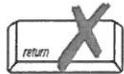
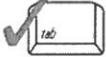




Checklist for Stormwater Report

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.

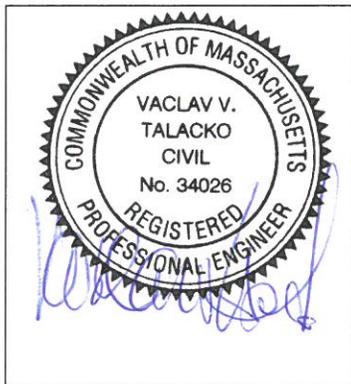
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the 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



Vaclav V. Talacko 7/20/16
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): _____

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.

STORMWATER CALCULATIONS

RECHARGE VOLUME CALCULATION

HSG=A soils → 0.25 inches of runoff
95,606 square feet of proposed impervious area

Required Recharge Volume = $95,606 \text{ sf} \times 0.25 \text{ in}/12\text{in}/\text{ft} = 1,992 \text{ cf}$

11,912 cf of volume in Infiltration Basin #1 below the lowest outlet
30,795 cf of volume in Infiltration Basin #2 below the lowest outlet
4,218 cf total volume provided

42,707 cf > 1,992 cf

Required recharge volume is provided.

SEDIMENT FOREBAY DESIGN

Required sediment forebay volume → 0.5 inches x contributing impervious area (Water Quality Volume)

Sediment Forebay #1: $28,291 \text{ sf} \times 0.1 \text{ in}/12\text{in}/\text{ft} = 236 \text{ cf min.} < 2,257 \text{ cf provided}$

Sediment Forebay #2A: $4,805 \text{ sf} \times 0.1 \text{ in}/12\text{in}/\text{ft} = 40 \text{ cf min.} < 2,104 \text{ cf provided}$

Sediment Forebay #2B: $47,983 \text{ sf} \times 0.1 \text{ in}/12\text{in}/\text{ft} = 400 \text{ cf min.} < 2,901 \text{ cf provided}$

The sediment forebay has the minimum required volume. See the attached HydroCAD data sheet for the volume calculations for the sediment forebay.

ROOF DRAINAGE DESIGN

Required infiltration chamber volume → 1 inch x impervious roof area

Each housing unit: $2,440 \text{ sf} \times 1 \text{ in.}/12 \text{ in.}/\text{ft} = 203.3 \text{ cf required storage}$

Cultec Recharger 280HD w/ 6" stone = 64.46 cf storage

$203.3 \text{ cf} / 64.46 \text{ cf per infiltration chamber} = 3 \text{ infiltration chambers per housing unit}$



To Wetlands



To Wetlands



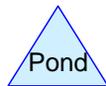
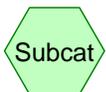
To Wetlands



To East



To South



Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
1,112,104	39	>75% Grass cover, Good, HSG A (EX1A, EX1B, EX1C, EX2, EX3)
30,093	61	>75% Grass cover, Good, HSG B (EX1A, EX1C)
23,928	98	impervious area (EX1B)
1,166,125	41	TOTAL AREA

Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
1,112,104	HSG A	EX1A, EX1B, EX1C, EX2, EX3
30,093	HSG B	EX1A, EX1C
0	HSG C	
0	HSG D	
23,928	Other	EX1B
1,166,125		TOTAL AREA

Ground Covers (selected nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover
1,112,104	30,093	0	0	0	1,142,197	>75% Grass cover, Good
0	0	0	0	23,928	23,928	impervious area
1,112,104	30,093	0	0	23,928	1,166,125	TOTAL AREA

Sub
Num

Summary for Subcatchment EX1A: To Wetlands

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 33 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
580,952	39	>75% Grass cover, Good, HSG A
18,106	61	>75% Grass cover, Good, HSG B
599,058	40	Weighted Average
599,058		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	50	0.0500	0.21		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
4.3	929	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
8.3	979	Total			

Summary for Subcatchment EX1B: To Wetlands

Runoff = 1.36 cfs @ 12.08 hrs, Volume= 4,198 cf, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
7,577	39	>75% Grass cover, Good, HSG A
* 23,928	98	impervious area
31,505	84	Weighted Average
7,577		24.05% Pervious Area
23,928		75.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.56		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
0.7	160	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	210	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment EX1C: To Wetlands

Runoff = 0.00 cfs @ 22.41 hrs, Volume= 54 cf, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
68,875	39	>75% Grass cover, Good, HSG A
11,987	61	>75% Grass cover, Good, HSG B
80,862	42	Weighted Average
80,862		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	50	0.0500	0.21		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
4.3	929	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
8.3	979	Total			

Summary for Subcatchment EX2: To East

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
395,000	39	>75% Grass cover, Good, HSG A
395,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
4.9	948	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.2	998	Total			

Summary for Subcatchment EX3: To South

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
59,700	39	>75% Grass cover, Good, HSG A
59,700		100.00% Pervious Area

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

Summary for Subcatchment EX1A: To Wetlands

Runoff = 0.30 cfs @ 13.72 hrs, Volume= 7,699 cf, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
580,952	39	>75% Grass cover, Good, HSG A
18,106	61	>75% Grass cover, Good, HSG B
599,058	40	Weighted Average
599,058		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	50	0.0500	0.21		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
4.3	929	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
8.3	979	Total			

Summary for Subcatchment EX1B: To Wetlands

Runoff = 2.45 cfs @ 12.08 hrs, Volume= 7,631 cf, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
7,577	39	>75% Grass cover, Good, HSG A
* 23,928	98	impervious area
31,505	84	Weighted Average
7,577		24.05% Pervious Area
23,928		75.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.56		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
0.7	160	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	210	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment EX1C: To Wetlands

Runoff = 0.09 cfs @ 12.48 hrs, Volume= 1,455 cf, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
68,875	39	>75% Grass cover, Good, HSG A
11,987	61	>75% Grass cover, Good, HSG B
80,862	42	Weighted Average
80,862		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	50	0.0500	0.21		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
4.3	929	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
8.3	979	Total			

Summary for Subcatchment EX2: To East

Runoff = 0.15 cfs @ 14.64 hrs, Volume= 4,167 cf, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
395,000	39	>75% Grass cover, Good, HSG A
395,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
4.9	948	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.2	998	Total			

Summary for Subcatchment EX3: To South

Runoff = 0.02 cfs @ 14.56 hrs, Volume= 630 cf, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
59,700	39	>75% Grass cover, Good, HSG A
59,700		100.00% Pervious Area

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

Summary for Subcatchment EX1A: To Wetlands

Runoff = 4.39 cfs @ 12.29 hrs, Volume= 33,056 cf, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
580,952	39	>75% Grass cover, Good, HSG A
18,106	61	>75% Grass cover, Good, HSG B
599,058	40	Weighted Average
599,058		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	50	0.0500	0.21		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
4.3	929	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
8.3	979	Total			

Summary for Subcatchment EX1B: To Wetlands

Runoff = 3.90 cfs @ 12.07 hrs, Volume= 12,251 cf, Depth= 4.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
7,577	39	>75% Grass cover, Good, HSG A
* 23,928	98	impervious area
31,505	84	Weighted Average
7,577		24.05% Pervious Area
23,928		75.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.56		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
0.7	160	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	210	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment EX1C: To Wetlands

Runoff = 0.85 cfs @ 12.19 hrs, Volume= 5,366 cf, Depth= 0.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
68,875	39	>75% Grass cover, Good, HSG A
11,987	61	>75% Grass cover, Good, HSG B
80,862	42	Weighted Average
80,862		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	50	0.0500	0.21		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
4.3	929	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
8.3	979	Total			

Summary for Subcatchment EX2: To East

Runoff = 2.43 cfs @ 12.35 hrs, Volume= 19,683 cf, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
395,000	39	>75% Grass cover, Good, HSG A
395,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
4.9	948	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.2	998	Total			

