STORMWATER MANAGEMENT PLAN

FOR

GLADSTONE ELEMENTARY SCHOOL
50 GLADSTONE STREET
CRANSTON, RI

OWNER/APPLICANT:

CRANSTON PUBLIC SCHOOL DISTRICT

845 PARK AVENUE

CRANSTON, RI 02910

PREPARED BY:

COMMONWEALTH
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CE&C PROJECT NO. 21052.00

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INTRODUCTION

On behalf of *CRANSTON PUBLIC SCHOOL DISTRICT*, Commonwealth Engineers & Consultants, Inc. (CE&C) has prepared the following Rhode Island Department of Environmental Management (RIDEM) Stormwater Management Plan for the GLADSTONE ELEMENTARY SCHOOL Project. This report has been prepared in accordance with the requirements of and guidance provided in the following:

- RIDEM Rules & Regulations for Governing the Administration and Enforcement of the Fresh Water Wetlands Act, issued 7/16/14 (hereinafter referred to as the "FWW Regulations")
- Rhode Island Stormwater Management Design and Installation Rules, 250-RICR-150-10-8 (hereinafter referred to as the "SMDIR"),
- Rhode Island Stormwater Design and Installation Standards Manual, issued April 2015 (hereinafter referred to as the "RISDISM"),
- RIPDES Construction General Permit, issued in the fall of 2020,
- RISDISM Stormwater Management Checklist (hereinafter referred to as the "Checklist")

I – GENERAL INFORMATION

The following general information is provided in accordance with the Checklist:

I-A - Standard Information Form

The required checklist has been completed, and is attached hereto.

I-B - Site Plan / Stormwater Management Designer

Commonwealth Engineers & Consultants, Inc.
400 Smith Street
Providence, RI 02908
Project Manager: Timothy Behan, P.E.
Stormwater Management Designer: Michael Zavalia, P.E.
(401) 632-4650 Phone (401) 273-6674 Fax

I-C - Proposed Land Use

The proposed land use will be government/institutional; the specific use will be as a public elementary school.

LUHPPL status: No portion of this project falls directly under any of the five (5) qualifying land uses or activities (as listed in Table 3-2) for the project area to be classified as a LUHPPL.

- The first land use is areas within an industrial site if the site is subject to a RIPDES Multi-Sector General Permit; there are no industrial sites subject to a RIPDES MSGP within the project area.
- The second land use is auto fueling facilities; there are no fueling facilities within the project area.
- The third land use or activity is exterior vehicle service, maintenance and equipment cleaning areas; there are no exterior vehicle service, maintenance or equipment cleaning areas within the project area.
- The fourth activity is road salt storage; there is no road salt storage within the project area.
- The fifth activity is outdoor storage and loading/unloading of hazardous substances; there is no known outdoor storage or loading/unloading of hazardous substances within the project area.

Therefore, this project area is not classified as a LUHPPL.

I-D - General Project Narrative

The following are a general description of the existing conditions on and near the subject parcel, and a detailed description of the proposed development within a portion of same.

Existing Conditions

Site Topography: The topography of the school site breaks generally from northwest to southeast, from a high point elevation of ≈162 (NAVD88 MSL) at the northwest corner of the parcel to a low point of ≈102 at the southeast corner of the parcel, near the intersection of Asia Street and the cross-site driveway. The slopes across the parcel range from mild (generally in the upper portion of the site, along the west (front) side of the existing school) to very steep (generally in the lower portion of the site, along the east (back) side of the existing school. The significant grade differential influenced the design of the existing school, which has a two (2) story reveal on the front of the school and a five (5) story reveal on the rear of the school.

Underlying Soils: Refer to **Section IV-1.1.2** below for site soils information.

Environmental Features: There is a small, isolated swamp wetland in the extreme northeastern corner of the subject parcel; it is separated from the developed portion of the site by an existing driveway that runs across the parcel between Gladstone Street and Asia Street, and receives runoff only from a small tributary watershed downgradient of the driveway. The tributary watershed is wooded. The wetland has a 100-foot jurisdictional area, a twenty-five (25) foot buffer zone, and an additional twenty (20) foot setback from the buffer zone.

The site is located within the Pawtuxet River subwatershed, and all site runoff eventually reaches that water body via a combination of overland flow and City storm drainage conveyance, well away from the site.

Flood Zone: Per the Federal Emergency Management Agency Flood Insurance Rate Map, Providence County, Map #44007C0312H, effective October 2, 2015, no portion of the parcel is located in or near a flood zone.

Project Area Land Uses

The land use of the lot is Governmental/Institutional, and the lot is located in a B-1 business/commercial zoning district. The proposed redevelopment and continued use of the lot for a school conforms to the applicable standards and requirements for that zone.

Proposed Conditions

The proposed redevelopment of the Garden City Elementary School includes the following:

- Complete demolition and removal of the existing school building
- Construction of a new four (4) story school structure, slightly west (upgradient) of the location of the existing school building
- Construction of new separate bus and non-bus drop-off/pick-up driveways, and new on-site teacher, support staff and visitor parking
- Construction of various site hardscape areas, including walkways, sidewalks, plaza and outdoor play areas
- Construction of new and/or upgraded utility services (water, sanitary sewer, gas, electric & telecom)
- Construction of on-site stormwater management (collection, conveyance and treatment) systems

The proposed site redevelopment has been designed to conform closely to the existing site and adjacent roadway topography, and while there will be grading changes within the site itself, the existing grades around the entire perimeter of the site (i.e. at the adjacent roadways) will remain unchanged. Consequently, the proposed stormwater runoff patterns will be generally similar to the existing patterns, although the proposed on-site stormwater management system will retain and treat an appreciable volume of the stormwater runoff that currently sheds directly from the site with no treatment.

No portion of the redevelopment shall take place within the 100-foot freshwater wetlands jurisdictional area associated with the on-site isolated wetland, nor will there be any alterations to its tributary watershed; all work will be located upgradient of the existing cross-site driveway, which shall remain in place, and which serves as a subwatershed boundary.

Design Standards

The SMDIS/RISDISM have been used for stormwater management/mitigation design, as applicable.

I-E – RISDISM Project Type

The project area contains over 10,000 s.f. of existing impervious area, representing over 40% of the total project area. The project is therefore classified as a *redevelopment* project, for which only Minimum Standards 2, 3 and 7-11 of the SMDIR/RISDISM must be addressed.

II – MINIMUM STANDARDS NARRATIVE

The following narrative provides general information about each of the individual Minimum Standards from Chapter 3, and as listed in Section A.1.3 of the Checklist. As stated above, the project is classified as redevelopment, so only Minimum Standards 2, 3 and 7-11 must be addressed. Detailed information about Minimum Standards 2 and 3 is presented in later sections of this report.

Standard 1 – LID Design

While not required for redevelopment projects, this standard has been met; some strategies in the LID Checklist are applicable to this project.

Standard 2 – Groundwater Recharge

This standard has been met; the overall groundwater recharge volume (Re_V) for the site redevelopment has been calculated, and the proposed water quality BMP's (a sand filter basin) will provide full infiltration of the required groundwater recharge volume.

Standard 3 – Water Quality

This standard has been met; the overall water quality volume (WQ_V) for the site redevelopment has been calculated, and the proposed water quality BMP's (a sand filter basin) will provide full treatment of the required water quality volume.

Standard 4 – Conveyance and Natural Channel Protection

This standard may be waived for redevelopment projects.

Standard 5 – Overbank Flood Protection

This standard may be waived for redevelopment projects.

Standard 6 – Redevelopment & Infill Projects

This standard has been met; the project area contains in excess of 10,000 s.f. of existing impervious area representing over 40% of the total project area.

Standard 7 – Pollution Prevention

This standard has been met; a detailed draft *Soil Erosion and Sediment Control Plan (SESC)*, prepared in accordance with guidance provided in Appendix G of the RISDISM, is included in **Appendix B**.

Standard 8 – LUHPPL's

This standard has been met. As stated earlier, no portion of the site falls under any of the five (5) qualifying land uses (as listed in Table 3-2) for the project area to be classified as a LUHPPL; therefore, this project meets Standard 8.

Standard 9 – Illicit Discharges

This standard has been met. The property owner asserts that there are not, nor shall there be allowed in the future, any known existing or anticipated illicit discharges to or through any of the proposed stormwater facilities on the site.

Standard 10 – Construction Erosion and Sedimentation Control

This standard has been met; erosion and sedimentation control (ESC) measures have been incorporated into the project design plans, and a detailed *Soil Erosion and Sediment Control Plan*, prepared in accordance with the "Rhode Island Soil Erosion and Sediment Control Handbook," is included in **Appendix B**.

Standard 11 – Stormwater Management System Operation and Maintenance

This standard has been met; a detailed *Stormwater Management System Long-Term Operation and Maintenance Plan*, prepared in accordance with guidance provided in Appendix E of the RISDISM, is included in **Appendix C** of this report.

III – LID STORMWATER CREDIT

As noted in Part 2 – Minimum Standard 1 of the Stormwater Checklist (Appendix A), this project offers numerous opportunities to incorporate LID strategies into the design while still achieving the project goals and design requirements for the project:

- The vegetative clearing will be minimized to only that which is absolutely necessary to construct the school and associated site improvements, and there will be no direct or indirect impacts on the isolated wetland in the northeast corner of the site;
- The grading of the undisturbed land will be unchanged from existing conditions, and the topography of the developed area will be generally consistent with the existing topographic patterns;
- The development will be located within areas having HSG B underlying soils with good infiltration capacity.

Incorporation of these LID measures will minimize the impacts that the development will have on stormwater runoff patterns from the site.

IV- BEST MANAGEMENT PRACTICES

Please refer to **Appendix A**, which contains the Stormwater BMP Summary Table. This table contains information about each of the BMP's that will be implemented as part of the project to provide stormwater management for the site.

IV-1 – Hydrologic and Hydraulic Analysis & Design

The following hydrologic and hydraulic analysis of the project has been prepared in accordance with the guidance provided in Appendix K of the RISDISM.

IV-1.1 Site Parameters

IV-1.1.1 Flood Zone

Please refer to the FEMA flood zone map in **Appendix H**. According to FEMA Flood Insurance Rate Map (FIRM) Panel 44007C0012H, effective October 2, 2015, the entirety of the parcel is located in Zone X – Area of Minimal Flood Hazard.

IV-1.1.2 Soil Classifications

Please refer to the soils map in **Appendix H**. According to the USDA Web Soil Survey, the parcel is underlain by Canton-Urban land complex soils (CB). CB soils are classified as belonging to hydrologic soil group (HSG) B, which are soils with a moderate infiltration rate when thoroughly wet. HSG B soils are generally conducive to the use of infiltration stormwater BMP's.

Further site investigations (soil evaluations) were performed in or close to locations of proposed stormwater management structures; the soil evaluation logs are provided in **Appendix E**. These soil evaluations revealed that the site has previously been filled to a significant degree; HTM was located in each of the soil evaluations for the majority of the excavated soil column. The nature of the fill and underlying material was predominantly granular (fine to coarse sand and small amounts of gravel), with no observed water tables or water table indicators.

IV-1.1.3 Existing Impervious Areas/Stormwater Project Type

For the purpose of determining the project type, the existing impervious areas within the project area (consisting of the existing school building, out buildings and hardscape driveways, sidewalks & walkways) were determined and compared to the total project area. The existing impervious area is ≈135,500 s.f., which is ≈41% of the total project area. As the project area contains over 10,000 s.f./40% existing impervious surface, the project is classified as Redevelopment.

IV-1.2 Proposed Conditions & Stormwater Design

The project will include new stormwater catchment and conveyance structures located and sized to capture and convey storms up to and including the 25-year event without surcharging. It will also incorporate stormwater pre-treatment measures and treatment BMP's to provide water quality treatment, channel protection volume detention, and peak flow rate mitigation of stormwater runoff, including off-line deep-sump catch basins, Barracuda Model S3, S4 and S6 hydrodynamic separator Water Quality Units for pretreatment, an exfiltrating sand filter basin, and two (2) dry extended detention basins. Stormwater treatment BMP selection was based on a variety of factors, including available land area, topography, underlying soil characteristics and groundwater/ledge proximity.

The proposed conditions hydrologic analysis was performed using the Soil Conservation Service Technical Release 55 (SCS TR-55) methodology, using HydroCAD Version 10.00. The 1, 10 and 100-year storm events were modeled for a 24-hour, Type III storm. The following rainfall amounts for Kent County, Rhode Island were used for each analyzed storm event, based on the RISDISM:

1-Year Storm:	2.7 inches
10-Year Storm:	4.8 inches
100-Year Storm:	8.7 inches

The tabulations for stormwater design minimum standards 2 & 3 (2 – Groundwater Recharge (Re_v), 3 – Water Quality Volume (WQv) are presented in the Stormwater Checklist in Appendix A.

IV-1.3 Stormwater Diagrams

The existing and proposed conditions node diagrams of the site is included in **Appendix F-1** of this report. As stated previously, the node diagrams were produced by HydroCAD Release 10.00, which is the hydrologic/hydraulic modeling software that was used in the stormwater analysis for this project.

IV-1.4 Stormwater Analysis Input & Output Data

Stormwater (HydroCAD) analysis input and output data are located in **Appendices F-2, F-3 & F-4** of this report.

IV-2 – Project Area Watershed Area Maps

Existing and proposed conditions watershed maps of the site have been prepared in accordance with the guidance provided in Appendix K of the RISDISM, and are located in **Appendix G** of this report.

IV-3 – BMP Cross-Section & Profile Drawings

Detailed plans for each proposed structural stormwater BMP, including plan & profile views, have been prepared in accordance with the guidance provided in Appendix K of the RISDISM, and are included on Sheet C103 – Stormwater Plan and Sheet C104 – Stormwater Profiles. Those plan sheets are not incorporated directly into this report.

IV-4 – BMP Planting Plans

This section is not applicable, as there are no BMP's that require planting plans proposed as part of this project.

IV-5 – Structural Calculations

This section is not applicable, as there are no structural BMP's proposed as part of this project for which structural calculations would be required.

IV-6 – Construction Specifications

The RIDOT Standard Specifications for Road & Bridge Construction shall be generally applicable to the proposed features to be constructed for this project (clearing, earthwork, materials, etc.). There are no stormwater management BMP's proposed as part of the project for which specialized (i.e. non-RIDOT standard) construction specifications would be required, so none are included herein.

IV-7 – Anticipated Permits

State-level permits required consist of a RIDEM RIPDES program authorization. Local/quasi-public permits required include City of Cranston Development Plan Review/Major Land Development project approvals, Veolia Water for sanitary sewer services, and Providence Water Supply Board (PWSB) for the water services and appurtenances.

IV-8 – Stormwater Legal Agreements (Easements/Land Acquisition)

The project will not require the acquisition of permanent land rights (either by easements or by takings) for the development of the stormwater management system; all stormwater improvements shall be located on land owned and controlled by the applicant.

V - CONCLUSION

The Gladstone Elementary School project consists of the demolition of the existing Gladstone Elementary School building and the construction of a new, expanded state-of-the-art elementary school in roughly the same location at 50 Gladstone Street in Cranston (A.P. 7-4 Lot 2357). The project will include the construction of various site features and amenities to support the new school building, as well as replacements and/or upgrades of the existing utility services to the school. The school replacement will serve not only the demand of the Gladstone elementary school students, but the broader needs and goals of the Cranston Public School District.

The proposed stormwater management system for the redevelopment of the school site has been designed in compliance with the SMDIR/RISDISM. Specifically, the site/stormwater design has been developed to incorporate low-impact design (LID) measures reasonably applicable to the design to the maximum extent practicable, and the project proposes the use of context-appropriate stormwater best management practices (BMP's) that will meet or exceed the stormwater management requirements for the development. As the project is classified as a redevelopment, only Minimum Standards 2, 3 and 7-11 of the SMDIR/RISDISM must been addressed, and the project as designed meets or exceeds each of those Standards.

APPENDICES

APPENDIX A STORMWATER MANAGEMENT CHECKLIST

APPENDIX A: STORMWATER MANAGEMENT PLAN CHECKLIST AND LID PLANNING REPORT – STORMWATER DESIGN SUMMARY

PROJECT NAME Gladstone Elementary School	**(RIDEM USE ONLY)** **STW/WQC File #:** **Date Received:**
TOWN Cranston	
BRIEF PROJECT DESCRIPTION: Demolition of the existing Gladstone Elementary School (50 Gladstone Street, Cranston), and construction of a new school and associated site & utility improvements.	

Stormwater Management Plan (SMP) Elements – Minimum Standards

When submitting a SMP,[1] submit four separately bound documents: Appendix A Checklist; Stormwater Site Planning, Analysis and Design Report with Plan Set/Drawings; Soil Erosion and Sediment Control (SESC) Plan, and Post Construction Operations and Maintenance (O&M) Plan. Please refer to Suggestions to Promote Brevity.

Note: **All stormwater construction projects must create a Stormwater Management Plan (SMP). However, not every element listed below is required per the** RIDEM Stormwater Rules **and the** RIPDES Construction General Permit (CGP)**. This checklist will help identify the required elements to be submitted with an Application for Stormwater Construction Permit & Water Quality Certification.**

PART 1. PROJECT AND SITE INFORMATION

PROJECT TYPE (Check all that apply)

☐ Residential	☐ Commercial	☐ Federal	☐ Retrofit	☐ Restoration
☐ Road	☐ Utility	☐ Fill	☐ Dredge	☐ Mine
☒ Other (specify): Governmental/Institutional (School)				

SITE INFORMATION

☒ Vicinity Map

INITIAL DISCHARGE LOCATION(S): The WQv discharges to: (You may choose more than one answer if several discharge points are associated with the project.)

☒ **Groundwater**	☒ **Surface Water**	☒ **MS4**
☐ GAA	☒ Isolated Wetland	☐ RIDOT
☐ GA	☐ Named Waterbody	☐ RIDOT Alteration Permit is Approved
☒ GB	☐ Unnamed Waterbody Connected to Named Waterbody	☒ Town
		☐ Other (specify):

ULTIMATE RECEIVING WATERBODY LOCATION(S): Include pertinent information that applies to both WQ_v and flow from larger storm events including overflows. Choose all that apply, and repeat table for each waterbody.

☒ Groundwater or Disconnected Wetland	☐ SRWP		
☒ Waterbody Name: Pawtuxet River Main Stem	☐ Coldwater	☒ Warmwater	☐ Unassessed
☒ Waterbody ID: RI0006017R-03	☒ 4th order stream of pond 50 acres or more		
☒ TMDL for: x	☐ Watershed of flood prone river (e.g., Pocasset River)		
☐ Contributes to a priority outfall listed in the TMDL	☐ Contributes stormwater to a public beach		
☒ 303(d) list – Impairment(s) for: Mercury In Fish Tissue; Non-Native Aquatic Plants; Lead; Enterococcus	☐ Contributes to shellfishing grounds		

[1] Applications for a Construction General Permit that do not require any other permits from RIDEM and will disturb less than 5 acres over the entire course of the project do not need to submit a SMP. The Appendix A checklist must still be submitted.

PROJECT HISTORY		
☐ RIDEM Pre- Application Meeting	Meeting Date:	☐ Minutes Attached
☒ Municipal Master Plan Approval	Approval Date: 02-07-2023	☒ Minutes Attached
☐ Subdivision Suitability Required	Approval #:	
☐ Previous Enforcement Action has been taken on the property	Enforcement #:	

FLOODPLAIN & FLOODWAY See Guidance Pertaining to Floodplain and Floodways	
☐ Riverine 100-year floodplain: **FEMA FLOODPLAIN FIRMETTE** has been reviewed and the 100-year floodplain is on site	
☐ Delineated from FEMA Maps	
NOTE: Per Rule 250-RICR-150-10-8-1.1(B)(5)(d)(3), provide volumetric floodplain compensation calculations for cut and fill/displacement calculated by qualified professional	
☐ Calculated by Professional Engineer	
☐ Calculations are provided for cut vs. fill/displacement volumes proposed within the 100-year floodplain	Amount of Fill (CY): Amount of Cut (CY):
☐ Restrictions or modifications are proposed to the flow path or velocities in a floodway	
☐ Floodplain storage capacity is impacted	
☒ Project area is not within 100-year floodplain as defined by RIDEM	

CRMC JURISDICTION
☐ CRMC Assent required
☐ Property subject to a Special Area Management Plan (SAMP). If so, specify which SAMP:
☐ Sea level rise mitigation has been designed into this project

LUHPPL IDENTIFICATION - MINIMUM STANDARD 8:			
1.	**OFFICE OF Land Revitalization and Sustainable Materials Management (OLRSMM)**		
	☐ Known or suspected releases of HAZARDOUS MATERIAL are present at the site (Hazardous Material is defined in Rule 1.4(A)(33) of 250-140-30-1 of the RIDEM Rules and Regulations for Investigation and Remediation of Hazardous Materials (the Remediation Regulations))		**RIDEM CONTACT:**
	☐ Known or suspected releases of PETROLEUM PRODUCT are present at the site (Petroleum Product as defined in Rule 1.5(A)(84) of 250-140-25-1 of the RIDEM Rules and Regulations for Underground Storage Facilities Used for Regulated Substances and Hazardous Materials)		
	☐ This site is identified on the RIDEM Environmental Resources Map as one of the following regulated facilities		**SITE ID#:**
		☐ CERCLIS/Superfund (NPL)	
		☐ State Hazardous Waste Site (SHWS)	
		☐ Environmental Land Usage Restriction (ELUR)	
		☐ Leaking Underground Storage Tank (LUST)	
		☐ Closed Landfill	
Note:	If any boxes in 1 above are checked, the applicant must contact the RIDEM OLRSMM Project Manager associated with the Site to determine if subsurface infiltration of stormwater is allowable for the project. Indicate if the infiltration corresponds to "Red," "Yellow" or "Green" as described in Section 3.2.8 of the RISDISM Guidance (Subsurface Contamination Guidance). Also, note and reference approval in PART 3, Minimum Standard 2: Groundwater Recharge/Infiltration.		
2.	**PER MINIMUM STANDARD 8 of RICR 8.14.C.1-6 "LUHPPLS," THE SITE IS/HAS:**		
	☐ Industrial Site with RIPDES MSGP, except where No Exposure Certification exists. http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/status.php		
	☐ Auto Fueling Facility (e.g., gas station)		
	☐ Exterior Vehicles Service, Maintenance, or Equipment Cleaning Area		

	☐ Road Salt Storage and Loading Areas (exposed to rainwater)	
	☐ Outdoor Storage and Loading/Unloading of Hazardous Substances	
3.	**STORMWATER INDUSTRIAL PERMITTING**	
	☐ The site is associated with existing or proposed activities that are considered Land Uses with Higher Potential Pollutant Loads (LUHPPLS) (see RICR 8.14.C)	Activities: Sector:
	☐ Construction is proposed on a site that is subject to THE MULTI-SECTOR GENERAL PERMIT (MSGP) UNDER RULE 31(B)15 OF THE RIPDES REGULATIONS.	MSGP permit #
	☐ Additional stormwater treatment is required by the MSGP Explain:	

REDEVELOPMENT STANDARD – MINIMUM STANDARD 6		
☒ Pre Construction Impervious Area (Acres)		
3.11	☒ Total Pre-Construction Impervious Area (**TIA**)	
7.82	☒ Total Site Area (**TSA**)	
0.22	☒ Jurisdictional Wetlands (**JW**)	
	☐ Conservation Land (**CL**)	
☒ Calculate the Site Size (defined as contiguous properties under same ownership)		
7.60	☒ Site Size (**SS**) = (**TSA**) – (**JW**) – (**CL**) 7.82 AC – 0.22 AC = 7.60 AC	
0.409	☒ (**TIA**) / (**SS**) = 3.11 AC/7.60 AC = 0.409	☒ (**TIA**) / (**SS**) >**0.4**?
☒ YES, Redevelopment		

PART 2. LOW IMPACT DEVELOPMENT ASSESSMENT – MINIMUM STANDARD 1

(NOT REQUIRED FOR REDEVELOPMENT OR RETROFITS)

This section may be deleted if not required.

Note: A written description must be provided specifying why each method is not being used or is not applicable at the Site. Appropriate answers may include:

- Town requires … (state the specific local requirement)
- Meets Town’s dimensional requirement of …
- Not practical for site because …
- Applying for waiver/variance to achieve this (pending/approved/denied)
- Applying for wavier/variance to seek relief from this (pending/approved/denied)

A) PRESERVATION OF UNDISTURBED AREAS, BUFFERS, AND FLOODPLAINS	**IF NOT IMPLEMENTED, EXPLAIN HERE**
☒ Sensitive resource areas and site constraints are identified (required)	
☒ Local development regulations have been reviewed (required)	
☐ All vegetated buffers and coastal and freshwater wetlands will be protected during and after construction	
☐ Conservation Development or another site design technique has been incorporated to protect open space and pre-development hydrology. **Note:** If Conservation Development has been used, check box and skip to Subpart C	
☒ As much natural vegetation and pre-development hydrology as possible has been maintained	

B) LOCATE DEVELOPMENT IN LESS SENSITIVE AREAS AND WORK WITH THE NATURAL LANDSCAPE CONDITIONS, HYDROLOGY, AND SOILS ☒ Development sites and building envelopes have been appropriately distanced from wetlands and waterbodies ☒ Development and stormwater systems have been located in areas with greatest infiltration capacity (e.g., soil groups A and B) ☐ Plans show measures to prevent soil compaction in areas designated as Qualified Pervious Areas (QPA's) ☒ Development sites and building envelopes have been positioned outside of floodplains ☒ Site design positions buildings, roadways and parking areas in a manner that avoids impacts to surface water features ☐ Development sites and building envelopes have been located to minimize impacts to steep slopes (≥15%) ☐ Other (describe):	
C) MINIMIZE CLEARING AND GRADING ☒ Site clearing has been restricted to <u>minimum area needed</u> for building footprints, development activities, construction access, and safety. ☒ Site has been designed to position buildings, roadways, and parking areas in a manner that minimizes grading (cut and fill quantities) ☒ Protection for stands of trees and individual trees and their root zones to be preserved has been specified, and such protection extends at least to the tree canopy drip line(s) ☐ Plan notes specify that public trees removed or damaged during construction shall be replaced with equivalent	
D) REDUCE IMPERVIOUS COVER ☐ Reduced roadway widths (≤22 feet for ADT ≤ 400; ≤ 26 feet for ADT 400 - 2,000) ☒ Reduced driveway areas (length minimized via reduced ROW width (≤ 45 ft.) and/or reduced (or absolute minimum) front yard setback; width minimized to ≤ 9 ft. wide one lane; ≤ 18 ft. wide two lanes; shared driveways; pervious surface) ☐ Reduced building footprint: Explain approach: ☒ Reduced sidewalk area (≤ 4 ft. wide; one side of the street; unpaved path; pervious surface) ☐ Reduced cul-de-sacs (radius < 45 ft; vegetated island; alternative turn-around) ☐ Reduced parking lot area: Explain approach ☐ Use of pervious surfaces for driveways, sidewalks, parking areas/overflow parking areas, etc. ☐ Minimized impervious surfaces (project meets or is less than maximum specified by Zoning Ordinance) ☐ Other (describe):	
E) DISCONNECT IMPERVIOUS AREA ☐ Impervious surfaces have been disconnected, and runoff has been diverted to QPAs to the maximum extent possible ☐ Residential street edges allow side-of-the-road drainage into vegetated open swales ☐ Parking lot landscaping breaks up impervious expanse AND accepts runoff ☒ Other (describe): **Numerous hardscape areas shed to pervious (grassed) surfaces.**	
F) MITIGATE RUNOFF AT THE POINT OF GENERATION ☒ Small-scale BMPs have been designated to treat runoff as close as possible to the source	

G) PROVIDE LOW-MAINTENANCE NATIVE VEGETATION	
☒ Low-maintenance landscaping has been proposed using native species and cultivars ☐ Plantings of native trees and shrubs in areas previously cleared of native vegetation are shown on site plan ☒ Lawn areas have been limited/minimized, and yards have been kept undisturbed to the maximum extent practicable on residential lots	
H) RESTORE STREAMS/WETLANDS ☐ Historic drainage patterns have been restored by removing closed drainage systems, daylighting buried streams, and/or restoring degraded stream channels and/or wetlands ☐ Removal of invasive species ☐ Other	THIS MEASURE CANNOT BE APPLIED TO THE PROJECT, AS THERE ARE NO HISTORIC PATTERNS OR DEGRADED STREAMS/ WETLANDS WITHIN OR NEAR THE PROJECT LIMITS

PART 3. SUMMARY OF REMAINING STANDARDS

GROUNDWATER RECHARGE – MINIMUM STANDARD 2		
YES	**NO**	
☒	☐	The project has been designed to meet the groundwater recharge standard.
☐	☐	If "No," the justification for groundwater recharge criterion waiver has been explained in the Narrative (e.g., threat of groundwater contamination or physical limitation), if applicable (see RICR 8.8.D);
☐	☐	Your waiver request has been explained in the Narrative, if applicable.
☐	☒	Is this site identified as a Regulated Facility in Part 1, Minimum Standard 8: LUHPPL Identification?
☐	☐	If "Yes," has approval for infiltration by the OLRSMM Site Project Manager, per Part 1, Minimum Standard 8, been requested?

TABLE 2-1: Summary of Recharge (see RISDISM Section 3.3.2)
(Add or Subtract Rows as Necessary)

Design Point	Impervious Area Treated (sq ft)	Total Re_v Required (cu ft)	LID Stormwater Credits (see RISDISM Section 4.6.1) Portion of Re_v directed to a QPA (cu ft)	Recharge Required by Remaining BMPs (cu ft)	Recharge Provided by BMPs (cu ft)
DP-1: Asia Street	147,129	2,316	0	2,316	6,615
TOTALS to DP-1:	**147,129**	**2,316**	**0**	**2,316**	**6,615**

Notes:
1. Only BMPs listed in RISDISM Table 3-5 "List of BMPs Acceptable for Recharge" may be used to meet the recharge requirement.
2. Recharge requirement must be satisfied for each waterbody ID.
3. Impervious structure areas (HSE 1, HSE 2, HSE 3 and BARN) are not included in the total impervious surface area that shall shed offsite to DP-1, as their runoff shall be infiltrated via the individual underground chamber systems.

