	279.14	11,472	10,970
278.63	11,472	7,525	279.15	11,472	11,032
278.64	11,472	7,595	279.16	11,472	11,093
278.65	11,472	7,666	279.17	11,472	11,154
278.66	11,472	7,736	279.18	11,472	11,215
278.67	11,472	7,806	279.19	11,472	11,275
278.68	11,472	7,876	279.20	11,472	11,335
278.69	11,472	7,946	279.21	11,472	11,395
278.70	11,472	8,016	279.22	11,472	11,454
278.71	11,472	8,086	279.23	11,472	11,512
278.72	11,472	8,156	279.24	11,472	11,570
278.73	11,472	8,226	279.25	11,472	11,627
278.74	11,472	8,296	279.26	11,472	11,683
278.75	11,472	8,365	279.27	11,472	11,739
278.76	11,472	8,435	279.28	11,472	11,794
278.77	11,472	8,504	279.29	11,472	11,848
278.78	11,472	8,574	279.30	11,472	11,902
278.79	11,472	8,643	279.31	11,472	11,954
278.80	11,472	8,712	279.32	11,472	12,005
278.81	11,472	8,782	279.33	11,472	12,053
278.82	11,472	8,851	279.34	11,472	12,099
278.83	11,472	8,920	279.35	11,472	12,145
278.84	11,472	8,988	279.36	11,472	12,191
278.85	11,472	9,057	279.37	11,472	12,237
278.86	11,472	9,126	279.38	11,472	12,283
278.87	11,472	9,194	279.39	11,472	12,328
278.88	11,472	9,263	279.40	11,472	12,374

Stage-Area-Storage for Pond Basin 1B&1C: Basin 1B&1C (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
279.41	11,472	12,420
279.42	11,472	12,466
279.43	11,472	12,512
279.44	11,472	12,558
279.45	11,472	12,604
279.46	11,472	12,650
279.47	11,472	12,696
279.48	11,472	12,741
279.49	11,472	12,787
279.50	11,472	12,833
279.51	11,472	12,879
279.52	11,472	12,925
279.53	11,472	12,971
279.54	11,472	13,017
279.55	11,472	13,063
279.56	11,472	13,109
279.57	11,472	13,154
279.58	11,472	13,200
279.59	11,472	13,246
279.60	11,472	13,292
279.61	11,472	13,338
279.62	11,472	13,384
279.63	11,472	13,430
279.64	11,472	13,476
279.65	11,472	13,522
279.66	11,472	13,567
279.67	11,472	13,613
279.68	11,472	13,659
279.69	11,472	13,705
279.70	11,472	13,751
279.71	11,472	13,797
279.72	11,472	13,843
279.73	11,472	13,889
279.74	11,472	13,935
279.75	11,472	13,980
279.76	11,472	14,026
279.77	11,472	14,072
279.78	11,472	14,118
279.79	11,472	14,164
279.80	11,472	14,210
279.81	11,472	14,256
279.82	11,472	14,302
279.83	11,472	14,347

Summary for Pond Basin 2B: Basin 2B

Inflow Area = 4.459 ac, 48.56% Impervious, Inflow Depth = 0.75" for 2-YR NOAA event
 Inflow = 3.12 cfs @ 12.13 hrs, Volume= 0.279 af
 Outflow = 1.18 cfs @ 12.44 hrs, Volume= 0.279 af, Atten= 62%, Lag= 18.4 min
 Primary = 1.18 cfs @ 12.44 hrs, Volume= 0.279 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 274.11' @ 12.44 hrs Surf.Area= 5,600 sf Storage= 3,152 cf

Plug-Flow detention time= 54.6 min calculated for 0.279 af (100% of inflow)

Center-of-Mass det. time= 54.0 min (826.6 - 772.6)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	6,696 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 28,000 cf Overall - 11,259 cf Embedded = 16,741 cf x 40.0% Voids
#2	273.50'	11,259 cf	48.0" Round Pipe Storage Inside #1 L= 896.0'
		17,956 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	5,600	0	0
278.00	5,600	28,000	28,000

Device	Routing	Invert	Outlet Devices
#1	Secondary	277.50'	6.0' 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
#2	Primary	273.00'	8.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.18 cfs @ 12.44 hrs HW=274.11' TW=273.62' (Dynamic Tailwater)

↑ **2=Orifice/Grate** (Orifice Controls 1.18 cfs @ 3.38 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=272.90' (Dynamic Tailwater)

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

18017 Pre-post-January 2023

Type III 24-hr 2-YR NOAA Rainfall=3.18"

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Stage-Area-Storage for Pond Basin 2B: Basin 2B

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
273.00	0	273.52	1,169	274.04	2,875
273.01	22	273.53	1,195	274.05	2,912
273.02	45	273.54	1,221	274.06	2,949
273.03	67	273.55	1,248	274.07	2,987
273.04	90	273.56	1,275	274.08	3,024
273.05	112	273.57	1,303	274.09	3,062
273.06	134	273.58	1,331	274.10	3,099
273.07	157	273.59	1,360	274.11	3,137
273.08	179	273.60	1,389	274.12	3,175
273.09	202	273.61	1,418	274.13	3,213
273.10	224	273.62	1,448	274.14	3,251
273.11	246	273.63	1,478	274.15	3,290
273.12	269	273.64	1,508	274.16	3,328
273.13	291	273.65	1,538	274.17	3,366
273.14	314	273.66	1,569	274.18	3,405
273.15	336	273.67	1,600	274.19	3,443
273.16	358	273.68	1,631	274.20	3,482
273.17	381	273.69	1,663	274.21	3,521
273.18	403	273.70	1,694	274.22	3,560
273.19	426	273.71	1,726	274.23	3,599
273.20	448	273.72	1,758	274.24	3,638
273.21	470	273.73	1,791	274.25	3,677
273.22	493	273.74	1,823	274.26	3,716
273.23	515	273.75	1,856	274.27	3,755
273.24	538	273.76	1,889	274.28	3,795
273.25	560	273.77	1,922	274.29	3,834
273.26	582	273.78	1,955	274.30	3,874
273.27	605	273.79	1,989	274.31	3,914
273.28	627	273.80	2,022	274.32	3,953
273.29	650	273.81	2,056	274.33	3,993
273.30	672	273.82	2,090	274.34	4,033
273.31	694	273.83	2,124	274.35	4,073
273.32	717	273.84	2,158	274.36	4,113
273.33	739	273.85	2,193	274.37	4,153
273.34	762	273.86	2,228	274.38	4,193
273.35	784	273.87	2,262	274.39	4,233
273.36	806	273.88	2,297	274.40	4,274
273.37	829	273.89	2,332	274.41	4,314
273.38	851	273.90	2,368	274.42	4,355
273.39	874	273.91	2,403	274.43	4,395
273.40	896	273.92	2,438	274.44	4,436
273.41	918	273.93	2,474	274.45	4,476
273.42	941	273.94	2,510	274.46	4,517
273.43	963	273.95	2,546	274.47	4,558
273.44	986	273.96	2,582	274.48	4,599
273.45	1,008	273.97	2,618	274.49	4,640
273.46	1,030	273.98	2,654	274.50	4,681
273.47	1,053	273.99	2,691	274.51	4,722
273.48	1,075	274.00	2,727	274.52	4,763
273.49	1,098	274.01	2,764	274.53	4,804
273.50	1,120	274.02	2,801	274.54	4,845
273.51	1,144	274.03	2,838	274.55	4,887

Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
274.56	4,928	275.08	7,141	275.60	9,417
274.57	4,969	275.09	7,184	275.61	9,461
274.58	5,011	275.10	7,227	275.62	9,505
274.59	5,052	275.11	7,271	275.63	9,548
274.60	5,094	275.12	7,314	275.64	9,592
274.61	5,136	275.13	7,358	275.65	9,636
274.62	5,177	275.14	7,401	275.66	9,680
274.63	5,219	275.15	7,445	275.67	9,724
274.64	5,261	275.16	7,489	275.68	9,768
274.65	5,303	275.17	7,532	275.69	9,811
274.66	5,345	275.18	7,576	275.70	9,855
274.67	5,386	275.19	7,619	275.71	9,899
274.68	5,428	275.20	7,663	275.72	9,943
274.69	5,470	275.21	7,707	275.73	9,987
274.70	5,513	275.22	7,751	275.74	10,030
274.71	5,555	275.23	7,794	275.75	10,074
274.72	5,597	275.24	7,838	275.76	10,118
274.73	5,639	275.25	7,882	275.77	10,161
274.74	5,681	275.26	7,925	275.78	10,205
274.75	5,724	275.27	7,969	275.79	10,249
274.76	5,766	275.28	8,013	275.80	10,293
274.77	5,808	275.29	8,057	275.81	10,336
274.78	5,851	275.30	8,100	275.82	10,380
274.79	5,893	275.31	8,144	275.83	10,423
274.80	5,936	275.32	8,188	275.84	10,467
274.81	5,978	275.33	8,232	275.85	10,511
274.82	6,021	275.34	8,276	275.86	10,554
274.83	6,064	275.35	8,320	275.87	10,598
274.84	6,106	275.36	8,363	275.88	10,641
274.85	6,149	275.37	8,407	275.89	10,685
274.86	6,192	275.38	8,451	275.90	10,728
274.87	6,235	275.39	8,495	275.91	10,772
274.88	6,277	275.40	8,539	275.92	10,815
274.89	6,320	275.41	8,583	275.93	10,859
274.90	6,363	275.42	8,627	275.94	10,902
274.91	6,406	275.43	8,671	275.95	10,945
274.92	6,449	275.44	8,714	275.96	10,989
274.93	6,492	275.45	8,758	275.97	11,032
274.94	6,535	275.46	8,802	275.98	11,075
274.95	6,578	275.47	8,846	275.99	11,118
274.96	6,621	275.48	8,890	276.00	11,162
274.97	6,664	275.49	8,934	276.01	11,205
274.98	6,708	275.50	8,978	276.02	11,248
274.99	6,751	275.51	9,022	276.03	11,291
275.00	6,794	275.52	9,066	276.04	11,334
275.01	6,837	275.53	9,110	276.05	11,377
275.02	6,880	275.54	9,153	276.06	11,421
275.03	6,924	275.55	9,197	276.07	11,464
275.04	6,967	275.56	9,241	276.08	11,507
275.05	7,010	275.57	9,285	276.09	11,550
275.06	7,054	275.58	9,329	276.10	11,592
275.07	7,097	275.59	9,373	276.11	11,635

Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
276.12	11,678	276.64	13,843	277.16	15,797
276.13	11,721	276.65	13,883	277.17	15,832
276.14	11,764	276.66	13,923	277.18	15,866
276.15	11,807	276.67	13,963	277.19	15,900
276.16	11,849	276.68	14,002	277.20	15,933
276.17	11,892	276.69	14,042	277.21	15,967
276.18	11,935	276.70	14,082	277.22	16,001
276.19	11,977	276.71	14,121	277.23	16,034
276.20	12,020	276.72	14,161	277.24	16,067
276.21	12,062	276.73	14,200	277.25	16,100
276.22	12,105	276.74	14,240	277.26	16,133
276.23	12,147	276.75	14,279	277.27	16,165
276.24	12,190	276.76	14,318	277.28	16,197
276.25	12,232	276.77	14,357	277.29	16,230
276.26	12,274	276.78	14,396	277.30	16,261
276.27	12,317	276.79	14,435	277.31	16,293
276.28	12,359	276.80	14,474	277.32	16,324
276.29	12,401	276.81	14,512	277.33	16,356
276.30	12,443	276.82	14,551	277.34	16,387
276.31	12,485	276.83	14,589	277.35	16,417
276.32	12,527	276.84	14,628	277.36	16,448
276.33	12,569	276.85	14,666	277.37	16,478
276.34	12,611	276.86	14,704	277.38	16,508
276.35	12,653	276.87	14,743	277.39	16,537
276.36	12,695	276.88	14,781	277.40	16,567
276.37	12,737	276.89	14,818	277.41	16,596
276.38	12,778	276.90	14,856	277.42	16,624
276.39	12,820	276.91	14,894	277.43	16,652
276.40	12,862	276.92	14,932	277.44	16,680
276.41	12,903	276.93	14,969	277.45	16,708
276.42	12,945	276.94	15,006	277.46	16,735
276.43	12,986	276.95	15,044	277.47	16,761
276.44	13,028	276.96	15,081	277.48	16,787
276.45	13,069	276.97	15,118	277.49	16,812
276.46	13,110	276.98	15,155	277.50	16,836
276.47	13,152	276.99	15,192	277.51	16,858
276.48	13,193	277.00	15,228	277.52	16,880
276.49	13,234	277.01	15,265	277.53	16,903
276.50	13,275	277.02	15,301	277.54	16,925
276.51	13,316	277.03	15,338	277.55	16,948
276.52	13,357	277.04	15,374	277.56	16,970
276.53	13,398	277.05	15,410	277.57	16,992
276.54	13,439	277.06	15,446	277.58	17,015
276.55	13,479	277.07	15,482	277.59	17,037
276.56	13,520	277.08	15,517	277.60	17,060
276.57	13,561	277.09	15,553	277.61	17,082
276.58	13,601	277.10	15,588	277.62	17,104
276.59	13,642	277.11	15,623	277.63	17,127
276.60	13,682	277.12	15,658	277.64	17,149
276.61	13,722	277.13	15,693	277.65	17,172
276.62	13,762	277.14	15,728	277.66	17,194
276.63	13,803	277.15	15,763	277.67	17,216

Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)
277.68	17,239
277.69	17,261
277.70	17,284
277.71	17,306
277.72	17,328
277.73	17,351
277.74	17,373
277.75	17,396
277.76	17,418
277.77	17,440
277.78	17,463
277.79	17,485
277.80	17,508
277.81	17,530
277.82	17,552
277.83	17,575
277.84	17,597
277.85	17,620
277.86	17,642
277.87	17,664
277.88	17,687
277.89	17,709
277.90	17,732
277.91	17,754
277.92	17,776
277.93	17,799
277.94	17,821
277.95	17,844
277.96	17,866
277.97	17,888
277.98	17,911
277.99	17,933
278.00	17,956

Summary for Pond Basin 2b outlet: Basin 2b outlet

[57] Hint: Peaked at 273.62' (Flood elevation advised)

Inflow Area = 4.459 ac, 48.56% Impervious, Inflow Depth > 0.75" for 2-YR NOAA event
 Inflow = 1.18 cfs @ 12.44 hrs, Volume= 0.279 af
 Outflow = 1.18 cfs @ 12.44 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.18 cfs @ 12.44 hrs, Volume= 0.279 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 273.62' @ 12.44 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.90'	12.0" Round Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.90' / 272.70' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.18 cfs @ 12.44 hrs HW=273.62' TW=273.34' (Dynamic Tailwater)

↑1=Culvert (Outlet Controls 1.18 cfs @ 2.71 fps)

Stage-Area-Storage for Pond Basin 2b outlet: Basin 2b outlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0	273.74	0
273.23	0	273.75	0
273.24	0	273.76	0
273.25	0	273.77	0
273.26	0	273.78	0
273.27	0	273.79	0
273.28	0	273.80	0
273.29	0	273.81	0
273.30	0	273.82	0
273.31	0	273.83	0
273.32	0	273.84	0
273.33	0	273.85	0
273.34	0	273.86	0
273.35	0	273.87	0
273.36	0	273.88	0
273.37	0	273.89	0
273.38	0	273.90	0
273.39	0		
273.40	0		
273.41	0		

Summary for Pond Basin B outlet: Basin 1C outlet

[57] Hint: Peaked at 275.10' (Flood elevation advised)

Inflow Area = 1.313 ac, 78.67% Impervious, Inflow Depth = 0.00" for 2-YR NOAA event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 275.10' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	275.10'	18.0" Round Culvert L= 86.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 275.10' / 273.80' S= 0.0151 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=275.10' TW=273.00' (Dynamic Tailwater)

↑1=Culvert (Controls 0.00 cfs)

Stage-Area-Storage for Pond Basin B outlet: Basin 1C outlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
275.10	0	275.62	0	276.14	0
275.11	0	275.63	0	276.15	0
275.12	0	275.64	0	276.16	0
275.13	0	275.65	0	276.17	0
275.14	0	275.66	0	276.18	0
275.15	0	275.67	0	276.19	0
275.16	0	275.68	0	276.20	0
275.17	0	275.69	0	276.21	0
275.18	0	275.70	0	276.22	0
275.19	0	275.71	0	276.23	0
275.20	0	275.72	0	276.24	0
275.21	0	275.73	0	276.25	0
275.22	0	275.74	0	276.26	0
275.23	0	275.75	0	276.27	0
275.24	0	275.76	0	276.28	0
275.25	0	275.77	0	276.29	0
275.26	0	275.78	0	276.30	0
275.27	0	275.79	0	276.31	0
275.28	0	275.80	0	276.32	0
275.29	0	275.81	0	276.33	0
275.30	0	275.82	0	276.34	0
275.31	0	275.83	0	276.35	0
275.32	0	275.84	0	276.36	0
275.33	0	275.85	0	276.37	0
275.34	0	275.86	0	276.38	0
275.35	0	275.87	0	276.39	0
275.36	0	275.88	0	276.40	0
275.37	0	275.89	0	276.41	0
275.38	0	275.90	0	276.42	0
275.39	0	275.91	0	276.43	0
275.40	0	275.92	0	276.44	0
275.41	0	275.93	0	276.45	0
275.42	0	275.94	0	276.46	0
275.43	0	275.95	0	276.47	0
275.44	0	275.96	0	276.48	0
275.45	0	275.97	0	276.49	0
275.46	0	275.98	0	276.50	0
275.47	0	275.99	0	276.51	0
275.48	0	276.00	0	276.52	0
275.49	0	276.01	0	276.53	0
275.50	0	276.02	0	276.54	0
275.51	0	276.03	0	276.55	0
275.52	0	276.04	0	276.56	0
275.53	0	276.05	0	276.57	0
275.54	0	276.06	0	276.58	0
275.55	0	276.07	0	276.59	0
275.56	0	276.08	0	276.60	0
275.57	0	276.09	0		
275.58	0	276.10	0		
275.59	0	276.11	0		
275.60	0	276.12	0		
275.61	0	276.13	0		

18017 Pre-post-January 2023

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPost 1A: Post 1A Runoff Area=24,895 sf 0.00% Impervious Runoff Depth=2.20"
Flow Length=41' Slope=0.0350 '/' Tc=6.0 min CN=WQ Runoff=1.46 cfs 0.105 af

SubcatchmentPost 1B: Post 1B Runoff Area=33,788 sf 83.79% Impervious Runoff Depth=4.29"
Flow Length=210' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=3.46 cfs 0.277 af

SubcatchmentPost 1C: Post 1C Runoff Area=23,406 sf 71.27% Impervious Runoff Depth=3.99"
Flow Length=128' Slope=0.0125 '/' Tc=6.0 min CN=WQ Runoff=2.25 cfs 0.179 af

SubcatchmentPost 2A: Post 2A Runoff Area=21,838 sf 90.53% Impervious Runoff Depth=4.45"
Flow Length=207' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=2.31 cfs 0.186 af

SubcatchmentPost 2B: Post 2B Runoff Area=60,622 sf 71.93% Impervious Runoff Depth=4.01"
Flow Length=479' Slope=0.0150 '/' Tc=9.7 min CN=WQ Runoff=5.18 cfs 0.464 af

SubcatchmentPost 3: Post 3 Runoff Area=2,294 sf 0.00% Impervious Runoff Depth=2.29"
Flow Length=20' Slope=0.2500 '/' Tc=6.0 min CN=WQ Runoff=0.14 cfs 0.010 af

SubcatchmentPost 4: Post 4 Runoff Area=51,513 sf 11.10% Impervious Runoff Depth=2.56"
Flow Length=340' Slope=0.0450 '/' Tc=6.9 min CN=WQ Runoff=3.33 cfs 0.252 af

Reach Post: Post Inflow=3.59 cfs 0.734 af
Outflow=3.59 cfs 0.734 af

Reach Post Great Road: Post Great Road Inflow=3.45 cfs 0.724 af
Outflow=3.45 cfs 0.724 af

Reach Post Robinson Road: Post Robinson Road Inflow=0.14 cfs 0.010 af
Outflow=0.14 cfs 0.010 af

Pond 1P: Pond 1A Peak Elev=277.16' Storage=15,543 cf Inflow=4.79 cfs 0.357 af
Outflow=0.00 cfs 0.000 af

Pond 13P: 12" RCP to Street Peak Elev=273.47' Inflow=1.63 cfs 0.539 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=1.63 cfs 0.539 af

Pond Basin 1B&1C: Basin 1B&1C Peak Elev=279.27' Storage=11,754 cf Inflow=5.71 cfs 0.456 af
Discarded=0.07 cfs 0.265 af Primary=0.32 cfs 0.074 af Outflow=0.39 cfs 0.339 af

Pond Basin 2B: Basin 2B Peak Elev=274.72' Storage=5,617 cf Inflow=5.18 cfs 0.539 af
Primary=1.63 cfs 0.539 af Secondary=0.00 cfs 0.000 af Outflow=1.63 cfs 0.539 af

Pond Basin 2b outlet: Basin 2b outlet Peak Elev=273.79' Inflow=1.63 cfs 0.539 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0050 '/' Outflow=1.63 cfs 0.539 af

Pond Basin B outlet: Basin 1C outlet Peak Elev=275.34' Inflow=0.32 cfs 0.074 af
18.0" Round Culvert n=0.012 L=86.0' S=0.0151 '/' Outflow=0.32 cfs 0.074 af

Summary for Subcatchment Post 1A: Post 1A

Runoff = 1.46 cfs @ 12.09 hrs, Volume= 0.105 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

Area (sf)	CN	Description
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
17,878	74	>75% Grass cover, Good, HSG C
7,017	70	Woods, Good, HSG C
24,895		Weighted Average
24,895		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	41	0.0350	0.42		Lag/CN Method, Post 1A
1.6	41	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 1B: Post 1B

Runoff = 3.46 cfs @ 12.08 hrs, Volume= 0.277 af, Depth= 4.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

Area (sf)	CN	Description
3,457	98	Roofs, HSG C
24,854	98	Paved parking, HSG C
5,477	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
33,788		Weighted Average
5,477		16.21% Pervious Area
28,311		83.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	210	0.0150	0.80		Lag/CN Method, Post 1B
4.4	210	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 1C: Post 1C

Runoff = 2.25 cfs @ 12.08 hrs, Volume= 0.179 af, Depth= 3.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

Area (sf)	CN	Description
6,958	98	Roofs, HSG C
9,724	98	Paved parking, HSG C
6,724	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
23,406		Weighted Average
6,724		28.73% Pervious Area
16,682		71.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	128	0.0125	0.58		Lag/CN Method, Post 1C
3.7	128	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 2A: Post 2A

Runoff = 2.31 cfs @ 12.08 hrs, Volume= 0.186 af, Depth= 4.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

Area (sf)	CN	Description
4,331	98	Roofs, HSG C
15,145	98	Paved parking, HSG C
295	98	Paved parking, HSG C
2,067	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
21,838		Weighted Average
2,067		9.47% Pervious Area
19,771		90.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	207	0.0150	0.88		Lag/CN Method, Post 2A
3.9	207	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 2B: Post 2B

Runoff = 5.18 cfs @ 12.13 hrs, Volume= 0.464 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

Area (sf)	CN	Description
12,010	98	Roofs, HSG C
26,052	98	Paved parking, HSG C
5,546	98	Paved parking, HSG C
17,014	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
60,622		Weighted Average
17,014		28.07% Pervious Area
43,608		71.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	479	0.0150	0.82		Lag/CN Method, Post 2B

Summary for Subcatchment Post 3: Post 3

Runoff = 0.14 cfs @ 12.09 hrs, Volume= 0.010 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

Area (sf)	CN	Description
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
2,294	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
2,294		Weighted Average
2,294		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.2500	1.00		Lag/CN Method, Post 3
0.3	20	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 4: Post 4

Runoff = 3.33 cfs @ 12.10 hrs, Volume= 0.252 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

Area (sf)	CN	Description
2,572	98	Roofs, HSG C
3,144	98	Paved parking, HSG C
45,797	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
51,513		Weighted Average
45,797		88.90% Pervious Area
5,716		11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	340	0.0450	0.82		Lag/CN Method, Pre 4

Summary for Reach Post: Post

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

Inflow Area = 5.013 ac, 52.25% Impervious, Inflow Depth = 1.76" for 10-YR-NOAA event
Inflow = 3.59 cfs @ 12.09 hrs, Volume= 0.734 af
Outflow = 3.59 cfs @ 12.09 hrs, Volume= 0.734 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach Post Great Road: Post Great Road

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

Inflow Area = 4.960 ac, 52.80% Impervious, Inflow Depth = 1.75" for 10-YR-NOAA event
Inflow = 3.45 cfs @ 12.09 hrs, Volume= 0.724 af
Outflow = 3.45 cfs @ 12.09 hrs, Volume= 0.724 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach Post Robinson Road: Post Robinson Road

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

Inflow Area = 0.053 ac, 0.00% Impervious, Inflow Depth = 2.29" for 10-YR-NOAA event
Inflow = 0.14 cfs @ 12.09 hrs, Volume= 0.010 af
Outflow = 0.14 cfs @ 12.09 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 1P: Pond 1A

Inflow Area = 1.754 ac, 7.48% Impervious, Inflow Depth = 2.44" for 10-YR-NOAA event
 Inflow = 4.79 cfs @ 12.10 hrs, Volume= 0.357 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 277.16' @ 24.41 hrs Surf.Area= 17,066 sf Storage= 15,543 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	276.00'	32,320 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
276.00	9,903	0	0
276.50	12,805	5,677	5,677
277.00	15,998	7,201	12,878
277.50	19,310	8,827	21,705
278.00	23,151	10,615	32,320

Device	Routing	Invert	Outlet Devices
#1	Primary	277.50'	2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=276.00' TW=273.00' (Dynamic Tailwater)

↑ **1=Orifice/Grate** (Controls 0.00 cfs)

Stage-Area-Storage for Pond 1P: Pond 1A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
276.00	9,903	0	276.52	12,933	5,934
276.01	9,961	99	276.53	12,997	6,064
276.02	10,019	199	276.54	13,060	6,194
276.03	10,077	300	276.55	13,124	6,325
276.04	10,135	401	276.56	13,188	6,457
276.05	10,193	502	276.57	13,252	6,589
276.06	10,251	605	276.58	13,316	6,722
276.07	10,309	707	276.59	13,380	6,855
276.08	10,367	811	276.60	13,444	6,989
276.09	10,425	915	276.61	13,507	7,124
276.10	10,483	1,019	276.62	13,571	7,260
276.11	10,541	1,124	276.63	13,635	7,396
276.12	10,599	1,230	276.64	13,699	7,532
276.13	10,658	1,336	276.65	13,763	7,670
276.14	10,716	1,443	276.66	13,827	7,808
276.15	10,774	1,551	276.67	13,891	7,946
276.16	10,832	1,659	276.68	13,954	8,085
276.17	10,890	1,767	276.69	14,018	8,225
276.18	10,948	1,877	276.70	14,082	8,366
276.19	11,006	1,986	276.71	14,146	8,507
276.20	11,064	2,097	276.72	14,210	8,649
276.21	11,122	2,208	276.73	14,274	8,791
276.22	11,180	2,319	276.74	14,338	8,934
276.23	11,238	2,431	276.75	14,402	9,078
276.24	11,296	2,544	276.76	14,465	9,222
276.25	11,354	2,657	276.77	14,529	9,367
276.26	11,412	2,771	276.78	14,593	9,513
276.27	11,470	2,885	276.79	14,657	9,659
276.28	11,528	3,000	276.80	14,721	9,806
276.29	11,586	3,116	276.81	14,785	9,953
276.30	11,644	3,232	276.82	14,849	10,102
276.31	11,702	3,349	276.83	14,912	10,250
276.32	11,760	3,466	276.84	14,976	10,400
276.33	11,818	3,584	276.85	15,040	10,550
276.34	11,876	3,702	276.86	15,104	10,701
276.35	11,934	3,822	276.87	15,168	10,852
276.36	11,992	3,941	276.88	15,232	11,004
276.37	12,050	4,061	276.89	15,296	11,157
276.38	12,109	4,182	276.90	15,359	11,310
276.39	12,167	4,304	276.91	15,423	11,464
276.40	12,225	4,426	276.92	15,487	11,618
276.41	12,283	4,548	276.93	15,551	11,774
276.42	12,341	4,671	276.94	15,615	11,929
276.43	12,399	4,795	276.95	15,679	12,086
276.44	12,457	4,919	276.96	15,743	12,243
276.45	12,515	5,044	276.97	15,806	12,401
276.46	12,573	5,169	276.98	15,870	12,559
276.47	12,631	5,295	276.99	15,934	12,718
276.48	12,689	5,422	277.00	15,998	12,878
276.49	12,747	5,549	277.01	16,064	13,038
276.50	12,805	5,677	277.02	16,130	13,199
276.51	12,869	5,805	277.03	16,197	13,361

Stage-Area-Storage for Pond 1P: Pond 1A (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.04	16,263	13,523	277.56	19,771	22,877
277.05	16,329	13,686	277.57	19,848	23,075
277.06	16,395	13,850	277.58	19,925	23,274
277.07	16,462	14,014	277.59	20,001	23,474
277.08	16,528	14,179	277.60	20,078	23,674
277.09	16,594	14,344	277.61	20,155	23,875
277.10	16,660	14,511	277.62	20,232	24,077
277.11	16,727	14,678	277.63	20,309	24,280
277.12	16,793	14,845	277.64	20,385	24,483
277.13	16,859	15,013	277.65	20,462	24,688
277.14	16,925	15,182	277.66	20,539	24,893
277.15	16,992	15,352	277.67	20,616	25,098
277.16	17,058	15,522	277.68	20,693	25,305
277.17	17,124	15,693	277.69	20,770	25,512
277.18	17,190	15,865	277.70	20,846	25,720
277.19	17,257	16,037	277.71	20,923	25,929
277.20	17,323	16,210	277.72	21,000	26,139
277.21	17,389	16,383	277.73	21,077	26,349
277.22	17,455	16,558	277.74	21,154	26,560
277.23	17,522	16,732	277.75	21,231	26,772
277.24	17,588	16,908	277.76	21,307	26,985
277.25	17,654	17,084	277.77	21,384	27,198
277.26	17,720	17,261	277.78	21,461	27,413
277.27	17,786	17,439	277.79	21,538	27,628
277.28	17,853	17,617	277.80	21,615	27,843
277.29	17,919	17,796	277.81	21,691	28,060
277.30	17,985	17,975	277.82	21,768	28,277
277.31	18,051	18,155	277.83	21,845	28,495
277.32	18,118	18,336	277.84	21,922	28,714
277.33	18,184	18,518	277.85	21,999	28,934
277.34	18,250	18,700	277.86	22,076	29,154
277.35	18,316	18,883	277.87	22,152	29,375
277.36	18,383	19,066	277.88	22,229	29,597
277.37	18,449	19,250	277.89	22,306	29,820
277.38	18,515	19,435	277.90	22,383	30,043
277.39	18,581	19,621	277.91	22,460	30,268
277.40	18,648	19,807	277.92	22,536	30,493
277.41	18,714	19,994	277.93	22,613	30,718
277.42	18,780	20,181	277.94	22,690	30,945
277.43	18,846	20,369	277.95	22,767	31,172
277.44	18,913	20,558	277.96	22,844	31,400
277.45	18,979	20,748	277.97	22,921	31,629
277.46	19,045	20,938	277.98	22,997	31,859
277.47	19,111	21,128	277.99	23,074	32,089
277.48	19,178	21,320	278.00	23,151	32,320
277.49	19,244	21,512			
277.50	19,310	21,705			
277.51	19,387	21,898			
277.52	19,464	22,092			
277.53	19,540	22,288			
277.54	19,617	22,483			
277.55	19,694	22,680			

Summary for Pond 13P: 12" RCP to Street

[57] Hint: Peaked at 273.47' (Flood elevation advised)

Inflow Area = 4.459 ac, 48.56% Impervious, Inflow Depth > 1.45" for 10-YR-NOAA event
 Inflow = 1.63 cfs @ 12.49 hrs, Volume= 0.539 af
 Outflow = 1.63 cfs @ 12.49 hrs, Volume= 0.539 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.63 cfs @ 12.49 hrs, Volume= 0.539 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 273.47' @ 12.49 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.73'	12.0" Round Culvert L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.73' / 272.43' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.63 cfs @ 12.49 hrs HW=273.47' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 1.63 cfs @ 3.63 fps)

Stage-Area-Storage for Pond 13P: 12" RCP to Street

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.73	0	273.25	0
272.74	0	273.26	0
272.75	0	273.27	0
272.76	0	273.28	0
272.77	0	273.29	0
272.78	0	273.30	0
272.79	0	273.31	0
272.80	0	273.32	0
272.81	0	273.33	0
272.82	0	273.34	0
272.83	0	273.35	0
272.84	0	273.36	0
272.85	0	273.37	0
272.86	0	273.38	0
272.87	0	273.39	0
272.88	0	273.40	0
272.89	0	273.41	0
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0		
273.23	0		
273.24	0		

Summary for Pond Basin 1B&1C: Basin 1B&1C

Inflow Area = 1.313 ac, 78.67% Impervious, Inflow Depth = 4.17" for 10-YR-NOAA event
 Inflow = 5.71 cfs @ 12.08 hrs, Volume= 0.456 af
 Outflow = 0.39 cfs @ 13.48 hrs, Volume= 0.339 af, Atten= 93%, Lag= 83.9 min
 Discarded = 0.07 cfs @ 7.76 hrs, Volume= 0.265 af
 Primary = 0.32 cfs @ 13.48 hrs, Volume= 0.074 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 279.27' @ 13.48 hrs Surf.Area= 11,472 sf Storage= 11,754 cf

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

Center-of-Mass det. time= 641.0 min (1,399.9 - 758.9)

Volume	Invert	Avail.Storage	Storage Description
#1	277.33'	9,555 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 28,680 cf Overall - 4,792 cf Embedded = 23,888 cf x 40.0% Voids
#2	277.83'	4,792 cf	18.0" Round Pipe Storage Inside #1 L= 2,712.0'
		14,347 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.33	11,472	0	0
279.83	11,472	28,680	28,680

Device	Routing	Invert	Outlet Devices
#1	Discarded	277.33'	0.270 in/hr Exfiltration over Surface area
#2	Primary	279.20'	6.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.07 cfs @ 7.76 hrs HW=277.36' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.32 cfs @ 13.48 hrs HW=279.27' TW=275.34' (Dynamic Tailwater)

↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 0.32 cfs @ 0.73 fps)

Stage-Area-Storage for Pond Basin 1B&1C: Basin 1B&1C

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.33	11,472	0	277.85	11,472	2,394
277.34	11,472	46	277.86	11,472	2,446
277.35	11,472	92	277.87	11,472	2,499
277.36	11,472	138	277.88	11,472	2,553
277.37	11,472	184	277.89	11,472	2,608
277.38	11,472	229	277.90	11,472	2,664
277.39	11,472	275	277.91	11,472	2,721
277.40	11,472	321	277.92	11,472	2,778
277.41	11,472	367	277.93	11,472	2,836
277.42	11,472	413	277.94	11,472	2,894
277.43	11,472	459	277.95	11,472	2,953
277.44	11,472	505	277.96	11,472	3,012
277.45	11,472	551	277.97	11,472	3,072
277.46	11,472	597	277.98	11,472	3,132
277.47	11,472	642	277.99	11,472	3,193
277.48	11,472	688	278.00	11,472	3,254
277.49	11,472	734	278.01	11,472	3,316
277.50	11,472	780	278.02	11,472	3,378
277.51	11,472	826	278.03	11,472	3,440
277.52	11,472	872	278.04	11,472	3,503
277.53	11,472	918	278.05	11,472	3,566
277.54	11,472	964	278.06	11,472	3,629
277.55	11,472	1,010	278.07	11,472	3,693
277.56	11,472	1,055	278.08	11,472	3,757
277.57	11,472	1,101	278.09	11,472	3,821
277.58	11,472	1,147	278.10	11,472	3,885
277.59	11,472	1,193	278.11	11,472	3,950
277.60	11,472	1,239	278.12	11,472	4,015
277.61	11,472	1,285	278.13	11,472	4,080
277.62	11,472	1,331	278.14	11,472	4,146
277.63	11,472	1,377	278.15	11,472	4,212
277.64	11,472	1,423	278.16	11,472	4,278
277.65	11,472	1,468	278.17	11,472	4,344
277.66	11,472	1,514	278.18	11,472	4,410
277.67	11,472	1,560	278.19	11,472	4,477
277.68	11,472	1,606	278.20	11,472	4,544
277.69	11,472	1,652	278.21	11,472	4,611
277.70	11,472	1,698	278.22	11,472	4,678
277.71	11,472	1,744	278.23	11,472	4,745
277.72	11,472	1,790	278.24	11,472	4,813
277.73	11,472	1,836	278.25	11,472	4,881
277.74	11,472	1,881	278.26	11,472	4,949
277.75	11,472	1,927	278.27	11,472	5,017
277.76	11,472	1,973	278.28	11,472	5,085
277.77	11,472	2,019	278.29	11,472	5,153
277.78	11,472	2,065	278.30	11,472	5,222
277.79	11,472	2,111	278.31	11,472	5,290
277.80	11,472	2,157	278.32	11,472	5,359
277.81	11,472	2,203	278.33	11,472	5,428
277.82	11,472	2,249	278.34	11,472	5,497
277.83	11,472	2,294	278.35	11,472	5,566
277.84	11,472	2,343	278.36	11,472	5,635

Stage-Area-Storage for Pond Basin 1B&1C: Basin 1B&1C (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
278.37	11,472	5,704	278.89	11,472	9,331
278.38	11,472	5,774	278.90	11,472	9,399
278.39	11,472	5,843	278.91	11,472	9,467
278.40	11,472	5,913	278.92	11,472	9,534
278.41	11,472	5,982	278.93	11,472	9,602
278.42	11,472	6,052	278.94	11,472	9,669
278.43	11,472	6,122	278.95	11,472	9,737
278.44	11,472	6,192	278.96	11,472	9,804
278.45	11,472	6,261	278.97	11,472	9,870
278.46	11,472	6,331	278.98	11,472	9,937
278.47	11,472	6,401	278.99	11,472	10,004
278.48	11,472	6,472	279.00	11,472	10,070
278.49	11,472	6,542	279.01	11,472	10,136
278.50	11,472	6,612	279.02	11,472	10,202
278.51	11,472	6,682	279.03	11,472	10,267
278.52	11,472	6,752	279.04	11,472	10,332
278.53	11,472	6,822	279.05	11,472	10,397
278.54	11,472	6,893	279.06	11,472	10,462
278.55	11,472	6,963	279.07	11,472	10,527
278.56	11,472	7,033	279.08	11,472	10,591
278.57	11,472	7,103	279.09	11,472	10,655
278.58	11,472	7,174	279.10	11,472	10,718
278.59	11,472	7,244	279.11	11,472	10,782
278.60	11,472	7,314	279.12	11,472	10,845
278.61	11,472	7,385	279.13	11,472	10,907
278.62	11,472	7,455	279.14	11,472	10,970
278.63	11,472	7,525	279.15	11,472	11,032
278.64	11,472	7,595	279.16	11,472	11,093
278.65	11,472	7,666	279.17	11,472	11,154
278.66	11,472	7,736	279.18	11,472	11,215
278.67	11,472	7,806	279.19	11,472	11,275
278.68	11,472	7,876	279.20	11,472	11,335
278.69	11,472	7,946	279.21	11,472	11,395
278.70	11,472	8,016	279.22	11,472	11,454
278.71	11,472	8,086	279.23	11,472	11,512
278.72	11,472	8,156	279.24	11,472	11,570
278.73	11,472	8,226	279.25	11,472	11,627
278.74	11,472	8,296	279.26	11,472	11,683
278.75	11,472	8,365	279.27	11,472	11,739
278.76	11,472	8,435	279.28	11,472	11,794
278.77	11,472	8,504	279.29	11,472	11,848
278.78	11,472	8,574	279.30	11,472	11,902
278.79	11,472	8,643	279.31	11,472	11,954
278.80	11,472	8,712	279.32	11,472	12,005
278.81	11,472	8,782	279.33	11,472	12,053
278.82	11,472	8,851	279.34	11,472	12,099
278.83	11,472	8,920	279.35	11,472	12,145
278.84	11,472	8,988	279.36	11,472	12,191
278.85	11,472	9,057	279.37	11,472	12,237
278.86	11,472	9,126	279.38	11,472	12,283
278.87	11,472	9,194	279.39	11,472	12,328
278.88	11,472	9,263	279.40	11,472	12,374

Stage-Area-Storage for Pond Basin 1B&1C: Basin 1B&1C (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
279.41	11,472	12,420
279.42	11,472	12,466
279.43	11,472	12,512
279.44	11,472	12,558
279.45	11,472	12,604
279.46	11,472	12,650
279.47	11,472	12,696
279.48	11,472	12,741
279.49	11,472	12,787
279.50	11,472	12,833
279.51	11,472	12,879
279.52	11,472	12,925
279.53	11,472	12,971
279.54	11,472	13,017
279.55	11,472	13,063
279.56	11,472	13,109
279.57	11,472	13,154
279.58	11,472	13,200
279.59	11,472	13,246
279.60	11,472	13,292
279.61	11,472	13,338
279.62	11,472	13,384
279.63	11,472	13,430
279.64	11,472	13,476
279.65	11,472	13,522
279.66	11,472	13,567
279.67	11,472	13,613
279.68	11,472	13,659
279.69	11,472	13,705
279.70	11,472	13,751
279.71	11,472	13,797
279.72	11,472	13,843
279.73	11,472	13,889
279.74	11,472	13,935
279.75	11,472	13,980
279.76	11,472	14,026
279.77	11,472	14,072
279.78	11,472	14,118
279.79	11,472	14,164
279.80	11,472	14,210
279.81	11,472	14,256
279.82	11,472	14,302
279.83	11,472	14,347

Summary for Pond Basin 2B: Basin 2B

Inflow Area = 4.459 ac, 48.56% Impervious, Inflow Depth = 1.45" for 10-YR-NOAA event
 Inflow = 5.18 cfs @ 12.13 hrs, Volume= 0.539 af
 Outflow = 1.63 cfs @ 12.49 hrs, Volume= 0.539 af, Atten= 69%, Lag= 21.6 min
 Primary = 1.63 cfs @ 12.49 hrs, Volume= 0.539 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 274.72' @ 12.49 hrs Surf.Area= 5,600 sf Storage= 5,617 cf

Plug-Flow detention time= 50.6 min calculated for 0.539 af (100% of inflow)

Center-of-Mass det. time= 50.2 min (835.6 - 785.4)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	6,696 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 28,000 cf Overall - 11,259 cf Embedded = 16,741 cf x 40.0% Voids
#2	273.50'	11,259 cf	48.0" Round Pipe Storage Inside #1 L= 896.0'
		17,956 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	5,600	0	0
278.00	5,600	28,000	28,000

Device	Routing	Invert	Outlet Devices
#1	Secondary	277.50'	6.0' 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
#2	Primary	273.00'	8.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.63 cfs @ 12.49 hrs HW=274.72' TW=273.79' (Dynamic Tailwater)

↑ **2=Orifice/Grate** (Orifice Controls 1.63 cfs @ 4.66 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=272.90' (Dynamic Tailwater)

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

Stage-Area-Storage for Pond Basin 2B: Basin 2B

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
273.00	0	273.52	1,169	274.04	2,875
273.01	22	273.53	1,195	274.05	2,912
273.02	45	273.54	1,221	274.06	2,949
273.03	67	273.55	1,248	274.07	2,987
273.04	90	273.56	1,275	274.08	3,024
273.05	112	273.57	1,303	274.09	3,062
273.06	134	273.58	1,331	274.10	3,099
273.07	157	273.59	1,360	274.11	3,137
273.08	179	273.60	1,389	274.12	3,175
273.09	202	273.61	1,418	274.13	3,213
273.10	224	273.62	1,448	274.14	3,251
273.11	246	273.63	1,478	274.15	3,290
273.12	269	273.64	1,508	274.16	3,328
273.13	291	273.65	1,538	274.17	3,366
273.14	314	273.66	1,569	274.18	3,405
273.15	336	273.67	1,600	274.19	3,443
273.16	358	273.68	1,631	274.20	3,482
273.17	381	273.69	1,663	274.21	3,521
273.18	403	273.70	1,694	274.22	3,560
273.19	426	273.71	1,726	274.23	3,599
273.20	448	273.72	1,758	274.24	3,638
273.21	470	273.73	1,791	274.25	3,677
273.22	493	273.74	1,823	274.26	3,716
273.23	515	273.75	1,856	274.27	3,755
273.24	538	273.76	1,889	274.28	3,795
273.25	560	273.77	1,922	274.29	3,834
273.26	582	273.78	1,955	274.30	3,874
273.27	605	273.79	1,989	274.31	3,914
273.28	627	273.80	2,022	274.32	3,953
273.29	650	273.81	2,056	274.33	3,993
273.30	672	273.82	2,090	274.34	4,033
273.31	694	273.83	2,124	274.35	4,073
273.32	717	273.84	2,158	274.36	4,113
273.33	739	273.85	2,193	274.37	4,153
273.34	762	273.86	2,228	274.38	4,193
273.35	784	273.87	2,262	274.39	4,233
273.36	806	273.88	2,297	274.40	4,274
273.37	829	273.89	2,332	274.41	4,314
273.38	851	273.90	2,368	274.42	4,355
273.39	874	273.91	2,403	274.43	4,395
273.40	896	273.92	2,438	274.44	4,436
273.41	918	273.93	2,474	274.45	4,476
273.42	941	273.94	2,510	274.46	4,517
273.43	963	273.95	2,546	274.47	4,558
273.44	986	273.96	2,582	274.48	4,599
273.45	1,008	273.97	2,618	274.49	4,640
273.46	1,030	273.98	2,654	274.50	4,681
273.47	1,053	273.99	2,691	274.51	4,722
273.48	1,075	274.00	2,727	274.52	4,763
273.49	1,098	274.01	2,764	274.53	4,804
273.50	1,120	274.02	2,801	274.54	4,845
273.51	1,144	274.03	2,838	274.55	4,887

Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
274.56	4,928	275.08	7,141	275.60	9,417
274.57	4,969	275.09	7,184	275.61	9,461
274.58	5,011	275.10	7,227	275.62	9,505
274.59	5,052	275.11	7,271	275.63	9,548
274.60	5,094	275.12	7,314	275.64	9,592
274.61	5,136	275.13	7,358	275.65	9,636
274.62	5,177	275.14	7,401	275.66	9,680
274.63	5,219	275.15	7,445	275.67	9,724
274.64	5,261	275.16	7,489	275.68	9,768
274.65	5,303	275.17	7,532	275.69	9,811
274.66	5,345	275.18	7,576	275.70	9,855
274.67	5,386	275.19	7,619	275.71	9,899
274.68	5,428	275.20	7,663	275.72	9,943
274.69	5,470	275.21	7,707	275.73	9,987
274.70	5,513	275.22	7,751	275.74	10,030
274.71	5,555	275.23	7,794	275.75	10,074
274.72	5,597	275.24	7,838	275.76	10,118
274.73	5,639	275.25	7,882	275.77	10,161
274.74	5,681	275.26	7,925	275.78	10,205
274.75	5,724	275.27	7,969	275.79	10,249
274.76	5,766	275.28	8,013	275.80	10,293
274.77	5,808	275.29	8,057	275.81	10,336
274.78	5,851	275.30	8,100	275.82	10,380
274.79	5,893	275.31	8,144	275.83	10,423
274.80	5,936	275.32	8,188	275.84	10,467
274.81	5,978	275.33	8,232	275.85	10,511
274.82	6,021	275.34	8,276	275.86	10,554
274.83	6,064	275.35	8,320	275.87	10,598
274.84	6,106	275.36	8,363	275.88	10,641
274.85	6,149	275.37	8,407	275.89	10,685
274.86	6,192	275.38	8,451	275.90	10,728
274.87	6,235	275.39	8,495	275.91	10,772
274.88	6,277	275.40	8,539	275.92	10,815
274.89	6,320	275.41	8,583	275.93	10,859
274.90	6,363	275.42	8,627	275.94	10,902
274.91	6,406	275.43	8,671	275.95	10,945
274.92	6,449	275.44	8,714	275.96	10,989
274.93	6,492	275.45	8,758	275.97	11,032
274.94	6,535	275.46	8,802	275.98	11,075
274.95	6,578	275.47	8,846	275.99	11,118
274.96	6,621	275.48	8,890	276.00	11,162
274.97	6,664	275.49	8,934	276.01	11,205
274.98	6,708	275.50	8,978	276.02	11,248
274.99	6,751	275.51	9,022	276.03	11,291
275.00	6,794	275.52	9,066	276.04	11,334
275.01	6,837	275.53	9,110	276.05	11,377
275.02	6,880	275.54	9,153	276.06	11,421
275.03	6,924	275.55	9,197	276.07	11,464
275.04	6,967	275.56	9,241	276.08	11,507
275.05	7,010	275.57	9,285	276.09	11,550
275.06	7,054	275.58	9,329	276.10	11,592
275.07	7,097	275.59	9,373	276.11	11,635

Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
276.12	11,678	276.64	13,843	277.16	15,797
276.13	11,721	276.65	13,883	277.17	15,832
276.14	11,764	276.66	13,923	277.18	15,866
276.15	11,807	276.67	13,963	277.19	15,900
276.16	11,849	276.68	14,002	277.20	15,933
276.17	11,892	276.69	14,042	277.21	15,967
276.18	11,935	276.70	14,082	277.22	16,001
276.19	11,977	276.71	14,121	277.23	16,034
276.20	12,020	276.72	14,161	277.24	16,067
276.21	12,062	276.73	14,200	277.25	16,100
276.22	12,105	276.74	14,240	277.26	16,133
276.23	12,147	276.75	14,279	277.27	16,165
276.24	12,190	276.76	14,318	277.28	16,197
276.25	12,232	276.77	14,357	277.29	16,230
276.26	12,274	276.78	14,396	277.30	16,261
276.27	12,317	276.79	14,435	277.31	16,293
276.28	12,359	276.80	14,474	277.32	16,324
276.29	12,401	276.81	14,512	277.33	16,356
276.30	12,443	276.82	14,551	277.34	16,387
276.31	12,485	276.83	14,589	277.35	16,417
276.32	12,527	276.84	14,628	277.36	16,448
276.33	12,569	276.85	14,666	277.37	16,478
276.34	12,611	276.86	14,704	277.38	16,508
276.35	12,653	276.87	14,743	277.39	16,537
276.36	12,695	276.88	14,781	277.40	16,567
276.37	12,737	276.89	14,818	277.41	16,596
276.38	12,778	276.90	14,856	277.42	16,624
276.39	12,820	276.91	14,894	277.43	16,652
276.40	12,862	276.92	14,932	277.44	16,680
276.41	12,903	276.93	14,969	277.45	16,708
276.42	12,945	276.94	15,006	277.46	16,735
276.43	12,986	276.95	15,044	277.47	16,761
276.44	13,028	276.96	15,081	277.48	16,787
276.45	13,069	276.97	15,118	277.49	16,812
276.46	13,110	276.98	15,155	277.50	16,836
276.47	13,152	276.99	15,192	277.51	16,858
276.48	13,193	277.00	15,228	277.52	16,880
276.49	13,234	277.01	15,265	277.53	16,903
276.50	13,275	277.02	15,301	277.54	16,925
276.51	13,316	277.03	15,338	277.55	16,948
276.52	13,357	277.04	15,374	277.56	16,970
276.53	13,398	277.05	15,410	277.57	16,992
276.54	13,439	277.06	15,446	277.58	17,015
276.55	13,479	277.07	15,482	277.59	17,037
276.56	13,520	277.08	15,517	277.60	17,060
276.57	13,561	277.09	15,553	277.61	17,082
276.58	13,601	277.10	15,588	277.62	17,104
276.59	13,642	277.11	15,623	277.63	17,127
276.60	13,682	277.12	15,658	277.64	17,149
276.61	13,722	277.13	15,693	277.65	17,172
276.62	13,762	277.14	15,728	277.66	17,194
276.63	13,803	277.15	15,763	277.67	17,216

Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)
277.68	17,239
277.69	17,261
277.70	17,284
277.71	17,306
277.72	17,328
277.73	17,351
277.74	17,373
277.75	17,396
277.76	17,418
277.77	17,440
277.78	17,463
277.79	17,485
277.80	17,508
277.81	17,530
277.82	17,552
277.83	17,575
277.84	17,597
277.85	17,620
277.86	17,642
277.87	17,664
277.88	17,687
277.89	17,709
277.90	17,732
277.91	17,754
277.92	17,776
277.93	17,799
277.94	17,821
277.95	17,844
277.96	17,866
277.97	17,888
277.98	17,911
277.99	17,933
278.00	17,956

Summary for Pond Basin 2b outlet: Basin 2b outlet

[57] Hint: Peaked at 273.79' (Flood elevation advised)

Inflow Area = 4.459 ac, 48.56% Impervious, Inflow Depth > 1.45" for 10-YR-NOAA event
 Inflow = 1.63 cfs @ 12.49 hrs, Volume= 0.539 af
 Outflow = 1.63 cfs @ 12.49 hrs, Volume= 0.539 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.63 cfs @ 12.49 hrs, Volume= 0.539 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 273.79' @ 12.49 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.90'	12.0" Round Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.90' / 272.70' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.63 cfs @ 12.49 hrs HW=273.79' TW=273.47' (Dynamic Tailwater)

↑1=Culvert (Outlet Controls 1.63 cfs @ 2.93 fps)

18017 Pre-post-January 2023

Type III 24-hr 10-YR-NOAA Rainfall=4.91"

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Stage-Area-Storage for Pond Basin 2b outlet: Basin 2b outlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0	273.74	0
273.23	0	273.75	0
273.24	0	273.76	0
273.25	0	273.77	0
273.26	0	273.78	0
273.27	0	273.79	0
273.28	0	273.80	0
273.29	0	273.81	0
273.30	0	273.82	0
273.31	0	273.83	0
273.32	0	273.84	0
273.33	0	273.85	0
273.34	0	273.86	0
273.35	0	273.87	0
273.36	0	273.88	0
273.37	0	273.89	0
273.38	0	273.90	0
273.39	0		
273.40	0		
273.41	0		

Summary for Pond Basin B outlet: Basin 1C outlet

[57] Hint: Peaked at 275.34' (Flood elevation advised)

Inflow Area = 1.313 ac, 78.67% Impervious, Inflow Depth = 0.68" for 10-YR-NOAA event
 Inflow = 0.32 cfs @ 13.48 hrs, Volume= 0.074 af
 Outflow = 0.32 cfs @ 13.48 hrs, Volume= 0.074 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.32 cfs @ 13.48 hrs, Volume= 0.074 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 275.34' @ 13.48 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	275.10'	18.0" Round Culvert L= 86.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 275.10' / 273.80' S= 0.0151 ' / Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=0.32 cfs @ 13.48 hrs HW=275.34' TW=274.17' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 0.32 cfs @ 1.68 fps)

Stage-Area-Storage for Pond Basin B outlet: Basin 1C outlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
275.10	0	275.62	0	276.14	0
275.11	0	275.63	0	276.15	0
275.12	0	275.64	0	276.16	0
275.13	0	275.65	0	276.17	0
275.14	0	275.66	0	276.18	0
275.15	0	275.67	0	276.19	0
275.16	0	275.68	0	276.20	0
275.17	0	275.69	0	276.21	0
275.18	0	275.70	0	276.22	0
275.19	0	275.71	0	276.23	0
275.20	0	275.72	0	276.24	0
275.21	0	275.73	0	276.25	0
275.22	0	275.74	0	276.26	0
275.23	0	275.75	0	276.27	0
275.24	0	275.76	0	276.28	0
275.25	0	275.77	0	276.29	0
275.26	0	275.78	0	276.30	0
275.27	0	275.79	0	276.31	0
275.28	0	275.80	0	276.32	0
275.29	0	275.81	0	276.33	0
275.30	0	275.82	0	276.34	0
275.31	0	275.83	0	276.35	0
275.32	0	275.84	0	276.36	0
275.33	0	275.85	0	276.37	0
275.34	0	275.86	0	276.38	0
275.35	0	275.87	0	276.39	0
275.36	0	275.88	0	276.40	0
275.37	0	275.89	0	276.41	0
275.38	0	275.90	0	276.42	0
275.39	0	275.91	0	276.43	0
275.40	0	275.92	0	276.44	0
275.41	0	275.93	0	276.45	0
275.42	0	275.94	0	276.46	0
275.43	0	275.95	0	276.47	0
275.44	0	275.96	0	276.48	0
275.45	0	275.97	0	276.49	0
275.46	0	275.98	0	276.50	0
275.47	0	275.99	0	276.51	0
275.48	0	276.00	0	276.52	0
275.49	0	276.01	0	276.53	0
275.50	0	276.02	0	276.54	0
275.51	0	276.03	0	276.55	0
275.52	0	276.04	0	276.56	0
275.53	0	276.05	0	276.57	0
275.54	0	276.06	0	276.58	0
275.55	0	276.07	0	276.59	0
275.56	0	276.08	0	276.60	0
275.57	0	276.09	0		
275.58	0	276.10	0		
275.59	0	276.11	0		
275.60	0	276.12	0		
275.61	0	276.13	0		

18017 Pre-post-January 2023

Type III 24-hr 25-YR NOAA Rainfall=5.99"

Prepared by {enter your company name here}

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPost 1A: Post 1A Runoff Area=24,895 sf 0.00% Impervious Runoff Depth=3.07"
Flow Length=41' Slope=0.0350 '/' Tc=6.0 min CN=WQ Runoff=2.05 cfs 0.146 af

SubcatchmentPost 1B: Post 1B Runoff Area=33,788 sf 83.79% Impervious Runoff Depth=5.33"
Flow Length=210' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=4.28 cfs 0.345 af

SubcatchmentPost 1C: Post 1C Runoff Area=23,406 sf 71.27% Impervious Runoff Depth=5.01"
Flow Length=128' Slope=0.0125 '/' Tc=6.0 min CN=WQ Runoff=2.82 cfs 0.224 af

SubcatchmentPost 2A: Post 2A Runoff Area=21,838 sf 90.53% Impervious Runoff Depth=5.51"
Flow Length=207' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=2.84 cfs 0.230 af

SubcatchmentPost 2B: Post 2B Runoff Area=60,622 sf 71.93% Impervious Runoff Depth=5.03"
Flow Length=479' Slope=0.0150 '/' Tc=9.7 min CN=WQ Runoff=6.49 cfs 0.583 af

SubcatchmentPost 3: Post 3 Runoff Area=2,294 sf 0.00% Impervious Runoff Depth=3.18"
Flow Length=20' Slope=0.2500 '/' Tc=6.0 min CN=WQ Runoff=0.20 cfs 0.014 af

SubcatchmentPost 4: Post 4 Runoff Area=51,513 sf 11.10% Impervious Runoff Depth=3.46"
Flow Length=340' Slope=0.0450 '/' Tc=6.9 min CN=WQ Runoff=4.54 cfs 0.341 af

Reach Post: Post Inflow=4.35 cfs 1.008 af
Outflow=4.35 cfs 1.008 af

Reach Post Great Road: Post Great Road Inflow=4.15 cfs 0.994 af
Outflow=4.15 cfs 0.994 af

Reach Post Robinson Road: Post Robinson Road Inflow=0.20 cfs 0.014 af
Outflow=0.20 cfs 0.014 af

Pond 1P: Pond 1A Peak Elev=277.48' Storage=21,231 cf Inflow=6.58 cfs 0.487 af
Outflow=0.00 cfs 0.000 af

Pond 13P: 12" RCP to Street Peak Elev=273.60' Inflow=2.08 cfs 0.764 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=2.08 cfs 0.764 af

Pond Basin 1B&1C: Basin 1B&1C Peak Elev=279.43' Storage=12,501 cf Inflow=7.10 cfs 0.569 af
Discarded=0.07 cfs 0.270 af Primary=1.76 cfs 0.181 af Outflow=1.83 cfs 0.450 af

Pond Basin 2B: Basin 2B Peak Elev=275.49' Storage=8,918 cf Inflow=6.49 cfs 0.764 af
Primary=2.08 cfs 0.764 af Secondary=0.00 cfs 0.000 af Outflow=2.08 cfs 0.764 af

Pond Basin 2b outlet: Basin 2b outlet Peak Elev=273.95' Inflow=2.08 cfs 0.764 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0050 '/' Outflow=2.08 cfs 0.764 af

Pond Basin B outlet: Basin 1C outlet Peak Elev=275.82' Inflow=1.76 cfs 0.181 af
18.0" Round Culvert n=0.012 L=86.0' S=0.0151 '/' Outflow=1.76 cfs 0.181 af

Summary for Subcatchment Post 1A: Post 1A

Runoff = 2.05 cfs @ 12.09 hrs, Volume= 0.146 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 25-YR NOAA Rainfall=5.99"

Area (sf)	CN	Description
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
17,878	74	>75% Grass cover, Good, HSG C
7,017	70	Woods, Good, HSG C
24,895		Weighted Average
24,895		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	41	0.0350	0.42		Lag/CN Method, Post 1A
1.6	41	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 1B: Post 1B

Runoff = 4.28 cfs @ 12.08 hrs, Volume= 0.345 af, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 25-YR NOAA Rainfall=5.99"

Area (sf)	CN	Description
3,457	98	Roofs, HSG C
24,854	98	Paved parking, HSG C
5,477	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
33,788		Weighted Average
5,477		16.21% Pervious Area
28,311		83.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	210	0.0150	0.80		Lag/CN Method, Post 1B
4.4	210	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 1C: Post 1C