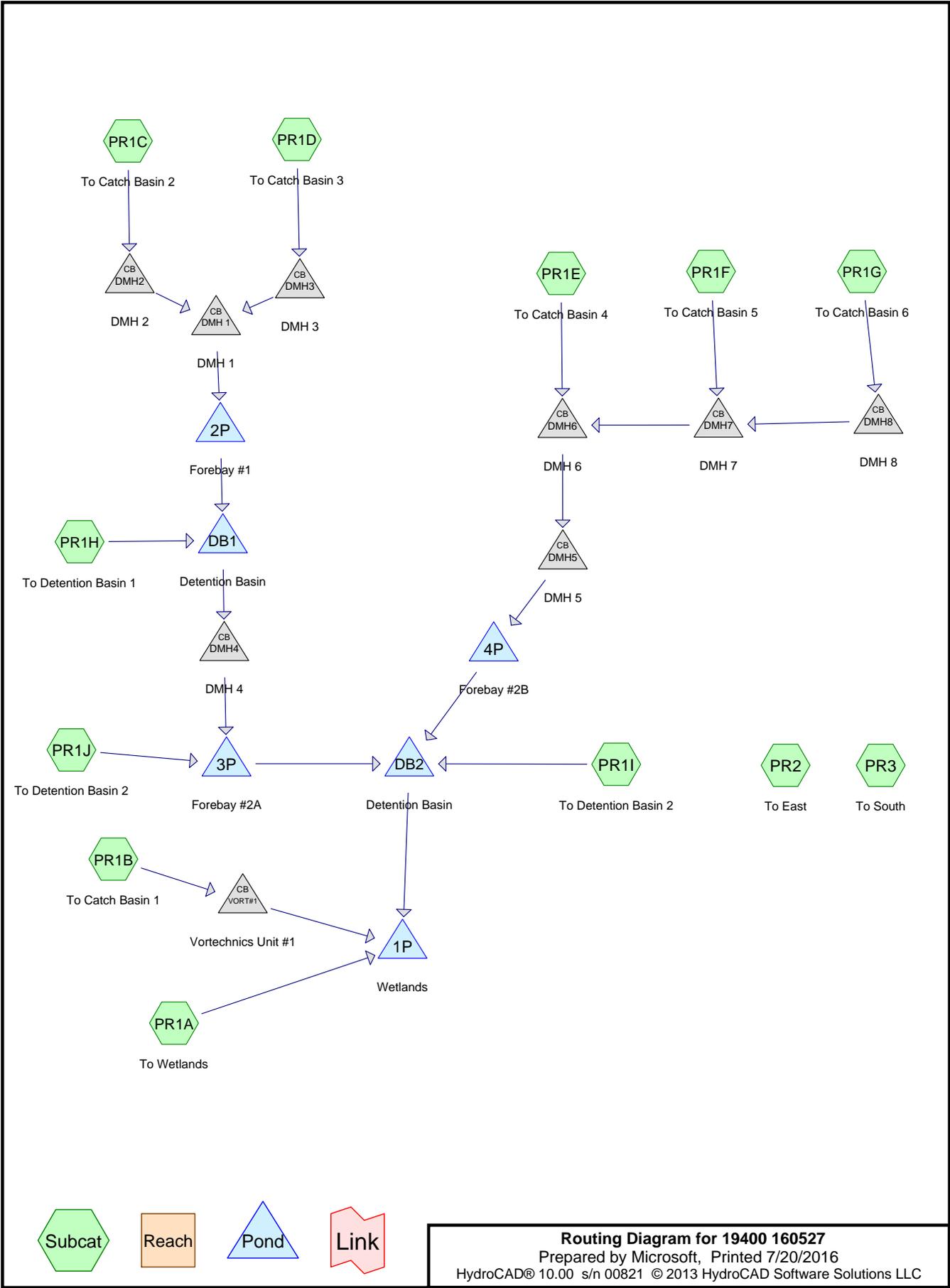
Summary for Subcatchment EX3: To South

Runoff = 0.38 cfs @ 12.28 hrs, Volume= 2,975 cf, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
59,700	39	>75% Grass cover, Good, HSG A
59,700		100.00% Pervious Area

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



Routing Diagram for 19400 160527
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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
1,000,915	39	>75% Grass cover, Good, HSG A (PR1A, PR1B, PR1C, PR1D, PR1E, PR1F, PR1G, PR1H, PR1I, PR1J, PR2, PR3)
11,343	61	>75% Grass cover, Good, HSG B (PR1A)
4,805	98	Paved parking, HSG A (PR1J)
97,055	98	impervious area (PR1A, PR1B, PR1C, PR1D, PR1E, PR1F, PR1G)
1,114,118	45	TOTAL AREA

Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
1,005,720	HSG A	PR1A, PR1B, PR1C, PR1D, PR1E, PR1F, PR1G, PR1H, PR1I, PR1J, PR2, PR3
11,343	HSG B	PR1A
0	HSG C	
0	HSG D	
97,055	Other	PR1A, PR1B, PR1C, PR1D, PR1E, PR1F, PR1G
1,114,118		TOTAL AREA

Ground Covers (selected nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover
1,000,915	11,343	0	0	0	1,012,258	>75% Grass cover, Good
4,805	0	0	0	0	4,805	Paved parking
0	0	0	0	97,055	97,055	impervious area
1,005,720	11,343	0	0	97,055	1,114,118	TOTAL AREA

Sub
Num

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	PR1J	0.00	0.00	142.0	0.0050	0.010	12.0	0.0	0.0
2	DB1	46.00	43.60	225.0	0.0107	0.010	12.0	0.0	0.0
3	DB2	46.00	33.00	150.0	0.0867	0.010	12.0	0.0	0.0
4	DMH 1	49.60	44.00	90.0	0.0622	0.010	12.0	0.0	0.0
5	DMH2	50.20	49.70	94.0	0.0053	0.010	12.0	0.0	0.0
6	DMH3	63.50	49.70	276.0	0.0500	0.010	12.0	0.0	0.0
7	DMH4	43.50	42.90	50.0	0.0120	0.010	12.0	0.0	0.0
8	DMH5	43.90	43.90	202.0	0.0000	0.010	18.0	0.0	0.0
9	DMH6	46.60	44.00	140.0	0.0186	0.010	18.0	0.0	0.0
10	DMH7	52.30	46.70	264.0	0.0212	0.010	12.0	0.0	0.0
11	DMH8	59.40	52.40	192.0	0.0365	0.010	12.0	0.0	0.0
12	VORT#1	33.90	33.70	34.0	0.0059	0.010	12.0	0.0	0.0

Summary for Subcatchment PR1A: To Wetlands

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 27 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
476,400	39	>75% Grass cover, Good, HSG A
11,343	61	>75% Grass cover, Good, HSG B
* 2,949	98	impervious area
490,692	40	Weighted Average
487,743		99.40% Pervious Area
2,949		0.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.0600	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.3	310	0.0630	4.04		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
5.0	360	Total			

Summary for Subcatchment PR1B: To Catch Basin 1

Runoff = 1.18 cfs @ 12.07 hrs, Volume= 3,786 cf, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
* 17,275	98	impervious area
1,290	39	>75% Grass cover, Good, HSG A
18,565	94	Weighted Average
1,290		6.95% Pervious Area
17,275		93.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.18		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
1.1	270	0.0440	4.26		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.8	320	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR1C: To Catch Basin 2

Runoff = 0.02 cfs @ 13.78 hrs, Volume= 636 cf, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
69,641	39	>75% Grass cover, Good, HSG A
* 14,504	98	impervious area
84,145	49	Weighted Average
69,641		82.76% Pervious Area
14,504		17.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	50	0.1400	0.32		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.1	300	0.0470	4.40		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.7	350	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR1D: To Catch Basin 3

Runoff = 0.04 cfs @ 12.45 hrs, Volume= 732 cf, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
54,407	39	>75% Grass cover, Good, HSG A
* 13,828	98	impervious area
68,235	51	Weighted Average
54,407		79.73% Pervious Area
13,828		20.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.1000	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.3	90	0.1000	5.09		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.8	320	0.0220	3.01		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.1	460	Total			

Summary for Subcatchment PR1E: To Catch Basin 4

Runoff = 0.05 cfs @ 13.81 hrs, Volume= 1,277 cf, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
140,356	39	>75% Grass cover, Good, HSG A
* 28,470	98	impervious area
168,826	49	Weighted Average
140,356		83.14% Pervious Area
28,470		16.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.8	410	0.0540	3.74		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.4	70	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.5	530	Total			

Summary for Subcatchment PR1F: To Catch Basin 5

Runoff = 0.01 cfs @ 13.62 hrs, Volume= 244 cf, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
21,813	39	>75% Grass cover, Good, HSG A
* 5,051	98	impervious area
26,864	50	Weighted Average
21,813		81.20% Pervious Area
5,051		18.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	50	0.2100	0.37		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.3	340	0.0680	4.20		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	140	0.0300	3.52		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	530	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR1G: To Catch Basin 6