☒ Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.): **RIDEM STORMWATER REPORT, APPENDIX D**

WATER QUALITY – MINIMUM STANDARD 3		
YES	**NO**	
☒	☐	Does this project meet or exceed the required water quality volume WQv (see RICR 8.9.E-I)?
☒	☐	Is the proposed final impervious cover greater than 20% of the disturbed area (see RICR 8.9.E-I)?
☒	☐	If "Yes," either the Modified Curve Number Method or the Split Pervious/Impervious method in Hydro-CAD was used to calculate WQv; or,
☐	☐	If "Yes," either TR-55 or TR-20 was used to calculate WQv; and,
☐	☐	If "No," the project meets the minimum WQv of 0.2 watershed inches over the entire disturbed area.
☐	☐	Not Applicable
☒	☐	Does this project meet or exceed the ability to treat required water quality flow WQf (see RICR 8.9.I.1-3)?
☒	☐	Does this project propose an increase of impervious cover to a receiving water body with impairments? If "Yes," please indicate below the method that was used to address the water quality requirements of no further degradation to a low-quality water. **The proposed water quality BMP (sand filter basin) is considered to provide "good" pollutant removal for pathogens such as enterococcus.**
☐	☒	RICR 8.36. A Pollutant Loading Analysis is needed and has been completed.
☐	☐	The Water Quality Guidance Document (Water Quality Goals and Pollutant Loading Analysis Guidance for Discharges to Impaired Waters) has been followed as applicable. **N/A**
☐	☒	BMPs are proposed that are on the approved technology list . If "Yes," please provide all required worksheets from the manufacturer.
☐	☒	Additional pollutant-specific requirements and/or pollutant removal efficiencies are applicable to the site as the result of a TMDL, SAMP, or other watershed-specific requirements. If "Yes," please describe:

TABLE 3-1: Summary of Water Quality (see RICR 8.9)					
Design Point and WB ID	**Impervious area treated (sq ft)**	**Total WQ_v Required (cu ft)**	**LID Stormwater Credits** (see RICR 8.18) **WQv directed to a QPA (cu ft)**	**Water Quality Treatment Remaining (cu ft)**	**Water Quality Provided by BMPs (cu ft)**
DP-1: Asia Street	147,129	6,615	0	6,615	6,615
TOTALS:	**147,129**	**6,615**	**0**	**6,615**	**6,615**

Notes:
1. Only BMPs listed in RICR 8.20 and 8.25 or the Approved Technologies List of BMPs is Acceptable for Water Quality treatment.
2. For each Design Point, the Water Quality Volume Standard must be met for each Waterbody ID.
3. Impervious structure areas (HSE 1, HSE 2, HSE 3 and BARN) are not included in the total impervious surface area that shall shed offsite to DP-1, as their runoff shall be infiltrated via the individual underground chamber systems.

☒ YES ☐ NO	This project has met the setback requirements for each BMP. If "No," please explain:

☒ Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.): **RIDEM STORMWATER REPORT, APPENDIX D**

CONVEYANCE AND NATURAL CHANNEL PROTECTION (RICR 8.10) – MINIMUM STANDARD 4			
YES	**NO**		
☒	☐	Is this standard waived? If "Yes," please indicate one or more of the reasons below: **N/A – Redevelopment**	
		☐	The project directs discharge to a large river (i.e., 4th-order stream or larger. See RISDISM Appendix I for State-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters.
		☐	The project is a small facility with impervious cover of less than or equal to 1 acre.
		☐	The project has a post-development peak discharge rate from the facility that is less than 2 cfs for the 1-year, 24-hour Type III design storm event (prior to any attenuation). (Note: LID design strategies can greatly reduce the peak discharge rate).
☐	☐	Conveyance and natural channel protection for the site have been met. **N/A** If "No,' explain why:	

OVERBANK FLOOD PROTECTION (RICR 8.11) AND OTHER POTENTIAL HIGH FLOWS – MINIMUM STANDARD 5			
YES	**NO**		
☒	☐	Is this standard waived? If yes, please indicate one or more of the reasons below: **N/A - Redevelopment**	
		☐	The project directs discharge to a large river (i.e., 4th-order stream or larger. See Appendix I for state-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters.
		☐	A Downstream Analysis (see RICR 8.11.D and E) indicates that peak discharge control would not be beneficial or would exacerbate peak flows in a downstream tributary of a particular site (e.g., through coincident peaks).
☒	☐	Does the project flow to an MS4 system or subject to other stormwater requirements? If "Yes," indicate as follows:	
		☐	RIDOT
		☒	Other (specify): **City of Cranston drainage system in Asia Street**
Note: The project could be approved by RIDEM but not meet RIDOT or Town standards. RIDOT's regulations indicate that post-volumes must be **less** than pre-volumes for the 10-yr storm at the design point entering the RIDOT system. If you have not already received approval for the discharge to an MS4, please explain below your strategy to comply with RIDEM and the MS4.			
		Indicate below which model was used for your analysis. ☒ TR-55 ☐ TR-20 ☒ HydroCAD ☐ Bentley/Haestad ☐ Intellisolve ☐ Other (Specify):	
YES	**NO**		
☒	☐	Does the drainage design demonstrate that flows from the 100-year storm event through a BMP will safely manage and convey the 100-year storm? If "No," please explain briefly below and reference where in the application further documentation can be found (i.e., name of report/document, page numbers, appendices, etc.):	
☒	☐	Do off-site areas contribute to the sub-watersheds and design points? If "Yes,"	
☒	☐	Are the areas modeled as "present condition" for both pre- and post-development analysis?	
☒	☐	Are the off-site areas shown on the subwatershed maps?	
☒	☐	Does the drainage design confirm safe passage of the 100-year flow through the site for off-site runoff?	
☐	☒	Is a Downstream Analysis required (see RICR 8.11.E.1)?	
☒	☐	Calculate the following:	
		☒	Area of disturbance within the sub-watershed (areas) **5.47 acres** (project LOD, not overall parcel area)
		☒	Impervious cover (%) 6**1.7 (147,129 s.f. = 3.378 acres/5.47 acres = 0.617)**
☐	☒	Is a dam breach analysis required (earthen embankments over six (6) feet in height, or a capacity of 15 acre-feet or more, and contributes to a significant or high hazard dam)?	
☒	☐	Does this project meet the overbank flood protection standard?	

Table 5-1 Hydraulic Analysis Summary

Subwatershed (Design Point)	**1.2" Peak Flow** (cfs) **		**1-yr Peak Flow** (cfs)		**10-yr Peak Flow** (cfs)		**100-yr Peak Flow** (cfs)	
	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)
DP-1: MH 111710	0.41	0.09	5.33	2.65	15.44	13.56	34.55	21.04
DP 2: OFFSITE EAST	0.01	0.00	0.04	0.04	1.10	1.10	4.82	4.82
DP 3: OFFSITE GLADSTONE	0.02	0.00	0.76	0.33	2.43	1.27	5.71	3.22
TOTALS (L T):	0.44	0.09	5.88	2.83	18.05	15.25	42.89	27.21

** Utilize modified curve number method or split pervious /impervious method in HydroCAD.

Note: The hydraulic analysis must demonstrate no impact to each individual subwatershed DP unless each DP discharges to the same wetland or water resource.

Indicate as follows where the pertinent calculations and/or information for the items above are provided	**Name of report/document, page numbers, appendices, etc.**
Existing conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, and water surface elevations showing methodologies used and supporting calculations.	RIDEM STORMWATER REPORT, APPENDIX F
Proposed conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, water surface elevations, and routing showing the methodologies used and supporting calculations.	
Final sizing calculations for structural stormwater BMPs, including contributing drainage area, storage, and outlet configuration.	
Stage-storage, inflow and outflow hydrographs for storage facilities (e.g., detention, retention, or infiltration facilities).	

Table 5-2 Summary of Best Management Practices

BMP ID	**DP #**	**BMP Type** (e.g., bioretention, tree filter)	**BMP Functions**					**Bypass Type**	**Horizontal Setback Criteria are met per RICR 8.21.B.10, 8.22.D.11, and 8.35.B.4**		
			Pre-Treatment (Y/N/NA)	Re_v	WQ_v	CP_v (Y/N/NA)	Overbank Flood Reduction (Y/N/NA)	External (E) Internal (I) or NA	Yes/No	Technical Justification (Design Report page number)	Distance Provided (FT)
P- SF	1	Sand Filter Basin	N	2,316	6,615	NA	N/NA	E	NA		NA
P-BSN N	1	Dry Extended Detention Basin	N	0	0	NA	Y/NA	NA	NA		NA
P-BSN S	1	Dry Extended Detention Basin	N	0	0	NA	Y/NA	NA	NA		NA
TOTALS FOR SITE:				**2,316**	**6,615**						

Table 5.3 Summary of Soils to Evaluate Each BMP									
DP #	**BMP ID**	**BMP Type** (e.g., bioretention, tree filter)	**Soils Analysis for Each BMP**						
			Test Pit ID# and Ground Elevation		SHWT Elevation (ft)	Bottom of Practice Elevation* (ft)	Separation Distance Provided (ft)	Hydrologic Soil Group (A, B, C, D)	Exfiltration Rate Applied (in/hr)
			Primary	Elev.					
1	P-SF	Sand Filter	TP-6	135.0	127.0	130.0	3.0	B	2.41
	P-BSN N	Dry Extended Detention Basin	TP-6	135.0	127.0	129.5	2.5	B	N/A
	P-BSN S	Dry Extended Detention Basin	TP-GZ 10	109.0	93.0	111.0	18.0	B	N/A
* For underground infiltration systems (UICs) bottom is bottom of stone, for surface infiltration basins bottom is bottom of basin, for filters bottom is interface of storage and top of filter layer, for dry swales bottom is top of biofiltration media									

LAND USES WITH HIGHER POTENTIAL POLLUTANTS LOADS (LUHPPLs) – MINIMUM STANDARD 8			
YES	**NO**	**N/A**	
☐	☐	☒	Describe any LUHPPLs identified in Part 1, Minimum Standard 8, Section 2. If not applicable, continue to Minimum Standard 9.
☐	☐	☒	Are these activities already covered under an MSGP? If "No," please explain if you have applied for an MSGP or intend to do so?
☐	☐	☒	List the specific BMPs that are proposed for this project that receive stormwater from LUHPPL drainage areas. These BMP types must be listed in RISDISM Table 3-3, "Acceptable BMPs for Use at LUHPPLs." Please list BMPs:
☐	☐	☒	Additional BMPs, or additional pretreatment BMP's if any, that meet RIPDES MSGP requirements; Please list BMPs:
			Indicate below where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.).

ILLICIT DISCHARGES – MINIMUM STANDARD 9			
Illicit discharges are defined as unpermitted discharges to Waters of the State that do not consist entirely of stormwater or uncontaminated groundwater, except for certain discharges identified in the RIPDES Phase II Stormwater General Permit.			
YES	**NO**	**N/A**	
☒	☐	☐	Have you checked for illicit discharges?
☐	☒	☐	Have any been found and/or corrected? If "Yes," please identify.
☐	☐	☒	Does your report explain preventative measures that keep non-stormwater discharges out of the Waters of the State (during and after construction)?

SOIL EROSION AND SEDIMENT CONTROL (SESC) – MINIMUM STANDARD 10			
YES	**NO**	**N/A**	
☒	☐	☐	Have you included a Soil Erosion and Sediment Control Plan Set and/or Complete Construction Plan Set?
☒	☐	☐	Have you provided a **separately-bound** document based upon the SESC Template? If yes, proceed to Minimum Standard 11 (the following items can be assumed to be addressed).
			If "No," include a document with your submittal that addresses the following elements of an SESC Plan:

	☐	Soil Erosion and Sediment Control Plan Project Narrative, including a description of how the fifteen (15) Performance Criteria have been met:
	☐	Provide Natural Buffers and Maintain Existing Vegetation
	☐	Minimize Area of Disturbance
	☐	Minimize the Disturbance of Steep Slopes
	☐	Preserve Topsoil
	☐	Stabilize Soils
	☐	Protect Storm Drain Inlets
	☐	Protect Storm Drain Outlets
	☐	Establish Temporary Controls for the Protection of Post-Construction Stormwater Control Measures
	☐	Establish Perimeter Controls and Sediment Barriers
	☐	Divert or Manage Run-On from Up-Gradient Areas
	☐	Properly Design Constructed Stormwater Conveyance Channels
	☐	Retain Sediment On-Site
	☐	Control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows
	☐	Apply Construction Activity Pollution Prevention Control Measures
	☐	Install, Inspect, and Maintain Control Measures and Take Corrective Actions
	☐	Qualified SESC Plan Preparer's Information and Certification
	☐	Operator's Information and Certification; if not known at the time of application, the Operator must certify the SESC Plan upon selection and prior to initiating site activities
	☐	Description of Control Measures, such as Temporary Sediment Trapping and Conveyance Practices, including design calculations and supporting documentation, as required

STORMWATER MANAGEMENT SYSTEM OPERATION, MAINTENANCE, AND POLLUTION PREVENTION PLAN – MINIMUM STANDARDS 7 AND 9		
Operation and Maintenance Section		
YES	**NO**	
☒	☐	Have you minimized all sources of pollutant contact with stormwater runoff, to the maximum extent practicable?
☒	☐	Have you provided a **separately-bound** Operation and Maintenance Plan for the site and for all of the BMPs, and does it address each element of RICR 8.17 and RISDISM Appendix C and E?
☒	☐	Lawn, Garden, and Landscape Management meet the requirements of RISDISM Section G.7? If "No," why not?
☒	☐	Is the property owner or homeowner's association responsible for the stormwater maintenance of all BMP's? If "No," you must provide a legally binding and enforceable maintenance agreement (see RISDISM Appendix E, page 26) that identifies the entity that will be responsible for maintenance of the stormwater. Indicate where this agreement can be found in your report (i.e., name of report/document, page numbers, appendices, etc.).
☐	☒	Do you anticipate that you will need legal agreements related to the stormwater structures? (e.g. off-site easements, deed restrictions, covenants, or ELUR per the Remediation Regulations). If "Yes," have you obtained them? Or please explain your plan to obtain them:
☐	☒	Is stormwater being directed from public areas to private property? If "Yes," note the following: Note: This is not allowed unless a funding mechanism is in place to provide the finances for the long-term maintenance of the BMP and drainage, or a funding mechanism is demonstrated that can guarantee the long-term maintenance of a stormwater BMP by an individual homeowner.
Pollution Prevention Section		
☐	☒	Designated snow stockpile locations?
☒	☐	Trash racks to prevent floatables, trash, and debris from discharging to Waters of the State?
☒	☐	Asphalt-only based sealants?
☐	☒	Pet waste stations? (Note: If a receiving water has a bacterial impairment, and the project involves housing units, then this could be an important part of your pollution prevention plan).

☒	☐	Regular sweeping? Please describe:
☐	☒	De-icing specifications, in accordance with RISDISM Appendix G. (NOTE: If the groundwater is GAA, or this area contributes to a drinking water supply, then this could be an important part of your pollution prevention plan).
☐	☒	A prohibition of phosphate-based fertilizers? (Note: If the site discharges to a phosphorus impaired waterbody, then this could be an important part of your pollution prevention plan).

PART 4. SUBWATERSHED MAPPING AND SITE-PLAN DETAILS

Existing and Proposed Subwatershed Mapping (REQUIRED)			
YES	**NO**		
☒	☐	Existing and proposed drainage area delineations	
☒	☐	Locations of all streams and drainage swales	
☒	☐	Drainage flow paths, mapped according to the DEM *Guidance for Preparation of Drainage Area Maps* (included in RISDISM Appendix K)	
☒	☐	Complete drainage area boundaries; include off-site areas in both mapping and analyses, as applicable	
☒	☐	Logs of borings and/or test pit investigations along with supporting soils/geotechnical report	
☒	☐	Mapped seasonal high-water-table test pit locations	
☒	☐	Mapped locations of the site-specific borings and/or test pits and soils information from the test pits at the locations of the BMPs	
☒	☐	Mapped locations of the BMPs, with the BMPs consistently identified on the Site Construction Plans	
☐	☐	Mapped bedrock outcrops adjacent to any infiltration BMP **N/A**	
☒	☐	Soils were logged by a:	
		☒	DEM-licensed Class IV soil evaluator Name: Amber Hardy, M.S. License #D4098
		☐	RI-registered P.E. Name:

Subwatershed and Impervious Area Summary				
Subwatershed (area to each design point)	**First Receiving Water ID or MS4**	**Area Disturbed (units)**	**Existing Impervious (units)**	**Proposed Impervious (units)**
DP-1: Asia Street Drainage	City of Cranston MS4	5.47 (acres)	3.11 (acres)	3.38 (acres)
TOTALS:		**5.47 (acres)**	**3.11 (acres)**	**3.38 (acres)**

Site Construction Plans (Indicate that the following applicable specifications are provided)		
YES	**NO**	
☒	☐	Existing and proposed plans (scale not greater than 1” = 40’) with North arrow
☒	☐	Existing and proposed site topography (with 1 or 2-foot contours); 10-foot contours accepted for off-site areas
☒	☐	Boundaries of existing predominant vegetation and proposed limits of clearing
☒	☐	Site Location clarification
☒	☐	Location and field-verified boundaries of resource protection areas such as: ► freshwater and coastal wetlands, including lakes and ponds ► coastal shoreline features Perennial and intermittent streams, in addition to Areas Subject to Storm Flowage (ASSFs)
☒	☐	All required setbacks (e.g., buffers, water-supply wells, septic systems)
☒	☐	Representative cross-section and profile drawings, and notes and details of structural stormwater management practices and conveyances (i.e., storm drains, open channels, swales, etc.), which include: ► Location and size of the stormwater treatment practices (type of practice, depth, area). Stormwater treatment practices (BMPs) must have labels that correspond to RISDISM Table 5-2; ► Design water surface elevations (applicable storms); ► Structural details of outlet structures, embankments, spillways, stilling basins, grade-control structures, conveyance channels, etc.; ► Existing and proposed structural elevations (e.g., inverts of pipes, manholes, etc.); ► Location of floodplain and, if applicable, floodway limits and relationship of site to upstream and downstream properties or drainage that could be affected by work in the floodplain; ► Planting plans for structural stormwater BMPs, including species, size, planting methods, and maintenance requirements of proposed planting
☒	☐	Logs of borings and/or test pit investigations along with supporting soils/geotechnical report and corresponding water tables
☐	☐	Mapping of any OLRSMM-approved remedial actions/systems (including ELURs) **N/A**
☒	☐	Location of existing and proposed roads, buildings, and other structures including limits of disturbance; ► Existing and proposed utilities (e.g., water, sewer, gas, electric) and easements; ► Location of existing and proposed conveyance systems, such as grass channels, swales, and storm drains, and location(s) of final discharge point(s) (wetland, waterbody, etc.); ► Cross sections of roadways, with edge details such as curbs and sidewalks; ► Location and dimensions of channel modifications, such as bridge or culvert crossings
☐	☒	Locations, cross sections, and profiles of all stream or wetland crossings and their method of stabilization **N/A**

Kenneth J. Hopkins
Mayor

Michael E. Smith
President

Jason M. Pezzullo, AICP
Planning Director

Thomas Barbieri
Richard Bernardo
Robert Coupe
David Exter
Steven Frias
Kathleen Lanphear
Lisa Mancini
Thomas Zidelis

CITY PLAN COMMISSION

Cranston City Hall
869 Park Avenue, Cranston, RI 02910

Draft Meeting Minutes

Tuesday, February 7th, 2023 – 6:30PM

3rd Floor - City Council Chamber, 869 Park Avenue, Cranston RI

CALL TO ORDER

Chairman Smith called the meeting to order at 6:37 p.m. in the Council Chamber, 869 Park Avenue.

The following Commissioners were in attendance for the meeting: Chairman Michael Smith, Richard Bernardo, Thomas Barbieri, David Exter, Steven Frias, Kathleen Lanphear, Lisa Mancini, and Thomas Zidelis. Commissioner Robert Coupe was absent.

The following Planning Department members were in attendance: Jason M. Pezzullo, AICP, Planning Director; Douglas McLean, AICP, Principal Planner; Gregory Guertin, Senior Planner; Alexander Berardo, Planning Technician; and Amelia Lavallee, Planning Department Intern.

Also attending: Steve Marsella, Esq., Assistant City Solicitor.

RECOGNITION OF SERVICE - CITY PLAN COMMISSION MEMBERS (no votes taken)

- Ann Marie Maccarone – 2018-2022
- James Donahue – 2020-2022
- Frank Ritz – 2021-2022

Chairman Smith began the meeting by acknowledging and thanking Ann Marie Maccarone, James Donahue, and Frank Ritz for their service on the City Plan Commission and wished them well in their future endeavors.

APPROVAL OF MINUTES (vote taken)

- 1/3/23 City Plan Commission Meeting

Mr. Frias requested minor edits to clarify comments he made in two sections of the draft minutes: the Policy Guide (p.2) and the Planning Director's Report (p.3).

Upon motion by Mr. Zidelis, and seconded by Mr. Bernardo, the City Plan Commission voted unanimously (8-0) to ***amend and approve*** the regular City Plan Commission meeting minutes of 1/3/23 with Mr. Frias' suggested edits.

CITY PLAN COMMISSION – City Plan Commission Policy Guide (vote taken)

- Final draft discussion *(continued from the 1/3/23 regular meeting)*

Chairman Smith recalled that the Policy Guide discussion was not concluded during the January meeting but asked to table the matter for the time being, in light of the full agenda. Mr. Frias asked for clarification as to whether Chairman Smith intended to continue or table the conversation; Chairman Smith said he wanted to continue the discussion, but he did not have a date certain. Planning Director Jason Pezzullo said he recommended tabling the discussion since the item is not ready to be continued at this time.

Upon motion made by Mr. Bernardo, and seconded by Mr. Zidelis, the City Plan Commission voted unanimously (8-0) to table the Policy Guide discussion. Chairman Smith said the Commission would revisit the matter at a future time.

ZONING BOARD OF REVIEW – RECOMMENDATIONS (votes taken for all items)

- **GARFIELD AVE FOODS, LLC. (OWN) and LAMAR CENTRAL OUTDOOR, LLC (APP)** have applied to the Board to convert an existing over-sized billboard sign to a digital LED billboard display of same size at 110 Garfield Avenue, A.P. 7, lots 2561-62, 2593-97, and 3768, area 29,091 s.f. zoned M2. Applicants seek relief per Section 17.92.010- Variances; Table 17.72.010 (7)- Signs.
  This item was continued to the 2/7/23 meeting at the request of the applicant.

Chairman Smith reported that a new application has just been submitted for this item, so it should not have been listed on the agenda as continued. He asked for a motion to table the matter.

Upon motion made by Ms. Lanphear, and seconded by Mr. Bernardo, the City Plan Commission voted unanimously (8-0) to table the matter.

- **BASSIL ELKHOURY and LORI YEREMIAN (OWN/APP)** have filed an application to legalize second dwelling unit in an existing single-family dwelling at 5 Beckwith Street, A.P. 3, lot 65; total area 5,000 s.f.; zoned M2. Applicant seeks relief per 17.92.010- Variances; Section 17.20.030- Schedule of Uses.

Due to the findings that the application is consistent with the Cranston Comprehensive Plan and is compatible with the surrounding neighborhood, upon motion made by Mr. Bernardo, and seconded by Ms. Mancini, the City Plan Commission voted 7-1 (Mr. Frias voted No) to forward a ***positive recommendation*** to the Zoning Board of Review, subject to the condition of conformance with all necessary building permits, certificates of occupancy, and other relevant Building Code standards.

- **CHRISTY, LLC and MARLEY ROSE, LLC (OWN) and CHRISTY, LLC** have filed an application for permission to install an electronic message board and to allow all signage to exceed the allowable areas at 1350 Oaklawn Avenue, A.P. 15, lot 47; area 124,581 s.f, zoned C4. Applicant seeks relief per 17.92.010-Variance, Section 17.72.010 (5) Signs. Regulations.

Due to the finding that the application is consistent with the Comprehensive Plan's Economic Development Goal 5, upon motion made by Mr. Frias, and seconded by Mr. Bernardo, the City Plan Commission voted 6-1 (Mr. Smith voted No; Ms. Lanphear recused) to forward a ***positive recommendation*** to the Zoning Board of Review.

- **COLBEA ENTERPRISES LLC (OWN/APP)** has filed an application to construct a new fuel station minimart and drive-in use with increased curb opening sizes, reduced driveway to property line separation, landscape buffer, and signage requirements at 2050 Plainfield Pike, A.P. 36, lot 116 & 117, area 1.36 ac. zoned C5. Applicant seeks relief per 17.92.010-Variance, Sections 17.48.010 Construction Standards, 17.72.010 (6).

Due to the findings that the requests for dimensional relief for freestanding, monument, and wall signs; increased driveway width; building height; and reduced property line separation at 2050 Plainfield Pike are necessary to accommodate the highway-commercial, heavily trafficked area of a main commercial corridor; and that the requests would not be injurious or out of character with the surrounding area; and that an analysis of the Comprehensive Plan is inconclusive regarding guidance on signage in western Cranston; upon motion made by Mr. Barbieri, and seconded by Mr. Zidelis, the City Plan Commission voted 8-0 to forward a ***positive recommendation*** to the Zoning Board of Review.

- **FORCE REALTY LLC (OWN) and ANTLER ALE WORKS LLC (APP)** has applied to the Board to request permission to operate a brewery at 72 Rolfe Square, A.P. 5, lots 604 & 1835, area 10,350 s.f. zoned C3. Applicant seeks relief per 17.92.010-Variance, Section 17.20.030 Schedule of Uses. Application filed 1/10/2023. Robert D. Murray, Esq.

Due to the findings that the applicant's proposal is generally consistent with the Cranston Comprehensive Plan, and is compatible with the surrounding neighborhood, upon motion made by Mr. Barbieri, and seconded by Mr. Zidelis, the City Plan Commission voted 6-2 (Mr. Frias and Ms. Lanphear voted No) to forward a ***positive recommendation*** to the Zoning Board of Review.

- **PAUL DAVID CARTER (OWN/APP)** has filed an application to request permission to construct an addition on an existing garage extending into the required front yard setbacks at 62 Eden Crest Drive, A.P. 10, lot 1148, area 10,153 s.f., zoned A8. Applicant seeks relief per 17.92.010-Variance, Section 17.20.120 Schedule of Intensity Regulations.

Due to the findings that the application is generally consistent with the Comprehensive Plan and that it does not alter the character of the neighborhood, upon motion made by Mr. Zidelis, and seconded by Mr. Barbieri, the City Plan Commission voted 8-0 to forward a ***positive recommendation*** to the Zoning Board of Review.

PERFORMANCE GUARANTEES

- **"Whiting Street Minor Subdivision"** – Bond release request (vote taken)

Director Pezzullo informed the Commission that City Engineer Justin Mateus sent a letter in which he noted that all conditions have been met for complete release of the bond to be authorized. Director Pezzullo said Planning Staff therefore recommends the Commission release the bond.

Upon motion made by Ms. Lanphear, and seconded by Mr. Barbieri, the City Plan Commission voted unanimously (8-0) to release the bond associated with the Whiting Street Minor Subdivision.

SUBDIVISION AND LAND DEVELOPMENTS

- **"Gladstone School"** **PUBLIC HEARING** (vote taken)
  MASTER PLAN / PRELIMINARY PLAN - Major Land Development
  Gladstone Elementary School 115,000 +/- sq.ft reconstruction on the existing 7.82 acre site
  Zoned B-1
  AP 7-4, Lot 2357
  50 Gladstone Street
- **CRANSTON PUBLIC SCHOOLS (OWN/APP)** has applied to the Board to construct a new elementary school building exceeding the allowable height at 50 Gladstone Street, A.P. 7, lot 2357; area 7.96 ac; zoned B1. Applicant seeks relief per 17.92.010-Variance, Section 17.20.120 Schedule of Intensity Regulations. Application filed 1/6/2023. No Attorney.

Principal Planner Doug McLean gave the staff presentation. He said the applicant, Cranston Public Schools, proposes to demolish the existing Gladstone Elementary School and construct a replacement school building on the same site. He said the project constitutes a Major Land Development and has an associated dimensional variance request, as the proposed new school building will need height relief.

Mr. McLean reviewed various maps, graphics, and site plans to orient the Commission to the proposal and its context. He said the proposed new school building would increase the total floor area while reducing lot coverage by centralizing the building on the site (which will also put more distance between it and the nearest abutting residences) to a greater extent than exists today.

Addressing the nature of the variance request, Mr. McLean said the applicant seeks relief to build up to 89 feet in height. Although that would far exceed the 35-foot limit, Mr. McLean noted the existing school is 82 feet tall and explained that the topography of the site is such that the building has a far larger reveal on its southern elevation than it does on its other elevations – a difference of some two floors. Mr. McLean further contextualized the applicant's request by explaining that height is measured from the building's lowest point to its highest, so the building will only appear 89 feet tall from the southern reveal.

Through the Staff Analysis, Mr. McLean said that the school building's enlarged size and new configuration is partly a function of the fact that it must accommodate a larger student body (school consolidation) and partly a function of RIDE standards (for example, new schools cannot have combined gymnasiums/cafeterias/auditoriums as they once did). He said Staff felt the proposal was consistent with both the Comprehensive Plan and the FLUM. The Staff recommendations were accordingly supportive: to approve the Major Land Development application and to forward a positive recommendation on the associated variance application to the Zoning Board.

Mike Zavalia, of Commonwealth Engineering, and Regan Ives, of Finegold Alexander Architects, were in attendance on behalf of the applicant. Mr. Zavalia addressed the Commission to briefly reiterate that the amount of height relief requested is a function of how City Code requires height be measured and it is only a 7-foot increase over existing conditions. He further explained the increase is due to a planned rooftop access stairway.

Due to the finding that the application is consistent with the Comprehensive Plan, and due to the finding that the application will not negatively impact the general character of the surrounding neighborhood, upon motion made by Mr. Zidelis, and seconded by Mr. Bernardo, the City Plan Commission voted unanimously (8-0) to forward a ***positive recommendation*** to the Zoning Board of Review.

Upon motion made by Mr. Zidelis, and seconded by Mr. Bernardo, the City Plan Commission voted unanimously (8-0) to ***approve*** the Major Land Development – Master Plan application, subject to the condition that the applicant secure approval from the Zoning Board of Review for its height variance request.