Runoff = 2.82 cfs @ 12.08 hrs, Volume= 0.224 af, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 25-YR NOAA Rainfall=5.99"

Area (sf)	CN	Description
6,958	98	Roofs, HSG C
9,724	98	Paved parking, HSG C
6,724	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
23,406		Weighted Average
6,724		28.73% Pervious Area
16,682		71.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	128	0.0125	0.58		Lag/CN Method, Post 1C
3.7	128	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 2A: Post 2A

Runoff = 2.84 cfs @ 12.08 hrs, Volume= 0.230 af, Depth= 5.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR NOAA Rainfall=5.99"

Area (sf)	CN	Description
4,331	98	Roofs, HSG C
15,145	98	Paved parking, HSG C
295	98	Paved parking, HSG C
2,067	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
21,838		Weighted Average
2,067		9.47% Pervious Area
19,771		90.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	207	0.0150	0.88		Lag/CN Method, Post 2A
3.9	207	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 2B: Post 2B

Runoff = 6.49 cfs @ 12.13 hrs, Volume= 0.583 af, Depth= 5.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR NOAA Rainfall=5.99"

Area (sf)	CN	Description
12,010	98	Roofs, HSG C
26,052	98	Paved parking, HSG C
5,546	98	Paved parking, HSG C
17,014	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
60,622		Weighted Average
17,014		28.07% Pervious Area
43,608		71.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	479	0.0150	0.82		Lag/CN Method, Post 2B

Summary for Subcatchment Post 3: Post 3

Runoff = 0.20 cfs @ 12.09 hrs, Volume= 0.014 af, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 25-YR NOAA Rainfall=5.99"

Area (sf)	CN	Description
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
2,294	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
2,294		Weighted Average
2,294		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.2500	1.00		Lag/CN Method, Post 3
0.3	20	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 4: Post 4

Runoff = 4.54 cfs @ 12.10 hrs, Volume= 0.341 af, Depth= 3.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 25-YR NOAA Rainfall=5.99"

Area (sf)	CN	Description
2,572	98	Roofs, HSG C
3,144	98	Paved parking, HSG C
45,797	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
51,513		Weighted Average
45,797		88.90% Pervious Area
5,716		11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	340	0.0450	0.82		Lag/CN Method, Pre 4

Summary for Reach Post: Post

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

Inflow Area = 5.013 ac, 52.25% Impervious, Inflow Depth = 2.41" for 25-YR NOAA event
Inflow = 4.35 cfs @ 12.09 hrs, Volume= 1.008 af
Outflow = 4.35 cfs @ 12.09 hrs, Volume= 1.008 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach Post Great Road: Post Great Road

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

Inflow Area = 4.960 ac, 52.80% Impervious, Inflow Depth = 2.40" for 25-YR NOAA event
Inflow = 4.15 cfs @ 12.09 hrs, Volume= 0.994 af
Outflow = 4.15 cfs @ 12.09 hrs, Volume= 0.994 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach Post Robinson Road: Post Robinson Road

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

Inflow Area = 0.053 ac, 0.00% Impervious, Inflow Depth = 3.18" for 25-YR NOAA event
Inflow = 0.20 cfs @ 12.09 hrs, Volume= 0.014 af
Outflow = 0.20 cfs @ 12.09 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 1P: Pond 1A

Inflow Area = 1.754 ac, 7.48% Impervious, Inflow Depth = 3.33" for 25-YR NOAA event
 Inflow = 6.58 cfs @ 12.10 hrs, Volume= 0.487 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 277.48' @ 24.41 hrs Surf.Area= 19,147 sf Storage= 21,231 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	276.00'	32,320 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
276.00	9,903	0	0
276.50	12,805	5,677	5,677
277.00	15,998	7,201	12,878
277.50	19,310	8,827	21,705
278.00	23,151	10,615	32,320

Device	Routing	Invert	Outlet Devices
#1	Primary	277.50'	2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=276.00' TW=273.00' (Dynamic Tailwater)

↑ **1=Orifice/Grate** (Controls 0.00 cfs)

Stage-Area-Storage for Pond 1P: Pond 1A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
276.00	9,903	0	276.52	12,933	5,934
276.01	9,961	99	276.53	12,997	6,064
276.02	10,019	199	276.54	13,060	6,194
276.03	10,077	300	276.55	13,124	6,325
276.04	10,135	401	276.56	13,188	6,457
276.05	10,193	502	276.57	13,252	6,589
276.06	10,251	605	276.58	13,316	6,722
276.07	10,309	707	276.59	13,380	6,855
276.08	10,367	811	276.60	13,444	6,989
276.09	10,425	915	276.61	13,507	7,124
276.10	10,483	1,019	276.62	13,571	7,260
276.11	10,541	1,124	276.63	13,635	7,396
276.12	10,599	1,230	276.64	13,699	7,532
276.13	10,658	1,336	276.65	13,763	7,670
276.14	10,716	1,443	276.66	13,827	7,808
276.15	10,774	1,551	276.67	13,891	7,946
276.16	10,832	1,659	276.68	13,954	8,085
276.17	10,890	1,767	276.69	14,018	8,225
276.18	10,948	1,877	276.70	14,082	8,366
276.19	11,006	1,986	276.71	14,146	8,507
276.20	11,064	2,097	276.72	14,210	8,649
276.21	11,122	2,208	276.73	14,274	8,791
276.22	11,180	2,319	276.74	14,338	8,934
276.23	11,238	2,431	276.75	14,402	9,078
276.24	11,296	2,544	276.76	14,465	9,222
276.25	11,354	2,657	276.77	14,529	9,367
276.26	11,412	2,771	276.78	14,593	9,513
276.27	11,470	2,885	276.79	14,657	9,659
276.28	11,528	3,000	276.80	14,721	9,806
276.29	11,586	3,116	276.81	14,785	9,953
276.30	11,644	3,232	276.82	14,849	10,102
276.31	11,702	3,349	276.83	14,912	10,250
276.32	11,760	3,466	276.84	14,976	10,400
276.33	11,818	3,584	276.85	15,040	10,550
276.34	11,876	3,702	276.86	15,104	10,701
276.35	11,934	3,822	276.87	15,168	10,852
276.36	11,992	3,941	276.88	15,232	11,004
276.37	12,050	4,061	276.89	15,296	11,157
276.38	12,109	4,182	276.90	15,359	11,310
276.39	12,167	4,304	276.91	15,423	11,464
276.40	12,225	4,426	276.92	15,487	11,618
276.41	12,283	4,548	276.93	15,551	11,774
276.42	12,341	4,671	276.94	15,615	11,929
276.43	12,399	4,795	276.95	15,679	12,086
276.44	12,457	4,919	276.96	15,743	12,243
276.45	12,515	5,044	276.97	15,806	12,401
276.46	12,573	5,169	276.98	15,870	12,559
276.47	12,631	5,295	276.99	15,934	12,718
276.48	12,689	5,422	277.00	15,998	12,878
276.49	12,747	5,549	277.01	16,064	13,038
276.50	12,805	5,677	277.02	16,130	13,199
276.51	12,869	5,805	277.03	16,197	13,361

Stage-Area-Storage for Pond 1P: Pond 1A (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.04	16,263	13,523	277.56	19,771	22,877
277.05	16,329	13,686	277.57	19,848	23,075
277.06	16,395	13,850	277.58	19,925	23,274
277.07	16,462	14,014	277.59	20,001	23,474
277.08	16,528	14,179	277.60	20,078	23,674
277.09	16,594	14,344	277.61	20,155	23,875
277.10	16,660	14,511	277.62	20,232	24,077
277.11	16,727	14,678	277.63	20,309	24,280
277.12	16,793	14,845	277.64	20,385	24,483
277.13	16,859	15,013	277.65	20,462	24,688
277.14	16,925	15,182	277.66	20,539	24,893
277.15	16,992	15,352	277.67	20,616	25,098
277.16	17,058	15,522	277.68	20,693	25,305
277.17	17,124	15,693	277.69	20,770	25,512
277.18	17,190	15,865	277.70	20,846	25,720
277.19	17,257	16,037	277.71	20,923	25,929
277.20	17,323	16,210	277.72	21,000	26,139
277.21	17,389	16,383	277.73	21,077	26,349
277.22	17,455	16,558	277.74	21,154	26,560
277.23	17,522	16,732	277.75	21,231	26,772
277.24	17,588	16,908	277.76	21,307	26,985
277.25	17,654	17,084	277.77	21,384	27,198
277.26	17,720	17,261	277.78	21,461	27,413
277.27	17,786	17,439	277.79	21,538	27,628
277.28	17,853	17,617	277.80	21,615	27,843
277.29	17,919	17,796	277.81	21,691	28,060
277.30	17,985	17,975	277.82	21,768	28,277
277.31	18,051	18,155	277.83	21,845	28,495
277.32	18,118	18,336	277.84	21,922	28,714
277.33	18,184	18,518	277.85	21,999	28,934
277.34	18,250	18,700	277.86	22,076	29,154
277.35	18,316	18,883	277.87	22,152	29,375
277.36	18,383	19,066	277.88	22,229	29,597
277.37	18,449	19,250	277.89	22,306	29,820
277.38	18,515	19,435	277.90	22,383	30,043
277.39	18,581	19,621	277.91	22,460	30,268
277.40	18,648	19,807	277.92	22,536	30,493
277.41	18,714	19,994	277.93	22,613	30,718
277.42	18,780	20,181	277.94	22,690	30,945
277.43	18,846	20,369	277.95	22,767	31,172
277.44	18,913	20,558	277.96	22,844	31,400
277.45	18,979	20,748	277.97	22,921	31,629
277.46	19,045	20,938	277.98	22,997	31,859
277.47	19,111	21,128	277.99	23,074	32,089
277.48	19,178	21,320	278.00	23,151	32,320
277.49	19,244	21,512			
277.50	19,310	21,705			
277.51	19,387	21,898			
277.52	19,464	22,092			
277.53	19,540	22,288			
277.54	19,617	22,483			
277.55	19,694	22,680			

Summary for Pond 13P: 12" RCP to Street

[57] Hint: Peaked at 273.60' (Flood elevation advised)

Inflow Area = 4.459 ac, 48.56% Impervious, Inflow Depth = 2.06" for 25-YR NOAA event
 Inflow = 2.08 cfs @ 12.69 hrs, Volume= 0.764 af
 Outflow = 2.08 cfs @ 12.69 hrs, Volume= 0.764 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.08 cfs @ 12.69 hrs, Volume= 0.764 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 273.60' @ 12.69 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.73'	12.0" Round Culvert L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.73' / 272.43' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.08 cfs @ 12.69 hrs HW=273.60' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 2.08 cfs @ 3.83 fps)

Stage-Area-Storage for Pond 13P: 12" RCP to Street

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.73	0	273.25	0
272.74	0	273.26	0
272.75	0	273.27	0
272.76	0	273.28	0
272.77	0	273.29	0
272.78	0	273.30	0
272.79	0	273.31	0
272.80	0	273.32	0
272.81	0	273.33	0
272.82	0	273.34	0
272.83	0	273.35	0
272.84	0	273.36	0
272.85	0	273.37	0
272.86	0	273.38	0
272.87	0	273.39	0
272.88	0	273.40	0
272.89	0	273.41	0
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0		
273.23	0		
273.24	0		

Summary for Pond Basin 1B&1C: Basin 1B&1C

Inflow Area = 1.313 ac, 78.67% Impervious, Inflow Depth = 5.20" for 25-YR NOAA event
 Inflow = 7.10 cfs @ 12.08 hrs, Volume= 0.569 af
 Outflow = 1.83 cfs @ 12.45 hrs, Volume= 0.450 af, Atten= 74%, Lag= 22.0 min
 Discarded = 0.07 cfs @ 6.84 hrs, Volume= 0.270 af
 Primary = 1.76 cfs @ 12.45 hrs, Volume= 0.181 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 279.43' @ 12.45 hrs Surf.Area= 11,472 sf Storage= 12,501 cf

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

Center-of-Mass det. time= 494.0 min (1,250.1 - 756.1)

Volume	Invert	Avail.Storage	Storage Description
#1	277.33'	9,555 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 28,680 cf Overall - 4,792 cf Embedded = 23,888 cf x 40.0% Voids
#2	277.83'	4,792 cf	18.0" Round Pipe Storage Inside #1 L= 2,712.0'
		14,347 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.33	11,472	0	0
279.83	11,472	28,680	28,680

Device	Routing	Invert	Outlet Devices
#1	Discarded	277.33'	0.270 in/hr Exfiltration over Surface area
#2	Primary	279.20'	6.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.07 cfs @ 6.84 hrs HW=277.36' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=1.76 cfs @ 12.45 hrs HW=279.43' TW=275.81' (Dynamic Tailwater)

↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 1.76 cfs @ 1.29 fps)

Stage-Area-Storage for Pond Basin 1B&1C: Basin 1B&1C

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.33	11,472	0	277.85	11,472	2,394
277.34	11,472	46	277.86	11,472	2,446
277.35	11,472	92	277.87	11,472	2,499
277.36	11,472	138	277.88	11,472	2,553
277.37	11,472	184	277.89	11,472	2,608
277.38	11,472	229	277.90	11,472	2,664
277.39	11,472	275	277.91	11,472	2,721
277.40	11,472	321	277.92	11,472	2,778
277.41	11,472	367	277.93	11,472	2,836
277.42	11,472	413	277.94	11,472	2,894
277.43	11,472	459	277.95	11,472	2,953
277.44	11,472	505	277.96	11,472	3,012
277.45	11,472	551	277.97	11,472	3,072
277.46	11,472	597	277.98	11,472	3,132
277.47	11,472	642	277.99	11,472	3,193
277.48	11,472	688	278.00	11,472	3,254
277.49	11,472	734	278.01	11,472	3,316
277.50	11,472	780	278.02	11,472	3,378
277.51	11,472	826	278.03	11,472	3,440
277.52	11,472	872	278.04	11,472	3,503
277.53	11,472	918	278.05	11,472	3,566
277.54	11,472	964	278.06	11,472	3,629
277.55	11,472	1,010	278.07	11,472	3,693
277.56	11,472	1,055	278.08	11,472	3,757
277.57	11,472	1,101	278.09	11,472	3,821
277.58	11,472	1,147	278.10	11,472	3,885
277.59	11,472	1,193	278.11	11,472	3,950
277.60	11,472	1,239	278.12	11,472	4,015
277.61	11,472	1,285	278.13	11,472	4,080
277.62	11,472	1,331	278.14	11,472	4,146
277.63	11,472	1,377	278.15	11,472	4,212
277.64	11,472	1,423	278.16	11,472	4,278
277.65	11,472	1,468	278.17	11,472	4,344
277.66	11,472	1,514	278.18	11,472	4,410
277.67	11,472	1,560	278.19	11,472	4,477
277.68	11,472	1,606	278.20	11,472	4,544
277.69	11,472	1,652	278.21	11,472	4,611
277.70	11,472	1,698	278.22	11,472	4,678
277.71	11,472	1,744	278.23	11,472	4,745
277.72	11,472	1,790	278.24	11,472	4,813
277.73	11,472	1,836	278.25	11,472	4,881
277.74	11,472	1,881	278.26	11,472	4,949
277.75	11,472	1,927	278.27	11,472	5,017
277.76	11,472	1,973	278.28	11,472	5,085
277.77	11,472	2,019	278.29	11,472	5,153
277.78	11,472	2,065	278.30	11,472	5,222
277.79	11,472	2,111	278.31	11,472	5,290
277.80	11,472	2,157	278.32	11,472	5,359
277.81	11,472	2,203	278.33	11,472	5,428
277.82	11,472	2,249	278.34	11,472	5,497
277.83	11,472	2,294	278.35	11,472	5,566
277.84	11,472	2,343	278.36	11,472	5,635

Stage-Area-Storage for Pond Basin 1B&1C: Basin 1B&1C (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
278.37	11,472	5,704	278.89	11,472	9,331
278.38	11,472	5,774	278.90	11,472	9,399
278.39	11,472	5,843	278.91	11,472	9,467
278.40	11,472	5,913	278.92	11,472	9,534
278.41	11,472	5,982	278.93	11,472	9,602
278.42	11,472	6,052	278.94	11,472	9,669
278.43	11,472	6,122	278.95	11,472	9,737
278.44	11,472	6,192	278.96	11,472	9,804
278.45	11,472	6,261	278.97	11,472	9,870
278.46	11,472	6,331	278.98	11,472	9,937
278.47	11,472	6,401	278.99	11,472	10,004
278.48	11,472	6,472	279.00	11,472	10,070
278.49	11,472	6,542	279.01	11,472	10,136
278.50	11,472	6,612	279.02	11,472	10,202
278.51	11,472	6,682	279.03	11,472	10,267
278.52	11,472	6,752	279.04	11,472	10,332
278.53	11,472	6,822	279.05	11,472	10,397
278.54	11,472	6,893	279.06	11,472	10,462
278.55	11,472	6,963	279.07	11,472	10,527
278.56	11,472	7,033	279.08	11,472	10,591
278.57	11,472	7,103	279.09	11,472	10,655
278.58	11,472	7,174	279.10	11,472	10,718
278.59	11,472	7,244	279.11	11,472	10,782
278.60	11,472	7,314	279.12	11,472	10,845
278.61	11,472	7,385	279.13	11,472	10,907
278.62	11,472	7,455	279.14	11,472	10,970
278.63	11,472	7,525	279.15	11,472	11,032
278.64	11,472	7,595	279.16	11,472	11,093
278.65	11,472	7,666	279.17	11,472	11,154
278.66	11,472	7,736	279.18	11,472	11,215
278.67	11,472	7,806	279.19	11,472	11,275
278.68	11,472	7,876	279.20	11,472	11,335
278.69	11,472	7,946	279.21	11,472	11,395
278.70	11,472	8,016	279.22	11,472	11,454
278.71	11,472	8,086	279.23	11,472	11,512
278.72	11,472	8,156	279.24	11,472	11,570
278.73	11,472	8,226	279.25	11,472	11,627
278.74	11,472	8,296	279.26	11,472	11,683
278.75	11,472	8,365	279.27	11,472	11,739
278.76	11,472	8,435	279.28	11,472	11,794
278.77	11,472	8,504	279.29	11,472	11,848
278.78	11,472	8,574	279.30	11,472	11,902
278.79	11,472	8,643	279.31	11,472	11,954
278.80	11,472	8,712	279.32	11,472	12,005
278.81	11,472	8,782	279.33	11,472	12,053
278.82	11,472	8,851	279.34	11,472	12,099
278.83	11,472	8,920	279.35	11,472	12,145
278.84	11,472	8,988	279.36	11,472	12,191
278.85	11,472	9,057	279.37	11,472	12,237
278.86	11,472	9,126	279.38	11,472	12,283
278.87	11,472	9,194	279.39	11,472	12,328
278.88	11,472	9,263	279.40	11,472	12,374

Stage-Area-Storage for Pond Basin 1B&1C: Basin 1B&1C (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
279.41	11,472	12,420
279.42	11,472	12,466
279.43	11,472	12,512
279.44	11,472	12,558
279.45	11,472	12,604
279.46	11,472	12,650
279.47	11,472	12,696
279.48	11,472	12,741
279.49	11,472	12,787
279.50	11,472	12,833
279.51	11,472	12,879
279.52	11,472	12,925
279.53	11,472	12,971
279.54	11,472	13,017
279.55	11,472	13,063
279.56	11,472	13,109
279.57	11,472	13,154
279.58	11,472	13,200
279.59	11,472	13,246
279.60	11,472	13,292
279.61	11,472	13,338
279.62	11,472	13,384
279.63	11,472	13,430
279.64	11,472	13,476
279.65	11,472	13,522
279.66	11,472	13,567
279.67	11,472	13,613
279.68	11,472	13,659
279.69	11,472	13,705
279.70	11,472	13,751
279.71	11,472	13,797
279.72	11,472	13,843
279.73	11,472	13,889
279.74	11,472	13,935
279.75	11,472	13,980
279.76	11,472	14,026
279.77	11,472	14,072
279.78	11,472	14,118
279.79	11,472	14,164
279.80	11,472	14,210
279.81	11,472	14,256
279.82	11,472	14,302
279.83	11,472	14,347

Summary for Pond Basin 2B: Basin 2B

Inflow Area = 4.459 ac, 48.56% Impervious, Inflow Depth = 2.06" for 25-YR NOAA event
 Inflow = 6.49 cfs @ 12.13 hrs, Volume= 0.764 af
 Outflow = 2.08 cfs @ 12.69 hrs, Volume= 0.764 af, Atten= 68%, Lag= 33.3 min
 Primary = 2.08 cfs @ 12.69 hrs, Volume= 0.764 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 275.49' @ 12.69 hrs Surf.Area= 5,600 sf Storage= 8,918 cf

Plug-Flow detention time= 55.4 min calculated for 0.764 af (100% of inflow)

Center-of-Mass det. time= 55.3 min (840.6 - 785.3)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	6,696 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 28,000 cf Overall - 11,259 cf Embedded = 16,741 cf x 40.0% Voids
#2	273.50'	11,259 cf	48.0" Round Pipe Storage Inside #1 L= 896.0'
		17,956 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	5,600	0	0
278.00	5,600	28,000	28,000

Device	Routing	Invert	Outlet Devices
#1	Secondary	277.50'	6.0' 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
#2	Primary	273.00'	8.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=2.08 cfs @ 12.69 hrs HW=275.49' TW=273.95' (Dynamic Tailwater)

↑ **2=Orifice/Grate** (Orifice Controls 2.08 cfs @ 5.96 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=272.90' (Dynamic Tailwater)

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

Stage-Area-Storage for Pond Basin 2B: Basin 2B

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
273.00	0	273.52	1,169	274.04	2,875
273.01	22	273.53	1,195	274.05	2,912
273.02	45	273.54	1,221	274.06	2,949
273.03	67	273.55	1,248	274.07	2,987
273.04	90	273.56	1,275	274.08	3,024
273.05	112	273.57	1,303	274.09	3,062
273.06	134	273.58	1,331	274.10	3,099
273.07	157	273.59	1,360	274.11	3,137
273.08	179	273.60	1,389	274.12	3,175
273.09	202	273.61	1,418	274.13	3,213
273.10	224	273.62	1,448	274.14	3,251
273.11	246	273.63	1,478	274.15	3,290
273.12	269	273.64	1,508	274.16	3,328
273.13	291	273.65	1,538	274.17	3,366
273.14	314	273.66	1,569	274.18	3,405
273.15	336	273.67	1,600	274.19	3,443
273.16	358	273.68	1,631	274.20	3,482
273.17	381	273.69	1,663	274.21	3,521
273.18	403	273.70	1,694	274.22	3,560
273.19	426	273.71	1,726	274.23	3,599
273.20	448	273.72	1,758	274.24	3,638
273.21	470	273.73	1,791	274.25	3,677
273.22	493	273.74	1,823	274.26	3,716
273.23	515	273.75	1,856	274.27	3,755
273.24	538	273.76	1,889	274.28	3,795
273.25	560	273.77	1,922	274.29	3,834
273.26	582	273.78	1,955	274.30	3,874
273.27	605	273.79	1,989	274.31	3,914
273.28	627	273.80	2,022	274.32	3,953
273.29	650	273.81	2,056	274.33	3,993
273.30	672	273.82	2,090	274.34	4,033
273.31	694	273.83	2,124	274.35	4,073
273.32	717	273.84	2,158	274.36	4,113
273.33	739	273.85	2,193	274.37	4,153
273.34	762	273.86	2,228	274.38	4,193
273.35	784	273.87	2,262	274.39	4,233
273.36	806	273.88	2,297	274.40	4,274
273.37	829	273.89	2,332	274.41	4,314
273.38	851	273.90	2,368	274.42	4,355
273.39	874	273.91	2,403	274.43	4,395
273.40	896	273.92	2,438	274.44	4,436
273.41	918	273.93	2,474	274.45	4,476
273.42	941	273.94	2,510	274.46	4,517
273.43	963	273.95	2,546	274.47	4,558
273.44	986	273.96	2,582	274.48	4,599
273.45	1,008	273.97	2,618	274.49	4,640
273.46	1,030	273.98	2,654	274.50	4,681
273.47	1,053	273.99	2,691	274.51	4,722
273.48	1,075	274.00	2,727	274.52	4,763
273.49	1,098	274.01	2,764	274.53	4,804
273.50	1,120	274.02	2,801	274.54	4,845
273.51	1,144	274.03	2,838	274.55	4,887

Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
274.56	4,928	275.08	7,141	275.60	9,417
274.57	4,969	275.09	7,184	275.61	9,461
274.58	5,011	275.10	7,227	275.62	9,505
274.59	5,052	275.11	7,271	275.63	9,548
274.60	5,094	275.12	7,314	275.64	9,592
274.61	5,136	275.13	7,358	275.65	9,636
274.62	5,177	275.14	7,401	275.66	9,680
274.63	5,219	275.15	7,445	275.67	9,724
274.64	5,261	275.16	7,489	275.68	9,768
274.65	5,303	275.17	7,532	275.69	9,811
274.66	5,345	275.18	7,576	275.70	9,855
274.67	5,386	275.19	7,619	275.71	9,899
274.68	5,428	275.20	7,663	275.72	9,943
274.69	5,470	275.21	7,707	275.73	9,987
274.70	5,513	275.22	7,751	275.74	10,030
274.71	5,555	275.23	7,794	275.75	10,074
274.72	5,597	275.24	7,838	275.76	10,118
274.73	5,639	275.25	7,882	275.77	10,161
274.74	5,681	275.26	7,925	275.78	10,205
274.75	5,724	275.27	7,969	275.79	10,249
274.76	5,766	275.28	8,013	275.80	10,293
274.77	5,808	275.29	8,057	275.81	10,336
274.78	5,851	275.30	8,100	275.82	10,380
274.79	5,893	275.31	8,144	275.83	10,423
274.80	5,936	275.32	8,188	275.84	10,467
274.81	5,978	275.33	8,232	275.85	10,511
274.82	6,021	275.34	8,276	275.86	10,554
274.83	6,064	275.35	8,320	275.87	10,598
274.84	6,106	275.36	8,363	275.88	10,641
274.85	6,149	275.37	8,407	275.89	10,685
274.86	6,192	275.38	8,451	275.90	10,728
274.87	6,235	275.39	8,495	275.91	10,772
274.88	6,277	275.40	8,539	275.92	10,815
274.89	6,320	275.41	8,583	275.93	10,859
274.90	6,363	275.42	8,627	275.94	10,902
274.91	6,406	275.43	8,671	275.95	10,945
274.92	6,449	275.44	8,714	275.96	10,989
274.93	6,492	275.45	8,758	275.97	11,032
274.94	6,535	275.46	8,802	275.98	11,075
274.95	6,578	275.47	8,846	275.99	11,118
274.96	6,621	275.48	8,890	276.00	11,162
274.97	6,664	275.49	8,934	276.01	11,205
274.98	6,708	275.50	8,978	276.02	11,248
274.99	6,751	275.51	9,022	276.03	11,291
275.00	6,794	275.52	9,066	276.04	11,334
275.01	6,837	275.53	9,110	276.05	11,377
275.02	6,880	275.54	9,153	276.06	11,421
275.03	6,924	275.55	9,197	276.07	11,464
275.04	6,967	275.56	9,241	276.08	11,507
275.05	7,010	275.57	9,285	276.09	11,550
275.06	7,054	275.58	9,329	276.10	11,592
275.07	7,097	275.59	9,373	276.11	11,635

Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
276.12	11,678	276.64	13,843	277.16	15,797
276.13	11,721	276.65	13,883	277.17	15,832
276.14	11,764	276.66	13,923	277.18	15,866
276.15	11,807	276.67	13,963	277.19	15,900
276.16	11,849	276.68	14,002	277.20	15,933
276.17	11,892	276.69	14,042	277.21	15,967
276.18	11,935	276.70	14,082	277.22	16,001
276.19	11,977	276.71	14,121	277.23	16,034
276.20	12,020	276.72	14,161	277.24	16,067
276.21	12,062	276.73	14,200	277.25	16,100
276.22	12,105	276.74	14,240	277.26	16,133
276.23	12,147	276.75	14,279	277.27	16,165
276.24	12,190	276.76	14,318	277.28	16,197
276.25	12,232	276.77	14,357	277.29	16,230
276.26	12,274	276.78	14,396	277.30	16,261
276.27	12,317	276.79	14,435	277.31	16,293
276.28	12,359	276.80	14,474	277.32	16,324
276.29	12,401	276.81	14,512	277.33	16,356
276.30	12,443	276.82	14,551	277.34	16,387
276.31	12,485	276.83	14,589	277.35	16,417
276.32	12,527	276.84	14,628	277.36	16,448
276.33	12,569	276.85	14,666	277.37	16,478
276.34	12,611	276.86	14,704	277.38	16,508
276.35	12,653	276.87	14,743	277.39	16,537
276.36	12,695	276.88	14,781	277.40	16,567
276.37	12,737	276.89	14,818	277.41	16,596
276.38	12,778	276.90	14,856	277.42	16,624
276.39	12,820	276.91	14,894	277.43	16,652
276.40	12,862	276.92	14,932	277.44	16,680
276.41	12,903	276.93	14,969	277.45	16,708
276.42	12,945	276.94	15,006	277.46	16,735
276.43	12,986	276.95	15,044	277.47	16,761
276.44	13,028	276.96	15,081	277.48	16,787
276.45	13,069	276.97	15,118	277.49	16,812
276.46	13,110	276.98	15,155	277.50	16,836
276.47	13,152	276.99	15,192	277.51	16,858
276.48	13,193	277.00	15,228	277.52	16,880
276.49	13,234	277.01	15,265	277.53	16,903
276.50	13,275	277.02	15,301	277.54	16,925
276.51	13,316	277.03	15,338	277.55	16,948
276.52	13,357	277.04	15,374	277.56	16,970
276.53	13,398	277.05	15,410	277.57	16,992
276.54	13,439	277.06	15,446	277.58	17,015
276.55	13,479	277.07	15,482	277.59	17,037
276.56	13,520	277.08	15,517	277.60	17,060
276.57	13,561	277.09	15,553	277.61	17,082
276.58	13,601	277.10	15,588	277.62	17,104
276.59	13,642	277.11	15,623	277.63	17,127
276.60	13,682	277.12	15,658	277.64	17,149
276.61	13,722	277.13	15,693	277.65	17,172
276.62	13,762	277.14	15,728	277.66	17,194
276.63	13,803	277.15	15,763	277.67	17,216

Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)
277.68	17,239
277.69	17,261
277.70	17,284
277.71	17,306
277.72	17,328
277.73	17,351
277.74	17,373
277.75	17,396
277.76	17,418
277.77	17,440
277.78	17,463
277.79	17,485
277.80	17,508
277.81	17,530
277.82	17,552
277.83	17,575
277.84	17,597
277.85	17,620
277.86	17,642
277.87	17,664
277.88	17,687
277.89	17,709
277.90	17,732
277.91	17,754
277.92	17,776
277.93	17,799
277.94	17,821
277.95	17,844
277.96	17,866
277.97	17,888
277.98	17,911
277.99	17,933
278.00	17,956

Summary for Pond Basin 2b outlet: Basin 2b outlet

[57] Hint: Peaked at 273.95' (Flood elevation advised)

Inflow Area = 4.459 ac, 48.56% Impervious, Inflow Depth = 2.06" for 25-YR NOAA event
 Inflow = 2.08 cfs @ 12.69 hrs, Volume= 0.764 af
 Outflow = 2.08 cfs @ 12.69 hrs, Volume= 0.764 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.08 cfs @ 12.69 hrs, Volume= 0.764 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 273.95' @ 12.69 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.90'	12.0" Round Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.90' / 272.70' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.08 cfs @ 12.69 hrs HW=273.95' TW=273.60' (Dynamic Tailwater)

↑1=Culvert (Outlet Controls 2.08 cfs @ 3.13 fps)

Stage-Area-Storage for Pond Basin 2b outlet: Basin 2b outlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.90	0	273.42	0	273.94	0
272.91	0	273.43	0	273.95	0
272.92	0	273.44	0	273.96	0
272.93	0	273.45	0		
272.94	0	273.46	0		
272.95	0	273.47	0		
272.96	0	273.48	0		
272.97	0	273.49	0		
272.98	0	273.50	0		
272.99	0	273.51	0		
273.00	0	273.52	0		
273.01	0	273.53	0		
273.02	0	273.54	0		
273.03	0	273.55	0		
273.04	0	273.56	0		
273.05	0	273.57	0		
273.06	0	273.58	0		
273.07	0	273.59	0		
273.08	0	273.60	0		
273.09	0	273.61	0		
273.10	0	273.62	0		
273.11	0	273.63	0		
273.12	0	273.64	0		
273.13	0	273.65	0		
273.14	0	273.66	0		
273.15	0	273.67	0		
273.16	0	273.68	0		
273.17	0	273.69	0		
273.18	0	273.70	0		
273.19	0	273.71	0		
273.20	0	273.72	0		
273.21	0	273.73	0		
273.22	0	273.74	0		
273.23	0	273.75	0		
273.24	0	273.76	0		
273.25	0	273.77	0		
273.26	0	273.78	0		
273.27	0	273.79	0		
273.28	0	273.80	0		
273.29	0	273.81	0		
273.30	0	273.82	0		
273.31	0	273.83	0		
273.32	0	273.84	0		
273.33	0	273.85	0		
273.34	0	273.86	0		
273.35	0	273.87	0		
273.36	0	273.88	0		
273.37	0	273.89	0		
273.38	0	273.90	0		
273.39	0	273.91	0		
273.40	0	273.92	0		
273.41	0	273.93	0		

Summary for Pond Basin B outlet: Basin 1C outlet

[57] Hint: Peaked at 275.82' (Flood elevation advised)

Inflow Area = 1.313 ac, 78.67% Impervious, Inflow Depth = 1.65" for 25-YR NOAA event
 Inflow = 1.76 cfs @ 12.45 hrs, Volume= 0.181 af
 Outflow = 1.76 cfs @ 12.45 hrs, Volume= 0.181 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.76 cfs @ 12.45 hrs, Volume= 0.181 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 275.82' @ 12.50 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	275.10'	18.0" Round Culvert L= 86.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 275.10' / 273.80' S= 0.0151 ' / Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.76 cfs @ 12.45 hrs HW=275.81' TW=275.30' (Dynamic Tailwater)

↑1=Culvert (Outlet Controls 1.76 cfs @ 3.12 fps)

Stage-Area-Storage for Pond Basin B outlet: Basin 1C outlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
275.10	0	275.62	0	276.14	0
275.11	0	275.63	0	276.15	0
275.12	0	275.64	0	276.16	0
275.13	0	275.65	0	276.17	0
275.14	0	275.66	0	276.18	0
275.15	0	275.67	0	276.19	0
275.16	0	275.68	0	276.20	0
275.17	0	275.69	0	276.21	0
275.18	0	275.70	0	276.22	0
275.19	0	275.71	0	276.23	0
275.20	0	275.72	0	276.24	0
275.21	0	275.73	0	276.25	0
275.22	0	275.74	0	276.26	0
275.23	0	275.75	0	276.27	0
275.24	0	275.76	0	276.28	0
275.25	0	275.77	0	276.29	0
275.26	0	275.78	0	276.30	0
275.27	0	275.79	0	276.31	0
275.28	0	275.80	0	276.32	0
275.29	0	275.81	0	276.33	0
275.30	0	275.82	0	276.34	0
275.31	0	275.83	0	276.35	0
275.32	0	275.84	0	276.36	0
275.33	0	275.85	0	276.37	0
275.34	0	275.86	0	276.38	0
275.35	0	275.87	0	276.39	0
275.36	0	275.88	0	276.40	0
275.37	0	275.89	0	276.41	0
275.38	0	275.90	0	276.42	0
275.39	0	275.91	0	276.43	0
275.40	0	275.92	0	276.44	0
275.41	0	275.93	0	276.45	0
275.42	0	275.94	0	276.46	0
275.43	0	275.95	0	276.47	0
275.44	0	275.96	0	276.48	0
275.45	0	275.97	0	276.49	0
275.46	0	275.98	0	276.50	0
275.47	0	275.99	0	276.51	0
275.48	0	276.00	0	276.52	0
275.49	0	276.01	0	276.53	0
275.50	0	276.02	0	276.54	0
275.51	0	276.03	0	276.55	0
275.52	0	276.04	0	276.56	0
275.53	0	276.05	0	276.57	0
275.54	0	276.06	0	276.58	0
275.55	0	276.07	0	276.59	0
275.56	0	276.08	0	276.60	0
275.57	0	276.09	0		
275.58	0	276.10	0		
275.59	0	276.11	0		
275.60	0	276.12	0		
275.61	0	276.13	0		

18017 Pre-post-January 2023

Type III 24-hr 100-YR NOAA Rainfall=7.66"

Prepared by {enter your company name here}

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPost 1A: Post 1A Runoff Area=24,895 sf 0.00% Impervious Runoff Depth=4.50"
Flow Length=41' Slope=0.0350 '/' Tc=6.0 min CN=WQ Runoff=3.01 cfs 0.214 af

SubcatchmentPost 1B: Post 1B Runoff Area=33,788 sf 83.79% Impervious Runoff Depth=6.97"
Flow Length=210' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=5.57 cfs 0.450 af

SubcatchmentPost 1C: Post 1C Runoff Area=23,406 sf 71.27% Impervious Runoff Depth=6.62"
Flow Length=128' Slope=0.0125 '/' Tc=6.0 min CN=WQ Runoff=3.71 cfs 0.296 af

SubcatchmentPost 2A: Post 2A Runoff Area=21,838 sf 90.53% Impervious Runoff Depth=7.16"
Flow Length=207' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=3.67 cfs 0.299 af

SubcatchmentPost 2B: Post 2B Runoff Area=60,622 sf 71.93% Impervious Runoff Depth=6.64"
Flow Length=479' Slope=0.0150 '/' Tc=9.7 min CN=WQ Runoff=8.53 cfs 0.770 af

SubcatchmentPost 3: Post 3 Runoff Area=2,294 sf 0.00% Impervious Runoff Depth=4.62"
Flow Length=20' Slope=0.2500 '/' Tc=6.0 min CN=WQ Runoff=0.29 cfs 0.020 af

SubcatchmentPost 4: Post 4 Runoff Area=51,513 sf 11.10% Impervious Runoff Depth=4.93"
Flow Length=340' Slope=0.0450 '/' Tc=6.9 min CN=WQ Runoff=6.47 cfs 0.486 af

Reach Post: Post Inflow=5.51 cfs 1.643 af
Outflow=5.51 cfs 1.643 af

Reach Post Great Road: Post Great Road Inflow=5.23 cfs 1.622 af
Outflow=5.23 cfs 1.622 af

Reach Post Robinson Road: Post Robinson Road Inflow=0.29 cfs 0.020 af
Outflow=0.29 cfs 0.020 af

Pond 1P: Pond 1A Peak Elev=277.53' Storage=22,374 cf Inflow=9.46 cfs 0.700 af
Outflow=0.50 cfs 0.202 af

Pond 13P: 12" RCP to Street Peak Elev=273.83' Inflow=2.84 cfs 1.324 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=2.84 cfs 1.324 af

Pond Basin 1B&1C: Basin 1B&1C Peak Elev=279.66' Storage=13,576 cf Inflow=9.28 cfs 0.747 af
Discarded=0.07 cfs 0.274 af Primary=5.14 cfs 0.352 af Outflow=5.21 cfs 0.627 af

Pond Basin 2B: Basin 2B Peak Elev=277.25' Storage=16,103 cf Inflow=12.94 cfs 1.324 af
Primary=2.84 cfs 1.324 af Secondary=0.00 cfs 0.000 af Outflow=2.84 cfs 1.324 af

Pond Basin 2b outlet: Basin 2b outlet Peak Elev=274.40' Inflow=2.84 cfs 1.324 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0050 '/' Outflow=2.84 cfs 1.324 af

Pond Basin B outlet: Basin 1C outlet Peak Elev=277.28' Inflow=5.14 cfs 0.352 af
18.0" Round Culvert n=0.012 L=86.0' S=0.0151 '/' Outflow=5.14 cfs 0.352 af

Summary for Subcatchment Post 1A: Post 1A

Runoff = 3.01 cfs @ 12.09 hrs, Volume= 0.214 af, Depth= 4.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 100-YR NOAA Rainfall=7.66"

Area (sf)	CN	Description
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
17,878	74	>75% Grass cover, Good, HSG C
7,017	70	Woods, Good, HSG C
24,895		Weighted Average
24,895		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	41	0.0350	0.42		Lag/CN Method, Post 1A
1.6	41	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 1B: Post 1B

Runoff = 5.57 cfs @ 12.08 hrs, Volume= 0.450 af, Depth= 6.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR NOAA Rainfall=7.66"

Area (sf)	CN	Description
3,457	98	Roofs, HSG C
24,854	98	Paved parking, HSG C
5,477	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
33,788		Weighted Average
5,477		16.21% Pervious Area
28,311		83.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	210	0.0150	0.80		Lag/CN Method, Post 1B
4.4	210	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 1C: Post 1C

Runoff = 3.71 cfs @ 12.08 hrs, Volume= 0.296 af, Depth= 6.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR NOAA Rainfall=7.66"

Area (sf)	CN	Description
6,958	98	Roofs, HSG C
9,724	98	Paved parking, HSG C
6,724	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
23,406		Weighted Average
6,724		28.73% Pervious Area
16,682		71.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	128	0.0125	0.58		Lag/CN Method, Post 1C
3.7	128	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 2A: Post 2A

Runoff = 3.67 cfs @ 12.08 hrs, Volume= 0.299 af, Depth= 7.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR NOAA Rainfall=7.66"

Area (sf)	CN	Description
4,331	98	Roofs, HSG C
15,145	98	Paved parking, HSG C
295	98	Paved parking, HSG C
2,067	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
21,838		Weighted Average
2,067		9.47% Pervious Area
19,771		90.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	207	0.0150	0.88		Lag/CN Method, Post 2A
3.9	207	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 2B: Post 2B

Runoff = 8.53 cfs @ 12.13 hrs, Volume= 0.770 af, Depth= 6.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR NOAA Rainfall=7.66"

Area (sf)	CN	Description
12,010	98	Roofs, HSG C
26,052	98	Paved parking, HSG C
5,546	98	Paved parking, HSG C
17,014	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
60,622		Weighted Average
17,014		28.07% Pervious Area
43,608		71.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	479	0.0150	0.82		Lag/CN Method, Post 2B

Summary for Subcatchment Post 3: Post 3

Runoff = 0.29 cfs @ 12.09 hrs, Volume= 0.020 af, Depth= 4.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 100-YR NOAA Rainfall=7.66"

Area (sf)	CN	Description
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
2,294	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
2,294		Weighted Average
2,294		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.2500	1.00		Lag/CN Method, Post 3
0.3	20	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment Post 4: Post 4

Runoff = 6.47 cfs @ 12.10 hrs, Volume= 0.486 af, Depth= 4.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 100-YR NOAA Rainfall=7.66"

Area (sf)	CN	Description
2,572	98	Roofs, HSG C
3,144	98	Paved parking, HSG C
45,797	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
51,513		Weighted Average
45,797		88.90% Pervious Area
5,716		11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	340	0.0450	0.82		Lag/CN Method, Pre 4

Summary for Reach Post: Post

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

Inflow Area = 5.013 ac, 52.25% Impervious, Inflow Depth = 3.93" for 100-YR NOAA event
Inflow = 5.51 cfs @ 12.09 hrs, Volume= 1.643 af
Outflow = 5.51 cfs @ 12.09 hrs, Volume= 1.643 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach Post Great Road: Post Great Road

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

Inflow Area = 4.960 ac, 52.80% Impervious, Inflow Depth = 3.93" for 100-YR NOAA event
Inflow = 5.23 cfs @ 12.09 hrs, Volume= 1.622 af
Outflow = 5.23 cfs @ 12.09 hrs, Volume= 1.622 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach Post Robinson Road: Post Robinson Road

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

Inflow Area = 0.053 ac, 0.00% Impervious, Inflow Depth = 4.62" for 100-YR NOAA event
Inflow = 0.29 cfs @ 12.09 hrs, Volume= 0.020 af
Outflow = 0.29 cfs @ 12.09 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 1P: Pond 1A

Inflow Area = 1.754 ac, 7.48% Impervious, Inflow Depth = 4.79" for 100-YR NOAA event
 Inflow = 9.46 cfs @ 12.09 hrs, Volume= 0.700 af
 Outflow = 0.50 cfs @ 14.63 hrs, Volume= 0.202 af, Atten= 95%, Lag= 152.1 min
 Primary = 0.50 cfs @ 14.63 hrs, Volume= 0.202 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 277.53' @ 14.63 hrs Surf.Area= 19,574 sf Storage= 22,374 cf

Plug-Flow detention time= 404.6 min calculated for 0.202 af (29% of inflow)
 Center-of-Mass det. time= 261.2 min (1,071.7 - 810.5)

Volume	Invert	Avail.Storage	Storage Description
#1	276.00'	32,320 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
276.00	9,903	0	0
276.50	12,805	5,677	5,677
277.00	15,998	7,201	12,878
277.50	19,310	8,827	21,705
278.00	23,151	10,615	32,320

Device	Routing	Invert	Outlet Devices
#1	Primary	277.50'	2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.50 cfs @ 14.63 hrs HW=277.53' TW=275.50' (Dynamic Tailwater)

↑ **1=Orifice/Grate** (Weir Controls 0.50 cfs @ 0.61 fps)

Stage-Area-Storage for Pond 1P: Pond 1A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
276.00	9,903	0	276.52	12,933	5,934
276.01	9,961	99	276.53	12,997	6,064
276.02	10,019	199	276.54	13,060	6,194
276.03	10,077	300	276.55	13,124	6,325
276.04	10,135	401	276.56	13,188	6,457
276.05	10,193	502	276.57	13,252	6,589
276.06	10,251	605	276.58	13,316	6,722
276.07	10,309	707	276.59	13,380	6,855
276.08	10,367	811	276.60	13,444	6,989
276.09	10,425	915	276.61	13,507	7,124
276.10	10,483	1,019	276.62	13,571	7,260
276.11	10,541	1,124	276.63	13,635	7,396
276.12	10,599	1,230	276.64	13,699	7,532
276.13	10,658	1,336	276.65	13,763	7,670
276.14	10,716	1,443	276.66	13,827	7,808
276.15	10,774	1,551	276.67	13,891	7,946
276.16	10,832	1,659	276.68	13,954	8,085
276.17	10,890	1,767	276.69	14,018	8,225
276.18	10,948	1,877	276.70	14,082	8,366
276.19	11,006	1,986	276.71	14,146	8,507
276.20	11,064	2,097	276.72	14,210	8,649
276.21	11,122	2,208	276.73	14,274	8,791
276.22	11,180	2,319	276.74	14,338	8,934
276.23	11,238	2,431	276.75	14,402	9,078
276.24	11,296	2,544	276.76	14,465	9,222
276.25	11,354	2,657	276.77	14,529	9,367
276.26	11,412	2,771	276.78	14,593	9,513
276.27	11,470	2,885	276.79	14,657	9,659
276.28	11,528	3,000	276.80	14,721	9,806
276.29	11,586	3,116	276.81	14,785	9,953
276.30	11,644	3,232	276.82	14,849	10,102
276.31	11,702	3,349	276.83	14,912	10,250
276.32	11,760	3,466	276.84	14,976	10,400
276.33	11,818	3,584	276.85	15,040	10,550
276.34	11,876	3,702	276.86	15,104	10,701
276.35	11,934	3,822	276.87	15,168	10,852
276.36	11,992	3,941	276.88	15,232	11,004
276.37	12,050	4,061	276.89	15,296	11,157
276.38	12,109	4,182	276.90	15,359	11,310
276.39	12,167	4,304	276.91	15,423	11,464
276.40	12,225	4,426	276.92	15,487	11,618
276.41	12,283	4,548	276.93	15,551	11,774
276.42	12,341	4,671	276.94	15,615	11,929
276.43	12,399	4,795	276.95	15,679	12,086
276.44	12,457	4,919	276.96	15,743	12,243
276.45	12,515	5,044	276.97	15,806	12,401
276.46	12,573	5,169	276.98	15,870	12,559
276.47	12,631	5,295	276.99	15,934	12,718
276.48	12,689	5,422	277.00	15,998	12,878
276.49	12,747	5,549	277.01	16,064	13,038
276.50	12,805	5,677	277.02	16,130	13,199
276.51	12,869	5,805	277.03	16,197	13,361

Stage-Area-Storage for Pond 1P: Pond 1A (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.04	16,263	13,523	277.56	19,771	22,877
277.05	16,329	13,686	277.57	19,848	23,075
277.06	16,395	13,850	277.58	19,925	23,274
277.07	16,462	14,014	277.59	20,001	23,474
277.08	16,528	14,179	277.60	20,078	23,674
277.09	16,594	14,344	277.61	20,155	23,875
277.10	16,660	14,511	277.62	20,232	24,077
277.11	16,727	14,678	277.63	20,309	24,280
277.12	16,793	14,845	277.64	20,385	24,483
277.13	16,859	15,013	277.65	20,462	24,688
277.14	16,925	15,182	277.66	20,539	24,893
277.15	16,992	15,352	277.67	20,616	25,098
277.16	17,058	15,522	277.68	20,693	25,305
277.17	17,124	15,693	277.69	20,770	25,512
277.18	17,190	15,865	277.70	20,846	25,720
277.19	17,257	16,037	277.71	20,923	25,929
277.20	17,323	16,210	277.72	21,000	26,139
277.21	17,389	16,383	277.73	21,077	26,349
277.22	17,455	16,558	277.74	21,154	26,560
277.23	17,522	16,732	277.75	21,231	26,772
277.24	17,588	16,908	277.76	21,307	26,985
277.25	17,654	17,084	277.77	21,384	27,198
277.26	17,720	17,261	277.78	21,461	27,413
277.27	17,786	17,439	277.79	21,538	27,628
277.28	17,853	17,617	277.80	21,615	27,843
277.29	17,919	17,796	277.81	21,691	28,060
277.30	17,985	17,975	277.82	21,768	28,277
277.31	18,051	18,155	277.83	21,845	28,495
277.32	18,118	18,336	277.84	21,922	28,714
277.33	18,184	18,518	277.85	21,999	28,934
277.34	18,250	18,700	277.86	22,076	29,154
277.35	18,316	18,883	277.87	22,152	29,375
277.36	18,383	19,066	277.88	22,229	29,597
277.37	18,449	19,250	277.89	22,306	29,820
277.38	18,515	19,435	277.90	22,383	30,043
277.39	18,581	19,621	277.91	22,460	30,268
277.40	18,648	19,807	277.92	22,536	30,493
277.41	18,714	19,994	277.93	22,613	30,718
277.42	18,780	20,181	277.94	22,690	30,945
277.43	18,846	20,369	277.95	22,767	31,172
277.44	18,913	20,558	277.96	22,844	31,400
277.45	18,979	20,748	277.97	22,921	31,629
277.46	19,045	20,938	277.98	22,997	31,859
277.47	19,111	21,128	277.99	23,074	32,089
277.48	19,178	21,320	278.00	23,151	32,320
277.49	19,244	21,512			
277.50	19,310	21,705			
277.51	19,387	21,898			
277.52	19,464	22,092			
277.53	19,540	22,288			
277.54	19,617	22,483			
277.55	19,694	22,680			

Summary for Pond 13P: 12" RCP to Street

[57] Hint: Peaked at 273.83' (Flood elevation advised)

Inflow Area = 4.459 ac, 48.56% Impervious, Inflow Depth = 3.56" for 100-YR NOAA event
 Inflow = 2.84 cfs @ 12.67 hrs, Volume= 1.324 af
 Outflow = 2.84 cfs @ 12.67 hrs, Volume= 1.324 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.84 cfs @ 12.67 hrs, Volume= 1.324 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 273.83' @ 12.67 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.73'	12.0" Round Culvert L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.73' / 272.43' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.84 cfs @ 12.67 hrs HW=273.83' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 2.84 cfs @ 4.08 fps)

Stage-Area-Storage for Pond 13P: 12" RCP to Street

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.73	0	273.25	0	273.77	0
272.74	0	273.26	0	273.78	0
272.75	0	273.27	0	273.79	0
272.76	0	273.28	0	273.80	0
272.77	0	273.29	0	273.81	0
272.78	0	273.30	0	273.82	0
272.79	0	273.31	0	273.83	0
272.80	0	273.32	0	273.84	0
272.81	0	273.33	0		
272.82	0	273.34	0		
272.83	0	273.35	0		
272.84	0	273.36	0		
272.85	0	273.37	0		
272.86	0	273.38	0		
272.87	0	273.39	0		
272.88	0	273.40	0		
272.89	0	273.41	0		
272.90	0	273.42	0		
272.91	0	273.43	0		
272.92	0	273.44	0		
272.93	0	273.45	0		
272.94	0	273.46	0		
272.95	0	273.47	0		
272.96	0	273.48	0		
272.97	0	273.49	0		
272.98	0	273.50	0		
272.99	0	273.51	0		
273.00	0	273.52	0		
273.01	0	273.53	0		
273.02	0	273.54	0		
273.03	0	273.55	0		
273.04	0	273.56	0		
273.05	0	273.57	0		
273.06	0	273.58	0		
273.07	0	273.59	0		
273.08	0	273.60	0		
273.09	0	273.61	0		
273.10	0	273.62	0		
273.11	0	273.63	0		
273.12	0	273.64	0		
273.13	0	273.65	0		
273.14	0	273.66	0		
273.15	0	273.67	0		
273.16	0	273.68	0		
273.17	0	273.69	0		
273.18	0	273.70	0		
273.19	0	273.71	0		
273.20	0	273.72	0		
273.21	0	273.73	0		
273.22	0	273.74	0		
273.23	0	273.75	0		
273.24	0	273.76	0		

Summary for Pond Basin 1B&1C: Basin 1B&1C

Inflow Area = 1.313 ac, 78.67% Impervious, Inflow Depth = 6.82" for 100-YR NOAA event
 Inflow = 9.28 cfs @ 12.08 hrs, Volume= 0.747 af
 Outflow = 5.21 cfs @ 12.20 hrs, Volume= 0.627 af, Atten= 44%, Lag= 7.0 min
 Discarded = 0.07 cfs @ 5.21 hrs, Volume= 0.274 af
 Primary = 5.14 cfs @ 12.20 hrs, Volume= 0.352 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 279.66' @ 12.20 hrs Surf.Area= 11,472 sf Storage= 13,576 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 368.7 min (1,121.5 - 752.8)

Volume	Invert	Avail.Storage	Storage Description
#1	277.33'	9,555 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 28,680 cf Overall - 4,792 cf Embedded = 23,888 cf x 40.0% Voids
#2	277.83'	4,792 cf	18.0" Round Pipe Storage Inside #1 L= 2,712.0'
		14,347 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.33	11,472	0	0
279.83	11,472	28,680	28,680

Device	Routing	Invert	Outlet Devices
#1	Discarded	277.33'	0.270 in/hr Exfiltration over Surface area
#2	Primary	279.20'	6.0' long x 1.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.07 cfs @ 5.21 hrs HW=277.36' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=5.14 cfs @ 12.20 hrs HW=279.66' TW=276.36' (Dynamic Tailwater)

↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 5.14 cfs @ 1.85 fps)

Stage-Area-Storage for Pond Basin 1B&1C: Basin 1B&1C

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.33	11,472	0	277.85	11,472	2,394
277.34	11,472	46	277.86	11,472	2,446
277.35	11,472	92	277.87	11,472	2,499
277.36	11,472	138	277.88	11,472	2,553
277.37	11,472	184	277.89	11,472	2,608
277.38	11,472	229	277.90	11,472	2,664
277.39	11,472	275	277.91	11,472	2,721
277.40	11,472	321	277.92	11,472	2,778
277.41	11,472	367	277.93	11,472	2,836
277.42	11,472	413	277.94	11,472	2,894
277.43	11,472	459	277.95	11,472	2,953
277.44	11,472	505	277.96	11,472	3,012
277.45	11,472	551	277.97	11,472	3,072
277.46	11,472	597	277.98	11,472	3,132
277.47	11,472	642	277.99	11,472	3,193
277.48	11,472	688	278.00	11,472	3,254
277.49	11,472	734	278.01	11,472	3,316
277.50	11,472	780	278.02	11,472	3,378
277.51	11,472	826	278.03	11,472	3,440
277.52	11,472	872	278.04	11,472	3,503
277.53	11,472	918	278.05	11,472	3,566
277.54	11,472	964	278.06	11,472	3,629
277.55	11,472	1,010	278.07	11,472	3,693
277.56	11,472	1,055	278.08	11,472	3,757
277.57	11,472	1,101	278.09	11,472	3,821
277.58	11,472	1,147	278.10	11,472	3,885
277.59	11,472	1,193	278.11	11,472	3,950
277.60	11,472	1,239	278.12	11,472	4,015
277.61	11,472	1,285	278.13	11,472	4,080
277.62	11,472	1,331	278.14	11,472	4,146
277.63	11,472	1,377	278.15	11,472	4,212
277.64	11,472	1,423	278.16	11,472	4,278
277.65	11,472	1,468	278.17	11,472	4,344
277.66	11,472	1,514	278.18	11,472	4,410
277.67	11,472	1,560	278.19	11,472	4,477
277.68	11,472	1,606	278.20	11,472	4,544
277.69	11,472	1,652	278.21	11,472	4,611
277.70	11,472	1,698	278.22	11,472	4,678
277.71	11,472	1,744	278.23	11,472	4,745
277.72	11,472	1,790	278.24	11,472	4,813
277.73	11,472	1,836	278.25	11,472	4,881
277.74	11,472	1,881	278.26	11,472	4,949
277.75	11,472	1,927	278.27	11,472	5,017
277.76	11,472	1,973	278.28	11,472	5,085
277.77	11,472	2,019	278.29	11,472	5,153
277.78	11,472	2,065	278.30	11,472	5,222
277.79	11,472	2,111	278.31	11,472	5,290
277.80	11,472	2,157	278.32	11,472	5,359
277.81	11,472	2,203	278.33	11,472	5,428
277.82	11,472	2,249	278.34	11,472	5,497
277.83	11,472	2,294	278.35	11,472	5,566
277.84	11,472	2,343	278.36	11,472	5,635

Stage-Area-Storage for Pond Basin 1B&1C: Basin 1B&1C (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
278.37	11,472	5,704	278.89	11,472	9,331
278.38	11,472	5,774	278.90	11,472	9,399
278.39	11,472	5,843	278.91	11,472	9,467
278.40	11,472	5,913	278.92	11,472	9,534
278.41	11,472	5,982	278.93	11,472	9,602
278.42	11,472	6,052	278.94	11,472	9,669
278.43	11,472	6,122	278.95	11,472	9,737
278.44	11,472	6,192	278.96	11,472	9,804
278.45	11,472	6,261	278.97	11,472	9,870
278.46	11,472	6,331	278.98	11,472	9,937
278.47	11,472	6,401	278.99	11,472	10,004
278.48	11,472	6,472	279.00	11,472	10,070
278.49	11,472	6,542	279.01	11,472	10,136
278.50	11,472	6,612	279.02	11,472	10,202
278.51	11,472	6,682	279.03	11,472	10,267
278.52	11,472	6,752	279.04	11,472	10,332
278.53	11,472	6,822	279.05	11,472	10,397
278.54	11,472	6,893	279.06	11,472	10,462
278.55	11,472	6,963	279.07	11,472	10,527
278.56	11,472	7,033	279.08	11,472	10,591
278.57	11,472	7,103	279.09	11,472	10,655
278.58	11,472	7,174	279.10	11,472	10,718
278.59	11,472	7,244	279.11	11,472	10,782
278.60	11,472	7,314	279.12	11,472	10,845
278.61	11,472	7,385	279.13	11,472	10,907
278.62	11,472	7,455	279.14	11,472	10,970
278.63	11,472	7,525	279.15	11,472	11,032
278.64	11,472	7,595	279.16	11,472	11,093
278.65	11,472	7,666	279.17	11,472	11,154
278.66	11,472	7,736	279.18	11,472	11,215
278.67	11,472	7,806	279.19	11,472	11,275
278.68	11,472	7,876	279.20	11,472	11,335
278.69	11,472	7,946	279.21	11,472	11,395
278.70	11,472	8,016	279.22	11,472	11,454
278.71	11,472	8,086	279.23	11,472	11,512
278.72	11,472	8,156	279.24	11,472	11,570
278.73	11,472	8,226	279.25	11,472	11,627
278.74	11,472	8,296	279.26	11,472	11,683
278.75	11,472	8,365	279.27	11,472	11,739
278.76	11,472	8,435	279.28	11,472	11,794
278.77	11,472	8,504	279.29	11,472	11,848
278.78	11,472	8,574	279.30	11,472	11,902
278.79	11,472	8,643	279.31	11,472	11,954
278.80	11,472	8,712	279.32	11,472	12,005
278.81	11,472	8,782	279.33	11,472	12,053
278.82	11,472	8,851	279.34	11,472	12,099
278.83	11,472	8,920	279.35	11,472	12,145
278.84	11,472	8,988	279.36	11,472	12,191
278.85	11,472	9,057	279.37	11,472	12,237
278.86	11,472	9,126	279.38	11,472	12,283
278.87	11,472	9,194	279.39	11,472	12,328
278.88	11,472	9,263	279.40	11,472	12,374