Runoff = 0.02 cfs @ 13.78 hrs, Volume= 652 cf, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
71,276	39	>75% Grass cover, Good, HSG A
* 14,978	98	impervious area
86,254	49	Weighted Average
71,276		82.64% Pervious Area
14,978		17.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	50	0.2100	0.37		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.4	70	0.0300	2.79		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.3	340	0.0490	4.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.9	460	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR1H: To Detention Basin 1

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
35,040	39	>75% Grass cover, Good, HSG A
35,040		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.0	290	0.0900	4.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
5.3	340	Total			

Summary for Subcatchment PR1I: To Detention Basin 2

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
23,585	39	>75% Grass cover, Good, HSG A
23,585		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.3	100	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
4.6	150	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR1J: To Detention Basin 2

Runoff = 0.31 cfs @ 12.07 hrs, Volume= 949 cf, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
917	39	>75% Grass cover, Good, HSG A
4,805	98	Paved parking, HSG A
5,722	89	Weighted Average
917		16.03% Pervious Area
4,805		83.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.56		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
0.8	200	0.0400	4.06		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6	142	0.0050	4.17	3.28	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
1.9	392	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR2: To East

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
46,490	39	>75% Grass cover, Good, HSG A
46,490		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.1000	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.1	330	0.1000	5.09		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
4.1	380	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR3: To South

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.10"

Area (sf)	CN	Description
59,700	39	>75% Grass cover, Good, HSG A
59,700		100.00% Pervious Area

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

Summary for Pond 1P: Wetlands

Inflow Area = 1,007,928 sf, 10.11% Impervious, Inflow Depth = 0.05" for 2 year event
 Inflow = 1.18 cfs @ 12.07 hrs, Volume= 3,813 cf
 Primary = 1.18 cfs @ 12.07 hrs, Volume= 3,813 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond 2P: Forebay #1

Inflow Area = 152,380 sf, 18.59% Impervious, Inflow Depth = 0.11" for 2 year event
 Inflow = 0.05 cfs @ 13.64 hrs, Volume= 1,369 cf
 Outflow = 0.02 cfs @ 23.98 hrs, Volume= 1,369 cf, Atten= 67%, Lag= 620.6 min
 Discarded = 0.02 cfs @ 23.98 hrs, Volume= 1,369 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 45.50' @ 23.98 hrs Surf.Area= 733 sf Storage= 744 cf

Plug-Flow detention time= 524.4 min calculated for 1,369 cf (100% of inflow)
 Center-of-Mass det. time= 524.2 min (1,544.8 - 1,020.6)

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	2,257 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	279	0	0
45.00	562	421	421
46.00	904	733	1,154
47.00	1,303	1,104	2,257

Device	Routing	Invert	Outlet Devices
#1	Primary	46.50'	10.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Discarded	44.00'	1.020 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.02 cfs @ 23.98 hrs HW=45.50' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.00' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: Forebay #2A

Inflow Area = 193,142 sf, 17.16% Impervious, Inflow Depth = 0.06" for 2 year event
 Inflow = 0.31 cfs @ 12.07 hrs, Volume= 949 cf
 Outflow = 0.01 cfs @ 14.96 hrs, Volume= 949 cf, Atten= 95%, Lag= 173.3 min
 Discarded = 0.01 cfs @ 14.96 hrs, Volume= 949 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 44.22' @ 14.96 hrs Surf.Area= 596 sf Storage= 529 cf

Plug-Flow detention time= 427.7 min calculated for 948 cf (100% of inflow)
 Center-of-Mass det. time= 427.9 min (1,239.3 - 811.4)

Volume	Invert	Avail.Storage	Storage Description
#1	43.00'	2,104 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.00	280	0	0
44.00	528	404	404
45.00	836	682	1,086
46.00	1,200	1,018	2,104

Device	Routing	Invert	Outlet Devices
#1	Primary	45.50'	10.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Discarded	43.00'	1.020 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.01 cfs @ 14.96 hrs HW=44.22' (Free Discharge)

↳ **2=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=43.00' (Free Discharge)

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

Summary for Pond 4P: Forebay #2B

Inflow Area = 281,944 sf, 17.20% Impervious, Inflow Depth = 0.09" for 2 year event
 Inflow = 0.08 cfs @ 13.78 hrs, Volume= 2,173 cf
 Outflow = 0.02 cfs @ 24.04 hrs, Volume= 2,173 cf, Atten= 70%, Lag= 615.7 min
 Discarded = 0.02 cfs @ 24.04 hrs, Volume= 2,173 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 44.75' @ 24.04 hrs Surf.Area= 1,031 sf Storage= 1,310 cf

Plug-Flow detention time= 612.4 min calculated for 2,173 cf (100% of inflow)
 Center-of-Mass det. time= 612.3 min (1,648.3 - 1,036.0)

Volume	Invert	Avail.Storage	Storage Description
#1	43.00'	2,901 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.00	494	0	0
44.00	778	636	636
45.00	1,118	948	1,584
46.00	1,515	1,317	2,901

Device	Routing	Invert	Outlet Devices
#1	Primary	45.50'	10.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Discarded	43.00'	1.020 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.02 cfs @ 24.04 hrs HW=44.75' (Free Discharge)

↳ **2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=43.00' (Free Discharge)

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

Summary for Pond DB1: Detention Basin

Inflow Area = 187,420 sf, 15.12% Impervious, Inflow Depth = 0.00" for 2 year event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 44.00' @ 0.00 hrs Surf.Area= 3,565 sf Storage= 0 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	14,134 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	3,565	0	0
45.00	4,297	3,931	3,931
46.00	5,087	4,692	8,623
47.00	5,934	5,511	14,134

Device	Routing	Invert	Outlet Devices
#1	Primary	46.00'	12.0" Round Culvert L= 225.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 46.00' / 43.60' S= 0.0107 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Discarded	44.00'	1.020 in/hr Exfiltration over Surface area
#3	Primary	46.50'	10.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.00' (Free Discharge)
 ↳ **2=Exfiltration** (Passes 0.00 cfs of 0.08 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.00' (Free Discharge)
 ↳ **1=Culvert** (Controls 0.00 cfs)
 ↳ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond DB2: Detention Basin

Inflow Area = 498,671 sf, 16.37% Impervious, Inflow Depth = 0.00" for 2 year event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 42.00' @ 0.00 hrs Surf.Area= 1,473 sf Storage= 0 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	42.00'	14,956 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
42.00	1,473	0	0
43.00	1,997	1,735	1,735
44.00	2,594	2,296	4,031
45.00	3,260	2,927	6,958
46.00	3,985	3,623	10,580
47.00	4,766	4,376	14,956

Device	Routing	Invert	Outlet Devices
#1	Primary	46.00'	12.0" Round Culvert L= 150.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 46.00' / 33.00' S= 0.0867 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Discarded	42.00'	1.020 in/hr Exfiltration over Surface area
#3	Primary	46.50'	10.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=42.00' (Free Discharge)

↑**2=Exfiltration** (Passes 0.00 cfs of 0.03 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=42.00' (Free Discharge)

↑**1=Culvert** (Controls 0.00 cfs)

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

Summary for Pond DMH 1: DMH 1

Inflow Area = 152,380 sf, 18.59% Impervious, Inflow Depth = 0.11" for 2 year event
 Inflow = 0.05 cfs @ 13.64 hrs, Volume= 1,369 cf
 Outflow = 0.05 cfs @ 13.64 hrs, Volume= 1,369 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.05 cfs @ 13.64 hrs, Volume= 1,369 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 49.71' @ 13.64 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	49.60'	12.0" Round Culvert L= 90.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 49.60' / 44.00' S= 0.0622 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.05 cfs @ 13.64 hrs HW=49.71' (Free Discharge)

↑**1=Culvert** (Inlet Controls 0.05 cfs @ 1.13 fps)

Summary for Pond DMH2: DMH 2

Inflow Area = 84,145 sf, 17.24% Impervious, Inflow Depth = 0.09" for 2 year event
 Inflow = 0.02 cfs @ 13.78 hrs, Volume= 636 cf
 Outflow = 0.02 cfs @ 13.78 hrs, Volume= 636 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.02 cfs @ 13.78 hrs, Volume= 636 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 50.28' @ 13.78 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	50.20'	12.0" Round Culvert L= 94.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 50.20' / 49.70' S= 0.0053 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.02 cfs @ 13.78 hrs HW=50.28' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.02 cfs @ 1.23 fps)