- **"Sanders School"** **PUBLIC INFORMATIONAL MEETING** (vote taken)
  PRELIMINARY PLAN – Minor Subdivision
  Demolish the existing Sanders School and subdivide the property into four (4) undersized lots
  Zoned A-6
  AP 4, Lot 300
  41 Heath Avenue, First Avenue, Second Avenue
- **THE CITY OF CRANSTON (OWN/APP)** has applied to The Board to sub-divide a parcel of land with an existing vacant school building into four substandard lots to allow future development of a new single-family dwelling to be built on a 5,640 s.f lot at 41 Heath Avenue, A.P. 4, lot 300, A.K.A. Parcels A, B, C, and D; area 5,640 s.f. zoned A6. Applicant seeks relief per 17.92.010-Variance, Section 17.20.120 Schedule of Intensity Regulations.

Senior Planner Gregory Guertin gave the staff presentation. He said the City of Cranston was the applicant and that it intends to subdivide the former Sanders School property into four equal, but substandard lots, which means that the Minor Subdivision application has an associated dimensional variance application.

Mr. Guertin presented several maps, graphics, and plans. In broad terms, he said the parcel's change of vocation from a school to single-family house lots would bring its use closer into conformance with it's A-6 zone as well as the surrounding neighborhood. Each of the four lots that would result from the subdivision would be 5,640 ft^2; although this is less than the 6,000 ft2 minimum, he noted within a 400-foot radius, the

APPENDIX B SOIL EROSION AND SEDIMENT CONTROL (SESC) PLAN

Soil Erosion and Sediment Control Plan for:

Gladstone Elementary School

50 Gladstone Street
Cranston, RI 02910
A.P. 7-4 Lot 2357

Owner:	Cranston Public School District 845 Park Avenue Cranston, RI 02910 (401) 270-8191 ecollins@cpsed.net
Operator:	Company Name **TBD** Name **TBD** Address **TBD** City, State, Zip Code **TBD** Telephone Number **TBD** Email Address **TBD**
Estimated Project Dates:	Start Date: August 2023
	Completion Date: August 2025
SESC Plan Prepared By:	Commonwealth Engineers & Consultants, Inc. Michael Zavalia, P.E. 400 Smith Street Providence, RI 02903 (401) 632-4650 mzavalia@commonwealth-eng.com R.I. Professional Civil Engineer #7792
SESC Plan Preparation Date:	April 2023
SESC Plan Revision Date:	

OPERATOR CERTIFICATION

Upon contract award, the OPERATOR must sign this certification statement before construction may begin.

I certify under penalty of law that this document and all attachments were prepared under the direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I am aware that it is the responsibility of the owner/operator to implement and amend the Soil Erosion and Sediment Control Plan as appropriate in accordance with the requirements of the RIPDES Construction General Permit.

Operator Signature: Date

Contractor Representative: TBD

Contractor Title: TBD

Contractor Company Name: TBD

Address: TBD

Phone Number: TBD

Email Address: TBD

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INTRODUCTION

This Construction Site Soil Erosion and Sediment Control Plan (SESC Plan) has been prepared for the Cranston Public School District for the GLADSTONE ELEMENTARY SCHOOL. In accordance with the RIDEM Rhode Island Pollutant Discharge Elimination System (RIPDES) General Permit for Stormwater Discharge Associated with Construction Activity (RIPDES Construction General Permit ("CGP")), projects that disturb one (1) or more acres require the preparation of a SESC Plan. This SESC Plan provides guidance for complying with the terms and conditions of the RIPDES Construction General Permit and Minimum Standard 10 of the RI Stormwater Design and Installation Standards Manual. In addition, this SESC Plan is also consistent with Part D of the *RI SESC Handbook* entitled "Soil Erosion and Sediment Control Plans". This document does not negate or eliminate the need to understand and adhere to all applicable RIPDES regulations.

The purpose of erosion, runoff, and sedimentation control measures is to prevent pollutants from leaving the construction site and entering waterways or environmentally sensitive areas during and after construction. This SESC Plan has been prepared prior to the initiation of construction activities to address anticipated worksite conditions. The control measures depicted on the site plan and described in this narrative should be considered the minimum measures required to control erosion, sedimentation, and stormwater runoff at the site. Since construction is a dynamic process with changing site conditions, it is the operator's responsibility to manage the site during each construction phase so as to prevent pollutants from leaving the site. This may require the operator to revise and amend the SESC Plan during construction to address varying site and/or weather conditions, such as by adding or realigning erosion or sediment controls to ensure the SESC Plan remains compliant with the RIPDES Construction General Permit. Records of these changes must be added to the amendment log attached to the SESC Plan, and to the site plans as "red-lined" drawings. Please Note: **Even if practices are correctly installed on a site according to the approved plan, the site is only in compliance when erosion, runoff, and sedimentation are effectively controlled throughout the entire site.**

It is the responsibility of the site owner and the site operator to maintain the SESC Plan at the site, including all attachments, amendments and inspection records, and to make all records available for inspection by RIDEM during and after construction. (RIPDES CGP - Part III.G)

The site owner, the site operator, and the designated site inspector are required to review the SESC Plan and sign the Party Certification pages (Section 8). The primary contractor (if different) and all subcontractors (if applicable) involved in earthwork or exterior construction activities are also required to review the SESC Plan and sign the certification pages before construction begins.

Any questions regarding the SESC Plan, control measures, inspection requirements, or any other facet of this document may be addressed to the RIDEM Office of Water Resources, at 401-222-4700 or via email: water@dem.ri.gov.

ADDITIONAL RESOURCES

Rhode Island Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, RI 02908-5767
phone: 401-222-4700
email: water@dem.ri.gov

RIDEM *RI Stormwater Design and Installation Standards Manual* (RISDISM) (as amended)
http://www.dem.ri.gov/pubs/regs/regs/water/swmanual15.pdf

RI Soil Erosion and Sediment Control Handbook http://www.dem.ri.gov/soilerosion2014final.pdfRIDEM 2013 RIPDES Construction General Permit
http://www.dem.ri.gov/pubs/regs/regs/water/ripdesca.pdfRhode Island Department of Transportation *Standard Specifications for Road and Bridge Design and Other Specifications* and *Standard Details*
http://www.dot.ri.gov/business/bluebook.php

RIDEM Office of Water Resources Coordinated Stormwater Permitting website
http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/coordinated-stormwater-permitting.phpRIDEM RIPDES Stormwater website
http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/RIDEM Water Quality website (for 303(d) and TMDL listings)
http://www.dem.ri.gov/programs/water/quality/

RIDEM Rhode Island Natural Heritage Program mailto:plan@dem.ri.gov

RIDEM Geographic Data Viewer – Environmental Resource Map
http://www.dem.ri.gov/maps/

Natural Resources Conservation Service - Rhode Island Soil Survey Program
http://www.ri.nrcs.usda.gov/technical/soils.html

Note:

The *Soil Survey of Rhode Island*, issued in 1980 is no longer available or supported. More information on site-specific soil data and maps for Rhode Island is available from the Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture through the Web Soil Survey. This information is available online at: http://websoilsurvey.nrcs.usda.gov.

EPA NPDES – Stormwater Discharges from Construction Activities webpage:
http://water.epa.gov/polwaste/npdes/stormwater/Stormwater-Discharges-From-Construction-Activities.cfm

EPA Construction Site Stormwater Runoff Control BMP Menu
http://water.epa.gov/polwaste/npdes/swbmp/Construction-Site-Stormwater-Run-Off-Control.

SECTION 1: SITE DESCRIPTION

1.1 Project/Site Information

Project/Site Name:

- GLADSTONE ELEMENTARY SCHOOL
- Work on the project site includes: Demolition of the existing school and associated site features and construction of a new school building, utilities. stormwater management and site amenities.

Project Street/Location:

- 50 GLADSTONE STREET, CRANSTON RI
- REFER TO FIGURE I-1 - VICINITY MAP

The following are estimates of the construction site area:

- Total Project (Lot) Area 7.82 acres
- Total Project Area to be Disturbed 5.47 acres

1.3 Natural Heritage Area Information

RIPDES CGP - Part III.H

Are there any Natural Heritage Areas being disturbed by the construction activity or will discharges be directed to the Natural Heritage Area as a result of the construction activity?

☐ Yes ☒ No

If yes, describe or refer to documentation which determines the likelihood of an impact on this area and the steps that will be taken to address any impacts.

- N/A

1.4 Historic Preservation/Cultural Resources

Are there any historic properties, historic cemeteries or cultural resources on or near the construction site?

☐ Yes ☒ No

Describe how this determination was made and summarize state or tribal review comments:

- A Historic Property Search on www.preservation.ri.gov/ was performed.

If yes, describe or refer to documentation which determines the likelihood of an impact on this historic property, historic cemetery or cultural resource and the steps taken to address that impact including any conditions or mitigation measures that were approved by other parties.

- N/A

1.5 Site Features and Sensitive Areas to be Protected

Sensitive areas and measures that must be implemented to protect them:

- Deciduous Forested Wetland – No work will be performed within the forested wetland itself, or within its associated 25’ buffer and setback. A strict limit of disturbance (including adequate sedimentation and erosion control barriers) shall be established and maintained for the proposed work nearby.
- Proposed Sand Filter Basin area – All areas where exfiltrating stormwater management measures are proposed shall be protected from overcompaction during construction by delineation with appropriate warning barriers (e.g. high-visibility snow fence, flagged stakes, etc.); heavy construction vehicles and equipment shall be excluded from those areas.

SECTION 2: EROSION, RUNOFF, AND SEDIMENT CONTROL

RIPDES Construction General Permit – Part III.J.1

The purpose of erosion controls is to prevent sediment from being detached and moved by wind or the action of raindrop, sheet, rill, gully, and channel erosion. Properly installed and maintained erosion controls are the primary defense against sediment pollution.

Runoff controls are used to slow the velocity of concentrated water flows. By intercepting and diverting stormwater runoff to a stabilized outlet or treatment practice or by converting concentrated flows to sheet flow erosion and sedimentation are reduced.

Sediment controls are the last line of defense against moving sediment. The purpose is to prevent sediment from leaving the construction site and entering environmentally sensitive areas.

This section describes the set of control measures that will be installed before and during the construction project to avoid, mitigate, and reduce impacts associated with construction activity. Specific control measures and their applicability are contained in Section Four: Erosion Control Measures, Section Five: Runoff Control Measures, and Section Six: Sediment Control Measures of the *RI SESC Handbook*. The current (2016) *RI SESC Handbook* can be found at the following address:

RI DEM/Water Resources- Rhode Island Soil Erosion and Sediment Control Handbook

2.1 Avoid and Protect Sensitive Areas and Natural Features

Areas of existing and remaining vegetation and areas that are to be protected as identified in Section 1.5 of this SESC Plan must be clearly identified on the SESC Site Plans for each Phase of Construction. Prior to any land disturbance activities commencing on the site, the Contractor shall physically mark limits of disturbance (LOD) on the site and any areas to be protected within the site, so that workers can clearly identify the areas to be protected.

Feature Requiring Protection	Construction Phase #	Method of Protection	Sheet #
Forested Wetland & 25' Buffer	1-3	Perimeter SESC Measure (CFS)	C100
Sand Filter Basin	2-3	Snow Fence and/or Flagged Stakes	C101

2.2 Minimize Area of Disturbance

Will >5 acres be disturbed in order to complete this project?

☒ Yes ☐ No

Will <5 acres be disturbed or will disturbance activities be completed within a six (6) month window?

☐ Yes ☒ No

Based on the answers to the above questions will phasing be required for this project?

☒ Yes ☐ No

As the total disturbance area will exceed five (5) acres, and will have a duration of over six (6) months, a phasing plan has been developed to ensure the appropriate sequence of establishing temporary SESC and permanent stormwater features.

PHASING PLAN

The following are estimates of each phase of the construction project:

Phase No. or Identifier	1
Total Area of Phase	5.47 acres
Area to be Disturbed	5.47 acres
Phase No. or Identifier	2
Total Area of Phase	5.47 acres
Area to be Disturbed	5.47 acres
Phase No. or Identifier	3
Total Area of Phase	5.47 acres
Area to be Disturbed	5.47 acres

Description of Construction Phase Sequencing:

It is anticipated that the project will be completed in multiple construction phases with elements of work being carried out sequentially, with no extended (>2 week) breaks or stoppages after initiation. In the event of any prolonged (>2 week) work stoppages during any phase, the operator shall initiate appropriate stabilization practices on all disturbed areas within the phase limits as soon as possible, but not more than fourteen (14) days after the construction activity in that area has temporarily ceased.

Construction Phase 1 – Existing School Demolition
This phase shall consist of:
- Vegetative clearing and establishment of the project LOD;
- Installation of all SESC measures around the project area;
- Demolition of the existing school building;
- Demolition of existing site utilities and surface features to be removed;
- Rough grading of proposed detention basins to serve as temporary sedimentation traps.

This phase will be completed prior to the initiation of the subsequent phases, and it is anticipated that it will take up to three (3) months to complete, occurring during the 2023 season (i.e. August 2023 – November 2023).

Construction Phase 2 – Construction of New School & Associated Site Improvements
This phase shall consist of the construction of:
- Stormwater management system (drain structures & piping, stormwater basins);
- Utility services (sanitary sewer, water, gas, electric & telecommunications);
- The new school structure;
- Site retaining walls;
- Hardscape surfaces (driveways & parking lots, sidewalks and walkways);
- Outdoor activity areas;
- Non-hardscape grading, loam & seeding (including landscape).

It is anticipated phase 2 will take up to twenty (20) months to complete, and will occur between November 2023 and July 2025). Note that it is anticipated that the stormwater management system shall be completed in less than six (6) months.

Construction Phase 3 – Final Sitewide Stabilization
This phase shall consist of:
- Final stabilization of landscaped areas and removal of remaining SESC measures along project area.

This phase will be completed subsequent to the completion of all of the prior phases, and it is anticipated that it will take one (1) month to complete, occurring early during the summer of 2025.

Routine inspection and maintenance and/or modification of erosion, runoff, and sediment controls and temporary pollution prevention measures shall be required at all times that earthwork is ongoing during any phase.

2.3 Minimize the Disturbance of Steep Slopes

Are steep slopes (>15%) present within the proposed project area?

☒ Yes ☐ No

Steep slopes are identified as gray-shaded areas on Sheet C002 - Existing Conditions of the project plans.

Control measures that may be used in disturbed steep slope areas, if needed, include supplemental CFS velocity breaks installed perpendicular to the slopes, and temporary slope stabilization geotextile coverings.

The SESC Operator shall determine and implement the appropriate slope protection measures to be used over the course of the project.

2.4 Preserve Topsoil

Site owners and operators must preserve existing topsoil on the construction site to the maximum extent feasible and as necessary to support healthy vegetation, promote soil stabilization, and increase stormwater infiltration rates in the post-construction phase of the project.

Will existing topsoil be preserved at the site?

☒ Yes ☐ No

To the extent practicable, areas of re-usable topsoil shall be carefully excavated and separated from other soils, stockpiled (and properly protected while stockpiled) within the project limits, and re-used in areas where open-space grassed areas are proposed.

Soil compaction must be minimized by maintaining limits of disturbance throughout construction. In instances where site soils are compacted the site owner and operator must restore infiltration capacity of the compacted soils by tilling or scarifying compacted soils and amending soils as necessary to ensure a minimum depth of topsoil is available in these areas. In areas where infiltrating stormwater treatment practices are located compacted soils must be amended such that they will comply the design infiltration rates established in the *RI Stormwater Design and Installation Standards Manual*.

Should it be necessary to restore and amend topsoil at the site, it shall be done using only manual tools and/or light power equipment (e.g. power rakes, york rakes). Over-compacted topsoil areas shall be scarified to a minimum depth of twelve (12) inches, and supplemented as needed with imported soil to establish or restore the necessary soil depth called for on the plans. This is indicated in the notes on Sheet 8 of the plans.

2.5 Stabilize Soils

Upon completion and acceptance of site preparation and initial installation of erosion, runoff, and sediment controls and temporary pollution prevention measures, the operator shall initiate appropriate temporary or permanent stabilization practices during all phases of construction on all disturbed areas as soon as possible, but not more than fourteen (14) days after the construction activity in that area has temporarily or permanently ceased.

Any disturbed areas that will not have active construction activity occurring within 14 days must be stabilized using the control measures depicted in the SESC Site Plans, in accordance with the *RI SESC Handbook*, and per manufacturer product specifications.

Only areas that can be reasonably expected to have active construction work being performed within 14 days of disturbance will be cleared/grubbed at any one time. It is NOT acceptable to clear and grub the entire construction site if portions will not be active within the 14-day time frame. Proper phasing of clearing and grubbing activities shall include temporary stabilization techniques for areas cleared and grubbed that will not be active within the 14-day time frame.

All disturbed soils exposed prior to October 15 of any calendar year shall be seeded by that date if vegetative measures are the intended soil stabilization method. Any such areas that do not have adequate vegetative stabilization, as determined by the site operator or designated inspector, by November 15, must be stabilized through the use of non-vegetative erosion control measures. If work continues within any of these areas during the period from October 15 through April 15, care must be taken to ensure that only the area required for that day's work is exposed, and all erodible soil must be restabilized within 5 working days. In limited circumstances, stabilization may not be required if the intended function of a specific area of the site necessitates that it remain disturbed (i.e. construction of a motocross track).

Temporary Vegetative Control Measures

- Topsoil stockpiles and disturbed portions of the site where construction activity temporarily ceases for at least 21 days will be stabilized with temporary seed and mulch no later than 14 days from the last construction activity in that area. The temporary seed shall be Rye (grain) applied at the rate of 50 pounds per 1000 sq. ft. After seeding, each area shall be mulched with straw.

Temporary Non-Vegetative Control Measures

- Locations where vegetative stabilization techniques alone may be inadequate may include steep slopes (>15%) and areas of concentrated runoff. The SESC operator shall observe and monitor the site during construction to identify any location(s) where non-vegetative measures are required, and shall determine and implement the appropriate type(s) of non-vegetative control measures in those locations.

Permanent Vegetative Control Measures

- Disturbed portions of the site where construction activities permanently cease shall be stabilized with permanent seed mix no later than 14 days after the last construction activity. The permanent seed mix shall be as specified on the plans, and shall be properly maintained by the contractor until the grass has established an adequate level of growth.

Permanent Non-Vegetative Control Measures

- Permanent non-vegetative control measures shall include rip rap pads at drain pipe outlets and on the emergency overflow berms from the detention basins.

2.6 Protect Storm Drain Outlets

Temporary or permanent outlet protection must be used to prevent scour and erosion at discharge points through the protection of the soil surface, reduction in discharge velocities, and through the promotion of infiltration. Outlets often have high velocity, high volume flows, and require strong materials that will withstand the forces of stormwater. Storm drain outlet control measures also offer a last line of protection against sediment entering environmentally sensitive areas.

All stormwater outlets that may discharge sediment-laden stormwater flow from the construction site must be protected using the control practices depicted on the approved plan set and in accordance with the *RI SESC Handbook*.

Will temporary or permanent point source discharges be generated at the site as the result of construction of sediment traps or basins, diversions, and conveyance channels?

☒ Yes ☐ No

CFS and/or straw bale barriers shall be used, along with rip rap as needed, to prevent soil scour and erosion at storm drain pipe once they have been installed on-site, and prior to final site stabilization.

2.7 Establish Temporary Controls for the Protection of Post-Construction Stormwater Treatment Practices

Temporary measures shall be installed to protect permanent or long-term stormwater control and treatment measures as they are installed and throughout the construction phase of the project so that they will function properly when they are brought online.

Will long-term stormwater treatment practices be installed at the site?

☒ Yes ☐ No

Refer to the table in Section 2.1 for listing of permanent/long-term stormwater measures and the means by which they will be protected during construction.

2.8 Divert or Manage Run-on from Up-gradient Areas

Is stormwater from off-site areas anticipated to flow onto the project area or onto areas where soils will be disturbed?

☒ Yes ☐ No

Pre-Construction and Construction sub-watershed maps are included for each phase in this SESC Plan submittal.

Structural control measures will be used to limit stormwater flow from coming onto the project area, and to divert and slow on-site stormwater flow that is expected to impact exposed soils for the purpose of minimizing erosion, runoff, and the discharge of pollutants from the site.

There are relatively small upgradient areas (total 1.07 acres across three subwatersheds) that will generate run-on to and through the project area. The stormwater analysis indicates that the runoff from these upgradient areas will be minor, and will not require diversion or any special measures to manage during construction.

2.9 Retain Sediment Onsite through Structural and Non-Structural Practices

SEDIMENT BARRIERS must be installed along the perimeter areas of the site that will receive stormwater from disturbed areas. This also may include the use of sediment barriers along the contour of disturbed slopes to maintain sheet flow and minimize rill and gully erosion during construction. Installation and maintenance of sediment barriers must be completed in accordance with the maintenance requirements specified by the product manufacturer or the *RI SESC Handbook*.

Will sediment barriers be utilized at the toe of slopes and other downgradient areas subject to stormwater impacts and erosion during construction?

☒ Yes ☐ No

Will sediment barriers be utilized along the contour of slopes to maintain sheet flow and minimize rill and gully erosion during construction?

☒ Yes ☐ No

Sediment barriers will be installed in appropriate locations along the contour of slopes.

INLET PROTECTION will be utilized to prevent soil and debris from entering storm drain inlets. These measures are usually temporary and are implemented before a site is disturbed. ALL stormwater inlets &/or catch basins that are operational during construction and have the potential to receive sediment-laden stormwater flow from the construction site must be protected using control measures outlined in the *RI SESC Handbook*.

For more information on inlet protection refer to the *RI SESC Handbook*, Inlet Protection control measure.

Maintenance

The operator must clean, or remove and replace the inlet protection measures as sediment accumulates, the filter becomes clogged, and/or as performance is compromised. Accumulated sediment adjacent to the inlet protection measures should be removed by the end of the same work day in which it is found or by the end of the following work day if removal by the same work day is not feasible.

Do or will inlets exist adjacent to or within the project area that require temporary protection?

☒ Yes ☐ No

CFS and/or straw bale barriers shall be used to prevent soil and debris from entering storm drain inlets and pipes once they have been installed on-site, up to final site stabilization.

CONSTRUCTION ENTRANCES will be used in conjunction with the stabilization of construction roads to reduce the amount of sediment tracking off the project. This project has avoided placing construction entrances on poorly drained soils where possible. Where poorly drained soils could not be eliminated, the detail includes subsurface drainage.

Any construction site access point must employ the control measures on the approved SESC site plans and in accordance with the *RI SESC Handbook*. Construction entrances shall be used in conjunction with the stabilization of construction roads to reduce the amount of mud picked up by construction vehicles. All construction access roads shall be constructed prior to any roadway accepting construction traffic.

The site owner and operator must:

1. Restrict vehicle use to properly designated exit points.
2. Use properly designed and constructed construction entrances at all points that exit onto paved roads so that sediment removal occurs prior to vehicle exit.
3. When and where necessary, use additional controls to remove sediment from vehicle tires prior to exit (i.e. wheel washing racks, rumble strips, and rattle plates).
4. Where sediment has been tracked out from the construction site onto the surface of off-site streets, other paved areas, and sidewalks, the deposited sediment must be removed by the end of the same work day in which the track out occurs. Track-out must be removed by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal.

Will construction entrances be utilized at the proposed construction site?

☒ Yes ☐ No

CONSTRUCTION ENTRANCE			
Construction Phase #	Soil Type at the Entrance	Entrance is located on Sheet #	Detail is on Sheet #
1-3	Canton-Urban land complex (CB)	C100	CD101

STOCKPILE CONTAINMENT will be used onsite to minimize or eliminate the discharge of soil, topsoil, base material or rubble, from entering drainage systems or surface waters. All stockpiles must be located within the limit of disturbance, protected from run-on with the use of temporary sediment barriers and provided with cover or stabilization to avoid contact with precipitation and wind where and when practical.

Stock pile management consists of procedures and practices designed to minimize or eliminate the discharge of stockpiled material (soil, topsoil, base material, rubble) from entering drainage systems or surface waters.

For any stockpiles or land clearing debris composed, in whole or in part, of sediment or soil, you must comply with the following requirements:

1. Locate piles within the designated limits of disturbance.

2. Protect from contact with stormwater (including run-on) using a temporary perimeter sediment barrier.

3. Where practicable, provide cover or appropriate temporary vegetative or structural stabilization to avoid direct contact with precipitation or to minimize sediment discharge.

4. NEVER hose down or sweep soil or sediment accumulated on pavement or other impervious surfaces into any stormwater conveyance, storm drain inlet, or surface water.

5. To the maximum extent practicable, contain and securely protect from wind.

Anticipated stockpiled materials may include stripped topsoil, excavated native gravel, rip rap, and imported loam. Material stockpile locations shall be determined by the Operator during construction, and are anticipated to vary over the course of the project. Specific locations are not depicted on the project plans.

STOCKPILE CONTAINMENT				
Construction Phase #	Run-on measures necessary? (Y/N)	Stabilization or Cover Type	Stockpile Containment Measure	Sheet #
1-3	N	Rye seed (long-term only)	CFS or Straw Bale Surround	N/A

CONSTRUCTED SEDIMENT STRUCTURES

TEMPORARY SEDIMENT TRAPS

Are temporary sediment traps required at the site?

☒ Yes ☐ No

Per Part D of the RI SESC Handbook:

For Disturbed Areas 1 to 5 Acres – Those areas with a common drainage location that serves an area between one (1) and five (5) acres disturbed at one time, a temporary sediment trap must be provided where attainable and where the sediment trap is only intended to be used for a period of six (6) months or less.

Will temporary sediment traps be utilized on the site?

☒ Yes ☐ No

The areas of the proposed detention basins shall be rough-graded as part of the initial phase of construction to serve as temporary sediment traps until the site is stabilized and the storm drainage system is completed.

TEMPORARY SEDIMENT BASIN(S)

Are temporary sediment basins required at the site?

☐ Yes ☒ No

There will be no single areas wirh a common drainage discharge location that will be greater than five (5) acres; the tributary areas to each of the proposed sediment traps shall be <5 acres. Therefore, no temporary sediment basins shall be required.

2.10 Properly Design Constructed Stormwater Conveyance Channels

Are temporary stormwater conveyance practices required in order to properly manage runoff within the proposed construction project?

☒ Yes ☐ No

Until the site storm drainage is completed, the site Operator shall provide temporary stormwater conveyance channels to each of the sediment traps. As the Operator's staging and use of the site during construction shall determine the locations of the conveyance channels, they cannot be designed at this time, and are not depicted on the plans. They shall be added to this SESC plan via amnedment at the appropriate time.

2.11 Erosion, Runoff, and Sediment Control Measure List

It is expected that this table and corresponding Inspection Reports will be amended as needed throughout the construction project as control measures are added or modified.

Phases No. #1-4		
Location/Station	**Control Measure Description/Reference**	**Maintenance Requirement**
Perimeter of LOD	CFS or Straw Wattle. Section Six, Sediment Control Measures, Straw Wattles, Compost Tubes and Fiber Rolls - *RI SESC Handbook*.	Inspection minimum 1/week and after each >0.25” storm event; repair or replacement made promptly as needed. Cleanout of accumulated sediment behind the CFS/wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.
Site construction entrance from Gladstone Street /Lawrence Street	Stone Stabilized Pad. Section Six: Sediment Control Measures – Construction Entrances –RI SESC Handbook.	Maintain in a condition that prevents tracking or flowing of sediment off-site. Provide periodic top dressing with additional stone or additional length as conditions require. If maintenance alone is not enough to prevent excessive track out, increase length of entrance, modify construction access driveway surface, or install washrack or mudrack.
All constructed drain inlets/outlets	CFS or Straw Wattle. Section Six, Sediment Control Measures, Straw Wattles, Compost Tubes and Fiber Rolls - *RI SESC Handbook*.	Inspection minimum 1/week and after each >0.25” storm event; repair or replacement made promptly as needed. Cleanout of accumulated sediment behind the CFS/wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.

SECTION 3: CONSTRUCTION ACTIVITY POLLUTION PREVENTION

The purpose of construction activity pollution prevention is to prevent day to day construction activities from causing pollution. This section describes the key pollution prevention measures that must be implemented to avoid and reduce the discharge of pollutants in stormwater. Example control measures include the proper management of waste, material handling and storage, and equipment/vehicle fueling/washing/maintenance operations. Where applicable, include *RI SESC Handbook* or the *RI Department of Transportation Standard Specifications for Road and Bridge Construction* (as amended) specifications.

3.1 Existing Data of Known Discharges from Site

Are there known discharges from the project area?

☐ Yes ☒ No

Describe how this determination was made:

- Observations during site visits and field survey

If yes, list discharges and locations:

- N/A

Is there existing data on the quality of the known discharges?

☐ Yes ☐ No

If yes, provide data:

- N/A

3.2 Prohibited Discharges

The following discharges are prohibited at the construction site:

- Contaminated groundwater, unless specifically authorized by the DEM. These types of discharges may only be authorized under a separate DEM RIPDES permit.
- Wastewater from washout of concrete, unless the discharge is contained and managed by appropriate control measures.
- Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials.
- Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance. Proper storage and spill prevention practices must be utilized at all construction sites.
- Soaps or solvents used in vehicle and equipment washing.
- Toxic or hazardous substances from a spill or other release.

All types of waste generated at the site shall be disposed of in a manner consistent with State Law and/or regulations.

Will any of the above listed prohibited discharges be generated at the site?

☐ Yes ☒ No

3.3 Proper Waste Disposal

Building materials and other construction site wastes must be properly managed and disposed of in a manner consistent with State Law and/or regulations.

- A waste collection area shall be designated on the site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a waterbody or storm drain.
- All waste containers shall be covered to avoid contact with wind and precipitation.
- Waste collection shall be scheduled frequently enough to prevent containers from overfilling.
- All construction site wastes shall be collected, removed, and disposed of in accordance with applicable regulatory requirements and only at authorized disposal sites.
- Equipment and containers shall be checked for leaks, corrosion, support or foundation failure, or other signs of deterioration. Those that are found to be defective shall be immediately repaired or replaced.

Is waste disposal a significant element of the proposed project?