Stage-Area-Storage for Pond Basin 1B&1C: Basin 1B&1C (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
279.41	11,472	12,420
279.42	11,472	12,466
279.43	11,472	12,512
279.44	11,472	12,558
279.45	11,472	12,604
279.46	11,472	12,650
279.47	11,472	12,696
279.48	11,472	12,741
279.49	11,472	12,787
279.50	11,472	12,833
279.51	11,472	12,879
279.52	11,472	12,925
279.53	11,472	12,971
279.54	11,472	13,017
279.55	11,472	13,063
279.56	11,472	13,109
279.57	11,472	13,154
279.58	11,472	13,200
279.59	11,472	13,246
279.60	11,472	13,292
279.61	11,472	13,338
279.62	11,472	13,384
279.63	11,472	13,430
279.64	11,472	13,476
279.65	11,472	13,522
279.66	11,472	13,567
279.67	11,472	13,613
279.68	11,472	13,659
279.69	11,472	13,705
279.70	11,472	13,751
279.71	11,472	13,797
279.72	11,472	13,843
279.73	11,472	13,889
279.74	11,472	13,935
279.75	11,472	13,980
279.76	11,472	14,026
279.77	11,472	14,072
279.78	11,472	14,118
279.79	11,472	14,164
279.80	11,472	14,210
279.81	11,472	14,256
279.82	11,472	14,302
279.83	11,472	14,347

Summary for Pond Basin 2B: Basin 2B

Inflow Area = 4.459 ac, 48.56% Impervious, Inflow Depth = 3.56" for 100-YR NOAA event
 Inflow = 12.94 cfs @ 12.16 hrs, Volume= 1.324 af
 Outflow = 2.84 cfs @ 12.67 hrs, Volume= 1.324 af, Atten= 78%, Lag= 30.7 min
 Primary = 2.84 cfs @ 12.67 hrs, Volume= 1.324 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
 Peak Elev= 277.25' @ 12.67 hrs Surf.Area= 5,600 sf Storage= 16,103 cf

Plug-Flow detention time= 64.1 min calculated for 1.323 af (100% of inflow)
 Center-of-Mass det. time= 64.0 min (891.3 - 827.3)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	6,696 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 28,000 cf Overall - 11,259 cf Embedded = 16,741 cf x 40.0% Voids
#2	273.50'	11,259 cf	48.0" Round Pipe Storage Inside #1 L= 896.0'
		17,956 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	5,600	0	0
278.00	5,600	28,000	28,000

Device	Routing	Invert	Outlet Devices
#1	Secondary	277.50'	6.0' 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
#2	Primary	273.00'	8.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=2.84 cfs @ 12.67 hrs HW=277.25' TW=274.40' (Dynamic Tailwater)
 ↑ **2=Orifice/Grate** (Orifice Controls 2.84 cfs @ 8.13 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=272.90' (Dynamic Tailwater)
 ↑ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

18017 Pre-post-January 2023

Type III 24-hr 100-YR NOAA Rainfall=7.66"

Prepared by {enter your company name here}

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Stage-Area-Storage for Pond Basin 2B: Basin 2B

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
273.00	0	273.52	1,169	274.04	2,875
273.01	22	273.53	1,195	274.05	2,912
273.02	45	273.54	1,221	274.06	2,949
273.03	67	273.55	1,248	274.07	2,987
273.04	90	273.56	1,275	274.08	3,024
273.05	112	273.57	1,303	274.09	3,062
273.06	134	273.58	1,331	274.10	3,099
273.07	157	273.59	1,360	274.11	3,137
273.08	179	273.60	1,389	274.12	3,175
273.09	202	273.61	1,418	274.13	3,213
273.10	224	273.62	1,448	274.14	3,251
273.11	246	273.63	1,478	274.15	3,290
273.12	269	273.64	1,508	274.16	3,328
273.13	291	273.65	1,538	274.17	3,366
273.14	314	273.66	1,569	274.18	3,405
273.15	336	273.67	1,600	274.19	3,443
273.16	358	273.68	1,631	274.20	3,482
273.17	381	273.69	1,663	274.21	3,521
273.18	403	273.70	1,694	274.22	3,560
273.19	426	273.71	1,726	274.23	3,599
273.20	448	273.72	1,758	274.24	3,638
273.21	470	273.73	1,791	274.25	3,677
273.22	493	273.74	1,823	274.26	3,716
273.23	515	273.75	1,856	274.27	3,755
273.24	538	273.76	1,889	274.28	3,795
273.25	560	273.77	1,922	274.29	3,834
273.26	582	273.78	1,955	274.30	3,874
273.27	605	273.79	1,989	274.31	3,914
273.28	627	273.80	2,022	274.32	3,953
273.29	650	273.81	2,056	274.33	3,993
273.30	672	273.82	2,090	274.34	4,033
273.31	694	273.83	2,124	274.35	4,073
273.32	717	273.84	2,158	274.36	4,113
273.33	739	273.85	2,193	274.37	4,153
273.34	762	273.86	2,228	274.38	4,193
273.35	784	273.87	2,262	274.39	4,233
273.36	806	273.88	2,297	274.40	4,274
273.37	829	273.89	2,332	274.41	4,314
273.38	851	273.90	2,368	274.42	4,355
273.39	874	273.91	2,403	274.43	4,395
273.40	896	273.92	2,438	274.44	4,436
273.41	918	273.93	2,474	274.45	4,476
273.42	941	273.94	2,510	274.46	4,517
273.43	963	273.95	2,546	274.47	4,558
273.44	986	273.96	2,582	274.48	4,599
273.45	1,008	273.97	2,618	274.49	4,640
273.46	1,030	273.98	2,654	274.50	4,681
273.47	1,053	273.99	2,691	274.51	4,722
273.48	1,075	274.00	2,727	274.52	4,763
273.49	1,098	274.01	2,764	274.53	4,804
273.50	1,120	274.02	2,801	274.54	4,845
273.51	1,144	274.03	2,838	274.55	4,887

Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
274.56	4,928	275.08	7,141	275.60	9,417
274.57	4,969	275.09	7,184	275.61	9,461
274.58	5,011	275.10	7,227	275.62	9,505
274.59	5,052	275.11	7,271	275.63	9,548
274.60	5,094	275.12	7,314	275.64	9,592
274.61	5,136	275.13	7,358	275.65	9,636
274.62	5,177	275.14	7,401	275.66	9,680
274.63	5,219	275.15	7,445	275.67	9,724
274.64	5,261	275.16	7,489	275.68	9,768
274.65	5,303	275.17	7,532	275.69	9,811
274.66	5,345	275.18	7,576	275.70	9,855
274.67	5,386	275.19	7,619	275.71	9,899
274.68	5,428	275.20	7,663	275.72	9,943
274.69	5,470	275.21	7,707	275.73	9,987
274.70	5,513	275.22	7,751	275.74	10,030
274.71	5,555	275.23	7,794	275.75	10,074
274.72	5,597	275.24	7,838	275.76	10,118
274.73	5,639	275.25	7,882	275.77	10,161
274.74	5,681	275.26	7,925	275.78	10,205
274.75	5,724	275.27	7,969	275.79	10,249
274.76	5,766	275.28	8,013	275.80	10,293
274.77	5,808	275.29	8,057	275.81	10,336
274.78	5,851	275.30	8,100	275.82	10,380
274.79	5,893	275.31	8,144	275.83	10,423
274.80	5,936	275.32	8,188	275.84	10,467
274.81	5,978	275.33	8,232	275.85	10,511
274.82	6,021	275.34	8,276	275.86	10,554
274.83	6,064	275.35	8,320	275.87	10,598
274.84	6,106	275.36	8,363	275.88	10,641
274.85	6,149	275.37	8,407	275.89	10,685
274.86	6,192	275.38	8,451	275.90	10,728
274.87	6,235	275.39	8,495	275.91	10,772
274.88	6,277	275.40	8,539	275.92	10,815
274.89	6,320	275.41	8,583	275.93	10,859
274.90	6,363	275.42	8,627	275.94	10,902
274.91	6,406	275.43	8,671	275.95	10,945
274.92	6,449	275.44	8,714	275.96	10,989
274.93	6,492	275.45	8,758	275.97	11,032
274.94	6,535	275.46	8,802	275.98	11,075
274.95	6,578	275.47	8,846	275.99	11,118
274.96	6,621	275.48	8,890	276.00	11,162
274.97	6,664	275.49	8,934	276.01	11,205
274.98	6,708	275.50	8,978	276.02	11,248
274.99	6,751	275.51	9,022	276.03	11,291
275.00	6,794	275.52	9,066	276.04	11,334
275.01	6,837	275.53	9,110	276.05	11,377
275.02	6,880	275.54	9,153	276.06	11,421
275.03	6,924	275.55	9,197	276.07	11,464
275.04	6,967	275.56	9,241	276.08	11,507
275.05	7,010	275.57	9,285	276.09	11,550
275.06	7,054	275.58	9,329	276.10	11,592
275.07	7,097	275.59	9,373	276.11	11,635

Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
276.12	11,678	276.64	13,843	277.16	15,797
276.13	11,721	276.65	13,883	277.17	15,832
276.14	11,764	276.66	13,923	277.18	15,866
276.15	11,807	276.67	13,963	277.19	15,900
276.16	11,849	276.68	14,002	277.20	15,933
276.17	11,892	276.69	14,042	277.21	15,967
276.18	11,935	276.70	14,082	277.22	16,001
276.19	11,977	276.71	14,121	277.23	16,034
276.20	12,020	276.72	14,161	277.24	16,067
276.21	12,062	276.73	14,200	277.25	16,100
276.22	12,105	276.74	14,240	277.26	16,133
276.23	12,147	276.75	14,279	277.27	16,165
276.24	12,190	276.76	14,318	277.28	16,197
276.25	12,232	276.77	14,357	277.29	16,230
276.26	12,274	276.78	14,396	277.30	16,261
276.27	12,317	276.79	14,435	277.31	16,293
276.28	12,359	276.80	14,474	277.32	16,324
276.29	12,401	276.81	14,512	277.33	16,356
276.30	12,443	276.82	14,551	277.34	16,387
276.31	12,485	276.83	14,589	277.35	16,417
276.32	12,527	276.84	14,628	277.36	16,448
276.33	12,569	276.85	14,666	277.37	16,478
276.34	12,611	276.86	14,704	277.38	16,508
276.35	12,653	276.87	14,743	277.39	16,537
276.36	12,695	276.88	14,781	277.40	16,567
276.37	12,737	276.89	14,818	277.41	16,596
276.38	12,778	276.90	14,856	277.42	16,624
276.39	12,820	276.91	14,894	277.43	16,652
276.40	12,862	276.92	14,932	277.44	16,680
276.41	12,903	276.93	14,969	277.45	16,708
276.42	12,945	276.94	15,006	277.46	16,735
276.43	12,986	276.95	15,044	277.47	16,761
276.44	13,028	276.96	15,081	277.48	16,787
276.45	13,069	276.97	15,118	277.49	16,812
276.46	13,110	276.98	15,155	277.50	16,836
276.47	13,152	276.99	15,192	277.51	16,858
276.48	13,193	277.00	15,228	277.52	16,880
276.49	13,234	277.01	15,265	277.53	16,903
276.50	13,275	277.02	15,301	277.54	16,925
276.51	13,316	277.03	15,338	277.55	16,948
276.52	13,357	277.04	15,374	277.56	16,970
276.53	13,398	277.05	15,410	277.57	16,992
276.54	13,439	277.06	15,446	277.58	17,015
276.55	13,479	277.07	15,482	277.59	17,037
276.56	13,520	277.08	15,517	277.60	17,060
276.57	13,561	277.09	15,553	277.61	17,082
276.58	13,601	277.10	15,588	277.62	17,104
276.59	13,642	277.11	15,623	277.63	17,127
276.60	13,682	277.12	15,658	277.64	17,149
276.61	13,722	277.13	15,693	277.65	17,172
276.62	13,762	277.14	15,728	277.66	17,194
276.63	13,803	277.15	15,763	277.67	17,216

Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)
277.68	17,239
277.69	17,261
277.70	17,284
277.71	17,306
277.72	17,328
277.73	17,351
277.74	17,373
277.75	17,396
277.76	17,418
277.77	17,440
277.78	17,463
277.79	17,485
277.80	17,508
277.81	17,530
277.82	17,552
277.83	17,575
277.84	17,597
277.85	17,620
277.86	17,642
277.87	17,664
277.88	17,687
277.89	17,709
277.90	17,732
277.91	17,754
277.92	17,776
277.93	17,799
277.94	17,821
277.95	17,844
277.96	17,866
277.97	17,888
277.98	17,911
277.99	17,933
278.00	17,956

Summary for Pond Basin 2b outlet: Basin 2b outlet

[57] Hint: Peaked at 274.40' (Flood elevation advised)

Inflow Area = 4.459 ac, 48.56% Impervious, Inflow Depth = 3.56" for 100-YR NOAA event
 Inflow = 2.84 cfs @ 12.67 hrs, Volume= 1.324 af
 Outflow = 2.84 cfs @ 12.67 hrs, Volume= 1.324 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.84 cfs @ 12.67 hrs, Volume= 1.324 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 274.40' @ 12.67 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.90'	12.0" Round Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.90' / 272.70' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.84 cfs @ 12.67 hrs HW=274.40' TW=273.83' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 2.84 cfs @ 3.61 fps)

Stage-Area-Storage for Pond Basin 2b outlet: Basin 2b outlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.90	0	273.42	0	273.94	0
272.91	0	273.43	0	273.95	0
272.92	0	273.44	0	273.96	0
272.93	0	273.45	0	273.97	0
272.94	0	273.46	0	273.98	0
272.95	0	273.47	0	273.99	0
272.96	0	273.48	0	274.00	0
272.97	0	273.49	0	274.01	0
272.98	0	273.50	0	274.02	0
272.99	0	273.51	0	274.03	0
273.00	0	273.52	0	274.04	0
273.01	0	273.53	0	274.05	0
273.02	0	273.54	0	274.06	0
273.03	0	273.55	0	274.07	0
273.04	0	273.56	0	274.08	0
273.05	0	273.57	0	274.09	0
273.06	0	273.58	0	274.10	0
273.07	0	273.59	0	274.11	0
273.08	0	273.60	0	274.12	0
273.09	0	273.61	0	274.13	0
273.10	0	273.62	0	274.14	0
273.11	0	273.63	0	274.15	0
273.12	0	273.64	0	274.16	0
273.13	0	273.65	0	274.17	0
273.14	0	273.66	0	274.18	0
273.15	0	273.67	0	274.19	0
273.16	0	273.68	0	274.20	0
273.17	0	273.69	0	274.21	0
273.18	0	273.70	0	274.22	0
273.19	0	273.71	0	274.23	0
273.20	0	273.72	0	274.24	0
273.21	0	273.73	0	274.25	0
273.22	0	273.74	0	274.26	0
273.23	0	273.75	0	274.27	0
273.24	0	273.76	0	274.28	0
273.25	0	273.77	0	274.29	0
273.26	0	273.78	0	274.30	0
273.27	0	273.79	0	274.31	0
273.28	0	273.80	0	274.32	0
273.29	0	273.81	0	274.33	0
273.30	0	273.82	0	274.34	0
273.31	0	273.83	0	274.35	0
273.32	0	273.84	0	274.36	0
273.33	0	273.85	0	274.37	0
273.34	0	273.86	0	274.38	0
273.35	0	273.87	0	274.39	0
273.36	0	273.88	0	274.40	0
273.37	0	273.89	0		
273.38	0	273.90	0		
273.39	0	273.91	0		
273.40	0	273.92	0		
273.41	0	273.93	0		

Summary for Pond Basin B outlet: Basin 1C outlet

[57] Hint: Peaked at 277.28' (Flood elevation advised)

Inflow Area = 1.313 ac, 78.67% Impervious, Inflow Depth = 3.22" for 100-YR NOAA event
 Inflow = 5.14 cfs @ 12.20 hrs, Volume= 0.352 af
 Outflow = 5.14 cfs @ 12.20 hrs, Volume= 0.352 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.14 cfs @ 12.20 hrs, Volume= 0.352 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 277.28' @ 12.65 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	275.10'	18.0" Round Culvert L= 86.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 275.10' / 273.80' S= 0.0151 ' / Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.14 cfs @ 12.20 hrs HW=276.36' TW=275.57' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 5.14 cfs @ 4.40 fps)

Stage-Area-Storage for Pond Basin B outlet: Basin 1C outlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
275.10	0	275.62	0	276.14	0
275.11	0	275.63	0	276.15	0
275.12	0	275.64	0	276.16	0
275.13	0	275.65	0	276.17	0
275.14	0	275.66	0	276.18	0
275.15	0	275.67	0	276.19	0
275.16	0	275.68	0	276.20	0
275.17	0	275.69	0	276.21	0
275.18	0	275.70	0	276.22	0
275.19	0	275.71	0	276.23	0
275.20	0	275.72	0	276.24	0
275.21	0	275.73	0	276.25	0
275.22	0	275.74	0	276.26	0
275.23	0	275.75	0	276.27	0
275.24	0	275.76	0	276.28	0
275.25	0	275.77	0	276.29	0
275.26	0	275.78	0	276.30	0
275.27	0	275.79	0	276.31	0
275.28	0	275.80	0	276.32	0
275.29	0	275.81	0	276.33	0
275.30	0	275.82	0	276.34	0
275.31	0	275.83	0	276.35	0
275.32	0	275.84	0	276.36	0
275.33	0	275.85	0	276.37	0
275.34	0	275.86	0	276.38	0
275.35	0	275.87	0	276.39	0
275.36	0	275.88	0	276.40	0
275.37	0	275.89	0	276.41	0
275.38	0	275.90	0	276.42	0
275.39	0	275.91	0	276.43	0
275.40	0	275.92	0	276.44	0
275.41	0	275.93	0	276.45	0
275.42	0	275.94	0	276.46	0
275.43	0	275.95	0	276.47	0
275.44	0	275.96	0	276.48	0
275.45	0	275.97	0	276.49	0
275.46	0	275.98	0	276.50	0
275.47	0	275.99	0	276.51	0
275.48	0	276.00	0	276.52	0
275.49	0	276.01	0	276.53	0
275.50	0	276.02	0	276.54	0
275.51	0	276.03	0	276.55	0
275.52	0	276.04	0	276.56	0
275.53	0	276.05	0	276.57	0
275.54	0	276.06	0	276.58	0
275.55	0	276.07	0	276.59	0
275.56	0	276.08	0	276.60	0
275.57	0	276.09	0	276.61	0
275.58	0	276.10	0	276.62	0
275.59	0	276.11	0	276.63	0
275.60	0	276.12	0	276.64	0
275.61	0	276.13	0	276.65	0

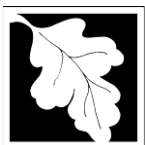
Stage-Area-Storage for Pond Basin B outlet: Basin 1C outlet (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
276.66	0	277.18	0
276.67	0	277.19	0
276.68	0	277.20	0
276.69	0	277.21	0
276.70	0	277.22	0
276.71	0	277.23	0
276.72	0	277.24	0
276.73	0	277.25	0
276.74	0	277.26	0
276.75	0	277.27	0
276.76	0	277.28	0
276.77	0	277.29	0
276.78	0		
276.79	0		
276.80	0		
276.81	0		
276.82	0		
276.83	0		
276.84	0		
276.85	0		
276.86	0		
276.87	0		
276.88	0		
276.89	0		
276.90	0		
276.91	0		
276.92	0		
276.93	0		
276.94	0		
276.95	0		
276.96	0		
276.97	0		
276.98	0		
276.99	0		
277.00	0		
277.01	0		
277.02	0		
277.03	0		
277.04	0		
277.05	0		
277.06	0		
277.07	0		
277.08	0		
277.09	0		
277.10	0		
277.11	0		
277.12	0		
277.13	0		
277.14	0		
277.15	0		
277.16	0		
277.17	0		

APPENDIX C

Stormwater Checklist and Treatment Calculations

Northern Bank Town Common
Littleton, Massachusetts



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

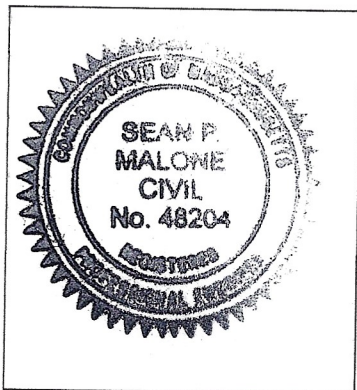
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

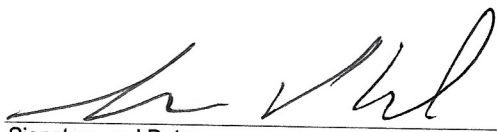
A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature

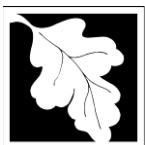


 8-26-22
Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- ☐ New development
- ☐ Redevelopment
- ☒ Mix of New Development and Redevelopment



Checklist for Stormwater Report

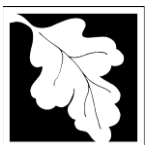
Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☒ No disturbance to any Wetland Resource Areas
- ☒ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☒ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
 - ☐ Credit 1
 - ☐ Credit 2
 - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☒ Grass Channel
- ☐ Green Roof
- ☒ Other (describe): Stormwater Treatment Units and Subsurface Infiltration

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

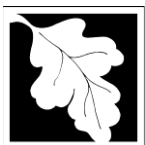
Standard 2: Peak Rate Attenuation

- ☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- ☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- ☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- ☒ Soil Analysis provided.
- ☒ Required Recharge Volume calculation provided.
- ☐ Required Recharge volume reduced through use of the LID site Design Credits.
- ☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - ☒ Static
 - ☐ Simple Dynamic
 - ☐ Dynamic Field¹
- ☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.
- ☒ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- ☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
 - ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
 - ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- ☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- ☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

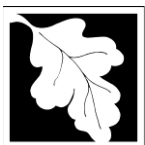
Standard 3: Recharge (continued)

- ☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- ☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - ☒ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - ☐ is within the Zone II or Interim Wellhead Protection Area
 - ☐ is near or to other critical areas
 - ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - ☒ involves runoff from land uses with higher potential pollutant loads.
 - ☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - ☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

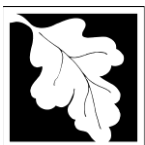
- ☐ The BMP is sized (and calculations provided) based on:
 - ☒ The ½" or 1" Water Quality Volume or
 - ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- ☒ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- ☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- ☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- ☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- ☐ The NPDES Multi-Sector General Permit does **not** cover the land use.
- ☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- ☐ All exposure has been eliminated.
- ☐ All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- ☒ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- ☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- ☐ Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

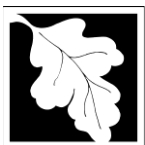
Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- ☒ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - ☐ Limited Project
 - ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - ☐ Bike Path and/or Foot Path
 - ☐ Redevelopment Project
- ☒ Redevelopment portion of mix of new and redevelopment.
- ☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- ☒ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- ☐ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- ☒ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- ☐ The project is **not** covered by a NPDES Construction General Permit.
- ☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- ☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- ☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - ☒ Name of the stormwater management system owners;
 - ☒ Party responsible for operation and maintenance;
 - ☒ Schedule for implementation of routine and non-routine maintenance tasks;
 - ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
 - ☐ Description and delineation of public safety features;
 - ☐ Estimated operation and maintenance budget; and
 - ☒ Operation and Maintenance Log Form.
- ☐ The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- ☐ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- ☐ An Illicit Discharge Compliance Statement is attached;
- ☒ NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

INSTRUCTIONS:

Non-automated: Mar. 4, 2008

- 1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
- 2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
- 3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
- 4. To complete Chart Column E value, subtract Column D value within Row from Column C value within Row
- 5. Total TSS Removal = Sum All Values in Column D

Location: Subcatchment 1B

A	B	C	D	E
BMP ¹	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (B*C)	Remaining Load (C-D)
Deep Sump CB	25%	1.00	0.25	0.75
Stormceptor Unit	77%	0.75	0.58	0.17
Infiltration Basin	80%	0.17	0.14	0.03

TSS Removal Calculation Worksheet

Separate Form Needs to be Completed for Each Outlet or BMP Train

Total TSS Removal =

97%

Project:	Northern Bank-Littleton
Prepared By:	SPM
Date:	8/12/22

*Equals remaining load from previous BMP (E) which enters the BMP

INSTRUCTIONS:

Non-automated: Mar. 4, 2008

- 1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
- 2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
- 3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
- 4. To complete Chart Column E value, subtract Column D value within Row from Column C value within Row
- 5. Total TSS Removal = Sum All Values in Column D

Location: Subcatchment 1C

A	B	C	D	E
BMP ¹	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (B*C)	Remaining Load (C-D)
Stormceptor Unit	77%	1.00	0.77	0.23
Infiltration Basin	80%	0.23	0.18	0.05

TSS Removal Calculation Worksheet

Separate Form Needs to be Completed for Each Outlet or BMP Train

95%

Total TSS Removal =

Project: Northern Bank-Littleton

Prepared By: SPM

Date: 8/12/22

*Equals remaining load from previous BMP (E) which enters the BMP

INSTRUCTIONS:

Non-automated: Mar. 4, 2008

- 1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
- 2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
- 3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
- 4. To complete Chart Column E value, subtract Column D value within Row from Column C value within Row
- 5. Total TSS Removal = Sum All Values in Column D

Location: Subcatchment 2B

A	B	C	D	E
BMP ¹	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (B*C)	Remaining Load (C-D)
Deep Sump CB	25%	1.00	0.25	0.75
Stormceptor Unit	77%	0.75	0.58	0.17

TSS Removal Calculation Worksheet

Separate Form Needs to be Completed for Each Outlet or BMP Train

83%

Total TSS Removal =

Project: Northern Bank-Littleton

Prepared By: SPM

Date: 8/12/22

*Equals remaining load from previous BMP (E) which enters the BMP

By
Date

17003
SPM
12/13/2022

Northern Bank Town Common
Recharge Sizing

Required

	B (0.35)	C (0.25)	D (0.1)
Proposed Impervious		108,372.00	
Recharge Requirement		2,257.75	

Requirement	
Total Required	2,257.75
Total Provided	13,746.00

Provided	Volume Provided	Water Quality Required (1"xImpervious Area)
Basin 1B	8,273.00	2,071
Basin 1C	5,473.00	1390

Capture Adjustment

Total Site New Impervious	49,190.00	
Impervious to Recharge	44,993.00	New Impervious captured
Ratio	1.093	91%
Adjusted Required Volume	2,468.36	
Surplus	11,277.64	

Drawdown Calculations

	Total Storage (cf)	Surface Area (sf)	Rate (in/hr)	Drawdown Time (hr)
Basin 1	8,273	5,408	0.27	67.99
Basin 1C	5,473	4,400	0.27	55.28
Basin 1A (ILSF)	22,345	19,310	0.27	51.43

By	18017	Northern Bank Town Common
	SPM	Treatment Unit Sizing
Date	12/21/2022	

		Impervious Area (sqft)	Impervious Area (acre)	Model Needed
WQU 1	(Subcatchment 1C)	16,682.00	0.38	STC 900
WQU 2	(Subcatchment 1B)	28,311.00	0.65	STC 1200
WQU 3	(Subcatchment 2B)	22,837.00	0.52	STC 1200
WQU 4	(Subcatchment 2B)	15,225.00	0.35	STC 900

Stormwater Technology: Stormceptor (Hydro Conduit, formerly CSR New England Pipe)

Revised February 2003

The **Stormceptor Fact Sheet** is one in a series of fact sheets for stormwater technologies and related performance evaluations, which are undertaken by the **Massachusetts STRategic ENvirotechnology Partnership (STEP)**.

The STEP evaluation entitled, *Technology Assessment, Stormceptor CSR New England Pipe*, January 1998 is the information source for this fact sheet. When a more thorough understanding of a system is required, the full *Technology Assessment* should be reviewed. Copies are available for downloading from the STEP Web site (www.STEPSITE.org/) or by contacting the STEP Program (Phone: 617/626/1197, FAX: 617/626/1180, email: linda.benevides@state.ma.us). This fact sheet is subject to future updates as additional performance information becomes available.

Description/Definition

Stormceptor is a prefabricated, underground unit that separates oils, grease, and sediment from stormwater runoff when installed with an existing or new pipe conveyance system. The unit is divided into two chambers—a treatment and a flow bypass chamber. During typical storm events, runoff is directed by the inflow weir through a drop pipe into the lower treatment chamber where sediment, oil, and grease are separated from the flow by gravity. The bypass chamber is designed to convey excess stormwater, which overtops the inflow weir, through the system without treatment.

Equipment and Sizing

The on-line Stormceptor units are available in eight sizes ranging from six and twelve feet in diameter with capacities of 900 to 7200 gallons. Since issuing the STEP assessment in 1998, the manufacturer has expanded the Stormceptor product line to include a storm drain inlet (STC 450i) and three units (Models STC 11000, STC 13000, and STC16000). These systems are not included in the STEP evaluation. Users and decision-makers may require additional field test results and new data for these new systems in order to accept performance ratings, particularly if they are higher than those reported in the STEP technology assessment and this fact sheet.

Stormceptor units are available in either precast concrete or fiberglass for special applications. Concrete units are pre-engineered for HS-20 min. traffic loading at the surface. Fiberglass units can be used in areas where there is a potential for oil and chemical spills.

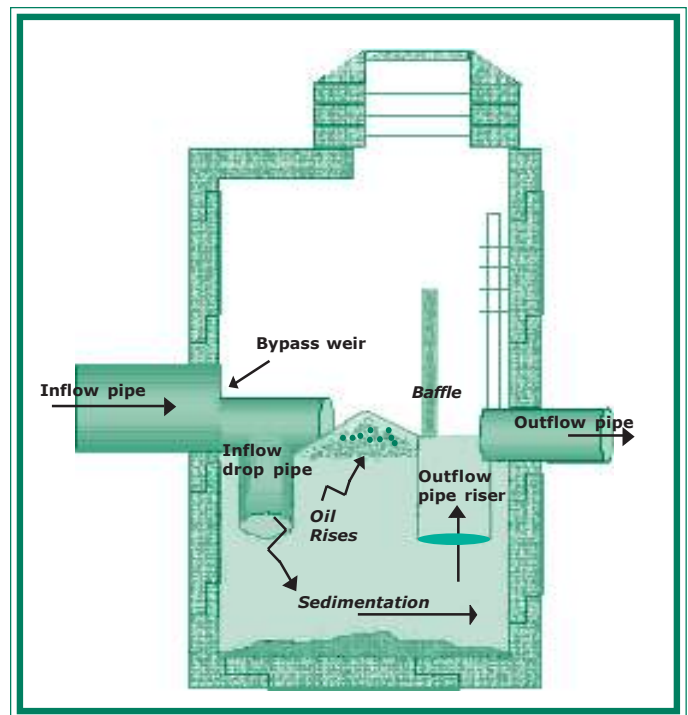


Figure 1. Stormceptor operation during average flow conditions.

Performance/Effectiveness

The system is designed to provide separation of sediment, oil, and grease from stormwater by routing runoff into a low-turbulence environment where solids settle and oils float out of solution. The system sizing is based on the drainage area, historical rainfall data, and the solids removal efficiency required. It is recommended that the system be used in combination with other stormwater controls to conform with the Massachusetts Stormwater Management Policy and standards.



**MASSACHUSETTS
STRATEGIC ENVIROTECHNOLOGY PARTNERSHIP**

An Imperial Model STC 2000 (equivalent to the Model STC 2400) in Edmonton, Canada treats flow from a 9.8 acre commercial parking lot. This system was monitored during four storm events in 1996 and shown to have an average total suspended solids (TSS) removal efficiency of 52 percent. In designing a system to achieve a comparable removal efficiency, the relationship between system size and impervious drainage area should be considered, as detailed in Table 1 and the Technology Assessment Report.

A Model STC 1200 in Westwood, Massachusetts treats flow from 0.65 acres consisting of a paved truck loading area at a manufacturing facility. The unit was monitored for six storm events in 1997, but only four events had measurable TSS influent concentrations. Of these four events, the average TSS removal efficiency was calculated to be 77 percent, which is less than the 80 percent removal targeted by the manufacturer.

Based on these field monitoring results, and when the unit sizing follows the guidance in Table 1, removal efficiencies between 52 percent and 77 percent may be achieved where installations have similar rainfall and land use characteristics as those reviewed for the STEP evaluation. It is recommended that additional field research and new data be evaluated to validate performance ratings higher than those verified by STEP.

Specific performance claims for oil and grease were not evaluated by STEP. However, total petroleum hydrocarbons (TPH) were analyzed during the Westwood study. Results indicated that the unit was effective in capturing oils.

Stormceptor Model Number	Maximum Impervious Area (acres)	
	77% TSS removal	52% TSS removal
STC 900	0.45	0.9
STC 1200	0.7	1.45
STC 1800	1.25	2.55
STC 2400	1.65	3.35
STC 3600	2.6	5.3
STC 4800	3.6	7.25
STC 6000	4.6	9.25
STC 7200	5.55	11.25

Table 1: Sizing for TSS removal (adapted from the manufacturer's sizing in the 1998 STEP Report) Use the table to determine a TSS removal rate. Use the new Rinker method for sizing Stormceptor units. The sizing method has been changed since publication of the STEP Report.
Note: To achieve 52% and 77% TSS removal rates on some sites, it may be necessary to use lower maximum impervious areas than those in Table 1.

Technology Status

The Stormceptor system provides greater solids separation and higher TSS removal efficiencies than oil and grit separators. Stormceptor systems are among the category of hydrodynamic separators, which are flow-through devices with the capacity to settle or separate grit, oil, sediment, or other pollutants from stormwater. According to the U.S. Environmental Protection Agency, "Hydrodynamic separators are most effective where the materials to be removed from runoff are heavy particulates - which can be settled - or floatables - which can be captured, rather than solids with poor settleability or dissolved pollutants."

The field studies evaluated for the STEP assessment predate the Stormwater Best Management Practice Demonstration Tier II Protocol (2001), which is applicable in Massachusetts and other states in the Technology Acceptance Reciprocity Partnership (TARP), to ensure quality controlled studies that can be shared among participating states. Therefore, interstate reciprocity is not available to the manufacturer, based on performance claims that were evaluated by STEP in 1998. If the TARP Protocol requirements are fulfilled in the future, the manufacturer could pursue reciprocal verification for Stormceptor systems in participating TARP states. More information on the TARP Protocol is available on the following Web site: www.dep.state.pa.us/dep/deputate/pollprev/techservices/tarp.

Applications/Advantages

- Stormceptor systems identified in Table 1 should be used in combination with other BMPs to remove 80 percent of the average annual load of TSS (DEP Stormwater Policy Standard 4). Systems may be well suited for pretreatment in a mixed component system designed for stormwater recharge.
- Performance data show that Stormceptor may provide TSS removal rates in the range of 52 percent to 77 percent when sized according to Table 1. Higher TSS removal rates were achieved during low flow, low intensity storms with less than one third of an inch of runoff. Also, by reducing the impervious drainage area, relative to the system size, the STEP Technology Assessment Report indicated that higher removal efficiencies may be achievable. However, STEP recommends collection of additional data "representing a varied set of operating conditions over a realistic maintenance cycle to verify TSS removal rates greater than 80 percent."
- The Stormceptor system is suitable for new and retrofit applications. For retrofit applications, it should not

take the place of a catch basin for the systems that have been verified. Also, for retrofit applications, it should be installed in lateral lines and not main trunk lines.

- ✦ The system is particularly well suited in constricted areas and where space is limited.
- ✦ It also is suitable for use in areas of high potential pollutant loads (DEP Stormwater Policy Standard 5), where it may be used effectively in capturing and containing oil and chemical spills. *Web site:* www.state.ma.us/dep/brp/stormwtr/stormpub.htm.

Considerations/Limitations

- ✦ Systems are not expected to provide significant nutrient (nitrogen and phosphorus) or fecal coliform removal.
- ✦ The systems are not recommended for use in critical areas, such as public drinking water supplies, certified vernal pools, public swimming beaches, shellfish growing areas, cold water fisheries, and some Areas of Critical Environmental Concern (ACECs), except as a pre-treatment device for BMPs that have been approved by DEP for use in critical areas. The structural BMPs approved for use in critical areas are described in Standard 6 of the Stormwater Management Policy, www.state.ma.us/dep/brp/stormwtr/stormpub.htm.
- ✦ There is a limited set of useful data for predicting the relationship between treatment efficiency and loading rates. Removal efficiencies have not been demonstrated for all unit sizes.
- ✦ Further research is needed to determine how much TSS bypasses the treatment chamber during certain, higher velocity storm events which recur less frequently.
- ✦ Systems require regular maintenance to minimize the potential for washout of the accumulated sediments.

Reliability/Maintenance

All BMPs require scheduled, routine maintenance to ensure that they operate as efficiently as possible. Although maintenance requirements are site specific, a general relationship between cleaning needs and depths of sediment has been established by the manufacturer. Inspection of the Stormceptor interior should be done after major storm events, particularly in the first year of operation. It is recommended that material in the treatment chamber be pumped out by a vacuum truck semiannually, or when the sediment and pollutant loads reach about 15 percent of the total storage. If the unit is used for spill containment, it should be pumped after the event is contained. Typical cleaning costs were estimated by the manufacturer in 1998 to be \$250, with disposal costs

averaging \$300 to \$500. The expected life of a system has been estimated to be 50 to 100 years.

Sediment Depths Indicating Required Maintenance	
Model Number	Sediment Depth (feet)
STC 900	0.5
STC 1200	0.75
STC 1800	1
STC 2400	1
STC 3600	1.25
STC 4800	1
STC 6000	1.5
STC 7200	1.25

Table 2: The Stormceptor clean out is based on 15 percent of the sediment storage volume in the

References

- Winkler, E.S. 1998. "Technology Assessment, Stormceptor." University of Massachusetts, Amherst, MA.
STEP Web site: www.STEPSITE.org/
- Massachusetts Department of Environmental Protection and Office of Coastal Zone Management. 1997. "Stormwater Management Handbooks, Volumes One and Two." Boston, MA. *Handbooks Web site:* www.state.ma.us/dep/brp/stormwtr/stormpub.htm.
- United States Environmental Protection Agency. "Storm Water Technology Fact Sheet Hydrodynamic Separators." EPA 832-F-99-017.
- Stormceptor Web sites:* www.rinkermaterials.com/stormceptor
- TARP Web site:* www.dep.state.pa.us/dep/deputate/pollprev/techservices/tarp

STEP Verification vs. Regulatory Approval

STEP assistance to developers of innovative technologies and STEP verification of stormwater treatment systems is not required to receive necessary approvals from conservation commissions or the Department of Environmental Protection (DEP). However, if a system has received verification, a conservation commission shall presume that the technology will function as proposed, provided the conditions are similar to those in which performance was verified. STEP reports are not technology approvals, and do not constitute an endorsement or recommendation for use. Questions on regulatory issues should be referred to the DEP regional offices.

INFILTRATION BASIN 1B MOUNDING ANALYSIS

BY: SPM

DATE: 12/13/2022

This spreadsheet will calculate the height of a groundwater mound beneath a stormwater infiltration basin. More information can be found in the U.S. Geological Survey Scientific Investigations Report 2010-5102 "Simulation of groundwater mounding beneath hypothetical stormwater infiltration basins".

The user must specify infiltration rate (R), specific yield (Sy), horizontal hydraulic conductivity (Kh), basin dimensions (x, y), duration of infiltration period (t), and the initial thickness of the saturated zone (hi(0), height of the water table if the bottom of the aquifer is the datum). For a square basin the half width equals the half length (x = y). For a rectangular basin, if the user wants the water-table changes perpendicular to the long side, specify x as the short dimension and y as the long dimension. Conversely, if the user wants the values perpendicular to the short side, specify y as the short dimension, x as the long dimension. All distances are from the center of the basin. Users can change the distances from the center of the basin at which water-table aquifer thickness are calculated.

Cells highlighted in yellow are values that can be changed by the user. Cells highlighted in red are output values based on user-specified inputs. **The user MUST click the blue "Re-Calculate Now" button each time ANY of the user-specified inputs are changed** otherwise necessary iterations to converge on the correct solution will not be done and values shown will be incorrect. Use consistent units for all input values (for example, feet and days)

Input Values		use consistent units (e.g. feet & days or inches & hours)		Conversion Table	
				inch/hour	feet/day
1.2700	R	Recharge (infiltration) rate (feet/day)		0.67	1.33
0.080	Sy	Specific yield, Sy (dimensionless, between 0 and 1)	SILTY LOAM		
2.03	K	Horizontal hydraulic conductivity, Kh (feet/day)*		2.00	4.00
13.000	x	1/2 length of basin (x direction, in feet)			
104.000	y	1/2 width of basin (y direction, in feet)		hours	days
2.350	t	duration of infiltration period (days)	TIME OF DRAWDOWN	36	1.50
2.000	hi(0)	initial thickness of saturated zone (feet)	SEPARATION TO ESHGW		
19.242	h(max)	maximum thickness of saturated zone (beneath center of basin at end of infiltration period)			
17.242	Δh(max)	maximum groundwater mounding (beneath center of basin at end of infiltration period)			

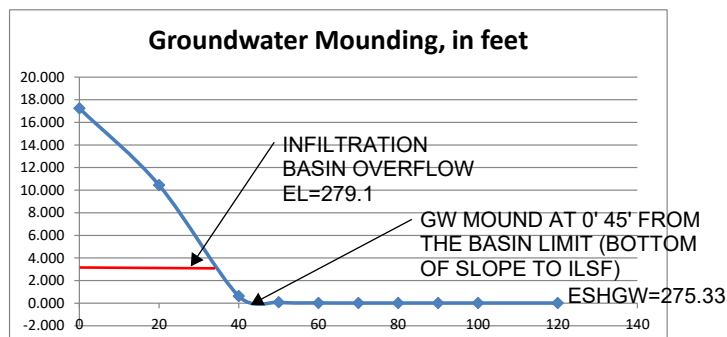
Ground-water Mounding, in feet

Distance from center of basin in x direction, in feet

17.242	0
10.436	20
0.621	40
0.081	50
0.019	60
0.013	70
0.012	80
0.012	90
0.012	100
0.012	120



Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

INFILTRATION BASIN 1C MOUNDING ANALYSIS
BY: SPM
DATE: 12/13/2022

This spreadsheet will calculate the height of a groundwater mound beneath a stormwater infiltration basin. More information can be found in the U.S. Geological Survey Scientific Investigations Report 2010-5102 "Simulation of groundwater mounding beneath hypothetical stormwater infiltration basins".

The user must specify infiltration rate (R), specific yield (Sy), horizontal hydraulic conductivity (Kh), basin dimensions (x, y), duration of infiltration period (t), and the initial thickness of the saturated zone (hi(0), height of the water table if the bottom of the aquifer is the datum). For a square basin the half width equals the half length (x = y). For a rectangular basin, if the user wants the water-table changes perpendicular to the long side, specify x as the short dimension and y as the long dimension. Conversely, if the user wants the values perpendicular to the short side, specify y as the short dimension, x as the long dimension. All distances are from the center of the basin. Users can change the distances from the center of the basin at which water-table aquifer thickness is calculated.

Cells highlighted in yellow are values that can be changed by the user. Cells highlighted in red are output values based on user-specified inputs. **The user MUST click the blue "Re-Calculate Now" button each time ANY of the user-specified inputs are changed** otherwise necessary iterations to converge on the correct solution will not be done and values shown will be incorrect. Use consistent units for all input values (for example, feet and days)

Input Values		use consistent units (e.g. feet & days or inches & hours)		Conversion Table	
				inch/hour	feet/day
1.2700	R	Recharge (infiltration) rate (feet/day)		0.67	1.33
0.080	Sy	Specific yield, Sy (dimensionless, between 0 and 1)	SILTY LOAM		
2.03	K	Horizontal hydraulic conductivity, Kh (feet/day)*		2.00	4.00
25.000	x	1/2 length of basin (x direction, in feet)			
50.000	y	1/2 width of basin (y direction, in feet)		hours	days
2.350	t	duration of infiltration period (days)	TIME OF DRAWDOWN	36	1.50
2.000	hi(0)	initial thickness of saturated zone (feet)	SEPARATION TO ESHGW		
25.169	h(max)	maximum thickness of saturated zone (beneath center of basin at end of infiltration period)			
23.169	Δh(max)				

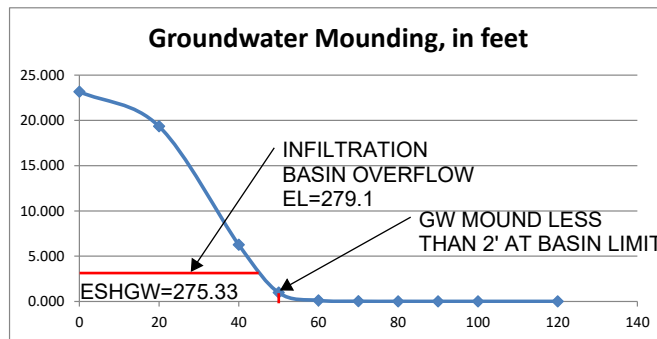
Ground-water Mounding, in feet

Distance from center of basin in x direction, in feet

23.169	0
19.336	20
6.259	40
0.976	50
0.118	60
0.023	70
0.013	80
0.012	90
0.012	100
0.012	120



Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

APPENDIX D

Soils Information

Northern Bank Town Common
Littleton, Massachusetts



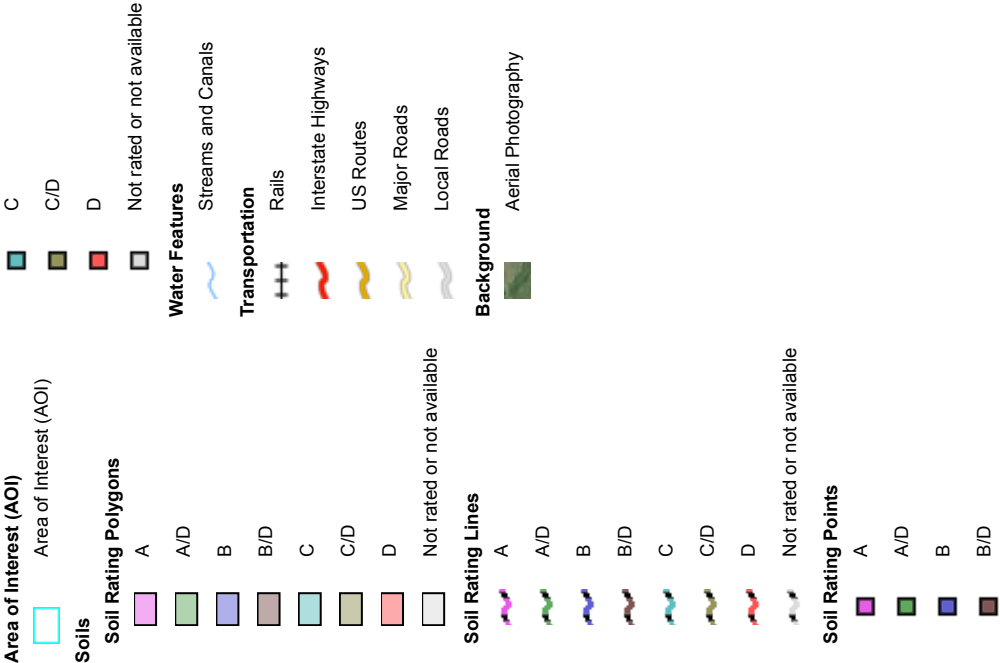
Soil Map may not be valid at this scale.

Map Scale: 1:2,210 if printed on B landscape (17" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND



MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.
Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 17, Oct 6, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 29, 2014—Sep 19, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
260B	Sudbury fine sandy loam, 3 to 8 percent slopes	B	7.6	23.1%
310B	Woodbridge fine sandy loam, 3 to 8 percent slopes	C/D	9.3	28.1%
622C	Paxton-Urban land complex, 3 to 15 percent slopes	C	0.1	0.2%
623C	Woodbridge-Urban land complex, 3 to 15 percent slopes	C/D	15.8	47.9%
656	Udorthents-Urban land complex		0.3	0.8%
Totals for Area of Interest			33.0	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

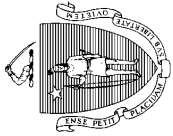
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (continued)

Date: 5/19/22

By: SPM

TP-1

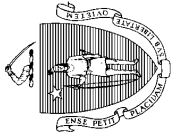
Deep Observation Hole Number: _____

Cloudy and drizzle/light rain - 50's

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-6	A(fill)	10YR 3/2	-	-	-	SL	5-10	-	MASSIVE	FRIABLE	
6-24	B(fill)	10YR 6/6	-	-	-	C. SAND	5-10	-	LOOSE	SINGLE	
24-40	A(b)	10YR 2/1	36"	-	-	SL	-	-	MASSIVE	FRIABLE	
40-69	B/C	10YR 3/6	-	-	-	SAND	10-25	10-25	LOOSE	SINGLE	

Additional Notes:

STANDING WATER @56" - ROOTS TO 56"



Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (continued)

Date: 5/19/22

By: SPM

TP-2

Deep Observation Hole Number: _____

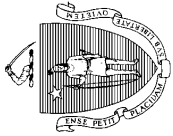
Cloudy and drizzle/light rain - 50's

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-12	A(fill)	10YR 2/2	-	-	-	SL	-	-	MASSIVE	FRIABLE	
12-21	B(fill)	10YR 5/6	-	-	-	SAND	-	-	LOOSE	SINGLE	
21-39	FILL	10YR 4/3	35"	-	-	LS	5-10	5-10	MASSIVE	FRIABLE	
39-55	A(b)	10YR 2/6	-	-	-	SiL	10-25	10-25	MASSIVE	FRIABLE	
55-66	B/C	10YR 2/2	-	-	-	SiL	10-20	10-20	MASSIVE	FRIABLE	

Additional Notes:

STANDING WATER @62" - ROOTS TO 60"

B/C APPEARS TO HAVE ORGANIC CONTENT (DARK SOIL), VERY STICKY WHEN WET



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (continued)

Date: 5/19/22

By: SPM

TP-3

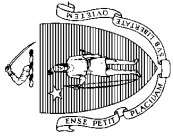
Deep Observation Hole Number: _____

Cloudy and drizzle/light rain - 50's

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-35	FILL	-	-	-	-	LS	5-10	-	MASSIVE	FRIABLE	
35-50	B	10YR 5/6	36"	-	-	SiL	5-10	-	MASSIVE	FRIABLE	

Additional Notes:

STANDING WATER @46"



Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (continued)

Date: 5/19/22

By: SPM

TP-4

Deep Observation Hole Number: _____

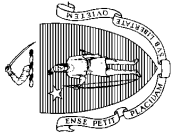
Cloudy and drizzle/light rain - 50's

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-3	ASPHLT	-	-	-	-	-	-	-	-	-	
3-32	FILL - MISC CONSTRUCTION DEBRIS					GRANULAR SOIL					
32-50	B	10YR 7/3	-	-	-	M SAND	-	-	LOOSE	SIGNLE	
50-78	C	10YR 7/2	50	-	-	SiSL	5-10	-	MASSIVE	FRIABLE	

Additional Notes:

NO STANDING WATER - ROOTS TO 50"

C LOOKS LIKE TYPICAL TILL, BOTTOM OF HOLE IS WET SILTY TILL.



Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (continued)

Date: 5/19/22

By: SPM

TP-5

Deep Observation Hole Number: _____

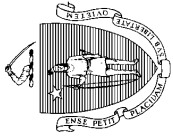
Cloudy and drizzle/light rain - 50's

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-10	A	10YR 2/2	-	-	-	SL	-	-	MASSIVE	FRIABLE	
10-32	B	10YR 4/6	32"	-	-	SiL	0-10	-	MASSIVE	FRIABLE	
32-50	C	10YR 6/1	-	-	-	SiL	0-10	-	MASSIVE	FRIABLE	

Additional Notes:

STANDING WATER @35"

C STICKY WHEN WET



Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

C. On-Site Review (continued)

Date: 5/19/22

By: SPM

TP-6

Deep Observation Hole Number: _____

Cloudy and drizzle/light rain - 50's

Depth (in.)	Soil Horizon/ Layer	Soil Matrix: Color- Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
0-12	A	10YR 2/2	-	-	-	SL	-	-	MASSIVE	FRIABLE	
12-30	B	10YR 5/6	29"	-	-	SL	-	-	MASSIVE	FRIABLE	
30-47	C	10YR 4/6	-	-	-	S	20-40	0-10	SINGLE	LOOSE	

Additional Notes:

STANDING WATER @43"

BOTTOM OF HOLE VERY GRAVELLY



NOAA Atlas 14, Volume 10, Version 3
Location name: Littleton, Massachusetts, USA*
Latitude: 42.5459°, Longitude: -71.4741°
Elevation: 269.26 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerals](#)

PF tabular

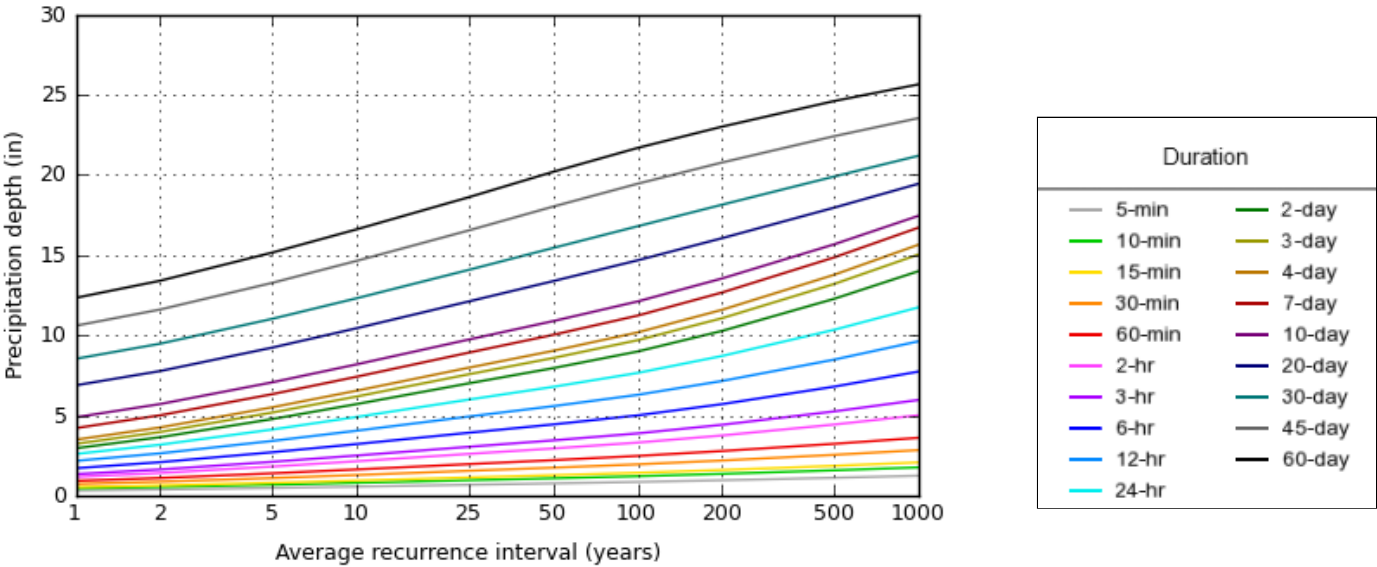
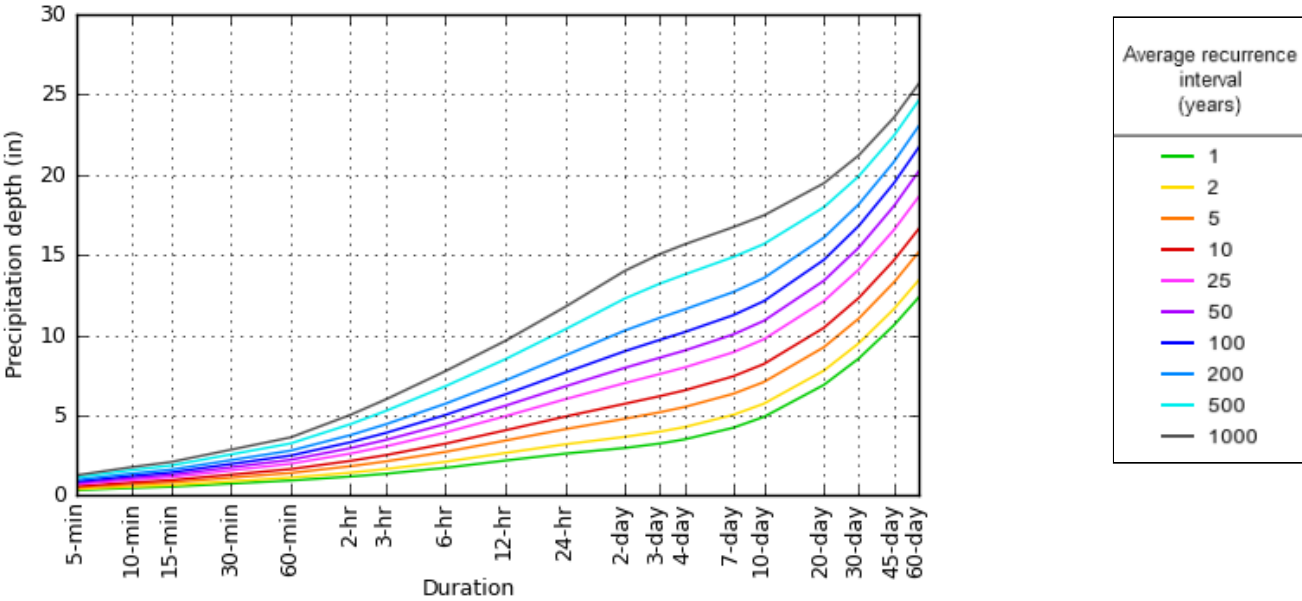
PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.322 (0.254-0.405)	0.383 (0.302-0.482)	0.483 (0.378-0.609)	0.566 (0.441-0.718)	0.681 (0.514-0.900)	0.767 (0.566-1.03)	0.858 (0.615-1.20)	0.963 (0.650-1.37)	1.12 (0.726-1.64)	1.25 (0.789-1.86)
10-min	0.456 (0.360-0.574)	0.543 (0.428-0.683)	0.685 (0.537-0.865)	0.803 (0.626-1.02)	0.965 (0.728-1.27)	1.09 (0.802-1.46)	1.22 (0.871-1.70)	1.36 (0.922-1.93)	1.58 (1.03-2.32)	1.77 (1.12-2.63)
15-min	0.537 (0.423-0.675)	0.639 (0.503-0.804)	0.806 (0.632-1.02)	0.944 (0.735-1.20)	1.14 (0.856-1.50)	1.28 (0.944-1.72)	1.43 (1.02-2.00)	1.60 (1.08-2.28)	1.86 (1.21-2.73)	2.08 (1.32-3.09)
30-min	0.731 (0.576-0.919)	0.871 (0.686-1.10)	1.10 (0.863-1.39)	1.29 (1.01-1.64)	1.55 (1.17-2.05)	1.75 (1.29-2.36)	1.96 (1.40-2.73)	2.19 (1.48-3.11)	2.55 (1.65-3.73)	2.84 (1.80-4.24)
60-min	0.926 (0.729-1.16)	1.10 (0.869-1.39)	1.40 (1.10-1.76)	1.64 (1.27-2.08)	1.97 (1.49-2.60)	2.22 (1.64-2.99)	2.48 (1.78-3.47)	2.79 (1.88-3.95)	3.24 (2.10-4.73)	3.61 (2.29-5.38)
2-hr	1.17 (0.929-1.46)	1.42 (1.12-1.77)	1.82 (1.44-2.27)	2.15 (1.69-2.70)	2.61 (1.98-3.43)	2.95 (2.20-3.96)	3.31 (2.40-4.63)	3.76 (2.55-5.29)	4.44 (2.89-6.44)	5.02 (3.19-7.42)
3-hr	1.34 (1.07-1.67)	1.64 (1.30-2.03)	2.11 (1.68-2.63)	2.51 (1.98-3.14)	3.05 (2.33-4.00)	3.45 (2.58-4.62)	3.89 (2.84-5.42)	4.42 (3.01-6.20)	5.26 (3.43-7.59)	5.97 (3.80-8.78)
6-hr	1.71 (1.38-2.11)	2.09 (1.68-2.58)	2.71 (2.17-3.35)	3.22 (2.56-4.00)	3.92 (3.02-5.10)	4.44 (3.35-5.91)	5.01 (3.68-6.93)	5.71 (3.90-7.94)	6.80 (4.45-9.74)	7.74 (4.94-11.3)
12-hr	2.17 (1.76-2.65)	2.64 (2.14-3.23)	3.41 (2.75-4.18)	4.05 (3.25-4.99)	4.93 (3.82-6.36)	5.58 (4.23-7.35)	6.29 (4.64-8.62)	7.16 (4.90-9.86)	8.49 (5.57-12.1)	9.63 (6.16-13.9)
24-hr	2.60 (2.13-3.15)	3.18 (2.60-3.86)	4.13 (3.35-5.02)	4.91 (3.97-6.00)	5.99 (4.67-7.66)	6.79 (5.18-8.87)	7.66 (5.67-10.4)	8.72 (6.00-11.9)	10.3 (6.82-14.6)	11.7 (7.54-16.8)
2-day	2.96 (2.44-3.55)	3.65 (3.00-4.38)	4.78 (3.91-5.76)	5.71 (4.65-6.92)	7.00 (5.51-8.89)	7.95 (6.12-10.3)	8.99 (6.71-12.1)	10.3 (7.11-13.9)	12.3 (8.11-17.1)	14.0 (9.02-19.9)
3-day	3.23 (2.68-3.86)	3.97 (3.28-4.75)	5.18 (4.27-6.22)	6.19 (5.06-7.46)	7.57 (5.97-9.55)	8.59 (6.63-11.1)	9.70 (7.26-13.0)	11.1 (7.67-14.9)	13.2 (8.74-18.3)	15.0 (9.70-21.3)
4-day	3.49 (2.90-4.16)	4.26 (3.53-5.08)	5.51 (4.55-6.59)	6.55 (5.37-7.87)	7.98 (6.31-10.0)	9.03 (6.99-11.6)	10.2 (7.64-13.6)	11.6 (8.06-15.6)	13.8 (9.14-19.1)	15.7 (10.1-22.0)
7-day	4.21 (3.52-4.98)	5.02 (4.19-5.94)	6.33 (5.26-7.52)	7.42 (6.13-8.85)	8.92 (7.09-11.1)	10.0 (7.79-12.8)	11.2 (8.43-14.8)	12.7 (8.84-16.9)	14.9 (9.90-20.4)	16.7 (10.8-23.4)
10-day	4.89 (4.11-5.76)	5.72 (4.79-6.74)	7.07 (5.90-8.36)	8.19 (6.79-9.73)	9.73 (7.76-12.0)	10.9 (8.46-13.7)	12.1 (9.09-15.8)	13.6 (9.49-18.0)	15.7 (10.5-21.4)	17.5 (11.3-24.3)
20-day	6.88 (5.83-8.04)	7.77 (6.57-9.09)	9.23 (7.77-10.8)	10.4 (8.73-12.3)	12.1 (9.70-14.8)	13.4 (10.4-16.6)	14.7 (11.0-18.8)	16.1 (11.3-21.1)	18.0 (12.1-24.3)	19.5 (12.7-26.8)
30-day	8.53 (7.26-9.91)	9.48 (8.06-11.0)	11.0 (9.33-12.9)	12.3 (10.3-14.4)	14.1 (11.3-17.0)	15.4 (12.1-19.0)	16.8 (12.5-21.2)	18.2 (12.8-23.7)	19.9 (13.4-26.8)	21.2 (13.8-29.1)
45-day	10.6 (9.06-12.3)	11.6 (9.92-13.4)	13.3 (11.3-15.4)	14.6 (12.4-17.1)	16.5 (13.3-19.8)	18.0 (14.1-22.0)	19.5 (14.5-24.3)	20.8 (14.8-26.9)	22.4 (15.2-30.0)	23.5 (15.4-32.1)
60-day	12.3 (10.6-14.2)	13.4 (11.5-15.5)	15.2 (12.9-17.5)	16.6 (14.1-19.3)	18.6 (15.1-22.2)	20.2 (15.8-24.5)	21.7 (16.2-26.9)	23.0 (16.4-29.7)	24.6 (16.7-32.8)	25.7 (16.8-34.9)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 42.5459°, Longitude: -71.4741°



Maps & aerials

Small scale terrain

APPENDIX E

Operation and Maintenance Plan

Northern Bank Town Common
Littleton, Massachusetts

Long Term Pollution Prevention and Stormwater Operation and Maintenance Plan

For

Northern Bank Town Common

Great Road
Littleton, Massachusetts

JANUARY 2023

Prepared by:



P.O. Box 1123
Newburyport, Massachusetts
(978) 312-3120

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APPENDICES:

Appendix A: Stormwater System O&M Inspection Report

1.0 INTRODUCTION

This Pollution Prevention and Operation and Maintenance (O&M) Plan has been prepared to implement procedures for the Northern Bank Town Common (Project) which will minimize the potential for stormwater pollution. This plan has been prepared to identify pollution prevention measures to be implemented as part of daily operations, including O&M practices and procedures for stormwater Best Management Practices (BMPs).