Summary for Pond DMH3: DMH 3

Inflow Area = 68,235 sf, 20.27% Impervious, Inflow Depth = 0.13" for 2 year event
 Inflow = 0.04 cfs @ 12.45 hrs, Volume= 732 cf
 Outflow = 0.04 cfs @ 12.45 hrs, Volume= 732 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.04 cfs @ 12.45 hrs, Volume= 732 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 63.60' @ 12.45 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	63.50'	12.0" Round Culvert L= 276.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 63.50' / 49.70' S= 0.0500 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.04 cfs @ 12.45 hrs HW=63.60' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.04 cfs @ 1.05 fps)

Summary for Pond DMH4: DMH 4

Inflow Area = 187,420 sf, 15.12% Impervious, Inflow Depth = 0.00" for 2 year event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 43.50' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	43.50'	12.0" Round Culvert L= 50.0' CMP, end-section conforming to fill, Ke= 0.500

Inlet / Outlet Invert= 43.50' / 42.90' S= 0.0120 1/ S= 0.0120 1/ Cc= 0.900
 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=43.50' (Free Discharge)

↑1=Culvert (Controls 0.00 cfs)

Summary for Pond DMH5: DMH 5

Inflow Area = 281,944 sf, 17.20% Impervious, Inflow Depth = 0.09" for 2 year event
 Inflow = 0.08 cfs @ 13.78 hrs, Volume= 2,173 cf
 Outflow = 0.08 cfs @ 13.78 hrs, Volume= 2,173 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.08 cfs @ 13.78 hrs, Volume= 2,173 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 44.16' @ 13.78 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	43.90'	18.0" Round Culvert L= 202.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 43.90' / 43.90' S= 0.0000 1/ S= 0.0000 1/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.08 cfs @ 13.78 hrs HW=44.16' (Free Discharge)

↑1=Culvert (Barrel Controls 0.08 cfs @ 0.61 fps)

Summary for Pond DMH6: DMH 6

Inflow Area = 281,944 sf, 17.20% Impervious, Inflow Depth = 0.09" for 2 year event
 Inflow = 0.08 cfs @ 13.78 hrs, Volume= 2,173 cf
 Outflow = 0.08 cfs @ 13.78 hrs, Volume= 2,173 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.08 cfs @ 13.78 hrs, Volume= 2,173 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 46.74' @ 13.78 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.60'	18.0" Round Culvert L= 140.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 46.60' / 44.00' S= 0.0186 1/ S= 0.0186 1/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.08 cfs @ 13.78 hrs HW=46.74' (Free Discharge)

↑1=Culvert (Inlet Controls 0.08 cfs @ 1.00 fps)

Summary for Pond DMH7: DMH 7

Inflow Area = 113,118 sf, 17.71% Impervious, Inflow Depth = 0.10" for 2 year event
 Inflow = 0.03 cfs @ 13.74 hrs, Volume= 896 cf
 Outflow = 0.03 cfs @ 13.74 hrs, Volume= 896 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.03 cfs @ 13.74 hrs, Volume= 896 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 52.40' @ 13.74 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	52.30'	12.0" Round Culvert L= 264.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 52.30' / 46.70' S= 0.0212 1/1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.03 cfs @ 13.74 hrs HW=52.40' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.03 cfs @ 0.84 fps)

Summary for Pond DMH8: DMH 8

Inflow Area = 86,254 sf, 17.36% Impervious, Inflow Depth = 0.09" for 2 year event
 Inflow = 0.02 cfs @ 13.78 hrs, Volume= 652 cf
 Outflow = 0.02 cfs @ 13.78 hrs, Volume= 652 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.02 cfs @ 13.78 hrs, Volume= 652 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 59.48' @ 13.78 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	59.40'	12.0" Round Culvert L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 59.40' / 52.40' S= 0.0365 1/1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.02 cfs @ 13.78 hrs HW=59.48' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.02 cfs @ 0.78 fps)

Summary for Pond VORT#1: Vortechincs Unit #1

Inflow Area = 18,565 sf, 93.05% Impervious, Inflow Depth = 2.45" for 2 year event
 Inflow = 1.18 cfs @ 12.07 hrs, Volume= 3,786 cf
 Outflow = 1.18 cfs @ 12.07 hrs, Volume= 3,786 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.18 cfs @ 12.07 hrs, Volume= 3,786 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.53' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.00'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#2	Primary	33.90'	

Primary OutFlow Max=1.14 cfs @ 12.07 hrs HW=34.51' (Free Discharge)
 ↑1=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)
 ↑2=Culvert (Barrel Controls 1.14 cfs @ 3.23 fps)

Summary for Subcatchment PR1A: To Wetlands

Runoff = 0.24 cfs @ 13.66 hrs, Volume= 6,306 cf, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
476,400	39	>75% Grass cover, Good, HSG A
11,343	61	>75% Grass cover, Good, HSG B
* 2,949	98	impervious area
490,692	40	Weighted Average
487,743		99.40% Pervious Area
2,949		0.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.0600	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.3	310	0.0630	4.04		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
5.0	360	Total			

Summary for Subcatchment PR1B: To Catch Basin 1

Runoff = 1.84 cfs @ 12.07 hrs, Volume= 6,055 cf, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
* 17,275	98	impervious area
1,290	39	>75% Grass cover, Good, HSG A
18,565	94	Weighted Average
1,290		6.95% Pervious Area
17,275		93.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.18		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
1.1	270	0.0440	4.26		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.8	320	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR1C: To Catch Basin 2

Runoff = 0.51 cfs @ 12.15 hrs, Volume= 3,440 cf, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
69,641	39	>75% Grass cover, Good, HSG A
* 14,504	98	impervious area
84,145	49	Weighted Average
69,641		82.76% Pervious Area
14,504		17.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	50	0.1400	0.32		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.1	300	0.0470	4.40		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.7	350	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR1D: To Catch Basin 3

Runoff = 0.63 cfs @ 12.12 hrs, Volume= 3,320 cf, Depth= 0.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
54,407	39	>75% Grass cover, Good, HSG A
* 13,828	98	impervious area
68,235	51	Weighted Average
54,407		79.73% Pervious Area
13,828		20.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.1000	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.3	90	0.1000	5.09		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.8	320	0.0220	3.01		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.1	460	Total			

Summary for Subcatchment PR1E: To Catch Basin 4

Runoff = 0.99 cfs @ 12.15 hrs, Volume= 6,903 cf, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
140,356	39	>75% Grass cover, Good, HSG A
* 28,470	98	impervious area
168,826	49	Weighted Average
140,356		83.14% Pervious Area
28,470		16.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.8	410	0.0540	3.74		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.4	70	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.5	530	Total			

Summary for Subcatchment PR1F: To Catch Basin 5

Runoff = 0.21 cfs @ 12.12 hrs, Volume= 1,201 cf, Depth= 0.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
21,813	39	>75% Grass cover, Good, HSG A
* 5,051	98	impervious area
26,864	50	Weighted Average
21,813		81.20% Pervious Area
5,051		18.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	50	0.2100	0.37		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.3	340	0.0680	4.20		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	140	0.0300	3.52		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	530	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR1G: To Catch Basin 6

Runoff = 0.53 cfs @ 12.15 hrs, Volume= 3,527 cf, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
71,276	39	>75% Grass cover, Good, HSG A
* 14,978	98	impervious area
86,254	49	Weighted Average
71,276		82.64% Pervious Area
14,978		17.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	50	0.2100	0.37		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.4	70	0.0300	2.79		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.3	340	0.0490	4.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.9	460	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR1H: To Detention Basin 1

Runoff = 0.01 cfs @ 14.57 hrs, Volume= 370 cf, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
35,040	39	>75% Grass cover, Good, HSG A
35,040		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.0	290	0.0900	4.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
5.3	340	Total			

Summary for Subcatchment PR1I: To Detention Basin 2

Runoff = 0.01 cfs @ 14.56 hrs, Volume= 249 cf, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
23,585	39	>75% Grass cover, Good, HSG A
23,585		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.3	100	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
4.6	150	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR1J: To Detention Basin 2