☐ Yes ☒ No

- Waste Materials - All construction-generated waste materials will be collected and stored in a securely coverable dumpster/container which shall meet all local Town and any State solid waste management regulations. All trash and construction debris from the site will be deposited in the dumpster/container. The dumpster/container will be emptied as needed, and the trash will be hauled off site. No construction waste materials will be buried onsite. All personnel will be instructed regarding the correct procedure for waste disposal. Notices stating these practices will be posted in the office trailer (if applicable), and the individual who manages the day-to-day site operations will be responsible for ensuring that these procedures are followed.
- Hazardous Waste - Hazardous waste materials, if encountered, will be disposed of in the manner specified by local or State regulation or by the manufacturer. Site personnel will be instructed in these practices and the individual, who manages day-to-day site operations, will be responsible for seeing that these practices are followed.
- Sanitary Waste - All sanitary waste will be collected from the portable units a minimum of once a week by a licensed sanitary waste management contractor, as required by local regulation.

3.4 Spill Prevention and Control

All chemicals and/or hazardous waste material must be stored properly and legally in covered areas, with containment systems constructed in or around the storage areas. Areas must be designated for materials delivery and storage. All areas where potential spills can occur and their accompanying drainage points must be described. The owner and operator must establish spill prevention and control measures to reduce the chance of spills, stop the source of spills, contain and clean-up spills, and dispose of materials contaminated by spills. The operator must establish and make highly visible location(s) for the storage of spill prevention and control equipment and provide training for personnel responsible for spill prevention and control on the construction site.

Are spill prevention and control measures required for this particular project?

☒ Yes ☐ No

- Spills can potentially occur anywhere within the project sites where work is taking place.
- The following good housekeeping practices will be followed onsite during the construction project:

- An effort will be made to store on-site only enough products and materials required to perform the anticipated work.
- All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products will be kept in their original containers with the original manufacturer's label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product will be used up before disposing of the container.
- Manufacturers' recommendations for proper use and disposal will be followed.
- The site superintendent will inspect daily to ensure proper use and disposal of materials onsite.

- These practices shall be used to reduce the risks associated with hazardous materials:
  - Products will be kept in original containers unless they are not re-sealable.
  - Original labels and material safety data will be retained; they contain important product information.
  - If surplus product must be disposed of, manufacturers' or local and State recommended methods for proper disposal will be followed.
- In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices shall be followed for spill prevention and cleanup:
  - Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
  - Materials and equipment necessary for spill cleanup will be kept in a storage area onsite. Equipment and materials will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for this purpose.
  - All spills will be cleaned up immediately after discovery.
  - The spill area will be kept well-ventilated, and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
  - Spills of toxic or hazardous material will be reported to the appropriate State or local government agency, regardless of the size.
  - The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.
  - The site superintendent responsible for the day-to-day site operations will be the spill prevention and cleanup coordinator. He will designate at least three other site personnel who will receive spill prevention and cleanup training. The individual will each become responsible for a particular phase of prevention and cleanup. The names of responsible spill personnel will be posted in the office trailer onsite.

3.5 Control of Allowable Non-Stormwater Discharges

Are there allowable non-Stormwater discharges present on or near the project area?

☒ Yes ☐ No

List of allowable non-stormwater discharge(s) and the associated control measure(s):

- Dust control water

Are there any known or proposed contaminated discharges, including anticipated contaminated dewatering operations, planned on or near the project area?

☐ Yes ☒ No

If yes, list the discharge types and the RIPDES individual permit number(s) or RIPDES Remediation General Permit Authorization number(s) associated with these discharges.

- Discharge Type and RIPDES Individual Permit number : N/A
- Discharge Type and RIPDES Remediation General Permit Authorization number: N/A

3.6 Control Dewatering Practices

Site owners and operators are prohibited from discharging groundwater or accumulated stormwater that is removed from excavations, trenches, foundations, vaults, or other similar points of accumulation, unless such waters are first effectively managed by appropriate control measures.

Examples of appropriate control measures include, but are not limited to, temporary sediment basins or sediment traps, sediment socks, dewatering tanks and bags, or filtration systems (e.g. bag or sand filters) that are designed to remove sediment. Uncontaminated, non-turbid dewatering water can be discharged without being routed to a control.

At a minimum the following discharge requirements must be met for dewatering activities:

1. Do not discharge visible floating solids or foam.
2. To the extent feasible, utilize vegetated, upland areas of the site to infiltrate dewatering water before discharge. In no case will surface waters be considered part of the treatment area.
3. At all points where dewatering water is discharged, utilize velocity dissipation devices.
4. With filter backwash water, either haul it away for disposal or return it to the beginning of the treatment process.
5. Replace and clean the filter media used in dewatering devices when the pressure differential equals or exceeds the manufacturer's specifications.
6. Dewatering practices must involve the implementation of appropriate control measures as applicable (i.e. containment areas for dewatering earth materials, portable sediment tanks and bags, pumping settling basins, and pump intake protection.)

Is it at all likely that the site operator will need to implement construction dewatering in order to complete the proposed project?

☐ Yes ☒ No

- Based on the observed relatively deep water tables from the soil evaluations performed on-site, it is not anticipated that dewatering shall be required during construction.
- In the event that it is necessary to implement dewatering practices, uncontaminated groundwater pumped out of construction excavations will be routed to and through adequately sized dewatering basins to remove (to the maximum extent possible) sediments contained within the groundwater. The locations and sizes of dewatering basins shall be as needed to receive and treat groundwater when it is encountered during construction, as determined by the Contractor. Under no circumstances will dewatering basins be located where the discharge from same will create a nuisance or hazard (i.e. excavated areas, roadways, private property, etc.); furthermore, the Contractor shall immediately adjust the location or configuration of any dewatering basins that are found to create a nuisance or hazard.

3.7 Establish Proper Building Material Staging Areas

All construction materials that have the potential to contaminate stormwater must be stored properly and legally in covered areas, with containment systems constructed in or around the storage areas. Areas must be designated for materials delivery and storage. Designated areas shall be approved by the site owner/engineer. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in the discharge of pollutants, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use).

- See Section 3.3 for materials storage procedures to minimize their exposure to stormwater.
- The following materials or substances will potentially be present on-site during construction:
  - Fertilizers
  - Petroleum Based Products (Gasoline, Diesel Fuel, Motor Oil)
  - Cleaning Solvents
  - Bituminous Concrete Asphalt
  - Cement Concrete
  - Detergents
  - Wood
  - Liquid Asphalt/Tar

3.8 Minimize Dust

Dust control procedures and practices shall be used to suppress dust on a construction site during the construction process, as applicable. Precipitation, temperature, humidity, wind velocity and direction will determine amount and frequency of applications. However, the best method of controlling dust is to prevent dust production. This can best be accomplished by limiting the amount of bare soil exposed at one time. Dust Control measures outlined in the *RI SESC Handbook* shall be followed. Other dust control methods include watering, chemical application, surface roughening, wind barriers, walls, and covers.

- Water for dust control will be applied prior to or during winding conditions (forecasted or actual wind conditions of 20 mph or greater) to all areas of exposed erodible soil. Water shall be spray-applied to avoid ponding or erosion, either by truck (in roadway areas) or manually (in off-road areas).
- In addition, the Contractor shall limit the amount of bare erodible soil exposed at any one time.

3.9 Designate Washout Areas

At no time shall any material (concrete, paint, chemicals) be washed into storm drains, open ditches, streets, streams, wetlands, or any environmentally sensitive area. The site operator must ensure that construction waste is properly disposed of, to avoid exposure to precipitation, at the end of each working day.

Will washout areas be required for the proposed project?

☒ Yes ☐ No

- The Operator shall designate the locations, if any, of concrete washout areas and amend this document accordingly. Under no circumstances will concrete washout areas be located where the discharge from same will create a nuisance or hazard (i.e. excavated areas, roadways, private property wetland resource areas, etc.); furthermore, the Contractor shall immediately adjust the location or configuration of any concrete washout areas which are found to create a nuisance or hazard.

3.10 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices

Vehicle fueling shall not take place within regulated wetlands or buffer zone areas, or within 50-feet of the storm drain system. Designated areas shall be depicted on the SESC Site Plans, or shall be approved by the site owner.

Vehicle maintenance and washing shall occur off-site, or in designated areas depicted on the SESC Site Plans or approved of by the site owner. Maintenance or washing areas shall not be within regulated wetlands or buffer zone areas, or within 50-feet of the storm drain system. Maintenance areas shall be clearly designated, and barriers shall be used around the perimeter of the maintenance area to prevent stormwater contamination.

Construction vehicles shall be inspected frequently for leaks. Repairs shall take place immediately. Disposal of all used oil, antifreeze, solvents and other automotive-related chemicals shall be according to applicable regulations; at no time shall any material be washed down the storm drain or in to any environmentally sensitive area.

- All onsite vehicles shall be monitored for leaks, and shall receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers that are clearly labeled. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations.

- The Operator shall determine locations, if any, for vehicle fueling and maintenance activities, provided that said locations are more than fifty (50) feet from any storm drainage inlet structure.

3.11 Chemical Treatment for Erosion and Sediment Control

Chemical stabilizers, polymers, and flocculants are readily available on the market and can be easily applied to construction sites for the purposes of enhancing the control of erosion, runoff, and sedimentation. The following guidelines should be adhered to for construction sites that plan to use treatment chemicals as part of their overall erosion, runoff, and sedimentation control strategy.

The U.S. Environmental Protection Agency has conducted research into the relative toxicity of chemicals commonly used for the treatment of construction stormwater discharges. The research conducted by the EPA focused on different formulations of chitosan, a cationic compound, and both cationic and anionic polyacrylamide (PAM). In summary, the studies found significant toxicity resulting from the use of chitosan and cationic PAM in laboratory conditions, and significantly less toxicity associated with using anionic PAM. EPA's research has led to the conclusion that the use of treatment chemicals for erosion, runoff, and sedimentation control requires proper operator training and appropriate usage to avoid risk to aquatic species. In the case of cationic treatment chemicals additional safeguards may be necessary.

Application/Installation Minimum Requirements

If a site operator plans to use polymers, flocculants, or other treatment chemicals during construction the SESC plan must address the following:

1. <u>Treatment chemicals shall not be applied directly to or within 100 feet of any surface water body, wetland, or storm drain inlet.</u>

2. <u>Use conventional erosion, runoff, and sedimentation controls prior to and after the application of treatment chemicals.</u> Use conventional erosion, runoff, and sedimentation controls prior to chemical addition to ensure effective treatment. Chemicals may only be applied where treated stormwater is directed to a sediment control (e.g. temporary sediment basin, temporary sediment trap or sediment barrier) prior to discharge.

3. <u>Sites shall be stabilized as soon as possible using conventional measures to minimize the need to use chemical treatment.</u>

4. <u>Select appropriate treatment chemicals.</u> Chemicals must be selected that are appropriately suited to the types of soils likely to be exposed during construction and to the expected turbidity, pH, and

flow rate of stormwater flowing into the chemical treatment system or treatment area. **Soil testing is essential. Using the wrong form of chemical treatment will result in some form of performance failure and unnecessary environmental risk.**

5. Minimize discharge risk from stored chemicals. Store all treatment chemicals in leak-proof containers that are kept under storm-resistant cover and surrounded by secondary containment structures (e.g., spill berms, decks, spill containment pallets), or provide equivalent measures, designed and maintained to minimize the potential discharge of treatment chemicals in stormwater or by any other means (e.g., storing chemicals in covered areas or having a spill kit available on site).

6. Use chemicals in accordance with good engineering practices and specifications of the chemical provider/supplier. You must also use treatment chemicals and chemical treatment systems in accordance with good engineering practices, and with dosing specifications and sediment removal design specifications provided by the supplier of the applicable chemicals, or document specific departures from these practices or specifications and how they reflect good engineering practice.

Will chemical stabilizers, polymers, flocculants or other treatment chemicals be utilized on the proposed construction project?

☐ Yes ☒ No

3.12 Construction Activity Pollution Prevention Control Measure List

It is expected that this table will be amended as needed throughout the construction project.

Phase No. #1-4		
Location/Station	**Control Measure Description/Reference**	**Maintenance Requirement**
Site-Wide	Pick-up and proper handling & disposal of construction trash and debris	All loose trash and debris must be disposed of properly at the end of each working day
TBD	Concrete Wash-Out Areas. Section Three: Pollution Prevention and Good Housekeeping, Concrete Washouts, *RI SESC Handbook*.	Verify that concrete washout container(s) are in place prior to pouring concrete. Inspect daily to verify continued proper performance. Check remaining capacity during pouring operations. Check for leaks periodically.
TBD	To be determined by Operator as Needed	As stipulated by the RI SESC Handbook for the particular control measure.

SECTION 4: CONTROL MEASURE INSTALLATION, INSPECTION, and MAINTENANCE

4.1 Installation

Complete the installation of temporary erosion, runoff, sediment, and pollution prevention control measures by the time each phase of earth-disturbance has begun. All stormwater control measures must be installed in accordance with good judgment, including applicable design and manufacturer specifications. Installation techniques and maintenance requirements may be found in manufacturer specifications and/or the *RI SESC Handbook*.

Refer to plan Sheets C100 and CD101 for detailed information on SESC measures.

4.2 Monitoring Weather Conditions

Anticipating Weather Events - Care will be taken to the best of the operator's ability to avoid disturbing large areas prior to anticipated precipitation events. Weather forecasts must be routinely checked, and in the case of an expected precipitation event of over 0.25-inches over a 24-hour period, it is highly recommended that all control measures should be evaluated and maintained as necessary, prior to the weather event. In the case of an extreme weather forecast (greater than one-inch of rain over a 24-hour period), additional erosion/sediment controls may need to be installed.

Storm Event Monitoring For Inspections - At a minimum, storm events must be monitored and tracked in order to determine when post-storm event inspections must be conducted. Inspections must be conducted and documented at least once every seven (7) calendar days and within twenty-four (24) hours after any storm event, which generates at least 0.25 inches of rainfall per twenty-four (24) hour period and/or after a significant amount of runoff or snowmelt.

The weather gauge station and website that will be utilized to monitor weather conditions on the construction site is as follows:

Cranston Station (KRICRANS40) This can be found on www.wunderground.com/.

4.3 Inspections

Minimum Frequency - Each of the following areas must be inspected by or under the supervision of the owner and operator at least once every seven (7) calendar days and within twenty-four (24) hours after any storm event, which generates at least 0.25 inches of rainfall per twenty-four (24) hour period and/or after a significant amount of runoff or snowmelt:

a. All areas that have been cleared, graded, or excavated and where permanent stabilization has not been achieved;
b. All stormwater erosion, runoff, and sediment control measures (including pollution prevention control measures) installed at the site;
c. Construction material, unstabilized soil stockpiles, waste, borrow, or equipment storage, and maintenance areas that are covered by this permit and are exposed to precipitation;
d. All areas where stormwater typically flows within the site, including temporary drainage ways designed to divert, convey, and/or treat stormwater;
e. All points of discharge from the site;
f. All locations where temporary soil stabilization measures have been implemented;
g. All locations where vehicles enter or exit the site.

Reductions in Inspection Frequency - If earth disturbing activities are suspended due to frozen conditions, inspections may be reduced to a frequency of once per month. The owner and operator must document the beginning and ending dates of these periods in an inspection report.

Qualified Personnel – The site owner and operator are responsible for designating personnel to conduct inspections and for ensuring that the personnel who are responsible for conducting the inspections are "qualified" to do so. A "qualified person" is a person knowledgeable in the principles and practices of erosion, runoff, sediment, and pollution prevention controls, who possesses the skills to assess conditions at the construction site that could impact stormwater quality, and the skills to assess the effectiveness of any stormwater controls selected and installed to meet the requirements of the permit.

Recordkeeping Requirements - All records of inspections, including records of maintenance and corrective actions must be maintained with the SESC Plan. Inspection records must include the date and time of the inspection, and the inspector's name, signature, and contact information.

General Notes

- A separate inspection report will be prepared for each inspection.
- The Inspection Reference Number shall be a combination of the RIPDES Construction General Permit No - consecutively numbered inspections. ex/ Inspection reference number for the **4**th inspection of a project would be: RIR10####-**4**
- Each report will be signed and dated by the Inspector and must be kept onsite.
- Each report will be signed and dated by the Site Operator.
- The corrective action log contained in each inspection report must be completed, signed, and dated by the site operator once all necessary repairs have been completed.
- It is the responsibility of the site operator to maintain a copy of the SESC Plan, copies of all completed inspection reports, and amendments as part of the SESC Plan documentation at the site during construction.
- The Contractor shall amend this document if additional inspection requirements are needed for this project.

Failure to make and provide documentation of inspections and corrective actions under this part constitutes a violation of your permit, and enforcement actions under 46-12 of R.I. General Laws may result.

4.4 Maintenance

Maintenance procedures for erosion and sedimentation controls and stormwater management structures/facilities are described on the SESC Site Plans and in the *RI SESC Handbook*. Site owners and operators must ensure that all erosion, runoff, sediment, and pollution prevention controls remain in effective operating condition and are protected from activities that would reduce their effectiveness. Erosion, runoff, sedimentation, and pollution prevention control measures must be maintained throughout the course of the project.

Note: It is recommended that the site operator designates a full-time, on-site contact person responsible for working with the site owner to resolve SESC Plan-related issues.

4.5 Corrective Actions

If, in the opinion of the designated site inspector, corrective action is required, the inspector shall note it on the inspection report and shall inform the site operator that corrective action is necessary. The site operator must make all necessary repairs whenever maintenance of any of the control measures instituted at the site is required.

In accordance with the *RI SESC Handbook*, the site operator shall initiate work to fix the problem immediately after its discovery, and complete such work by the close of the next work day, if the problem does not require significant repair or replacement, or if the problem can be corrected through routine maintenance.

When installation of a new control or a significant repair is needed, site owners and operators must ensure that the new or modified control measure is installed and made operational by no later than seven (7) calendar days from the time of discovery where feasible. If it is infeasible to complete the installation or repair within seven (7) calendar days, the reasons why it is infeasible must be documented in the SESC Plan along with the schedule for installing the control measures and making it operational as soon as practicable after the 7-day timeframe. Such documentation of these maintenance procedures and timeframes should be described in the inspection report in which the issue was first documented. If these actions result in changes to any of the control measures outlined in the SESC Plan, site owners and operators must also modify the SESC Plan accordingly within seven (7) calendar days of completing this work.

SECTION 5: AMENDMENTS

This SESC Plan is intended to be a working document. It is expected that amendments will be required throughout the active construction phase of the project. **Even if practices are installed on a site according to the approved plan, the site is only in compliance when erosion, runoff, and sedimentation are effectively controlled throughout the entire site for the entire duration of the project.**

The SESC Plan shall be amended within seven (7) days whenever there is a change in design, construction, operation, maintenance or other procedure which has a significant effect on the potential for the discharge of pollutants, or if the SESC Plan proves to be ineffective in achieving its objectives (i.e. the selected control measures are not effective in controlling erosion or sedimentation).

In addition, the SESC Plan shall be amended to identify any new operator that will implement a component of the SESC Plan.

All revisions must be recorded in the Record of Amendments Log Sheet, which is contained in Attachment G of this SESC Plan, and dated red-lined drawings and/or a detailed written description must be appended to the SESC Plan. Inspection Forms must be revised to reflect all amendments. Update the Revision Date and the Version # in the footer of the Report to reflect amendments made.

All SESC Plan Amendments, except minor non-technical revisions, must be approved by the site owner and operator. Any amendments to control measures that involve the practice of engineering must be reviewed, signed, and stamped by a Professional Engineer registered in the State of RI.

The amended SESC plan must be kept on file <u>at the site</u> while construction is ongoing and any modifications must be documented.

See attachment G – Amendment Log.

SECTION 6: RECORDKEEPING

RIPDES Construction General Permit – Parts III.D, III.G, III.J.3.b.iii, & V.O

It is the site owner and site operator's responsibility to have the following documents available at the construction site and immediately available for RIDEM review upon request:

- A copy of the fully signed and dated SESC Plan, which includes:
    - A copy of the General Location Map
      INCLUDED AS ATTACHMENT A
    - A copy of all SESC Site Plans
      INCLUDED AS ATTACHMENT B
    - A copy of the RIPDES Construction General Permit
      INCLUDED AS ATTACHMENT C
    - A copy of any regulatory permits (RIDEM Freshwater Wetlands Permit, CRMC Assent, RIDEM Water Quality Certification, RIDEM Groundwater Discharge Permit, RIDEM RIPDES Construction General Permit authorization letter, etc.)
      INCLUDED AS ATTACHMENT D
    - The signed and certified NOI form or permit application form
      INCLUDED AS ATTACHMENT E
    - Completed Inspection Reports w/Completed Corrective Action Logs
      INCLUDED AS ATTACHMENT F
    - SESC Plan Amendment Log
      INCLUDED AS ATTACHMENT G

SECTION 7: PARTY CERTIFICATIONS

RIPDES Construction General Permit – Part V.G

All parties working at the project site are required to comply with the Soil Erosion and Sediment Control Plan (SESC Plan including SESC Site Plans) for any work that is performed on-site. The site owner, site operator, contractors and sub-contractors are encouraged to advise all employees working on this project of the requirements of the SESC Plan. A copy of the SESC Plan is available for your review at the following location: TBD, or may be obtained by contacting the site owner or site operator.

The site owner and site operator and each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement.

I acknowledge that I have read and understand the terms and conditions of the Soil Erosion and Sediment Control (SESC) Plan for the above designated project and agree to follow the control measures described in the SESC Plan and SESC Site Plans.

Site Owner:

Insert Company or Organization Name
Insert Name & Title
Insert Address ______________________________
Insert City, State, Zip Code signature/date
Insert Telephone Number, Insert Fax/Email

Site Operator: **TBD**

Insert Company or Organization Name
Insert Name & Title
Insert Address ______________________________
Insert City, State, Zip Code signature/date
Insert Telephone Number, Insert Fax/Email

Designated Site Inspector: **TBD**

Insert Company or Organization Name
Insert Name & Title
Insert Address ______________________________
Insert City, State, Zip Code signature/date
Insert Telephone Number, Insert Fax/Email

SubContractor SESC Plan Contact: **TBD**

Insert Company or Organization Name
Insert Name & Title
Insert Address ______________________________
Insert City, State, Zip Code signature/date
Insert Telephone Number, Insert Fax/Email

LIST OF ATTACHMENTS

Attachment A - General Location Map

Attachment B - SESC Site Plans

Attachment C - Copy of RIPDES Construction General Permit and Authorization to Discharge

Attachment D - Copy of Other Regulatory Permits

Attachment E - Copy of RIPDES NOI

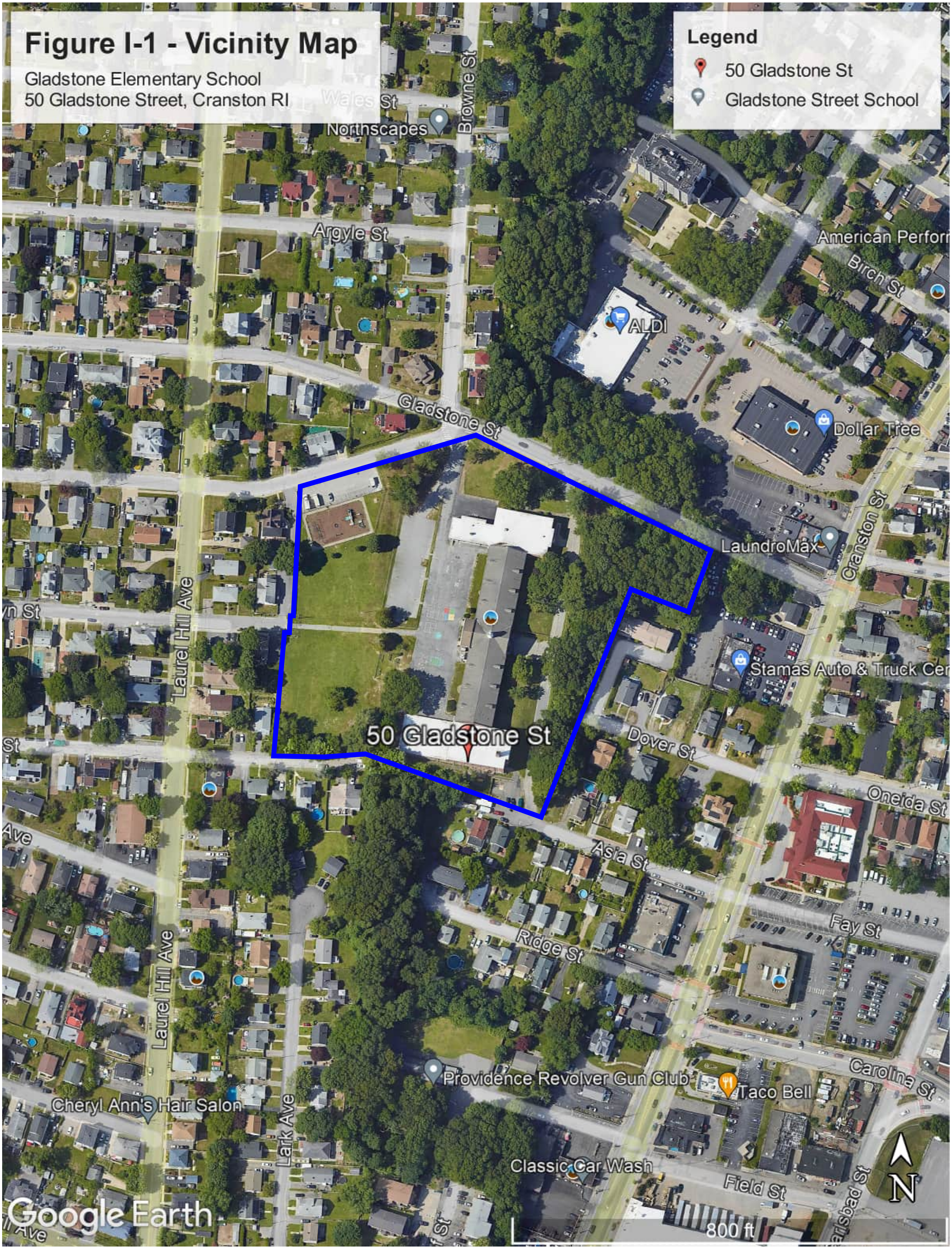
Attachment F - Inspection Reports w/ Corrective Action Log

Attachment G - SESC Plan Amendment Log

Attachment A - General Location Map

Figure I-1 - Vicinity Map

Gladstone Elementary School
50 Gladstone Street, Cranston RI



Attachment B – SESC Site Plans

The RIDEM-approved set of project construction plans shall serve as the SESCP site maps, and are not included herein. Please refer to the RIDEM-approved plan set, which shall be kept on-site at all times for the duration of the project.

Attachment C - Copy of RIPDES Construction General Permit

The RIPDES Construction General Permit may be accessed, viewed and printed from the RIDEM web site, at the following address:

http://www.dem.ri.gov/pubs/regs/regs/water/ripdesca.pdf

A hard copy of the RIPDES CGP is not included herein.

Attachment D - Copy of Other Regulatory Permits

Attachment E - Copy of RIPDES NOI

Refer to the Freshwater Wetlands Permit in Attachment D, which includes the RIPDES NOI authorization. There is no separate RIPDES NOI authorization for this project.

Attachment F - Inspection Reports w/ Corrective Action Log

This Attachment contains copies of all project stormwater inspection reports and corrective action logs performed in accordance with Section 5 – Maintenance and Inspection of this SESCP. Reports are presented in chronological order from most recent to oldest.

SESC Plan
Inspection Report Instructions

For all projects subject to the requirements of the *RI Stormwater Design and Installation Standards Manual* or the *RIPDES Construction General Permit* the site owner and operator are required to develop and comply with a site specific Soil Erosion and Sediment Control Plan (SESC Plan) in order to remain in compliance with applicable regulations.

This inspection report template has been provided by RIDEM for use by the site operator and designated inspector to document the adequacy and condition of erosion, runoff, sediment, and pollution prevention control measures specified for use on the construction site. It should be customized for your specific site conditions and consistent with the SESC Plan developed for your site.

Using the Inspection Report

This inspection report is designed to be customized according to the control measures and conditions at the site. On a copy of the applicable SESC Site Plans, number or label all stormwater control measures and areas of the site that will be inspected. Include all control measures (temporary traps, basins, inlet protection measures, etc.) and areas that will be inspected. Also, identify all point source discharges/outfalls, and the priority natural resource areas (i.e. streams, wetlands, mature trees, etc). List each control measure or area to be inspected separately in the site-specific control measure section of the inspection report.

Complete any items that will remain constant, such as the project information and control measure locations and descriptions. Then, print out multiple copies of this customized inspection report to use during the inspections.

When conducting the inspection, walk the site by following the SESC Site Plans and numbered control measure locations for inspection. Also note whether the overall site issues have been addressed. Customize this list according to the conditions at the site.

Minimum Monitoring and Reporting Requirements

Your site must be inspected by or under the supervision of the owner and operator at least once every seven (7) calendar days and within twenty-four (24) hours after any storm event which generates at least 0.25 inches of rainfall per twenty-four (24) hour period and/or after a significant amount of runoff. Read Section 4.2 of your SESC Plan for more information regarding the importance of monitoring weather conditions.

General Notes

- A separate inspection report will be prepared for each inspection.

- The Inspection Reference Number shall be a combination of the RIPDES Permit Authorization Number - consecutively numbered inspections. For example: Inspection reference number for the **4**th inspection of a project would be: RIR101000-**4**

- Each report will be signed and dated by the inspector and forwarded to the site operator within 24 hours of the inspection.

- Each report will be signed and dated by the site operator upon his/her receipt and after completion of all required corrective actions.

- It is the responsibility of the site operator to maintain a copy of the SESC Plan, copies of all completed inspection reports, and amendments as part of the SESC Plan documentation at the site during construction.

Corrective Actions

If the SESC Plan Inspection determines that corrective actions are necessary to install or repair control measures, the resultant actions taken must be documented by the site operator. The actions must be recorded in the Corrective Action Log attached to each SESC Plan inspection form. If the site operator disagrees with the corrective action recommendations, it must be documented, with justifiable reasons, in the Corrective Action Log, as well. **Required timeframes for corrective actions are established by regulation and are discussed in Section 4.5 of your SESC Plan.**

Amendments

All SESC Plan Amendments, except minor non-technical revisions, must be approved by the site owner and site operator. The revision must be recorded in the Record of Amendments Log Sheet within the SESC Plan, and dated red-line drawings and/or a detailed written description of the revision must be appended to the SESC Plan. Inspection forms must be revised to reflect all amendments. Update the *Revision Date* and the *Version #* in the footer of the report to reflect amendments made.