The Project encompasses approximately 4.0 acres on Great Road and Robinson Road in Littleton, Massachusetts. A plan showing the configuration of the Project stormwater systems is provided on Sheet C-003, Grading, Drainage & Erosion Control Plan. Inspection forms for Stormwater BMPs are enclosed in Appendix A.

1.1 Roles and Responsibilities

Owner

Northern Bank and Trust Company (Owner)

Implementation

This plan shall be maintained by the Owner and distributed outside contractors responsible for implementation.

2.0 POLLUTION PREVENTION

The following section presents methods and procedures implemented by the Project as part of daily operations to minimize potential stormwater pollution. The procedures presented below have been developed to be practical to implement and sufficiently protective of nearby resource areas and the environment in general.

2.1 Equipment and Material Storage

Seasonal equipment is not to be permanently stored on-site. This equipment is generally limited to snow plows, lawn mowers and other miscellaneous equipment used by the personnel or companies conducting routine maintenance at the Project. Equipment used at the Project shall be generally clean and free of oil leaks and/or hazardous material which could potentially impact storm water quality.

Supplies such as sand, grass seed, fertilizers, and other materials which may be affected by weather or become airborne shall not be stored on site.

2.2 Fuel Storage

There is no proposed fuel storage at the Project.

2.3 Trash and Recyclables Collection

Trash and recyclables will be picked up from the Project on a routine basis by an outside, licensed hauler. Trash and recyclable containers shall have covers.

2.4 General Housekeeping

Cleanup to remove accumulated trash and debris shall be performed on both an as-needed and scheduled basis. Routine cleanup activities include the following:

2.4.1 Trash and Debris Pickup

Trash and debris pickup shall be performed continuously as needed. Landscape and maintenance contractors shall be responsible for removing litter from the grounds. At a minimum trash pickup shall be done in the wetland area at the rear of the site at least twice a year during the Spring and Fall Cleanup.

2.4.2 Spring and Fall Cleanup

Spring and fall cleanups shall be performed once per year following snow melt and tree defoliation, respectively. The majority of the spring and fall cleanup efforts shall focus on landscaped and lawn areas throughout the Project. Yard waste, including leaves, grass cuttings, nuisance vegetation, branches, stumps, rocks, etc., shall be disposed of off-site in accordance with all applicable state, local and federal laws.

2.5 Snow Plowing/Deicing

Snow and ice removal operations shall be performed on an as-needed basis. Snow from driveways, parking areas and walkways shall be plowed to the sides of the paved surfaces in accordance with customary snow plowing procedures. Snow shall be stored at the locations shown on the plans and drain to the stormwater management system. No snow shall be pushed into the wetland area at the rear of the site. Snow banks or piles may be removed from parking areas or other critical areas as needed. Snow which may be removed in this manner shall be disposed of off-site in accordance with applicable state, local and federal laws.

Deicing operations consist of applying sand or salt to walkways and other paved surfaces as needed for vehicle and pedestrian safety. Salt shall be applied at the minimal acceptable rates to provide safe vehicle and pedestrian safety.

2.6 Landscape Maintenance

Lawn and landscape areas shall be regularly maintained by a qualified landscape contractor. The landscape contractor shall be responsible for the maintenance and upkeep of the stormwater Basins including by not limited to replacement of dead or dying vegetation, and removal of sediment.

3.0 OPERATION AND MAINTENANCE

An outside contractor shall inspect the stormwater management systems on a routine basis. Refer to the Grading, Drainage & Erosion Control Plan (Plan) for drainage structure locations. Inspection and maintenance shall be performed as follows:

3.1 Catch Basins, Area Drains and Manholes

Catch basins, area drains and manholes shall be inspected for accumulation of silt, sediment, or debris on a semi-annual basis. Cleaning will be performed at least once per year or more frequently if the sediment level rises 2 feet above the bottom of the sump. Removed sediment will be disposed off site by a qualified waste disposal contractor in accordance with local, state and federal regulations.

3.2 Stormwater Basins

Stormwater basins consist of sub-surface infiltration and detention basins. The basins will be inspected for sediment and debris accumulation on regular basis. The maintenance schedule for stormwater basins is as follows:

Activity	Time of Year	Frequency
Inspect basin to ensure it is operating as designed	Summer	First few months after construction and semi-annually thereafter
Remove sediment from basin	Spring	As necessary

3.3 Stormwater Treatment Units

Stormwater Treatment Units shall be visually inspected annually and be cleaned out per the manufacturer's recommendations. Removed sediment will be disposed of off-site by a qualified waste disposal contractor in accordance with state and federal regulations.

3.4 Record Keeping

The Association shall complete the Stormwater System Inspection Report (Appendix A) as part of routine inspections. Copies of completed reports shall be kept for at least 5 years. Receipts of catch basin cleaning and other O&M activities which require contracted services shall also kept on file for a minimum of 5 years.

APPENDIX A

Stormwater System O&M Inspection Report

Northern Bank Town Common
Great Road
Littleton, Massachusetts

STORMWATER MANAGEMENT OPERATIONS AND MAINTENANCE PLAN

Northern Bank Town Common
Great Road
Littleton, Massachusetts

The following Stormwater Management Operation and Maintenance (O&M) Plan has been prepared to operate and maintain the stormwater management system for the Northern Bank Town Common. The Owner shall be responsible for maintenance of all BMP's and drainage structures on-site.

Owner/Operator: Northern Bank and Trust Company or their assigns

Inspection and Maintenance Schedule

Persons designated by the owner will inspect the stormwater management system on a routine basis not less than once per month for the first 6 months of operation and annually thereafter. Refer to Sheets C-300, Grading, Drainage & Erosion Control Plan.

Inspection and maintenance shall be performed as follows:

1. Catch Basins and Drain Inlets shall be inspected for accumulation of silt, sediment, or debris on a quarterly basis. Cleaning will be performed whenever the sediment level rises to within 1 foot of the invert elevation of the outlet pipe. Removed sediment will be disposed of off-site by a qualified waste disposal contractor in accordance with state and federal regulations.
2. Landscaped Areas shall be inspected and maintained on a regular basis. Areas which may be subject to erosion will be stabilized and reseeded immediately. These operations will be performed as part of ongoing routine grounds maintenance operations.
3. Subsurface infiltration and detention system shall be inspected via the access ports for accumulation of sediment or standing water twice per year at the end of the winter season. Accumulated sediment or debris shall be removed by a vac-truck and disposed off-site by a licensed handler. See enclosed Manufactures O&M procedures.
4. Stormwater Treatment Units shall be visually inspected annually and be cleaned out per the manufacturer's recommendations. Removed sediment will be disposed of off-site by a qualified waste disposal contractor in accordance with state and federal regulations. See enclosed Manufactures O&M procedures.
5. ILSF Area shall be inspected monthly for trash and debris. Any trash and debris shall be immediately removed and disposed of. Refer to the Invasive Species Management Plan prepared by Goddard Consulting for additional inspection and maintenance requirements.
6. Pervious Pavers pervious pavement areas shall be inspected on a regular basis and any trash or debris shall be immediately removed and disposed of. Pervious paver shall be vacuum swept every spring. Replace joint material between stones as needed to replace material that has been transported.

Stormwater System Inspection Report

General Information			
Location: Paradise Valley Club			
Date of Inspection		Start/End Time	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Purpose of Inspection			
Weather Information			
Has it rained since the last inspection? ☐ Yes ☐ No			
Weather at time of this inspection?			

Site-Specific Stormwater Devices

	Description	Installed and Operating Properly?	Corrective Action Needed	Date for Corrective Action/Responsible Person
1		☐ Yes ☐ No		
2		☐ Yes ☐ No		
3		☐ Yes ☐ No		
4		☐ Yes ☐ No		
5		☐ Yes ☐ No		
6		☐ Yes ☐ No		
7		☐ Yes ☐ No		
8		☐ Yes ☐ No		
9		☐ Yes ☐ No		
10		☐ Yes ☐ No		

	Description	Installed and Operating Properly?	Corrective Action Needed	Date for Corrective Action/Responsible Person
11		☐ Yes ☐ No		
12		☐ Yes ☐ No		
13		☐ Yes ☐ No		
14		☐ Yes ☐ No		
15		☐ Yes ☐ No		
16		☐ Yes ☐ No		
17		☐ Yes ☐ No		
18		☐ Yes ☐ No		
19		☐ Yes ☐ No		
20		☐ Yes ☐ No		

Overall Site Issues

	Description		Corrective Action	Date for Corrective Action/Responsible Person
1	Are all slopes properly stabilized?	☐ Yes ☐ No		
2	Are discharge points free of sediment deposits?	☐ Yes ☐ No		

Certification Statement:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

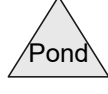
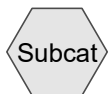
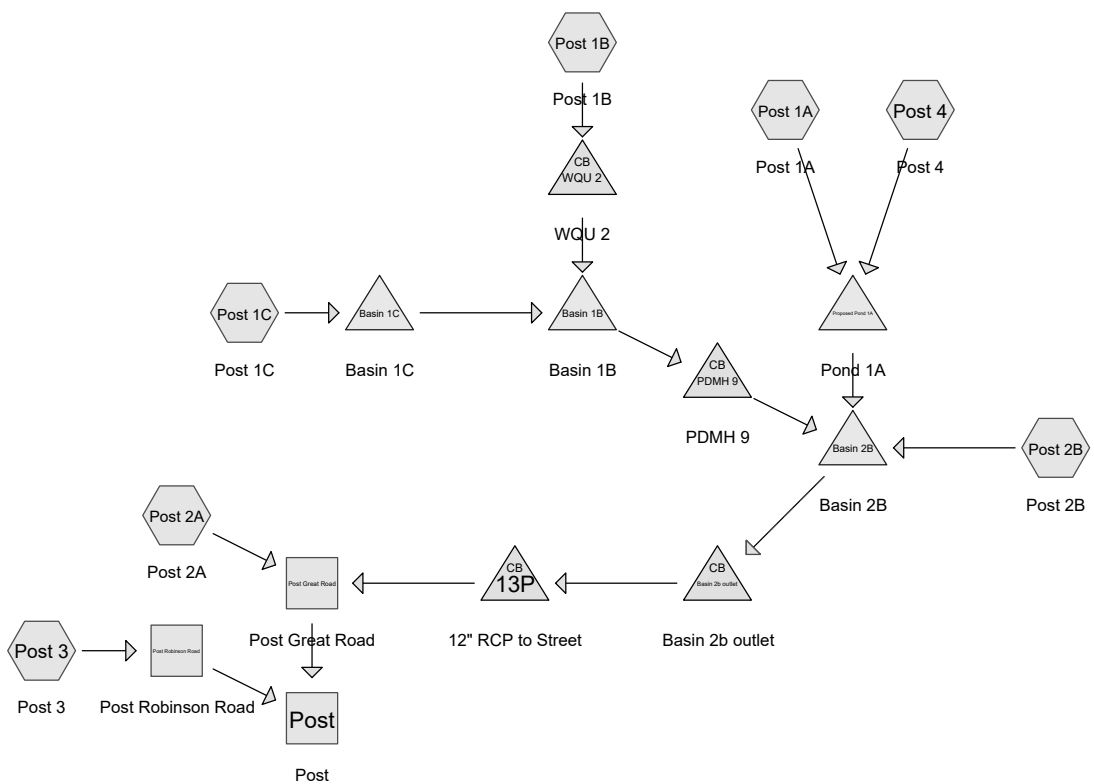
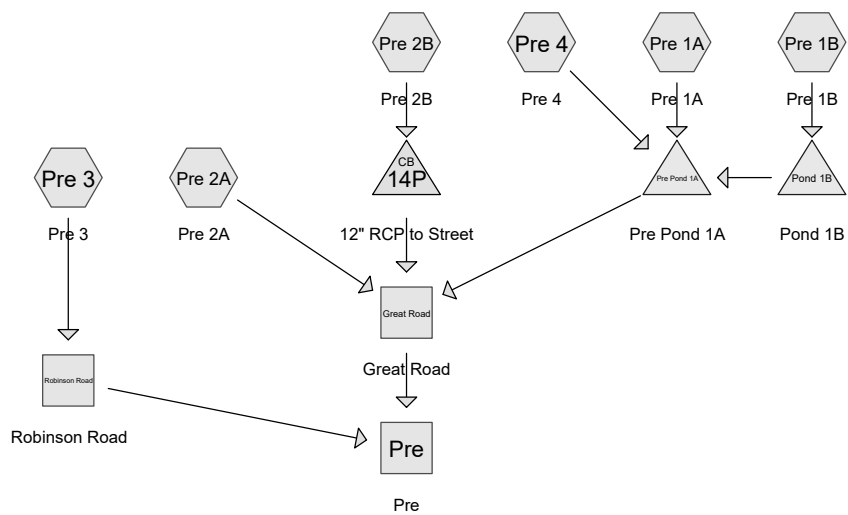
Print name: _____

Signature: _____ Date: _____

APPENDIX F

ILSF Stormwater Calculations

Northern Bank Town Common
Littleton, Massachusetts



Routing Diagram for 18017 Pre-post-ILSF
 Prepared by {enter your company name here}, Printed 12/21/2022
 HydroCAD® 10.00-26 s/n 01151 © 2020 HydroCAD Software Solutions LLC

18017 Pre-post-ILSF*Type III 24-hr 1-YR NOAA Rainfall=2.62"*

Prepared by {enter your company name here}

Printed 12/21/2022

HydroCAD® 10.00-26 s/n 01151 © 2020 HydroCAD Software Solutions LLC

Page 2

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentPost 1A: Post 1A Runoff Area=24,895 sf 51.44% Impervious Runoff Depth=1.56"
Flow Length=41' Slope=0.0350 '/' Tc=6.0 min CN=WQ Runoff=0.94 cfs 0.074 af

SubcatchmentPost 1B: Post 1B Runoff Area=33,788 sf 83.79% Impervious Runoff Depth=2.11"
Flow Length=210' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=1.73 cfs 0.137 af

SubcatchmentPost 1C: Post 1C Runoff Area=23,406 sf 71.27% Impervious Runoff Depth=1.90"
Flow Length=128' Slope=0.0125 '/' Tc=6.0 min CN=WQ Runoff=1.08 cfs 0.085 af

SubcatchmentPost 2A: Post 2A Runoff Area=21,838 sf 89.18% Impervious Runoff Depth=2.20"
Flow Length=207' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=1.17 cfs 0.092 af

SubcatchmentPost 2B: Post 2B Runoff Area=60,622 sf 62.79% Impervious Runoff Depth=1.75"
Flow Length=479' Slope=0.0150 '/' Tc=10.5 min CN=WQ Runoff=2.22 cfs 0.203 af

SubcatchmentPost 3: Post 3 Runoff Area=2,294 sf 0.00% Impervious Runoff Depth=0.68"
Flow Length=20' Slope=0.2500 '/' Tc=6.0 min CN=WQ Runoff=0.04 cfs 0.003 af

SubcatchmentPost 4: Post 4 Runoff Area=51,513 sf 11.10% Impervious Runoff Depth=0.87"
Flow Length=340' Slope=0.0450 '/' Tc=6.9 min CN=WQ Runoff=1.04 cfs 0.085 af

SubcatchmentPre 1A: Pre 1A Runoff Area=84,149 sf 34.86% Impervious Runoff Depth=1.22"
Flow Length=465' Slope=0.0360 '/' Tc=8.8 min CN=WQ Runoff=2.22 cfs 0.197 af

SubcatchmentPre 1B: Pre 1B Runoff Area=32,952 sf 26.34% Impervious Runoff Depth=1.13"
Flow Length=155' Slope=0.0300 '/' Tc=6.0 min CN=WQ Runoff=0.89 cfs 0.071 af

SubcatchmentPre 2A: Pre 2A Runoff Area=43,695 sf 58.46% Impervious Runoff Depth=1.68"
Flow Length=173' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=1.77 cfs 0.140 af

SubcatchmentPre 2B: Pre 2B Runoff Area=2,798 sf 100.00% Impervious Runoff Depth=2.39"
Flow Length=37' Slope=0.0100 '/' Tc=6.0 min CN=WQ Runoff=0.16 cfs 0.013 af

SubcatchmentPre 3: Pre 3 Runoff Area=3,249 sf 51.92% Impervious Runoff Depth=1.57"
Flow Length=44' Slope=0.0450 '/' Tc=6.0 min CN=WQ Runoff=0.12 cfs 0.010 af

SubcatchmentPre 4: Pre 4 Runoff Area=51,513 sf 11.10% Impervious Runoff Depth=0.87"
Flow Length=340' Slope=0.0450 '/' Tc=6.9 min CN=WQ Runoff=1.04 cfs 0.085 af

Reach Great Road: Great Road Inflow=1.93 cfs 0.153 af
Outflow=1.93 cfs 0.153 af

Reach Post: Post Inflow=1.81 cfs 0.298 af
Outflow=1.81 cfs 0.298 af

Reach Post Great Road: Post Great Road Inflow=1.78 cfs 0.295 af
Outflow=1.78 cfs 0.295 af

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Reach Post Robinson Road: Post Robinson RoadInflow=0.04 cfs 0.003 af
Outflow=0.04 cfs 0.003 af**Reach Pre: Pre**Inflow=2.05 cfs 0.163 af
Outflow=2.05 cfs 0.163 af**Reach Robinson Road: Robinson Road**Inflow=0.12 cfs 0.010 af
Outflow=0.12 cfs 0.010 af**Pond 13P: 12" RCP to Street**Peak Elev=273.26' Inflow=0.95 cfs 0.203 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/ Outflow=0.95 cfs 0.203 af**Pond 14P: 12" RCP to Street**Peak Elev=272.93' Inflow=0.16 cfs 0.013 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/ Outflow=0.16 cfs 0.013 af**Pond Basin 1B: Basin 1B**Peak Elev=278.94' Storage=5,964 cf Inflow=1.76 cfs 0.137 af
Outflow=0.00 cfs 0.000 af**Pond Basin 1C: Basin 1C**Peak Elev=278.93' Storage=3,695 cf Inflow=1.08 cfs 0.085 af
12.0" Round Culvert n=0.012 L=35.0' S=0.0000 '/ Outflow=0.03 cfs 0.000 af**Pond Basin 2B: Basin 2B**Peak Elev=273.85' Storage=2,205 cf Inflow=2.22 cfs 0.203 af
Primary=0.95 cfs 0.203 af Secondary=0.00 cfs 0.000 af Outflow=0.95 cfs 0.203 af**Pond Basin 2b outlet: Basin 2b outlet**Peak Elev=273.53' Inflow=0.95 cfs 0.203 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0050 '/ Outflow=0.95 cfs 0.203 af**Pond PDMH 9: PDMH 9**Peak Elev=276.10' Inflow=0.00 cfs 0.000 af
12.0" Round Culvert n=0.012 L=86.0' S=0.0267 '/ Outflow=0.00 cfs 0.000 af**Pond Pond 1B: Pond 1B**Peak Elev=278.16' Storage=1,330 cf Inflow=0.89 cfs 0.071 af
Outflow=0.37 cfs 0.045 af**Pond Pre Pond 1A: Pre Pond 1A**Peak Elev=277.15' Storage=14,251 cf Inflow=3.24 cfs 0.327 af
Outflow=0.00 cfs 0.000 af**Pond Proposed Pond 1A: Pond 1A**Peak Elev=276.60' Storage=6,954 cf Inflow=1.96 cfs 0.160 af
Outflow=0.00 cfs 0.000 af**Pond WQU 2: WQU 2**Peak Elev=278.94' Inflow=1.73 cfs 0.137 af
18.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/ Outflow=1.73 cfs 0.137 af

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Summary for Subcatchment Post 1A: Post 1A

Runoff = 0.94 cfs @ 12.09 hrs, Volume= 0.074 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
12,805	98	Water Surface, HSG C
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
12,090	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
24,895		Weighted Average
12,090	74	48.56% Pervious Area
12,805	98	51.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	41	0.0350	0.63		Lag/CN Method, Post 1A
1.1	41	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Post 1B: Post 1B

Runoff = 1.73 cfs @ 12.08 hrs, Volume= 0.137 af, Depth= 2.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
3,457	98	Roofs, HSG C
24,854	98	Paved parking, HSG C
5,477	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
33,788		Weighted Average
5,477	74	16.21% Pervious Area
28,311	98	83.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	210	0.0150	0.80		Lag/CN Method, Post 1B
4.4	210	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Post 1C: Post 1C

Runoff = 1.08 cfs @ 12.09 hrs, Volume= 0.085 af, Depth= 1.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
6,958	98	Roofs, HSG C
9,724	98	Paved parking, HSG C
6,724	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
23,406		Weighted Average
6,724	74	28.73% Pervious Area
16,682	98	71.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	128	0.0125	0.58		Lag/CN Method, Post 1C
3.7	128	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Post 2A: Post 2A

Runoff = 1.17 cfs @ 12.08 hrs, Volume= 0.092 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

	Area (sf)	CN	Description
	4,331	98	Roofs, HSG C
	15,145	98	Paved parking, HSG C
*	295	74	Pervious Pavers, HSG C
	2,067	74	>75% Grass cover, Good, HSG C
	0	70	Woods, Good, HSG C
	21,838		Weighted Average
	2,362	74	10.82% Pervious Area
	19,476	98	89.18% Impervious Area

	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	4.1	207	0.0150	0.84		Lag/CN Method, Post 2A
	4.1	207	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Post 2B: Post 2B

Runoff = 2.22 cfs @ 12.14 hrs, Volume= 0.203 af, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

	Area (sf)	CN	Description
	12,010	98	Roofs, HSG C
	26,052	98	Paved parking, HSG C
*	5,546	74	Pervious Pavers, HSG C
	17,014	74	>75% Grass cover, Good, HSG C
	0	70	Woods, Good, HSG C
	60,622		Weighted Average
	22,560	74	37.21% Pervious Area
	38,062	98	62.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	479	0.0150	0.76		Lag/CN Method, Post 2B

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Summary for Subcatchment Post 3: Post 3

Runoff = 0.04 cfs @ 12.10 hrs, Volume= 0.003 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
2,294	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
2,294		Weighted Average
2,294	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.2500	1.00		Lag/CN Method, Post 3
0.3	20	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Post 4: Post 4

Runoff = 1.04 cfs @ 12.11 hrs, Volume= 0.085 af, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
2,572	98	Roofs, HSG C
3,144	98	Paved parking, HSG C
45,797	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
51,513		Weighted Average
45,797	74	88.90% Pervious Area
5,716	98	11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	340	0.0450	0.82		Lag/CN Method, Pre 4

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Summary for Subcatchment Pre 1A: Pre 1A

Runoff = 2.22 cfs @ 12.13 hrs, Volume= 0.197 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
8,187	98	Water Surface, HSG C
2,349	98	Roofs, HSG C
18,796	98	Paved parking, HSG C
29,044	74	>75% Grass cover, Good, HSG C
25,773	70	Woods, Good, HSG C
84,149		Weighted Average
54,817	72	65.14% Pervious Area
29,332	98	34.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	465	0.0360	0.88		Lag/CN Method, Pre 1A

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Summary for Subcatchment Pre 1B: Pre 1B

Runoff = 0.89 cfs @ 12.09 hrs, Volume= 0.071 af, Depth= 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
672	98	Water Surface, HSG C
2,684	98	Roofs, HSG C
5,324	98	Paved parking, HSG C
24,272	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
32,952		Weighted Average
24,272	74	73.66% Pervious Area
8,680	98	26.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	155	0.0300	0.63		Lag/CN Method, Pre 1B
4.1	155	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Pre 2A: Pre 2A

Runoff = 1.77 cfs @ 12.09 hrs, Volume= 0.140 af, Depth= 1.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
3,784	98	Roofs, HSG C
21,760	98	Paved parking, HSG C
17,314	74	>75% Grass cover, Good, HSG C
837	70	Woods, Good, HSG C
43,695		Weighted Average
18,151	74	41.54% Pervious Area
25,544	98	58.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	173	0.0150	0.60		Lag/CN Method, Pre 2
4.8	173	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Pre 2B: Pre 2B

Runoff = 0.16 cfs @ 12.08 hrs, Volume= 0.013 af, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
2,798	98	Roofs, HSG C
0	98	Paved parking, HSG C
0	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
2,798		Weighted Average
2,798	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	37	0.0100	0.57		Lag/CN Method, Pre 2B
1.1	37	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Pre 3: Pre 3

Runoff = 0.12 cfs @ 12.09 hrs, Volume= 0.010 af, Depth= 1.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
901	98	Roofs, HSG C
786	98	Paved parking, HSG C
1,562	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
3,249		Weighted Average
1,562	74	48.08% Pervious Area
1,687	98	51.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	44	0.0450	0.73		Lag/CN Method, Pre 3
1.0	44	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Pre 4: Pre 4

Runoff = 1.04 cfs @ 12.11 hrs, Volume= 0.085 af, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
2,572	98	Roofs, HSG C
3,144	98	Paved parking, HSG C
45,797	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
51,513		Weighted Average
45,797	74	88.90% Pervious Area
5,716	98	11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	340	0.0450	0.82		Lag/CN Method, Pre 4

Summary for Reach Great Road: Great Road

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

Inflow Area = 4.938 ac, 33.50% Impervious, Inflow Depth = 0.37" for 1-YR NOAA event
Inflow = 1.93 cfs @ 12.09 hrs, Volume= 0.153 af
Outflow = 1.93 cfs @ 12.10 hrs, Volume= 0.153 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach Post: Post

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

Inflow Area = 5.013 ac, 55.44% Impervious, Inflow Depth = 0.71" for 1-YR NOAA event
Inflow = 1.81 cfs @ 12.11 hrs, Volume= 0.298 af
Outflow = 1.81 cfs @ 12.12 hrs, Volume= 0.298 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach Post Great Road: Post Great Road

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

Inflow Area = 4.960 ac, 56.03% Impervious, Inflow Depth = 0.71" for 1-YR NOAA event
Inflow = 1.78 cfs @ 12.10 hrs, Volume= 0.295 af
Outflow = 1.78 cfs @ 12.11 hrs, Volume= 0.295 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach Post Robinson Road: Post Robinson Road

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

Inflow Area = 0.053 ac, 0.00% Impervious, Inflow Depth = 0.68" for 1-YR NOAA event
Inflow = 0.04 cfs @ 12.10 hrs, Volume= 0.003 af
Outflow = 0.04 cfs @ 12.11 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach Pre: Pre

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

Inflow Area = 5.013 ac, 33.78% Impervious, Inflow Depth = 0.39" for 1-YR NOAA event
Inflow = 2.05 cfs @ 12.10 hrs, Volume= 0.163 af
Outflow = 2.05 cfs @ 12.11 hrs, Volume= 0.163 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach Robinson Road: Robinson Road

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

Inflow Area = 0.075 ac, 51.92% Impervious, Inflow Depth = 1.57" for 1-YR NOAA event
Inflow = 0.12 cfs @ 12.09 hrs, Volume= 0.010 af
Outflow = 0.12 cfs @ 12.10 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond 13P: 12" RCP to Street

[57] Hint: Peaked at 273.26' (Flood elevation advised)

Inflow Area = 4.459 ac, 52.30% Impervious, Inflow Depth > 0.55" for 1-YR NOAA event
 Inflow = 0.95 cfs @ 12.43 hrs, Volume= 0.203 af
 Outflow = 0.95 cfs @ 12.44 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.6 min
 Primary = 0.95 cfs @ 12.44 hrs, Volume= 0.203 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 273.26' @ 12.44 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.73'	12.0" Round Culvert L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.73' / 272.43' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.95 cfs @ 12.44 hrs HW=273.26' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 0.95 cfs @ 3.24 fps)

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Stage-Area-Storage for Pond 13P: 12" RCP to Street

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.73	0	273.25	0
272.74	0	273.26	0
272.75	0	273.27	0
272.76	0	273.28	0
272.77	0	273.29	0
272.78	0	273.30	0
272.79	0	273.31	0
272.80	0	273.32	0
272.81	0	273.33	0
272.82	0	273.34	0
272.83	0	273.35	0
272.84	0	273.36	0
272.85	0	273.37	0
272.86	0	273.38	0
272.87	0	273.39	0
272.88	0	273.40	0
272.89	0	273.41	0
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0		
273.23	0		
273.24	0		

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Summary for Pond 14P: 12" RCP to Street

[57] Hint: Peaked at 272.93' (Flood elevation advised)

Inflow Area = 0.064 ac, 100.00% Impervious, Inflow Depth = 2.39" for 1-YR NOAA event
Inflow = 0.16 cfs @ 12.08 hrs, Volume= 0.013 af
Outflow = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.6 min
Primary = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 272.93' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.73'	12.0" Round Culvert L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.73' / 272.43' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.16 cfs @ 12.09 hrs HW=272.93' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 0.16 cfs @ 2.14 fps)

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Stage-Area-Storage for Pond 14P: 12" RCP to Street

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.73	0	273.25	0
272.74	0	273.26	0
272.75	0	273.27	0
272.76	0	273.28	0
272.77	0	273.29	0
272.78	0	273.30	0
272.79	0	273.31	0
272.80	0	273.32	0
272.81	0	273.33	0
272.82	0	273.34	0
272.83	0	273.35	0
272.84	0	273.36	0
272.85	0	273.37	0
272.86	0	273.38	0
272.87	0	273.39	0
272.88	0	273.40	0
272.89	0	273.41	0
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0		
273.23	0		
273.24	0		

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Summary for Pond Basin 1B: Basin 1B

[80] Warning: Exceeded Pond Basin 1C by 0.03' @ 12.14 hrs (0.14 cfs 1.226 af)

Inflow Area = 1.313 ac, 78.67% Impervious, Inflow Depth = 1.25" for 1-YR NOAA event
 Inflow = 1.76 cfs @ 12.09 hrs, Volume= 0.137 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 278.94' @ 24.11 hrs Surf.Area= 7,072 sf Storage= 5,964 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	277.33'	5,914 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 17,718 cf Overall - 2,933 cf Embedded = 14,785 cf x 40.0% Voids
#2	277.83'	2,933 cf	18.0" Round Pipe Storage Inside #1 L= 1,660.0'
		8,847 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.33	7,072	0	0
279.83	7,072	17,680	17,680
279.84	4	35	17,715
280.50	4	3	17,718

Device	Routing	Invert	Outlet Devices
#1	Primary	279.20'	4.0' long x 1.0' breadth Broad-Crested Rectangular Weir X 3.00 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 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=0.00 cfs @ 0.00 hrs HW=277.33' TW=276.10' (Dynamic Tailwater)

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

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Stage-Area-Storage for Pond Basin 1B: Basin 1B

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
277.33	0	277.85	1,476	278.37	3,512
277.34	28	277.86	1,508	278.38	3,555
277.35	57	277.87	1,540	278.39	3,598
277.36	85	277.88	1,574	278.40	3,641
277.37	113	277.89	1,608	278.41	3,683
277.38	141	277.90	1,642	278.42	3,726
277.39	170	277.91	1,677	278.43	3,769
277.40	198	277.92	1,712	278.44	3,812
277.41	226	277.93	1,748	278.45	3,855
277.42	255	277.94	1,784	278.46	3,898
277.43	283	277.95	1,820	278.47	3,941
277.44	311	277.96	1,856	278.48	3,984
277.45	339	277.97	1,893	278.49	4,027
277.46	368	277.98	1,930	278.50	4,070
277.47	396	277.99	1,968	278.51	4,114
277.48	424	278.00	2,005	278.52	4,157
277.49	453	278.01	2,043	278.53	4,200
277.50	481	278.02	2,081	278.54	4,243
277.51	509	278.03	2,120	278.55	4,286
277.52	537	278.04	2,158	278.56	4,330
277.53	566	278.05	2,197	278.57	4,373
277.54	594	278.06	2,236	278.58	4,416
277.55	622	278.07	2,275	278.59	4,459
277.56	651	278.08	2,314	278.60	4,502
277.57	679	278.09	2,354	278.61	4,546
277.58	707	278.10	2,394	278.62	4,589
277.59	735	278.11	2,433	278.63	4,632
277.60	764	278.12	2,473	278.64	4,675
277.61	792	278.13	2,514	278.65	4,718
277.62	820	278.14	2,554	278.66	4,762
277.63	849	278.15	2,594	278.67	4,805
277.64	877	278.16	2,635	278.68	4,848
277.65	905	278.17	2,676	278.69	4,891
277.66	934	278.18	2,717	278.70	4,934
277.67	962	278.19	2,758	278.71	4,977
277.68	990	278.20	2,799	278.72	5,020
277.69	1,018	278.21	2,840	278.73	5,063
277.70	1,047	278.22	2,881	278.74	5,106
277.71	1,075	278.23	2,923	278.75	5,149
277.72	1,103	278.24	2,964	278.76	5,192
277.73	1,132	278.25	3,006	278.77	5,234
277.74	1,160	278.26	3,048	278.78	5,277
277.75	1,188	278.27	3,090	278.79	5,320
277.76	1,216	278.28	3,131	278.80	5,362
277.77	1,245	278.29	3,173	278.81	5,405
277.78	1,273	278.30	3,216	278.82	5,447
277.79	1,301	278.31	3,258	278.83	5,490
277.80	1,330	278.32	3,300	278.84	5,532
277.81	1,358	278.33	3,342	278.85	5,574
277.82	1,386	278.34	3,385	278.86	5,616
277.83	1,414	278.35	3,427	278.87	5,659
277.84	1,444	278.36	3,470	278.88	5,701

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Stage-Area-Storage for Pond Basin 1B: Basin 1B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
278.89	5,743	279.41	7,644	279.93	8,846
278.90	5,784	279.42	7,672	279.94	8,846
278.91	5,826	279.43	7,701	279.95	8,846
278.92	5,868	279.44	7,729	279.96	8,846
278.93	5,909	279.45	7,757	279.97	8,846
278.94	5,951	279.46	7,785	279.98	8,846
278.95	5,992	279.47	7,814	279.99	8,846
278.96	6,033	279.48	7,842	280.00	8,846
278.97	6,074	279.49	7,870	280.01	8,847
278.98	6,115	279.50	7,899	280.02	8,847
278.99	6,156	279.51	7,927	280.03	8,847
279.00	6,197	279.52	7,955	280.04	8,847
279.01	6,238	279.53	7,983	280.05	8,847
279.02	6,278	279.54	8,012	280.06	8,847
279.03	6,318	279.55	8,040	280.07	8,847
279.04	6,359	279.56	8,068	280.08	8,847
279.05	6,399	279.57	8,097	280.09	8,847
279.06	6,438	279.58	8,125	280.10	8,847
279.07	6,478	279.59	8,153	280.11	8,847
279.08	6,518	279.60	8,181	280.12	8,847
279.09	6,557	279.61	8,210	280.13	8,847
279.10	6,596	279.62	8,238	280.14	8,847
279.11	6,635	279.63	8,266	280.15	8,847
279.12	6,674	279.64	8,295	280.16	8,847
279.13	6,712	279.65	8,323	280.17	8,847
279.14	6,751	279.66	8,351	280.18	8,847
279.15	6,789	279.67	8,379	280.19	8,847
279.16	6,827	279.68	8,408	280.20	8,847
279.17	6,864	279.69	8,436	280.21	8,847
279.18	6,902	279.70	8,464	280.22	8,847
279.19	6,939	279.71	8,493	280.23	8,847
279.20	6,976	279.72	8,521	280.24	8,847
279.21	7,012	279.73	8,549	280.25	8,847
279.22	7,048	279.74	8,577	280.26	8,847
279.23	7,084	279.75	8,606	280.27	8,847
279.24	7,120	279.76	8,634	280.28	8,847
279.25	7,155	279.77	8,662	280.29	8,847
279.26	7,190	279.78	8,691	280.30	8,847
279.27	7,224	279.79	8,719	280.31	8,847
279.28	7,258	279.80	8,747	280.32	8,847
279.29	7,292	279.81	8,776	280.33	8,847
279.30	7,324	279.82	8,804	280.34	8,847
279.31	7,357	279.83	8,832	280.35	8,847
279.32	7,388	279.84	8,846	280.36	8,847
279.33	7,418	279.85	8,846	280.37	8,847
279.34	7,446	279.86	8,846	280.38	8,847
279.35	7,474	279.87	8,846	280.39	8,847
279.36	7,503	279.88	8,846	280.40	8,847
279.37	7,531	279.89	8,846	280.41	8,847
279.38	7,559	279.90	8,846	280.42	8,847
279.39	7,587	279.91	8,846	280.43	8,847
279.40	7,616	279.92	8,846	280.44	8,847

Stage-Area-Storage for Pond Basin 1B: Basin 1B (continued)

Elevation (feet)	Storage (cubic-feet)
280.45	8,847
280.46	8,847
280.47	8,847
280.48	8,847
280.49	8,847
280.50	8,847

Summary for Pond Basin 1C: Basin 1C

[42] Hint: Gap in defined storage above volume #1 at 279.83'

Inflow Area = 0.537 ac, 71.27% Impervious, Inflow Depth = 1.90" for 1-YR NOAA event
 Inflow = 1.08 cfs @ 12.09 hrs, Volume= 0.085 af
 Outflow = 0.03 cfs @ 12.09 hrs, Volume= 0.000 af, Atten= 97%, Lag= 0.6 min
 Primary = 0.03 cfs @ 12.09 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 278.93' @ 24.34 hrs Surf.Area= 4,400 sf Storage= 3,695 cf

Plug-Flow detention time= 574.3 min calculated for 0.000 af (0% of inflow)
 Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	277.33'	3,656 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 11,000 cf Overall - 1,859 cf Embedded = 9,141 cf x 40.0% Voids
#2	277.83'	1,859 cf	18.0" Round Pipe Storage Inside #1 L= 1,052.0'
#3	279.84'	9 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		5,525 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.33	4,400	0	0
279.83	4,400	11,000	11,000

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
279.84	12	0	0
280.60	12	9	9

Device	Routing	Invert	Outlet Devices
#1	Primary	277.83'	12.0" Round Culvert L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 277.83' / 277.83' S= 0.0000 ' S= 0.0000 ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=278.13' TW=278.14' (Dynamic Tailwater)

↑ **1=Culvert** (Controls 0.00 cfs)

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Stage-Area-Storage for Pond Basin 1C: Basin 1C

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
277.33	0	277.85	918	278.37	2,192
277.34	18	277.86	938	278.38	2,219
277.35	35	277.87	959	278.39	2,245
277.36	53	277.88	979	278.40	2,272
277.37	70	277.89	1,001	278.41	2,299
277.38	88	277.90	1,022	278.42	2,326
277.39	106	277.91	1,044	278.43	2,353
277.40	123	277.92	1,066	278.44	2,380
277.41	141	277.93	1,088	278.45	2,406
277.42	158	277.94	1,110	278.46	2,433
277.43	176	277.95	1,133	278.47	2,460
277.44	194	277.96	1,156	278.48	2,487
277.45	211	277.97	1,179	278.49	2,514
277.46	229	277.98	1,202	278.50	2,541
277.47	246	277.99	1,225	278.51	2,568
277.48	264	278.00	1,249	278.52	2,595
277.49	282	278.01	1,273	278.53	2,622
277.50	299	278.02	1,296	278.54	2,649
277.51	317	278.03	1,320	278.55	2,677
277.52	334	278.04	1,345	278.56	2,704
277.53	352	278.05	1,369	278.57	2,731
277.54	370	278.06	1,393	278.58	2,758
277.55	387	278.07	1,418	278.59	2,785
277.56	405	278.08	1,442	278.60	2,812
277.57	422	278.09	1,467	278.61	2,839
277.58	440	278.10	1,492	278.62	2,866
277.59	458	278.11	1,517	278.63	2,893
277.60	475	278.12	1,542	278.64	2,920
277.61	493	278.13	1,567	278.65	2,947
277.62	510	278.14	1,592	278.66	2,974
277.63	528	278.15	1,617	278.67	3,001
277.64	546	278.16	1,643	278.68	3,028
277.65	563	278.17	1,668	278.69	3,055
277.66	581	278.18	1,694	278.70	3,082
277.67	598	278.19	1,719	278.71	3,109
277.68	616	278.20	1,745	278.72	3,136
277.69	634	278.21	1,771	278.73	3,163
277.70	651	278.22	1,797	278.74	3,190
277.71	669	278.23	1,823	278.75	3,216
277.72	686	278.24	1,849	278.76	3,243
277.73	704	278.25	1,875	278.77	3,270
277.74	722	278.26	1,901	278.78	3,297
277.75	739	278.27	1,927	278.79	3,324
277.76	757	278.28	1,953	278.80	3,350
277.77	774	278.29	1,980	278.81	3,377
277.78	792	278.30	2,006	278.82	3,403
277.79	810	278.31	2,033	278.83	3,430
277.80	827	278.32	2,059	278.84	3,456
277.81	845	278.33	2,085	278.85	3,483
277.82	862	278.34	2,112	278.86	3,509
277.83	880	278.35	2,139	278.87	3,536
277.84	899	278.36	2,165	278.88	3,562

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Stage-Area-Storage for Pond Basin 1C: Basin 1C (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
278.89	3,588	279.41	4,776	279.93	5,517
278.90	3,614	279.42	4,794	279.94	5,517
278.91	3,641	279.43	4,811	279.95	5,517
278.92	3,667	279.44	4,829	279.96	5,517
278.93	3,693	279.45	4,847	279.97	5,517
278.94	3,719	279.46	4,864	279.98	5,517
278.95	3,744	279.47	4,882	279.99	5,517
278.96	3,770	279.48	4,899	280.00	5,517
278.97	3,796	279.49	4,917	280.01	5,517
278.98	3,822	279.50	4,935	280.02	5,518
278.99	3,847	279.51	4,952	280.03	5,518
279.00	3,873	279.52	4,970	280.04	5,518
279.01	3,898	279.53	4,987	280.05	5,518
279.02	3,923	279.54	5,005	280.06	5,518
279.03	3,949	279.55	5,023	280.07	5,518
279.04	3,974	279.56	5,040	280.08	5,518
279.05	3,999	279.57	5,058	280.09	5,518
279.06	4,024	279.58	5,075	280.10	5,519
279.07	4,049	279.59	5,093	280.11	5,519
279.08	4,073	279.60	5,111	280.12	5,519
279.09	4,098	279.61	5,128	280.13	5,519
279.10	4,122	279.62	5,146	280.14	5,519
279.11	4,147	279.63	5,163	280.15	5,519
279.12	4,171	279.64	5,181	280.16	5,519
279.13	4,195	279.65	5,199	280.17	5,519
279.14	4,219	279.66	5,216	280.18	5,520
279.15	4,243	279.67	5,234	280.19	5,520
279.16	4,266	279.68	5,251	280.20	5,520
279.17	4,290	279.69	5,269	280.21	5,520
279.18	4,313	279.70	5,287	280.22	5,520
279.19	4,337	279.71	5,304	280.23	5,520
279.20	4,360	279.72	5,322	280.24	5,520
279.21	4,382	279.73	5,339	280.25	5,520
279.22	4,405	279.74	5,357	280.26	5,520
279.23	4,427	279.75	5,375	280.27	5,521
279.24	4,450	279.76	5,392	280.28	5,521
279.25	4,472	279.77	5,410	280.29	5,521
279.26	4,493	279.78	5,427	280.30	5,521
279.27	4,515	279.79	5,445	280.31	5,521
279.28	4,536	279.80	5,463	280.32	5,521
279.29	4,557	279.81	5,480	280.33	5,521
279.30	4,577	279.82	5,498	280.34	5,521
279.31	4,597	279.83	5,515	280.35	5,522
279.32	4,617	279.84	5,515	280.36	5,522
279.33	4,635	279.85	5,516	280.37	5,522
279.34	4,653	279.86	5,516	280.38	5,522
279.35	4,671	279.87	5,516	280.39	5,522
279.36	4,688	279.88	5,516	280.40	5,522
279.37	4,706	279.89	5,516	280.41	5,522
279.38	4,723	279.90	5,516	280.42	5,522
279.39	4,741	279.91	5,516	280.43	5,523
279.40	4,759	279.92	5,516	280.44	5,523

Stage-Area-Storage for Pond Basin 1C: Basin 1C (continued)

Elevation (feet)	Storage (cubic-feet)
280.45	5,523
280.46	5,523
280.47	5,523
280.48	5,523
280.49	5,523
280.50	5,523
280.51	5,523
280.52	5,524
280.53	5,524
280.54	5,524
280.55	5,524
280.56	5,524
280.57	5,524
280.58	5,524
280.59	5,524
280.60	5,525

Summary for Pond Basin 2B: Basin 2B

Inflow Area = 4.459 ac, 52.30% Impervious, Inflow Depth = 0.55" for 1-YR NOAA event
 Inflow = 2.22 cfs @ 12.14 hrs, Volume= 0.203 af
 Outflow = 0.95 cfs @ 12.42 hrs, Volume= 0.203 af, Atten= 57%, Lag= 16.6 min
 Primary = 0.95 cfs @ 12.42 hrs, Volume= 0.203 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 273.85' @ 12.43 hrs Surf.Area= 5,600 sf Storage= 2,205 cf

Plug-Flow detention time= 58.5 min calculated for 0.203 af (100% of inflow)
 Center-of-Mass det. time= 57.7 min (839.2 - 781.5)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	6,696 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 28,000 cf Overall - 11,259 cf Embedded = 16,741 cf x 40.0% Voids
#2	273.50'	11,259 cf	48.0" Round Pipe Storage Inside #1 L= 896.0'
		17,956 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	5,600	0	0
278.00	5,600	28,000	28,000

Device	Routing	Invert	Outlet Devices
#1	Secondary	277.50'	6.0' 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
#2	Primary	273.00'	8.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.95 cfs @ 12.42 hrs HW=273.85' TW=273.53' (Dynamic Tailwater)

↑ **2=Orifice/Grate** (Orifice Controls 0.95 cfs @ 2.72 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=272.90' (Dynamic Tailwater)

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

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Stage-Area-Storage for Pond Basin 2B: Basin 2B

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
273.00	0	273.52	1,169	274.04	2,875
273.01	22	273.53	1,195	274.05	2,912
273.02	45	273.54	1,221	274.06	2,949
273.03	67	273.55	1,248	274.07	2,987
273.04	90	273.56	1,275	274.08	3,024
273.05	112	273.57	1,303	274.09	3,062
273.06	134	273.58	1,331	274.10	3,099
273.07	157	273.59	1,360	274.11	3,137
273.08	179	273.60	1,389	274.12	3,175
273.09	202	273.61	1,418	274.13	3,213
273.10	224	273.62	1,448	274.14	3,251
273.11	246	273.63	1,478	274.15	3,290
273.12	269	273.64	1,508	274.16	3,328
273.13	291	273.65	1,538	274.17	3,366
273.14	314	273.66	1,569	274.18	3,405
273.15	336	273.67	1,600	274.19	3,443
273.16	358	273.68	1,631	274.20	3,482
273.17	381	273.69	1,663	274.21	3,521
273.18	403	273.70	1,694	274.22	3,560
273.19	426	273.71	1,726	274.23	3,599
273.20	448	273.72	1,758	274.24	3,638
273.21	470	273.73	1,791	274.25	3,677
273.22	493	273.74	1,823	274.26	3,716
273.23	515	273.75	1,856	274.27	3,755
273.24	538	273.76	1,889	274.28	3,795
273.25	560	273.77	1,922	274.29	3,834
273.26	582	273.78	1,955	274.30	3,874
273.27	605	273.79	1,989	274.31	3,914
273.28	627	273.80	2,022	274.32	3,953
273.29	650	273.81	2,056	274.33	3,993
273.30	672	273.82	2,090	274.34	4,033
273.31	694	273.83	2,124	274.35	4,073
273.32	717	273.84	2,158	274.36	4,113
273.33	739	273.85	2,193	274.37	4,153
273.34	762	273.86	2,228	274.38	4,193
273.35	784	273.87	2,262	274.39	4,233
273.36	806	273.88	2,297	274.40	4,274
273.37	829	273.89	2,332	274.41	4,314
273.38	851	273.90	2,368	274.42	4,355
273.39	874	273.91	2,403	274.43	4,395
273.40	896	273.92	2,438	274.44	4,436
273.41	918	273.93	2,474	274.45	4,476
273.42	941	273.94	2,510	274.46	4,517
273.43	963	273.95	2,546	274.47	4,558
273.44	986	273.96	2,582	274.48	4,599
273.45	1,008	273.97	2,618	274.49	4,640
273.46	1,030	273.98	2,654	274.50	4,681
273.47	1,053	273.99	2,691	274.51	4,722
273.48	1,075	274.00	2,727	274.52	4,763
273.49	1,098	274.01	2,764	274.53	4,804
273.50	1,120	274.02	2,801	274.54	4,845
273.51	1,144	274.03	2,838	274.55	4,887

18017 Pre-post-ILSF

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Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
274.56	4,928	275.08	7,141	275.60	9,417
274.57	4,969	275.09	7,184	275.61	9,461
274.58	5,011	275.10	7,227	275.62	9,505
274.59	5,052	275.11	7,271	275.63	9,548
274.60	5,094	275.12	7,314	275.64	9,592
274.61	5,136	275.13	7,358	275.65	9,636
274.62	5,177	275.14	7,401	275.66	9,680
274.63	5,219	275.15	7,445	275.67	9,724
274.64	5,261	275.16	7,489	275.68	9,768
274.65	5,303	275.17	7,532	275.69	9,811
274.66	5,345	275.18	7,576	275.70	9,855
274.67	5,386	275.19	7,619	275.71	9,899
274.68	5,428	275.20	7,663	275.72	9,943
274.69	5,470	275.21	7,707	275.73	9,987
274.70	5,513	275.22	7,751	275.74	10,030
274.71	5,555	275.23	7,794	275.75	10,074
274.72	5,597	275.24	7,838	275.76	10,118
274.73	5,639	275.25	7,882	275.77	10,161
274.74	5,681	275.26	7,925	275.78	10,205
274.75	5,724	275.27	7,969	275.79	10,249
274.76	5,766	275.28	8,013	275.80	10,293
274.77	5,808	275.29	8,057	275.81	10,336
274.78	5,851	275.30	8,100	275.82	10,380
274.79	5,893	275.31	8,144	275.83	10,423
274.80	5,936	275.32	8,188	275.84	10,467
274.81	5,978	275.33	8,232	275.85	10,511
274.82	6,021	275.34	8,276	275.86	10,554
274.83	6,064	275.35	8,320	275.87	10,598
274.84	6,106	275.36	8,363	275.88	10,641
274.85	6,149	275.37	8,407	275.89	10,685
274.86	6,192	275.38	8,451	275.90	10,728
274.87	6,235	275.39	8,495	275.91	10,772
274.88	6,277	275.40	8,539	275.92	10,815
274.89	6,320	275.41	8,583	275.93	10,859
274.90	6,363	275.42	8,627	275.94	10,902
274.91	6,406	275.43	8,671	275.95	10,945
274.92	6,449	275.44	8,714	275.96	10,989
274.93	6,492	275.45	8,758	275.97	11,032
274.94	6,535	275.46	8,802	275.98	11,075
274.95	6,578	275.47	8,846	275.99	11,118
274.96	6,621	275.48	8,890	276.00	11,162
274.97	6,664	275.49	8,934	276.01	11,205
274.98	6,708	275.50	8,978	276.02	11,248
274.99	6,751	275.51	9,022	276.03	11,291
275.00	6,794	275.52	9,066	276.04	11,334
275.01	6,837	275.53	9,110	276.05	11,377
275.02	6,880	275.54	9,153	276.06	11,421
275.03	6,924	275.55	9,197	276.07	11,464
275.04	6,967	275.56	9,241	276.08	11,507
275.05	7,010	275.57	9,285	276.09	11,550
275.06	7,054	275.58	9,329	276.10	11,592
275.07	7,097	275.59	9,373	276.11	11,635

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Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
276.12	11,678	276.64	13,843	277.16	15,797
276.13	11,721	276.65	13,883	277.17	15,832
276.14	11,764	276.66	13,923	277.18	15,866
276.15	11,807	276.67	13,963	277.19	15,900
276.16	11,849	276.68	14,002	277.20	15,933
276.17	11,892	276.69	14,042	277.21	15,967
276.18	11,935	276.70	14,082	277.22	16,001
276.19	11,977	276.71	14,121	277.23	16,034
276.20	12,020	276.72	14,161	277.24	16,067
276.21	12,062	276.73	14,200	277.25	16,100
276.22	12,105	276.74	14,240	277.26	16,133
276.23	12,147	276.75	14,279	277.27	16,165
276.24	12,190	276.76	14,318	277.28	16,197
276.25	12,232	276.77	14,357	277.29	16,230
276.26	12,274	276.78	14,396	277.30	16,261
276.27	12,317	276.79	14,435	277.31	16,293
276.28	12,359	276.80	14,474	277.32	16,324
276.29	12,401	276.81	14,512	277.33	16,356
276.30	12,443	276.82	14,551	277.34	16,387
276.31	12,485	276.83	14,589	277.35	16,417
276.32	12,527	276.84	14,628	277.36	16,448
276.33	12,569	276.85	14,666	277.37	16,478
276.34	12,611	276.86	14,704	277.38	16,508
276.35	12,653	276.87	14,743	277.39	16,537
276.36	12,695	276.88	14,781	277.40	16,567
276.37	12,737	276.89	14,818	277.41	16,596
276.38	12,778	276.90	14,856	277.42	16,624
276.39	12,820	276.91	14,894	277.43	16,652
276.40	12,862	276.92	14,932	277.44	16,680
276.41	12,903	276.93	14,969	277.45	16,708
276.42	12,945	276.94	15,006	277.46	16,735
276.43	12,986	276.95	15,044	277.47	16,761
276.44	13,028	276.96	15,081	277.48	16,787
276.45	13,069	276.97	15,118	277.49	16,812
276.46	13,110	276.98	15,155	277.50	16,836
276.47	13,152	276.99	15,192	277.51	16,858
276.48	13,193	277.00	15,228	277.52	16,880
276.49	13,234	277.01	15,265	277.53	16,903
276.50	13,275	277.02	15,301	277.54	16,925
276.51	13,316	277.03	15,338	277.55	16,948
276.52	13,357	277.04	15,374	277.56	16,970
276.53	13,398	277.05	15,410	277.57	16,992
276.54	13,439	277.06	15,446	277.58	17,015
276.55	13,479	277.07	15,482	277.59	17,037
276.56	13,520	277.08	15,517	277.60	17,060
276.57	13,561	277.09	15,553	277.61	17,082
276.58	13,601	277.10	15,588	277.62	17,104
276.59	13,642	277.11	15,623	277.63	17,127
276.60	13,682	277.12	15,658	277.64	17,149
276.61	13,722	277.13	15,693	277.65	17,172
276.62	13,762	277.14	15,728	277.66	17,194
276.63	13,803	277.15	15,763	277.67	17,216

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Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)
277.68	17,239
277.69	17,261
277.70	17,284
277.71	17,306
277.72	17,328
277.73	17,351
277.74	17,373
277.75	17,396
277.76	17,418
277.77	17,440
277.78	17,463
277.79	17,485
277.80	17,508
277.81	17,530
277.82	17,552
277.83	17,575
277.84	17,597
277.85	17,620
277.86	17,642
277.87	17,664
277.88	17,687
277.89	17,709
277.90	17,732
277.91	17,754
277.92	17,776
277.93	17,799
277.94	17,821
277.95	17,844
277.96	17,866
277.97	17,888
277.98	17,911
277.99	17,933
278.00	17,956

Summary for Pond Basin 2b outlet: Basin 2b outlet

[57] Hint: Peaked at 273.53' (Flood elevation advised)

Inflow Area = 4.459 ac, 52.30% Impervious, Inflow Depth > 0.55" for 1-YR NOAA event
 Inflow = 0.95 cfs @ 12.42 hrs, Volume= 0.203 af
 Outflow = 0.95 cfs @ 12.43 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.6 min
 Primary = 0.95 cfs @ 12.43 hrs, Volume= 0.203 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 273.53' @ 12.44 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.90'	12.0" Round Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.90' / 272.70' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.95 cfs @ 12.43 hrs HW=273.53' TW=273.26' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 0.95 cfs @ 2.58 fps)

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Stage-Area-Storage for Pond Basin 2b outlet: Basin 2b outlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0	273.74	0
273.23	0	273.75	0
273.24	0	273.76	0
273.25	0	273.77	0
273.26	0	273.78	0
273.27	0	273.79	0
273.28	0	273.80	0
273.29	0	273.81	0
273.30	0	273.82	0
273.31	0	273.83	0
273.32	0	273.84	0
273.33	0	273.85	0
273.34	0	273.86	0
273.35	0	273.87	0
273.36	0	273.88	0
273.37	0	273.89	0
273.38	0	273.90	0
273.39	0		
273.40	0		
273.41	0		

Summary for Pond PDMH 9: PDMH 9

[57] Hint: Peaked at 276.10' (Flood elevation advised)

Inflow Area = 1.313 ac, 78.67% Impervious, Inflow Depth = 0.00" for 1-YR NOAA event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 276.10' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	276.10'	12.0" Round Culvert L= 86.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 276.10' / 273.80' S= 0.0267 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=276.10' TW=273.00' (Dynamic Tailwater)

↑1=Culvert (Controls 0.00 cfs)

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Stage-Area-Storage for Pond PDMH 9: PDMH 9

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
276.10	0	276.62	0
276.11	0	276.63	0
276.12	0	276.64	0
276.13	0	276.65	0
276.14	0	276.66	0
276.15	0	276.67	0
276.16	0	276.68	0
276.17	0	276.69	0
276.18	0	276.70	0
276.19	0	276.71	0
276.20	0	276.72	0
276.21	0	276.73	0
276.22	0	276.74	0
276.23	0	276.75	0
276.24	0	276.76	0
276.25	0	276.77	0
276.26	0	276.78	0
276.27	0	276.79	0
276.28	0	276.80	0
276.29	0	276.81	0
276.30	0	276.82	0
276.31	0	276.83	0
276.32	0	276.84	0
276.33	0	276.85	0
276.34	0	276.86	0
276.35	0	276.87	0
276.36	0	276.88	0
276.37	0	276.89	0
276.38	0	276.90	0
276.39	0	276.91	0
276.40	0	276.92	0
276.41	0	276.93	0
276.42	0	276.94	0
276.43	0	276.95	0
276.44	0	276.96	0
276.45	0	276.97	0
276.46	0	276.98	0
276.47	0	276.99	0
276.48	0	277.00	0
276.49	0	277.01	0
276.50	0	277.02	0
276.51	0	277.03	0
276.52	0	277.04	0
276.53	0	277.05	0
276.54	0	277.06	0
276.55	0	277.07	0
276.56	0	277.08	0
276.57	0	277.09	0
276.58	0	277.10	0
276.59	0		
276.60	0		
276.61	0		