Runoff = 0.51 cfs @ 12.07 hrs, Volume= 1,617 cf, Depth= 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
917	39	>75% Grass cover, Good, HSG A
4,805	98	Paved parking, HSG A
5,722	89	Weighted Average
917		16.03% Pervious Area
4,805		83.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.56		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
0.8	200	0.0400	4.06		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6	142	0.0050	4.17	3.28	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
1.9	392	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR2: To East

Runoff = 0.02 cfs @ 14.56 hrs, Volume= 490 cf, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
46,490	39	>75% Grass cover, Good, HSG A
46,490		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.1000	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.1	330	0.1000	5.09		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
4.1	380	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR3: To South

Runoff = 0.02 cfs @ 14.56 hrs, Volume= 630 cf, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.60"

Area (sf)	CN	Description
59,700	39	>75% Grass cover, Good, HSG A
59,700		100.00% Pervious Area

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

Summary for Pond 1P: Wetlands

Inflow Area = 1,007,928 sf, 10.11% Impervious, Inflow Depth = 0.15" for 10 year event
 Inflow = 1.84 cfs @ 12.07 hrs, Volume= 12,361 cf
 Primary = 1.84 cfs @ 12.07 hrs, Volume= 12,361 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond 2P: Forebay #1

Inflow Area = 152,380 sf, 18.59% Impervious, Inflow Depth = 0.53" for 10 year event
 Inflow = 1.11 cfs @ 12.13 hrs, Volume= 6,761 cf
 Outflow = 0.37 cfs @ 12.73 hrs, Volume= 6,761 cf, Atten= 67%, Lag= 36.1 min
 Discarded = 0.03 cfs @ 12.73 hrs, Volume= 2,787 cf
 Primary = 0.34 cfs @ 12.73 hrs, Volume= 3,973 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 46.56' @ 12.73 hrs Surf.Area= 1,127 sf Storage= 1,720 cf

Plug-Flow detention time= 348.7 min calculated for 6,761 cf (100% of inflow)
 Center-of-Mass det. time= 348.6 min (1,274.5 - 926.0)

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	2,257 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	279	0	0
45.00	562	421	421
46.00	904	733	1,154
47.00	1,303	1,104	2,257

Device	Routing	Invert	Outlet Devices
#1	Primary	46.50'	10.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Discarded	44.00'	1.020 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.03 cfs @ 12.73 hrs HW=46.56' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.34 cfs @ 12.73 hrs HW=46.56' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.34 cfs @ 0.58 fps)

Summary for Pond 3P: Forebay #2A

Inflow Area = 193,142 sf, 17.16% Impervious, Inflow Depth = 0.10" for 10 year event
 Inflow = 0.51 cfs @ 12.07 hrs, Volume= 1,617 cf
 Outflow = 0.02 cfs @ 15.46 hrs, Volume= 1,617 cf, Atten= 96%, Lag= 203.4 min
 Discarded = 0.02 cfs @ 15.46 hrs, Volume= 1,617 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 44.89' @ 15.46 hrs Surf.Area= 801 sf Storage= 993 cf

Plug-Flow detention time= 608.1 min calculated for 1,615 cf (100% of inflow)
 Center-of-Mass det. time= 608.5 min (1,404.9 - 796.4)

Volume	Invert	Avail.Storage	Storage Description
#1	43.00'	2,104 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.00	280	0	0
44.00	528	404	404
45.00	836	682	1,086
46.00	1,200	1,018	2,104

Device	Routing	Invert	Outlet Devices
#1	Primary	45.50'	10.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Discarded	43.00'	1.020 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.02 cfs @ 15.46 hrs HW=44.89' (Free Discharge)

↳ **2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=43.00' (Free Discharge)

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

Summary for Pond 4P: Forebay #2B

Inflow Area = 281,944 sf, 17.20% Impervious, Inflow Depth = 0.50" for 10 year event
 Inflow = 1.73 cfs @ 12.16 hrs, Volume= 11,630 cf
 Outflow = 0.94 cfs @ 12.56 hrs, Volume= 11,630 cf, Atten= 46%, Lag= 23.7 min
 Discarded = 0.03 cfs @ 12.56 hrs, Volume= 3,558 cf
 Primary = 0.91 cfs @ 12.56 hrs, Volume= 8,072 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 45.61' @ 12.56 hrs Surf.Area= 1,361 sf Storage= 2,342 cf

Plug-Flow detention time= 277.9 min calculated for 11,622 cf (100% of inflow)
 Center-of-Mass det. time= 278.9 min (1,211.0 - 932.0)

Volume	Invert	Avail.Storage	Storage Description
#1	43.00'	2,901 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.00	494	0	0
44.00	778	636	636
45.00	1,118	948	1,584
46.00	1,515	1,317	2,901

Device	Routing	Invert	Outlet Devices
#1	Primary	45.50'	10.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Discarded	43.00'	1.020 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.03 cfs @ 12.56 hrs HW=45.61' (Free Discharge)

↳ **2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.88 cfs @ 12.56 hrs HW=45.61' (Free Discharge)

↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.88 cfs @ 0.80 fps)

Summary for Pond DB1: Detention Basin

Inflow Area = 187,420 sf, 15.12% Impervious, Inflow Depth = 0.28" for 10 year event
 Inflow = 0.35 cfs @ 12.73 hrs, Volume= 4,343 cf
 Outflow = 0.09 cfs @ 17.22 hrs, Volume= 4,343 cf, Atten= 74%, Lag= 269.3 min
 Discarded = 0.09 cfs @ 17.22 hrs, Volume= 4,343 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 44.42' @ 17.22 hrs Surf.Area= 3,872 sf Storage= 1,558 cf

Plug-Flow detention time= 194.8 min calculated for 4,343 cf (100% of inflow)
 Center-of-Mass det. time= 194.6 min (1,164.3 - 969.6)

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	14,134 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	3,565	0	0
45.00	4,297	3,931	3,931
46.00	5,087	4,692	8,623
47.00	5,934	5,511	14,134

Device	Routing	Invert	Outlet Devices
#1	Primary	46.00'	12.0" Round Culvert L= 225.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 46.00' / 43.60' S= 0.0107 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Discarded	44.00'	1.020 in/hr Exfiltration over Surface area
#3	Primary	46.50'	10.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.09 cfs @ 17.22 hrs HW=44.42' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.09 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=44.00' (Free Discharge)
 ↳ **1=Culvert** (Controls 0.00 cfs)
 ↳ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond DB2: Detention Basin

Inflow Area = 498,671 sf, 16.37% Impervious, Inflow Depth = 0.20" for 10 year event
 Inflow = 0.91 cfs @ 12.56 hrs, Volume= 8,321 cf
 Outflow = 0.07 cfs @ 23.47 hrs, Volume= 8,321 cf, Atten= 92%, Lag= 654.8 min
 Discarded = 0.07 cfs @ 23.47 hrs, Volume= 8,321 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 44.58' @ 23.47 hrs Surf.Area= 2,983 sf Storage= 5,657 cf

Plug-Flow detention time= 925.7 min calculated for 8,321 cf (100% of inflow)
 Center-of-Mass det. time= 925.4 min (1,890.9 - 965.5)

Volume	Invert	Avail.Storage	Storage Description
#1	42.00'	14,956 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
42.00	1,473	0	0
43.00	1,997	1,735	1,735
44.00	2,594	2,296	4,031
45.00	3,260	2,927	6,958
46.00	3,985	3,623	10,580
47.00	4,766	4,376	14,956

Device	Routing	Invert	Outlet Devices
#1	Primary	46.00'	12.0" Round Culvert L= 150.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 46.00' / 33.00' S= 0.0867 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Discarded	42.00'	1.020 in/hr Exfiltration over Surface area
#3	Primary	46.50'	10.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.07 cfs @ 23.47 hrs HW=44.58' (Free Discharge)

↑**2=Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=42.00' (Free Discharge)

↑**1=Culvert** (Controls 0.00 cfs)

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

Summary for Pond DMH 1: DMH 1

Inflow Area = 152,380 sf, 18.59% Impervious, Inflow Depth = 0.53" for 10 year event
 Inflow = 1.11 cfs @ 12.13 hrs, Volume= 6,761 cf
 Outflow = 1.11 cfs @ 12.13 hrs, Volume= 6,761 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.11 cfs @ 12.13 hrs, Volume= 6,761 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 50.15' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	49.60'	12.0" Round Culvert L= 90.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 49.60' / 44.00' S= 0.0622 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.10 cfs @ 12.13 hrs HW=50.14' (Free Discharge)