The SESC Plan shall be amended whenever there is a change in design, construction, operation, maintenance or other procedure, which has a significant effect on the potential for the discharge of pollutants, or if the SESC Plan proves to be ineffective in achieving its objectives.

******Remember that the regulations are performance-oriented. Even if all control measures are installed on a site according to the SESC Plan, the site is only in compliance when erosion, runoff, sedimentation, and pollution are effectively controlled. ******

SESC Plan Inspection Report

Project Information			
Name			
Location			
DEM Permit No.			
Site Owner	Name	Phone	Email
Site Operator	Name	Phone	Email
Inspection Information			
Inspector Name	Name	Phone	Email
Inspection Date		**Start/End Time**	
Inspection Type q Weekly q Pre-storm event q During storm event q Post-storm event q Other			
Weather Information			
Last Rain Event Date: Duration (hrs): Approximate Rainfall (in):			
Rain Gauge Location & Source:			
Weather at time of this inspection:			

<u>Check statement that applies then sign and date below:</u>

¨ **I, as the designated Inspector, certify that this site has been inspected and is in compliance with the site SESC Plan and the RIPDES Construction General Permit.**

¨ **I, as the designated Inspector, certify that this site has been inspected and I have made the determination that the site requires corrective actions before it will be compliant with the site SESC Plan and the RIPDES Construction General Permit. The required corrective actions are noted within this inspection report.**

Inspector:	Print Name	Signature	Date

The Site Operator (identified in the permit application) acknowledges the receipt of this SESC Plan inspection report, and understands the requirements set forth in the RIPDES Construction General Permit regarding the implementation and maintenance of erosion, runoff, and sedimentation controls and pollution prevention measures.

Operator:	Print Name	Signature	Date

Site-specific Control Measures
Number the structural and non-structural stormwater control measures identified in the SESC Plan on the site map and list them below (add as necessary). Bring a copy of this inspection form and numbered site map with you during your inspections. This list will help ensure that you are inspecting all required control measures at your site.
FILL THIS TABLE USING THE SESC PLAN TABLES 2.13 & 3.14.

	Location/Station	**Control Measure Description**	**Installed & Operating Properly?**	**Assoc. Photo/ Figure #**	**Corrective Action Needed (Yes or No; if 'Yes', please detail action required)**
1			q Yes q No		
2			q Yes q No		
3			q Yes q No		
4			q Yes q No		
5			q Yes q No		
6			q Yes q No		
7			q Yes q No		
8			q Yes q No		
9			q Yes q No		
10			q Yes q No		
11			q Yes q No		
12			q Yes q No		
13			q Yes q No		
14			q Yes q No		
15			q Yes q No		

	Location/Station	**Control Measure Description**	**Installed & Operating Properly?**	**Assoc. Photo/ Figure #**	**Corrective Action Needed (Yes or No; if 'Yes', please detail action required)**
16			q Yes q No		
17			q Yes q No		
18			q Yes q No		
19			q Yes q No		
20			q Yes q No		
21			q Yes q No		
22			q Yes q No		
23			q Yes q No		
24			q Yes q No		
25			q Yes q No		
26			q Yes q No		
27			q Yes q No		
28			q Yes q No		
29			q Yes q No		
30			q Yes q No		

(add more as necessary)

Overall Site Issues

Below are some general site issues that should be assessed during inspections. Please customize this list as needed for conditions at the site. If item is not applicable, please note why.

	Location/Station		**Assoc. Photo/ Figure #**	**Corrective Action Needed (If 'Yes', please detail action required and include location/station)**
1	Have Limits of Disturbance been properly marked and maintained?	q Yes q No q N/A		
2	Have perimeter controls and sediment barriers been adequately installed and maintained?	q Yes q No q N/A		
3	Are storm drain inlets properly protected?	q Yes q No q N/A		
4	Are natural resource areas (e.g., streams, wetlands, trees, etc.) protected with barriers or similar best management practices (BMPs)?	q Yes q No q N/A		
5	Have graveled access entrance and exit drives and parking areas been installed and maintained?	q Yes q No q N/A		
6	Have sediment controls been installed on all steep side slopes and down slopes that are disturbed, especially those adjacent to property lines, drainage conveyances/inlets or water bodies?	q Yes q No q N/A		
7	Are all steep slopes and disturbed areas not actively being worked properly stabilized?	q Yes q No q N/A		
8	Have soils been stabilized where final grading is complete and land disturbance activities have permanently ceased?	q Yes q No q N/A		
9	Have soils been stabilized where land disturbance activities have been halted temporarily and are not planned to resume within the next fourteen (14) days?	q Yes q No q N/A		
10	Have soil/gravel stockpiles been stabilized or isolated?	q Yes q No q N/A		
11	Are building materials which possess an elevated pollution potential stored inside or under cover?	q Yes q No q N/A		
12	Are stockpiles of construction wastes properly covered or disposed of to reduce exposure?	q Yes q No q N/A		
13	Are washout facilities (e.g. paint, concrete) available, clearly marked, and maintained?	q Yes q No q N/A		

	Location/Station		**Assoc. Photo/ Figure #**	**Corrective Action Needed (If 'Yes', please detail action required and include location/station)**
14	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	q Yes q No q N/A		
15	Are hazardous materials spill kits in place and are there enough materials as prescribed in the SESC Plan to adequately prevent spills from entering any stormwater drainage systems?	q Yes q No q N/A		
16	Have provisions been made for wind erosion and dust control?	q Yes q No q N/A		
17	Have areas of obvious erosion/channelization been repaired?	q Yes q No q N/A		
18	Are receiving conveyance systems and receiving waters at discharge points free of sediment deposition?	q Yes q No q N/A		
19	Is there evidence of sediment being tracked into the street or off-site?	q Yes q No q N/A		
20	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	q Yes q No q N/A		
21	Are post-construction stormwater practices protected from sedimentation prior to final stabilization and bringing them online?	q Yes q No q N/A		
22	Are infiltrating stormwater practices and qualifying pervious areas protected during construction activities to avoid compacting soil?	q Yes q No q N/A		
23	(Other)	q Yes q No q N/A		

(add more as necessary)

General Field Comments:

Photos:
(Associated photos – each photo should be dated and have a unique identification # and written description indicating where it is located within the project area. If a close up photo is required, it should be preceded with a photo including both the detail area and some type of visible fixed reference point. Photos should be annotated with Station numbers and other identifying information where needed.)

Photo #:	Station:
(insert Photo here)	Description:

Photo #:	Station:
(insert Photo here)	Description:

Photo #:	Station:
(insert Photo here)	Description:

Photo #:	Station:
(insert Photo here)	Description:

Photo #:	Station:
(insert Photo here)	Description:

Photo #:	Station:
(insert Photo here)	Description:

(add more as necessary)

Corrective Action Log

TO BE FILLED OUT BY SITE OPERATOR

Describe repair, replacement, and maintenance of control measures, actions taken, date completed, and note the person that completed the work.

	Location/Station	Corrective Action	Date Completed	Person Responsible
Operator Signature:			**Date:**	

Attachment G – SESC Plan Amendment Log

This Attachment contains the log of all amendments made to the original SESCP during the construction phase of this project, in accordance with Section 6 – Amendments of this SESCP.

PROJECT:

Amendment Log

TO BE FILLED OUT BY SITE OPERATOR

Describe amendment(s) to be made to the SESC Plan, the date, and the person/title making the amendment. ALL amendments must be approved by the Site Owner.

#	Date	Description of Amendment	Amended by: Person/Title	Site Owner Must Initial
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Add more lines/pages as necessary

APPENDIX C STORMWATER SYSTEM LONG-TERM OPERATION AND MAINTENANCE (O&M) PLAN

STORMWATER SYSTEM
OPERATION & MANAGEMENT PLAN

FOR

GLADSTONE ELEMENTARY SCHOOL
50 GLADSTONE STREET
CRANSTON, RI

PREPARED FOR:

CRANSTON PUBLIC SCHOOL DISTRICT

845 PARK AVENUE

CRANSTON, RI 02910

PREPARED BY:

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 Smith Street
Providence, RI 02908
Tel. (401) 273-6600, Fax (401) 273-6674
www.commonwealth-eng.com

APRIL 2023

CEC PROJECT NO. 21052.00

TABLE OF CONTENTS

LIST OF FIGURES:

APPENDICES:

INTRODUCTION

The following is the Stormwater Management System Operation and Maintenance (O&M) Plan for the proposed Gladstone Elementary School project. This plan has been prepared in accordance with the guidance provided in the Rhode Island Stormwater Design and Installation Standards Manual (hereafter referred to as the "RISDIDM"), 2015 issue date.

I – GENERAL INFORMATION

The following general information is provided in accordance with Appendix Section A.1.1 of the RISDISM:

I-A - Owner

Cranston Public School District (CPSD)
845 Park Avenue
Cranston, RI 02910

I-B – Site/Stormwater Management Designer

Commonwealth Engineers & Consultants, Inc.
400 Smith Street
Providence, RI 02903
Project Engineer: Michael Zavalia, P.E.
(401) 632-4650 Phone (401) 273-6674 Fax

I-C - Address of Site

50 Gladstone Street, Cranston, RI
A.P. 7-4 Lot 2357

I-D - Vicinity Map

Please refer to Figure I-1 – Vicinity Map.

II – STORMWATER MANAGEMENT SYSTEM SUMMARY

The stormwater management system developed for the Lake Family Compound consists of the following components that shall require routine inspection and periodic maintenance:

Stormwater Collection & Conveyance	Stormwater Mitigation and Treatment
Deep-Sump Catch Basins	Barracuda Model S3, S4 & S6 Water Quality Units (1 each type, 3 total)
Drain Manholes	Sand Filter Basin (1)
Drain Pipes	Dry Extended Detention Basins (2)

There are six (6) stormwater management (mitigation and treatment) measures within the site. These structures are fed by a drainage collection and conveyance system consisting of connected pipes and drain structures of various shapes, sizes, and material types.

The system has been designed to conform to the applicable requirements of the RISDISM/SMDIR (for environmental and stormwater quality elements). The implementation of this O&M plan will have significant bearing on the proper function and overall life cycles of the stormwater management system, and must be adhered to in its entirety to ensure that the system will operate as intended.

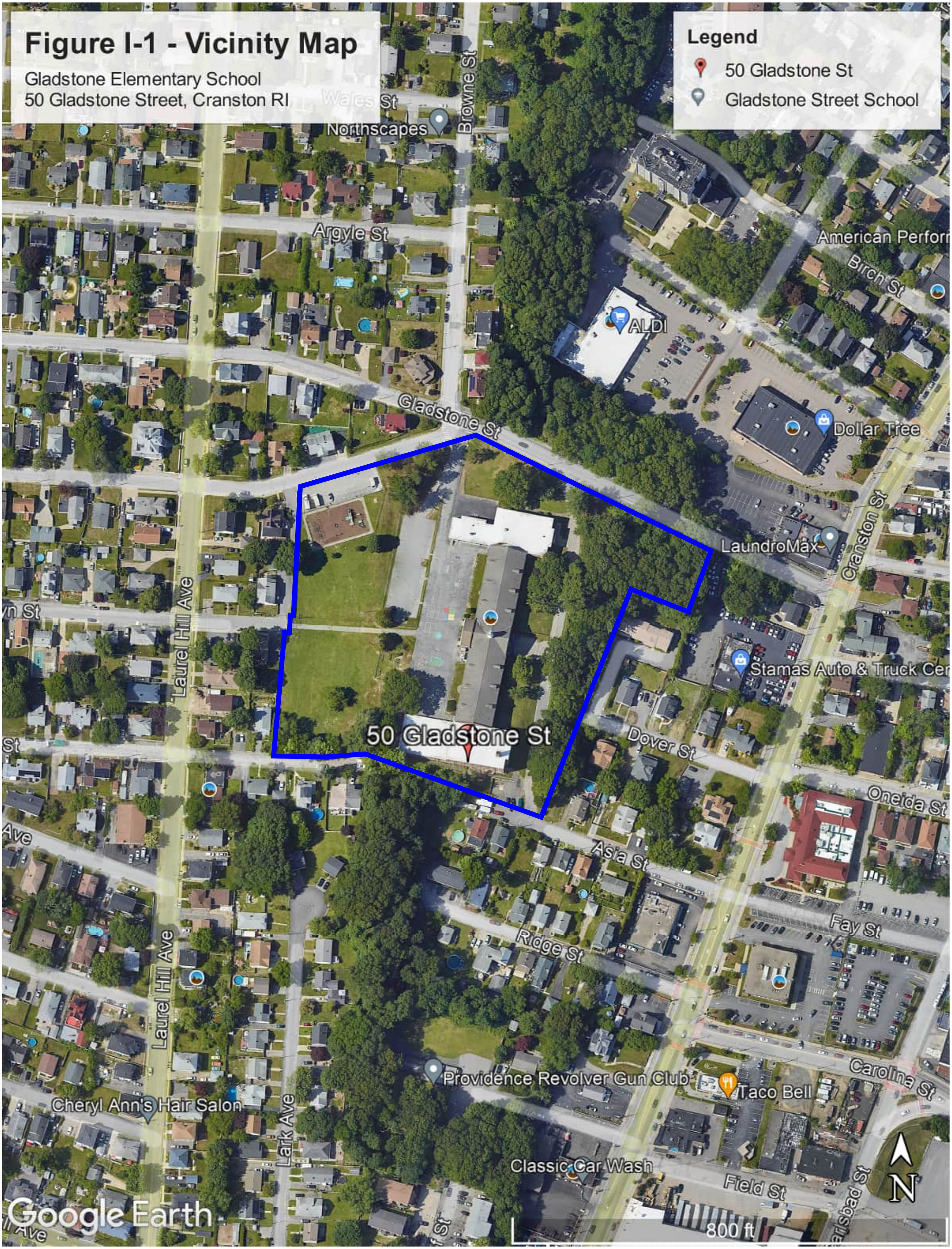


Figure I-1 - Vicinity Map
Gladstone Elementary School
50 Gladstone Street, Cranston RI
Legend
50 Gladstone St
Gladstone Street School
Wales St
Northscapes
Browne St
Argyle St
American Perfor
Birch St
ALDI
Gladstone St
Dollar Tree
LaundroMax
Cranston St
Laurel Hill Ave
Stamas Auto & Truck Cer
50 Gladstone St
Dover St
Oneida St
Asia St
Fay St
Ridge St
Carolina St
Providence Revolver Gun Club
Taco Bell
Cheryl Ann's Hair Salon
Lark Ave
Classic Car Wash
Field St
Google Earth
800 ft
N

III - OPERATION AND MAINTENANCE PLAN

The CPSD shall be responsible for the operation and maintenance requirements for all components of the stormwater management system on and within the school property (i.e. drainage pipes and structures, sediment forebays, sand filter & detention basins). The following summarizes the actions specific to be undertaken for the stormwater management infrastructure.

III-A GENERAL:

III-A.1 Inspections

Inspections shall assess the following for all components of the stormwater management system:

Structural Elements – The condition of all elements of the particular component being inspected shall be assessed, and if deemed to be deficient or compromised by routine wear and deterioration, shall be scheduled for repair or replacement as soon as possible.

Accumulated Materials – The volume and nature of accumulated materials shall be noted during all inspections. The accumulation of excessive levels of materials (sediments, trash and other debris) and/or the presence of atypical materials or contaminants within the structure shall be cause for further inspection of the stormwater system and/or the land area tributary thereto, to locate and identify the source of the excessive or atypical material and to correct the cause of same.

An inspection form shall be completed for each structure inspected; completed sheets shall be kept in a binder to be managed by the maintenance provider. Blank inspection forms for each type of component in the stormwater system are included herein.

III-A.2 Cleaning

Cleaning shall include completely removing all accumulated material (e.g. sediments, trash, debris, and organic material) by means appropriate to the particular component of the stormwater system and legally disposing of the material at an off-site location.

In the case of atypical materials or contaminants in the stormwater system, said materials may require additional sampling, testing and analysis to determine the nature of the contamination and the appropriate methods of handling and disposal for same.

III-A.3 Access & Safety

Access to the stormwater management systems for inspections and cleaning shall be made at the designated locations for same, and shall be made in a manner that avoids or minimizes interference with the access to and operation of the site and the stormwater management system.

Inspections and cleaning of all elements of the stormwater management system shall be performed by properly-trained personnel using appropriate tools and equipment, and shall at all times be performed in a manner which prioritizes safety for both the personnel performing the inspections and/or cleaning, as well as the general public using the site. In instances where impacts to the site or the stormwater management system cannot be avoided during inspections and/or cleaning, all reasonable measures and precautions shall be taken to protect the personnel performing the inspections and/or cleaning as well as the general public using the site. Such measures may include, but not be limited to:

Site Impacts: Warning signage, barriers
Stormwater Management System Impacts: Temporary flow diversion, bypass pumping

III-B EASEMENTS:

The stormwater management system is located entirely on and within the GLADSTONE ELEMENTARY SCHOOL site; there are and will be no easements required for the Owner, its agents, heirs and assigns to enter upon the parcels to operate, maintain, repair and replace the stormwater management system. If a condition arises where a form of agreement or access easement is required to allow the Owner, its agents, heirs and assigns to access other private properties not owned by the Owner for the purpose of operating and maintaining the stormwater management system, said agreement(s)/easement(s) shall be promptly developed and executed between the Owner and the property owner(s).

III-C FUNDING SOURCE:

As stated above, the work described herein shall be performed by the Owner and/or its designated agents, and funding or other in-house resources necessary for same shall be provided by the Owner in whatever form(s) are deemed appropriate by them.

It is anticipated that the typical annual operation and maintenance cost in FY2024 will be $5,000.

- Annual Inspections: $1,500
- Annual Cleaning: $3,500

The Owner shall be responsible for ensuring that adequate funds are allocated and reserved for use in the proper implementation of this plan each year, and shall adjust its annual budget accordingly to reflect any changes in the costs/expenses associated with same.

III-D SPECIFIC COMPONENTS:

III-D.1 Collection & Conveyance System Components

III-D.1.1 – Deep-Sump Catch Basins

Inspections: Catch basins shall be inspected a minimum of two (2) times per year, preferably once in the spring and once in the fall.

Scheduled Maintenance: Catch basins shall be cleaned a minimum of one (1) time per year (preferably in the spring), regardless of the depth of accumulated material in the catch basins at the time of the cleaning.

Corrective Maintenance: If at any time the depth of accumulated material within the catch basin is greater than or equal to two (2) feet, all accumulated material shall be removed from the catch basin to the bottom of the sump and legally disposed of at an off-site location.

III-D.1.2 – Drain Manholes

Inspections: Drain manholes shall be inspected a minimum of two (2) times per year, typically simultaneously with the inspection of catch basins.

Scheduled Maintenance: Drain manholes do not typically require routine cleaning when used in conjunction with off-line deep-sump catch basins with hoods, assuming that the catch basins are functioning properly.

Corrective Maintenance: Any sediments or accumulated material (e.g. trash, debris, and organic material) discovered in drain manholes shall be immediately removed and legally disposed of at an off-site location. In addition, the source of the sediments or materials shall be located and repaired or otherwise corrected.

III-D.1.3 – Drain Pipes

Inspections: Drain pipes shall not be routinely inspected, but shall be inspected whenever there are reports of flooding or some other failure of the stormwater management system that could be the result of a drain pipe blockage.

Scheduled Maintenance: Drain pipes do not typically require routine cleaning when used in conjunction with off-line deep-sump catch basins with hoods, assuming that the catch basins are functioning properly.

Corrective Maintenance: Any sediments or accumulated material (e.g. trash, debris, and organic material) discovered in drain pipes shall be immediately flushed, collected, removed and legally disposed of at an off-site location. In addition, the source of the sediments or materials shall be located and repaired or otherwise corrected.

III-D.2 Mitigation & Treatment Components

Where referenced herein, the one (1) year storm event is equivalent to 2.7 inches of rainfall in a twenty-four (24) hour period.

III-D.2.1 – Barracuda Model S4 Water Quality Units (WQU’s)

Inspections: WQU’s shall be inspected a minimum of two (2) times per year, preferably once in the spring and once in the fall.

Scheduled Maintenance: WQU sediment shall be cleaned a minimum of one (1) time per year (preferably in the spring), regardless of the depth of accumulated material in the sediment chamber at the time of the cleaning. Oil and other floatable materials in the floatable chamber shall also be removed.

Corrective Maintenance:

- If at any time the depth of accumulated material within the WQU sediment chamber is greater than or equal to one half the chamber depth, all accumulated material shall be removed from the WQU to the bottom of the chamber and legally disposed of at an off-site location.

- Deficiencies in any structural components of the WQU (chambers, inflow and outflow pipes, access risers, frames & covers, etc.), shall be promptly repaired, or the deficient component replaced in-kind.

III-D.2.2 – Exfiltrating Sand Filter

Inspections: Sand filter shall be inspected a minimum of one (1) time per year, preferably in the spring, as well as after any storm greater than or equal to the 1-year storm event. Particularly, inspect for signs of excessive wetness, dead or dying grass on the bottom of the filter basin, or damage to structural components, and note any eroded areas.

Scheduled Maintenance:

- Mow and remove litter and debris; maintain grass height within basin at 4-6” high.

- Use only small, light hand-operated equipment to perform basin maintenance; passage of large, motorized vehicles and equipment through the sand filter shall be avoided at all times, as said vehicles/equipment can overcompact the underlying soils within the sand filter, reducing the infiltrative capacity of same and compromising the proper function of the filter.

Corrective Maintenance:

- If sediment/organic debris build-up or overcompaction of underlying soils has reduced the infiltration capabilities to below the design rate (i.e. the sand filter fails to fully drain within seventy-two (72) hours), the top layer of loam shall be removed and stockpiled, and the sand filter scarified to a depth of eighteen (18) inches. The loam shall then be replaced to its original depth (supplemented with new loam, if necessary), and the sand filter bottom shall then be restored according to original design specifications. Disconnections from inlet structures and temporary stormwater bypass measures required shall be properly implemented for the duration of the restorative work.

- Deficiencies in any structural components of the basins (inlet & outlet structures, weirs & orifices, walls, spillways, etc.) shall be promptly repaired to original condition or replaced in-kind.

III-D.2.3 – Dry Extended Detention Basin

Inspections: Dry extended detention basin should be inspected a minimum of one (1) time per year, preferably in the spring. In addition, basin shall be inspected after any storm greater than or equal to the 1-year storm event.

Scheduled Maintenance:

- Sediment, trash or other debris in extended detention basin shall be cleaned a minimum of one (1) time per year (preferably in the spring), regardless of the depth of accumulated material in the basin at the time of the cleaning.

- Mow all vegetated basin slopes at least four (4) times annually during the growing season (typically April-November); maintain grass at a height of 4-6”. Remove and dispose of any and all other vegetation (bushes, shrubs, trees) that may begin to grow within the basin before it becomes established.

- All rip rap pads shall be refreshed as required to maintain void space and flow diffusion effectiveness; this shall consist of the removal of accumulated sediments within the rip rap voids and restoration of the rip rap stone to original limits and grades.

Corrective Maintenance:

- If erosion or gullying of the basin slopes is observed, the affected slopes shall be promptly filled with the original material (or suitable replacement material), re-loamed to original grade, re-seeded and maintained until the affected area has sufficiently stabilized. Supplemental slope stabilization (rip rap or geotextile slope reinforcement) shall be installed in locations demonstrating repetitive erosion or gullying; if necessary in severe cases, flow redirection away from the affected area shall be implemented.

- Any blockages of outlet devices/structures shall be promptly removed, and the device/structure capacity restored.

- Deficiencies in any structural components of the basin (inlet & outlet structures, weirs & orifices, walls, spillways, etc.) shall be promptly repaired to original condition or replaced in-kind.

O&M Appendix A
BMP Key Plan

O&M Appendix B
Inspection Logs

COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 Smith Street
Providence, RI 02908
Tel. (401) 273-6600, Fax (401) 273-6674
www.commonwealth-eng.com

Stormwater Management System
Best Management Practice (BMP)
Operation & Maintenance Matrix

GENERAL INFORMATION

SYSTEM LOCATION (STREET NAME):	GLADSTONE ELEMENTARY SCHOOL
SYSTEM LOCATION (MUNICIPALITY):	CRANSTON

STORMWATER SYSTEM COMPONENT:	Annual Inspection Frequency	Scheduled Maintenance	Corrective Maintenance
Deep-Sump Catch Basins w/Oil-Water Hoods	2 (Spring & Fall)	Cleaning	Cleaning
Drain Manholes	2 (Spring & Fall)	N/A	Cleaning, Additional System Inspection
Drain Pipes	N/A	N/A	Flushing, Additional System Inspection
ADS Barracuda Water Quality Units	2 (Spring & Fall)	Vactor Cleaning Sediment & Floatable Chambers	Repairing/Replacing Structural Components
Sand Filter	1 (Spring); After 1-Year Storms	Sediment/Debris Cleaning Grass Mowing Refresh Rip Rap Pads	Refreshing/Replacing Filter Sand, Repairing/Replacing Structural Components
Dry Extended Detention Basin	1 (Spring); After 1-Year Storms	Sediment/Debris Cleaning Grass Mowing Refresh Rip Rap Pads	Slope Erosion Repairs Repairing/Replacing Structural Components

LOCATION (STREET ADDRESS / POLE #): ____________________
MUNICIPALITY: ____________________
DATE & TIME: ____________________
INSPECTOR/AGENCY:

MAINTENANCE ITEM	SATIS-FACTORY	UNSATIS-FACTORY	COMMENTS
1. Structural Condition			
Frame & Grate/Cover			
Brick & Mortar Leveling			
Steps			
Walls & Section Joints			
Pipes & Outlet Hood			
2. Sediment Cleaning			
Accumulated Sediment in Sump			
Greater than 50% of storage volume remaining			
No evidence of contaminated material/stormwater			

Comments:

____

____

Actions to be Taken:

____

____

LOCATION (STREET ADDRESS / POLE #): ______________________

MUNICIPALITY: ______________________

DATE & TIME: ______________________

INSPECTOR/AGENCY:

MAINTENANCE ITEM	SATIS-FACTORY	UNSATIS-FACTORY	COMMENTS
1. Structural Condition			
Access Risers & Covers			
Pipes & Outlet Hood			
2. Sediment Cleaning			
Accumulated Sediment in Sump			
Greater than 50% of storage volume remaining			
Oil/trash in Floatables Chamber			
No evidence of contaminated material/stormwater			

Comments:

____

____

Actions to be Taken:

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LOCATION (STREET ADDRESS / POLE #): ______________________

MUNICIPALITY: ______________________

DATE & TIME: ______________________

INSPECTOR/AGENCY:

MAINTENANCE ITEM	SATIS-FACTORY	UNSATIS-FACTORY	COMMENTS
1. Debris Cleanout			
Sand filter surface clear of debris			
Inflow devices/inlet areas clear of debris			
Overflow outlets/spillways clear of debris			
Filter basin area mowed and clippings removed			
2. Dewatering			
Sand filter dewaters completely between storms			
3. Sediment Cleanout of Basin			
No evidence of sedimentation in sand filter			
Sediment accumulation does not require cleanout			
4. Inlets			
Good condition, no evidence of erosion			
5. Outlet/Overflow Spillway			
Good condition, no need for repairs			
No evidence of erosion			

Comments:

____

____

Actions to be Taken:

____

____

LOCATION (STREET ADDRESS / POLE #): ______
MUNICIPALITY: ______
DATE & TIME: ______
INSPECTOR/AGENCY:

MAINTENANCE ITEM	SATIS-FACTORY	UNSATIS-FACTORY	COMMENTS
1. Debris Cleanout			
Contributing areas clean of debris			
Inlet and outlets clear of debris			
2. Vegetation			
Contributing drainage area stabilized			
No evidence of slope erosion/gullying			
Area mowed (4-6"H) and clippings removed			
3. Sediment Deposition			
Voids between rip rap pad stones >50% clear			
Basin storage area not more than half full of sediments/debris			
4. Structural Components			
No evidence of structural deterioration			
Grates are in good condition (if applicable)			
No evidence of structural spalling or cracking			
5. Outlets/Overflow Spillways			
Outlets/overflows in good condition			
Outlet devices (orifices, weirs) free of blockages/obstructions			
No evidence of erosion @ outlets			
6. Overall Function of Facility			
No evidence of outlet structure overflow activation during smalll to moderate storms			
No evidence of flow bypassing facility			

Comments:

______

______

Actions to be Taken:

______

______

APPENDIX D STORMWATER WORKSHEETS

D-1 RISDISM CALCULATION WORKSHEETS

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SMDIR/RISDISM
Best Management Practice (BMP)
Design Worksheets

GENERAL INFORMATION

PROJECT #:	21052
PROJECT NAME:	GLADSTONE CITY ELEMENTARY SCHOOL
PROJECT LOCATION (MUNICIPALITY):	CRANSTON
PROJECT LOCATION (COUNTY):	PROVIDENCE
CALCULATED BY:	MICHAEL ZAVALIA
DATE:	4/24/2023
SUBWATERSHED/BMP NAME/NUMBER:	SAND FILTER
RECEIVING WATER BODY/TYPE:	N/A
COLD-WATER FISHERY (Y/N)	N/A

SOILS

Predominant Underlying Soil Type:	Canton Urban Land Complex
Hydrologic Soil Group (A,B,C,D):	B

AREA TABULATION	Subwatershed A		Subwatershed B		Total	
	S.F.	ACRES	S.F.	ACRES	S.F.	ACRES
Total Subwatershed Area (A_{SW}):	166,795	3.829	227,016	5.212	393,811	9.041
Existing Impervious Area:	83,260	1.911	52,246	1.199	135,506	3.111
Existing Impervious Area to Pervious Area:	0	0.000	0	0.000	0	0.000
Existing Impervious Area to Remain (I_X):	83,260	1.911	52,246	1.199	135,506	3.111
Ex. Impervious Area Percentage (I_X/A_{SW}):	49.9%		23.0%		34.4%	
New Impervious Area (I_P):	11,627	0.267	0	0.000	11,627	0.267
Total Impervious Area (I_T):	94,887	2.178	52,246	1.199	147,133	3.378
Prop. Impervious Area Percentage (I_T/A_{SW}):	56.9%		23.0%		37.4%	

PROJECT CLASSIFICATION New Development (<40% Imp.) or Redevelopment (>=40% Imp.)