Summary for Pond Pond 1B: Pond 1B

Inflow Area = 0.756 ac, 26.34% Impervious, Inflow Depth = 1.13" for 1-YR NOAA event
 Inflow = 0.89 cfs @ 12.09 hrs, Volume= 0.071 af
 Outflow = 0.37 cfs @ 12.35 hrs, Volume= 0.045 af, Atten= 59%, Lag= 15.8 min
 Primary = 0.37 cfs @ 12.35 hrs, Volume= 0.045 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 278.16' @ 12.35 hrs Surf.Area= 2,929 sf Storage= 1,330 cf

Plug-Flow detention time= 221.5 min calculated for 0.045 af (63% of inflow)
 Center-of-Mass det. time= 105.0 min (916.7 - 811.6)

Volume	Invert	Avail.Storage	Storage Description
#1	277.00'	2,558 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.00	71	0	0
277.50	672	186	186
278.00	2,215	722	908
278.50	4,385	1,650	2,558

Device	Routing	Invert	Outlet Devices
#1	Primary	278.10'	8.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.37 cfs @ 12.35 hrs HW=278.16' TW=276.75' (Dynamic Tailwater)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.37 cfs @ 0.71 fps)

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Stage-Area-Storage for Pond Pond 1B: Pond 1B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.00	71	0	277.52	734	200
277.01	83	1	277.53	765	207
277.02	95	2	277.54	795	215
277.03	107	3	277.55	826	223
277.04	119	4	277.56	857	232
277.05	131	5	277.57	888	240
277.06	143	6	277.58	919	249
277.07	155	8	277.59	950	259
277.08	167	10	277.60	981	268
277.09	179	11	277.61	1,011	278
277.10	191	13	277.62	1,042	289
277.11	203	15	277.63	1,073	299
277.12	215	17	277.64	1,104	310
277.13	227	19	277.65	1,135	321
277.14	239	22	277.66	1,166	333
277.15	251	24	277.67	1,197	345
277.16	263	27	277.68	1,227	357
277.17	275	29	277.69	1,258	369
277.18	287	32	277.70	1,289	382
277.19	299	35	277.71	1,320	395
277.20	311	38	277.72	1,351	408
277.21	323	41	277.73	1,382	422
277.22	335	45	277.74	1,413	436
277.23	347	48	277.75	1,444	450
277.24	359	52	277.76	1,474	465
277.25	372	55	277.77	1,505	480
277.26	384	59	277.78	1,536	495
277.27	396	63	277.79	1,567	510
277.28	408	67	277.80	1,598	526
277.29	420	71	277.81	1,629	542
277.30	432	75	277.82	1,660	559
277.31	444	80	277.83	1,690	576
277.32	456	84	277.84	1,721	593
277.33	468	89	277.85	1,752	610
277.34	480	94	277.86	1,783	628
277.35	492	98	277.87	1,814	646
277.36	504	103	277.88	1,845	664
277.37	516	109	277.89	1,876	683
277.38	528	114	277.90	1,906	701
277.39	540	119	277.91	1,937	721
277.40	552	125	277.92	1,968	740
277.41	564	130	277.93	1,999	760
277.42	576	136	277.94	2,030	780
277.43	588	142	277.95	2,061	801
277.44	600	148	277.96	2,092	821
277.45	612	154	277.97	2,122	842
277.46	624	160	277.98	2,153	864
277.47	636	166	277.99	2,184	886
277.48	648	173	278.00	2,215	908
277.49	660	179	278.01	2,258	930
277.50	672	186	278.02	2,302	953
277.51	703	193	278.03	2,345	976

Stage-Area-Storage for Pond Pond 1B: Pond 1B (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
278.04	2,389	1,000
278.05	2,432	1,024
278.06	2,475	1,048
278.07	2,519	1,073
278.08	2,562	1,099
278.09	2,606	1,124
278.10	2,649	1,151
278.11	2,692	1,177
278.12	2,736	1,205
278.13	2,779	1,232
278.14	2,823	1,260
278.15	2,866	1,289
278.16	2,909	1,317
278.17	2,953	1,347
278.18	2,996	1,377
278.19	3,040	1,407
278.20	3,083	1,437
278.21	3,126	1,468
278.22	3,170	1,500
278.23	3,213	1,532
278.24	3,257	1,564
278.25	3,300	1,597
278.26	3,343	1,630
278.27	3,387	1,664
278.28	3,430	1,698
278.29	3,474	1,732
278.30	3,517	1,767
278.31	3,560	1,803
278.32	3,604	1,839
278.33	3,647	1,875
278.34	3,691	1,911
278.35	3,734	1,949
278.36	3,777	1,986
278.37	3,821	2,024
278.38	3,864	2,063
278.39	3,908	2,101
278.40	3,951	2,141
278.41	3,994	2,180
278.42	4,038	2,221
278.43	4,081	2,261
278.44	4,125	2,302
278.45	4,168	2,344
278.46	4,211	2,386
278.47	4,255	2,428
278.48	4,298	2,471
278.49	4,342	2,514
278.50	4,385	2,558

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Summary for Pond Pre Pond 1A: Pre Pond 1A

Inflow Area = 3.871 ac, 25.93% Impervious, Inflow Depth = 1.01" for 1-YR NOAA event
 Inflow = 3.24 cfs @ 12.12 hrs, Volume= 0.327 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 277.15' @ 48.00 hrs Surf.Area= 26,700 sf Storage= 14,251 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	276.00'	47,715 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
276.00	4,053	0	0
276.50	8,187	3,060	3,060
277.00	22,091	7,570	10,630
277.50	37,615	14,927	25,556
278.00	51,019	22,159	47,715

Device	Routing	Invert	Outlet Devices
#1	Primary	277.50'	30.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=276.00' TW=0.00' (Dynamic Tailwater)
 ↑1=**Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

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Stage-Area-Storage for Pond Pre Pond 1A: Pre Pond 1A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
276.00	4,053	0	276.52	8,743	3,229
276.01	4,136	41	276.53	9,021	3,318
276.02	4,218	83	276.54	9,299	3,410
276.03	4,301	125	276.55	9,577	3,504
276.04	4,384	169	276.56	9,855	3,601
276.05	4,466	213	276.57	10,134	3,701
276.06	4,549	258	276.58	10,412	3,804
276.07	4,632	304	276.59	10,690	3,909
276.08	4,714	351	276.60	10,968	4,018
276.09	4,797	398	276.61	11,246	4,129
276.10	4,880	447	276.62	11,524	4,243
276.11	4,962	496	276.63	11,802	4,359
276.12	5,045	546	276.64	12,080	4,479
276.13	5,128	597	276.65	12,358	4,601
276.14	5,211	648	276.66	12,636	4,726
276.15	5,293	701	276.67	12,914	4,854
276.16	5,376	754	276.68	13,192	4,984
276.17	5,459	808	276.69	13,471	5,117
276.18	5,541	863	276.70	13,749	5,254
276.19	5,624	919	276.71	14,027	5,392
276.20	5,707	976	276.72	14,305	5,534
276.21	5,789	1,033	276.73	14,583	5,679
276.22	5,872	1,092	276.74	14,861	5,826
276.23	5,955	1,151	276.75	15,139	5,976
276.24	6,037	1,211	276.76	15,417	6,129
276.25	6,120	1,272	276.77	15,695	6,284
276.26	6,203	1,333	276.78	15,973	6,442
276.27	6,285	1,396	276.79	16,251	6,604
276.28	6,368	1,459	276.80	16,529	6,767
276.29	6,451	1,523	276.81	16,807	6,934
276.30	6,533	1,588	276.82	17,086	7,104
276.31	6,616	1,654	276.83	17,364	7,276
276.32	6,699	1,720	276.84	17,642	7,451
276.33	6,781	1,788	276.85	17,920	7,629
276.34	6,864	1,856	276.86	18,198	7,809
276.35	6,947	1,925	276.87	18,476	7,993
276.36	7,029	1,995	276.88	18,754	8,179
276.37	7,112	2,066	276.89	19,032	8,368
276.38	7,195	2,137	276.90	19,310	8,559
276.39	7,278	2,209	276.91	19,588	8,754
276.40	7,360	2,283	276.92	19,866	8,951
276.41	7,443	2,357	276.93	20,144	9,151
276.42	7,526	2,431	276.94	20,423	9,354
276.43	7,608	2,507	276.95	20,701	9,560
276.44	7,691	2,584	276.96	20,979	9,768
276.45	7,774	2,661	276.97	21,257	9,979
276.46	7,856	2,739	276.98	21,535	10,193
276.47	7,939	2,818	276.99	21,813	10,410
276.48	8,022	2,898	277.00	22,091	10,630
276.49	8,104	2,979	277.01	22,401	10,852
276.50	8,187	3,060	277.02	22,712	11,078
276.51	8,465	3,143	277.03	23,022	11,306

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Stage-Area-Storage for Pond Pre Pond 1A: Pre Pond 1A (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.04	23,333	11,538	277.56	39,223	27,861
277.05	23,643	11,773	277.57	39,492	28,255
277.06	23,954	12,011	277.58	39,760	28,651
277.07	24,264	12,252	277.59	40,028	29,050
277.08	24,575	12,496	277.60	40,296	29,452
277.09	24,885	12,743	277.61	40,564	29,856
277.10	25,196	12,994	277.62	40,832	30,263
277.11	25,506	13,247	277.63	41,100	30,672
277.12	25,817	13,504	277.64	41,368	31,085
277.13	26,127	13,764	277.65	41,636	31,500
277.14	26,438	14,027	277.66	41,904	31,918
277.15	26,748	14,292	277.67	42,172	32,338
277.16	27,059	14,561	277.68	42,440	32,761
277.17	27,369	14,834	277.69	42,709	33,187
277.18	27,680	15,109	277.70	42,977	33,615
277.19	27,990	15,387	277.71	43,245	34,046
277.20	28,301	15,669	277.72	43,513	34,480
277.21	28,611	15,953	277.73	43,781	34,917
277.22	28,922	16,241	277.74	44,049	35,356
277.23	29,232	16,532	277.75	44,317	35,798
277.24	29,543	16,826	277.76	44,585	36,242
277.25	29,853	17,123	277.77	44,853	36,689
277.26	30,163	17,423	277.78	45,121	37,139
277.27	30,474	17,726	277.79	45,389	37,592
277.28	30,784	18,032	277.80	45,657	38,047
277.29	31,095	18,341	277.81	45,925	38,505
277.30	31,405	18,654	277.82	46,194	38,965
277.31	31,716	18,970	277.83	46,462	39,429
277.32	32,026	19,288	277.84	46,730	39,895
277.33	32,337	19,610	277.85	46,998	40,363
277.34	32,647	19,935	277.86	47,266	40,835
277.35	32,958	20,263	277.87	47,534	41,309
277.36	33,268	20,594	277.88	47,802	41,785
277.37	33,579	20,928	277.89	48,070	42,265
277.38	33,889	21,266	277.90	48,338	42,747
277.39	34,200	21,606	277.91	48,606	43,231
277.40	34,510	21,950	277.92	48,874	43,719
277.41	34,821	22,296	277.93	49,142	44,209
277.42	35,131	22,646	277.94	49,411	44,702
277.43	35,442	22,999	277.95	49,679	45,197
277.44	35,752	23,355	277.96	49,947	45,695
277.45	36,063	23,714	277.97	50,215	46,196
277.46	36,373	24,076	277.98	50,483	46,699
277.47	36,684	24,442	277.99	50,751	47,206
277.48	36,994	24,810	278.00	51,019	47,715
277.49	37,305	25,181			
277.50	37,615	25,556			
277.51	37,883	25,933			
277.52	38,151	26,314			
277.53	38,419	26,697			
277.54	38,687	27,082			
277.55	38,955	27,470			

Summary for Pond Proposed Pond 1A: Pond 1A

Inflow Area = 1.754 ac, 24.24% Impervious, Inflow Depth = 1.09" for 1-YR NOAA event
 Inflow = 1.96 cfs @ 12.10 hrs, Volume= 0.160 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 276.60' @ 24.41 hrs Surf.Area= 13,427 sf Storage= 6,954 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	276.00'	32,320 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
276.00	9,903	0	0
276.50	12,805	5,677	5,677
277.00	15,998	7,201	12,878
277.50	19,310	8,827	21,705
278.00	23,151	10,615	32,320

Device	Routing	Invert	Outlet Devices
#1	Primary	277.50'	2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=276.00' TW=273.00' (Dynamic Tailwater)

↑ **1=Orifice/Grate** (Controls 0.00 cfs)

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Stage-Area-Storage for Pond Proposed Pond 1A: Pond 1A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
276.00	9,903	0	276.52	12,933	5,934
276.01	9,961	99	276.53	12,997	6,064
276.02	10,019	199	276.54	13,060	6,194
276.03	10,077	300	276.55	13,124	6,325
276.04	10,135	401	276.56	13,188	6,457
276.05	10,193	502	276.57	13,252	6,589
276.06	10,251	605	276.58	13,316	6,722
276.07	10,309	707	276.59	13,380	6,855
276.08	10,367	811	276.60	13,444	6,989
276.09	10,425	915	276.61	13,507	7,124
276.10	10,483	1,019	276.62	13,571	7,260
276.11	10,541	1,124	276.63	13,635	7,396
276.12	10,599	1,230	276.64	13,699	7,532
276.13	10,658	1,336	276.65	13,763	7,670
276.14	10,716	1,443	276.66	13,827	7,808
276.15	10,774	1,551	276.67	13,891	7,946
276.16	10,832	1,659	276.68	13,954	8,085
276.17	10,890	1,767	276.69	14,018	8,225
276.18	10,948	1,877	276.70	14,082	8,366
276.19	11,006	1,986	276.71	14,146	8,507
276.20	11,064	2,097	276.72	14,210	8,649
276.21	11,122	2,208	276.73	14,274	8,791
276.22	11,180	2,319	276.74	14,338	8,934
276.23	11,238	2,431	276.75	14,402	9,078
276.24	11,296	2,544	276.76	14,465	9,222
276.25	11,354	2,657	276.77	14,529	9,367
276.26	11,412	2,771	276.78	14,593	9,513
276.27	11,470	2,885	276.79	14,657	9,659
276.28	11,528	3,000	276.80	14,721	9,806
276.29	11,586	3,116	276.81	14,785	9,953
276.30	11,644	3,232	276.82	14,849	10,102
276.31	11,702	3,349	276.83	14,912	10,250
276.32	11,760	3,466	276.84	14,976	10,400
276.33	11,818	3,584	276.85	15,040	10,550
276.34	11,876	3,702	276.86	15,104	10,701
276.35	11,934	3,822	276.87	15,168	10,852
276.36	11,992	3,941	276.88	15,232	11,004
276.37	12,050	4,061	276.89	15,296	11,157
276.38	12,109	4,182	276.90	15,359	11,310
276.39	12,167	4,304	276.91	15,423	11,464
276.40	12,225	4,426	276.92	15,487	11,618
276.41	12,283	4,548	276.93	15,551	11,774
276.42	12,341	4,671	276.94	15,615	11,929
276.43	12,399	4,795	276.95	15,679	12,086
276.44	12,457	4,919	276.96	15,743	12,243
276.45	12,515	5,044	276.97	15,806	12,401
276.46	12,573	5,169	276.98	15,870	12,559
276.47	12,631	5,295	276.99	15,934	12,718
276.48	12,689	5,422	277.00	15,998	12,878
276.49	12,747	5,549	277.01	16,064	13,038
276.50	12,805	5,677	277.02	16,130	13,199
276.51	12,869	5,805	277.03	16,197	13,361

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Stage-Area-Storage for Pond Proposed Pond 1A: Pond 1A (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.04	16,263	13,523	277.56	19,771	22,877
277.05	16,329	13,686	277.57	19,848	23,075
277.06	16,395	13,850	277.58	19,925	23,274
277.07	16,462	14,014	277.59	20,001	23,474
277.08	16,528	14,179	277.60	20,078	23,674
277.09	16,594	14,344	277.61	20,155	23,875
277.10	16,660	14,511	277.62	20,232	24,077
277.11	16,727	14,678	277.63	20,309	24,280
277.12	16,793	14,845	277.64	20,385	24,483
277.13	16,859	15,013	277.65	20,462	24,688
277.14	16,925	15,182	277.66	20,539	24,893
277.15	16,992	15,352	277.67	20,616	25,098
277.16	17,058	15,522	277.68	20,693	25,305
277.17	17,124	15,693	277.69	20,770	25,512
277.18	17,190	15,865	277.70	20,846	25,720
277.19	17,257	16,037	277.71	20,923	25,929
277.20	17,323	16,210	277.72	21,000	26,139
277.21	17,389	16,383	277.73	21,077	26,349
277.22	17,455	16,558	277.74	21,154	26,560
277.23	17,522	16,732	277.75	21,231	26,772
277.24	17,588	16,908	277.76	21,307	26,985
277.25	17,654	17,084	277.77	21,384	27,198
277.26	17,720	17,261	277.78	21,461	27,413
277.27	17,786	17,439	277.79	21,538	27,628
277.28	17,853	17,617	277.80	21,615	27,843
277.29	17,919	17,796	277.81	21,691	28,060
277.30	17,985	17,975	277.82	21,768	28,277
277.31	18,051	18,155	277.83	21,845	28,495
277.32	18,118	18,336	277.84	21,922	28,714
277.33	18,184	18,518	277.85	21,999	28,934
277.34	18,250	18,700	277.86	22,076	29,154
277.35	18,316	18,883	277.87	22,152	29,375
277.36	18,383	19,066	277.88	22,229	29,597
277.37	18,449	19,250	277.89	22,306	29,820
277.38	18,515	19,435	277.90	22,383	30,043
277.39	18,581	19,621	277.91	22,460	30,268
277.40	18,648	19,807	277.92	22,536	30,493
277.41	18,714	19,994	277.93	22,613	30,718
277.42	18,780	20,181	277.94	22,690	30,945
277.43	18,846	20,369	277.95	22,767	31,172
277.44	18,913	20,558	277.96	22,844	31,400
277.45	18,979	20,748	277.97	22,921	31,629
277.46	19,045	20,938	277.98	22,997	31,859
277.47	19,111	21,128	277.99	23,074	32,089
277.48	19,178	21,320	278.00	23,151	32,320
277.49	19,244	21,512			
277.50	19,310	21,705			
277.51	19,387	21,898			
277.52	19,464	22,092			
277.53	19,540	22,288			
277.54	19,617	22,483			
277.55	19,694	22,680			

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Summary for Pond WQU 2: WQU 2

[57] Hint: Peaked at 278.94' (Flood elevation advised)

Inflow Area = 0.776 ac, 83.79% Impervious, Inflow Depth = 2.11" for 1-YR NOAA event
 Inflow = 1.73 cfs @ 12.08 hrs, Volume= 0.137 af
 Outflow = 1.73 cfs @ 12.09 hrs, Volume= 0.137 af, Atten= 0%, Lag= 0.6 min
 Primary = 1.73 cfs @ 12.09 hrs, Volume= 0.137 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 278.94' @ 24.34 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	277.70'	18.0" Round Culvert L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 277.70' / 277.60' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.71 cfs @ 12.09 hrs HW=278.41' TW=278.14' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 1.71 cfs @ 3.02 fps)

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Stage-Area-Storage for Pond WQU 2: WQU 2

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
277.70	0	278.22	0	278.74	0
277.71	0	278.23	0	278.75	0
277.72	0	278.24	0	278.76	0
277.73	0	278.25	0	278.77	0
277.74	0	278.26	0	278.78	0
277.75	0	278.27	0	278.79	0
277.76	0	278.28	0	278.80	0
277.77	0	278.29	0	278.81	0
277.78	0	278.30	0	278.82	0
277.79	0	278.31	0	278.83	0
277.80	0	278.32	0	278.84	0
277.81	0	278.33	0	278.85	0
277.82	0	278.34	0	278.86	0
277.83	0	278.35	0	278.87	0
277.84	0	278.36	0	278.88	0
277.85	0	278.37	0	278.89	0
277.86	0	278.38	0	278.90	0
277.87	0	278.39	0	278.91	0
277.88	0	278.40	0	278.92	0
277.89	0	278.41	0	278.93	0
277.90	0	278.42	0	278.94	0
277.91	0	278.43	0	278.95	0
277.92	0	278.44	0	278.96	0
277.93	0	278.45	0	278.97	0
277.94	0	278.46	0	278.98	0
277.95	0	278.47	0	278.99	0
277.96	0	278.48	0	279.00	0
277.97	0	278.49	0	279.01	0
277.98	0	278.50	0	279.02	0
277.99	0	278.51	0	279.03	0
278.00	0	278.52	0	279.04	0
278.01	0	278.53	0	279.05	0
278.02	0	278.54	0	279.06	0
278.03	0	278.55	0	279.07	0
278.04	0	278.56	0	279.08	0
278.05	0	278.57	0	279.09	0
278.06	0	278.58	0	279.10	0
278.07	0	278.59	0	279.11	0
278.08	0	278.60	0	279.12	0
278.09	0	278.61	0	279.13	0
278.10	0	278.62	0	279.14	0
278.11	0	278.63	0	279.15	0
278.12	0	278.64	0	279.16	0
278.13	0	278.65	0	279.17	0
278.14	0	278.66	0	279.18	0
278.15	0	278.67	0	279.19	0
278.16	0	278.68	0	279.20	0
278.17	0	278.69	0		
278.18	0	278.70	0		
278.19	0	278.71	0		
278.20	0	278.72	0		
278.21	0	278.73	0		

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentPost 1A: Post 1A Runoff Area=24,895 sf 51.44% Impervious Runoff Depth=5.44"
Flow Length=41' Slope=0.0350 '/' Tc=6.0 min CN=WQ Runoff=3.33 cfs 0.259 af

SubcatchmentPost 1B: Post 1B Runoff Area=33,788 sf 83.79% Impervious Runoff Depth=6.32"
Flow Length=210' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=5.06 cfs 0.409 af

SubcatchmentPost 1C: Post 1C Runoff Area=23,406 sf 71.27% Impervious Runoff Depth=5.98"
Flow Length=128' Slope=0.0125 '/' Tc=6.0 min CN=WQ Runoff=3.36 cfs 0.268 af

SubcatchmentPost 2A: Post 2A Runoff Area=21,838 sf 89.18% Impervious Runoff Depth=6.47"
Flow Length=207' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=3.33 cfs 0.270 af

SubcatchmentPost 2B: Post 2B Runoff Area=60,622 sf 62.79% Impervious Runoff Depth=5.75"
Flow Length=479' Slope=0.0150 '/' Tc=10.5 min CN=WQ Runoff=7.30 cfs 0.667 af

SubcatchmentPost 3: Post 3 Runoff Area=2,294 sf 0.00% Impervious Runoff Depth=4.04"
Flow Length=20' Slope=0.2500 '/' Tc=6.0 min CN=WQ Runoff=0.25 cfs 0.018 af

SubcatchmentPost 4: Post 4 Runoff Area=51,513 sf 11.10% Impervious Runoff Depth=4.34"
Flow Length=340' Slope=0.0450 '/' Tc=6.9 min CN=WQ Runoff=5.70 cfs 0.428 af

SubcatchmentPre 1A: Pre 1A Runoff Area=84,149 sf 34.86% Impervious Runoff Depth=4.86"
Flow Length=465' Slope=0.0360 '/' Tc=8.8 min CN=WQ Runoff=9.36 cfs 0.782 af

SubcatchmentPre 1B: Pre 1B Runoff Area=32,952 sf 26.34% Impervious Runoff Depth=4.76"
Flow Length=155' Slope=0.0300 '/' Tc=6.0 min CN=WQ Runoff=4.01 cfs 0.300 af

SubcatchmentPre 2A: Pre 2A Runoff Area=43,695 sf 58.46% Impervious Runoff Depth=5.62"
Flow Length=173' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=5.99 cfs 0.470 af

SubcatchmentPre 2B: Pre 2B Runoff Area=2,798 sf 100.00% Impervious Runoff Depth=6.76"
Flow Length=37' Slope=0.0100 '/' Tc=6.0 min CN=WQ Runoff=0.44 cfs 0.036 af

SubcatchmentPre 3: Pre 3 Runoff Area=3,249 sf 51.92% Impervious Runoff Depth=5.45"
Flow Length=44' Slope=0.0450 '/' Tc=6.0 min CN=WQ Runoff=0.44 cfs 0.034 af

SubcatchmentPre 4: Pre 4 Runoff Area=51,513 sf 11.10% Impervious Runoff Depth=4.34"
Flow Length=340' Slope=0.0450 '/' Tc=6.9 min CN=WQ Runoff=5.70 cfs 0.428 af

Reach Great Road: Great Road Inflow=7.47 cfs 1.403 af
Outflow=7.47 cfs 1.403 af

Reach Post: Post Inflow=4.93 cfs 1.559 af
Outflow=4.93 cfs 1.559 af

Reach Post Great Road: Post Great Road Inflow=4.68 cfs 1.541 af
Outflow=4.68 cfs 1.541 af

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Reach Post Robinson Road: Post Robinson RoadInflow=0.25 cfs 0.018 af
Outflow=0.25 cfs 0.018 af**Reach Pre: Pre**Inflow=7.59 cfs 1.437 af
Outflow=7.59 cfs 1.437 af**Reach Robinson Road: Robinson Road**Inflow=0.44 cfs 0.034 af
Outflow=0.44 cfs 0.034 af**Pond 13P: 12" RCP to Street**Peak Elev=273.81' Inflow=2.76 cfs 1.271 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 ' /' Outflow=2.76 cfs 1.271 af**Pond 14P: 12" RCP to Street**Peak Elev=273.08' Inflow=0.44 cfs 0.036 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 ' /' Outflow=0.44 cfs 0.036 af**Pond Basin 1B: Basin 1B**Peak Elev=279.52' Storage=7,964 cf Inflow=6.24 cfs 0.576 af
Outflow=5.97 cfs 0.416 af**Pond Basin 1C: Basin 1C**Peak Elev=279.77' Storage=5,411 cf Inflow=3.36 cfs 0.268 af
12.0" Round Culvert n=0.012 L=35.0' S=0.0000 ' /' Outflow=1.97 cfs 0.168 af**Pond Basin 2B: Basin 2B**Peak Elev=277.02' Storage=15,319 cf Inflow=13.23 cfs 1.272 af
Primary=2.76 cfs 1.271 af Secondary=0.00 cfs 0.000 af Outflow=2.76 cfs 1.271 af**Pond Basin 2b outlet: Basin 2b outlet**Peak Elev=274.34' Inflow=2.76 cfs 1.271 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0050 ' /' Outflow=2.76 cfs 1.271 af**Pond PDMH 9: PDMH 9**Peak Elev=279.09' Inflow=5.97 cfs 0.416 af
12.0" Round Culvert n=0.012 L=86.0' S=0.0267 ' /' Outflow=5.97 cfs 0.416 af**Pond Pond 1B: Pond 1B**Peak Elev=278.39' Storage=2,097 cf Inflow=4.01 cfs 0.300 af
Outflow=3.54 cfs 0.274 af**Pond Pre Pond 1A: Pre Pond 1A**Peak Elev=277.67' Storage=32,260 cf Inflow=18.41 cfs 1.484 af
Outflow=5.79 cfs 0.897 af**Pond Proposed Pond 1A: Pond 1A**Peak Elev=277.53' Storage=22,345 cf Inflow=9.01 cfs 0.687 af
Outflow=0.47 cfs 0.189 af**Pond WQU 2: WQU 2**Peak Elev=279.83' Inflow=5.06 cfs 0.409 af
18.0" Round Culvert n=0.012 L=20.0' S=0.0050 ' /' Outflow=5.06 cfs 0.409 af

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Summary for Subcatchment Post 1A: Post 1A

Runoff = 3.33 cfs @ 12.09 hrs, Volume= 0.259 af, Depth= 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
12,805	98	Water Surface, HSG C
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
12,090	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
24,895		Weighted Average
12,090	74	48.56% Pervious Area
12,805	98	51.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	41	0.0350	0.63		Lag/CN Method, Post 1A
1.1	41	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Post 1B: Post 1B

Runoff = 5.06 cfs @ 12.08 hrs, Volume= 0.409 af, Depth= 6.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
3,457	98	Roofs, HSG C
24,854	98	Paved parking, HSG C
5,477	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
33,788		Weighted Average
5,477	74	16.21% Pervious Area
28,311	98	83.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	210	0.0150	0.80		Lag/CN Method, Post 1B
4.4	210	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Post 1C: Post 1C

Runoff = 3.36 cfs @ 12.08 hrs, Volume= 0.268 af, Depth= 5.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
6,958	98	Roofs, HSG C
9,724	98	Paved parking, HSG C
6,724	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
23,406		Weighted Average
6,724	74	28.73% Pervious Area
16,682	98	71.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	128	0.0125	0.58		Lag/CN Method, Post 1C
3.7	128	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Post 2A: Post 2A

Runoff = 3.33 cfs @ 12.08 hrs, Volume= 0.270 af, Depth= 6.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr ILSF Limit Rainfall=7.00"

	Area (sf)	CN	Description
	4,331	98	Roofs, HSG C
	15,145	98	Paved parking, HSG C
*	295	74	Pervious Pavers, HSG C
	2,067	74	>75% Grass cover, Good, HSG C
	0	70	Woods, Good, HSG C
	21,838		Weighted Average
	2,362	74	10.82% Pervious Area
	19,476	98	89.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	207	0.0150	0.84		Lag/CN Method, Post 2A
4.1	207	Total, Increased to minimum Tc = 6.0 min			

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Summary for Subcatchment Post 2B: Post 2B

Runoff = 7.30 cfs @ 12.14 hrs, Volume= 0.667 af, Depth= 5.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
12,010	98	Roofs, HSG C
26,052	98	Paved parking, HSG C
* 5,546	74	Pervious Pavers, HSG C
17,014	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
60,622		Weighted Average
22,560	74	37.21% Pervious Area
38,062	98	62.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	479	0.0150	0.76		Lag/CN Method, Post 2B

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Summary for Subcatchment Post 3: Post 3

Runoff = 0.25 cfs @ 12.09 hrs, Volume= 0.018 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
2,294	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
2,294		Weighted Average
2,294	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.2500	1.00		Lag/CN Method, Post 3
0.3	20	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Post 4: Post 4

Runoff = 5.70 cfs @ 12.10 hrs, Volume= 0.428 af, Depth= 4.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
2,572	98	Roofs, HSG C
3,144	98	Paved parking, HSG C
45,797	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
51,513		Weighted Average
45,797	74	88.90% Pervious Area
5,716	98	11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	340	0.0450	0.82		Lag/CN Method, Pre 4

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Summary for Subcatchment Pre 1A: Pre 1A

Runoff = 9.36 cfs @ 12.12 hrs, Volume= 0.782 af, Depth= 4.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
8,187	98	Water Surface, HSG C
2,349	98	Roofs, HSG C
18,796	98	Paved parking, HSG C
29,044	74	>75% Grass cover, Good, HSG C
25,773	70	Woods, Good, HSG C
84,149		Weighted Average
54,817	72	65.14% Pervious Area
29,332	98	34.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	465	0.0360	0.88		Lag/CN Method, Pre 1A

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Summary for Subcatchment Pre 1B: Pre 1B

Runoff = 4.01 cfs @ 12.09 hrs, Volume= 0.300 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
672	98	Water Surface, HSG C
2,684	98	Roofs, HSG C
5,324	98	Paved parking, HSG C
24,272	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
32,952		Weighted Average
24,272	74	73.66% Pervious Area
8,680	98	26.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	155	0.0300	0.63		Lag/CN Method, Pre 1B
4.1	155	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Pre 2A: Pre 2A

Runoff = 5.99 cfs @ 12.08 hrs, Volume= 0.470 af, Depth= 5.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
3,784	98	Roofs, HSG C
21,760	98	Paved parking, HSG C
17,314	74	>75% Grass cover, Good, HSG C
837	70	Woods, Good, HSG C
43,695		Weighted Average
18,151	74	41.54% Pervious Area
25,544	98	58.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	173	0.0150	0.60		Lag/CN Method, Pre 2
4.8	173	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Pre 2B: Pre 2B

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
2,798	98	Roofs, HSG C
0	98	Paved parking, HSG C
0	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
2,798		Weighted Average
2,798	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	37	0.0100	0.57		Lag/CN Method, Pre 2B
1.1	37	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Pre 3: Pre 3

Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.034 af, Depth= 5.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
901	98	Roofs, HSG C
786	98	Paved parking, HSG C
1,562	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
3,249		Weighted Average
1,562	74	48.08% Pervious Area
1,687	98	51.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	44	0.0450	0.73		Lag/CN Method, Pre 3
1.0	44	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Pre 4: Pre 4

Runoff = 5.70 cfs @ 12.10 hrs, Volume= 0.428 af, Depth= 4.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
2,572	98	Roofs, HSG C
3,144	98	Paved parking, HSG C
45,797	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
51,513		Weighted Average
45,797	74	88.90% Pervious Area
5,716	98	11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	340	0.0450	0.82		Lag/CN Method, Pre 4

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Summary for Reach Great Road: Great Road

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

Inflow Area = 4.938 ac, 33.50% Impervious, Inflow Depth = 3.41" for ILSF Limit event

Inflow = 7.47 cfs @ 12.42 hrs, Volume= 1.403 af

Outflow = 7.47 cfs @ 12.43 hrs, Volume= 1.403 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

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Summary for Reach Post: Post

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

Inflow Area = 5.013 ac, 55.44% Impervious, Inflow Depth = 3.73" for ILSF Limit event

Inflow = 4.93 cfs @ 12.10 hrs, Volume= 1.559 af

Outflow = 4.93 cfs @ 12.11 hrs, Volume= 1.559 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

18017 Pre-post-ILSF

Type III 24-hr ILSF Limit Rainfall=7.00"

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Summary for Reach Post Great Road: Post Great Road

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

Inflow Area = 4.960 ac, 56.03% Impervious, Inflow Depth = 3.73" for ILSF Limit event

Inflow = 4.68 cfs @ 12.09 hrs, Volume= 1.541 af

Outflow = 4.68 cfs @ 12.10 hrs, Volume= 1.541 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

18017 Pre-post-ILSF

Type III 24-hr ILSF Limit Rainfall=7.00"

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Summary for Reach Post Robinson Road: Post Robinson Road

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

Inflow Area = 0.053 ac, 0.00% Impervious, Inflow Depth = 4.04" for ILSF Limit event

Inflow = 0.25 cfs @ 12.09 hrs, Volume= 0.018 af

Outflow = 0.25 cfs @ 12.10 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

18017 Pre-post-ILSF

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Summary for Reach Pre: Pre

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

Inflow Area = 5.013 ac, 33.78% Impervious, Inflow Depth = 3.44" for ILSF Limit event

Inflow = 7.59 cfs @ 12.43 hrs, Volume= 1.437 af

Outflow = 7.59 cfs @ 12.44 hrs, Volume= 1.437 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

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Summary for Reach Robinson Road: Robinson Road

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

Inflow Area = 0.075 ac, 51.92% Impervious, Inflow Depth = 5.45" for ILSF Limit event

Inflow = 0.44 cfs @ 12.09 hrs, Volume= 0.034 af

Outflow = 0.44 cfs @ 12.10 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

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Summary for Pond 13P: 12" RCP to Street

[57] Hint: Peaked at 273.81' (Flood elevation advised)

Inflow Area = 4.459 ac, 52.30% Impervious, Inflow Depth = 3.42" for ILSF Limit event
Inflow = 2.76 cfs @ 12.67 hrs, Volume= 1.271 af
Outflow = 2.76 cfs @ 12.68 hrs, Volume= 1.271 af, Atten= 0%, Lag= 0.6 min
Primary = 2.76 cfs @ 12.68 hrs, Volume= 1.271 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 273.81' @ 12.68 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.73'	12.0" Round Culvert L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.73' / 272.43' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.76 cfs @ 12.68 hrs HW=273.81' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 2.76 cfs @ 4.06 fps)

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Stage-Area-Storage for Pond 13P: 12" RCP to Street

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.73	0	273.25	0	273.77	0
272.74	0	273.26	0	273.78	0
272.75	0	273.27	0	273.79	0
272.76	0	273.28	0	273.80	0
272.77	0	273.29	0	273.81	0
272.78	0	273.30	0		
272.79	0	273.31	0		
272.80	0	273.32	0		
272.81	0	273.33	0		
272.82	0	273.34	0		
272.83	0	273.35	0		
272.84	0	273.36	0		
272.85	0	273.37	0		
272.86	0	273.38	0		
272.87	0	273.39	0		
272.88	0	273.40	0		
272.89	0	273.41	0		
272.90	0	273.42	0		
272.91	0	273.43	0		
272.92	0	273.44	0		
272.93	0	273.45	0		
272.94	0	273.46	0		
272.95	0	273.47	0		
272.96	0	273.48	0		
272.97	0	273.49	0		
272.98	0	273.50	0		
272.99	0	273.51	0		
273.00	0	273.52	0		
273.01	0	273.53	0		
273.02	0	273.54	0		
273.03	0	273.55	0		
273.04	0	273.56	0		
273.05	0	273.57	0		
273.06	0	273.58	0		
273.07	0	273.59	0		
273.08	0	273.60	0		
273.09	0	273.61	0		
273.10	0	273.62	0		
273.11	0	273.63	0		
273.12	0	273.64	0		
273.13	0	273.65	0		
273.14	0	273.66	0		
273.15	0	273.67	0		
273.16	0	273.68	0		
273.17	0	273.69	0		
273.18	0	273.70	0		
273.19	0	273.71	0		
273.20	0	273.72	0		
273.21	0	273.73	0		
273.22	0	273.74	0		
273.23	0	273.75	0		
273.24	0	273.76	0		

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Summary for Pond 14P: 12" RCP to Street

[57] Hint: Peaked at 273.08' (Flood elevation advised)

Inflow Area = 0.064 ac, 100.00% Impervious, Inflow Depth = 6.76" for ILSF Limit event
 Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
 Outflow = 0.44 cfs @ 12.09 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.6 min
 Primary = 0.44 cfs @ 12.09 hrs, Volume= 0.036 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 273.08' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.73'	12.0" Round Culvert L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.73' / 272.43' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.44 cfs @ 12.09 hrs HW=273.08' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 0.44 cfs @ 2.73 fps)

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Stage-Area-Storage for Pond 14P: 12" RCP to Street

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.73	0	273.25	0
272.74	0	273.26	0
272.75	0	273.27	0
272.76	0	273.28	0
272.77	0	273.29	0
272.78	0	273.30	0
272.79	0	273.31	0
272.80	0	273.32	0
272.81	0	273.33	0
272.82	0	273.34	0
272.83	0	273.35	0
272.84	0	273.36	0
272.85	0	273.37	0
272.86	0	273.38	0
272.87	0	273.39	0
272.88	0	273.40	0
272.89	0	273.41	0
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0		
273.23	0		
273.24	0		

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Summary for Pond Basin 1B: Basin 1B

[80] Warning: Exceeded Pond Basin 1C by 0.07' @ 12.05 hrs (1.01 cfs 0.105 af)

Inflow Area = 1.313 ac, 78.67% Impervious, Inflow Depth = 5.27" for ILSF Limit event
 Inflow = 6.24 cfs @ 12.11 hrs, Volume= 0.576 af
 Outflow = 5.97 cfs @ 12.15 hrs, Volume= 0.416 af, Atten= 4%, Lag= 2.1 min
 Primary = 5.97 cfs @ 12.15 hrs, Volume= 0.416 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 279.52' @ 12.15 hrs Surf.Area= 7,072 sf Storage= 7,964 cf

Plug-Flow detention time= 178.2 min calculated for 0.416 af (72% of inflow)
 Center-of-Mass det. time= 80.9 min (866.1 - 785.2)

Volume	Invert	Avail.Storage	Storage Description
#1	277.33'	5,914 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 17,718 cf Overall - 2,933 cf Embedded = 14,785 cf x 40.0% Voids
#2	277.83'	2,933 cf	18.0" Round Pipe Storage Inside #1 L= 1,660.0'
		8,847 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.33	7,072	0	0
279.83	7,072	17,680	17,680
279.84	4	35	17,715
280.50	4	3	17,718

Device	Routing	Invert	Outlet Devices
#1	Primary	279.20'	4.0' long x 1.0' breadth Broad-Crested Rectangular Weir X 3.00 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 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=5.96 cfs @ 12.15 hrs HW=279.52' TW=279.05' (Dynamic Tailwater)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 5.96 cfs @ 1.54 fps)

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Stage-Area-Storage for Pond Basin 1B: Basin 1B

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
277.33	0	277.85	1,476	278.37	3,512
277.34	28	277.86	1,508	278.38	3,555
277.35	57	277.87	1,540	278.39	3,598
277.36	85	277.88	1,574	278.40	3,641
277.37	113	277.89	1,608	278.41	3,683
277.38	141	277.90	1,642	278.42	3,726
277.39	170	277.91	1,677	278.43	3,769
277.40	198	277.92	1,712	278.44	3,812
277.41	226	277.93	1,748	278.45	3,855
277.42	255	277.94	1,784	278.46	3,898
277.43	283	277.95	1,820	278.47	3,941
277.44	311	277.96	1,856	278.48	3,984
277.45	339	277.97	1,893	278.49	4,027
277.46	368	277.98	1,930	278.50	4,070
277.47	396	277.99	1,968	278.51	4,114
277.48	424	278.00	2,005	278.52	4,157
277.49	453	278.01	2,043	278.53	4,200
277.50	481	278.02	2,081	278.54	4,243
277.51	509	278.03	2,120	278.55	4,286
277.52	537	278.04	2,158	278.56	4,330
277.53	566	278.05	2,197	278.57	4,373
277.54	594	278.06	2,236	278.58	4,416
277.55	622	278.07	2,275	278.59	4,459
277.56	651	278.08	2,314	278.60	4,502
277.57	679	278.09	2,354	278.61	4,546
277.58	707	278.10	2,394	278.62	4,589
277.59	735	278.11	2,433	278.63	4,632
277.60	764	278.12	2,473	278.64	4,675
277.61	792	278.13	2,514	278.65	4,718
277.62	820	278.14	2,554	278.66	4,762
277.63	849	278.15	2,594	278.67	4,805
277.64	877	278.16	2,635	278.68	4,848
277.65	905	278.17	2,676	278.69	4,891
277.66	934	278.18	2,717	278.70	4,934
277.67	962	278.19	2,758	278.71	4,977
277.68	990	278.20	2,799	278.72	5,020
277.69	1,018	278.21	2,840	278.73	5,063
277.70	1,047	278.22	2,881	278.74	5,106
277.71	1,075	278.23	2,923	278.75	5,149
277.72	1,103	278.24	2,964	278.76	5,192
277.73	1,132	278.25	3,006	278.77	5,234
277.74	1,160	278.26	3,048	278.78	5,277
277.75	1,188	278.27	3,090	278.79	5,320
277.76	1,216	278.28	3,131	278.80	5,362
277.77	1,245	278.29	3,173	278.81	5,405
277.78	1,273	278.30	3,216	278.82	5,447
277.79	1,301	278.31	3,258	278.83	5,490
277.80	1,330	278.32	3,300	278.84	5,532
277.81	1,358	278.33	3,342	278.85	5,574
277.82	1,386	278.34	3,385	278.86	5,616
277.83	1,414	278.35	3,427	278.87	5,659
277.84	1,444	278.36	3,470	278.88	5,701

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Stage-Area-Storage for Pond Basin 1B: Basin 1B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
278.89	5,743	279.41	7,644	279.93	8,846
278.90	5,784	279.42	7,672	279.94	8,846
278.91	5,826	279.43	7,701	279.95	8,846
278.92	5,868	279.44	7,729	279.96	8,846
278.93	5,909	279.45	7,757	279.97	8,846
278.94	5,951	279.46	7,785	279.98	8,846
278.95	5,992	279.47	7,814	279.99	8,846
278.96	6,033	279.48	7,842	280.00	8,846
278.97	6,074	279.49	7,870	280.01	8,847
278.98	6,115	279.50	7,899	280.02	8,847
278.99	6,156	279.51	7,927	280.03	8,847
279.00	6,197	279.52	7,955	280.04	8,847
279.01	6,238	279.53	7,983	280.05	8,847
279.02	6,278	279.54	8,012	280.06	8,847
279.03	6,318	279.55	8,040	280.07	8,847
279.04	6,359	279.56	8,068	280.08	8,847
279.05	6,399	279.57	8,097	280.09	8,847
279.06	6,438	279.58	8,125	280.10	8,847
279.07	6,478	279.59	8,153	280.11	8,847
279.08	6,518	279.60	8,181	280.12	8,847
279.09	6,557	279.61	8,210	280.13	8,847
279.10	6,596	279.62	8,238	280.14	8,847
279.11	6,635	279.63	8,266	280.15	8,847
279.12	6,674	279.64	8,295	280.16	8,847
279.13	6,712	279.65	8,323	280.17	8,847
279.14	6,751	279.66	8,351	280.18	8,847
279.15	6,789	279.67	8,379	280.19	8,847
279.16	6,827	279.68	8,408	280.20	8,847
279.17	6,864	279.69	8,436	280.21	8,847
279.18	6,902	279.70	8,464	280.22	8,847
279.19	6,939	279.71	8,493	280.23	8,847
279.20	6,976	279.72	8,521	280.24	8,847
279.21	7,012	279.73	8,549	280.25	8,847
279.22	7,048	279.74	8,577	280.26	8,847
279.23	7,084	279.75	8,606	280.27	8,847
279.24	7,120	279.76	8,634	280.28	8,847
279.25	7,155	279.77	8,662	280.29	8,847
279.26	7,190	279.78	8,691	280.30	8,847
279.27	7,224	279.79	8,719	280.31	8,847
279.28	7,258	279.80	8,747	280.32	8,847
279.29	7,292	279.81	8,776	280.33	8,847
279.30	7,324	279.82	8,804	280.34	8,847
279.31	7,357	279.83	8,832	280.35	8,847
279.32	7,388	279.84	8,846	280.36	8,847
279.33	7,418	279.85	8,846	280.37	8,847
279.34	7,446	279.86	8,846	280.38	8,847
279.35	7,474	279.87	8,846	280.39	8,847
279.36	7,503	279.88	8,846	280.40	8,847
279.37	7,531	279.89	8,846	280.41	8,847
279.38	7,559	279.90	8,846	280.42	8,847
279.39	7,587	279.91	8,846	280.43	8,847
279.40	7,616	279.92	8,846	280.44	8,847

Stage-Area-Storage for Pond Basin 1B: Basin 1B (continued)

Elevation (feet)	Storage (cubic-feet)
280.45	8,847
280.46	8,847
280.47	8,847
280.48	8,847
280.49	8,847
280.50	8,847

18017 Pre-post-ILSF

Type III 24-hr ILSF Limit Rainfall=7.00"

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Summary for Pond Basin 1C: Basin 1C

[42] Hint: Gap in defined storage above volume #1 at 279.83'

[86] Warning: Oscillations may require smaller dt (severity=186)

Inflow Area = 0.537 ac, 71.27% Impervious, Inflow Depth = 5.98" for ILSF Limit event
 Inflow = 3.36 cfs @ 12.08 hrs, Volume= 0.268 af
 Outflow = 1.97 cfs @ 12.23 hrs, Volume= 0.168 af, Atten= 41%, Lag= 8.7 min
 Primary = 1.97 cfs @ 12.23 hrs, Volume= 0.168 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 279.77' @ 12.20 hrs Surf.Area= 4,400 sf Storage= 5,411 cf

Plug-Flow detention time= 216.5 min calculated for 0.168 af (63% of inflow)

Center-of-Mass det. time= 108.3 min (866.6 - 758.3)

Volume	Invert	Avail.Storage	Storage Description
#1	277.33'	3,656 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 11,000 cf Overall - 1,859 cf Embedded = 9,141 cf x 40.0% Voids
#2	277.83'	1,859 cf	18.0" Round Pipe Storage Inside #1 L= 1,052.0'
#3	279.84'	9 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		5,525 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.33	4,400	0	0
279.83	4,400	11,000	11,000

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
279.84	12	0	0
280.60	12	9	9

Device	Routing	Invert	Outlet Devices
#1	Primary	277.83'	12.0" Round Culvert L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 277.83' / 277.83' S= 0.0000 ' / Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.99 cfs @ 12.23 hrs HW=279.76' TW=279.49' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 1.99 cfs @ 2.53 fps)

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Stage-Area-Storage for Pond Basin 1C: Basin 1C

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
277.33	0	277.85	918	278.37	2,192
277.34	18	277.86	938	278.38	2,219
277.35	35	277.87	959	278.39	2,245
277.36	53	277.88	979	278.40	2,272
277.37	70	277.89	1,001	278.41	2,299
277.38	88	277.90	1,022	278.42	2,326
277.39	106	277.91	1,044	278.43	2,353
277.40	123	277.92	1,066	278.44	2,380
277.41	141	277.93	1,088	278.45	2,406
277.42	158	277.94	1,110	278.46	2,433
277.43	176	277.95	1,133	278.47	2,460
277.44	194	277.96	1,156	278.48	2,487
277.45	211	277.97	1,179	278.49	2,514
277.46	229	277.98	1,202	278.50	2,541
277.47	246	277.99	1,225	278.51	2,568
277.48	264	278.00	1,249	278.52	2,595
277.49	282	278.01	1,273	278.53	2,622
277.50	299	278.02	1,296	278.54	2,649
277.51	317	278.03	1,320	278.55	2,677
277.52	334	278.04	1,345	278.56	2,704
277.53	352	278.05	1,369	278.57	2,731
277.54	370	278.06	1,393	278.58	2,758
277.55	387	278.07	1,418	278.59	2,785
277.56	405	278.08	1,442	278.60	2,812
277.57	422	278.09	1,467	278.61	2,839
277.58	440	278.10	1,492	278.62	2,866
277.59	458	278.11	1,517	278.63	2,893
277.60	475	278.12	1,542	278.64	2,920
277.61	493	278.13	1,567	278.65	2,947
277.62	510	278.14	1,592	278.66	2,974
277.63	528	278.15	1,617	278.67	3,001
277.64	546	278.16	1,643	278.68	3,028
277.65	563	278.17	1,668	278.69	3,055
277.66	581	278.18	1,694	278.70	3,082
277.67	598	278.19	1,719	278.71	3,109
277.68	616	278.20	1,745	278.72	3,136
277.69	634	278.21	1,771	278.73	3,163
277.70	651	278.22	1,797	278.74	3,190
277.71	669	278.23	1,823	278.75	3,216
277.72	686	278.24	1,849	278.76	3,243
277.73	704	278.25	1,875	278.77	3,270
277.74	722	278.26	1,901	278.78	3,297
277.75	739	278.27	1,927	278.79	3,324
277.76	757	278.28	1,953	278.80	3,350
277.77	774	278.29	1,980	278.81	3,377
277.78	792	278.30	2,006	278.82	3,403
277.79	810	278.31	2,033	278.83	3,430
277.80	827	278.32	2,059	278.84	3,456
277.81	845	278.33	2,085	278.85	3,483
277.82	862	278.34	2,112	278.86	3,509
277.83	880	278.35	2,139	278.87	3,536
277.84	899	278.36	2,165	278.88	3,562

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Stage-Area-Storage for Pond Basin 1C: Basin 1C (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
278.89	3,588	279.41	4,776	279.93	5,517
278.90	3,614	279.42	4,794	279.94	5,517
278.91	3,641	279.43	4,811	279.95	5,517
278.92	3,667	279.44	4,829	279.96	5,517
278.93	3,693	279.45	4,847	279.97	5,517
278.94	3,719	279.46	4,864	279.98	5,517
278.95	3,744	279.47	4,882	279.99	5,517
278.96	3,770	279.48	4,899	280.00	5,517
278.97	3,796	279.49	4,917	280.01	5,517
278.98	3,822	279.50	4,935	280.02	5,518
278.99	3,847	279.51	4,952	280.03	5,518
279.00	3,873	279.52	4,970	280.04	5,518
279.01	3,898	279.53	4,987	280.05	5,518
279.02	3,923	279.54	5,005	280.06	5,518
279.03	3,949	279.55	5,023	280.07	5,518
279.04	3,974	279.56	5,040	280.08	5,518
279.05	3,999	279.57	5,058	280.09	5,518
279.06	4,024	279.58	5,075	280.10	5,519
279.07	4,049	279.59	5,093	280.11	5,519
279.08	4,073	279.60	5,111	280.12	5,519
279.09	4,098	279.61	5,128	280.13	5,519
279.10	4,122	279.62	5,146	280.14	5,519
279.11	4,147	279.63	5,163	280.15	5,519
279.12	4,171	279.64	5,181	280.16	5,519
279.13	4,195	279.65	5,199	280.17	5,519
279.14	4,219	279.66	5,216	280.18	5,520
279.15	4,243	279.67	5,234	280.19	5,520
279.16	4,266	279.68	5,251	280.20	5,520
279.17	4,290	279.69	5,269	280.21	5,520
279.18	4,313	279.70	5,287	280.22	5,520
279.19	4,337	279.71	5,304	280.23	5,520
279.20	4,360	279.72	5,322	280.24	5,520
279.21	4,382	279.73	5,339	280.25	5,520
279.22	4,405	279.74	5,357	280.26	5,520
279.23	4,427	279.75	5,375	280.27	5,521
279.24	4,450	279.76	5,392	280.28	5,521
279.25	4,472	279.77	5,410	280.29	5,521
279.26	4,493	279.78	5,427	280.30	5,521
279.27	4,515	279.79	5,445	280.31	5,521
279.28	4,536	279.80	5,463	280.32	5,521
279.29	4,557	279.81	5,480	280.33	5,521
279.30	4,577	279.82	5,498	280.34	5,521
279.31	4,597	279.83	5,515	280.35	5,522
279.32	4,617	279.84	5,515	280.36	5,522
279.33	4,635	279.85	5,516	280.37	5,522
279.34	4,653	279.86	5,516	280.38	5,522
279.35	4,671	279.87	5,516	280.39	5,522
279.36	4,688	279.88	5,516	280.40	5,522
279.37	4,706	279.89	5,516	280.41	5,522
279.38	4,723	279.90	5,516	280.42	5,522
279.39	4,741	279.91	5,516	280.43	5,523
279.40	4,759	279.92	5,516	280.44	5,523

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Stage-Area-Storage for Pond Basin 1C: Basin 1C (continued)

Elevation (feet)	Storage (cubic-feet)
280.45	5,523
280.46	5,523
280.47	5,523
280.48	5,523
280.49	5,523
280.50	5,523
280.51	5,523
280.52	5,524
280.53	5,524
280.54	5,524
280.55	5,524
280.56	5,524
280.57	5,524
280.58	5,524
280.59	5,524
280.60	5,525

18017 Pre-post-ILSF

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Summary for Pond Basin 2B: Basin 2B

Inflow Area = 4.459 ac, 52.30% Impervious, Inflow Depth = 3.42" for ILSF Limit event
 Inflow = 13.23 cfs @ 12.15 hrs, Volume= 1.272 af
 Outflow = 2.76 cfs @ 12.66 hrs, Volume= 1.271 af, Atten= 79%, Lag= 30.8 min
 Primary = 2.76 cfs @ 12.66 hrs, Volume= 1.271 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 277.02' @ 12.67 hrs Surf.Area= 5,600 sf Storage= 15,319 cf

Plug-Flow detention time= 62.6 min calculated for 1.271 af (100% of inflow)
 Center-of-Mass det. time= 62.5 min (907.6 - 845.1)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	6,696 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 28,000 cf Overall - 11,259 cf Embedded = 16,741 cf x 40.0% Voids
#2	273.50'	11,259 cf	48.0" Round Pipe Storage Inside #1 L= 896.0'
		17,956 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	5,600	0	0
278.00	5,600	28,000	28,000

Device	Routing	Invert	Outlet Devices
#1	Secondary	277.50'	6.0' 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
#2	Primary	273.00'	8.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=2.76 cfs @ 12.66 hrs HW=277.02' TW=274.34' (Dynamic Tailwater)

↑ **2=Orifice/Grate** (Orifice Controls 2.76 cfs @ 7.89 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=272.90' (Dynamic Tailwater)

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

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Stage-Area-Storage for Pond Basin 2B: Basin 2B

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
273.00	0	273.52	1,169	274.04	2,875
273.01	22	273.53	1,195	274.05	2,912
273.02	45	273.54	1,221	274.06	2,949
273.03	67	273.55	1,248	274.07	2,987
273.04	90	273.56	1,275	274.08	3,024
273.05	112	273.57	1,303	274.09	3,062
273.06	134	273.58	1,331	274.10	3,099
273.07	157	273.59	1,360	274.11	3,137
273.08	179	273.60	1,389	274.12	3,175
273.09	202	273.61	1,418	274.13	3,213
273.10	224	273.62	1,448	274.14	3,251
273.11	246	273.63	1,478	274.15	3,290
273.12	269	273.64	1,508	274.16	3,328
273.13	291	273.65	1,538	274.17	3,366
273.14	314	273.66	1,569	274.18	3,405
273.15	336	273.67	1,600	274.19	3,443
273.16	358	273.68	1,631	274.20	3,482
273.17	381	273.69	1,663	274.21	3,521
273.18	403	273.70	1,694	274.22	3,560
273.19	426	273.71	1,726	274.23	3,599
273.20	448	273.72	1,758	274.24	3,638
273.21	470	273.73	1,791	274.25	3,677
273.22	493	273.74	1,823	274.26	3,716
273.23	515	273.75	1,856	274.27	3,755
273.24	538	273.76	1,889	274.28	3,795
273.25	560	273.77	1,922	274.29	3,834
273.26	582	273.78	1,955	274.30	3,874
273.27	605	273.79	1,989	274.31	3,914
273.28	627	273.80	2,022	274.32	3,953
273.29	650	273.81	2,056	274.33	3,993
273.30	672	273.82	2,090	274.34	4,033
273.31	694	273.83	2,124	274.35	4,073
273.32	717	273.84	2,158	274.36	4,113
273.33	739	273.85	2,193	274.37	4,153
273.34	762	273.86	2,228	274.38	4,193
273.35	784	273.87	2,262	274.39	4,233
273.36	806	273.88	2,297	274.40	4,274
273.37	829	273.89	2,332	274.41	4,314
273.38	851	273.90	2,368	274.42	4,355
273.39	874	273.91	2,403	274.43	4,395
273.40	896	273.92	2,438	274.44	4,436
273.41	918	273.93	2,474	274.45	4,476
273.42	941	273.94	2,510	274.46	4,517
273.43	963	273.95	2,546	274.47	4,558
273.44	986	273.96	2,582	274.48	4,599
273.45	1,008	273.97	2,618	274.49	4,640
273.46	1,030	273.98	2,654	274.50	4,681
273.47	1,053	273.99	2,691	274.51	4,722
273.48	1,075	274.00	2,727	274.52	4,763
273.49	1,098	274.01	2,764	274.53	4,804
273.50	1,120	274.02	2,801	274.54	4,845
273.51	1,144	274.03	2,838	274.55	4,887

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Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
274.56	4,928	275.08	7,141	275.60	9,417
274.57	4,969	275.09	7,184	275.61	9,461
274.58	5,011	275.10	7,227	275.62	9,505
274.59	5,052	275.11	7,271	275.63	9,548
274.60	5,094	275.12	7,314	275.64	9,592
274.61	5,136	275.13	7,358	275.65	9,636
274.62	5,177	275.14	7,401	275.66	9,680
274.63	5,219	275.15	7,445	275.67	9,724
274.64	5,261	275.16	7,489	275.68	9,768
274.65	5,303	275.17	7,532	275.69	9,811
274.66	5,345	275.18	7,576	275.70	9,855
274.67	5,386	275.19	7,619	275.71	9,899
274.68	5,428	275.20	7,663	275.72	9,943
274.69	5,470	275.21	7,707	275.73	9,987
274.70	5,513	275.22	7,751	275.74	10,030
274.71	5,555	275.23	7,794	275.75	10,074
274.72	5,597	275.24	7,838	275.76	10,118
274.73	5,639	275.25	7,882	275.77	10,161
274.74	5,681	275.26	7,925	275.78	10,205
274.75	5,724	275.27	7,969	275.79	10,249
274.76	5,766	275.28	8,013	275.80	10,293
274.77	5,808	275.29	8,057	275.81	10,336
274.78	5,851	275.30	8,100	275.82	10,380
274.79	5,893	275.31	8,144	275.83	10,423
274.80	5,936	275.32	8,188	275.84	10,467
274.81	5,978	275.33	8,232	275.85	10,511
274.82	6,021	275.34	8,276	275.86	10,554
274.83	6,064	275.35	8,320	275.87	10,598
274.84	6,106	275.36	8,363	275.88	10,641
274.85	6,149	275.37	8,407	275.89	10,685
274.86	6,192	275.38	8,451	275.90	10,728
274.87	6,235	275.39	8,495	275.91	10,772
274.88	6,277	275.40	8,539	275.92	10,815
274.89	6,320	275.41	8,583	275.93	10,859
274.90	6,363	275.42	8,627	275.94	10,902
274.91	6,406	275.43	8,671	275.95	10,945
274.92	6,449	275.44	8,714	275.96	10,989
274.93	6,492	275.45	8,758	275.97	11,032
274.94	6,535	275.46	8,802	275.98	11,075
274.95	6,578	275.47	8,846	275.99	11,118
274.96	6,621	275.48	8,890	276.00	11,162
274.97	6,664	275.49	8,934	276.01	11,205
274.98	6,708	275.50	8,978	276.02	11,248
274.99	6,751	275.51	9,022	276.03	11,291
275.00	6,794	275.52	9,066	276.04	11,334
275.01	6,837	275.53	9,110	276.05	11,377
275.02	6,880	275.54	9,153	276.06	11,421
275.03	6,924	275.55	9,197	276.07	11,464
275.04	6,967	275.56	9,241	276.08	11,507
275.05	7,010	275.57	9,285	276.09	11,550
275.06	7,054	275.58	9,329	276.10	11,592
275.07	7,097	275.59	9,373	276.11	11,635