↑**1=Culvert** (Inlet Controls 1.10 cfs @ 2.51 fps)

Summary for Pond DMH2: DMH 2

Inflow Area = 84,145 sf, 17.24% Impervious, Inflow Depth = 0.49" for 10 year event
 Inflow = 0.51 cfs @ 12.15 hrs, Volume= 3,440 cf
 Outflow = 0.51 cfs @ 12.15 hrs, Volume= 3,440 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.51 cfs @ 12.15 hrs, Volume= 3,440 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 50.57' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	50.20'	12.0" Round Culvert L= 94.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 50.20' / 49.70' S= 0.0053 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.51 cfs @ 12.15 hrs HW=50.57' (Free Discharge)
 ↑1=Culvert (Barrel Controls 0.51 cfs @ 2.87 fps)

Summary for Pond DMH3: DMH 3

Inflow Area = 68,235 sf, 20.27% Impervious, Inflow Depth = 0.58" for 10 year event
 Inflow = 0.63 cfs @ 12.12 hrs, Volume= 3,320 cf
 Outflow = 0.63 cfs @ 12.12 hrs, Volume= 3,320 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.63 cfs @ 12.12 hrs, Volume= 3,320 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 63.90' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	63.50'	12.0" Round Culvert L= 276.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 63.50' / 49.70' S= 0.0500 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.60 cfs @ 12.12 hrs HW=63.89' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.60 cfs @ 2.13 fps)

Summary for Pond DMH4: DMH 4

Inflow Area = 187,420 sf, 15.12% Impervious, Inflow Depth = 0.00" for 10 year event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 43.50' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	43.50'	12.0" Round Culvert L= 50.0' CMP, end-section conforming to fill, Ke= 0.500

Inlet / Outlet Invert= 43.50' / 42.90' S= 0.0120 '/ Cc= 0.900
 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=43.50' (Free Discharge)

↑1=Culvert (Controls 0.00 cfs)

Summary for Pond DMH5: DMH 5

Inflow Area = 281,944 sf, 17.20% Impervious, Inflow Depth = 0.50" for 10 year event
 Inflow = 1.73 cfs @ 12.16 hrs, Volume= 11,630 cf
 Outflow = 1.73 cfs @ 12.16 hrs, Volume= 11,630 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.73 cfs @ 12.16 hrs, Volume= 11,630 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 44.87' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	43.90'	18.0" Round Culvert L= 202.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 43.90' / 43.90' S= 0.0000 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.69 cfs @ 12.16 hrs HW=44.86' (Free Discharge)

↑1=Culvert (Barrel Controls 1.69 cfs @ 2.02 fps)

Summary for Pond DMH6: DMH 6

Inflow Area = 281,944 sf, 17.20% Impervious, Inflow Depth = 0.50" for 10 year event
 Inflow = 1.73 cfs @ 12.16 hrs, Volume= 11,630 cf
 Outflow = 1.73 cfs @ 12.16 hrs, Volume= 11,630 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.73 cfs @ 12.16 hrs, Volume= 11,630 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 47.28' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.60'	18.0" Round Culvert L= 140.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 46.60' / 44.00' S= 0.0186 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.69 cfs @ 12.16 hrs HW=47.27' (Free Discharge)

↑1=Culvert (Inlet Controls 1.69 cfs @ 2.20 fps)

Summary for Pond DMH7: DMH 7

Inflow Area = 113,118 sf, 17.71% Impervious, Inflow Depth = 0.50" for 10 year event
 Inflow = 0.72 cfs @ 12.14 hrs, Volume= 4,728 cf
 Outflow = 0.72 cfs @ 12.14 hrs, Volume= 4,728 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.72 cfs @ 12.14 hrs, Volume= 4,728 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 52.79' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	52.30'	12.0" Round Culvert L= 264.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 52.30' / 46.70' S= 0.0212 1/1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.72 cfs @ 12.14 hrs HW=52.79' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.72 cfs @ 1.88 fps)

Summary for Pond DMH8: DMH 8

Inflow Area = 86,254 sf, 17.36% Impervious, Inflow Depth = 0.49" for 10 year event
 Inflow = 0.53 cfs @ 12.15 hrs, Volume= 3,527 cf
 Outflow = 0.53 cfs @ 12.15 hrs, Volume= 3,527 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.53 cfs @ 12.15 hrs, Volume= 3,527 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 59.81' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	59.40'	12.0" Round Culvert L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 59.40' / 52.40' S= 0.0365 1/1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.53 cfs @ 12.15 hrs HW=59.81' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.53 cfs @ 1.72 fps)

Summary for Pond VORT#1: Vortechincs Unit #1

Inflow Area = 18,565 sf, 93.05% Impervious, Inflow Depth = 3.91" for 10 year event
 Inflow = 1.84 cfs @ 12.07 hrs, Volume= 6,055 cf
 Outflow = 1.84 cfs @ 12.07 hrs, Volume= 6,055 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.84 cfs @ 12.07 hrs, Volume= 6,055 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.73' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.00'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#2	Primary	33.90'	

Primary OutFlow Max=1.77 cfs @ 12.07 hrs HW=34.71' (Free Discharge)
 ↑1=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)
 ↑2=Culvert (Barrel Controls 1.77 cfs @ 3.56 fps)

Summary for Subcatchment PR1A: To Wetlands

Runoff = 3.83 cfs @ 12.16 hrs, Volume= 27,076 cf, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
476,400	39	>75% Grass cover, Good, HSG A
11,343	61	>75% Grass cover, Good, HSG B
* 2,949	98	impervious area
490,692	40	Weighted Average
487,743		99.40% Pervious Area
2,949		0.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.0600	0.23		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.3	310	0.0630	4.04		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
5.0	360	Total			

Summary for Subcatchment PR1B: To Catch Basin 1

Runoff = 2.66 cfs @ 12.07 hrs, Volume= 8,961 cf, Depth= 5.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
* 17,275	98	impervious area
1,290	39	>75% Grass cover, Good, HSG A
18,565	94	Weighted Average
1,290		6.95% Pervious Area
17,275		93.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.18		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
1.1	270	0.0440	4.26		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.8	320	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR1C: To Catch Basin 2

Runoff = 2.47 cfs @ 12.10 hrs, Volume= 9,233 cf, Depth= 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
69,641	39	>75% Grass cover, Good, HSG A
* 14,504	98	impervious area
84,145	49	Weighted Average
69,641		82.76% Pervious Area
14,504		17.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	50	0.1400	0.32		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.1	300	0.0470	4.40		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.7	350	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR1D: To Catch Basin 3

Runoff = 2.35 cfs @ 12.10 hrs, Volume= 8,402 cf, Depth= 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
54,407	39	>75% Grass cover, Good, HSG A
* 13,828	98	impervious area
68,235	51	Weighted Average
54,407		79.73% Pervious Area
13,828		20.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.1000	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.3	90	0.1000	5.09		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.8	320	0.0220	3.01		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.1	460	Total			

Summary for Subcatchment PR1E: To Catch Basin 4

Runoff = 4.72 cfs @ 12.12 hrs, Volume= 18,524 cf, Depth= 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
140,356	39	>75% Grass cover, Good, HSG A
* 28,470	98	impervious area
168,826	49	Weighted Average
140,356		83.14% Pervious Area
28,470		16.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.8	410	0.0540	3.74		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.4	70	0.0200	2.87		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.5	530	Total			

Summary for Subcatchment PR1F: To Catch Basin 5

Runoff = 0.86 cfs @ 12.10 hrs, Volume= 3,126 cf, Depth= 1.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
21,813	39	>75% Grass cover, Good, HSG A
* 5,051	98	impervious area
26,864	50	Weighted Average
21,813		81.20% Pervious Area
5,051		18.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	50	0.2100	0.37		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.3	340	0.0680	4.20		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	140	0.0300	3.52		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	530	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR1G: To Catch Basin 6

Runoff = 2.53 cfs @ 12.10 hrs, Volume= 9,464 cf, Depth= 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
71,276	39	>75% Grass cover, Good, HSG A
* 14,978	98	impervious area
86,254	49	Weighted Average
71,276		82.64% Pervious Area
14,978		17.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	50	0.2100	0.37		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.4	70	0.0300	2.79		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.3	340	0.0490	4.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.9	460	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR1H: To Detention Basin 1