REDEVELOPMENT

DESIGN RAINFALL — 24-Hour Type III Rainfall Amount (inches)

County	1	2	5	10	25	50	100
Providence	2.7	3.3	4.1	4.9	6.1	7.3	8.7

EXISTING CONDITIONS PEAK FLOW RATES & VOLUMES - TO DMH 111710

STORM EVENT	1	2	5	10	25	50	100
FLOW RATE (CFS)	5.33	7.91		15.44	21.39		34.55
VOLUME (CF)	23,029	33,297		63,812	88,455		144,440

EXISTING CONDITIONS PEAK FLOW RATES & VOLUMES - TOTAL LEAVING SITE

STORM EVENT	1	2	5	10	25	50	100
FLOW RATE (CFS)	5.88	8.77		18.05	25.65		42.89
VOLUME (CF)	25,805	37,947		75,028	105,641		176,462

POST-DEV. POST-BMP PEAK FLOW RATES & VOLUMES - TO DMH 111710

STORM EVENT	1	2	5	10	25	50	100
FLOW RATE (CFS)	2.65	5.73		13.56	17.61		21.04
NET CHANGE FROM EX.	-2.68	-2.18		-1.88	-3.78		-13.51
VOLUME (CF)	15,212	25,563		57,266	83,359		143,642
NET CHANGE FROM EX.	-7,817	-7,734		-6,546	-5,096		-798

POST-DEV. POST-BMP PEAK FLOW RATES & VOLUMES - TOTAL LEAVING SITE

STORM EVENT	1	2	5	10	25	50	100
FLOW RATE (CFS)	2.83	6.11		15.25	20.70		27.21
NET CHANGE FROM EX.	-3.05	-2.66		-2.80	-4.95		-15.68
VOLUME (CF)	16,875	28,621		65,497	96,456		169,099
NET CHANGE FROM EX.	-8,930	-9,326		-9,531	-9,185		-7,363

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STANDARD 2 - GROUNDWATER RECHARGE (Re_v)

SUBWATERSHED/BMP NAME/NUMBER:	SAND FILTER	
SOILS		
Predominant Underlying Soil Type:	Canton Urban Land Complex	
Hydrologic Soil Group:	B	
RECHARGE FACTOR "F"	0.35	
PROJECT CLASSIFICATION	New Development (<40% Imp.) or Redevelopment (>=40% Imp.)	
REDEVELOPMENT		

AREA TABULATION	S.F.	ACRES
Ex. Impervious Area to Remain (I_X):	135,506	3.111
50% Ex. Impervious Area to Remain (I_{X50}):	67,753	1.555
New Impervious Area (I_P):	11,627	0.267
Total Impervious Area (I_T):	147,133	3.378
Recharge Impervious Area ($I_R = I_{X50} + I_P$)*:	79,380	1.822

RECHARGE VOL. ($Re_v = (1")(F)(I_R)/12$)		ACRE-FEET	C.F.
F (unitless) =	0.35	0.053	2315.3
I_R (acres) =	1.822	Rounded Total:	2,316

* Sum of 50% of Existing Imp. Area to Remain and New Impervious Area (for Redevelopment)

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STANDARD 3 - WATER QUALITY (WQ_v)

SUBWATERSHED/BMP NAME/NUMBER: SAND FILTER

PROJECT CLASSIFICATION — New Development (<40% Imp.) or Redevelopment (>=40% Imp.)

REDEVELOPMENT

AREA TABULATION	S.F.	ACRES
Total Subwatershed Area (A_{SW}):	393,811	9.041
Ex. Impervious Area to Remain (I_X):	135,506	3.111
New Impervious Area (I_P):	11,627	0.267
Total Impervious Area (I_T):	147,133	3.378

WQ VOLUME (WQ_v = (1")((I_X x 0.5)+(I_P))/12)		ACRE-FEET	C.F.
I_X (acres) =	3.111	0.152	6,615.0
I_P(acres) =	0.267	Rounded Total:	6,615

DESIGN WQ_V

6,615 C.F.

MODIFIED CN (FOR 1.2" WQ_V DETERMINATION) - SECTION 3.3.3.2

$CN_{Mod} = 1000 / [10 + 5P + 10Q - 10(Q^2 + 1.25QP)^{1/2}]$

P = Rainfall (inches)	1.20
Watershed Area Tributary to BMP (Subwatershed A Total Area) (s.f.)	166,795
*Q = Runoff Volume, (Watershed Inches ($WQ_{v\ (c.f.)}$/Total BMP Tributary Watershed Area (s.f.) x 12	0.476

CN_{Mod} = 90.400

D-2 SAND FILTER SIZING CALCULATION WORKSHEET

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SAND FILTER SIZING CALCULATIONS

SUBWATERSHED/BMP NAME/NUMBER: SAND FILTER

DESIGN WQ_V

6,615 C.F.

REQUIRED FILTER BED SURFACE AREA

A_f = Minimum Surface Area of Filter Bed (s.f.)

d_f	1.5	Filter Bed Depth (ft)
k	3.5	Coefficient of Permeability of Filter Media (ft/day) (Typ. 3.5 for Sand)
h_f	0.50	Avg. Height of Water Above Surface of Practice (ft)
t_f	2.0	Design Filter Bed Drain Time (days)

$A_f = (WQ_V)(d_f)/[(k)(h_f+d_f)(t_f)]$

A_f= 709 s.f. (Rounded to nearest 1 s.f.)

FILTER BED SURFACE AREA CHECK

Proposed Sand Filter Area

Total Area: 840 s.f.

Provided Area > Required Area? Y

SAND FILTER SYSTEM REQUIRED STORAGE VOLUME

MIMIMUM PRACTICE STORAGE VOLUME Vs = 75% OF WQ_V

REQUIRED SAND FILTER/FOREBAY STORAGE VOLUME (WQv x 0.75)

4,961 C.F.

Sand Filter Volume (Below Top of Weir Elev.133.90): 5,061 C.F.

Total Storage Volume Provided by BMP: 5,061 C.F.

Provided Volume > Required Volume? Y

D-3 RIP RAP PAD WORKSHEETS

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WORKSHEET FOR RIPRAP OUTLET DESIGN

PROJECT: GLADSTONE ELEMENTARY SCHOOL
CITY/TOWN: CRANSTON — STATE: RI
DESIGN STORM: 25
DISCHARGE POINT: SAND FILTER BASIN - INLET NORTH

d_{50}	Median Stone Diameter (ft)	La	Length of Apron (ft)
TW	Tailwater Depth Above Invert (ft)	W	Width of Apron (ft)
Q	Peak Flow Rate for Design Storm (cfs)		
D_o	Outlet Diameter (ft)		$La = [1.7Q/(D_o^{3/2})]+8D_o$

*Values for TW and Q obtained from HydroCAD Report

For $TW \le 0.5D_o$: $W = 3D_o+La$

For $TW > 0.5D_o$: $W = 3D_o+0.4La$

Emergency Spillway (use headwater as tailwater)

TW:				
Q:				
D_o:				
d_{50}	#DIV/0!	=	#DIV/0!	"

Outlet Control Structure (Pipe at capacity use TW=0.5')

TW:	0.5	(Pipe @ Capacity)		
Q:	7.39			
D_o:	1.25			
d_{50}:	0.43	=	5.13	"
La:	18.99			
W:	22.74			

Use R-4 (7") Rip Rap Stone, 23'W x 19'L Apron

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WORKSHEET FOR RIPRAP OUTLET DESIGN

PROJECT:	GLADSTONE ELEMENTARY SCHOOL		
CITY/TOWN:	CRANSTON	STATE:	RI
DESIGN STORM:	25		
DISCHARGE POINT:	SAND FILTER BASIN - INLET NE		

d_{50}	Median Stone Diameter (ft)	La	Length of Apron (ft)
TW	Tailwater Depth Above Invert (ft)	W	Width of Apron (ft)
Q	Peak Flow Rate for Design Storm (cfs)		
D_o	Outlet Diameter (ft)		

$La = [1.7Q/(D_o^{3/2})]+8D_o$

For $TW \le 0.5D_o$: $W = 3D_o+La$

For $TW > 0.5D_o$: $W = 3D_o+0.4La$

*Values for TW and Q obtained from HydroCAD Report

Emergency Spillway (use headwater as tailwater)

TW:				
Q:				
D_o:				
d_{50}	#DIV/0!	=	#DIV/0!	"

Outlet Control Structure (Pipe at capacity use TW=0.5')

TW:	0.5			
Q:	0.35			
D_o:	1.00			
d_{50}:	0.01	=	0.12	"
La:	8.60			
W:	11.60			

Use R-4 (7") Rip Rap Stone, 12'W x 9'L Apron

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WORKSHEET FOR RIPRAP OUTLET DESIGN

PROJECT: GLADSTONE ELEMENTARY SCHOOL
CITY/TOWN: CRANSTON STATE: RI
DESIGN STORM: 25
DISCHARGE POINT: DETENTION BASIN NORTH - INLET NORTH

d_{50}	Median Stone Diameter (ft)	La	Length of Apron (ft)
TW	Tailwater Depth Above Invert (ft)	W	Width of Apron (ft)
Q	Peak Flow Rate for Design Storm (cfs)		
D_o	Outlet Diameter (ft)		$La = [1.7Q/(D_o^{3/2})]+8D_o$

*Values for TW and Q obtained from HydroCAD Report

For $TW \leq 0.5D_o$: $W = 3D_o+La$

For $TW > 0.5D_o$: $W = 3D_o+0.4La$

Emergency Spillway (use headwater as tailwater)

TW:				
Q:				
D_o:				
d_{50}	#DIV/0!	=	#DIV/0!	"

Outlet Control Structure (Pipe at capacity use TW=0.5')

TW:	0.4			
Q:	9.29			
D_o:	2.00			
$d_{50:}$	0.38	=	4.54	"
La:	21.58			
W:	27.58			

Use R-4 (7") Rip Rap Stone, 28'W x 22'L Apron

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WORKSHEET FOR RIPRAP OUTLET DESIGN

PROJECT:	GLADSTONE ELEMENTARY SCHOOL		
CITY/TOWN:	CRANSTON	STATE:	RI
DESIGN STORM:	25		
DISCHARGE POINT:	DETENTION BASIN SOUTH - INLET NORTH		

d_{50}	Median Stone Diameter (ft)	La	Length of Apron (ft)
TW	Tailwater Depth Above Invert (ft)	W	Width of Apron (ft)
Q	Peak Flow Rate for Design Storm (cfs)		
D_o	Outlet Diameter (ft)		$La = [1.7Q/(D_o^{3/2})]+8D_o$

*Values for TW and Q obtained from HydroCAD Report

For TW ≤ $0.5D_o$: $W = 3D_o+La$

For TW > $0.5D_o$: $W = 3D_o+0.4La$

Emergency Spillway (use headwater as tailwater)

TW:			
Q:			
D_o:			
d_{50}	#DIV/0!	=	#DIV/0! "

Outlet Control Structure (Pipe at capacity use TW=0.5')

TW:	1.0		
Q:	9.44		
D_o:	1.50		
d_{50}:	0.24	=	2.85 "
La:	20.74		
W:	12.79		

Use R-4 (7") Rip Rap Stone, 13'W x 21'L Apron

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WORKSHEET FOR RIPRAP OUTLET DESIGN

PROJECT:	GLADSTONE ELEMENTARY SCHOOL		
CITY/TOWN:	CRANSTON	STATE:	RI
DESIGN STORM:	25		
DISCHARGE POINT:	DETENTION BASIN SOUTH - INLET WEST		

d_{50}	Median Stone Diameter (ft)	La	Length of Apron (ft)
TW	Tailwater Depth Above Invert (ft)	W	Width of Apron (ft)
Q	Peak Flow Rate for Design Storm (cfs)		
D_o	Outlet Diameter (ft)		$La = [1.7Q/(D_o^{3/2})]+8D_o$

*Values for TW and Q obtained from HydroCAD Report

For TW ≤ $0.5D_o$: $W = 3D_o+La$

For TW > $0.5D_o$: $W = 3D_o+0.4La$

Emergency Spillway (use headwater as tailwater)

TW:			
Q:			
D_o:			
d_{50}	#DIV/0!	=	#DIV/0! "

Outlet Control Structure (Pipe at capacity use TW=0.5')

TW:	0.5	(Pipe @ Capacity)	
Q:	4.09		
D_o:	1.00		
$d_{50:}$	0.26	=	3.14 "
La:	14.95		
W:	17.95		

Use R-4 (7") Rip Rap Stone, 18'W x 15'L Apron

APPENDIX E SOIL EVALUATION LOGS

TEST PIT LOG

GZA GeoEnvironmental, Inc. Engineers and Scientists	**Fielding International** **Gladstone Elementary School** **50 Gladstone Street** **Cranston, RI**	**EXPLORATION NO.:** TP-1 **SHEET:** 1 of 1 **PROJECT NO:** 34718.05 **REVIEWED BY:** Doug Le Do
Logged By: Jessie Batalon **Contractor:** Cryan Landscaping **Foreman:** Dan Flynn	**Test Pit Location:** See Plan **Ground Surface Elev. (ft.):** 146 **Date Start:** 8/24/2021 **Date Finish:** 8/24/2021	**H. Datum:** **V. Datum:** NAVD 88
Equipment: Kubota **Model:** KX 080-4 **Reach (ft.):** 12 **Capacity (cu.yd.):** 0.25	**Weather:** Sunny 80s **Time Start:** 1415 **Time Finish:** 1430	

Groundwater Depth (ft.)

Date	Time	Depth (ft.)	Symbol
Not Measured			

Depth (ft)	Stratum Description (Modified Burmister Classification)	Elev. (ft.)	Excavation Effort	Boulder Count Qty./Class	Remark
0–1	TOPSOIL	145.0	E		
1–1.7	Brown, fine to medium SAND, little fine to coarse Gravel, little Silt [FILL]	144.3	E		
	End of exploration at 1.7 feet.				1

Depth scale (ft): 1 2 3 4 5 6 7 8 9 10 11 12

Test Pit Plan: **North**

7 ft. × 2.5 ft.

Volume = 1 ± cu.yd.

LEGEND: Observed Water Level

Proportions Used:

Trace (Tr)	0-10%
Little (Li)	10-20%
Some (So)	20-35%
And	35-50%

Excavation Effort:

Easy	E
Moderate	M
Difficult	D

Boulder Size Range Designation:

Diameter	Letter Designation
6 to 16 in.	A
16 to 36 in.	B
> 36 in.	C

REMARKS

1 - Excavator refusal on concrete 20" below grade surface.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: TP-1

TEST PIT LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	**Fielding International** **Gladstone Elementary School** **50 Gladstone Street** **Cranston, RI**	**EXPLORATION NO.:** TP-2 **SHEET:** 1 of 1 **PROJECT NO:** 34718.05 **REVIEWED BY:** Doug Le Do
Logged By: Jessie Batalon **Contractor:** Cryan Landscaping **Foreman:** Dan Flynn	**Test Pit Location:** See Plan **Ground Surface Elev. (ft.):** 146 **Date Start:** 8/24/2021 **Date Finish:** 8/24/2021	**H. Datum:** **V. Datum:** NAVD 88
Equipment: Kubota **Model:** KX 080-4 **Reach (ft.):** 12 **Capacity (cu.yd.):** 0.25	**Weather:** Sunny 80s **Time Start:** 1340 **Time Finish:** 1410	

Groundwater Depth (ft.)

Date	Time	Depth (ft.)	Symbol
Not Measured			

Depth (ft)	Stratum Description (Modified Burmister Classification)	Elev. (ft.)	Excavation Effort	Boulder Count Qty./Class	Remark
0–0.7	TOPSOIL	145.3	E		
0.7–2	Brown, fine to medium SAND, trace fine to coarse Gravel, trace Silt, trace Organics (roots) [FILL]	144.0	M	2A, 2B	
2–5.5	Brown/gray, fine to medium SAND and GRAVEL, trace Silt [FILL] (Approximately 40-50% Cobbles/Boulders)	140.5	M D D D	5A, 2B 7A, 2B 4A	
5.5	End of exploration at 5.5 feet.				1

Test Pit Plan: 7 ft. × 2.5 ft. North

Volume = 4 ± cu.yd.

LEGEND: Observed Water Level

Proportions Used:	
Trace (Tr)	0-10%
Little (Li)	10-20%
Some (So)	20-35%
And	35-50%

Excavation Effort:	
Easy	E
Moderate	M
Difficult	D

Boulder Size Range Designation: Diameter	Letter Designation
6 to 16 in.	A
16 to 36 in.	B
> 36 in.	C

REMARKS

1 - Excavator refusal at approximately 5.5 feet below grade on possible bedrock or boulder.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: TP-2

TEST PIT LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Fielding International
Gladstone Elementary School
50 Gladstone Street
Cranston, RI

EXPLORATION NO.: TP-3 (OW)
SHEET: 1 of 1
PROJECT NO: 34718.05
REVIEWED BY: Doug Le Do

Logged By: Jessie Batalon
Contractor: Cryan Landscaping
Foreman: Dan Flynn

Test Pit Location: See Plan
Ground Surface Elev. (ft.): 146
Date Start: 8/24/2021
Date Finish: 8/24/2021

H. Datum:
V. Datum: NAVD 88

Equipment: Kubota
Model: KX 080-4
Reach (ft.): 12
Capacity (cu.yd.): 0.25

Weather: Sunny 80s
Time Start: 1210
Time Finish: 1245

Groundwater Depth (ft.)

Date	Time	Depth (ft.)	Symbol
9/7/21	15:00	Dry	▽
2/21/22	7:48	Dry	▼
			▼

Depth (ft)	Stratum Description (Modified Burmister Classification)	Elev. (ft.)	Excavation Effort	Boulder Count Qty./Class	Remark
0–0.3	TOPSOIL	145.7			
0.3–5	Brown, fine to medium SAND, little fine to coarse Gravel, trace Silt, trace Organics (roots) [FILL]	141.0	E, E, E, E, E		
5–9	Brown/gray, fine to medium SAND, little Silt, trace fine to coarse Gravel [FILL]	137.0	E, M, M, M		
9	End of exploration at 9 feet.				1

Test Pit Plan: 7 ft. × 2.5 ft. North
Volume = 6 ± cu.yd.

LEGEND: Observed Water Level ▼

Proportions Used:

Trace (Tr)	0-10%
Little (Li)	10-20%
Some (So)	20-35%
And	35-50%

Excavation Effort:

Easy	E
Moderate	M
Difficult	D

Boulder Size Range Designation:

Diameter	Letter Designation
6 to 16 in.	A
16 to 36 in.	B
> 36 in.	C

REMARKS

1 - Set 10-foot long 4-inch diameter perforated PVC pipe to approximately 9 feet below grade surface prior to backfilling.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: TP-3 (OW)

TEST PIT LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	**Fielding International** **Gladstone Elementary School** **50 Gladstone Street** **Cranston, RI**	**EXPLORATION NO.: TP-4 (OW)** **SHEET: 1 of 1** **PROJECT NO: 34718.05** **REVIEWED BY: Doug Le Do**
Logged By: Jessie Batalon **Contractor:** Cryan Landscaping **Foreman:** Dan Flynn	**Test Pit Location:** See Plan **Ground Surface Elev. (ft.):** 146 **Date Start:** 8/24/2021 **Date Finish:** 8/24/2021	**H. Datum:** **V. Datum:** NAVD 88
Equipment: Kubota **Model:** KX 080-4 **Reach (ft.):** 12 **Capacity (cu.yd.):** 0.25	**Weather:** Sunny 80s **Time Start:** 1135 **Time Finish:** 1205	

Groundwater Depth (ft.)

Date	Time	Depth (ft.)	Symbol
9/7/21	15:00	Dry	
2/21/22	7:44	Dry	

Depth (ft)	Stratum Description (Modified Burmister Classification)	Elev. (ft.)	Excavation Effort	Boulder Count Qty./Class	Remark
0	TOPSOIL	145.7			
0.5–1	Brown, fine to coarse SAND, some fine to coarse Gravel, little Silt, trace Debris (brick, glass), trace Organics (roots) [FILL]		E		
2			E		
3			E	2A	
4			M		
5			M	1A	
6			M	3A	
7			M		1
8		138.0	D		
8	End of exploration at 8 feet.				2
9					
10					
11					
12					

Test Pit Plan: 7 ft. × 2.5 ft. **North**

Volume = 5 ± cu.yd.

LEGEND: Observed Water Level

Proportions Used:	
Trace (Tr)	0-10%
Little (Li)	10-20%
Some (So)	20-35%
And	35-50%

Excavation Effort:	
Easy	E
Moderate	M
Difficult	D

Boulder Size Range Designation:

Diameter	Letter Designation
6 to 16 in.	A
16 to 36 in.	B
> 36 in.	C

REMARKS

1 - Bituminous material encountered in fill material at 6.5 feet below grade.
2 - Set 10-foot long 4-inch diameter perforated PVC pipe to approximately 8 feet below grade surface prior to backfilling.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: TP-4 (OW)

TEST PIT LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Fielding International
Gladstone Elementary School
50 Gladstone Street
Cranston, RI

EXPLORATION NO.: TP-5
SHEET: 1 of 1
PROJECT NO: 34718.05
REVIEWED BY: Doug Le Do

Logged By: Jessie Batalon
Contractor: Cryan Landscaping
Foreman: Dan Flynn

Test Pit Location: See Plan
Ground Surface Elev. (ft.): 147
Date Start: 8/24/2021
Date Finish: 8/24/2021

H. Datum:
V. Datum: NAVD 88

Equipment: Kubota
Model: KX 080-4
Reach (ft.): 12
Capacity (cu.yd.): 0.25

Weather: Sunny 80s
Time Start: 1250
Time Finish: 1335

Groundwater Depth (ft.)			
Date	**Time**	**Depth (ft.)**	**Symbol**
Not Measured			▽ ▼ ▼

Depth (ft)	Stratum Description (Modified Burmister Classification)	Elev. (ft.)	Excavation Effort	Boulder Count Qty./Class	Remark
0	ASPHALT	146.5			
0.5–1	Browm, fine to medium SAND, trace fine to coarse Gravel, trace Silt [BASE COURSE FILL]		M		
2		145.1	M		
3	Brown/gray, fine to medium SAND and GRAVEL, trace Silt, trace Debris (brick) [FILL] (Approximately 40-50% Cobbles/Boulders)		M		
4			D		
5		142.0	D	6A, 3B	
5	End of exploration at 5 feet.				1

Test Pit Plan: 5 ft. × 3.5 ft. **North**

Volume = 3 ± cu.yd.

LEGEND: Observed Water Level

Proportions Used:	
Trace (Tr)	0-10%
Little (Li)	10-20%
Some (So)	20-35%
And	35-50%

Excavation Effort:	
Easy	E
Moderate	M
Difficult	D

Boulder Size Range Designation:	
Diameter	Letter Designation
6 to 16 in.	A
16 to 36 in.	B
> 36 in.	C

REMARKS

1 - Excavator refusal at approximately 5 feet below grade on possible bedrock or boulder.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: TP-5

GZA TEMPLATE TEST PIT; 2/25/2022; 11:18:27 AM

TEST PIT LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	**Fielding International** **Gladstone Elementary School** **50 Gladstone Street** **Cranston, RI**	**EXPLORATION NO.: TP-6 (OW)** **SHEET: 1 of 1** **PROJECT NO: 34718.05** **REVIEWED BY: Doug Le Do**
Logged By: Jessie Batalon **Contractor:** Cryan Landscaping **Foreman:** Dan Flynn	**Test Pit Location:** See Plan **Ground Surface Elev. (ft.):** 135 **Date Start:** 8/24/2021 **Date Finish:** 8/24/2021	**H. Datum:** **V. Datum:** NAVD 88
Equipment: Kubota **Model:** KX 080-4 **Reach (ft.):** 12 **Capacity (cu.yd.):** 0.25	**Weather:** Sunny 80s **Time Start:** 1000 **Time Finish:** 1035	

Groundwater Depth (ft.)

Date	Time	Depth (ft.)	Symbol
9/7/21	15:00	Dry	
2/21/22	9:40	Dry	

Depth (ft)	Stratum Description (Modified Burmister Classification)	Elev. (ft.)	Excavation Effort	Boulder Count Qty./Class	Remark
0	TOPSOIL	134.7			
			E		
1			E	1B	
2	Brown, fine to medium SAND, little fine to coarse Gravel, trace Silt [FILL]				
3			E	2A	
4		131.0	M	3A	
	BURIED TOPSOIL	130.5			
5			M	4A	
6			M	3A, 1C	
	Dark brown/gray, fine to coarse SAND, some fine to coarse Gravel, little Silt [FILL]				
7			D	3B	
8		127.0	D	2B, 1C	
	End of exploration at 8 feet.				1
9					
10					
11					
12					

Test Pit Plan:

7 ft.

2.5 ft.

North

Volume = 5 ± cu.yd.

LEGEND:

Observed Water Level

Proportions Used:

Trace (Tr)	0-10%
Little (Li)	10-20%
Some (So)	20-35%
And	35-50%

Excavation Effort:

Easy	E
Moderate	M
Difficult	D

Boulder Size Range Designation:

Diameter	Letter Designation
6 to 16 in.	A
16 to 36 in.	B
> 36 in.	C

REMARKS

1 - Set 10-foot long 4-inch diameter perforated PVC pipe to approximately 8 feet below grade surface prior to backfilling.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: TP-6 (OW)

TEST PIT LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	**Fielding International** **Gladstone Elementary School** **50 Gladstone Street** **Cranston, RI**	**EXPLORATION NO.:** TP-7 **SHEET:** 1 of 1 **PROJECT NO:** 34718.05 **REVIEWED BY:** Doug Le Do
Logged By: Jessie Batalon **Contractor:** Cryan Landscaping **Foreman:** Dan Flynn	**Test Pit Location:** See Plan **Ground Surface Elev. (ft.):** 134 **Date Start:** 8/24/2021 **Date Finish:** 8/24/2021	**H. Datum:** **V. Datum:** NAVD 88
Equipment: Kubota **Model:** KX 080-4 **Reach (ft.):** 12 **Capacity (cu.yd.):** 0.25	**Weather:** Sunny 80s **Time Start:** 1040 **Time Finish:** 1130	

Groundwater Depth (ft.)

Date	Time	Depth (ft.)	Symbol
Not Measured			

Depth (ft)	Stratum Description (Modified Burmister Classification)	Elev. (ft.)	Excavation Effort	Boulder Count Qty./Class	Remark
0	TOPSOIL	133.7			
0–1			E		
1–2			M	5A	
2–3			M	10A, 3B	
3–4	Brown, fine to coarse GRAVEL and fine to medium SAND, trace Silt [FILL] (Approximately 40-50% Cobbles/Boulders)		D	12A, 2B	1
4–5			D	8A, 3B	
5–6			D	9A, 2B	
6–7		127.0	D	7A, 1B	
7	End of exploration at 7 feet.				2
8					
9					
10					
11					
12					

Test Pit Plan: 7 ft. × 7 ft. North

Volume = **13 ±** cu.yd.

LEGEND: Observed Water Level

Proportions Used:		Excavation Effort:		Boulder Size Range Designation: Diameter	Letter Designation
Trace (Tr)	0-10%	Easy	E	6 to 16 in.	A
Little (Li)	10-20%	Moderate	M	16 to 36 in.	B
Some (So)	20-35%	Difficult	D	> 36 in.	C
And	35-50%				

REMARKS

1 - A broken clay pipe was encountered at approximately 3.5 feet below grade in the southern wall of the excavation.
2 - Excavator refusal at approximately 7 feet below grade on possible bedrock or boulder.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: TP-7

TEST PIT LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	Fielding International Gladstone Elementary School 50 Gladstone Street Cranston, RI	**EXPLORATION NO.:** TP-8 (OW) **SHEET:** 1 of 1 **PROJECT NO:** 34718.05 **REVIEWED BY:** Doug Le Do
Logged By: Jessie Batalon **Contractor:** Cryan Landscaping **Foreman:** Dan Flynn	**Test Pit Location:** See Plan **Ground Surface Elev. (ft.):** 126 **Date Start:** 8/24/2021 **Date Finish:** 8/24/2021	**H. Datum:** **V. Datum:** NAVD 88
Equipment: Kubota **Model:** KX 080-4 **Reach (ft.):** 12 **Capacity (cu.yd.):** 0.25	**Weather:** Sunny 80s **Time Start:** 0920 **Time Finish:** 0953	

Groundwater Depth (ft.)

Date	Time	Depth (ft.)	Symbol
9/7/21	15:00	6.7	
2/21/22	9:35	6.7	

Depth (ft)	Stratum Description (Modified Burmister Classification)	Elev. (ft.)	Excavation Effort	Boulder Count Qty./Class	Remark
	TOPSOIL	125.7			
1	Brown, SILT, little fine to medium Sand, trace fine to coarse Gravel [FILL]	124.5	E		
2	Brown, fine to medium SAND, little Silt, little fine to coarse Gravel, trace Asphalt [FILL]		E	3A	
3			M	4A, 1B	
4		121.5	D	6A, 2B	1
5	BURIED TOPSOIL	121.0	D	5A	
6	Dark brown, fine to medium SAND, trace Gravel, trace Silt [FILL]		M	3A	
7		119.0	D		
	End of exploration at 7 feet.				2
8					
9					
10					
11					
12					

Test Pit Plan: 7 ft. × 2.5 ft. **North**

Volume = 5 ± cu.yd.

LEGEND: Observed Water Level

Proportions Used:		Excavation Effort:		Boulder Size Range Designation:	
Trace (Tr)	0-10%	Easy	E	Diameter	Letter Designation
Little (Li)	10-20%	Moderate	M	6 to 16 in.	A
Some (So)	20-35%	Difficult	D	16 to 36 in.	B
And	35-50%			> 36 in.	C

REMARKS

1 - A layer of asphalt was encountered in fill material at approximately 3.5 feet below grade surface.
2 - Possible boulder or bedrock material observed in bottom of excavation. Set 10-foot long 4-inch diameter perforated PVC pipe to approximately 7 feet below grade surface prior to backfilling.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: TP-8 (OW)

TEST PIT LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	**Fielding International** **Gladstone Elementary School** **50 Gladstone Street** **Cranston, RI**	**EXPLORATION NO.: TP-9** **SHEET: 1 of 1** **PROJECT NO: 34718.05** **REVIEWED BY: Doug Le Do**
Logged By: Jessie Batalon **Contractor:** Cryan Landscaping **Foreman:** Dan Flynn	**Test Pit Location:** See Plan **Ground Surface Elev. (ft.):** 119 **Date Start:** 8/24/2021 **Date Finish:** 8/24/2021	**H. Datum:** **V. Datum:** NAVD 88
Equipment: Kubota **Model:** KX 080-4 **Reach (ft.):** 12 **Capacity (cu.yd.):** 0.25	**Weather:** Sunny 80s **Time Start:** 0825 **Time Finish:** 0915	

Groundwater Depth (ft.)