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Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
276.12	11,678	276.64	13,843	277.16	15,797
276.13	11,721	276.65	13,883	277.17	15,832
276.14	11,764	276.66	13,923	277.18	15,866
276.15	11,807	276.67	13,963	277.19	15,900
276.16	11,849	276.68	14,002	277.20	15,933
276.17	11,892	276.69	14,042	277.21	15,967
276.18	11,935	276.70	14,082	277.22	16,001
276.19	11,977	276.71	14,121	277.23	16,034
276.20	12,020	276.72	14,161	277.24	16,067
276.21	12,062	276.73	14,200	277.25	16,100
276.22	12,105	276.74	14,240	277.26	16,133
276.23	12,147	276.75	14,279	277.27	16,165
276.24	12,190	276.76	14,318	277.28	16,197
276.25	12,232	276.77	14,357	277.29	16,230
276.26	12,274	276.78	14,396	277.30	16,261
276.27	12,317	276.79	14,435	277.31	16,293
276.28	12,359	276.80	14,474	277.32	16,324
276.29	12,401	276.81	14,512	277.33	16,356
276.30	12,443	276.82	14,551	277.34	16,387
276.31	12,485	276.83	14,589	277.35	16,417
276.32	12,527	276.84	14,628	277.36	16,448
276.33	12,569	276.85	14,666	277.37	16,478
276.34	12,611	276.86	14,704	277.38	16,508
276.35	12,653	276.87	14,743	277.39	16,537
276.36	12,695	276.88	14,781	277.40	16,567
276.37	12,737	276.89	14,818	277.41	16,596
276.38	12,778	276.90	14,856	277.42	16,624
276.39	12,820	276.91	14,894	277.43	16,652
276.40	12,862	276.92	14,932	277.44	16,680
276.41	12,903	276.93	14,969	277.45	16,708
276.42	12,945	276.94	15,006	277.46	16,735
276.43	12,986	276.95	15,044	277.47	16,761
276.44	13,028	276.96	15,081	277.48	16,787
276.45	13,069	276.97	15,118	277.49	16,812
276.46	13,110	276.98	15,155	277.50	16,836
276.47	13,152	276.99	15,192	277.51	16,858
276.48	13,193	277.00	15,228	277.52	16,880
276.49	13,234	277.01	15,265	277.53	16,903
276.50	13,275	277.02	15,301	277.54	16,925
276.51	13,316	277.03	15,338	277.55	16,948
276.52	13,357	277.04	15,374	277.56	16,970
276.53	13,398	277.05	15,410	277.57	16,992
276.54	13,439	277.06	15,446	277.58	17,015
276.55	13,479	277.07	15,482	277.59	17,037
276.56	13,520	277.08	15,517	277.60	17,060
276.57	13,561	277.09	15,553	277.61	17,082
276.58	13,601	277.10	15,588	277.62	17,104
276.59	13,642	277.11	15,623	277.63	17,127
276.60	13,682	277.12	15,658	277.64	17,149
276.61	13,722	277.13	15,693	277.65	17,172
276.62	13,762	277.14	15,728	277.66	17,194
276.63	13,803	277.15	15,763	277.67	17,216

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Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)
277.68	17,239
277.69	17,261
277.70	17,284
277.71	17,306
277.72	17,328
277.73	17,351
277.74	17,373
277.75	17,396
277.76	17,418
277.77	17,440
277.78	17,463
277.79	17,485
277.80	17,508
277.81	17,530
277.82	17,552
277.83	17,575
277.84	17,597
277.85	17,620
277.86	17,642
277.87	17,664
277.88	17,687
277.89	17,709
277.90	17,732
277.91	17,754
277.92	17,776
277.93	17,799
277.94	17,821
277.95	17,844
277.96	17,866
277.97	17,888
277.98	17,911
277.99	17,933
278.00	17,956

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Summary for Pond Basin 2b outlet: Basin 2b outlet

[57] Hint: Peaked at 274.34' (Flood elevation advised)

Inflow Area = 4.459 ac, 52.30% Impervious, Inflow Depth = 3.42" for ILSF Limit event
Inflow = 2.76 cfs @ 12.66 hrs, Volume= 1.271 af
Outflow = 2.76 cfs @ 12.67 hrs, Volume= 1.271 af, Atten= 0%, Lag= 0.6 min
Primary = 2.76 cfs @ 12.67 hrs, Volume= 1.271 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 274.34' @ 12.68 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.90'	12.0" Round Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.90' / 272.70' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.76 cfs @ 12.67 hrs HW=274.34' TW=273.81' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 2.76 cfs @ 3.51 fps)

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Stage-Area-Storage for Pond Basin 2b outlet: Basin 2b outlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.90	0	273.42	0	273.94	0
272.91	0	273.43	0	273.95	0
272.92	0	273.44	0	273.96	0
272.93	0	273.45	0	273.97	0
272.94	0	273.46	0	273.98	0
272.95	0	273.47	0	273.99	0
272.96	0	273.48	0	274.00	0
272.97	0	273.49	0	274.01	0
272.98	0	273.50	0	274.02	0
272.99	0	273.51	0	274.03	0
273.00	0	273.52	0	274.04	0
273.01	0	273.53	0	274.05	0
273.02	0	273.54	0	274.06	0
273.03	0	273.55	0	274.07	0
273.04	0	273.56	0	274.08	0
273.05	0	273.57	0	274.09	0
273.06	0	273.58	0	274.10	0
273.07	0	273.59	0	274.11	0
273.08	0	273.60	0	274.12	0
273.09	0	273.61	0	274.13	0
273.10	0	273.62	0	274.14	0
273.11	0	273.63	0	274.15	0
273.12	0	273.64	0	274.16	0
273.13	0	273.65	0	274.17	0
273.14	0	273.66	0	274.18	0
273.15	0	273.67	0	274.19	0
273.16	0	273.68	0	274.20	0
273.17	0	273.69	0	274.21	0
273.18	0	273.70	0	274.22	0
273.19	0	273.71	0	274.23	0
273.20	0	273.72	0	274.24	0
273.21	0	273.73	0	274.25	0
273.22	0	273.74	0	274.26	0
273.23	0	273.75	0	274.27	0
273.24	0	273.76	0	274.28	0
273.25	0	273.77	0	274.29	0
273.26	0	273.78	0	274.30	0
273.27	0	273.79	0	274.31	0
273.28	0	273.80	0	274.32	0
273.29	0	273.81	0	274.33	0
273.30	0	273.82	0	274.34	0
273.31	0	273.83	0		
273.32	0	273.84	0		
273.33	0	273.85	0		
273.34	0	273.86	0		
273.35	0	273.87	0		
273.36	0	273.88	0		
273.37	0	273.89	0		
273.38	0	273.90	0		
273.39	0	273.91	0		
273.40	0	273.92	0		
273.41	0	273.93	0		

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Summary for Pond PDMH 9: PDMH 9

[57] Hint: Peaked at 279.09' (Flood elevation advised)

Inflow Area = 1.313 ac, 78.67% Impervious, Inflow Depth = 3.80" for ILSF Limit event
Inflow = 5.97 cfs @ 12.15 hrs, Volume= 0.416 af
Outflow = 5.97 cfs @ 12.16 hrs, Volume= 0.416 af, Atten= 0%, Lag= 0.6 min
Primary = 5.97 cfs @ 12.16 hrs, Volume= 0.416 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 279.09' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	276.10'	12.0" Round Culvert L= 86.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 276.10' / 273.80' S= 0.0267 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=5.96 cfs @ 12.16 hrs HW=279.09' TW=275.04' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 5.96 cfs @ 7.59 fps)

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Stage-Area-Storage for Pond PDMH 9: PDMH 9

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
276.10	0	276.62	0	277.14	0
276.11	0	276.63	0	277.15	0
276.12	0	276.64	0	277.16	0
276.13	0	276.65	0	277.17	0
276.14	0	276.66	0	277.18	0
276.15	0	276.67	0	277.19	0
276.16	0	276.68	0	277.20	0
276.17	0	276.69	0	277.21	0
276.18	0	276.70	0	277.22	0
276.19	0	276.71	0	277.23	0
276.20	0	276.72	0	277.24	0
276.21	0	276.73	0	277.25	0
276.22	0	276.74	0	277.26	0
276.23	0	276.75	0	277.27	0
276.24	0	276.76	0	277.28	0
276.25	0	276.77	0	277.29	0
276.26	0	276.78	0	277.30	0
276.27	0	276.79	0	277.31	0
276.28	0	276.80	0	277.32	0
276.29	0	276.81	0	277.33	0
276.30	0	276.82	0	277.34	0
276.31	0	276.83	0	277.35	0
276.32	0	276.84	0	277.36	0
276.33	0	276.85	0	277.37	0
276.34	0	276.86	0	277.38	0
276.35	0	276.87	0	277.39	0
276.36	0	276.88	0	277.40	0
276.37	0	276.89	0	277.41	0
276.38	0	276.90	0	277.42	0
276.39	0	276.91	0	277.43	0
276.40	0	276.92	0	277.44	0
276.41	0	276.93	0	277.45	0
276.42	0	276.94	0	277.46	0
276.43	0	276.95	0	277.47	0
276.44	0	276.96	0	277.48	0
276.45	0	276.97	0	277.49	0
276.46	0	276.98	0	277.50	0
276.47	0	276.99	0	277.51	0
276.48	0	277.00	0	277.52	0
276.49	0	277.01	0	277.53	0
276.50	0	277.02	0	277.54	0
276.51	0	277.03	0	277.55	0
276.52	0	277.04	0	277.56	0
276.53	0	277.05	0	277.57	0
276.54	0	277.06	0	277.58	0
276.55	0	277.07	0	277.59	0
276.56	0	277.08	0	277.60	0
276.57	0	277.09	0	277.61	0
276.58	0	277.10	0	277.62	0
276.59	0	277.11	0	277.63	0
276.60	0	277.12	0	277.64	0
276.61	0	277.13	0	277.65	0

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Stage-Area-Storage for Pond PDMH 9: PDMH 9 (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
277.66	0	278.18	0	278.70	0
277.67	0	278.19	0	278.71	0
277.68	0	278.20	0	278.72	0
277.69	0	278.21	0	278.73	0
277.70	0	278.22	0	278.74	0
277.71	0	278.23	0	278.75	0
277.72	0	278.24	0	278.76	0
277.73	0	278.25	0	278.77	0
277.74	0	278.26	0	278.78	0
277.75	0	278.27	0	278.79	0
277.76	0	278.28	0	278.80	0
277.77	0	278.29	0	278.81	0
277.78	0	278.30	0	278.82	0
277.79	0	278.31	0	278.83	0
277.80	0	278.32	0	278.84	0
277.81	0	278.33	0	278.85	0
277.82	0	278.34	0	278.86	0
277.83	0	278.35	0	278.87	0
277.84	0	278.36	0	278.88	0
277.85	0	278.37	0	278.89	0
277.86	0	278.38	0	278.90	0
277.87	0	278.39	0	278.91	0
277.88	0	278.40	0	278.92	0
277.89	0	278.41	0	278.93	0
277.90	0	278.42	0	278.94	0
277.91	0	278.43	0	278.95	0
277.92	0	278.44	0	278.96	0
277.93	0	278.45	0	278.97	0
277.94	0	278.46	0	278.98	0
277.95	0	278.47	0	278.99	0
277.96	0	278.48	0	279.00	0
277.97	0	278.49	0	279.01	0
277.98	0	278.50	0	279.02	0
277.99	0	278.51	0	279.03	0
278.00	0	278.52	0	279.04	0
278.01	0	278.53	0	279.05	0
278.02	0	278.54	0	279.06	0
278.03	0	278.55	0	279.07	0
278.04	0	278.56	0	279.08	0
278.05	0	278.57	0	279.09	0
278.06	0	278.58	0		
278.07	0	278.59	0		
278.08	0	278.60	0		
278.09	0	278.61	0		
278.10	0	278.62	0		
278.11	0	278.63	0		
278.12	0	278.64	0		
278.13	0	278.65	0		
278.14	0	278.66	0		
278.15	0	278.67	0		
278.16	0	278.68	0		
278.17	0	278.69	0		

18017 Pre-post-ILSF

Type III 24-hr ILSF Limit Rainfall=7.00"

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Summary for Pond Pond 1B: Pond 1B

Inflow Area = 0.756 ac, 26.34% Impervious, Inflow Depth = 4.76" for ILSF Limit event
 Inflow = 4.01 cfs @ 12.09 hrs, Volume= 0.300 af
 Outflow = 3.54 cfs @ 12.13 hrs, Volume= 0.274 af, Atten= 12%, Lag= 2.9 min
 Primary = 3.54 cfs @ 12.13 hrs, Volume= 0.274 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 278.39' @ 12.13 hrs Surf.Area= 3,902 sf Storage= 2,097 cf

Plug-Flow detention time= 83.3 min calculated for 0.273 af (91% of inflow)
 Center-of-Mass det. time= 38.3 min (830.6 - 792.4)

Volume	Invert	Avail.Storage	Storage Description
#1	277.00'	2,558 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.00	71	0	0
277.50	672	186	186
278.00	2,215	722	908
278.50	4,385	1,650	2,558

Device	Routing	Invert	Outlet Devices
#1	Primary	278.10'	8.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=3.54 cfs @ 12.13 hrs HW=278.39' TW=277.44' (Dynamic Tailwater)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 3.54 cfs @ 1.53 fps)

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Stage-Area-Storage for Pond Pond 1B: Pond 1B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.00	71	0	277.52	734	200
277.01	83	1	277.53	765	207
277.02	95	2	277.54	795	215
277.03	107	3	277.55	826	223
277.04	119	4	277.56	857	232
277.05	131	5	277.57	888	240
277.06	143	6	277.58	919	249
277.07	155	8	277.59	950	259
277.08	167	10	277.60	981	268
277.09	179	11	277.61	1,011	278
277.10	191	13	277.62	1,042	289
277.11	203	15	277.63	1,073	299
277.12	215	17	277.64	1,104	310
277.13	227	19	277.65	1,135	321
277.14	239	22	277.66	1,166	333
277.15	251	24	277.67	1,197	345
277.16	263	27	277.68	1,227	357
277.17	275	29	277.69	1,258	369
277.18	287	32	277.70	1,289	382
277.19	299	35	277.71	1,320	395
277.20	311	38	277.72	1,351	408
277.21	323	41	277.73	1,382	422
277.22	335	45	277.74	1,413	436
277.23	347	48	277.75	1,444	450
277.24	359	52	277.76	1,474	465
277.25	372	55	277.77	1,505	480
277.26	384	59	277.78	1,536	495
277.27	396	63	277.79	1,567	510
277.28	408	67	277.80	1,598	526
277.29	420	71	277.81	1,629	542
277.30	432	75	277.82	1,660	559
277.31	444	80	277.83	1,690	576
277.32	456	84	277.84	1,721	593
277.33	468	89	277.85	1,752	610
277.34	480	94	277.86	1,783	628
277.35	492	98	277.87	1,814	646
277.36	504	103	277.88	1,845	664
277.37	516	109	277.89	1,876	683
277.38	528	114	277.90	1,906	701
277.39	540	119	277.91	1,937	721
277.40	552	125	277.92	1,968	740
277.41	564	130	277.93	1,999	760
277.42	576	136	277.94	2,030	780
277.43	588	142	277.95	2,061	801
277.44	600	148	277.96	2,092	821
277.45	612	154	277.97	2,122	842
277.46	624	160	277.98	2,153	864
277.47	636	166	277.99	2,184	886
277.48	648	173	278.00	2,215	908
277.49	660	179	278.01	2,258	930
277.50	672	186	278.02	2,302	953
277.51	703	193	278.03	2,345	976

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Stage-Area-Storage for Pond Pond 1B: Pond 1B (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
278.04	2,389	1,000
278.05	2,432	1,024
278.06	2,475	1,048
278.07	2,519	1,073
278.08	2,562	1,099
278.09	2,606	1,124
278.10	2,649	1,151
278.11	2,692	1,177
278.12	2,736	1,205
278.13	2,779	1,232
278.14	2,823	1,260
278.15	2,866	1,289
278.16	2,909	1,317
278.17	2,953	1,347
278.18	2,996	1,377
278.19	3,040	1,407
278.20	3,083	1,437
278.21	3,126	1,468
278.22	3,170	1,500
278.23	3,213	1,532
278.24	3,257	1,564
278.25	3,300	1,597
278.26	3,343	1,630
278.27	3,387	1,664
278.28	3,430	1,698
278.29	3,474	1,732
278.30	3,517	1,767
278.31	3,560	1,803
278.32	3,604	1,839
278.33	3,647	1,875
278.34	3,691	1,911
278.35	3,734	1,949
278.36	3,777	1,986
278.37	3,821	2,024
278.38	3,864	2,063
278.39	3,908	2,101
278.40	3,951	2,141
278.41	3,994	2,180
278.42	4,038	2,221
278.43	4,081	2,261
278.44	4,125	2,302
278.45	4,168	2,344
278.46	4,211	2,386
278.47	4,255	2,428
278.48	4,298	2,471
278.49	4,342	2,514
278.50	4,385	2,558

18017 Pre-post-ILSF

Type III 24-hr ILSF Limit Rainfall=7.00"

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Summary for Pond Pre Pond 1A: Pre Pond 1A

Inflow Area = 3.871 ac, 25.93% Impervious, Inflow Depth = 4.60" for ILSF Limit event
 Inflow = 18.41 cfs @ 12.12 hrs, Volume= 1.484 af
 Outflow = 5.79 cfs @ 12.48 hrs, Volume= 0.897 af, Atten= 69%, Lag= 22.0 min
 Primary = 5.79 cfs @ 12.48 hrs, Volume= 0.897 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 277.67' @ 12.48 hrs Surf.Area= 42,123 sf Storage= 32,260 cf

Plug-Flow detention time= 229.8 min calculated for 0.897 af (60% of inflow)
 Center-of-Mass det. time= 120.6 min (922.7 - 802.1)

Volume	Invert	Avail.Storage	Storage Description
#1	276.00'	47,715 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
276.00	4,053	0	0
276.50	8,187	3,060	3,060
277.00	22,091	7,570	10,630
277.50	37,615	14,927	25,556
278.00	51,019	22,159	47,715

Device	Routing	Invert	Outlet Devices
#1	Primary	277.50'	30.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=5.79 cfs @ 12.48 hrs HW=277.67' TW=0.00' (Dynamic Tailwater)
 ↑1=**Broad-Crested Rectangular Weir**(Weir Controls 5.79 cfs @ 1.15 fps)

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Stage-Area-Storage for Pond Pre Pond 1A: Pre Pond 1A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
276.00	4,053	0	276.52	8,743	3,229
276.01	4,136	41	276.53	9,021	3,318
276.02	4,218	83	276.54	9,299	3,410
276.03	4,301	125	276.55	9,577	3,504
276.04	4,384	169	276.56	9,855	3,601
276.05	4,466	213	276.57	10,134	3,701
276.06	4,549	258	276.58	10,412	3,804
276.07	4,632	304	276.59	10,690	3,909
276.08	4,714	351	276.60	10,968	4,018
276.09	4,797	398	276.61	11,246	4,129
276.10	4,880	447	276.62	11,524	4,243
276.11	4,962	496	276.63	11,802	4,359
276.12	5,045	546	276.64	12,080	4,479
276.13	5,128	597	276.65	12,358	4,601
276.14	5,211	648	276.66	12,636	4,726
276.15	5,293	701	276.67	12,914	4,854
276.16	5,376	754	276.68	13,192	4,984
276.17	5,459	808	276.69	13,471	5,117
276.18	5,541	863	276.70	13,749	5,254
276.19	5,624	919	276.71	14,027	5,392
276.20	5,707	976	276.72	14,305	5,534
276.21	5,789	1,033	276.73	14,583	5,679
276.22	5,872	1,092	276.74	14,861	5,826
276.23	5,955	1,151	276.75	15,139	5,976
276.24	6,037	1,211	276.76	15,417	6,129
276.25	6,120	1,272	276.77	15,695	6,284
276.26	6,203	1,333	276.78	15,973	6,442
276.27	6,285	1,396	276.79	16,251	6,604
276.28	6,368	1,459	276.80	16,529	6,767
276.29	6,451	1,523	276.81	16,807	6,934
276.30	6,533	1,588	276.82	17,086	7,104
276.31	6,616	1,654	276.83	17,364	7,276
276.32	6,699	1,720	276.84	17,642	7,451
276.33	6,781	1,788	276.85	17,920	7,629
276.34	6,864	1,856	276.86	18,198	7,809
276.35	6,947	1,925	276.87	18,476	7,993
276.36	7,029	1,995	276.88	18,754	8,179
276.37	7,112	2,066	276.89	19,032	8,368
276.38	7,195	2,137	276.90	19,310	8,559
276.39	7,278	2,209	276.91	19,588	8,754
276.40	7,360	2,283	276.92	19,866	8,951
276.41	7,443	2,357	276.93	20,144	9,151
276.42	7,526	2,431	276.94	20,423	9,354
276.43	7,608	2,507	276.95	20,701	9,560
276.44	7,691	2,584	276.96	20,979	9,768
276.45	7,774	2,661	276.97	21,257	9,979
276.46	7,856	2,739	276.98	21,535	10,193
276.47	7,939	2,818	276.99	21,813	10,410
276.48	8,022	2,898	277.00	22,091	10,630
276.49	8,104	2,979	277.01	22,401	10,852
276.50	8,187	3,060	277.02	22,712	11,078
276.51	8,465	3,143	277.03	23,022	11,306

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Stage-Area-Storage for Pond Pre Pond 1A: Pre Pond 1A (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.04	23,333	11,538	277.56	39,223	27,861
277.05	23,643	11,773	277.57	39,492	28,255
277.06	23,954	12,011	277.58	39,760	28,651
277.07	24,264	12,252	277.59	40,028	29,050
277.08	24,575	12,496	277.60	40,296	29,452
277.09	24,885	12,743	277.61	40,564	29,856
277.10	25,196	12,994	277.62	40,832	30,263
277.11	25,506	13,247	277.63	41,100	30,672
277.12	25,817	13,504	277.64	41,368	31,085
277.13	26,127	13,764	277.65	41,636	31,500
277.14	26,438	14,027	277.66	41,904	31,918
277.15	26,748	14,292	277.67	42,172	32,338
277.16	27,059	14,561	277.68	42,440	32,761
277.17	27,369	14,834	277.69	42,709	33,187
277.18	27,680	15,109	277.70	42,977	33,615
277.19	27,990	15,387	277.71	43,245	34,046
277.20	28,301	15,669	277.72	43,513	34,480
277.21	28,611	15,953	277.73	43,781	34,917
277.22	28,922	16,241	277.74	44,049	35,356
277.23	29,232	16,532	277.75	44,317	35,798
277.24	29,543	16,826	277.76	44,585	36,242
277.25	29,853	17,123	277.77	44,853	36,689
277.26	30,163	17,423	277.78	45,121	37,139
277.27	30,474	17,726	277.79	45,389	37,592
277.28	30,784	18,032	277.80	45,657	38,047
277.29	31,095	18,341	277.81	45,925	38,505
277.30	31,405	18,654	277.82	46,194	38,965
277.31	31,716	18,970	277.83	46,462	39,429
277.32	32,026	19,288	277.84	46,730	39,895
277.33	32,337	19,610	277.85	46,998	40,363
277.34	32,647	19,935	277.86	47,266	40,835
277.35	32,958	20,263	277.87	47,534	41,309
277.36	33,268	20,594	277.88	47,802	41,785
277.37	33,579	20,928	277.89	48,070	42,265
277.38	33,889	21,266	277.90	48,338	42,747
277.39	34,200	21,606	277.91	48,606	43,231
277.40	34,510	21,950	277.92	48,874	43,719
277.41	34,821	22,296	277.93	49,142	44,209
277.42	35,131	22,646	277.94	49,411	44,702
277.43	35,442	22,999	277.95	49,679	45,197
277.44	35,752	23,355	277.96	49,947	45,695
277.45	36,063	23,714	277.97	50,215	46,196
277.46	36,373	24,076	277.98	50,483	46,699
277.47	36,684	24,442	277.99	50,751	47,206
277.48	36,994	24,810	278.00	51,019	47,715
277.49	37,305	25,181			
277.50	37,615	25,556			
277.51	37,883	25,933			
277.52	38,151	26,314			
277.53	38,419	26,697			
277.54	38,687	27,082			
277.55	38,955	27,470			

18017 Pre-post-ILSF

Type III 24-hr ILSF Limit Rainfall=7.00"

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Summary for Pond Proposed Pond 1A: Pond 1A

Inflow Area = 1.754 ac, 24.24% Impervious, Inflow Depth = 4.70" for ILSF Limit event
 Inflow = 9.01 cfs @ 12.09 hrs, Volume= 0.687 af
 Outflow = 0.47 cfs @ 14.60 hrs, Volume= 0.189 af, Atten= 95%, Lag= 150.5 min
 Primary = 0.47 cfs @ 14.60 hrs, Volume= 0.189 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 277.53' @ 14.60 hrs Surf.Area= 19,563 sf Storage= 22,345 cf

Plug-Flow detention time= 441.4 min calculated for 0.189 af (27% of inflow)
 Center-of-Mass det. time= 275.3 min (1,070.2 - 794.9)

Volume	Invert	Avail.Storage	Storage Description
#1	276.00'	32,320 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
276.00	9,903	0	0
276.50	12,805	5,677	5,677
277.00	15,998	7,201	12,878
277.50	19,310	8,827	21,705
278.00	23,151	10,615	32,320

Device	Routing	Invert	Outlet Devices
#1	Primary	277.50'	2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.47 cfs @ 14.60 hrs HW=277.53' TW=275.37' (Dynamic Tailwater)

↑ **1=Orifice/Grate** (Weir Controls 0.47 cfs @ 0.59 fps)

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Stage-Area-Storage for Pond Proposed Pond 1A: Pond 1A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
276.00	9,903	0	276.52	12,933	5,934
276.01	9,961	99	276.53	12,997	6,064
276.02	10,019	199	276.54	13,060	6,194
276.03	10,077	300	276.55	13,124	6,325
276.04	10,135	401	276.56	13,188	6,457
276.05	10,193	502	276.57	13,252	6,589
276.06	10,251	605	276.58	13,316	6,722
276.07	10,309	707	276.59	13,380	6,855
276.08	10,367	811	276.60	13,444	6,989
276.09	10,425	915	276.61	13,507	7,124
276.10	10,483	1,019	276.62	13,571	7,260
276.11	10,541	1,124	276.63	13,635	7,396
276.12	10,599	1,230	276.64	13,699	7,532
276.13	10,658	1,336	276.65	13,763	7,670
276.14	10,716	1,443	276.66	13,827	7,808
276.15	10,774	1,551	276.67	13,891	7,946
276.16	10,832	1,659	276.68	13,954	8,085
276.17	10,890	1,767	276.69	14,018	8,225
276.18	10,948	1,877	276.70	14,082	8,366
276.19	11,006	1,986	276.71	14,146	8,507
276.20	11,064	2,097	276.72	14,210	8,649
276.21	11,122	2,208	276.73	14,274	8,791
276.22	11,180	2,319	276.74	14,338	8,934
276.23	11,238	2,431	276.75	14,402	9,078
276.24	11,296	2,544	276.76	14,465	9,222
276.25	11,354	2,657	276.77	14,529	9,367
276.26	11,412	2,771	276.78	14,593	9,513
276.27	11,470	2,885	276.79	14,657	9,659
276.28	11,528	3,000	276.80	14,721	9,806
276.29	11,586	3,116	276.81	14,785	9,953
276.30	11,644	3,232	276.82	14,849	10,102
276.31	11,702	3,349	276.83	14,912	10,250
276.32	11,760	3,466	276.84	14,976	10,400
276.33	11,818	3,584	276.85	15,040	10,550
276.34	11,876	3,702	276.86	15,104	10,701
276.35	11,934	3,822	276.87	15,168	10,852
276.36	11,992	3,941	276.88	15,232	11,004
276.37	12,050	4,061	276.89	15,296	11,157
276.38	12,109	4,182	276.90	15,359	11,310
276.39	12,167	4,304	276.91	15,423	11,464
276.40	12,225	4,426	276.92	15,487	11,618
276.41	12,283	4,548	276.93	15,551	11,774
276.42	12,341	4,671	276.94	15,615	11,929
276.43	12,399	4,795	276.95	15,679	12,086
276.44	12,457	4,919	276.96	15,743	12,243
276.45	12,515	5,044	276.97	15,806	12,401
276.46	12,573	5,169	276.98	15,870	12,559
276.47	12,631	5,295	276.99	15,934	12,718
276.48	12,689	5,422	277.00	15,998	12,878
276.49	12,747	5,549	277.01	16,064	13,038
276.50	12,805	5,677	277.02	16,130	13,199
276.51	12,869	5,805	277.03	16,197	13,361

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Stage-Area-Storage for Pond Proposed Pond 1A: Pond 1A (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.04	16,263	13,523	277.56	19,771	22,877
277.05	16,329	13,686	277.57	19,848	23,075
277.06	16,395	13,850	277.58	19,925	23,274
277.07	16,462	14,014	277.59	20,001	23,474
277.08	16,528	14,179	277.60	20,078	23,674
277.09	16,594	14,344	277.61	20,155	23,875
277.10	16,660	14,511	277.62	20,232	24,077
277.11	16,727	14,678	277.63	20,309	24,280
277.12	16,793	14,845	277.64	20,385	24,483
277.13	16,859	15,013	277.65	20,462	24,688
277.14	16,925	15,182	277.66	20,539	24,893
277.15	16,992	15,352	277.67	20,616	25,098
277.16	17,058	15,522	277.68	20,693	25,305
277.17	17,124	15,693	277.69	20,770	25,512
277.18	17,190	15,865	277.70	20,846	25,720
277.19	17,257	16,037	277.71	20,923	25,929
277.20	17,323	16,210	277.72	21,000	26,139
277.21	17,389	16,383	277.73	21,077	26,349
277.22	17,455	16,558	277.74	21,154	26,560
277.23	17,522	16,732	277.75	21,231	26,772
277.24	17,588	16,908	277.76	21,307	26,985
277.25	17,654	17,084	277.77	21,384	27,198
277.26	17,720	17,261	277.78	21,461	27,413
277.27	17,786	17,439	277.79	21,538	27,628
277.28	17,853	17,617	277.80	21,615	27,843
277.29	17,919	17,796	277.81	21,691	28,060
277.30	17,985	17,975	277.82	21,768	28,277
277.31	18,051	18,155	277.83	21,845	28,495
277.32	18,118	18,336	277.84	21,922	28,714
277.33	18,184	18,518	277.85	21,999	28,934
277.34	18,250	18,700	277.86	22,076	29,154
277.35	18,316	18,883	277.87	22,152	29,375
277.36	18,383	19,066	277.88	22,229	29,597
277.37	18,449	19,250	277.89	22,306	29,820
277.38	18,515	19,435	277.90	22,383	30,043
277.39	18,581	19,621	277.91	22,460	30,268
277.40	18,648	19,807	277.92	22,536	30,493
277.41	18,714	19,994	277.93	22,613	30,718
277.42	18,780	20,181	277.94	22,690	30,945
277.43	18,846	20,369	277.95	22,767	31,172
277.44	18,913	20,558	277.96	22,844	31,400
277.45	18,979	20,748	277.97	22,921	31,629
277.46	19,045	20,938	277.98	22,997	31,859
277.47	19,111	21,128	277.99	23,074	32,089
277.48	19,178	21,320	278.00	23,151	32,320
277.49	19,244	21,512			
277.50	19,310	21,705			
277.51	19,387	21,898			
277.52	19,464	22,092			
277.53	19,540	22,288			
277.54	19,617	22,483			
277.55	19,694	22,680			

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Summary for Pond WQU 2: WQU 2

[57] Hint: Peaked at 279.83' (Flood elevation advised)

Inflow Area = 0.776 ac, 83.79% Impervious, Inflow Depth = 6.32" for ILSF Limit event
 Inflow = 5.06 cfs @ 12.08 hrs, Volume= 0.409 af
 Outflow = 5.06 cfs @ 12.09 hrs, Volume= 0.409 af, Atten= 0%, Lag= 0.6 min
 Primary = 5.06 cfs @ 12.09 hrs, Volume= 0.409 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 279.83' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	277.70'	18.0" Round Culvert L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 277.70' / 277.60' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=4.87 cfs @ 12.09 hrs HW=279.80' TW=279.47' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 4.87 cfs @ 2.76 fps)

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Stage-Area-Storage for Pond WQU 2: WQU 2

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
277.70	0	278.22	0	278.74	0
277.71	0	278.23	0	278.75	0
277.72	0	278.24	0	278.76	0
277.73	0	278.25	0	278.77	0
277.74	0	278.26	0	278.78	0
277.75	0	278.27	0	278.79	0
277.76	0	278.28	0	278.80	0
277.77	0	278.29	0	278.81	0
277.78	0	278.30	0	278.82	0
277.79	0	278.31	0	278.83	0
277.80	0	278.32	0	278.84	0
277.81	0	278.33	0	278.85	0
277.82	0	278.34	0	278.86	0
277.83	0	278.35	0	278.87	0
277.84	0	278.36	0	278.88	0
277.85	0	278.37	0	278.89	0
277.86	0	278.38	0	278.90	0
277.87	0	278.39	0	278.91	0
277.88	0	278.40	0	278.92	0
277.89	0	278.41	0	278.93	0
277.90	0	278.42	0	278.94	0
277.91	0	278.43	0	278.95	0
277.92	0	278.44	0	278.96	0
277.93	0	278.45	0	278.97	0
277.94	0	278.46	0	278.98	0
277.95	0	278.47	0	278.99	0
277.96	0	278.48	0	279.00	0
277.97	0	278.49	0	279.01	0
277.98	0	278.50	0	279.02	0
277.99	0	278.51	0	279.03	0
278.00	0	278.52	0	279.04	0
278.01	0	278.53	0	279.05	0
278.02	0	278.54	0	279.06	0
278.03	0	278.55	0	279.07	0
278.04	0	278.56	0	279.08	0
278.05	0	278.57	0	279.09	0
278.06	0	278.58	0	279.10	0
278.07	0	278.59	0	279.11	0
278.08	0	278.60	0	279.12	0
278.09	0	278.61	0	279.13	0
278.10	0	278.62	0	279.14	0
278.11	0	278.63	0	279.15	0
278.12	0	278.64	0	279.16	0
278.13	0	278.65	0	279.17	0
278.14	0	278.66	0	279.18	0
278.15	0	278.67	0	279.19	0
278.16	0	278.68	0	279.20	0
278.17	0	278.69	0	279.21	0
278.18	0	278.70	0	279.22	0
278.19	0	278.71	0	279.23	0
278.20	0	278.72	0	279.24	0
278.21	0	278.73	0	279.25	0

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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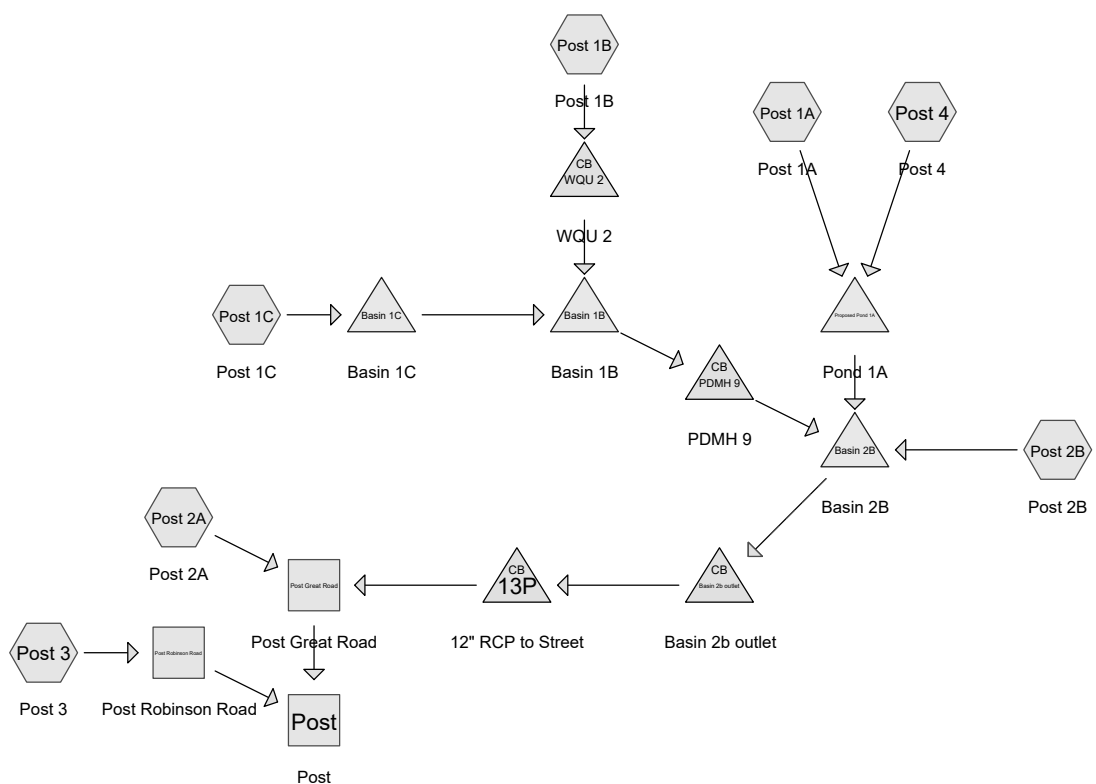
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Stage-Area-Storage for Pond WQU 2: WQU 2 (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
279.26	0	279.78	0
279.27	0	279.79	0
279.28	0	279.80	0
279.29	0	279.81	0
279.30	0	279.82	0
279.31	0	279.83	0
279.32	0		
279.33	0		
279.34	0		
279.35	0		
279.36	0		
279.37	0		
279.38	0		
279.39	0		
279.40	0		
279.41	0		
279.42	0		
279.43	0		
279.44	0		
279.45	0		
279.46	0		
279.47	0		
279.48	0		
279.49	0		
279.50	0		
279.51	0		
279.52	0		
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279.58	0		
279.59	0		
279.60	0		
279.61	0		
279.62	0		
279.63	0		
279.64	0		
279.65	0		
279.66	0		
279.67	0		
279.68	0		
279.69	0		
279.70	0		
279.71	0		
279.72	0		
279.73	0		
279.74	0		
279.75	0		
279.76	0		
279.77	0		



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18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentPost 1A: Post 1A Runoff Area=24,895 sf 51.44% Impervious Runoff Depth=1.56"
Flow Length=41' Slope=0.0350 '/' Tc=6.0 min CN=WQ Runoff=0.94 cfs 0.074 af

SubcatchmentPost 1B: Post 1B Runoff Area=33,788 sf 83.79% Impervious Runoff Depth=2.11"
Flow Length=210' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=1.73 cfs 0.137 af

SubcatchmentPost 1C: Post 1C Runoff Area=23,406 sf 71.27% Impervious Runoff Depth=1.90"
Flow Length=128' Slope=0.0125 '/' Tc=6.0 min CN=WQ Runoff=1.08 cfs 0.085 af

SubcatchmentPost 2A: Post 2A Runoff Area=21,838 sf 89.18% Impervious Runoff Depth=2.20"
Flow Length=207' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=1.17 cfs 0.092 af

SubcatchmentPost 2B: Post 2B Runoff Area=60,622 sf 62.79% Impervious Runoff Depth=1.75"
Flow Length=479' Slope=0.0150 '/' Tc=10.5 min CN=WQ Runoff=2.22 cfs 0.203 af

SubcatchmentPost 3: Post 3 Runoff Area=2,294 sf 0.00% Impervious Runoff Depth=0.68"
Flow Length=20' Slope=0.2500 '/' Tc=6.0 min CN=WQ Runoff=0.04 cfs 0.003 af

SubcatchmentPost 4: Post 4 Runoff Area=51,513 sf 11.10% Impervious Runoff Depth=0.87"
Flow Length=340' Slope=0.0450 '/' Tc=6.9 min CN=WQ Runoff=1.04 cfs 0.085 af

SubcatchmentPre 1A: Pre 1A Runoff Area=84,149 sf 34.86% Impervious Runoff Depth=1.22"
Flow Length=465' Slope=0.0360 '/' Tc=8.8 min CN=WQ Runoff=2.22 cfs 0.197 af

SubcatchmentPre 1B: Pre 1B Runoff Area=32,952 sf 26.34% Impervious Runoff Depth=1.13"
Flow Length=155' Slope=0.0300 '/' Tc=6.0 min CN=WQ Runoff=0.89 cfs 0.071 af

SubcatchmentPre 2A: Pre 2A Runoff Area=43,695 sf 58.46% Impervious Runoff Depth=1.68"
Flow Length=173' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=1.77 cfs 0.140 af

SubcatchmentPre 2B: Pre 2B Runoff Area=2,798 sf 100.00% Impervious Runoff Depth=2.39"
Flow Length=37' Slope=0.0100 '/' Tc=6.0 min CN=WQ Runoff=0.16 cfs 0.013 af

SubcatchmentPre 3: Pre 3 Runoff Area=3,249 sf 51.92% Impervious Runoff Depth=1.57"
Flow Length=44' Slope=0.0450 '/' Tc=6.0 min CN=WQ Runoff=0.12 cfs 0.010 af

SubcatchmentPre 4: Pre 4 Runoff Area=51,513 sf 11.10% Impervious Runoff Depth=0.87"
Flow Length=340' Slope=0.0450 '/' Tc=6.9 min CN=WQ Runoff=1.04 cfs 0.085 af

Reach Great Road: Great Road Inflow=1.93 cfs 0.153 af
Outflow=1.93 cfs 0.153 af

Reach Post: Post Inflow=1.81 cfs 0.298 af
Outflow=1.81 cfs 0.298 af

Reach Post Great Road: Post Great Road Inflow=1.78 cfs 0.295 af
Outflow=1.78 cfs 0.295 af

18017 Pre-post-ILSF*Type III 24-hr 1-YR NOAA Rainfall=2.62"*

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Reach Post Robinson Road: Post Robinson RoadInflow=0.04 cfs 0.003 af
Outflow=0.04 cfs 0.003 af**Reach Pre: Pre**Inflow=2.05 cfs 0.163 af
Outflow=2.05 cfs 0.163 af**Reach Robinson Road: Robinson Road**Inflow=0.12 cfs 0.010 af
Outflow=0.12 cfs 0.010 af**Pond 13P: 12" RCP to Street**Peak Elev=273.26' Inflow=0.95 cfs 0.203 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 ' /' Outflow=0.95 cfs 0.203 af**Pond 14P: 12" RCP to Street**Peak Elev=272.93' Inflow=0.16 cfs 0.013 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 ' /' Outflow=0.16 cfs 0.013 af**Pond Basin 1B: Basin 1B**Peak Elev=278.94' Storage=5,964 cf Inflow=1.76 cfs 0.137 af
Outflow=0.00 cfs 0.000 af**Pond Basin 1C: Basin 1C**Peak Elev=278.93' Storage=3,695 cf Inflow=1.08 cfs 0.085 af
12.0" Round Culvert n=0.012 L=35.0' S=0.0000 ' /' Outflow=0.03 cfs 0.000 af**Pond Basin 2B: Basin 2B**Peak Elev=273.85' Storage=2,205 cf Inflow=2.22 cfs 0.203 af
Primary=0.95 cfs 0.203 af Secondary=0.00 cfs 0.000 af Outflow=0.95 cfs 0.203 af**Pond Basin 2b outlet: Basin 2b outlet**Peak Elev=273.53' Inflow=0.95 cfs 0.203 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0050 ' /' Outflow=0.95 cfs 0.203 af**Pond PDMH 9: PDMH 9**Peak Elev=276.10' Inflow=0.00 cfs 0.000 af
12.0" Round Culvert n=0.012 L=86.0' S=0.0267 ' /' Outflow=0.00 cfs 0.000 af**Pond Pond 1B: Pond 1B**Peak Elev=278.16' Storage=1,330 cf Inflow=0.89 cfs 0.071 af
Outflow=0.37 cfs 0.045 af**Pond Pre Pond 1A: Pre Pond 1A**Peak Elev=277.15' Storage=14,251 cf Inflow=3.24 cfs 0.327 af
Outflow=0.00 cfs 0.000 af**Pond Proposed Pond 1A: Pond 1A**Peak Elev=276.60' Storage=6,954 cf Inflow=1.96 cfs 0.160 af
Outflow=0.00 cfs 0.000 af**Pond WQU 2: WQU 2**Peak Elev=278.94' Inflow=1.73 cfs 0.137 af
18.0" Round Culvert n=0.012 L=20.0' S=0.0050 ' /' Outflow=1.73 cfs 0.137 af

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Summary for Subcatchment Post 1A: Post 1A

Runoff = 0.94 cfs @ 12.09 hrs, Volume= 0.074 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
12,805	98	Water Surface, HSG C
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
12,090	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
24,895		Weighted Average
12,090	74	48.56% Pervious Area
12,805	98	51.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	41	0.0350	0.63		Lag/CN Method, Post 1A
1.1	41	Total, Increased to minimum Tc = 6.0 min			

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Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Summary for Subcatchment Post 1B: Post 1B

Runoff = 1.73 cfs @ 12.08 hrs, Volume= 0.137 af, Depth= 2.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
3,457	98	Roofs, HSG C
24,854	98	Paved parking, HSG C
5,477	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
33,788		Weighted Average
5,477	74	16.21% Pervious Area
28,311	98	83.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	210	0.0150	0.80		Lag/CN Method, Post 1B
4.4	210	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Post 1C: Post 1C

Runoff = 1.08 cfs @ 12.09 hrs, Volume= 0.085 af, Depth= 1.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
6,958	98	Roofs, HSG C
9,724	98	Paved parking, HSG C
6,724	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
23,406		Weighted Average
6,724	74	28.73% Pervious Area
16,682	98	71.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	128	0.0125	0.58		Lag/CN Method, Post 1C
3.7	128	Total, Increased to minimum Tc = 6.0 min			

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Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Summary for Subcatchment Post 2A: Post 2A

Runoff = 1.17 cfs @ 12.08 hrs, Volume= 0.092 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

	Area (sf)	CN	Description
	4,331	98	Roofs, HSG C
	15,145	98	Paved parking, HSG C
*	295	74	Pervious Pavers, HSG C
	2,067	74	>75% Grass cover, Good, HSG C
	0	70	Woods, Good, HSG C
	21,838		Weighted Average
	2,362	74	10.82% Pervious Area
	19,476	98	89.18% Impervious Area

	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	4.1	207	0.0150	0.84		Lag/CN Method, Post 2A
	4.1	207	Total, Increased to minimum Tc = 6.0 min			

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Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Summary for Subcatchment Post 2B: Post 2B

Runoff = 2.22 cfs @ 12.14 hrs, Volume= 0.203 af, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

	Area (sf)	CN	Description
	12,010	98	Roofs, HSG C
	26,052	98	Paved parking, HSG C
*	5,546	74	Pervious Pavers, HSG C
	17,014	74	>75% Grass cover, Good, HSG C
	0	70	Woods, Good, HSG C
	60,622		Weighted Average
	22,560	74	37.21% Pervious Area
	38,062	98	62.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	479	0.0150	0.76		Lag/CN Method, Post 2B

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Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Summary for Subcatchment Post 3: Post 3

Runoff = 0.04 cfs @ 12.10 hrs, Volume= 0.003 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
2,294	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
2,294		Weighted Average
2,294	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.2500	1.00		Lag/CN Method, Post 3
0.3	20	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Post 4: Post 4

Runoff = 1.04 cfs @ 12.11 hrs, Volume= 0.085 af, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
2,572	98	Roofs, HSG C
3,144	98	Paved parking, HSG C
45,797	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
51,513		Weighted Average
45,797	74	88.90% Pervious Area
5,716	98	11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	340	0.0450	0.82		Lag/CN Method, Pre 4

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Summary for Subcatchment Pre 1A: Pre 1A

Runoff = 2.22 cfs @ 12.13 hrs, Volume= 0.197 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
8,187	98	Water Surface, HSG C
2,349	98	Roofs, HSG C
18,796	98	Paved parking, HSG C
29,044	74	>75% Grass cover, Good, HSG C
25,773	70	Woods, Good, HSG C
84,149		Weighted Average
54,817	72	65.14% Pervious Area
29,332	98	34.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	465	0.0360	0.88		Lag/CN Method, Pre 1A

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Summary for Subcatchment Pre 1B: Pre 1B

Runoff = 0.89 cfs @ 12.09 hrs, Volume= 0.071 af, Depth= 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
672	98	Water Surface, HSG C
2,684	98	Roofs, HSG C
5,324	98	Paved parking, HSG C
24,272	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
32,952		Weighted Average
24,272	74	73.66% Pervious Area
8,680	98	26.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	155	0.0300	0.63		Lag/CN Method, Pre 1B
4.1	155	Total, Increased to minimum Tc = 6.0 min			

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Summary for Subcatchment Pre 2A: Pre 2A

Runoff = 1.77 cfs @ 12.09 hrs, Volume= 0.140 af, Depth= 1.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
3,784	98	Roofs, HSG C
21,760	98	Paved parking, HSG C
17,314	74	>75% Grass cover, Good, HSG C
837	70	Woods, Good, HSG C
43,695		Weighted Average
18,151	74	41.54% Pervious Area
25,544	98	58.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	173	0.0150	0.60		Lag/CN Method, Pre 2
4.8	173	Total, Increased to minimum Tc = 6.0 min			

18017 Pre-post-ILSF

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Summary for Subcatchment Pre 2B: Pre 2B

Runoff = 0.16 cfs @ 12.08 hrs, Volume= 0.013 af, Depth= 2.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
2,798	98	Roofs, HSG C
0	98	Paved parking, HSG C
0	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
2,798		Weighted Average
2,798	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	37	0.0100	0.57		Lag/CN Method, Pre 2B
1.1	37	Total, Increased to minimum Tc = 6.0 min			

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Summary for Subcatchment Pre 3: Pre 3

Runoff = 0.12 cfs @ 12.09 hrs, Volume= 0.010 af, Depth= 1.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
901	98	Roofs, HSG C
786	98	Paved parking, HSG C
1,562	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
3,249		Weighted Average
1,562	74	48.08% Pervious Area
1,687	98	51.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	44	0.0450	0.73		Lag/CN Method, Pre 3
1.0	44	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Pre 4: Pre 4

Runoff = 1.04 cfs @ 12.11 hrs, Volume= 0.085 af, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr 1-YR NOAA Rainfall=2.62"

Area (sf)	CN	Description
2,572	98	Roofs, HSG C
3,144	98	Paved parking, HSG C
45,797	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
51,513		Weighted Average
45,797	74	88.90% Pervious Area
5,716	98	11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	340	0.0450	0.82		Lag/CN Method, Pre 4

Summary for Reach Great Road: Great Road

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

Inflow Area = 4.938 ac, 33.50% Impervious, Inflow Depth = 0.37" for 1-YR NOAA event
Inflow = 1.93 cfs @ 12.09 hrs, Volume= 0.153 af
Outflow = 1.93 cfs @ 12.10 hrs, Volume= 0.153 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach Post: Post

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

Inflow Area = 5.013 ac, 55.44% Impervious, Inflow Depth = 0.71" for 1-YR NOAA event
Inflow = 1.81 cfs @ 12.11 hrs, Volume= 0.298 af
Outflow = 1.81 cfs @ 12.12 hrs, Volume= 0.298 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach Post Great Road: Post Great Road

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

Inflow Area = 4.960 ac, 56.03% Impervious, Inflow Depth = 0.71" for 1-YR NOAA event
Inflow = 1.78 cfs @ 12.10 hrs, Volume= 0.295 af
Outflow = 1.78 cfs @ 12.11 hrs, Volume= 0.295 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach Post Robinson Road: Post Robinson Road

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

Inflow Area = 0.053 ac, 0.00% Impervious, Inflow Depth = 0.68" for 1-YR NOAA event
Inflow = 0.04 cfs @ 12.10 hrs, Volume= 0.003 af
Outflow = 0.04 cfs @ 12.11 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach Pre: Pre

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

Inflow Area = 5.013 ac, 33.78% Impervious, Inflow Depth = 0.39" for 1-YR NOAA event
Inflow = 2.05 cfs @ 12.10 hrs, Volume= 0.163 af
Outflow = 2.05 cfs @ 12.11 hrs, Volume= 0.163 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach Robinson Road: Robinson Road

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

Inflow Area = 0.075 ac, 51.92% Impervious, Inflow Depth = 1.57" for 1-YR NOAA event
Inflow = 0.12 cfs @ 12.09 hrs, Volume= 0.010 af
Outflow = 0.12 cfs @ 12.10 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond 13P: 12" RCP to Street

[57] Hint: Peaked at 273.26' (Flood elevation advised)

Inflow Area = 4.459 ac, 52.30% Impervious, Inflow Depth > 0.55" for 1-YR NOAA event
 Inflow = 0.95 cfs @ 12.43 hrs, Volume= 0.203 af
 Outflow = 0.95 cfs @ 12.44 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.6 min
 Primary = 0.95 cfs @ 12.44 hrs, Volume= 0.203 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 273.26' @ 12.44 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.73'	12.0" Round Culvert L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.73' / 272.43' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.95 cfs @ 12.44 hrs HW=273.26' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 0.95 cfs @ 3.24 fps)

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Stage-Area-Storage for Pond 13P: 12" RCP to Street

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.73	0	273.25	0
272.74	0	273.26	0
272.75	0	273.27	0
272.76	0	273.28	0
272.77	0	273.29	0
272.78	0	273.30	0
272.79	0	273.31	0
272.80	0	273.32	0
272.81	0	273.33	0
272.82	0	273.34	0
272.83	0	273.35	0
272.84	0	273.36	0
272.85	0	273.37	0
272.86	0	273.38	0
272.87	0	273.39	0
272.88	0	273.40	0
272.89	0	273.41	0
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0		
273.23	0		
273.24	0		

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Summary for Pond 14P: 12" RCP to Street

[57] Hint: Peaked at 272.93' (Flood elevation advised)

Inflow Area = 0.064 ac, 100.00% Impervious, Inflow Depth = 2.39" for 1-YR NOAA event
 Inflow = 0.16 cfs @ 12.08 hrs, Volume= 0.013 af
 Outflow = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.6 min
 Primary = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 272.93' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.73'	12.0" Round Culvert L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.73' / 272.43' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.16 cfs @ 12.09 hrs HW=272.93' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 0.16 cfs @ 2.14 fps)

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Stage-Area-Storage for Pond 14P: 12" RCP to Street

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.73	0	273.25	0
272.74	0	273.26	0
272.75	0	273.27	0
272.76	0	273.28	0
272.77	0	273.29	0
272.78	0	273.30	0
272.79	0	273.31	0
272.80	0	273.32	0
272.81	0	273.33	0
272.82	0	273.34	0
272.83	0	273.35	0
272.84	0	273.36	0
272.85	0	273.37	0
272.86	0	273.38	0
272.87	0	273.39	0
272.88	0	273.40	0
272.89	0	273.41	0
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0		
273.23	0		
273.24	0		

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Summary for Pond Basin 1B: Basin 1B

[80] Warning: Exceeded Pond Basin 1C by 0.03' @ 12.14 hrs (0.14 cfs 1.226 af)

Inflow Area = 1.313 ac, 78.67% Impervious, Inflow Depth = 1.25" for 1-YR NOAA event
 Inflow = 1.76 cfs @ 12.09 hrs, Volume= 0.137 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 278.94' @ 24.11 hrs Surf.Area= 7,072 sf Storage= 5,964 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	277.33'	5,914 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 17,718 cf Overall - 2,933 cf Embedded = 14,785 cf x 40.0% Voids
#2	277.83'	2,933 cf	18.0" Round Pipe Storage Inside #1 L= 1,660.0'
		8,847 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.33	7,072	0	0
279.83	7,072	17,680	17,680
279.84	4	35	17,715
280.50	4	3	17,718

Device	Routing	Invert	Outlet Devices
#1	Primary	279.20'	4.0' long x 1.0' breadth Broad-Crested Rectangular Weir X 3.00 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 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=0.00 cfs @ 0.00 hrs HW=277.33' TW=276.10' (Dynamic Tailwater)

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

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Stage-Area-Storage for Pond Basin 1B: Basin 1B

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
277.33	0	277.85	1,476	278.37	3,512
277.34	28	277.86	1,508	278.38	3,555
277.35	57	277.87	1,540	278.39	3,598
277.36	85	277.88	1,574	278.40	3,641
277.37	113	277.89	1,608	278.41	3,683
277.38	141	277.90	1,642	278.42	3,726
277.39	170	277.91	1,677	278.43	3,769
277.40	198	277.92	1,712	278.44	3,812
277.41	226	277.93	1,748	278.45	3,855
277.42	255	277.94	1,784	278.46	3,898
277.43	283	277.95	1,820	278.47	3,941
277.44	311	277.96	1,856	278.48	3,984
277.45	339	277.97	1,893	278.49	4,027
277.46	368	277.98	1,930	278.50	4,070
277.47	396	277.99	1,968	278.51	4,114
277.48	424	278.00	2,005	278.52	4,157
277.49	453	278.01	2,043	278.53	4,200
277.50	481	278.02	2,081	278.54	4,243
277.51	509	278.03	2,120	278.55	4,286
277.52	537	278.04	2,158	278.56	4,330
277.53	566	278.05	2,197	278.57	4,373
277.54	594	278.06	2,236	278.58	4,416
277.55	622	278.07	2,275	278.59	4,459
277.56	651	278.08	2,314	278.60	4,502
277.57	679	278.09	2,354	278.61	4,546
277.58	707	278.10	2,394	278.62	4,589
277.59	735	278.11	2,433	278.63	4,632
277.60	764	278.12	2,473	278.64	4,675
277.61	792	278.13	2,514	278.65	4,718
277.62	820	278.14	2,554	278.66	4,762
277.63	849	278.15	2,594	278.67	4,805
277.64	877	278.16	2,635	278.68	4,848
277.65	905	278.17	2,676	278.69	4,891
277.66	934	278.18	2,717	278.70	4,934
277.67	962	278.19	2,758	278.71	4,977
277.68	990	278.20	2,799	278.72	5,020
277.69	1,018	278.21	2,840	278.73	5,063
277.70	1,047	278.22	2,881	278.74	5,106
277.71	1,075	278.23	2,923	278.75	5,149
277.72	1,103	278.24	2,964	278.76	5,192
277.73	1,132	278.25	3,006	278.77	5,234
277.74	1,160	278.26	3,048	278.78	5,277
277.75	1,188	278.27	3,090	278.79	5,320
277.76	1,216	278.28	3,131	278.80	5,362
277.77	1,245	278.29	3,173	278.81	5,405
277.78	1,273	278.30	3,216	278.82	5,447
277.79	1,301	278.31	3,258	278.83	5,490
277.80	1,330	278.32	3,300	278.84	5,532
277.81	1,358	278.33	3,342	278.85	5,574
277.82	1,386	278.34	3,385	278.86	5,616
277.83	1,414	278.35	3,427	278.87	5,659
277.84	1,444	278.36	3,470	278.88	5,701

18017 Pre-post-ILSF

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Stage-Area-Storage for Pond Basin 1B: Basin 1B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
278.89	5,743	279.41	7,644	279.93	8,846
278.90	5,784	279.42	7,672	279.94	8,846
278.91	5,826	279.43	7,701	279.95	8,846
278.92	5,868	279.44	7,729	279.96	8,846
278.93	5,909	279.45	7,757	279.97	8,846
278.94	5,951	279.46	7,785	279.98	8,846
278.95	5,992	279.47	7,814	279.99	8,846
278.96	6,033	279.48	7,842	280.00	8,846
278.97	6,074	279.49	7,870	280.01	8,847
278.98	6,115	279.50	7,899	280.02	8,847
278.99	6,156	279.51	7,927	280.03	8,847
279.00	6,197	279.52	7,955	280.04	8,847
279.01	6,238	279.53	7,983	280.05	8,847
279.02	6,278	279.54	8,012	280.06	8,847
279.03	6,318	279.55	8,040	280.07	8,847
279.04	6,359	279.56	8,068	280.08	8,847
279.05	6,399	279.57	8,097	280.09	8,847
279.06	6,438	279.58	8,125	280.10	8,847
279.07	6,478	279.59	8,153	280.11	8,847
279.08	6,518	279.60	8,181	280.12	8,847
279.09	6,557	279.61	8,210	280.13	8,847
279.10	6,596	279.62	8,238	280.14	8,847
279.11	6,635	279.63	8,266	280.15	8,847
279.12	6,674	279.64	8,295	280.16	8,847
279.13	6,712	279.65	8,323	280.17	8,847
279.14	6,751	279.66	8,351	280.18	8,847
279.15	6,789	279.67	8,379	280.19	8,847
279.16	6,827	279.68	8,408	280.20	8,847
279.17	6,864	279.69	8,436	280.21	8,847
279.18	6,902	279.70	8,464	280.22	8,847
279.19	6,939	279.71	8,493	280.23	8,847
279.20	6,976	279.72	8,521	280.24	8,847
279.21	7,012	279.73	8,549	280.25	8,847
279.22	7,048	279.74	8,577	280.26	8,847
279.23	7,084	279.75	8,606	280.27	8,847
279.24	7,120	279.76	8,634	280.28	8,847
279.25	7,155	279.77	8,662	280.29	8,847
279.26	7,190	279.78	8,691	280.30	8,847
279.27	7,224	279.79	8,719	280.31	8,847
279.28	7,258	279.80	8,747	280.32	8,847
279.29	7,292	279.81	8,776	280.33	8,847
279.30	7,324	279.82	8,804	280.34	8,847
279.31	7,357	279.83	8,832	280.35	8,847
279.32	7,388	279.84	8,846	280.36	8,847
279.33	7,418	279.85	8,846	280.37	8,847
279.34	7,446	279.86	8,846	280.38	8,847
279.35	7,474	279.87	8,846	280.39	8,847
279.36	7,503	279.88	8,846	280.40	8,847
279.37	7,531	279.89	8,846	280.41	8,847
279.38	7,559	279.90	8,846	280.42	8,847
279.39	7,587	279.91	8,846	280.43	8,847
279.40	7,616	279.92	8,846	280.44	8,847