Runoff = 0.22 cfs @ 12.28 hrs, Volume= 1,746 cf, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
35,040	39	>75% Grass cover, Good, HSG A
35,040		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.0	290	0.0900	4.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
5.3	340	Total			

Summary for Subcatchment PR1I: To Detention Basin 2

Runoff = 0.15 cfs @ 12.28 hrs, Volume= 1,175 cf, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
23,585	39	>75% Grass cover, Good, HSG A
23,585		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
0.3	100	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
4.6	150	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR1J: To Detention Basin 2

Runoff = 0.77 cfs @ 12.07 hrs, Volume= 2,489 cf, Depth= 5.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
917	39	>75% Grass cover, Good, HSG A
4,805	98	Paved parking, HSG A
5,722	89	Weighted Average
917		16.03% Pervious Area
4,805		83.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.56		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.10"
0.8	200	0.0400	4.06		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6	142	0.0050	4.17	3.28	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
1.9	392	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR2: To East

Runoff = 0.29 cfs @ 12.28 hrs, Volume= 2,317 cf, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
46,490	39	>75% Grass cover, Good, HSG A
46,490		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	50	0.1000	0.28		Sheet Flow, Grass: Short n= 0.150 P2= 3.10"
1.1	330	0.1000	5.09		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
4.1	380	Total, Increased to minimum Tc = 5.0 min			

Summary for Subcatchment PR3: To South

Runoff = 0.38 cfs @ 12.28 hrs, Volume= 2,975 cf, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.50"

Area (sf)	CN	Description
59,700	39	>75% Grass cover, Good, HSG A
59,700		100.00% Pervious Area

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

Summary for Pond 1P: Wetlands

Inflow Area = 1,007,928 sf, 10.11% Impervious, Inflow Depth = 0.62" for 100 year event
 Inflow = 6.11 cfs @ 12.12 hrs, Volume= 51,761 cf
 Primary = 6.11 cfs @ 12.12 hrs, Volume= 51,761 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond 2P: Forebay #1

Inflow Area = 152,380 sf, 18.59% Impervious, Inflow Depth = 1.39" for 100 year event
 Inflow = 4.81 cfs @ 12.10 hrs, Volume= 17,635 cf
 Outflow = 4.72 cfs @ 12.15 hrs, Volume= 17,635 cf, Atten= 2%, Lag= 3.4 min
 Discarded = 0.03 cfs @ 12.15 hrs, Volume= 2,833 cf
 Primary = 4.69 cfs @ 12.15 hrs, Volume= 14,802 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 46.83' @ 12.15 hrs Surf.Area= 1,234 sf Storage= 2,039 cf

Plug-Flow detention time= 135.9 min calculated for 17,623 cf (100% of inflow)
 Center-of-Mass det. time= 137.0 min (1,023.4 - 886.4)

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	2,257 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	279	0	0
45.00	562	421	421
46.00	904	733	1,154
47.00	1,303	1,104	2,257

Device	Routing	Invert	Outlet Devices
#1	Primary	46.50'	10.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Discarded	44.00'	1.020 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.03 cfs @ 12.15 hrs HW=46.82' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=4.56 cfs @ 12.15 hrs HW=46.82' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 4.56 cfs @ 1.42 fps)

Summary for Pond 3P: Forebay #2A

Inflow Area = 193,142 sf, 17.16% Impervious, Inflow Depth = 0.31" for 100 year event
 Inflow = 0.77 cfs @ 12.07 hrs, Volume= 5,060 cf
 Outflow = 0.20 cfs @ 16.04 hrs, Volume= 5,060 cf, Atten= 75%, Lag= 238.0 min
 Discarded = 0.02 cfs @ 16.04 hrs, Volume= 2,740 cf
 Primary = 0.17 cfs @ 16.04 hrs, Volume= 2,320 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 45.54' @ 16.04 hrs Surf.Area= 1,031 sf Storage= 1,586 cf

Plug-Flow detention time= 438.2 min calculated for 5,060 cf (100% of inflow)
 Center-of-Mass det. time= 438.0 min (1,363.0 - 925.0)

Volume	Invert	Avail.Storage	Storage Description
#1	43.00'	2,104 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.00	280	0	0
44.00	528	404	404
45.00	836	682	1,086
46.00	1,200	1,018	2,104

Device	Routing	Invert	Outlet Devices
#1	Primary	45.50'	10.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Discarded	43.00'	1.020 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.02 cfs @ 16.04 hrs HW=45.54' (Free Discharge)

↳ **2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.16 cfs @ 16.04 hrs HW=45.54' (Free Discharge)

↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.16 cfs @ 0.46 fps)

Summary for Pond 4P: Forebay #2B

Inflow Area = 281,944 sf, 17.20% Impervious, Inflow Depth = 1.32" for 100 year event
 Inflow = 8.06 cfs @ 12.11 hrs, Volume= 31,115 cf
 Outflow = 8.01 cfs @ 12.15 hrs, Volume= 31,115 cf, Atten= 1%, Lag= 2.6 min
 Discarded = 0.04 cfs @ 12.15 hrs, Volume= 3,611 cf
 Primary = 7.97 cfs @ 12.15 hrs, Volume= 27,503 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 45.96' @ 12.15 hrs Surf.Area= 1,498 sf Storage= 2,835 cf

Plug-Flow detention time= 107.1 min calculated for 31,115 cf (100% of inflow)
 Center-of-Mass det. time= 106.9 min (997.1 - 890.2)

Volume	Invert	Avail.Storage	Storage Description
#1	43.00'	2,901 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.00	494	0	0
44.00	778	636	636
45.00	1,118	948	1,584
46.00	1,515	1,317	2,901

Device	Routing	Invert	Outlet Devices
#1	Primary	45.50'	10.0' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Discarded	43.00'	1.020 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.04 cfs @ 12.15 hrs HW=45.95' (Free Discharge)

↳ **2=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=7.90 cfs @ 12.15 hrs HW=45.95' (Free Discharge)

↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 7.90 cfs @ 1.74 fps)

Summary for Pond DB1: Detention Basin

Inflow Area = 187,420 sf, 15.12% Impervious, Inflow Depth = 1.06" for 100 year event
 Inflow = 4.90 cfs @ 12.15 hrs, Volume= 16,548 cf
 Outflow = 0.30 cfs @ 16.06 hrs, Volume= 16,548 cf, Atten= 94%, Lag= 234.4 min
 Discarded = 0.12 cfs @ 16.06 hrs, Volume= 13,978 cf
 Primary = 0.17 cfs @ 16.06 hrs, Volume= 2,570 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 46.20' @ 16.06 hrs Surf.Area= 5,258 sf Storage= 9,667 cf

Plug-Flow detention time= 733.5 min calculated for 16,536 cf (100% of inflow)
 Center-of-Mass det. time= 734.0 min (1,631.8 - 897.8)

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	14,134 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	3,565	0	0
45.00	4,297	3,931	3,931
46.00	5,087	4,692	8,623
47.00	5,934	5,511	14,134

Device	Routing	Invert	Outlet Devices
#1	Primary	46.00'	12.0" Round Culvert L= 225.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 46.00' / 43.60' S= 0.0107 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Discarded	44.00'	1.020 in/hr Exfiltration over Surface area
#3	Primary	46.50'	10.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.12 cfs @ 16.06 hrs HW=46.20' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=0.17 cfs @ 16.06 hrs HW=46.20' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 0.17 cfs @ 1.53 fps)
 ↳ **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond DB2: Detention Basin

Inflow Area = 498,671 sf, 16.37% Impervious, Inflow Depth = 0.75" for 100 year event
 Inflow = 8.12 cfs @ 12.15 hrs, Volume= 30,999 cf
 Outflow = 0.94 cfs @ 13.98 hrs, Volume= 30,938 cf, Atten= 88%, Lag= 109.8 min
 Discarded = 0.10 cfs @ 13.98 hrs, Volume= 15,214 cf
 Primary = 0.84 cfs @ 13.98 hrs, Volume= 15,724 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 46.47' @ 13.98 hrs Surf.Area= 4,350 sf Storage= 12,528 cf