Date	Time	Depth (ft.)	Symbol
Not Measured			

Depth (ft)	Stratum Description (Modified Burmister Classification)	Elev. (ft.)	Excavation Effort	Boulder Count Qty./Class	Remark
	TOPSOIL	118.7			
1	Brown, fine to medium SAND and SILT, little fine Gravel [SUBSOIL]	117.5	E		
2			E		
3			E		
4			E	3A	
5	Brown, fine to medium SAND, little fine to coarse Gravel, little Silt [FILL]		E	4A	
6			M	3A	
7			M	4A	
8		111.0	M	2A	1
9	Gray, fine to medium SAND, little Silt, trace fine to coarse Gravel [Glacial Till]	110.0	M		
	End of exploration at 9 feet.				
10					
11					
12					

Test Pit Plan: 7 ft. × 2.5 ft. **North**

Volume = 6 ± cu.yd.

LEGEND: Observed Water Level

Proportions Used:	
Trace (Tr)	0-10%
Little (Li)	10-20%
Some (So)	20-35%
And	35-50%

Excavation Effort:	
Easy	E
Moderate	M
Difficult	D

Boulder Size Range Designation:

Diameter	Letter Designation
6 to 16 in.	A
16 to 36 in.	B
> 36 in.	C

REMARKS

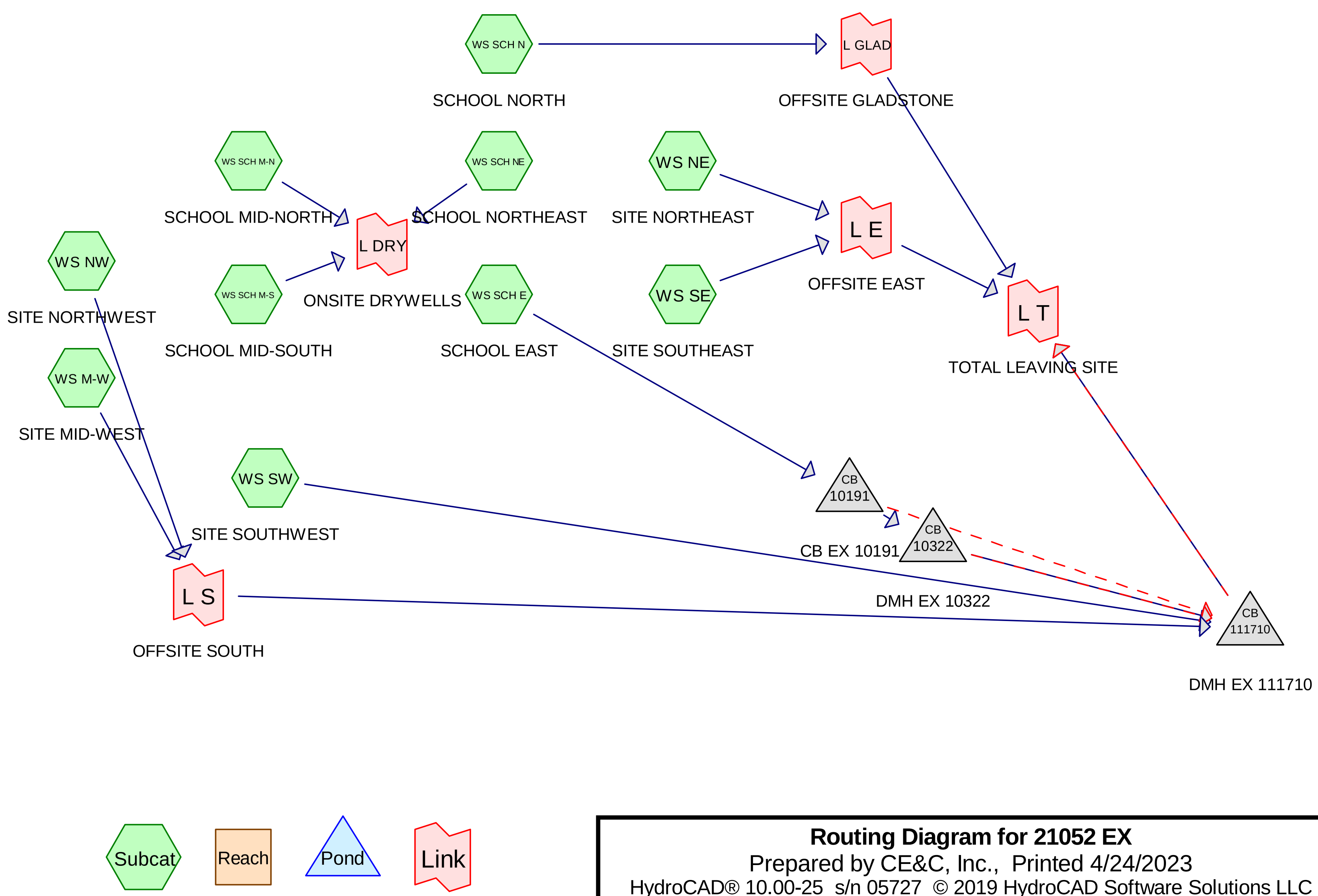
1 - Broken clay pipe encountered at approximately 8 feet below grade surface in western wall of the excavation.

See Log Key for exploration of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

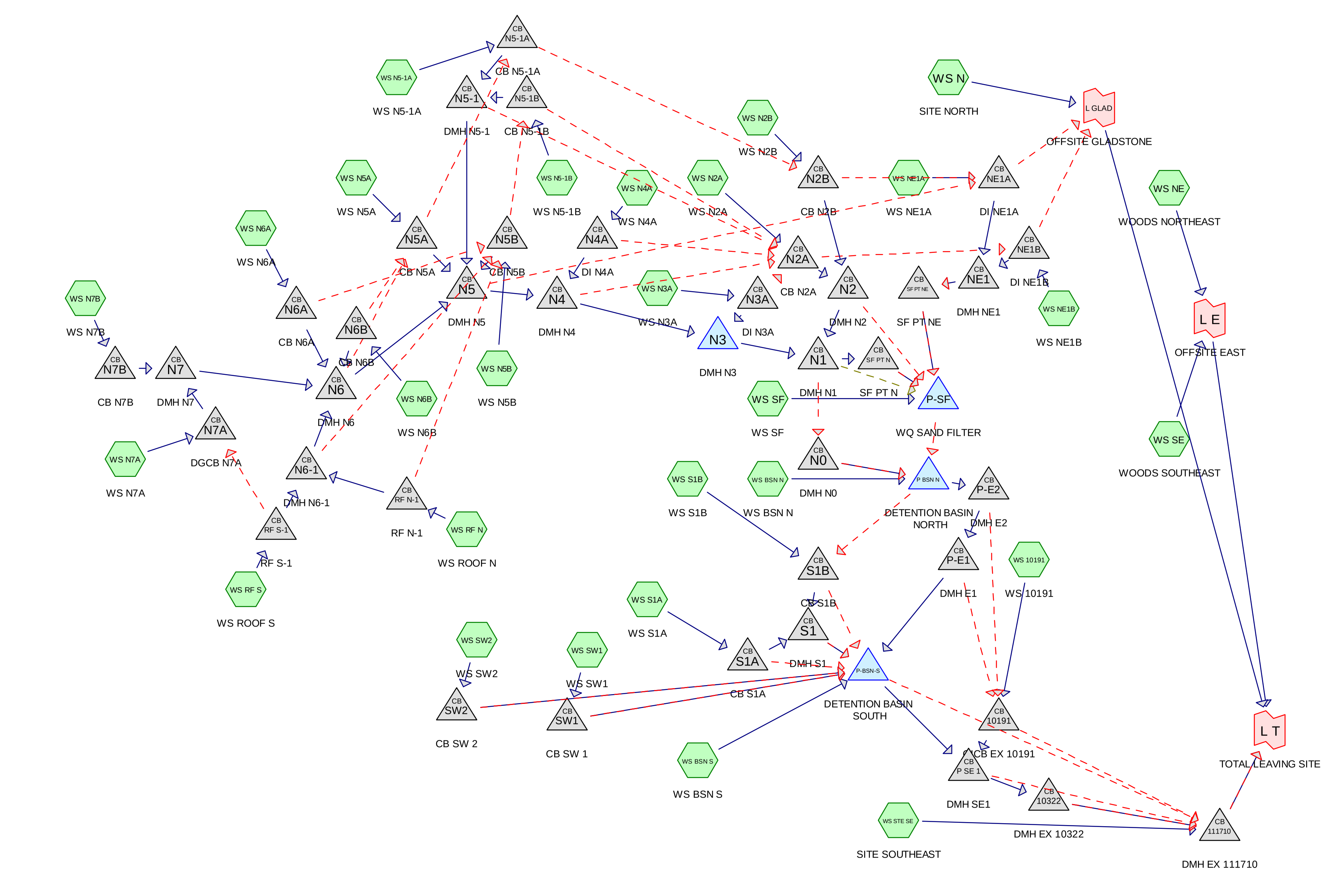
Exploration No.: TP-9

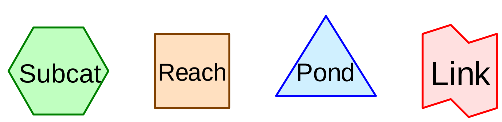
APPENDIX F DRAINAGE DIAGRAMS/ANALYSIS INPUT & OUTPUT DATA

F-1 HYDROCAD DIAGRAMS



Routing Diagram for 21052 EX
Prepared by CE&C, Inc., Printed 4/24/2023
HydroCAD® 10.00-25 s/n 05727 © 2019 HydroCAD Software Solutions LLC





Routing Diagram for 21052 PR

Prepared by CE&C, Inc., Printed 4/24/2023

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F-2 HYDROCAD PRINTOUTS – EXISTING CONDITIONS

1-YR. STORM

Time span=0.00-32.00 hrs, dt=0.01 hrs, 3201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment WS M-W: SITE MID-WEST Runoff Area=37,980 sf 52.45% Impervious Runoff Depth=1.03"
Flow Length=514' Tc=4.1 min CN=80 Runoff=1.10 cfs 3,259 cf

Subcatchment WS NE: SITE NORTHEAST Runoff Area=29,178 sf 0.00% Impervious Runoff Depth=0.12"
Flow Length=219' Tc=9.5 min CN=55 Runoff=0.02 cfs 298 cf

Subcatchment WS NW: SITE NORTHWEST Runoff Area=140,956 sf 47.23% Impervious Runoff Depth=0.92"
Flow Length=657' Tc=11.6 min CN=78 Runoff=2.76 cfs 10,812 cf

Subcatchment WS SCH E: SCHOOL EAST Runoff Area=56,251 sf 58.72% Impervious Runoff Depth=1.21"
Flow Length=528' Tc=3.2 min CN=83 Runoff=2.01 cfs 5,668 cf

Subcatchment WS SCH M-N: SCHOOL Runoff Area=8,413 sf 73.18% Impervious Runoff Depth=1.55"
Tc=5.0 min CN=88 Runoff=0.36 cfs 1,090 cf

Subcatchment WS SCH M-S: SCHOOL Runoff Area=8,007 sf 79.04% Impervious Runoff Depth=1.71"
Tc=5.0 min CN=90 Runoff=0.38 cfs 1,141 cf

Subcatchment WS SCH N: SCHOOL NORTH Runoff Area=31,476 sf 40.21% Impervious Runoff Depth=0.82"
Flow Length=383' Tc=1.6 min CN=76 Runoff=0.76 cfs 2,147 cf

Subcatchment WS SCH NE: SCHOOL Runoff Area=1,961 sf 100.00% Impervious Runoff Depth=2.47"
Tc=5.0 min CN=98 Runoff=0.12 cfs 404 cf

Subcatchment WS SE: SITE SOUTHEAST Runoff Area=32,465 sf 0.00% Impervious Runoff Depth=0.12"
Flow Length=100' Slope=0.3260 '/' Tc=6.9 min CN=55 Runoff=0.02 cfs 331 cf

Subcatchment WS SW: SITE SOUTHWEST Runoff Area=45,451 sf 42.52% Impervious Runoff Depth=0.87"
Flow Length=640' Tc=16.1 min CN=77 Runoff=0.73 cfs 3,290 cf

Pond 10191: CB EX 10191 Peak Elev=102.27' Inflow=2.01 cfs 5,668 cf
Primary=2.01 cfs 5,668 cf Secondary=0.00 cfs 0 cf Outflow=2.01 cfs 5,668 cf

Pond 10322: DMH EX 10322 Peak Elev=93.96' Inflow=2.01 cfs 5,668 cf
Primary=2.01 cfs 5,668 cf Secondary=0.00 cfs 0 cf Outflow=2.01 cfs 5,668 cf

Pond 111710: DMH EX 111710 Peak Elev=83.50' Inflow=5.33 cfs 23,029 cf
Primary=5.33 cfs 23,029 cf Secondary=0.00 cfs 0 cf Outflow=5.33 cfs 23,029 cf

Link L DRY: ONSITE DRYWELLS Inflow=0.87 cfs 2,635 cf
Primary=0.87 cfs 2,635 cf

Link L E: OFFSITE EAST Inflow=0.04 cfs 629 cf
Primary=0.04 cfs 629 cf

Link L GLAD: OFFSITE GLADSTONE Inflow=0.76 cfs 2,147 cf
Primary=0.76 cfs 2,147 cf

Link L S: OFFSITE SOUTH Inflow=3.42 cfs 14,071 cf
Primary=3.42 cfs 14,071 cf

Link L T: TOTAL LEAVING SITE Inflow=5.88 cfs 25,805 cf
Primary=5.88 cfs 25,805 cf

Total Runoff Area = 392,138 sf Runoff Volume = 28,439 cf Average Runoff Depth = 0.87"
57.68% Pervious = 226,184 sf 42.32% Impervious = 165,954 sf

Summary for Subcatchment WS M-W: SITE MID-WEST

Runoff = 1.10 cfs @ 12.07 hrs, Volume= 3,259 cf, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	4,421	98	Roof
*	4,619	98	Imp Surfaces & Misc Structures
	12,200	61	>75% Grass cover, Good, HSG B
	16,740	85	1/8 acre lots, 65% imp, HSG B
	37,980	80	Weighted Average
	18,059		47.55% Pervious Area
	19,921		52.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	6	0.0330	0.98		**Sheet Flow, Road** Smooth surfaces n= 0.011 P2= 3.33"
1.2	173	0.0145	2.44		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.7	259	0.0533	1.62		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.0	46	0.0800	20.37	40.73	**Channel Flow, Paved Waterway** Area= 2.0 sf Perim= 4.0' r= 0.50' n= 0.013 Asphalt, smooth
0.1	30	0.0100	4.54	3.56	**Pipe Channel, 12" VC** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay tile
4.1	514	Total			

Summary for Subcatchment WS NE: SITE NORTHEAST

Runoff = 0.02 cfs @ 12.50 hrs, Volume= 298 cf, Depth= 0.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
29,178	55	Woods, Good, HSG B
29,178		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	96	0.1666	0.18		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.33"
0.8	123	0.2440	2.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
9.5	219	Total			

Summary for Subcatchment WS NW: SITE NORTHWEST

Runoff = 2.76 cfs @ 12.17 hrs, Volume= 10,812 cf, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	3,434	98	Roof
*	50,634	98	Imp Surfaces & Misc Structures
	67,654	61	>75% Grass cover, Good, HSG B
	19,234	85	1/8 acre lots, 65% imp, HSG B
	140,956	78	Weighted Average
	74,386		52.77% Pervious Area
	66,570		47.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	18	1.0000	4.76		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
7.2	95	0.0368	0.22		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
2.3	193	0.0400	1.40		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.2	44	0.0320	3.63		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.2	126	0.0646	1.78		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.6	181	0.0140	5.37	4.22	**Pipe Channel, 12" VC Drain** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay tile
11.6	657	Total			

Summary for Subcatchment WS SCH E: SCHOOL EAST

Runoff = 2.01 cfs @ 12.05 hrs, Volume= 5,668 cf, Depth= 1.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	17,849	98	Roof
*	15,183	98	Imp Surfaces & Misc Structures
	23,219	61	>75% Grass cover, Good, HSG B
	56,251	83	Weighted Average
	23,219		41.28% Pervious Area
	33,032		58.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	41	0.0050	0.67		**Sheet Flow, Roof**
					Smooth surfaces n= 0.011 P2= 3.33"
0.9	79	0.0443	1.47		**Shallow Concentrated Flow, Grassed Slope**
					Short Grass Pasture Kv= 7.0 fps
1.3	408	0.0716	5.43		**Shallow Concentrated Flow, Gutter**
					Paved Kv= 20.3 fps
3.2	528	Total			

Summary for Subcatchment WS SCH M-N: SCHOOL MID-NORTH

Runoff = 0.36 cfs @ 12.07 hrs, Volume= 1,090 cf, Depth= 1.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	5,778	98	Roof
*	379	98	Imp Surfaces & Misc Structures
	2,256	61	>75% Grass cover, Good, HSG B
	8,413	88	Weighted Average
	2,256		26.82% Pervious Area
	6,157		73.18% Impervious Area

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

Summary for Subcatchment WS SCH M-S: SCHOOL MID-SOUTH

Runoff = 0.38 cfs @ 12.07 hrs, Volume= 1,141 cf, Depth= 1.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	5,779	98	Roof
*	453	98	Imp Surfaces & Misc Structures
*	97	98	Stairway to Pool
	1,678	61	>75% Grass cover, Good, HSG B
	8,007	90	Weighted Average
	1,678		20.96% Pervious Area
	6,329		79.04% Impervious Area

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

Summary for Subcatchment WS SCH N: SCHOOL NORTH

Runoff = 0.76 cfs @ 12.03 hrs, Volume= 2,147 cf, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	3,662	98	Roof
*	8,995	98	Imp Surfaces & Misc Structures
	18,819	61	>75% Grass cover, Good, HSG B
	31,476	76	Weighted Average
	18,819		59.79% Pervious Area
	12,657		40.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	53	0.0750	2.10		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.33"
0.5	163	0.0711	5.41		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.4	81	0.0630	3.76		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.3	86	0.0512	4.59		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.6	383	Total			

Summary for Subcatchment WS SCH NE: SCHOOL NORTHEAST

Runoff = 0.12 cfs @ 12.07 hrs, Volume= 404 cf, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	1,961	98	Roof
	1,961		100.00% Impervious Area

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

Summary for Subcatchment WS SE: SITE SOUTHEAST

Runoff = 0.02 cfs @ 12.46 hrs, Volume= 331 cf, Depth= 0.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
32,465	55	Woods, Good, HSG B
32,465		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.3260	0.24		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.33"

Summary for Subcatchment WS SW: SITE SOUTHWEST

Runoff = 0.73 cfs @ 12.24 hrs, Volume= 3,290 cf, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	4,527	98	Roof
*	7,735	98	Imp Surfaces & Misc Structures
	22,320	61	>75% Grass cover, Good, HSG B
	10,869	85	1/8 acre lots, 65% imp, HSG B
	45,451	77	Weighted Average
	26,124		57.48% Pervious Area
	19,327		42.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	100	0.0100	0.13		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
2.3	207	0.0464	1.51		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.3	65	0.0292	3.47		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.3	55	0.1400	2.62		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.5	213	0.1380	7.54		**Shallow Concentrated Flow, Pavement along School** Paved Kv= 20.3 fps
16.1	640	Total			

Summary for Pond 10191: CB EX 10191

Inflow Area = 56,251 sf, 58.72% Impervious, Inflow Depth = 1.21" for 1-YR event
Inflow = 2.01 cfs @ 12.05 hrs, Volume= 5,668 cf
Outflow = 2.01 cfs @ 12.05 hrs, Volume= 5,668 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.01 cfs @ 12.05 hrs, Volume= 5,668 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 102.27' @ 12.05 hrs
Flood Elev= 105.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.48'	**12.0" Round 12" RCP** L= 26.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 101.48' / 95.27' S= 0.2388 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	105.08'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.01 cfs @ 12.05 hrs HW=102.27' TW=93.96' (Dynamic Tailwater)
1=12" RCP (Inlet Controls 2.01 cfs @ 3.02 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=101.48' TW=81.01' (Dynamic Tailwater)
2=DMH SURCHARGE (Controls 0.00 cfs)

Summary for Pond 10322: DMH EX 10322

Inflow Area =	56,251 sf,	58.72% Impervious,	Inflow Depth = 1.21"	for 1-YR event
Inflow =	2.01 cfs @	12.05 hrs, Volume=	5,668 cf	
Outflow =	2.01 cfs @	12.05 hrs, Volume=	5,668 cf,	Atten= 0%, Lag= 0.0 min
Primary =	2.01 cfs @	12.05 hrs, Volume=	5,668 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 93.96' @ 12.05 hrs
Flood Elev= 100.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	93.17'	**12.0" Round 12" RCP** L= 181.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 93.17' / 81.11' S= 0.0666 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	100.67'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.01 cfs @ 12.05 hrs HW=93.96' TW=83.22' (Dynamic Tailwater)
1=12" RCP (Inlet Controls 2.01 cfs @ 3.02 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=93.17' TW=81.01' (Dynamic Tailwater)
2=DMH SURCHARGE (Controls 0.00 cfs)

Summary for Pond 111710: DMH EX 111710

Inflow Area =	280,638 sf,	49.48% Impervious,	Inflow Depth = 0.98"	for 1-YR event
Inflow =	5.33 cfs @	12.10 hrs, Volume=	23,029 cf	
Outflow =	5.33 cfs @	12.10 hrs, Volume=	23,029 cf,	Atten= 0%, Lag= 0.0 min
Primary =	5.33 cfs @	12.10 hrs, Volume=	23,029 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 83.50' @ 12.10 hrs
Flood Elev= 86.86'

Device	Routing	Invert	Outlet Devices
#1	Primary	81.01'	**12.0" Round 12" RCP** L= 166.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 81.01' / 66.00' S= 0.0904 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	86.86'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads
#3	Secondary	86.49'	**24.0" W x 6.0" H Vert. GICB 111708 Throat** C= 0.600

Primary OutFlow Max=5.33 cfs @ 12.10 hrs HW=83.50' TW=0.00' (Dynamic Tailwater)
└**1=12" RCP** (Inlet Controls 5.33 cfs @ 6.79 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=81.01' TW=0.00' (Dynamic Tailwater)
├**2=DMH SURCHARGE** (Controls 0.00 cfs)
└**3=GICB 111708 Throat** (Controls 0.00 cfs)

Summary for Link L DRY: ONSITE DRYWELLS

Inflow Area = 18,381 sf, 78.60% Impervious, Inflow Depth = 1.72" for 1-YR event
Inflow = 0.87 cfs @ 12.07 hrs, Volume= 2,635 cf
Primary = 0.87 cfs @ 12.07 hrs, Volume= 2,635 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L E: OFFSITE EAST

Inflow Area = 61,643 sf, 0.00% Impervious, Inflow Depth = 0.12" for 1-YR event
Inflow = 0.04 cfs @ 12.48 hrs, Volume= 629 cf
Primary = 0.04 cfs @ 12.48 hrs, Volume= 629 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L GLAD: OFFSITE GLADSTONE

Inflow Area = 31,476 sf, 40.21% Impervious, Inflow Depth = 0.82" for 1-YR event
Inflow = 0.76 cfs @ 12.03 hrs, Volume= 2,147 cf
Primary = 0.76 cfs @ 12.03 hrs, Volume= 2,147 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L S: OFFSITE SOUTH

Inflow Area = 178,936 sf, 48.34% Impervious, Inflow Depth = 0.94" for 1-YR event
Inflow = 3.42 cfs @ 12.15 hrs, Volume= 14,071 cf
Primary = 3.42 cfs @ 12.15 hrs, Volume= 14,071 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L T: TOTAL LEAVING SITE

Inflow Area =	373,757 sf,	40.54% Impervious,	Inflow Depth = 0.83"	for 1-YR event	
Inflow =	5.88 cfs @	12.08 hrs,	Volume=	25,805 cf	
Primary =	5.88 cfs @	12.08 hrs,	Volume=	25,805 cf,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

10 & 100-YR STORMS

Time span=0.00-32.00 hrs, dt=0.01 hrs, 3201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment WS M-W: SITE MID-WEST Runoff Area=37,980 sf 52.45% Impervious Runoff Depth=2.81"
Flow Length=514' Tc=4.1 min CN=80 Runoff=3.07 cfs 8,880 cf

Subcatchment WS NE: SITE NORTHEAST Runoff Area=29,178 sf 0.00% Impervious Runoff Depth=0.93"
Flow Length=219' Tc=9.5 min CN=55 Runoff=0.50 cfs 2,263 cf

Subcatchment WS NW: SITE NORTHWEST Runoff Area=140,956 sf 47.23% Impervious Runoff Depth=2.63"
Flow Length=657' Tc=11.6 min CN=78 Runoff=8.28 cfs 30,858 cf

Subcatchment WS SCH E: SCHOOL EAST Runoff Area=56,251 sf 58.72% Impervious Runoff Depth=3.08"
Flow Length=528' Tc=3.2 min CN=83 Runoff=5.15 cfs 14,455 cf

Subcatchment WS SCH M-N: SCHOOL Runoff Area=8,413 sf 73.18% Impervious Runoff Depth=3.57"
Tc=5.0 min CN=88 Runoff=0.82 cfs 2,506 cf

Subcatchment WS SCH M-S: SCHOOL Runoff Area=8,007 sf 79.04% Impervious Runoff Depth=3.78"
Tc=5.0 min CN=90 Runoff=0.82 cfs 2,522 cf

Subcatchment WS SCH N: SCHOOL NORTH Runoff Area=31,476 sf 40.21% Impervious Runoff Depth=2.45"
Flow Length=383' Tc=1.6 min CN=76 Runoff=2.43 cfs 6,435 cf

Subcatchment WS SCH NE: SCHOOL Runoff Area=1,961 sf 100.00% Impervious Runoff Depth=4.66"
Tc=5.0 min CN=98 Runoff=0.22 cfs 762 cf

Subcatchment WS SE: SITE SOUTHEAST Runoff Area=32,465 sf 0.00% Impervious Runoff Depth=0.93"
Flow Length=100' Slope=0.3260 '/' Tc=6.9 min CN=55 Runoff=0.62 cfs 2,518 cf

Subcatchment WS SW: SITE SOUTHWEST Runoff Area=45,451 sf 42.52% Impervious Runoff Depth=2.54"
Flow Length=640' Tc=16.1 min CN=77 Runoff=2.29 cfs 9,619 cf

Pond 10191: CB EX 10191 Peak Elev=103.83' Inflow=5.15 cfs 14,455 cf
Primary=5.15 cfs 14,455 cf Secondary=0.00 cfs 0 cf Outflow=5.15 cfs 14,455 cf

Pond 10322: DMH EX 10322 Peak Elev=95.52' Inflow=5.15 cfs 14,455 cf
Primary=5.15 cfs 14,455 cf Secondary=0.00 cfs 0 cf Outflow=5.15 cfs 14,455 cf

Pond 111710: DMH EX 111710 Peak Elev=87.12' Inflow=15.44 cfs 63,812 cf
Primary=8.96 cfs 58,295 cf Secondary=6.49 cfs 5,517 cf Outflow=15.44 cfs 63,812 cf

Link L DRY: ONSITE DRYWELLS Inflow=1.86 cfs 5,790 cf
Primary=1.86 cfs 5,790 cf

Link L E: OFFSITE EAST Inflow=1.10 cfs 4,780 cf
Primary=1.10 cfs 4,780 cf

Link L GLAD: OFFSITE GLADSTONE Inflow=2.43 cfs 6,435 cf
Primary=2.43 cfs 6,435 cf

Link L S: OFFSITE SOUTH

Inflow=10.16 cfs 39,738 cf
Primary=10.16 cfs 39,738 cf

Link L T: TOTAL LEAVING SITE

Inflow=18.05 cfs 75,028 cf
Primary=18.05 cfs 75,028 cf

Total Runoff Area = 392,138 sf Runoff Volume = 80,818 cf Average Runoff Depth = 2.47"
57.68% Pervious = 226,184 sf 42.32% Impervious = 165,954 sf

Summary for Subcatchment WS M-W: SITE MID-WEST

Runoff = 3.07 cfs @ 12.06 hrs, Volume= 8,880 cf, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	4,421	98	Roof
*	4,619	98	Imp Surfaces & Misc Structures
	12,200	61	>75% Grass cover, Good, HSG B
	16,740	85	1/8 acre lots, 65% imp, HSG B
	37,980	80	Weighted Average
	18,059		47.55% Pervious Area
	19,921		52.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	6	0.0330	0.98		**Sheet Flow, Road** Smooth surfaces n= 0.011 P2= 3.33"
1.2	173	0.0145	2.44		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.7	259	0.0533	1.62		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.0	46	0.0800	20.37	40.73	**Channel Flow, Paved Waterway** Area= 2.0 sf Perim= 4.0' r= 0.50' n= 0.013 Asphalt, smooth
0.1	30	0.0100	4.54	3.56	**Pipe Channel, 12" VC** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay tile
4.1	514	Total			

Summary for Subcatchment WS NE: SITE NORTHEAST

Runoff = 0.50 cfs @ 12.16 hrs, Volume= 2,263 cf, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
29,178	55	Woods, Good, HSG B
29,178		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	96	0.1666	0.18		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.33"
0.8	123	0.2440	2.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
9.5	219	Total			

Summary for Subcatchment WS NW: SITE NORTHWEST

Runoff = 8.28 cfs @ 12.16 hrs, Volume= 30,858 cf, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	3,434	98	Roof
*	50,634	98	Imp Surfaces & Misc Structures
	67,654	61	>75% Grass cover, Good, HSG B
	19,234	85	1/8 acre lots, 65% imp, HSG B
	140,956	78	Weighted Average
	74,386		52.77% Pervious Area
	66,570		47.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	18	1.0000	4.76		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
7.2	95	0.0368	0.22		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
2.3	193	0.0400	1.40		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.2	44	0.0320	3.63		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.2	126	0.0646	1.78		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.6	181	0.0140	5.37	4.22	**Pipe Channel, 12" VC Drain** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay tile
11.6	657	Total			