Stage-Area-Storage for Pond Basin 1B: Basin 1B (continued)

Elevation (feet)	Storage (cubic-feet)
280.45	8,847
280.46	8,847
280.47	8,847
280.48	8,847
280.49	8,847
280.50	8,847

Summary for Pond Basin 1C: Basin 1C

[42] Hint: Gap in defined storage above volume #1 at 279.83'

Inflow Area = 0.537 ac, 71.27% Impervious, Inflow Depth = 1.90" for 1-YR NOAA event
 Inflow = 1.08 cfs @ 12.09 hrs, Volume= 0.085 af
 Outflow = 0.03 cfs @ 12.09 hrs, Volume= 0.000 af, Atten= 97%, Lag= 0.6 min
 Primary = 0.03 cfs @ 12.09 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 278.93' @ 24.34 hrs Surf.Area= 4,400 sf Storage= 3,695 cf

Plug-Flow detention time= 574.3 min calculated for 0.000 af (0% of inflow)
 Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	277.33'	3,656 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 11,000 cf Overall - 1,859 cf Embedded = 9,141 cf x 40.0% Voids
#2	277.83'	1,859 cf	18.0" Round Pipe Storage Inside #1 L= 1,052.0'
#3	279.84'	9 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		5,525 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.33	4,400	0	0
279.83	4,400	11,000	11,000

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
279.84	12	0	0
280.60	12	9	9

Device	Routing	Invert	Outlet Devices
#1	Primary	277.83'	12.0" Round Culvert L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 277.83' / 277.83' S= 0.0000 ' S= 0.0000 ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.09 hrs HW=278.13' TW=278.14' (Dynamic Tailwater)

↑ **1=Culvert** (Controls 0.00 cfs)

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Stage-Area-Storage for Pond Basin 1C: Basin 1C

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
277.33	0	277.85	918	278.37	2,192
277.34	18	277.86	938	278.38	2,219
277.35	35	277.87	959	278.39	2,245
277.36	53	277.88	979	278.40	2,272
277.37	70	277.89	1,001	278.41	2,299
277.38	88	277.90	1,022	278.42	2,326
277.39	106	277.91	1,044	278.43	2,353
277.40	123	277.92	1,066	278.44	2,380
277.41	141	277.93	1,088	278.45	2,406
277.42	158	277.94	1,110	278.46	2,433
277.43	176	277.95	1,133	278.47	2,460
277.44	194	277.96	1,156	278.48	2,487
277.45	211	277.97	1,179	278.49	2,514
277.46	229	277.98	1,202	278.50	2,541
277.47	246	277.99	1,225	278.51	2,568
277.48	264	278.00	1,249	278.52	2,595
277.49	282	278.01	1,273	278.53	2,622
277.50	299	278.02	1,296	278.54	2,649
277.51	317	278.03	1,320	278.55	2,677
277.52	334	278.04	1,345	278.56	2,704
277.53	352	278.05	1,369	278.57	2,731
277.54	370	278.06	1,393	278.58	2,758
277.55	387	278.07	1,418	278.59	2,785
277.56	405	278.08	1,442	278.60	2,812
277.57	422	278.09	1,467	278.61	2,839
277.58	440	278.10	1,492	278.62	2,866
277.59	458	278.11	1,517	278.63	2,893
277.60	475	278.12	1,542	278.64	2,920
277.61	493	278.13	1,567	278.65	2,947
277.62	510	278.14	1,592	278.66	2,974
277.63	528	278.15	1,617	278.67	3,001
277.64	546	278.16	1,643	278.68	3,028
277.65	563	278.17	1,668	278.69	3,055
277.66	581	278.18	1,694	278.70	3,082
277.67	598	278.19	1,719	278.71	3,109
277.68	616	278.20	1,745	278.72	3,136
277.69	634	278.21	1,771	278.73	3,163
277.70	651	278.22	1,797	278.74	3,190
277.71	669	278.23	1,823	278.75	3,216
277.72	686	278.24	1,849	278.76	3,243
277.73	704	278.25	1,875	278.77	3,270
277.74	722	278.26	1,901	278.78	3,297
277.75	739	278.27	1,927	278.79	3,324
277.76	757	278.28	1,953	278.80	3,350
277.77	774	278.29	1,980	278.81	3,377
277.78	792	278.30	2,006	278.82	3,403
277.79	810	278.31	2,033	278.83	3,430
277.80	827	278.32	2,059	278.84	3,456
277.81	845	278.33	2,085	278.85	3,483
277.82	862	278.34	2,112	278.86	3,509
277.83	880	278.35	2,139	278.87	3,536
277.84	899	278.36	2,165	278.88	3,562

18017 Pre-post-ILSF

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Stage-Area-Storage for Pond Basin 1C: Basin 1C (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
278.89	3,588	279.41	4,776	279.93	5,517
278.90	3,614	279.42	4,794	279.94	5,517
278.91	3,641	279.43	4,811	279.95	5,517
278.92	3,667	279.44	4,829	279.96	5,517
278.93	3,693	279.45	4,847	279.97	5,517
278.94	3,719	279.46	4,864	279.98	5,517
278.95	3,744	279.47	4,882	279.99	5,517
278.96	3,770	279.48	4,899	280.00	5,517
278.97	3,796	279.49	4,917	280.01	5,517
278.98	3,822	279.50	4,935	280.02	5,518
278.99	3,847	279.51	4,952	280.03	5,518
279.00	3,873	279.52	4,970	280.04	5,518
279.01	3,898	279.53	4,987	280.05	5,518
279.02	3,923	279.54	5,005	280.06	5,518
279.03	3,949	279.55	5,023	280.07	5,518
279.04	3,974	279.56	5,040	280.08	5,518
279.05	3,999	279.57	5,058	280.09	5,518
279.06	4,024	279.58	5,075	280.10	5,519
279.07	4,049	279.59	5,093	280.11	5,519
279.08	4,073	279.60	5,111	280.12	5,519
279.09	4,098	279.61	5,128	280.13	5,519
279.10	4,122	279.62	5,146	280.14	5,519
279.11	4,147	279.63	5,163	280.15	5,519
279.12	4,171	279.64	5,181	280.16	5,519
279.13	4,195	279.65	5,199	280.17	5,519
279.14	4,219	279.66	5,216	280.18	5,520
279.15	4,243	279.67	5,234	280.19	5,520
279.16	4,266	279.68	5,251	280.20	5,520
279.17	4,290	279.69	5,269	280.21	5,520
279.18	4,313	279.70	5,287	280.22	5,520
279.19	4,337	279.71	5,304	280.23	5,520
279.20	4,360	279.72	5,322	280.24	5,520
279.21	4,382	279.73	5,339	280.25	5,520
279.22	4,405	279.74	5,357	280.26	5,520
279.23	4,427	279.75	5,375	280.27	5,521
279.24	4,450	279.76	5,392	280.28	5,521
279.25	4,472	279.77	5,410	280.29	5,521
279.26	4,493	279.78	5,427	280.30	5,521
279.27	4,515	279.79	5,445	280.31	5,521
279.28	4,536	279.80	5,463	280.32	5,521
279.29	4,557	279.81	5,480	280.33	5,521
279.30	4,577	279.82	5,498	280.34	5,521
279.31	4,597	279.83	5,515	280.35	5,522
279.32	4,617	279.84	5,515	280.36	5,522
279.33	4,635	279.85	5,516	280.37	5,522
279.34	4,653	279.86	5,516	280.38	5,522
279.35	4,671	279.87	5,516	280.39	5,522
279.36	4,688	279.88	5,516	280.40	5,522
279.37	4,706	279.89	5,516	280.41	5,522
279.38	4,723	279.90	5,516	280.42	5,522
279.39	4,741	279.91	5,516	280.43	5,523
279.40	4,759	279.92	5,516	280.44	5,523

Stage-Area-Storage for Pond Basin 1C: Basin 1C (continued)

Elevation (feet)	Storage (cubic-feet)
280.45	5,523
280.46	5,523
280.47	5,523
280.48	5,523
280.49	5,523
280.50	5,523
280.51	5,523
280.52	5,524
280.53	5,524
280.54	5,524
280.55	5,524
280.56	5,524
280.57	5,524
280.58	5,524
280.59	5,524
280.60	5,525

Summary for Pond Basin 2B: Basin 2B

Inflow Area = 4.459 ac, 52.30% Impervious, Inflow Depth = 0.55" for 1-YR NOAA event
 Inflow = 2.22 cfs @ 12.14 hrs, Volume= 0.203 af
 Outflow = 0.95 cfs @ 12.42 hrs, Volume= 0.203 af, Atten= 57%, Lag= 16.6 min
 Primary = 0.95 cfs @ 12.42 hrs, Volume= 0.203 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 273.85' @ 12.43 hrs Surf.Area= 5,600 sf Storage= 2,205 cf

Plug-Flow detention time= 58.5 min calculated for 0.203 af (100% of inflow)
 Center-of-Mass det. time= 57.7 min (839.2 - 781.5)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	6,696 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 28,000 cf Overall - 11,259 cf Embedded = 16,741 cf x 40.0% Voids
#2	273.50'	11,259 cf	48.0" Round Pipe Storage Inside #1 L= 896.0'
		17,956 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	5,600	0	0
278.00	5,600	28,000	28,000

Device	Routing	Invert	Outlet Devices
#1	Secondary	277.50'	6.0' 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
#2	Primary	273.00'	8.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.95 cfs @ 12.42 hrs HW=273.85' TW=273.53' (Dynamic Tailwater)

↑ **2=Orifice/Grate** (Orifice Controls 0.95 cfs @ 2.72 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=272.90' (Dynamic Tailwater)

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

18017 Pre-post-ILSF

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Stage-Area-Storage for Pond Basin 2B: Basin 2B

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
273.00	0	273.52	1,169	274.04	2,875
273.01	22	273.53	1,195	274.05	2,912
273.02	45	273.54	1,221	274.06	2,949
273.03	67	273.55	1,248	274.07	2,987
273.04	90	273.56	1,275	274.08	3,024
273.05	112	273.57	1,303	274.09	3,062
273.06	134	273.58	1,331	274.10	3,099
273.07	157	273.59	1,360	274.11	3,137
273.08	179	273.60	1,389	274.12	3,175
273.09	202	273.61	1,418	274.13	3,213
273.10	224	273.62	1,448	274.14	3,251
273.11	246	273.63	1,478	274.15	3,290
273.12	269	273.64	1,508	274.16	3,328
273.13	291	273.65	1,538	274.17	3,366
273.14	314	273.66	1,569	274.18	3,405
273.15	336	273.67	1,600	274.19	3,443
273.16	358	273.68	1,631	274.20	3,482
273.17	381	273.69	1,663	274.21	3,521
273.18	403	273.70	1,694	274.22	3,560
273.19	426	273.71	1,726	274.23	3,599
273.20	448	273.72	1,758	274.24	3,638
273.21	470	273.73	1,791	274.25	3,677
273.22	493	273.74	1,823	274.26	3,716
273.23	515	273.75	1,856	274.27	3,755
273.24	538	273.76	1,889	274.28	3,795
273.25	560	273.77	1,922	274.29	3,834
273.26	582	273.78	1,955	274.30	3,874
273.27	605	273.79	1,989	274.31	3,914
273.28	627	273.80	2,022	274.32	3,953
273.29	650	273.81	2,056	274.33	3,993
273.30	672	273.82	2,090	274.34	4,033
273.31	694	273.83	2,124	274.35	4,073
273.32	717	273.84	2,158	274.36	4,113
273.33	739	273.85	2,193	274.37	4,153
273.34	762	273.86	2,228	274.38	4,193
273.35	784	273.87	2,262	274.39	4,233
273.36	806	273.88	2,297	274.40	4,274
273.37	829	273.89	2,332	274.41	4,314
273.38	851	273.90	2,368	274.42	4,355
273.39	874	273.91	2,403	274.43	4,395
273.40	896	273.92	2,438	274.44	4,436
273.41	918	273.93	2,474	274.45	4,476
273.42	941	273.94	2,510	274.46	4,517
273.43	963	273.95	2,546	274.47	4,558
273.44	986	273.96	2,582	274.48	4,599
273.45	1,008	273.97	2,618	274.49	4,640
273.46	1,030	273.98	2,654	274.50	4,681
273.47	1,053	273.99	2,691	274.51	4,722
273.48	1,075	274.00	2,727	274.52	4,763
273.49	1,098	274.01	2,764	274.53	4,804
273.50	1,120	274.02	2,801	274.54	4,845
273.51	1,144	274.03	2,838	274.55	4,887

18017 Pre-post-ILSF

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Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
274.56	4,928	275.08	7,141	275.60	9,417
274.57	4,969	275.09	7,184	275.61	9,461
274.58	5,011	275.10	7,227	275.62	9,505
274.59	5,052	275.11	7,271	275.63	9,548
274.60	5,094	275.12	7,314	275.64	9,592
274.61	5,136	275.13	7,358	275.65	9,636
274.62	5,177	275.14	7,401	275.66	9,680
274.63	5,219	275.15	7,445	275.67	9,724
274.64	5,261	275.16	7,489	275.68	9,768
274.65	5,303	275.17	7,532	275.69	9,811
274.66	5,345	275.18	7,576	275.70	9,855
274.67	5,386	275.19	7,619	275.71	9,899
274.68	5,428	275.20	7,663	275.72	9,943
274.69	5,470	275.21	7,707	275.73	9,987
274.70	5,513	275.22	7,751	275.74	10,030
274.71	5,555	275.23	7,794	275.75	10,074
274.72	5,597	275.24	7,838	275.76	10,118
274.73	5,639	275.25	7,882	275.77	10,161
274.74	5,681	275.26	7,925	275.78	10,205
274.75	5,724	275.27	7,969	275.79	10,249
274.76	5,766	275.28	8,013	275.80	10,293
274.77	5,808	275.29	8,057	275.81	10,336
274.78	5,851	275.30	8,100	275.82	10,380
274.79	5,893	275.31	8,144	275.83	10,423
274.80	5,936	275.32	8,188	275.84	10,467
274.81	5,978	275.33	8,232	275.85	10,511
274.82	6,021	275.34	8,276	275.86	10,554
274.83	6,064	275.35	8,320	275.87	10,598
274.84	6,106	275.36	8,363	275.88	10,641
274.85	6,149	275.37	8,407	275.89	10,685
274.86	6,192	275.38	8,451	275.90	10,728
274.87	6,235	275.39	8,495	275.91	10,772
274.88	6,277	275.40	8,539	275.92	10,815
274.89	6,320	275.41	8,583	275.93	10,859
274.90	6,363	275.42	8,627	275.94	10,902
274.91	6,406	275.43	8,671	275.95	10,945
274.92	6,449	275.44	8,714	275.96	10,989
274.93	6,492	275.45	8,758	275.97	11,032
274.94	6,535	275.46	8,802	275.98	11,075
274.95	6,578	275.47	8,846	275.99	11,118
274.96	6,621	275.48	8,890	276.00	11,162
274.97	6,664	275.49	8,934	276.01	11,205
274.98	6,708	275.50	8,978	276.02	11,248
274.99	6,751	275.51	9,022	276.03	11,291
275.00	6,794	275.52	9,066	276.04	11,334
275.01	6,837	275.53	9,110	276.05	11,377
275.02	6,880	275.54	9,153	276.06	11,421
275.03	6,924	275.55	9,197	276.07	11,464
275.04	6,967	275.56	9,241	276.08	11,507
275.05	7,010	275.57	9,285	276.09	11,550
275.06	7,054	275.58	9,329	276.10	11,592
275.07	7,097	275.59	9,373	276.11	11,635

18017 Pre-post-ILSF

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Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
276.12	11,678	276.64	13,843	277.16	15,797
276.13	11,721	276.65	13,883	277.17	15,832
276.14	11,764	276.66	13,923	277.18	15,866
276.15	11,807	276.67	13,963	277.19	15,900
276.16	11,849	276.68	14,002	277.20	15,933
276.17	11,892	276.69	14,042	277.21	15,967
276.18	11,935	276.70	14,082	277.22	16,001
276.19	11,977	276.71	14,121	277.23	16,034
276.20	12,020	276.72	14,161	277.24	16,067
276.21	12,062	276.73	14,200	277.25	16,100
276.22	12,105	276.74	14,240	277.26	16,133
276.23	12,147	276.75	14,279	277.27	16,165
276.24	12,190	276.76	14,318	277.28	16,197
276.25	12,232	276.77	14,357	277.29	16,230
276.26	12,274	276.78	14,396	277.30	16,261
276.27	12,317	276.79	14,435	277.31	16,293
276.28	12,359	276.80	14,474	277.32	16,324
276.29	12,401	276.81	14,512	277.33	16,356
276.30	12,443	276.82	14,551	277.34	16,387
276.31	12,485	276.83	14,589	277.35	16,417
276.32	12,527	276.84	14,628	277.36	16,448
276.33	12,569	276.85	14,666	277.37	16,478
276.34	12,611	276.86	14,704	277.38	16,508
276.35	12,653	276.87	14,743	277.39	16,537
276.36	12,695	276.88	14,781	277.40	16,567
276.37	12,737	276.89	14,818	277.41	16,596
276.38	12,778	276.90	14,856	277.42	16,624
276.39	12,820	276.91	14,894	277.43	16,652
276.40	12,862	276.92	14,932	277.44	16,680
276.41	12,903	276.93	14,969	277.45	16,708
276.42	12,945	276.94	15,006	277.46	16,735
276.43	12,986	276.95	15,044	277.47	16,761
276.44	13,028	276.96	15,081	277.48	16,787
276.45	13,069	276.97	15,118	277.49	16,812
276.46	13,110	276.98	15,155	277.50	16,836
276.47	13,152	276.99	15,192	277.51	16,858
276.48	13,193	277.00	15,228	277.52	16,880
276.49	13,234	277.01	15,265	277.53	16,903
276.50	13,275	277.02	15,301	277.54	16,925
276.51	13,316	277.03	15,338	277.55	16,948
276.52	13,357	277.04	15,374	277.56	16,970
276.53	13,398	277.05	15,410	277.57	16,992
276.54	13,439	277.06	15,446	277.58	17,015
276.55	13,479	277.07	15,482	277.59	17,037
276.56	13,520	277.08	15,517	277.60	17,060
276.57	13,561	277.09	15,553	277.61	17,082
276.58	13,601	277.10	15,588	277.62	17,104
276.59	13,642	277.11	15,623	277.63	17,127
276.60	13,682	277.12	15,658	277.64	17,149
276.61	13,722	277.13	15,693	277.65	17,172
276.62	13,762	277.14	15,728	277.66	17,194
276.63	13,803	277.15	15,763	277.67	17,216

18017 Pre-post-ILSF*Type III 24-hr 1-YR NOAA Rainfall=2.62"*

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Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)
277.68	17,239
277.69	17,261
277.70	17,284
277.71	17,306
277.72	17,328
277.73	17,351
277.74	17,373
277.75	17,396
277.76	17,418
277.77	17,440
277.78	17,463
277.79	17,485
277.80	17,508
277.81	17,530
277.82	17,552
277.83	17,575
277.84	17,597
277.85	17,620
277.86	17,642
277.87	17,664
277.88	17,687
277.89	17,709
277.90	17,732
277.91	17,754
277.92	17,776
277.93	17,799
277.94	17,821
277.95	17,844
277.96	17,866
277.97	17,888
277.98	17,911
277.99	17,933
278.00	17,956

Summary for Pond Basin 2b outlet: Basin 2b outlet

[57] Hint: Peaked at 273.53' (Flood elevation advised)

Inflow Area = 4.459 ac, 52.30% Impervious, Inflow Depth > 0.55" for 1-YR NOAA event
 Inflow = 0.95 cfs @ 12.42 hrs, Volume= 0.203 af
 Outflow = 0.95 cfs @ 12.43 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.6 min
 Primary = 0.95 cfs @ 12.43 hrs, Volume= 0.203 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 273.53' @ 12.44 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.90'	12.0" Round Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.90' / 272.70' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.95 cfs @ 12.43 hrs HW=273.53' TW=273.26' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 0.95 cfs @ 2.58 fps)

18017 Pre-post-ILSF

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Stage-Area-Storage for Pond Basin 2b outlet: Basin 2b outlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0	273.74	0
273.23	0	273.75	0
273.24	0	273.76	0
273.25	0	273.77	0
273.26	0	273.78	0
273.27	0	273.79	0
273.28	0	273.80	0
273.29	0	273.81	0
273.30	0	273.82	0
273.31	0	273.83	0
273.32	0	273.84	0
273.33	0	273.85	0
273.34	0	273.86	0
273.35	0	273.87	0
273.36	0	273.88	0
273.37	0	273.89	0
273.38	0	273.90	0
273.39	0		
273.40	0		
273.41	0		

Summary for Pond PDMH 9: PDMH 9

[57] Hint: Peaked at 276.10' (Flood elevation advised)

Inflow Area = 1.313 ac, 78.67% Impervious, Inflow Depth = 0.00" for 1-YR NOAA event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 276.10' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	276.10'	12.0" Round Culvert L= 86.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 276.10' / 273.80' S= 0.0267 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=276.10' TW=273.00' (Dynamic Tailwater)

↑1=Culvert (Controls 0.00 cfs)

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Stage-Area-Storage for Pond PDMH 9: PDMH 9

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
276.10	0	276.62	0
276.11	0	276.63	0
276.12	0	276.64	0
276.13	0	276.65	0
276.14	0	276.66	0
276.15	0	276.67	0
276.16	0	276.68	0
276.17	0	276.69	0
276.18	0	276.70	0
276.19	0	276.71	0
276.20	0	276.72	0
276.21	0	276.73	0
276.22	0	276.74	0
276.23	0	276.75	0
276.24	0	276.76	0
276.25	0	276.77	0
276.26	0	276.78	0
276.27	0	276.79	0
276.28	0	276.80	0
276.29	0	276.81	0
276.30	0	276.82	0
276.31	0	276.83	0
276.32	0	276.84	0
276.33	0	276.85	0
276.34	0	276.86	0
276.35	0	276.87	0
276.36	0	276.88	0
276.37	0	276.89	0
276.38	0	276.90	0
276.39	0	276.91	0
276.40	0	276.92	0
276.41	0	276.93	0
276.42	0	276.94	0
276.43	0	276.95	0
276.44	0	276.96	0
276.45	0	276.97	0
276.46	0	276.98	0
276.47	0	276.99	0
276.48	0	277.00	0
276.49	0	277.01	0
276.50	0	277.02	0
276.51	0	277.03	0
276.52	0	277.04	0
276.53	0	277.05	0
276.54	0	277.06	0
276.55	0	277.07	0
276.56	0	277.08	0
276.57	0	277.09	0
276.58	0	277.10	0
276.59	0		
276.60	0		
276.61	0		

Summary for Pond Pond 1B: Pond 1B

Inflow Area = 0.756 ac, 26.34% Impervious, Inflow Depth = 1.13" for 1-YR NOAA event
 Inflow = 0.89 cfs @ 12.09 hrs, Volume= 0.071 af
 Outflow = 0.37 cfs @ 12.35 hrs, Volume= 0.045 af, Atten= 59%, Lag= 15.8 min
 Primary = 0.37 cfs @ 12.35 hrs, Volume= 0.045 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 278.16' @ 12.35 hrs Surf.Area= 2,929 sf Storage= 1,330 cf

Plug-Flow detention time= 221.5 min calculated for 0.045 af (63% of inflow)
 Center-of-Mass det. time= 105.0 min (916.7 - 811.6)

Volume	Invert	Avail.Storage	Storage Description
#1	277.00'	2,558 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.00	71	0	0
277.50	672	186	186
278.00	2,215	722	908
278.50	4,385	1,650	2,558

Device	Routing	Invert	Outlet Devices
#1	Primary	278.10'	8.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.37 cfs @ 12.35 hrs HW=278.16' TW=276.75' (Dynamic Tailwater)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.37 cfs @ 0.71 fps)

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Stage-Area-Storage for Pond Pond 1B: Pond 1B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.00	71	0	277.52	734	200
277.01	83	1	277.53	765	207
277.02	95	2	277.54	795	215
277.03	107	3	277.55	826	223
277.04	119	4	277.56	857	232
277.05	131	5	277.57	888	240
277.06	143	6	277.58	919	249
277.07	155	8	277.59	950	259
277.08	167	10	277.60	981	268
277.09	179	11	277.61	1,011	278
277.10	191	13	277.62	1,042	289
277.11	203	15	277.63	1,073	299
277.12	215	17	277.64	1,104	310
277.13	227	19	277.65	1,135	321
277.14	239	22	277.66	1,166	333
277.15	251	24	277.67	1,197	345
277.16	263	27	277.68	1,227	357
277.17	275	29	277.69	1,258	369
277.18	287	32	277.70	1,289	382
277.19	299	35	277.71	1,320	395
277.20	311	38	277.72	1,351	408
277.21	323	41	277.73	1,382	422
277.22	335	45	277.74	1,413	436
277.23	347	48	277.75	1,444	450
277.24	359	52	277.76	1,474	465
277.25	372	55	277.77	1,505	480
277.26	384	59	277.78	1,536	495
277.27	396	63	277.79	1,567	510
277.28	408	67	277.80	1,598	526
277.29	420	71	277.81	1,629	542
277.30	432	75	277.82	1,660	559
277.31	444	80	277.83	1,690	576
277.32	456	84	277.84	1,721	593
277.33	468	89	277.85	1,752	610
277.34	480	94	277.86	1,783	628
277.35	492	98	277.87	1,814	646
277.36	504	103	277.88	1,845	664
277.37	516	109	277.89	1,876	683
277.38	528	114	277.90	1,906	701
277.39	540	119	277.91	1,937	721
277.40	552	125	277.92	1,968	740
277.41	564	130	277.93	1,999	760
277.42	576	136	277.94	2,030	780
277.43	588	142	277.95	2,061	801
277.44	600	148	277.96	2,092	821
277.45	612	154	277.97	2,122	842
277.46	624	160	277.98	2,153	864
277.47	636	166	277.99	2,184	886
277.48	648	173	278.00	2,215	908
277.49	660	179	278.01	2,258	930
277.50	672	186	278.02	2,302	953
277.51	703	193	278.03	2,345	976

Stage-Area-Storage for Pond Pond 1B: Pond 1B (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
278.04	2,389	1,000
278.05	2,432	1,024
278.06	2,475	1,048
278.07	2,519	1,073
278.08	2,562	1,099
278.09	2,606	1,124
278.10	2,649	1,151
278.11	2,692	1,177
278.12	2,736	1,205
278.13	2,779	1,232
278.14	2,823	1,260
278.15	2,866	1,289
278.16	2,909	1,317
278.17	2,953	1,347
278.18	2,996	1,377
278.19	3,040	1,407
278.20	3,083	1,437
278.21	3,126	1,468
278.22	3,170	1,500
278.23	3,213	1,532
278.24	3,257	1,564
278.25	3,300	1,597
278.26	3,343	1,630
278.27	3,387	1,664
278.28	3,430	1,698
278.29	3,474	1,732
278.30	3,517	1,767
278.31	3,560	1,803
278.32	3,604	1,839
278.33	3,647	1,875
278.34	3,691	1,911
278.35	3,734	1,949
278.36	3,777	1,986
278.37	3,821	2,024
278.38	3,864	2,063
278.39	3,908	2,101
278.40	3,951	2,141
278.41	3,994	2,180
278.42	4,038	2,221
278.43	4,081	2,261
278.44	4,125	2,302
278.45	4,168	2,344
278.46	4,211	2,386
278.47	4,255	2,428
278.48	4,298	2,471
278.49	4,342	2,514
278.50	4,385	2,558

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Summary for Pond Pre Pond 1A: Pre Pond 1A

Inflow Area = 3.871 ac, 25.93% Impervious, Inflow Depth = 1.01" for 1-YR NOAA event
 Inflow = 3.24 cfs @ 12.12 hrs, Volume= 0.327 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 277.15' @ 48.00 hrs Surf.Area= 26,700 sf Storage= 14,251 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	276.00'	47,715 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
276.00	4,053	0	0
276.50	8,187	3,060	3,060
277.00	22,091	7,570	10,630
277.50	37,615	14,927	25,556
278.00	51,019	22,159	47,715

Device	Routing	Invert	Outlet Devices
#1	Primary	277.50'	30.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=276.00' TW=0.00' (Dynamic Tailwater)
 ↑1=**Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

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Stage-Area-Storage for Pond Pre Pond 1A: Pre Pond 1A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
276.00	4,053	0	276.52	8,743	3,229
276.01	4,136	41	276.53	9,021	3,318
276.02	4,218	83	276.54	9,299	3,410
276.03	4,301	125	276.55	9,577	3,504
276.04	4,384	169	276.56	9,855	3,601
276.05	4,466	213	276.57	10,134	3,701
276.06	4,549	258	276.58	10,412	3,804
276.07	4,632	304	276.59	10,690	3,909
276.08	4,714	351	276.60	10,968	4,018
276.09	4,797	398	276.61	11,246	4,129
276.10	4,880	447	276.62	11,524	4,243
276.11	4,962	496	276.63	11,802	4,359
276.12	5,045	546	276.64	12,080	4,479
276.13	5,128	597	276.65	12,358	4,601
276.14	5,211	648	276.66	12,636	4,726
276.15	5,293	701	276.67	12,914	4,854
276.16	5,376	754	276.68	13,192	4,984
276.17	5,459	808	276.69	13,471	5,117
276.18	5,541	863	276.70	13,749	5,254
276.19	5,624	919	276.71	14,027	5,392
276.20	5,707	976	276.72	14,305	5,534
276.21	5,789	1,033	276.73	14,583	5,679
276.22	5,872	1,092	276.74	14,861	5,826
276.23	5,955	1,151	276.75	15,139	5,976
276.24	6,037	1,211	276.76	15,417	6,129
276.25	6,120	1,272	276.77	15,695	6,284
276.26	6,203	1,333	276.78	15,973	6,442
276.27	6,285	1,396	276.79	16,251	6,604
276.28	6,368	1,459	276.80	16,529	6,767
276.29	6,451	1,523	276.81	16,807	6,934
276.30	6,533	1,588	276.82	17,086	7,104
276.31	6,616	1,654	276.83	17,364	7,276
276.32	6,699	1,720	276.84	17,642	7,451
276.33	6,781	1,788	276.85	17,920	7,629
276.34	6,864	1,856	276.86	18,198	7,809
276.35	6,947	1,925	276.87	18,476	7,993
276.36	7,029	1,995	276.88	18,754	8,179
276.37	7,112	2,066	276.89	19,032	8,368
276.38	7,195	2,137	276.90	19,310	8,559
276.39	7,278	2,209	276.91	19,588	8,754
276.40	7,360	2,283	276.92	19,866	8,951
276.41	7,443	2,357	276.93	20,144	9,151
276.42	7,526	2,431	276.94	20,423	9,354
276.43	7,608	2,507	276.95	20,701	9,560
276.44	7,691	2,584	276.96	20,979	9,768
276.45	7,774	2,661	276.97	21,257	9,979
276.46	7,856	2,739	276.98	21,535	10,193
276.47	7,939	2,818	276.99	21,813	10,410
276.48	8,022	2,898	277.00	22,091	10,630
276.49	8,104	2,979	277.01	22,401	10,852
276.50	8,187	3,060	277.02	22,712	11,078
276.51	8,465	3,143	277.03	23,022	11,306

18017 Pre-post-ILSF

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Stage-Area-Storage for Pond Pre Pond 1A: Pre Pond 1A (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.04	23,333	11,538	277.56	39,223	27,861
277.05	23,643	11,773	277.57	39,492	28,255
277.06	23,954	12,011	277.58	39,760	28,651
277.07	24,264	12,252	277.59	40,028	29,050
277.08	24,575	12,496	277.60	40,296	29,452
277.09	24,885	12,743	277.61	40,564	29,856
277.10	25,196	12,994	277.62	40,832	30,263
277.11	25,506	13,247	277.63	41,100	30,672
277.12	25,817	13,504	277.64	41,368	31,085
277.13	26,127	13,764	277.65	41,636	31,500
277.14	26,438	14,027	277.66	41,904	31,918
277.15	26,748	14,292	277.67	42,172	32,338
277.16	27,059	14,561	277.68	42,440	32,761
277.17	27,369	14,834	277.69	42,709	33,187
277.18	27,680	15,109	277.70	42,977	33,615
277.19	27,990	15,387	277.71	43,245	34,046
277.20	28,301	15,669	277.72	43,513	34,480
277.21	28,611	15,953	277.73	43,781	34,917
277.22	28,922	16,241	277.74	44,049	35,356
277.23	29,232	16,532	277.75	44,317	35,798
277.24	29,543	16,826	277.76	44,585	36,242
277.25	29,853	17,123	277.77	44,853	36,689
277.26	30,163	17,423	277.78	45,121	37,139
277.27	30,474	17,726	277.79	45,389	37,592
277.28	30,784	18,032	277.80	45,657	38,047
277.29	31,095	18,341	277.81	45,925	38,505
277.30	31,405	18,654	277.82	46,194	38,965
277.31	31,716	18,970	277.83	46,462	39,429
277.32	32,026	19,288	277.84	46,730	39,895
277.33	32,337	19,610	277.85	46,998	40,363
277.34	32,647	19,935	277.86	47,266	40,835
277.35	32,958	20,263	277.87	47,534	41,309
277.36	33,268	20,594	277.88	47,802	41,785
277.37	33,579	20,928	277.89	48,070	42,265
277.38	33,889	21,266	277.90	48,338	42,747
277.39	34,200	21,606	277.91	48,606	43,231
277.40	34,510	21,950	277.92	48,874	43,719
277.41	34,821	22,296	277.93	49,142	44,209
277.42	35,131	22,646	277.94	49,411	44,702
277.43	35,442	22,999	277.95	49,679	45,197
277.44	35,752	23,355	277.96	49,947	45,695
277.45	36,063	23,714	277.97	50,215	46,196
277.46	36,373	24,076	277.98	50,483	46,699
277.47	36,684	24,442	277.99	50,751	47,206
277.48	36,994	24,810	278.00	51,019	47,715
277.49	37,305	25,181			
277.50	37,615	25,556			
277.51	37,883	25,933			
277.52	38,151	26,314			
277.53	38,419	26,697			
277.54	38,687	27,082			
277.55	38,955	27,470			

Summary for Pond Proposed Pond 1A: Pond 1A

Inflow Area = 1.754 ac, 24.24% Impervious, Inflow Depth = 1.09" for 1-YR NOAA event
 Inflow = 1.96 cfs @ 12.10 hrs, Volume= 0.160 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 276.60' @ 24.41 hrs Surf.Area= 13,427 sf Storage= 6,954 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	276.00'	32,320 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
276.00	9,903	0	0
276.50	12,805	5,677	5,677
277.00	15,998	7,201	12,878
277.50	19,310	8,827	21,705
278.00	23,151	10,615	32,320

Device	Routing	Invert	Outlet Devices
#1	Primary	277.50'	2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=276.00' TW=273.00' (Dynamic Tailwater)

↑ **1=Orifice/Grate** (Controls 0.00 cfs)

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Stage-Area-Storage for Pond Proposed Pond 1A: Pond 1A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
276.00	9,903	0	276.52	12,933	5,934
276.01	9,961	99	276.53	12,997	6,064
276.02	10,019	199	276.54	13,060	6,194
276.03	10,077	300	276.55	13,124	6,325
276.04	10,135	401	276.56	13,188	6,457
276.05	10,193	502	276.57	13,252	6,589
276.06	10,251	605	276.58	13,316	6,722
276.07	10,309	707	276.59	13,380	6,855
276.08	10,367	811	276.60	13,444	6,989
276.09	10,425	915	276.61	13,507	7,124
276.10	10,483	1,019	276.62	13,571	7,260
276.11	10,541	1,124	276.63	13,635	7,396
276.12	10,599	1,230	276.64	13,699	7,532
276.13	10,658	1,336	276.65	13,763	7,670
276.14	10,716	1,443	276.66	13,827	7,808
276.15	10,774	1,551	276.67	13,891	7,946
276.16	10,832	1,659	276.68	13,954	8,085
276.17	10,890	1,767	276.69	14,018	8,225
276.18	10,948	1,877	276.70	14,082	8,366
276.19	11,006	1,986	276.71	14,146	8,507
276.20	11,064	2,097	276.72	14,210	8,649
276.21	11,122	2,208	276.73	14,274	8,791
276.22	11,180	2,319	276.74	14,338	8,934
276.23	11,238	2,431	276.75	14,402	9,078
276.24	11,296	2,544	276.76	14,465	9,222
276.25	11,354	2,657	276.77	14,529	9,367
276.26	11,412	2,771	276.78	14,593	9,513
276.27	11,470	2,885	276.79	14,657	9,659
276.28	11,528	3,000	276.80	14,721	9,806
276.29	11,586	3,116	276.81	14,785	9,953
276.30	11,644	3,232	276.82	14,849	10,102
276.31	11,702	3,349	276.83	14,912	10,250
276.32	11,760	3,466	276.84	14,976	10,400
276.33	11,818	3,584	276.85	15,040	10,550
276.34	11,876	3,702	276.86	15,104	10,701
276.35	11,934	3,822	276.87	15,168	10,852
276.36	11,992	3,941	276.88	15,232	11,004
276.37	12,050	4,061	276.89	15,296	11,157
276.38	12,109	4,182	276.90	15,359	11,310
276.39	12,167	4,304	276.91	15,423	11,464
276.40	12,225	4,426	276.92	15,487	11,618
276.41	12,283	4,548	276.93	15,551	11,774
276.42	12,341	4,671	276.94	15,615	11,929
276.43	12,399	4,795	276.95	15,679	12,086
276.44	12,457	4,919	276.96	15,743	12,243
276.45	12,515	5,044	276.97	15,806	12,401
276.46	12,573	5,169	276.98	15,870	12,559
276.47	12,631	5,295	276.99	15,934	12,718
276.48	12,689	5,422	277.00	15,998	12,878
276.49	12,747	5,549	277.01	16,064	13,038
276.50	12,805	5,677	277.02	16,130	13,199
276.51	12,869	5,805	277.03	16,197	13,361

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Stage-Area-Storage for Pond Proposed Pond 1A: Pond 1A (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.04	16,263	13,523	277.56	19,771	22,877
277.05	16,329	13,686	277.57	19,848	23,075
277.06	16,395	13,850	277.58	19,925	23,274
277.07	16,462	14,014	277.59	20,001	23,474
277.08	16,528	14,179	277.60	20,078	23,674
277.09	16,594	14,344	277.61	20,155	23,875
277.10	16,660	14,511	277.62	20,232	24,077
277.11	16,727	14,678	277.63	20,309	24,280
277.12	16,793	14,845	277.64	20,385	24,483
277.13	16,859	15,013	277.65	20,462	24,688
277.14	16,925	15,182	277.66	20,539	24,893
277.15	16,992	15,352	277.67	20,616	25,098
277.16	17,058	15,522	277.68	20,693	25,305
277.17	17,124	15,693	277.69	20,770	25,512
277.18	17,190	15,865	277.70	20,846	25,720
277.19	17,257	16,037	277.71	20,923	25,929
277.20	17,323	16,210	277.72	21,000	26,139
277.21	17,389	16,383	277.73	21,077	26,349
277.22	17,455	16,558	277.74	21,154	26,560
277.23	17,522	16,732	277.75	21,231	26,772
277.24	17,588	16,908	277.76	21,307	26,985
277.25	17,654	17,084	277.77	21,384	27,198
277.26	17,720	17,261	277.78	21,461	27,413
277.27	17,786	17,439	277.79	21,538	27,628
277.28	17,853	17,617	277.80	21,615	27,843
277.29	17,919	17,796	277.81	21,691	28,060
277.30	17,985	17,975	277.82	21,768	28,277
277.31	18,051	18,155	277.83	21,845	28,495
277.32	18,118	18,336	277.84	21,922	28,714
277.33	18,184	18,518	277.85	21,999	28,934
277.34	18,250	18,700	277.86	22,076	29,154
277.35	18,316	18,883	277.87	22,152	29,375
277.36	18,383	19,066	277.88	22,229	29,597
277.37	18,449	19,250	277.89	22,306	29,820
277.38	18,515	19,435	277.90	22,383	30,043
277.39	18,581	19,621	277.91	22,460	30,268
277.40	18,648	19,807	277.92	22,536	30,493
277.41	18,714	19,994	277.93	22,613	30,718
277.42	18,780	20,181	277.94	22,690	30,945
277.43	18,846	20,369	277.95	22,767	31,172
277.44	18,913	20,558	277.96	22,844	31,400
277.45	18,979	20,748	277.97	22,921	31,629
277.46	19,045	20,938	277.98	22,997	31,859
277.47	19,111	21,128	277.99	23,074	32,089
277.48	19,178	21,320	278.00	23,151	32,320
277.49	19,244	21,512			
277.50	19,310	21,705			
277.51	19,387	21,898			
277.52	19,464	22,092			
277.53	19,540	22,288			
277.54	19,617	22,483			
277.55	19,694	22,680			

Summary for Pond WQU 2: WQU 2

[57] Hint: Peaked at 278.94' (Flood elevation advised)

Inflow Area = 0.776 ac, 83.79% Impervious, Inflow Depth = 2.11" for 1-YR NOAA event
 Inflow = 1.73 cfs @ 12.08 hrs, Volume= 0.137 af
 Outflow = 1.73 cfs @ 12.09 hrs, Volume= 0.137 af, Atten= 0%, Lag= 0.6 min
 Primary = 1.73 cfs @ 12.09 hrs, Volume= 0.137 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 278.94' @ 24.34 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	277.70'	18.0" Round Culvert L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 277.70' / 277.60' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.71 cfs @ 12.09 hrs HW=278.41' TW=278.14' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 1.71 cfs @ 3.02 fps)

18017 Pre-post-ILSF

Type III 24-hr 1-YR NOAA Rainfall=2.62"

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Stage-Area-Storage for Pond WQU 2: WQU 2

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
277.70	0	278.22	0	278.74	0
277.71	0	278.23	0	278.75	0
277.72	0	278.24	0	278.76	0
277.73	0	278.25	0	278.77	0
277.74	0	278.26	0	278.78	0
277.75	0	278.27	0	278.79	0
277.76	0	278.28	0	278.80	0
277.77	0	278.29	0	278.81	0
277.78	0	278.30	0	278.82	0
277.79	0	278.31	0	278.83	0
277.80	0	278.32	0	278.84	0
277.81	0	278.33	0	278.85	0
277.82	0	278.34	0	278.86	0
277.83	0	278.35	0	278.87	0
277.84	0	278.36	0	278.88	0
277.85	0	278.37	0	278.89	0
277.86	0	278.38	0	278.90	0
277.87	0	278.39	0	278.91	0
277.88	0	278.40	0	278.92	0
277.89	0	278.41	0	278.93	0
277.90	0	278.42	0	278.94	0
277.91	0	278.43	0	278.95	0
277.92	0	278.44	0	278.96	0
277.93	0	278.45	0	278.97	0
277.94	0	278.46	0	278.98	0
277.95	0	278.47	0	278.99	0
277.96	0	278.48	0	279.00	0
277.97	0	278.49	0	279.01	0
277.98	0	278.50	0	279.02	0
277.99	0	278.51	0	279.03	0
278.00	0	278.52	0	279.04	0
278.01	0	278.53	0	279.05	0
278.02	0	278.54	0	279.06	0
278.03	0	278.55	0	279.07	0
278.04	0	278.56	0	279.08	0
278.05	0	278.57	0	279.09	0
278.06	0	278.58	0	279.10	0
278.07	0	278.59	0	279.11	0
278.08	0	278.60	0	279.12	0
278.09	0	278.61	0	279.13	0
278.10	0	278.62	0	279.14	0
278.11	0	278.63	0	279.15	0
278.12	0	278.64	0	279.16	0
278.13	0	278.65	0	279.17	0
278.14	0	278.66	0	279.18	0
278.15	0	278.67	0	279.19	0
278.16	0	278.68	0	279.20	0
278.17	0	278.69	0		
278.18	0	278.70	0		
278.19	0	278.71	0		
278.20	0	278.72	0		
278.21	0	278.73	0		

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Sim-Route method - Pond routing by Sim-Route method

SubcatchmentPost 1A: Post 1A Runoff Area=24,895 sf 51.44% Impervious Runoff Depth=5.44"
Flow Length=41' Slope=0.0350 '/' Tc=6.0 min CN=WQ Runoff=3.33 cfs 0.259 af

SubcatchmentPost 1B: Post 1B Runoff Area=33,788 sf 83.79% Impervious Runoff Depth=6.32"
Flow Length=210' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=5.06 cfs 0.409 af

SubcatchmentPost 1C: Post 1C Runoff Area=23,406 sf 71.27% Impervious Runoff Depth=5.98"
Flow Length=128' Slope=0.0125 '/' Tc=6.0 min CN=WQ Runoff=3.36 cfs 0.268 af

SubcatchmentPost 2A: Post 2A Runoff Area=21,838 sf 89.18% Impervious Runoff Depth=6.47"
Flow Length=207' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=3.33 cfs 0.270 af

SubcatchmentPost 2B: Post 2B Runoff Area=60,622 sf 62.79% Impervious Runoff Depth=5.75"
Flow Length=479' Slope=0.0150 '/' Tc=10.5 min CN=WQ Runoff=7.30 cfs 0.667 af

SubcatchmentPost 3: Post 3 Runoff Area=2,294 sf 0.00% Impervious Runoff Depth=4.04"
Flow Length=20' Slope=0.2500 '/' Tc=6.0 min CN=WQ Runoff=0.25 cfs 0.018 af

SubcatchmentPost 4: Post 4 Runoff Area=51,513 sf 11.10% Impervious Runoff Depth=4.34"
Flow Length=340' Slope=0.0450 '/' Tc=6.9 min CN=WQ Runoff=5.70 cfs 0.428 af

SubcatchmentPre 1A: Pre 1A Runoff Area=84,149 sf 34.86% Impervious Runoff Depth=4.86"
Flow Length=465' Slope=0.0360 '/' Tc=8.8 min CN=WQ Runoff=9.36 cfs 0.782 af

SubcatchmentPre 1B: Pre 1B Runoff Area=32,952 sf 26.34% Impervious Runoff Depth=4.76"
Flow Length=155' Slope=0.0300 '/' Tc=6.0 min CN=WQ Runoff=4.01 cfs 0.300 af

SubcatchmentPre 2A: Pre 2A Runoff Area=43,695 sf 58.46% Impervious Runoff Depth=5.62"
Flow Length=173' Slope=0.0150 '/' Tc=6.0 min CN=WQ Runoff=5.99 cfs 0.470 af

SubcatchmentPre 2B: Pre 2B Runoff Area=2,798 sf 100.00% Impervious Runoff Depth=6.76"
Flow Length=37' Slope=0.0100 '/' Tc=6.0 min CN=WQ Runoff=0.44 cfs 0.036 af

SubcatchmentPre 3: Pre 3 Runoff Area=3,249 sf 51.92% Impervious Runoff Depth=5.45"
Flow Length=44' Slope=0.0450 '/' Tc=6.0 min CN=WQ Runoff=0.44 cfs 0.034 af

SubcatchmentPre 4: Pre 4 Runoff Area=51,513 sf 11.10% Impervious Runoff Depth=4.34"
Flow Length=340' Slope=0.0450 '/' Tc=6.9 min CN=WQ Runoff=5.70 cfs 0.428 af

Reach Great Road: Great Road Inflow=7.47 cfs 1.403 af
Outflow=7.47 cfs 1.403 af

Reach Post: Post Inflow=4.93 cfs 1.559 af
Outflow=4.93 cfs 1.559 af

Reach Post Great Road: Post Great Road Inflow=4.68 cfs 1.541 af
Outflow=4.68 cfs 1.541 af

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Reach Post Robinson Road: Post Robinson RoadInflow=0.25 cfs 0.018 af
Outflow=0.25 cfs 0.018 af**Reach Pre: Pre**Inflow=7.59 cfs 1.437 af
Outflow=7.59 cfs 1.437 af**Reach Robinson Road: Robinson Road**Inflow=0.44 cfs 0.034 af
Outflow=0.44 cfs 0.034 af**Pond 13P: 12" RCP to Street**Peak Elev=273.81' Inflow=2.76 cfs 1.271 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=2.76 cfs 1.271 af**Pond 14P: 12" RCP to Street**Peak Elev=273.08' Inflow=0.44 cfs 0.036 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=0.44 cfs 0.036 af**Pond Basin 1B: Basin 1B**Peak Elev=279.52' Storage=7,964 cf Inflow=6.24 cfs 0.576 af
Outflow=5.97 cfs 0.416 af**Pond Basin 1C: Basin 1C**Peak Elev=279.77' Storage=5,411 cf Inflow=3.36 cfs 0.268 af
12.0" Round Culvert n=0.012 L=35.0' S=0.0000 '/' Outflow=1.97 cfs 0.168 af**Pond Basin 2B: Basin 2B**Peak Elev=277.02' Storage=15,319 cf Inflow=13.23 cfs 1.272 af
Primary=2.76 cfs 1.271 af Secondary=0.00 cfs 0.000 af Outflow=2.76 cfs 1.271 af**Pond Basin 2b outlet: Basin 2b outlet**Peak Elev=274.34' Inflow=2.76 cfs 1.271 af
12.0" Round Culvert n=0.012 L=40.0' S=0.0050 '/' Outflow=2.76 cfs 1.271 af**Pond PDMH 9: PDMH 9**Peak Elev=279.09' Inflow=5.97 cfs 0.416 af
12.0" Round Culvert n=0.012 L=86.0' S=0.0267 '/' Outflow=5.97 cfs 0.416 af**Pond Pond 1B: Pond 1B**Peak Elev=278.39' Storage=2,097 cf Inflow=4.01 cfs 0.300 af
Outflow=3.54 cfs 0.274 af**Pond Pre Pond 1A: Pre Pond 1A**Peak Elev=277.67' Storage=32,260 cf Inflow=18.41 cfs 1.484 af
Outflow=5.79 cfs 0.897 af**Pond Proposed Pond 1A: Pond 1A**Peak Elev=277.53' Storage=22,345 cf Inflow=9.01 cfs 0.687 af
Outflow=0.47 cfs 0.189 af**Pond WQU 2: WQU 2**Peak Elev=279.83' Inflow=5.06 cfs 0.409 af
18.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=5.06 cfs 0.409 af

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Summary for Subcatchment Post 1A: Post 1A

Runoff = 3.33 cfs @ 12.09 hrs, Volume= 0.259 af, Depth= 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
12,805	98	Water Surface, HSG C
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
12,090	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
24,895		Weighted Average
12,090	74	48.56% Pervious Area
12,805	98	51.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	41	0.0350	0.63		Lag/CN Method, Post 1A
1.1	41	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Post 1B: Post 1B

Runoff = 5.06 cfs @ 12.08 hrs, Volume= 0.409 af, Depth= 6.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
3,457	98	Roofs, HSG C
24,854	98	Paved parking, HSG C
5,477	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
33,788		Weighted Average
5,477	74	16.21% Pervious Area
28,311	98	83.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	210	0.0150	0.80		Lag/CN Method, Post 1B
4.4	210	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Post 1C: Post 1C

Runoff = 3.36 cfs @ 12.08 hrs, Volume= 0.268 af, Depth= 5.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
6,958	98	Roofs, HSG C
9,724	98	Paved parking, HSG C
6,724	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
23,406		Weighted Average
6,724	74	28.73% Pervious Area
16,682	98	71.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	128	0.0125	0.58		Lag/CN Method, Post 1C
3.7	128	Total, Increased to minimum Tc = 6.0 min			

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Summary for Subcatchment Post 2A: Post 2A

Runoff = 3.33 cfs @ 12.08 hrs, Volume= 0.270 af, Depth= 6.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr ILSF Limit Rainfall=7.00"

	Area (sf)	CN	Description
	4,331	98	Roofs, HSG C
	15,145	98	Paved parking, HSG C
*	295	74	Pervious Pavers, HSG C
	2,067	74	>75% Grass cover, Good, HSG C
	0	70	Woods, Good, HSG C
	21,838		Weighted Average
	2,362	74	10.82% Pervious Area
	19,476	98	89.18% Impervious Area

	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	4.1	207	0.0150	0.84		Lag/CN Method, Post 2A
	4.1	207	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Post 2B: Post 2B

Runoff = 7.30 cfs @ 12.14 hrs, Volume= 0.667 af, Depth= 5.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
12,010	98	Roofs, HSG C
26,052	98	Paved parking, HSG C
* 5,546	74	Pervious Pavers, HSG C
17,014	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
60,622		Weighted Average
22,560	74	37.21% Pervious Area
38,062	98	62.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	479	0.0150	0.76		Lag/CN Method, Post 2B

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Summary for Subcatchment Post 3: Post 3

Runoff = 0.25 cfs @ 12.09 hrs, Volume= 0.018 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
0	98	Roofs, HSG C
0	98	Paved parking, HSG C
2,294	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
2,294		Weighted Average
2,294	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.2500	1.00		Lag/CN Method, Post 3
0.3	20	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Post 4: Post 4

Runoff = 5.70 cfs @ 12.10 hrs, Volume= 0.428 af, Depth= 4.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
2,572	98	Roofs, HSG C
3,144	98	Paved parking, HSG C
45,797	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
51,513		Weighted Average
45,797	74	88.90% Pervious Area
5,716	98	11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	340	0.0450	0.82		Lag/CN Method, Pre 4

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Summary for Subcatchment Pre 1A: Pre 1A

Runoff = 9.36 cfs @ 12.12 hrs, Volume= 0.782 af, Depth= 4.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
8,187	98	Water Surface, HSG C
2,349	98	Roofs, HSG C
18,796	98	Paved parking, HSG C
29,044	74	>75% Grass cover, Good, HSG C
25,773	70	Woods, Good, HSG C
84,149		Weighted Average
54,817	72	65.14% Pervious Area
29,332	98	34.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	465	0.0360	0.88		Lag/CN Method, Pre 1A

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Summary for Subcatchment Pre 1B: Pre 1B

Runoff = 4.01 cfs @ 12.09 hrs, Volume= 0.300 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
672	98	Water Surface, HSG C
2,684	98	Roofs, HSG C
5,324	98	Paved parking, HSG C
24,272	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
32,952		Weighted Average
24,272	74	73.66% Pervious Area
8,680	98	26.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	155	0.0300	0.63		Lag/CN Method, Pre 1B
4.1	155	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Pre 2A: Pre 2A

Runoff = 5.99 cfs @ 12.08 hrs, Volume= 0.470 af, Depth= 5.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
3,784	98	Roofs, HSG C
21,760	98	Paved parking, HSG C
17,314	74	>75% Grass cover, Good, HSG C
837	70	Woods, Good, HSG C
43,695		Weighted Average
18,151	74	41.54% Pervious Area
25,544	98	58.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	173	0.0150	0.60		Lag/CN Method, Pre 2
4.8	173	Total, Increased to minimum Tc = 6.0 min			

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Summary for Subcatchment Pre 2B: Pre 2B

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
2,798	98	Roofs, HSG C
0	98	Paved parking, HSG C
0	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
2,798		Weighted Average
2,798	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	37	0.0100	0.57		Lag/CN Method, Pre 2B
1.1	37	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Pre 3: Pre 3

Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.034 af, Depth= 5.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
901	98	Roofs, HSG C
786	98	Paved parking, HSG C
1,562	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
3,249		Weighted Average
1,562	74	48.08% Pervious Area
1,687	98	51.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	44	0.0450	0.73		Lag/CN Method, Pre 3
1.0	44	Total, Increased to minimum Tc = 6.0 min			

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Summary for Subcatchment Pre 4: Pre 4

Runoff = 5.70 cfs @ 12.10 hrs, Volume= 0.428 af, Depth= 4.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr ILSF Limit Rainfall=7.00"

Area (sf)	CN	Description
2,572	98	Roofs, HSG C
3,144	98	Paved parking, HSG C
45,797	74	>75% Grass cover, Good, HSG C
0	70	Woods, Good, HSG C
51,513		Weighted Average
45,797	74	88.90% Pervious Area
5,716	98	11.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	340	0.0450	0.82		Lag/CN Method, Pre 4

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Summary for Reach Great Road: Great Road

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

Inflow Area = 4.938 ac, 33.50% Impervious, Inflow Depth = 3.41" for ILSF Limit event

Inflow = 7.47 cfs @ 12.42 hrs, Volume= 1.403 af

Outflow = 7.47 cfs @ 12.43 hrs, Volume= 1.403 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

18017 Pre-post-ILSF

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Summary for Reach Post: Post

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

Inflow Area = 5.013 ac, 55.44% Impervious, Inflow Depth = 3.73" for ILSF Limit event

Inflow = 4.93 cfs @ 12.10 hrs, Volume= 1.559 af

Outflow = 4.93 cfs @ 12.11 hrs, Volume= 1.559 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

18017 Pre-post-ILSF

Type III 24-hr ILSF Limit Rainfall=7.00"

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Summary for Reach Post Great Road: Post Great Road

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

Inflow Area = 4.960 ac, 56.03% Impervious, Inflow Depth = 3.73" for ILSF Limit event

Inflow = 4.68 cfs @ 12.09 hrs, Volume= 1.541 af

Outflow = 4.68 cfs @ 12.10 hrs, Volume= 1.541 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

18017 Pre-post-ILSF

Type III 24-hr ILSF Limit Rainfall=7.00"

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Summary for Reach Post Robinson Road: Post Robinson Road

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

Inflow Area = 0.053 ac, 0.00% Impervious, Inflow Depth = 4.04" for ILSF Limit event

Inflow = 0.25 cfs @ 12.09 hrs, Volume= 0.018 af

Outflow = 0.25 cfs @ 12.10 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

18017 Pre-post-ILSF

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Summary for Reach Pre: Pre

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

Inflow Area = 5.013 ac, 33.78% Impervious, Inflow Depth = 3.44" for ILSF Limit event

Inflow = 7.59 cfs @ 12.43 hrs, Volume= 1.437 af

Outflow = 7.59 cfs @ 12.44 hrs, Volume= 1.437 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

18017 Pre-post-ILSF

Type III 24-hr ILSF Limit Rainfall=7.00"

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Summary for Reach Robinson Road: Robinson Road

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

Inflow Area = 0.075 ac, 51.92% Impervious, Inflow Depth = 5.45" for ILSF Limit event

Inflow = 0.44 cfs @ 12.09 hrs, Volume= 0.034 af

Outflow = 0.44 cfs @ 12.10 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.6 min

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

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Summary for Pond 13P: 12" RCP to Street

[57] Hint: Peaked at 273.81' (Flood elevation advised)

Inflow Area = 4.459 ac, 52.30% Impervious, Inflow Depth = 3.42" for ILSF Limit event
Inflow = 2.76 cfs @ 12.67 hrs, Volume= 1.271 af
Outflow = 2.76 cfs @ 12.68 hrs, Volume= 1.271 af, Atten= 0%, Lag= 0.6 min
Primary = 2.76 cfs @ 12.68 hrs, Volume= 1.271 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 273.81' @ 12.68 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.73'	12.0" Round Culvert L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.73' / 272.43' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=2.76 cfs @ 12.68 hrs HW=273.81' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 2.76 cfs @ 4.06 fps)

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Stage-Area-Storage for Pond 13P: 12" RCP to Street

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.73	0	273.25	0	273.77	0
272.74	0	273.26	0	273.78	0
272.75	0	273.27	0	273.79	0
272.76	0	273.28	0	273.80	0
272.77	0	273.29	0	273.81	0
272.78	0	273.30	0		
272.79	0	273.31	0		
272.80	0	273.32	0		
272.81	0	273.33	0		
272.82	0	273.34	0		
272.83	0	273.35	0		
272.84	0	273.36	0		
272.85	0	273.37	0		
272.86	0	273.38	0		
272.87	0	273.39	0		
272.88	0	273.40	0		
272.89	0	273.41	0		
272.90	0	273.42	0		
272.91	0	273.43	0		
272.92	0	273.44	0		
272.93	0	273.45	0		
272.94	0	273.46	0		
272.95	0	273.47	0		
272.96	0	273.48	0		
272.97	0	273.49	0		
272.98	0	273.50	0		
272.99	0	273.51	0		
273.00	0	273.52	0		
273.01	0	273.53	0		
273.02	0	273.54	0		
273.03	0	273.55	0		
273.04	0	273.56	0		
273.05	0	273.57	0		
273.06	0	273.58	0		
273.07	0	273.59	0		
273.08	0	273.60	0		
273.09	0	273.61	0		
273.10	0	273.62	0		
273.11	0	273.63	0		
273.12	0	273.64	0		
273.13	0	273.65	0		
273.14	0	273.66	0		
273.15	0	273.67	0		
273.16	0	273.68	0		
273.17	0	273.69	0		
273.18	0	273.70	0		
273.19	0	273.71	0		
273.20	0	273.72	0		
273.21	0	273.73	0		
273.22	0	273.74	0		
273.23	0	273.75	0		
273.24	0	273.76	0		