Plug-Flow detention time= 694.1 min calculated for 30,917 cf (100% of inflow)
 Center-of-Mass det. time= 694.6 min (1,603.4 - 908.8)

Volume	Invert	Avail.Storage	Storage Description
#1	42.00'	14,956 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
42.00	1,473	0	0
43.00	1,997	1,735	1,735
44.00	2,594	2,296	4,031
45.00	3,260	2,927	6,958
46.00	3,985	3,623	10,580
47.00	4,766	4,376	14,956

Device	Routing	Invert	Outlet Devices
#1	Primary	46.00'	12.0" Round Culvert L= 150.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 46.00' / 33.00' S= 0.0867 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Discarded	42.00'	1.020 in/hr Exfiltration over Surface area
#3	Primary	46.50'	10.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.10 cfs @ 13.98 hrs HW=46.47' (Free Discharge)

↑**2=Exfiltration** (Exfiltration Controls 0.10 cfs)

Primary OutFlow Max=0.84 cfs @ 13.98 hrs HW=46.47' (Free Discharge)

↑**1=Culvert** (Inlet Controls 0.84 cfs @ 2.33 fps)

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

Summary for Pond DMH 1: DMH 1

Inflow Area = 152,380 sf, 18.59% Impervious, Inflow Depth = 1.39" for 100 year event
 Inflow = 4.81 cfs @ 12.10 hrs, Volume= 17,635 cf
 Outflow = 4.81 cfs @ 12.10 hrs, Volume= 17,635 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.81 cfs @ 12.10 hrs, Volume= 17,635 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 51.72' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	49.60'	12.0" Round Culvert L= 90.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 49.60' / 44.00' S= 0.0622 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.78 cfs @ 12.10 hrs HW=51.70' (Free Discharge)

↑**1=Culvert** (Inlet Controls 4.78 cfs @ 6.08 fps)

Summary for Pond DMH2: DMH 2

Inflow Area = 84,145 sf, 17.24% Impervious, Inflow Depth = 1.32" for 100 year event
Inflow = 2.47 cfs @ 12.10 hrs, Volume= 9,233 cf
Outflow = 2.47 cfs @ 12.10 hrs, Volume= 9,233 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.47 cfs @ 12.10 hrs, Volume= 9,233 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 51.16' @ 12.10 hrs

Table with 4 columns: Device, Routing, Invert, Outlet Devices. Row 1: #1, Primary, 50.20', 12.0" Round Culvert. Includes details like L= 94.0' CMP, end-section conforming to fill, Ke= 0.500, Inlet / Outlet Invert= 50.20' / 49.70', S= 0.0053 '/ Cc= 0.900, n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.45 cfs @ 12.10 hrs HW=51.16' (Free Discharge)
1=Culvert (Barrel Controls 2.45 cfs @ 4.07 fps)

Summary for Pond DMH3: DMH 3

Inflow Area = 68,235 sf, 20.27% Impervious, Inflow Depth = 1.48" for 100 year event
Inflow = 2.35 cfs @ 12.10 hrs, Volume= 8,402 cf
Outflow = 2.35 cfs @ 12.10 hrs, Volume= 8,402 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.35 cfs @ 12.10 hrs, Volume= 8,402 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 64.38' @ 12.10 hrs

Table with 4 columns: Device, Routing, Invert, Outlet Devices. Row 1: #1, Primary, 63.50', 12.0" Round Culvert. Includes details like L= 276.0' CMP, end-section conforming to fill, Ke= 0.500, Inlet / Outlet Invert= 63.50' / 49.70', S= 0.0500 '/ Cc= 0.900, n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.32 cfs @ 12.10 hrs HW=64.38' (Free Discharge)
1=Culvert (Inlet Controls 2.32 cfs @ 3.19 fps)

Summary for Pond DMH4: DMH 4

Inflow Area = 187,420 sf, 15.12% Impervious, Inflow Depth = 0.16" for 100 year event
Inflow = 0.17 cfs @ 16.06 hrs, Volume= 2,570 cf
Outflow = 0.17 cfs @ 16.06 hrs, Volume= 2,570 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.17 cfs @ 16.06 hrs, Volume= 2,570 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 43.70' @ 16.06 hrs

Table with 4 columns: Device, Routing, Invert, Outlet Devices. Row 1: #1, Primary, 43.50', 12.0" Round Culvert. Includes detail L= 50.0' CMP, end-section conforming to fill, Ke= 0.500

Inlet / Outlet Invert= 43.50' / 42.90' S= 0.0120 1/ S= 0.0120 1/ Cc= 0.900
 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.17 cfs @ 16.06 hrs HW=43.70' (Free Discharge)

↑1=Culvert (Inlet Controls 0.17 cfs @ 1.53 fps)

Summary for Pond DMH5: DMH 5

Inflow Area = 281,944 sf, 17.20% Impervious, Inflow Depth = 1.32" for 100 year event
 Inflow = 8.06 cfs @ 12.11 hrs, Volume= 31,115 cf
 Outflow = 8.06 cfs @ 12.11 hrs, Volume= 31,115 cf, Atten= 0%, Lag= 0.0 min
 Primary = 8.06 cfs @ 12.11 hrs, Volume= 31,115 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 46.59' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	43.90'	18.0" Round Culvert L= 202.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 43.90' / 43.90' S= 0.0000 1/ S= 0.0000 1/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.88 cfs @ 12.11 hrs HW=46.54' (Free Discharge)

↑1=Culvert (Barrel Controls 7.88 cfs @ 4.46 fps)

Summary for Pond DMH6: DMH 6

Inflow Area = 281,944 sf, 17.20% Impervious, Inflow Depth = 1.32" for 100 year event
 Inflow = 8.06 cfs @ 12.11 hrs, Volume= 31,115 cf
 Outflow = 8.06 cfs @ 12.11 hrs, Volume= 31,115 cf, Atten= 0%, Lag= 0.0 min
 Primary = 8.06 cfs @ 12.11 hrs, Volume= 31,115 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 48.79' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	46.60'	18.0" Round Culvert L= 140.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 46.60' / 44.00' S= 0.0186 1/ S= 0.0186 1/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.88 cfs @ 12.11 hrs HW=48.73' (Free Discharge)

↑1=Culvert (Inlet Controls 7.88 cfs @ 4.46 fps)

Summary for Pond DMH7: DMH 7

Inflow Area = 113,118 sf, 17.71% Impervious, Inflow Depth = 1.34" for 100 year event
 Inflow = 3.38 cfs @ 12.10 hrs, Volume= 12,591 cf
 Outflow = 3.38 cfs @ 12.10 hrs, Volume= 12,591 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.38 cfs @ 12.10 hrs, Volume= 12,591 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 54.08' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	52.30'	12.0" Round Culvert L= 264.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 52.30' / 46.70' S= 0.0212 1/1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.36 cfs @ 12.10 hrs HW=54.07' (Free Discharge)

↑1=Culvert (Inlet Controls 3.36 cfs @ 4.28 fps)

Summary for Pond DMH8: DMH 8

Inflow Area = 86,254 sf, 17.36% Impervious, Inflow Depth = 1.32" for 100 year event
 Inflow = 2.53 cfs @ 12.10 hrs, Volume= 9,464 cf
 Outflow = 2.53 cfs @ 12.10 hrs, Volume= 9,464 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.53 cfs @ 12.10 hrs, Volume= 9,464 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 60.62' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	59.40'	12.0" Round Culvert L= 192.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 59.40' / 52.40' S= 0.0365 1/1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.51 cfs @ 12.10 hrs HW=60.61' (Free Discharge)

↑1=Culvert (Inlet Controls 2.51 cfs @ 3.20 fps)

Summary for Pond VORT#1: Vortechincs Unit #1

Inflow Area = 18,565 sf, 93.05% Impervious, Inflow Depth = 5.79" for 100 year event
 Inflow = 2.66 cfs @ 12.07 hrs, Volume= 8,961 cf
 Outflow = 2.66 cfs @ 12.07 hrs, Volume= 8,961 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.66 cfs @ 12.07 hrs, Volume= 8,961 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.98' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.00'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#2	Primary	33.90'	12.0" Round Culvert L= 34.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 33.90' / 33.70' S= 0.0059 1/1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.57 cfs @ 12.07 hrs HW=34.95' (Free Discharge)

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

↑2=Culvert (Barrel Controls 2.57 cfs @ 3.87 fps)