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Summary for Pond 14P: 12" RCP to Street

[57] Hint: Peaked at 273.08' (Flood elevation advised)

Inflow Area = 0.064 ac, 100.00% Impervious, Inflow Depth = 6.76" for ILSF Limit event
 Inflow = 0.44 cfs @ 12.08 hrs, Volume= 0.036 af
 Outflow = 0.44 cfs @ 12.09 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.6 min
 Primary = 0.44 cfs @ 12.09 hrs, Volume= 0.036 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 273.08' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.73'	12.0" Round Culvert L= 30.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.73' / 272.43' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.44 cfs @ 12.09 hrs HW=273.08' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 0.44 cfs @ 2.73 fps)

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Stage-Area-Storage for Pond 14P: 12" RCP to Street

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.73	0	273.25	0
272.74	0	273.26	0
272.75	0	273.27	0
272.76	0	273.28	0
272.77	0	273.29	0
272.78	0	273.30	0
272.79	0	273.31	0
272.80	0	273.32	0
272.81	0	273.33	0
272.82	0	273.34	0
272.83	0	273.35	0
272.84	0	273.36	0
272.85	0	273.37	0
272.86	0	273.38	0
272.87	0	273.39	0
272.88	0	273.40	0
272.89	0	273.41	0
272.90	0	273.42	0
272.91	0	273.43	0
272.92	0	273.44	0
272.93	0	273.45	0
272.94	0	273.46	0
272.95	0	273.47	0
272.96	0	273.48	0
272.97	0	273.49	0
272.98	0	273.50	0
272.99	0	273.51	0
273.00	0	273.52	0
273.01	0	273.53	0
273.02	0	273.54	0
273.03	0	273.55	0
273.04	0	273.56	0
273.05	0	273.57	0
273.06	0	273.58	0
273.07	0	273.59	0
273.08	0	273.60	0
273.09	0	273.61	0
273.10	0	273.62	0
273.11	0	273.63	0
273.12	0	273.64	0
273.13	0	273.65	0
273.14	0	273.66	0
273.15	0	273.67	0
273.16	0	273.68	0
273.17	0	273.69	0
273.18	0	273.70	0
273.19	0	273.71	0
273.20	0	273.72	0
273.21	0	273.73	0
273.22	0		
273.23	0		
273.24	0		

18017 Pre-post-ILSF

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Summary for Pond Basin 1B: Basin 1B

[80] Warning: Exceeded Pond Basin 1C by 0.07' @ 12.05 hrs (1.01 cfs 0.105 af)

Inflow Area = 1.313 ac, 78.67% Impervious, Inflow Depth = 5.27" for ILSF Limit event
 Inflow = 6.24 cfs @ 12.11 hrs, Volume= 0.576 af
 Outflow = 5.97 cfs @ 12.15 hrs, Volume= 0.416 af, Atten= 4%, Lag= 2.1 min
 Primary = 5.97 cfs @ 12.15 hrs, Volume= 0.416 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 279.52' @ 12.15 hrs Surf.Area= 7,072 sf Storage= 7,964 cf

Plug-Flow detention time= 178.2 min calculated for 0.416 af (72% of inflow)
 Center-of-Mass det. time= 80.9 min (866.1 - 785.2)

Volume	Invert	Avail.Storage	Storage Description
#1	277.33'	5,914 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 17,718 cf Overall - 2,933 cf Embedded = 14,785 cf x 40.0% Voids
#2	277.83'	2,933 cf	18.0" Round Pipe Storage Inside #1 L= 1,660.0'
		8,847 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.33	7,072	0	0
279.83	7,072	17,680	17,680
279.84	4	35	17,715
280.50	4	3	17,718

Device	Routing	Invert	Outlet Devices
#1	Primary	279.20'	4.0' long x 1.0' breadth Broad-Crested Rectangular Weir X 3.00 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 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=5.96 cfs @ 12.15 hrs HW=279.52' TW=279.05' (Dynamic Tailwater)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 5.96 cfs @ 1.54 fps)

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Stage-Area-Storage for Pond Basin 1B: Basin 1B

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
277.33	0	277.85	1,476	278.37	3,512
277.34	28	277.86	1,508	278.38	3,555
277.35	57	277.87	1,540	278.39	3,598
277.36	85	277.88	1,574	278.40	3,641
277.37	113	277.89	1,608	278.41	3,683
277.38	141	277.90	1,642	278.42	3,726
277.39	170	277.91	1,677	278.43	3,769
277.40	198	277.92	1,712	278.44	3,812
277.41	226	277.93	1,748	278.45	3,855
277.42	255	277.94	1,784	278.46	3,898
277.43	283	277.95	1,820	278.47	3,941
277.44	311	277.96	1,856	278.48	3,984
277.45	339	277.97	1,893	278.49	4,027
277.46	368	277.98	1,930	278.50	4,070
277.47	396	277.99	1,968	278.51	4,114
277.48	424	278.00	2,005	278.52	4,157
277.49	453	278.01	2,043	278.53	4,200
277.50	481	278.02	2,081	278.54	4,243
277.51	509	278.03	2,120	278.55	4,286
277.52	537	278.04	2,158	278.56	4,330
277.53	566	278.05	2,197	278.57	4,373
277.54	594	278.06	2,236	278.58	4,416
277.55	622	278.07	2,275	278.59	4,459
277.56	651	278.08	2,314	278.60	4,502
277.57	679	278.09	2,354	278.61	4,546
277.58	707	278.10	2,394	278.62	4,589
277.59	735	278.11	2,433	278.63	4,632
277.60	764	278.12	2,473	278.64	4,675
277.61	792	278.13	2,514	278.65	4,718
277.62	820	278.14	2,554	278.66	4,762
277.63	849	278.15	2,594	278.67	4,805
277.64	877	278.16	2,635	278.68	4,848
277.65	905	278.17	2,676	278.69	4,891
277.66	934	278.18	2,717	278.70	4,934
277.67	962	278.19	2,758	278.71	4,977
277.68	990	278.20	2,799	278.72	5,020
277.69	1,018	278.21	2,840	278.73	5,063
277.70	1,047	278.22	2,881	278.74	5,106
277.71	1,075	278.23	2,923	278.75	5,149
277.72	1,103	278.24	2,964	278.76	5,192
277.73	1,132	278.25	3,006	278.77	5,234
277.74	1,160	278.26	3,048	278.78	5,277
277.75	1,188	278.27	3,090	278.79	5,320
277.76	1,216	278.28	3,131	278.80	5,362
277.77	1,245	278.29	3,173	278.81	5,405
277.78	1,273	278.30	3,216	278.82	5,447
277.79	1,301	278.31	3,258	278.83	5,490
277.80	1,330	278.32	3,300	278.84	5,532
277.81	1,358	278.33	3,342	278.85	5,574
277.82	1,386	278.34	3,385	278.86	5,616
277.83	1,414	278.35	3,427	278.87	5,659
277.84	1,444	278.36	3,470	278.88	5,701

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Stage-Area-Storage for Pond Basin 1B: Basin 1B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
278.89	5,743	279.41	7,644	279.93	8,846
278.90	5,784	279.42	7,672	279.94	8,846
278.91	5,826	279.43	7,701	279.95	8,846
278.92	5,868	279.44	7,729	279.96	8,846
278.93	5,909	279.45	7,757	279.97	8,846
278.94	5,951	279.46	7,785	279.98	8,846
278.95	5,992	279.47	7,814	279.99	8,846
278.96	6,033	279.48	7,842	280.00	8,846
278.97	6,074	279.49	7,870	280.01	8,847
278.98	6,115	279.50	7,899	280.02	8,847
278.99	6,156	279.51	7,927	280.03	8,847
279.00	6,197	279.52	7,955	280.04	8,847
279.01	6,238	279.53	7,983	280.05	8,847
279.02	6,278	279.54	8,012	280.06	8,847
279.03	6,318	279.55	8,040	280.07	8,847
279.04	6,359	279.56	8,068	280.08	8,847
279.05	6,399	279.57	8,097	280.09	8,847
279.06	6,438	279.58	8,125	280.10	8,847
279.07	6,478	279.59	8,153	280.11	8,847
279.08	6,518	279.60	8,181	280.12	8,847
279.09	6,557	279.61	8,210	280.13	8,847
279.10	6,596	279.62	8,238	280.14	8,847
279.11	6,635	279.63	8,266	280.15	8,847
279.12	6,674	279.64	8,295	280.16	8,847
279.13	6,712	279.65	8,323	280.17	8,847
279.14	6,751	279.66	8,351	280.18	8,847
279.15	6,789	279.67	8,379	280.19	8,847
279.16	6,827	279.68	8,408	280.20	8,847
279.17	6,864	279.69	8,436	280.21	8,847
279.18	6,902	279.70	8,464	280.22	8,847
279.19	6,939	279.71	8,493	280.23	8,847
279.20	6,976	279.72	8,521	280.24	8,847
279.21	7,012	279.73	8,549	280.25	8,847
279.22	7,048	279.74	8,577	280.26	8,847
279.23	7,084	279.75	8,606	280.27	8,847
279.24	7,120	279.76	8,634	280.28	8,847
279.25	7,155	279.77	8,662	280.29	8,847
279.26	7,190	279.78	8,691	280.30	8,847
279.27	7,224	279.79	8,719	280.31	8,847
279.28	7,258	279.80	8,747	280.32	8,847
279.29	7,292	279.81	8,776	280.33	8,847
279.30	7,324	279.82	8,804	280.34	8,847
279.31	7,357	279.83	8,832	280.35	8,847
279.32	7,388	279.84	8,846	280.36	8,847
279.33	7,418	279.85	8,846	280.37	8,847
279.34	7,446	279.86	8,846	280.38	8,847
279.35	7,474	279.87	8,846	280.39	8,847
279.36	7,503	279.88	8,846	280.40	8,847
279.37	7,531	279.89	8,846	280.41	8,847
279.38	7,559	279.90	8,846	280.42	8,847
279.39	7,587	279.91	8,846	280.43	8,847
279.40	7,616	279.92	8,846	280.44	8,847

Stage-Area-Storage for Pond Basin 1B: Basin 1B (continued)

Elevation (feet)	Storage (cubic-feet)
280.45	8,847
280.46	8,847
280.47	8,847
280.48	8,847
280.49	8,847
280.50	8,847

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Summary for Pond Basin 1C: Basin 1C

[42] Hint: Gap in defined storage above volume #1 at 279.83'

[86] Warning: Oscillations may require smaller dt (severity=186)

Inflow Area = 0.537 ac, 71.27% Impervious, Inflow Depth = 5.98" for ILSF Limit event
 Inflow = 3.36 cfs @ 12.08 hrs, Volume= 0.268 af
 Outflow = 1.97 cfs @ 12.23 hrs, Volume= 0.168 af, Atten= 41%, Lag= 8.7 min
 Primary = 1.97 cfs @ 12.23 hrs, Volume= 0.168 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 279.77' @ 12.20 hrs Surf.Area= 4,400 sf Storage= 5,411 cf

Plug-Flow detention time= 216.5 min calculated for 0.168 af (63% of inflow)

Center-of-Mass det. time= 108.3 min (866.6 - 758.3)

Volume	Invert	Avail.Storage	Storage Description
#1	277.33'	3,656 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 11,000 cf Overall - 1,859 cf Embedded = 9,141 cf x 40.0% Voids
#2	277.83'	1,859 cf	18.0" Round Pipe Storage Inside #1 L= 1,052.0'
#3	279.84'	9 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		5,525 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.33	4,400	0	0
279.83	4,400	11,000	11,000

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
279.84	12	0	0
280.60	12	9	9

Device	Routing	Invert	Outlet Devices
#1	Primary	277.83'	12.0" Round Culvert L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 277.83' / 277.83' S= 0.0000 ' / Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.99 cfs @ 12.23 hrs HW=279.76' TW=279.49' (Dynamic Tailwater)↑ **1=Culvert** (Inlet Controls 1.99 cfs @ 2.53 fps)

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Stage-Area-Storage for Pond Basin 1C: Basin 1C

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
277.33	0	277.85	918	278.37	2,192
277.34	18	277.86	938	278.38	2,219
277.35	35	277.87	959	278.39	2,245
277.36	53	277.88	979	278.40	2,272
277.37	70	277.89	1,001	278.41	2,299
277.38	88	277.90	1,022	278.42	2,326
277.39	106	277.91	1,044	278.43	2,353
277.40	123	277.92	1,066	278.44	2,380
277.41	141	277.93	1,088	278.45	2,406
277.42	158	277.94	1,110	278.46	2,433
277.43	176	277.95	1,133	278.47	2,460
277.44	194	277.96	1,156	278.48	2,487
277.45	211	277.97	1,179	278.49	2,514
277.46	229	277.98	1,202	278.50	2,541
277.47	246	277.99	1,225	278.51	2,568
277.48	264	278.00	1,249	278.52	2,595
277.49	282	278.01	1,273	278.53	2,622
277.50	299	278.02	1,296	278.54	2,649
277.51	317	278.03	1,320	278.55	2,677
277.52	334	278.04	1,345	278.56	2,704
277.53	352	278.05	1,369	278.57	2,731
277.54	370	278.06	1,393	278.58	2,758
277.55	387	278.07	1,418	278.59	2,785
277.56	405	278.08	1,442	278.60	2,812
277.57	422	278.09	1,467	278.61	2,839
277.58	440	278.10	1,492	278.62	2,866
277.59	458	278.11	1,517	278.63	2,893
277.60	475	278.12	1,542	278.64	2,920
277.61	493	278.13	1,567	278.65	2,947
277.62	510	278.14	1,592	278.66	2,974
277.63	528	278.15	1,617	278.67	3,001
277.64	546	278.16	1,643	278.68	3,028
277.65	563	278.17	1,668	278.69	3,055
277.66	581	278.18	1,694	278.70	3,082
277.67	598	278.19	1,719	278.71	3,109
277.68	616	278.20	1,745	278.72	3,136
277.69	634	278.21	1,771	278.73	3,163
277.70	651	278.22	1,797	278.74	3,190
277.71	669	278.23	1,823	278.75	3,216
277.72	686	278.24	1,849	278.76	3,243
277.73	704	278.25	1,875	278.77	3,270
277.74	722	278.26	1,901	278.78	3,297
277.75	739	278.27	1,927	278.79	3,324
277.76	757	278.28	1,953	278.80	3,350
277.77	774	278.29	1,980	278.81	3,377
277.78	792	278.30	2,006	278.82	3,403
277.79	810	278.31	2,033	278.83	3,430
277.80	827	278.32	2,059	278.84	3,456
277.81	845	278.33	2,085	278.85	3,483
277.82	862	278.34	2,112	278.86	3,509
277.83	880	278.35	2,139	278.87	3,536
277.84	899	278.36	2,165	278.88	3,562

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Stage-Area-Storage for Pond Basin 1C: Basin 1C (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
278.89	3,588	279.41	4,776	279.93	5,517
278.90	3,614	279.42	4,794	279.94	5,517
278.91	3,641	279.43	4,811	279.95	5,517
278.92	3,667	279.44	4,829	279.96	5,517
278.93	3,693	279.45	4,847	279.97	5,517
278.94	3,719	279.46	4,864	279.98	5,517
278.95	3,744	279.47	4,882	279.99	5,517
278.96	3,770	279.48	4,899	280.00	5,517
278.97	3,796	279.49	4,917	280.01	5,517
278.98	3,822	279.50	4,935	280.02	5,518
278.99	3,847	279.51	4,952	280.03	5,518
279.00	3,873	279.52	4,970	280.04	5,518
279.01	3,898	279.53	4,987	280.05	5,518
279.02	3,923	279.54	5,005	280.06	5,518
279.03	3,949	279.55	5,023	280.07	5,518
279.04	3,974	279.56	5,040	280.08	5,518
279.05	3,999	279.57	5,058	280.09	5,518
279.06	4,024	279.58	5,075	280.10	5,519
279.07	4,049	279.59	5,093	280.11	5,519
279.08	4,073	279.60	5,111	280.12	5,519
279.09	4,098	279.61	5,128	280.13	5,519
279.10	4,122	279.62	5,146	280.14	5,519
279.11	4,147	279.63	5,163	280.15	5,519
279.12	4,171	279.64	5,181	280.16	5,519
279.13	4,195	279.65	5,199	280.17	5,519
279.14	4,219	279.66	5,216	280.18	5,520
279.15	4,243	279.67	5,234	280.19	5,520
279.16	4,266	279.68	5,251	280.20	5,520
279.17	4,290	279.69	5,269	280.21	5,520
279.18	4,313	279.70	5,287	280.22	5,520
279.19	4,337	279.71	5,304	280.23	5,520
279.20	4,360	279.72	5,322	280.24	5,520
279.21	4,382	279.73	5,339	280.25	5,520
279.22	4,405	279.74	5,357	280.26	5,520
279.23	4,427	279.75	5,375	280.27	5,521
279.24	4,450	279.76	5,392	280.28	5,521
279.25	4,472	279.77	5,410	280.29	5,521
279.26	4,493	279.78	5,427	280.30	5,521
279.27	4,515	279.79	5,445	280.31	5,521
279.28	4,536	279.80	5,463	280.32	5,521
279.29	4,557	279.81	5,480	280.33	5,521
279.30	4,577	279.82	5,498	280.34	5,521
279.31	4,597	279.83	5,515	280.35	5,522
279.32	4,617	279.84	5,515	280.36	5,522
279.33	4,635	279.85	5,516	280.37	5,522
279.34	4,653	279.86	5,516	280.38	5,522
279.35	4,671	279.87	5,516	280.39	5,522
279.36	4,688	279.88	5,516	280.40	5,522
279.37	4,706	279.89	5,516	280.41	5,522
279.38	4,723	279.90	5,516	280.42	5,522
279.39	4,741	279.91	5,516	280.43	5,523
279.40	4,759	279.92	5,516	280.44	5,523

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Stage-Area-Storage for Pond Basin 1C: Basin 1C (continued)

Elevation (feet)	Storage (cubic-feet)
280.45	5,523
280.46	5,523
280.47	5,523
280.48	5,523
280.49	5,523
280.50	5,523
280.51	5,523
280.52	5,524
280.53	5,524
280.54	5,524
280.55	5,524
280.56	5,524
280.57	5,524
280.58	5,524
280.59	5,524
280.60	5,525

18017 Pre-post-ILSF

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Summary for Pond Basin 2B: Basin 2B

Inflow Area = 4.459 ac, 52.30% Impervious, Inflow Depth = 3.42" for ILSF Limit event
 Inflow = 13.23 cfs @ 12.15 hrs, Volume= 1.272 af
 Outflow = 2.76 cfs @ 12.66 hrs, Volume= 1.271 af, Atten= 79%, Lag= 30.8 min
 Primary = 2.76 cfs @ 12.66 hrs, Volume= 1.271 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 277.02' @ 12.67 hrs Surf.Area= 5,600 sf Storage= 15,319 cf

Plug-Flow detention time= 62.6 min calculated for 1.271 af (100% of inflow)
 Center-of-Mass det. time= 62.5 min (907.6 - 845.1)

Volume	Invert	Avail.Storage	Storage Description
#1	273.00'	6,696 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 28,000 cf Overall - 11,259 cf Embedded = 16,741 cf x 40.0% Voids
#2	273.50'	11,259 cf	48.0" Round Pipe Storage Inside #1 L= 896.0'
		17,956 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.00	5,600	0	0
278.00	5,600	28,000	28,000

Device	Routing	Invert	Outlet Devices
#1	Secondary	277.50'	6.0' 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
#2	Primary	273.00'	8.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=2.76 cfs @ 12.66 hrs HW=277.02' TW=274.34' (Dynamic Tailwater)

↑ **2=Orifice/Grate** (Orifice Controls 2.76 cfs @ 7.89 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=273.00' TW=272.90' (Dynamic Tailwater)

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

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Stage-Area-Storage for Pond Basin 2B: Basin 2B

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
273.00	0	273.52	1,169	274.04	2,875
273.01	22	273.53	1,195	274.05	2,912
273.02	45	273.54	1,221	274.06	2,949
273.03	67	273.55	1,248	274.07	2,987
273.04	90	273.56	1,275	274.08	3,024
273.05	112	273.57	1,303	274.09	3,062
273.06	134	273.58	1,331	274.10	3,099
273.07	157	273.59	1,360	274.11	3,137
273.08	179	273.60	1,389	274.12	3,175
273.09	202	273.61	1,418	274.13	3,213
273.10	224	273.62	1,448	274.14	3,251
273.11	246	273.63	1,478	274.15	3,290
273.12	269	273.64	1,508	274.16	3,328
273.13	291	273.65	1,538	274.17	3,366
273.14	314	273.66	1,569	274.18	3,405
273.15	336	273.67	1,600	274.19	3,443
273.16	358	273.68	1,631	274.20	3,482
273.17	381	273.69	1,663	274.21	3,521
273.18	403	273.70	1,694	274.22	3,560
273.19	426	273.71	1,726	274.23	3,599
273.20	448	273.72	1,758	274.24	3,638
273.21	470	273.73	1,791	274.25	3,677
273.22	493	273.74	1,823	274.26	3,716
273.23	515	273.75	1,856	274.27	3,755
273.24	538	273.76	1,889	274.28	3,795
273.25	560	273.77	1,922	274.29	3,834
273.26	582	273.78	1,955	274.30	3,874
273.27	605	273.79	1,989	274.31	3,914
273.28	627	273.80	2,022	274.32	3,953
273.29	650	273.81	2,056	274.33	3,993
273.30	672	273.82	2,090	274.34	4,033
273.31	694	273.83	2,124	274.35	4,073
273.32	717	273.84	2,158	274.36	4,113
273.33	739	273.85	2,193	274.37	4,153
273.34	762	273.86	2,228	274.38	4,193
273.35	784	273.87	2,262	274.39	4,233
273.36	806	273.88	2,297	274.40	4,274
273.37	829	273.89	2,332	274.41	4,314
273.38	851	273.90	2,368	274.42	4,355
273.39	874	273.91	2,403	274.43	4,395
273.40	896	273.92	2,438	274.44	4,436
273.41	918	273.93	2,474	274.45	4,476
273.42	941	273.94	2,510	274.46	4,517
273.43	963	273.95	2,546	274.47	4,558
273.44	986	273.96	2,582	274.48	4,599
273.45	1,008	273.97	2,618	274.49	4,640
273.46	1,030	273.98	2,654	274.50	4,681
273.47	1,053	273.99	2,691	274.51	4,722
273.48	1,075	274.00	2,727	274.52	4,763
273.49	1,098	274.01	2,764	274.53	4,804
273.50	1,120	274.02	2,801	274.54	4,845
273.51	1,144	274.03	2,838	274.55	4,887

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Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
274.56	4,928	275.08	7,141	275.60	9,417
274.57	4,969	275.09	7,184	275.61	9,461
274.58	5,011	275.10	7,227	275.62	9,505
274.59	5,052	275.11	7,271	275.63	9,548
274.60	5,094	275.12	7,314	275.64	9,592
274.61	5,136	275.13	7,358	275.65	9,636
274.62	5,177	275.14	7,401	275.66	9,680
274.63	5,219	275.15	7,445	275.67	9,724
274.64	5,261	275.16	7,489	275.68	9,768
274.65	5,303	275.17	7,532	275.69	9,811
274.66	5,345	275.18	7,576	275.70	9,855
274.67	5,386	275.19	7,619	275.71	9,899
274.68	5,428	275.20	7,663	275.72	9,943
274.69	5,470	275.21	7,707	275.73	9,987
274.70	5,513	275.22	7,751	275.74	10,030
274.71	5,555	275.23	7,794	275.75	10,074
274.72	5,597	275.24	7,838	275.76	10,118
274.73	5,639	275.25	7,882	275.77	10,161
274.74	5,681	275.26	7,925	275.78	10,205
274.75	5,724	275.27	7,969	275.79	10,249
274.76	5,766	275.28	8,013	275.80	10,293
274.77	5,808	275.29	8,057	275.81	10,336
274.78	5,851	275.30	8,100	275.82	10,380
274.79	5,893	275.31	8,144	275.83	10,423
274.80	5,936	275.32	8,188	275.84	10,467
274.81	5,978	275.33	8,232	275.85	10,511
274.82	6,021	275.34	8,276	275.86	10,554
274.83	6,064	275.35	8,320	275.87	10,598
274.84	6,106	275.36	8,363	275.88	10,641
274.85	6,149	275.37	8,407	275.89	10,685
274.86	6,192	275.38	8,451	275.90	10,728
274.87	6,235	275.39	8,495	275.91	10,772
274.88	6,277	275.40	8,539	275.92	10,815
274.89	6,320	275.41	8,583	275.93	10,859
274.90	6,363	275.42	8,627	275.94	10,902
274.91	6,406	275.43	8,671	275.95	10,945
274.92	6,449	275.44	8,714	275.96	10,989
274.93	6,492	275.45	8,758	275.97	11,032
274.94	6,535	275.46	8,802	275.98	11,075
274.95	6,578	275.47	8,846	275.99	11,118
274.96	6,621	275.48	8,890	276.00	11,162
274.97	6,664	275.49	8,934	276.01	11,205
274.98	6,708	275.50	8,978	276.02	11,248
274.99	6,751	275.51	9,022	276.03	11,291
275.00	6,794	275.52	9,066	276.04	11,334
275.01	6,837	275.53	9,110	276.05	11,377
275.02	6,880	275.54	9,153	276.06	11,421
275.03	6,924	275.55	9,197	276.07	11,464
275.04	6,967	275.56	9,241	276.08	11,507
275.05	7,010	275.57	9,285	276.09	11,550
275.06	7,054	275.58	9,329	276.10	11,592
275.07	7,097	275.59	9,373	276.11	11,635

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Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
276.12	11,678	276.64	13,843	277.16	15,797
276.13	11,721	276.65	13,883	277.17	15,832
276.14	11,764	276.66	13,923	277.18	15,866
276.15	11,807	276.67	13,963	277.19	15,900
276.16	11,849	276.68	14,002	277.20	15,933
276.17	11,892	276.69	14,042	277.21	15,967
276.18	11,935	276.70	14,082	277.22	16,001
276.19	11,977	276.71	14,121	277.23	16,034
276.20	12,020	276.72	14,161	277.24	16,067
276.21	12,062	276.73	14,200	277.25	16,100
276.22	12,105	276.74	14,240	277.26	16,133
276.23	12,147	276.75	14,279	277.27	16,165
276.24	12,190	276.76	14,318	277.28	16,197
276.25	12,232	276.77	14,357	277.29	16,230
276.26	12,274	276.78	14,396	277.30	16,261
276.27	12,317	276.79	14,435	277.31	16,293
276.28	12,359	276.80	14,474	277.32	16,324
276.29	12,401	276.81	14,512	277.33	16,356
276.30	12,443	276.82	14,551	277.34	16,387
276.31	12,485	276.83	14,589	277.35	16,417
276.32	12,527	276.84	14,628	277.36	16,448
276.33	12,569	276.85	14,666	277.37	16,478
276.34	12,611	276.86	14,704	277.38	16,508
276.35	12,653	276.87	14,743	277.39	16,537
276.36	12,695	276.88	14,781	277.40	16,567
276.37	12,737	276.89	14,818	277.41	16,596
276.38	12,778	276.90	14,856	277.42	16,624
276.39	12,820	276.91	14,894	277.43	16,652
276.40	12,862	276.92	14,932	277.44	16,680
276.41	12,903	276.93	14,969	277.45	16,708
276.42	12,945	276.94	15,006	277.46	16,735
276.43	12,986	276.95	15,044	277.47	16,761
276.44	13,028	276.96	15,081	277.48	16,787
276.45	13,069	276.97	15,118	277.49	16,812
276.46	13,110	276.98	15,155	277.50	16,836
276.47	13,152	276.99	15,192	277.51	16,858
276.48	13,193	277.00	15,228	277.52	16,880
276.49	13,234	277.01	15,265	277.53	16,903
276.50	13,275	277.02	15,301	277.54	16,925
276.51	13,316	277.03	15,338	277.55	16,948
276.52	13,357	277.04	15,374	277.56	16,970
276.53	13,398	277.05	15,410	277.57	16,992
276.54	13,439	277.06	15,446	277.58	17,015
276.55	13,479	277.07	15,482	277.59	17,037
276.56	13,520	277.08	15,517	277.60	17,060
276.57	13,561	277.09	15,553	277.61	17,082
276.58	13,601	277.10	15,588	277.62	17,104
276.59	13,642	277.11	15,623	277.63	17,127
276.60	13,682	277.12	15,658	277.64	17,149
276.61	13,722	277.13	15,693	277.65	17,172
276.62	13,762	277.14	15,728	277.66	17,194
276.63	13,803	277.15	15,763	277.67	17,216

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Stage-Area-Storage for Pond Basin 2B: Basin 2B (continued)

Elevation (feet)	Storage (cubic-feet)
277.68	17,239
277.69	17,261
277.70	17,284
277.71	17,306
277.72	17,328
277.73	17,351
277.74	17,373
277.75	17,396
277.76	17,418
277.77	17,440
277.78	17,463
277.79	17,485
277.80	17,508
277.81	17,530
277.82	17,552
277.83	17,575
277.84	17,597
277.85	17,620
277.86	17,642
277.87	17,664
277.88	17,687
277.89	17,709
277.90	17,732
277.91	17,754
277.92	17,776
277.93	17,799
277.94	17,821
277.95	17,844
277.96	17,866
277.97	17,888
277.98	17,911
277.99	17,933
278.00	17,956

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Summary for Pond Basin 2b outlet: Basin 2b outlet

[57] Hint: Peaked at 274.34' (Flood elevation advised)

Inflow Area = 4.459 ac, 52.30% Impervious, Inflow Depth = 3.42" for ILSF Limit event
 Inflow = 2.76 cfs @ 12.66 hrs, Volume= 1.271 af
 Outflow = 2.76 cfs @ 12.67 hrs, Volume= 1.271 af, Atten= 0%, Lag= 0.6 min
 Primary = 2.76 cfs @ 12.67 hrs, Volume= 1.271 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 274.34' @ 12.68 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	272.90'	12.0" Round Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.90' / 272.70' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.76 cfs @ 12.67 hrs HW=274.34' TW=273.81' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 2.76 cfs @ 3.51 fps)

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Stage-Area-Storage for Pond Basin 2b outlet: Basin 2b outlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
272.90	0	273.42	0	273.94	0
272.91	0	273.43	0	273.95	0
272.92	0	273.44	0	273.96	0
272.93	0	273.45	0	273.97	0
272.94	0	273.46	0	273.98	0
272.95	0	273.47	0	273.99	0
272.96	0	273.48	0	274.00	0
272.97	0	273.49	0	274.01	0
272.98	0	273.50	0	274.02	0
272.99	0	273.51	0	274.03	0
273.00	0	273.52	0	274.04	0
273.01	0	273.53	0	274.05	0
273.02	0	273.54	0	274.06	0
273.03	0	273.55	0	274.07	0
273.04	0	273.56	0	274.08	0
273.05	0	273.57	0	274.09	0
273.06	0	273.58	0	274.10	0
273.07	0	273.59	0	274.11	0
273.08	0	273.60	0	274.12	0
273.09	0	273.61	0	274.13	0
273.10	0	273.62	0	274.14	0
273.11	0	273.63	0	274.15	0
273.12	0	273.64	0	274.16	0
273.13	0	273.65	0	274.17	0
273.14	0	273.66	0	274.18	0
273.15	0	273.67	0	274.19	0
273.16	0	273.68	0	274.20	0
273.17	0	273.69	0	274.21	0
273.18	0	273.70	0	274.22	0
273.19	0	273.71	0	274.23	0
273.20	0	273.72	0	274.24	0
273.21	0	273.73	0	274.25	0
273.22	0	273.74	0	274.26	0
273.23	0	273.75	0	274.27	0
273.24	0	273.76	0	274.28	0
273.25	0	273.77	0	274.29	0
273.26	0	273.78	0	274.30	0
273.27	0	273.79	0	274.31	0
273.28	0	273.80	0	274.32	0
273.29	0	273.81	0	274.33	0
273.30	0	273.82	0	274.34	0
273.31	0	273.83	0		
273.32	0	273.84	0		
273.33	0	273.85	0		
273.34	0	273.86	0		
273.35	0	273.87	0		
273.36	0	273.88	0		
273.37	0	273.89	0		
273.38	0	273.90	0		
273.39	0	273.91	0		
273.40	0	273.92	0		
273.41	0	273.93	0		

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Summary for Pond PDMH 9: PDMH 9

[57] Hint: Peaked at 279.09' (Flood elevation advised)

Inflow Area = 1.313 ac, 78.67% Impervious, Inflow Depth = 3.80" for ILSF Limit event
Inflow = 5.97 cfs @ 12.15 hrs, Volume= 0.416 af
Outflow = 5.97 cfs @ 12.16 hrs, Volume= 0.416 af, Atten= 0%, Lag= 0.6 min
Primary = 5.97 cfs @ 12.16 hrs, Volume= 0.416 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 279.09' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	276.10'	12.0" Round Culvert L= 86.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 276.10' / 273.80' S= 0.0267 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=5.96 cfs @ 12.16 hrs HW=279.09' TW=275.04' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 5.96 cfs @ 7.59 fps)

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Stage-Area-Storage for Pond PDMH 9: PDMH 9

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
276.10	0	276.62	0	277.14	0
276.11	0	276.63	0	277.15	0
276.12	0	276.64	0	277.16	0
276.13	0	276.65	0	277.17	0
276.14	0	276.66	0	277.18	0
276.15	0	276.67	0	277.19	0
276.16	0	276.68	0	277.20	0
276.17	0	276.69	0	277.21	0
276.18	0	276.70	0	277.22	0
276.19	0	276.71	0	277.23	0
276.20	0	276.72	0	277.24	0
276.21	0	276.73	0	277.25	0
276.22	0	276.74	0	277.26	0
276.23	0	276.75	0	277.27	0
276.24	0	276.76	0	277.28	0
276.25	0	276.77	0	277.29	0
276.26	0	276.78	0	277.30	0
276.27	0	276.79	0	277.31	0
276.28	0	276.80	0	277.32	0
276.29	0	276.81	0	277.33	0
276.30	0	276.82	0	277.34	0
276.31	0	276.83	0	277.35	0
276.32	0	276.84	0	277.36	0
276.33	0	276.85	0	277.37	0
276.34	0	276.86	0	277.38	0
276.35	0	276.87	0	277.39	0
276.36	0	276.88	0	277.40	0
276.37	0	276.89	0	277.41	0
276.38	0	276.90	0	277.42	0
276.39	0	276.91	0	277.43	0
276.40	0	276.92	0	277.44	0
276.41	0	276.93	0	277.45	0
276.42	0	276.94	0	277.46	0
276.43	0	276.95	0	277.47	0
276.44	0	276.96	0	277.48	0
276.45	0	276.97	0	277.49	0
276.46	0	276.98	0	277.50	0
276.47	0	276.99	0	277.51	0
276.48	0	277.00	0	277.52	0
276.49	0	277.01	0	277.53	0
276.50	0	277.02	0	277.54	0
276.51	0	277.03	0	277.55	0
276.52	0	277.04	0	277.56	0
276.53	0	277.05	0	277.57	0
276.54	0	277.06	0	277.58	0
276.55	0	277.07	0	277.59	0
276.56	0	277.08	0	277.60	0
276.57	0	277.09	0	277.61	0
276.58	0	277.10	0	277.62	0
276.59	0	277.11	0	277.63	0
276.60	0	277.12	0	277.64	0
276.61	0	277.13	0	277.65	0

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Stage-Area-Storage for Pond PDMH 9: PDMH 9 (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
277.66	0	278.18	0	278.70	0
277.67	0	278.19	0	278.71	0
277.68	0	278.20	0	278.72	0
277.69	0	278.21	0	278.73	0
277.70	0	278.22	0	278.74	0
277.71	0	278.23	0	278.75	0
277.72	0	278.24	0	278.76	0
277.73	0	278.25	0	278.77	0
277.74	0	278.26	0	278.78	0
277.75	0	278.27	0	278.79	0
277.76	0	278.28	0	278.80	0
277.77	0	278.29	0	278.81	0
277.78	0	278.30	0	278.82	0
277.79	0	278.31	0	278.83	0
277.80	0	278.32	0	278.84	0
277.81	0	278.33	0	278.85	0
277.82	0	278.34	0	278.86	0
277.83	0	278.35	0	278.87	0
277.84	0	278.36	0	278.88	0
277.85	0	278.37	0	278.89	0
277.86	0	278.38	0	278.90	0
277.87	0	278.39	0	278.91	0
277.88	0	278.40	0	278.92	0
277.89	0	278.41	0	278.93	0
277.90	0	278.42	0	278.94	0
277.91	0	278.43	0	278.95	0
277.92	0	278.44	0	278.96	0
277.93	0	278.45	0	278.97	0
277.94	0	278.46	0	278.98	0
277.95	0	278.47	0	278.99	0
277.96	0	278.48	0	279.00	0
277.97	0	278.49	0	279.01	0
277.98	0	278.50	0	279.02	0
277.99	0	278.51	0	279.03	0
278.00	0	278.52	0	279.04	0
278.01	0	278.53	0	279.05	0
278.02	0	278.54	0	279.06	0
278.03	0	278.55	0	279.07	0
278.04	0	278.56	0	279.08	0
278.05	0	278.57	0	279.09	0
278.06	0	278.58	0		
278.07	0	278.59	0		
278.08	0	278.60	0		
278.09	0	278.61	0		
278.10	0	278.62	0		
278.11	0	278.63	0		
278.12	0	278.64	0		
278.13	0	278.65	0		
278.14	0	278.66	0		
278.15	0	278.67	0		
278.16	0	278.68	0		
278.17	0	278.69	0		

18017 Pre-post-ILSF

Type III 24-hr ILSF Limit Rainfall=7.00"

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Summary for Pond Pond 1B: Pond 1B

Inflow Area = 0.756 ac, 26.34% Impervious, Inflow Depth = 4.76" for ILSF Limit event
 Inflow = 4.01 cfs @ 12.09 hrs, Volume= 0.300 af
 Outflow = 3.54 cfs @ 12.13 hrs, Volume= 0.274 af, Atten= 12%, Lag= 2.9 min
 Primary = 3.54 cfs @ 12.13 hrs, Volume= 0.274 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 278.39' @ 12.13 hrs Surf.Area= 3,902 sf Storage= 2,097 cf

Plug-Flow detention time= 83.3 min calculated for 0.273 af (91% of inflow)
 Center-of-Mass det. time= 38.3 min (830.6 - 792.4)

Volume	Invert	Avail.Storage	Storage Description
#1	277.00'	2,558 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
277.00	71	0	0
277.50	672	186	186
278.00	2,215	722	908
278.50	4,385	1,650	2,558

Device	Routing	Invert	Outlet Devices
#1	Primary	278.10'	8.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=3.54 cfs @ 12.13 hrs HW=278.39' TW=277.44' (Dynamic Tailwater)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 3.54 cfs @ 1.53 fps)

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Stage-Area-Storage for Pond Pond 1B: Pond 1B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.00	71	0	277.52	734	200
277.01	83	1	277.53	765	207
277.02	95	2	277.54	795	215
277.03	107	3	277.55	826	223
277.04	119	4	277.56	857	232
277.05	131	5	277.57	888	240
277.06	143	6	277.58	919	249
277.07	155	8	277.59	950	259
277.08	167	10	277.60	981	268
277.09	179	11	277.61	1,011	278
277.10	191	13	277.62	1,042	289
277.11	203	15	277.63	1,073	299
277.12	215	17	277.64	1,104	310
277.13	227	19	277.65	1,135	321
277.14	239	22	277.66	1,166	333
277.15	251	24	277.67	1,197	345
277.16	263	27	277.68	1,227	357
277.17	275	29	277.69	1,258	369
277.18	287	32	277.70	1,289	382
277.19	299	35	277.71	1,320	395
277.20	311	38	277.72	1,351	408
277.21	323	41	277.73	1,382	422
277.22	335	45	277.74	1,413	436
277.23	347	48	277.75	1,444	450
277.24	359	52	277.76	1,474	465
277.25	372	55	277.77	1,505	480
277.26	384	59	277.78	1,536	495
277.27	396	63	277.79	1,567	510
277.28	408	67	277.80	1,598	526
277.29	420	71	277.81	1,629	542
277.30	432	75	277.82	1,660	559
277.31	444	80	277.83	1,690	576
277.32	456	84	277.84	1,721	593
277.33	468	89	277.85	1,752	610
277.34	480	94	277.86	1,783	628
277.35	492	98	277.87	1,814	646
277.36	504	103	277.88	1,845	664
277.37	516	109	277.89	1,876	683
277.38	528	114	277.90	1,906	701
277.39	540	119	277.91	1,937	721
277.40	552	125	277.92	1,968	740
277.41	564	130	277.93	1,999	760
277.42	576	136	277.94	2,030	780
277.43	588	142	277.95	2,061	801
277.44	600	148	277.96	2,092	821
277.45	612	154	277.97	2,122	842
277.46	624	160	277.98	2,153	864
277.47	636	166	277.99	2,184	886
277.48	648	173	278.00	2,215	908
277.49	660	179	278.01	2,258	930
277.50	672	186	278.02	2,302	953
277.51	703	193	278.03	2,345	976

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Stage-Area-Storage for Pond Pond 1B: Pond 1B (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
278.04	2,389	1,000
278.05	2,432	1,024
278.06	2,475	1,048
278.07	2,519	1,073
278.08	2,562	1,099
278.09	2,606	1,124
278.10	2,649	1,151
278.11	2,692	1,177
278.12	2,736	1,205
278.13	2,779	1,232
278.14	2,823	1,260
278.15	2,866	1,289
278.16	2,909	1,317
278.17	2,953	1,347
278.18	2,996	1,377
278.19	3,040	1,407
278.20	3,083	1,437
278.21	3,126	1,468
278.22	3,170	1,500
278.23	3,213	1,532
278.24	3,257	1,564
278.25	3,300	1,597
278.26	3,343	1,630
278.27	3,387	1,664
278.28	3,430	1,698
278.29	3,474	1,732
278.30	3,517	1,767
278.31	3,560	1,803
278.32	3,604	1,839
278.33	3,647	1,875
278.34	3,691	1,911
278.35	3,734	1,949
278.36	3,777	1,986
278.37	3,821	2,024
278.38	3,864	2,063
278.39	3,908	2,101
278.40	3,951	2,141
278.41	3,994	2,180
278.42	4,038	2,221
278.43	4,081	2,261
278.44	4,125	2,302
278.45	4,168	2,344
278.46	4,211	2,386
278.47	4,255	2,428
278.48	4,298	2,471
278.49	4,342	2,514
278.50	4,385	2,558

18017 Pre-post-ILSF

Type III 24-hr ILSF Limit Rainfall=7.00"

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Summary for Pond Pre Pond 1A: Pre Pond 1A

Inflow Area = 3.871 ac, 25.93% Impervious, Inflow Depth = 4.60" for ILSF Limit event
 Inflow = 18.41 cfs @ 12.12 hrs, Volume= 1.484 af
 Outflow = 5.79 cfs @ 12.48 hrs, Volume= 0.897 af, Atten= 69%, Lag= 22.0 min
 Primary = 5.79 cfs @ 12.48 hrs, Volume= 0.897 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 277.67' @ 12.48 hrs Surf.Area= 42,123 sf Storage= 32,260 cf

Plug-Flow detention time= 229.8 min calculated for 0.897 af (60% of inflow)
 Center-of-Mass det. time= 120.6 min (922.7 - 802.1)

Volume	Invert	Avail.Storage	Storage Description
#1	276.00'	47,715 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
276.00	4,053	0	0
276.50	8,187	3,060	3,060
277.00	22,091	7,570	10,630
277.50	37,615	14,927	25,556
278.00	51,019	22,159	47,715

Device	Routing	Invert	Outlet Devices
#1	Primary	277.50'	30.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=5.79 cfs @ 12.48 hrs HW=277.67' TW=0.00' (Dynamic Tailwater)
 ↑1=**Broad-Crested Rectangular Weir**(Weir Controls 5.79 cfs @ 1.15 fps)

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Stage-Area-Storage for Pond Pre Pond 1A: Pre Pond 1A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
276.00	4,053	0	276.52	8,743	3,229
276.01	4,136	41	276.53	9,021	3,318
276.02	4,218	83	276.54	9,299	3,410
276.03	4,301	125	276.55	9,577	3,504
276.04	4,384	169	276.56	9,855	3,601
276.05	4,466	213	276.57	10,134	3,701
276.06	4,549	258	276.58	10,412	3,804
276.07	4,632	304	276.59	10,690	3,909
276.08	4,714	351	276.60	10,968	4,018
276.09	4,797	398	276.61	11,246	4,129
276.10	4,880	447	276.62	11,524	4,243
276.11	4,962	496	276.63	11,802	4,359
276.12	5,045	546	276.64	12,080	4,479
276.13	5,128	597	276.65	12,358	4,601
276.14	5,211	648	276.66	12,636	4,726
276.15	5,293	701	276.67	12,914	4,854
276.16	5,376	754	276.68	13,192	4,984
276.17	5,459	808	276.69	13,471	5,117
276.18	5,541	863	276.70	13,749	5,254
276.19	5,624	919	276.71	14,027	5,392
276.20	5,707	976	276.72	14,305	5,534
276.21	5,789	1,033	276.73	14,583	5,679
276.22	5,872	1,092	276.74	14,861	5,826
276.23	5,955	1,151	276.75	15,139	5,976
276.24	6,037	1,211	276.76	15,417	6,129
276.25	6,120	1,272	276.77	15,695	6,284
276.26	6,203	1,333	276.78	15,973	6,442
276.27	6,285	1,396	276.79	16,251	6,604
276.28	6,368	1,459	276.80	16,529	6,767
276.29	6,451	1,523	276.81	16,807	6,934
276.30	6,533	1,588	276.82	17,086	7,104
276.31	6,616	1,654	276.83	17,364	7,276
276.32	6,699	1,720	276.84	17,642	7,451
276.33	6,781	1,788	276.85	17,920	7,629
276.34	6,864	1,856	276.86	18,198	7,809
276.35	6,947	1,925	276.87	18,476	7,993
276.36	7,029	1,995	276.88	18,754	8,179
276.37	7,112	2,066	276.89	19,032	8,368
276.38	7,195	2,137	276.90	19,310	8,559
276.39	7,278	2,209	276.91	19,588	8,754
276.40	7,360	2,283	276.92	19,866	8,951
276.41	7,443	2,357	276.93	20,144	9,151
276.42	7,526	2,431	276.94	20,423	9,354
276.43	7,608	2,507	276.95	20,701	9,560
276.44	7,691	2,584	276.96	20,979	9,768
276.45	7,774	2,661	276.97	21,257	9,979
276.46	7,856	2,739	276.98	21,535	10,193
276.47	7,939	2,818	276.99	21,813	10,410
276.48	8,022	2,898	277.00	22,091	10,630
276.49	8,104	2,979	277.01	22,401	10,852
276.50	8,187	3,060	277.02	22,712	11,078
276.51	8,465	3,143	277.03	23,022	11,306

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Stage-Area-Storage for Pond Pre Pond 1A: Pre Pond 1A (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.04	23,333	11,538	277.56	39,223	27,861
277.05	23,643	11,773	277.57	39,492	28,255
277.06	23,954	12,011	277.58	39,760	28,651
277.07	24,264	12,252	277.59	40,028	29,050
277.08	24,575	12,496	277.60	40,296	29,452
277.09	24,885	12,743	277.61	40,564	29,856
277.10	25,196	12,994	277.62	40,832	30,263
277.11	25,506	13,247	277.63	41,100	30,672
277.12	25,817	13,504	277.64	41,368	31,085
277.13	26,127	13,764	277.65	41,636	31,500
277.14	26,438	14,027	277.66	41,904	31,918
277.15	26,748	14,292	277.67	42,172	32,338
277.16	27,059	14,561	277.68	42,440	32,761
277.17	27,369	14,834	277.69	42,709	33,187
277.18	27,680	15,109	277.70	42,977	33,615
277.19	27,990	15,387	277.71	43,245	34,046
277.20	28,301	15,669	277.72	43,513	34,480
277.21	28,611	15,953	277.73	43,781	34,917
277.22	28,922	16,241	277.74	44,049	35,356
277.23	29,232	16,532	277.75	44,317	35,798
277.24	29,543	16,826	277.76	44,585	36,242
277.25	29,853	17,123	277.77	44,853	36,689
277.26	30,163	17,423	277.78	45,121	37,139
277.27	30,474	17,726	277.79	45,389	37,592
277.28	30,784	18,032	277.80	45,657	38,047
277.29	31,095	18,341	277.81	45,925	38,505
277.30	31,405	18,654	277.82	46,194	38,965
277.31	31,716	18,970	277.83	46,462	39,429
277.32	32,026	19,288	277.84	46,730	39,895
277.33	32,337	19,610	277.85	46,998	40,363
277.34	32,647	19,935	277.86	47,266	40,835
277.35	32,958	20,263	277.87	47,534	41,309
277.36	33,268	20,594	277.88	47,802	41,785
277.37	33,579	20,928	277.89	48,070	42,265
277.38	33,889	21,266	277.90	48,338	42,747
277.39	34,200	21,606	277.91	48,606	43,231
277.40	34,510	21,950	277.92	48,874	43,719
277.41	34,821	22,296	277.93	49,142	44,209
277.42	35,131	22,646	277.94	49,411	44,702
277.43	35,442	22,999	277.95	49,679	45,197
277.44	35,752	23,355	277.96	49,947	45,695
277.45	36,063	23,714	277.97	50,215	46,196
277.46	36,373	24,076	277.98	50,483	46,699
277.47	36,684	24,442	277.99	50,751	47,206
277.48	36,994	24,810	278.00	51,019	47,715
277.49	37,305	25,181			
277.50	37,615	25,556			
277.51	37,883	25,933			
277.52	38,151	26,314			
277.53	38,419	26,697			
277.54	38,687	27,082			
277.55	38,955	27,470			

18017 Pre-post-ILSF

Type III 24-hr ILSF Limit Rainfall=7.00"

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Summary for Pond Proposed Pond 1A: Pond 1A

Inflow Area = 1.754 ac, 24.24% Impervious, Inflow Depth = 4.70" for ILSF Limit event
 Inflow = 9.01 cfs @ 12.09 hrs, Volume= 0.687 af
 Outflow = 0.47 cfs @ 14.60 hrs, Volume= 0.189 af, Atten= 95%, Lag= 150.5 min
 Primary = 0.47 cfs @ 14.60 hrs, Volume= 0.189 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Peak Elev= 277.53' @ 14.60 hrs Surf.Area= 19,563 sf Storage= 22,345 cf

Plug-Flow detention time= 441.4 min calculated for 0.189 af (27% of inflow)
 Center-of-Mass det. time= 275.3 min (1,070.2 - 794.9)

Volume	Invert	Avail.Storage	Storage Description
#1	276.00'	32,320 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
276.00	9,903	0	0
276.50	12,805	5,677	5,677
277.00	15,998	7,201	12,878
277.50	19,310	8,827	21,705
278.00	23,151	10,615	32,320

Device	Routing	Invert	Outlet Devices
#1	Primary	277.50'	2.0" x 2.0" Horiz. Orifice/Grate X 6.00 columns X 6 rows C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.47 cfs @ 14.60 hrs HW=277.53' TW=275.37' (Dynamic Tailwater)

↑ **1=Orifice/Grate** (Weir Controls 0.47 cfs @ 0.59 fps)

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Stage-Area-Storage for Pond Proposed Pond 1A: Pond 1A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
276.00	9,903	0	276.52	12,933	5,934
276.01	9,961	99	276.53	12,997	6,064
276.02	10,019	199	276.54	13,060	6,194
276.03	10,077	300	276.55	13,124	6,325
276.04	10,135	401	276.56	13,188	6,457
276.05	10,193	502	276.57	13,252	6,589
276.06	10,251	605	276.58	13,316	6,722
276.07	10,309	707	276.59	13,380	6,855
276.08	10,367	811	276.60	13,444	6,989
276.09	10,425	915	276.61	13,507	7,124
276.10	10,483	1,019	276.62	13,571	7,260
276.11	10,541	1,124	276.63	13,635	7,396
276.12	10,599	1,230	276.64	13,699	7,532
276.13	10,658	1,336	276.65	13,763	7,670
276.14	10,716	1,443	276.66	13,827	7,808
276.15	10,774	1,551	276.67	13,891	7,946
276.16	10,832	1,659	276.68	13,954	8,085
276.17	10,890	1,767	276.69	14,018	8,225
276.18	10,948	1,877	276.70	14,082	8,366
276.19	11,006	1,986	276.71	14,146	8,507
276.20	11,064	2,097	276.72	14,210	8,649
276.21	11,122	2,208	276.73	14,274	8,791
276.22	11,180	2,319	276.74	14,338	8,934
276.23	11,238	2,431	276.75	14,402	9,078
276.24	11,296	2,544	276.76	14,465	9,222
276.25	11,354	2,657	276.77	14,529	9,367
276.26	11,412	2,771	276.78	14,593	9,513
276.27	11,470	2,885	276.79	14,657	9,659
276.28	11,528	3,000	276.80	14,721	9,806
276.29	11,586	3,116	276.81	14,785	9,953
276.30	11,644	3,232	276.82	14,849	10,102
276.31	11,702	3,349	276.83	14,912	10,250
276.32	11,760	3,466	276.84	14,976	10,400
276.33	11,818	3,584	276.85	15,040	10,550
276.34	11,876	3,702	276.86	15,104	10,701
276.35	11,934	3,822	276.87	15,168	10,852
276.36	11,992	3,941	276.88	15,232	11,004
276.37	12,050	4,061	276.89	15,296	11,157
276.38	12,109	4,182	276.90	15,359	11,310
276.39	12,167	4,304	276.91	15,423	11,464
276.40	12,225	4,426	276.92	15,487	11,618
276.41	12,283	4,548	276.93	15,551	11,774
276.42	12,341	4,671	276.94	15,615	11,929
276.43	12,399	4,795	276.95	15,679	12,086
276.44	12,457	4,919	276.96	15,743	12,243
276.45	12,515	5,044	276.97	15,806	12,401
276.46	12,573	5,169	276.98	15,870	12,559
276.47	12,631	5,295	276.99	15,934	12,718
276.48	12,689	5,422	277.00	15,998	12,878
276.49	12,747	5,549	277.01	16,064	13,038
276.50	12,805	5,677	277.02	16,130	13,199
276.51	12,869	5,805	277.03	16,197	13,361

18017 Pre-post-ILSF*Type III 24-hr ILSF Limit Rainfall=7.00"*

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Stage-Area-Storage for Pond Proposed Pond 1A: Pond 1A (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
277.04	16,263	13,523	277.56	19,771	22,877
277.05	16,329	13,686	277.57	19,848	23,075
277.06	16,395	13,850	277.58	19,925	23,274
277.07	16,462	14,014	277.59	20,001	23,474
277.08	16,528	14,179	277.60	20,078	23,674
277.09	16,594	14,344	277.61	20,155	23,875
277.10	16,660	14,511	277.62	20,232	24,077
277.11	16,727	14,678	277.63	20,309	24,280
277.12	16,793	14,845	277.64	20,385	24,483
277.13	16,859	15,013	277.65	20,462	24,688
277.14	16,925	15,182	277.66	20,539	24,893
277.15	16,992	15,352	277.67	20,616	25,098
277.16	17,058	15,522	277.68	20,693	25,305
277.17	17,124	15,693	277.69	20,770	25,512
277.18	17,190	15,865	277.70	20,846	25,720
277.19	17,257	16,037	277.71	20,923	25,929
277.20	17,323	16,210	277.72	21,000	26,139
277.21	17,389	16,383	277.73	21,077	26,349
277.22	17,455	16,558	277.74	21,154	26,560
277.23	17,522	16,732	277.75	21,231	26,772
277.24	17,588	16,908	277.76	21,307	26,985
277.25	17,654	17,084	277.77	21,384	27,198
277.26	17,720	17,261	277.78	21,461	27,413
277.27	17,786	17,439	277.79	21,538	27,628
277.28	17,853	17,617	277.80	21,615	27,843
277.29	17,919	17,796	277.81	21,691	28,060
277.30	17,985	17,975	277.82	21,768	28,277
277.31	18,051	18,155	277.83	21,845	28,495
277.32	18,118	18,336	277.84	21,922	28,714
277.33	18,184	18,518	277.85	21,999	28,934
277.34	18,250	18,700	277.86	22,076	29,154
277.35	18,316	18,883	277.87	22,152	29,375
277.36	18,383	19,066	277.88	22,229	29,597
277.37	18,449	19,250	277.89	22,306	29,820
277.38	18,515	19,435	277.90	22,383	30,043
277.39	18,581	19,621	277.91	22,460	30,268
277.40	18,648	19,807	277.92	22,536	30,493
277.41	18,714	19,994	277.93	22,613	30,718
277.42	18,780	20,181	277.94	22,690	30,945
277.43	18,846	20,369	277.95	22,767	31,172
277.44	18,913	20,558	277.96	22,844	31,400
277.45	18,979	20,748	277.97	22,921	31,629
277.46	19,045	20,938	277.98	22,997	31,859
277.47	19,111	21,128	277.99	23,074	32,089
277.48	19,178	21,320	278.00	23,151	32,320
277.49	19,244	21,512			
277.50	19,310	21,705			
277.51	19,387	21,898			
277.52	19,464	22,092			
277.53	19,540	22,288			
277.54	19,617	22,483			
277.55	19,694	22,680			

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Summary for Pond WQU 2: WQU 2

[57] Hint: Peaked at 279.83' (Flood elevation advised)

Inflow Area = 0.776 ac, 83.79% Impervious, Inflow Depth = 6.32" for ILSF Limit event
Inflow = 5.06 cfs @ 12.08 hrs, Volume= 0.409 af
Outflow = 5.06 cfs @ 12.09 hrs, Volume= 0.409 af, Atten= 0%, Lag= 0.6 min
Primary = 5.06 cfs @ 12.09 hrs, Volume= 0.409 af

Routing by Sim-Route method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Peak Elev= 279.83' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	277.70'	18.0" Round Culvert L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 277.70' / 277.60' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=4.87 cfs @ 12.09 hrs HW=279.80' TW=279.47' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 4.87 cfs @ 2.76 fps)

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Stage-Area-Storage for Pond WQU 2: WQU 2

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
277.70	0	278.22	0	278.74	0
277.71	0	278.23	0	278.75	0
277.72	0	278.24	0	278.76	0
277.73	0	278.25	0	278.77	0
277.74	0	278.26	0	278.78	0
277.75	0	278.27	0	278.79	0
277.76	0	278.28	0	278.80	0
277.77	0	278.29	0	278.81	0
277.78	0	278.30	0	278.82	0
277.79	0	278.31	0	278.83	0
277.80	0	278.32	0	278.84	0
277.81	0	278.33	0	278.85	0
277.82	0	278.34	0	278.86	0
277.83	0	278.35	0	278.87	0
277.84	0	278.36	0	278.88	0
277.85	0	278.37	0	278.89	0
277.86	0	278.38	0	278.90	0
277.87	0	278.39	0	278.91	0
277.88	0	278.40	0	278.92	0
277.89	0	278.41	0	278.93	0
277.90	0	278.42	0	278.94	0
277.91	0	278.43	0	278.95	0
277.92	0	278.44	0	278.96	0
277.93	0	278.45	0	278.97	0
277.94	0	278.46	0	278.98	0
277.95	0	278.47	0	278.99	0
277.96	0	278.48	0	279.00	0
277.97	0	278.49	0	279.01	0
277.98	0	278.50	0	279.02	0
277.99	0	278.51	0	279.03	0
278.00	0	278.52	0	279.04	0
278.01	0	278.53	0	279.05	0
278.02	0	278.54	0	279.06	0
278.03	0	278.55	0	279.07	0
278.04	0	278.56	0	279.08	0
278.05	0	278.57	0	279.09	0
278.06	0	278.58	0	279.10	0
278.07	0	278.59	0	279.11	0
278.08	0	278.60	0	279.12	0
278.09	0	278.61	0	279.13	0
278.10	0	278.62	0	279.14	0
278.11	0	278.63	0	279.15	0
278.12	0	278.64	0	279.16	0
278.13	0	278.65	0	279.17	0
278.14	0	278.66	0	279.18	0
278.15	0	278.67	0	279.19	0
278.16	0	278.68	0	279.20	0
278.17	0	278.69	0	279.21	0
278.18	0	278.70	0	279.22	0
278.19	0	278.71	0	279.23	0
278.20	0	278.72	0	279.24	0
278.21	0	278.73	0	279.25	0

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Stage-Area-Storage for Pond WQU 2: WQU 2 (continued)

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
279.26	0	279.78	0
279.27	0	279.79	0
279.28	0	279.80	0
279.29	0	279.81	0
279.30	0	279.82	0
279.31	0	279.83	0
279.32	0		
279.33	0		
279.34	0		
279.35	0		
279.36	0		
279.37	0		
279.38	0		
279.39	0		
279.40	0		
279.41	0		
279.42	0		
279.43	0		
279.44	0		
279.45	0		
279.46	0		
279.47	0		
279.48	0		
279.49	0		
279.50	0		
279.51	0		
279.52	0		
279.53	0		
279.54	0		
279.55	0		
279.56	0		
279.57	0		
279.58	0		
279.59	0		
279.60	0		
279.61	0		
279.62	0		
279.63	0		
279.64	0		
279.65	0		
279.66	0		
279.67	0		
279.68	0		
279.69	0		
279.70	0		
279.71	0		
279.72	0		
279.73	0		
279.74	0		
279.75	0		
279.76	0		
279.77	0		