Summary for Subcatchment WS SCH E: SCHOOL EAST

Runoff = 5.15 cfs @ 12.05 hrs, Volume= 14,455 cf, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	17,849	98	Roof
*	15,183	98	Imp Surfaces & Misc Structures
	23,219	61	>75% Grass cover, Good, HSG B
	56,251	83	Weighted Average
	23,219		41.28% Pervious Area
	33,032		58.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	41	0.0050	0.67		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
0.9	79	0.0443	1.47		**Shallow Concentrated Flow, Grassed Slope** Short Grass Pasture Kv= 7.0 fps
1.3	408	0.0716	5.43		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
3.2	528	Total			

Summary for Subcatchment WS SCH M-N: SCHOOL MID-NORTH

Runoff = 0.82 cfs @ 12.07 hrs, Volume= 2,506 cf, Depth= 3.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	5,778	98	Roof
*	379	98	Imp Surfaces & Misc Structures
	2,256	61	>75% Grass cover, Good, HSG B
	8,413	88	Weighted Average
	2,256		26.82% Pervious Area
	6,157		73.18% Impervious Area

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

Summary for Subcatchment WS SCH M-S: SCHOOL MID-SOUTH

Runoff = 0.82 cfs @ 12.07 hrs, Volume= 2,522 cf, Depth= 3.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	5,779	98	Roof
*	453	98	Imp Surfaces & Misc Structures
*	97	98	Stairway to Pool
	1,678	61	>75% Grass cover, Good, HSG B
	8,007	90	Weighted Average
	1,678		20.96% Pervious Area
	6,329		79.04% Impervious Area

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

Summary for Subcatchment WS SCH N: SCHOOL NORTH

Runoff = 2.43 cfs @ 12.03 hrs, Volume= 6,435 cf, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	3,662	98	Roof
*	8,995	98	Imp Surfaces & Misc Structures
	18,819	61	>75% Grass cover, Good, HSG B
	31,476	76	Weighted Average
	18,819		59.79% Pervious Area
	12,657		40.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	53	0.0750	2.10		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.33"
0.5	163	0.0711	5.41		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.4	81	0.0630	3.76		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.3	86	0.0512	4.59		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.6	383	Total			

Summary for Subcatchment WS SCH NE: SCHOOL NORTHEAST

Runoff = 0.22 cfs @ 12.07 hrs, Volume= 762 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	1,961	98	Roof
	1,961		100.00% Impervious Area

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

Summary for Subcatchment WS SE: SITE SOUTHEAST

Runoff = 0.62 cfs @ 12.12 hrs, Volume= 2,518 cf, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
32,465	55	Woods, Good, HSG B
32,465		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.3260	0.24		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.33"

Summary for Subcatchment WS SW: SITE SOUTHWEST

Runoff = 2.29 cfs @ 12.22 hrs, Volume= 9,619 cf, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	4,527	98	Roof
*	7,735	98	Imp Surfaces & Misc Structures
	22,320	61	>75% Grass cover, Good, HSG B
	10,869	85	1/8 acre lots, 65% imp, HSG B
	45,451	77	Weighted Average
	26,124		57.48% Pervious Area
	19,327		42.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	100	0.0100	0.13		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
2.3	207	0.0464	1.51		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.3	65	0.0292	3.47		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.3	55	0.1400	2.62		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.5	213	0.1380	7.54		**Shallow Concentrated Flow, Pavement along School** Paved Kv= 20.3 fps
16.1	640	Total			

Summary for Pond 10191: CB EX 10191

Inflow Area = 56,251 sf, 58.72% Impervious, Inflow Depth = 3.08" for 10-YR event
Inflow = 5.15 cfs @ 12.05 hrs, Volume= 14,455 cf
Outflow = 5.15 cfs @ 12.05 hrs, Volume= 14,455 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.15 cfs @ 12.05 hrs, Volume= 14,455 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 103.83' @ 12.05 hrs
Flood Elev= 105.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.48'	**12.0" Round 12" RCP** L= 26.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 101.48' / 95.27' S= 0.2388 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	105.08'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.14 cfs @ 12.05 hrs HW=103.83' TW=95.52' (Dynamic Tailwater)
↑—**1=12" RCP** (Inlet Controls 5.14 cfs @ 6.54 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=101.48' TW=81.01' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond 10322: DMH EX 10322

Inflow Area = 56,251 sf, 58.72% Impervious, Inflow Depth = 3.08" for 10-YR event
Inflow = 5.15 cfs @ 12.05 hrs, Volume= 14,455 cf
Outflow = 5.15 cfs @ 12.05 hrs, Volume= 14,455 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.15 cfs @ 12.05 hrs, Volume= 14,455 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 95.52' @ 12.05 hrs
Flood Elev= 100.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	93.17'	**12.0" Round 12" RCP** L= 181.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 93.17' / 81.11' S= 0.0666 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	100.67'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.14 cfs @ 12.05 hrs HW=95.52' TW=87.07' (Dynamic Tailwater)
↑—**1=12" RCP** (Inlet Controls 5.14 cfs @ 6.54 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=93.17' TW=81.01' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond 111710: DMH EX 111710

Inflow Area = 280,638 sf, 49.48% Impervious, Inflow Depth = 2.73" for 10-YR event
Inflow = 15.44 cfs @ 12.10 hrs, Volume= 63,812 cf
Outflow = 15.44 cfs @ 12.10 hrs, Volume= 63,812 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.96 cfs @ 12.10 hrs, Volume= 58,295 cf
Secondary = 6.49 cfs @ 12.10 hrs, Volume= 5,517 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 87.12' @ 12.10 hrs
Flood Elev= 86.86'

Device	Routing	Invert	Outlet Devices
#1	Primary	81.01'	**12.0" Round 12" RCP** L= 166.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 81.01' / 66.00' S= 0.0904 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	86.86'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads
#3	Secondary	86.49'	**24.0" W x 6.0" H Vert. GICB 111708 Throat** C= 0.600

Primary OutFlow Max=8.96 cfs @ 12.10 hrs HW=87.12' TW=0.00' (Dynamic Tailwater)
└─**1=12" RCP** (Inlet Controls 8.96 cfs @ 11.40 fps)

Secondary OutFlow Max=6.48 cfs @ 12.10 hrs HW=87.12' TW=0.00' (Dynamic Tailwater)
├─**2=DMH SURCHARGE** (Weir Controls 3.58 cfs @ 1.66 fps)
└─**3=GICB 111708 Throat** (Orifice Controls 2.90 cfs @ 2.90 fps)

Summary for Link L DRY: ONSITE DRYWELLS

Inflow Area = 18,381 sf, 78.60% Impervious, Inflow Depth = 3.78" for 10-YR event
Inflow = 1.86 cfs @ 12.07 hrs, Volume= 5,790 cf
Primary = 1.86 cfs @ 12.07 hrs, Volume= 5,790 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L E: OFFSITE EAST

Inflow Area = 61,643 sf, 0.00% Impervious, Inflow Depth = 0.93" for 10-YR event
Inflow = 1.10 cfs @ 12.14 hrs, Volume= 4,780 cf
Primary = 1.10 cfs @ 12.14 hrs, Volume= 4,780 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L GLAD: OFFSITE GLADSTONE

Inflow Area = 31,476 sf, 40.21% Impervious, Inflow Depth = 2.45" for 10-YR event
Inflow = 2.43 cfs @ 12.03 hrs, Volume= 6,435 cf
Primary = 2.43 cfs @ 12.03 hrs, Volume= 6,435 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L S: OFFSITE SOUTH

Inflow Area = 178,936 sf, 48.34% Impervious, Inflow Depth = 2.66" for 10-YR event
Inflow = 10.16 cfs @ 12.13 hrs, Volume= 39,738 cf
Primary = 10.16 cfs @ 12.13 hrs, Volume= 39,738 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L T: TOTAL LEAVING SITE

Inflow Area =	373,757 sf,	40.54% Impervious,	Inflow Depth = 2.41"	for 10-YR event
Inflow =	18.05 cfs @	12.09 hrs, Volume=	75,028 cf	
Primary =	18.05 cfs @	12.09 hrs, Volume=	75,028 cf,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Time span=0.00-32.00 hrs, dt=0.01 hrs, 3201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment WS M-W: SITE MID-WEST Runoff Area=37,980 sf 52.45% Impervious Runoff Depth=6.28"
Flow Length=514' Tc=4.1 min CN=80 Runoff=6.74 cfs 19,889 cf

Subcatchment WS NE: SITE NORTHEAST Runoff Area=29,178 sf 0.00% Impervious Runoff Depth=3.27"
Flow Length=219' Tc=9.5 min CN=55 Runoff=2.21 cfs 7,958 cf

Subcatchment WS NW: SITE NORTHWEST Runoff Area=140,956 sf 47.23% Impervious Runoff Depth=6.04"
Flow Length=657' Tc=11.6 min CN=78 Runoff=18.84 cfs 70,965 cf

Subcatchment WS SCH E: SCHOOL EAST Runoff Area=56,251 sf 58.72% Impervious Runoff Depth=6.65"
Flow Length=528' Tc=3.2 min CN=83 Runoff=10.78 cfs 31,163 cf

Subcatchment WS SCH M-N: SCHOOL Runoff Area=8,413 sf 73.18% Impervious Runoff Depth=7.25"
Tc=5.0 min CN=88 Runoff=1.60 cfs 5,085 cf

Subcatchment WS SCH M-S: SCHOOL Runoff Area=8,007 sf 79.04% Impervious Runoff Depth=7.50"
Tc=5.0 min CN=90 Runoff=1.56 cfs 5,001 cf

Subcatchment WS SCH N: SCHOOL NORTH Runoff Area=31,476 sf 40.21% Impervious Runoff Depth=5.80"
Flow Length=383' Tc=1.6 min CN=76 Runoff=5.71 cfs 15,210 cf

Subcatchment WS SCH NE: SCHOOL Runoff Area=1,961 sf 100.00% Impervious Runoff Depth=8.46"
Tc=5.0 min CN=98 Runoff=0.40 cfs 1,382 cf

Subcatchment WS SE: SITE SOUTHEAST Runoff Area=32,465 sf 0.00% Impervious Runoff Depth=3.27"
Flow Length=100' Slope=0.3260 '/' Tc=6.9 min CN=55 Runoff=2.69 cfs 8,854 cf

Subcatchment WS SW: SITE SOUTHWEST Runoff Area=45,451 sf 42.52% Impervious Runoff Depth=5.92"
Flow Length=640' Tc=16.1 min CN=77 Runoff=5.30 cfs 22,423 cf

Pond 10191: CB EX 10191 Peak Elev=105.35' Inflow=10.78 cfs 31,163 cf
Primary=6.94 cfs 29,966 cf Secondary=3.83 cfs 1,197 cf Outflow=10.78 cfs 31,163 cf

Pond 10322: DMH EX 10322 Peak Elev=97.04' Inflow=6.94 cfs 29,966 cf
Primary=6.94 cfs 29,966 cf Secondary=0.00 cfs 0 cf Outflow=6.94 cfs 29,966 cf

Pond 111710: DMH EX 111710 Peak Elev=87.68' Inflow=34.55 cfs 144,440 cf
Primary=9.40 cfs 109,923 cf Secondary=25.16 cfs 34,517 cf Outflow=34.55 cfs 144,440 cf

Link L DRY: ONSITE DRYWELLS Inflow=3.56 cfs 11,469 cf
Primary=3.56 cfs 11,469 cf

Link L E: OFFSITE EAST Inflow=4.82 cfs 16,812 cf
Primary=4.82 cfs 16,812 cf

Link L GLAD: OFFSITE GLADSTONE Inflow=5.71 cfs 15,210 cf
Primary=5.71 cfs 15,210 cf

Link L S: OFFSITE SOUTH Inflow=22.99 cfs 90,854 cf
Primary=22.99 cfs 90,854 cf

Link L T: TOTAL LEAVING SITE Inflow=42.89 cfs 176,462 cf
Primary=42.89 cfs 176,462 cf

Total Runoff Area = 392,138 sf Runoff Volume = 187,932 cf Average Runoff Depth = 5.75"
57.68% Pervious = 226,184 sf 42.32% Impervious = 165,954 sf

Summary for Subcatchment WS M-W: SITE MID-WEST

Runoff = 6.74 cfs @ 12.06 hrs, Volume= 19,889 cf, Depth= 6.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	4,421	98	Roof
*	4,619	98	Imp Surfaces & Misc Structures
	12,200	61	>75% Grass cover, Good, HSG B
	16,740	85	1/8 acre lots, 65% imp, HSG B
	37,980	80	Weighted Average
	18,059		47.55% Pervious Area
	19,921		52.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	6	0.0330	0.98		**Sheet Flow, Road** Smooth surfaces n= 0.011 P2= 3.33"
1.2	173	0.0145	2.44		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.7	259	0.0533	1.62		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.0	46	0.0800	20.37	40.73	**Channel Flow, Paved Waterway** Area= 2.0 sf Perim= 4.0' r= 0.50' n= 0.013 Asphalt, smooth
0.1	30	0.0100	4.54	3.56	**Pipe Channel, 12" VC** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay tile
4.1	514	Total			

Summary for Subcatchment WS NE: SITE NORTHEAST

Runoff = 2.21 cfs @ 12.14 hrs, Volume= 7,958 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

Area (sf)	CN	Description
29,178	55	Woods, Good, HSG B
29,178		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	96	0.1666	0.18		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.33"
0.8	123	0.2440	2.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
9.5	219	Total			

Summary for Subcatchment WS NW: SITE NORTHWEST

Runoff = 18.84 cfs @ 12.16 hrs, Volume= 70,965 cf, Depth= 6.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	3,434	98	Roof
*	50,634	98	Imp Surfaces & Misc Structures
	67,654	61	>75% Grass cover, Good, HSG B
	19,234	85	1/8 acre lots, 65% imp, HSG B
	140,956	78	Weighted Average
	74,386		52.77% Pervious Area
	66,570		47.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	18	1.0000	4.76		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
7.2	95	0.0368	0.22		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
2.3	193	0.0400	1.40		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.2	44	0.0320	3.63		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.2	126	0.0646	1.78		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.6	181	0.0140	5.37	4.22	**Pipe Channel, 12" VC Drain** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Clay tile
11.6	657	Total			

Summary for Subcatchment WS SCH E: SCHOOL EAST

Runoff = 10.78 cfs @ 12.05 hrs, Volume= 31,163 cf, Depth= 6.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	17,849	98	Roof
*	15,183	98	Imp Surfaces & Misc Structures
	23,219	61	>75% Grass cover, Good, HSG B
	56,251	83	Weighted Average
	23,219		41.28% Pervious Area
	33,032		58.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	41	0.0050	0.67		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
0.9	79	0.0443	1.47		**Shallow Concentrated Flow, Grassed Slope** Short Grass Pasture Kv= 7.0 fps
1.3	408	0.0716	5.43		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
3.2	528	Total			

Summary for Subcatchment WS SCH M-N: SCHOOL MID-NORTH

Runoff = 1.60 cfs @ 12.07 hrs, Volume= 5,085 cf, Depth= 7.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	5,778	98	Roof
*	379	98	Imp Surfaces & Misc Structures
	2,256	61	>75% Grass cover, Good, HSG B
	8,413	88	Weighted Average
	2,256		26.82% Pervious Area
	6,157		73.18% Impervious Area

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

Summary for Subcatchment WS SCH M-S: SCHOOL MID-SOUTH

Runoff = 1.56 cfs @ 12.07 hrs, Volume= 5,001 cf, Depth= 7.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	5,779	98	Roof
*	453	98	Imp Surfaces & Misc Structures
*	97	98	Stairway to Pool
	1,678	61	>75% Grass cover, Good, HSG B
	8,007	90	Weighted Average
	1,678		20.96% Pervious Area
	6,329		79.04% Impervious Area

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

Summary for Subcatchment WS SCH N: SCHOOL NORTH

Runoff = 5.71 cfs @ 12.02 hrs, Volume= 15,210 cf, Depth= 5.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	3,662	98	Roof
*	8,995	98	Imp Surfaces & Misc Structures
	18,819	61	>75% Grass cover, Good, HSG B
	31,476	76	Weighted Average
	18,819		59.79% Pervious Area
	12,657		40.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	53	0.0750	2.10		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.33"
0.5	163	0.0711	5.41		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.4	81	0.0630	3.76		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.3	86	0.0512	4.59		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.6	383	Total			

Summary for Subcatchment WS SCH NE: SCHOOL NORTHEAST

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 1,382 cf, Depth= 8.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	1,961	98	Roof
	1,961		100.00% Impervious Area

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

Summary for Subcatchment WS SE: SITE SOUTHEAST

Runoff = 2.69 cfs @ 12.11 hrs, Volume= 8,854 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
	32,465	55	Woods, Good, HSG B
	32,465		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.3260	0.24		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.33"

Summary for Subcatchment WS SW: SITE SOUTHWEST

Runoff = 5.30 cfs @ 12.22 hrs, Volume= 22,423 cf, Depth= 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	4,527	98	Roof
*	7,735	98	Imp Surfaces & Misc Structures
	22,320	61	>75% Grass cover, Good, HSG B
	10,869	85	1/8 acre lots, 65% imp, HSG B
	45,451	77	Weighted Average
	26,124		57.48% Pervious Area
	19,327		42.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	100	0.0100	0.13		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
2.3	207	0.0464	1.51		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.3	65	0.0292	3.47		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.3	55	0.1400	2.62		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.5	213	0.1380	7.54		**Shallow Concentrated Flow, Pavement along School** Paved Kv= 20.3 fps
16.1	640	Total			

Summary for Pond 10191: CB EX 10191

Inflow Area = 56,251 sf, 58.72% Impervious, Inflow Depth = 6.65" for 100-YR event
Inflow = 10.78 cfs @ 12.05 hrs, Volume= 31,163 cf
Outflow = 10.78 cfs @ 12.05 hrs, Volume= 31,163 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.94 cfs @ 12.05 hrs, Volume= 29,966 cf
Secondary = 3.83 cfs @ 12.05 hrs, Volume= 1,197 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 105.35' @ 12.05 hrs
Flood Elev= 105.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.48'	**12.0" Round 12" RCP** L= 26.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 101.48' / 95.27' S= 0.2388 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	105.08'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=6.94 cfs @ 12.05 hrs HW=105.35' TW=97.04' (Dynamic Tailwater)
↑—**1=12" RCP** (Inlet Controls 6.94 cfs @ 8.84 fps)

Secondary OutFlow Max=3.81 cfs @ 12.05 hrs HW=105.35' TW=87.62' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Weir Controls 3.81 cfs @ 1.69 fps)

Summary for Pond 10322: DMH EX 10322

Inflow Area =	56,251 sf,	58.72% Impervious,	Inflow Depth = 6.39"	for 100-YR event	
Inflow =	6.94 cfs @	12.05 hrs,	Volume=	29,966 cf	
Outflow =	6.94 cfs @	12.05 hrs,	Volume=	29,966 cf,	Atten= 0%, Lag= 0.0 min
Primary =	6.94 cfs @	12.05 hrs,	Volume=	29,966 cf	
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 97.04' @ 12.05 hrs
Flood Elev= 100.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	93.17'	**12.0" Round 12" RCP** L= 181.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 93.17' / 81.11' S= 0.0666 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	100.67'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=6.94 cfs @ 12.05 hrs HW=97.04' TW=87.62' (Dynamic Tailwater)
↑—**1=12" RCP** (Inlet Controls 6.94 cfs @ 8.84 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=93.17' TW=81.01' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond 111710: DMH EX 111710

Inflow Area =	280,638 sf,	49.48% Impervious,	Inflow Depth = 6.18"	for 100-YR event	
Inflow =	34.55 cfs @	12.10 hrs,	Volume=	144,440 cf	
Outflow =	34.55 cfs @	12.10 hrs,	Volume=	144,440 cf,	Atten= 0%, Lag= 0.0 min
Primary =	9.40 cfs @	12.10 hrs,	Volume=	109,923 cf	
Secondary =	25.16 cfs @	12.10 hrs,	Volume=	34,517 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 87.68' @ 12.10 hrs
Flood Elev= 86.86'

Device	Routing	Invert	Outlet Devices
#1	Primary	81.01'	**12.0" Round 12" RCP** L= 166.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 81.01' / 66.00' S= 0.0904 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	86.86'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads
#3	Secondary	86.49'	**24.0" W x 6.0" H Vert. GICB 111708 Throat** C= 0.600

Primary OutFlow Max=9.40 cfs @ 12.10 hrs HW=87.68' TW=0.00' (Dynamic Tailwater)
└─**1=12" RCP** (Inlet Controls 9.40 cfs @ 11.96 fps)

Secondary OutFlow Max=25.14 cfs @ 12.10 hrs HW=87.68' TW=0.00' (Dynamic Tailwater)
├─**2=DMH SURCHARGE** (Weir Controls 20.47 cfs @ 2.97 fps)
└─**3=GICB 111708 Throat** (Orifice Controls 4.66 cfs @ 4.66 fps)

Summary for Link L DRY: ONSITE DRYWELLS

Inflow Area = 18,381 sf, 78.60% Impervious, Inflow Depth = 7.49" for 100-YR event
Inflow = 3.56 cfs @ 12.07 hrs, Volume= 11,469 cf
Primary = 3.56 cfs @ 12.07 hrs, Volume= 11,469 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L E: OFFSITE EAST

Inflow Area = 61,643 sf, 0.00% Impervious, Inflow Depth = 3.27" for 100-YR event
Inflow = 4.82 cfs @ 12.12 hrs, Volume= 16,812 cf
Primary = 4.82 cfs @ 12.12 hrs, Volume= 16,812 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L GLAD: OFFSITE GLADSTONE

Inflow Area = 31,476 sf, 40.21% Impervious, Inflow Depth = 5.80" for 100-YR event
Inflow = 5.71 cfs @ 12.02 hrs, Volume= 15,210 cf
Primary = 5.71 cfs @ 12.02 hrs, Volume= 15,210 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L S: OFFSITE SOUTH

Inflow Area = 178,936 sf, 48.34% Impervious, Inflow Depth = 6.09" for 100-YR event
Inflow = 22.99 cfs @ 12.13 hrs, Volume= 90,854 cf
Primary = 22.99 cfs @ 12.13 hrs, Volume= 90,854 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L T: TOTAL LEAVING SITE

Inflow Area = 373,757 sf, 40.54% Impervious, Inflow Depth = 5.67" for 100-YR event
Inflow = 42.89 cfs @ 12.09 hrs, Volume= 176,462 cf
Primary = 42.89 cfs @ 12.09 hrs, Volume= 176,462 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

F-3 HYDROCAD PRINTOUTS – PROPOSED CONDITIONS

1-YR. STORM

Time span=0.00-32.00 hrs, dt=0.01 hrs, 3201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment WS 10191: WS 10191 Runoff Area=15,671 sf 57.83% Impervious Runoff Depth=1.15"
Flow Length=727' Tc=10.7 min CN=82 Runoff=0.41 cfs 1,498 cf

Subcatchment WS BSN N: WS BSN N Runoff Area=10,761 sf 4.48% Impervious Runoff Depth=0.31"
Tc=5.0 min CN=63 Runoff=0.05 cfs 282 cf

Subcatchment WS BSN S: WS BSN S Runoff Area=52,372 sf 36.69% Impervious Runoff Depth=0.77"
Flow Length=727' Tc=10.7 min CN=75 Runoff=0.85 cfs 3,362 cf

Subcatchment WS N: SITE NORTH Runoff Area=19,522 sf 30.20% Impervious Runoff Depth=0.64"
Flow Length=383' Tc=1.6 min CN=72 Runoff=0.34 cfs 1,034 cf

Subcatchment WS N2A: WS N2A Runoff Area=3,496 sf 63.30% Impervious Runoff Depth=1.27"
Tc=5.0 min CN=84 Runoff=0.12 cfs 371 cf

Subcatchment WS N2B: WS N2B Runoff Area=4,068 sf 39.87% Impervious Runoff Depth=0.82"
Tc=5.0 min CN=76 Runoff=0.09 cfs 278 cf

Subcatchment WS N3A: WS N3A Runoff Area=10,921 sf 19.21% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=68 Runoff=0.11 cfs 435 cf

Subcatchment WS N4A: WS N4A Runoff Area=669 sf 0.00% Impervious Runoff Depth=0.26"
Tc=5.0 min CN=61 Runoff=0.00 cfs 14 cf

Subcatchment WS N5-1A: WS N5-1A Runoff Area=6,543 sf 65.99% Impervious Runoff Depth=1.34"
Tc=5.0 min CN=85 Runoff=0.24 cfs 730 cf

Subcatchment WS N5-1B: WS N5-1B Runoff Area=2,766 sf 100.00% Impervious Runoff Depth=2.47"
Tc=5.0 min CN=98 Runoff=0.17 cfs 569 cf

Subcatchment WS N5A: WS N5A Runoff Area=2,547 sf 90.54% Impervious Runoff Depth=2.06"
Tc=5.0 min CN=94 Runoff=0.14 cfs 437 cf

Subcatchment WS N5B: WS N5B Runoff Area=12,154 sf 55.69% Impervious Runoff Depth=1.15"
Tc=5.0 min CN=82 Runoff=0.38 cfs 1,162 cf

Subcatchment WS N6A: WS N6A Runoff Area=1,851 sf 58.35% Impervious Runoff Depth=1.21"
Tc=5.0 min CN=83 Runoff=0.06 cfs 187 cf

Subcatchment WS N6B: WS N6B Runoff Area=1,431 sf 89.31% Impervious Runoff Depth=2.06"
Tc=5.0 min CN=94 Runoff=0.08 cfs 246 cf

Subcatchment WS N7A: WS N7A Runoff Area=45,199 sf 64.27% Impervious Runoff Depth=1.34"
Flow Length=521' Tc=11.0 min CN=85 Runoff=1.38 cfs 5,046 cf

Subcatchment WS N7B: WS N7B Runoff Area=34,226 sf 51.20% Impervious Runoff Depth=1.03"
Flow Length=340' Tc=2.6 min CN=80 Runoff=1.05 cfs 2,937 cf

Subcatchment WS NE: WOODS NORTHEAST Runoff Area=29,178 sf 0.00% Impervious Runoff Depth=0.12"
Flow Length=219' Tc=9.5 min CN=55 Runoff=0.02 cfs 298 cf

Subcatchment WS NE1A: WS NE1A Runoff Area=1,234 sf 65.48% Impervious Runoff Depth=1.34"
Tc=5.0 min CN=85 Runoff=0.05 cfs 138 cf

Subcatchment WS NE1B: WS NE1B Runoff Area=1,316 sf 64.29% Impervious Runoff Depth=1.34"
Tc=5.0 min CN=85 Runoff=0.05 cfs 147 cf

Subcatchment WS RF N: WS ROOF N Runoff Area=9,011 sf 100.00% Impervious Runoff Depth=2.47"
Flow Length=90' Slope=0.0050 '/' Tc=1.9 min CN=98 Runoff=0.62 cfs 1,854 cf

Subcatchment WS RF S: WS ROOF S Runoff Area=24,651 sf 100.00% Impervious Runoff Depth=2.47"
Flow Length=90' Slope=0.0050 '/' Tc=1.9 min CN=98 Runoff=1.71 cfs 5,073 cf

Subcatchment WS S1A: WS S1A Runoff Area=12,398 sf 73.86% Impervious Runoff Depth=1.55"
Tc=5.0 min CN=88 Runoff=0.54 cfs 1,606 cf

Subcatchment WS S1B: WS S1B Runoff Area=20,909 sf 64.68% Impervious Runoff Depth=1.34"
Tc=5.0 min CN=85 Runoff=0.78 cfs 2,334 cf

Subcatchment WS SE: WOODS SOUTHEAST Runoff Area=32,465 sf 0.00% Impervious Runoff Depth=0.12"
Flow Length=100' Slope=0.3260 '/' Tc=6.9 min CN=55 Runoff=0.02 cfs 331 cf

Subcatchment WS SF: WS SF Runoff Area=4,712 sf 2.42% Impervious Runoff Depth=0.29"
Tc=5.0 min CN=62 Runoff=0.02 cfs 112 cf

Subcatchment WS STE SE: SITE SOUTHEAST Runoff Area=9,338 sf 59.97% Impervious Runoff Depth=1.21"
Tc=5.0 min CN=83 Runoff=0.31 cfs 941 cf

Subcatchment WS SW1: WS SW1 Runoff Area=6,395 sf 75.18% Impervious Runoff Depth=1.63"
Tc=5.0 min CN=89 Runoff=0.29 cfs 869 cf

Subcatchment WS SW2: WS SW2 Runoff Area=18,007 sf 18.73% Impervious Runoff Depth=0.48"
Flow Length=254' Tc=18.6 min CN=68 Runoff=0.12 cfs 718 cf

Pond 10191: GICB EX 10191 Peak Elev=102.32' Inflow=0.41 cfs 1,498 cf
Primary=0.41 cfs 1,498 cf Secondary=0.00 cfs 0 cf Outflow=0.41 cfs 1,498 cf

Pond 10322: DMH EX 10322 Peak Elev=94.09' Inflow=2.48 cfs 17,022 cf
Primary=2.48 cfs 17,022 cf Secondary=0.00 cfs 0 cf Outflow=2.48 cfs 17,022 cf

Pond 111710: DMH EX 111710 Peak Elev=82.02' Inflow=2.70 cfs 17,963 cf
Primary=2.70 cfs 17,963 cf Secondary=0.00 cfs 0 cf Outflow=2.70 cfs 17,963 cf

Pond N0: DMH N0 Peak Elev=133.51' Inflow=2.35 cfs 3,543 cf
Primary=2.35 cfs 3,543 cf Secondary=0.00 cfs 0 cf Outflow=2.35 cfs 3,543 cf

Pond N1: DMH N1 Peak Elev=134.17' Inflow=5.36 cfs 19,341 cf
Primary=3.01 cfs 15,797 cf Secondary=2.35 cfs 3,543 cf Tertiary=0.00 cfs 0 cf Outflow=5.36 cfs 19,341 cf

Pond N2: DMH N2 Peak Elev=135.81' Inflow=0.21 cfs 648 cf
Primary=0.21 cfs 648 cf Secondary=0.00 cfs 0 cf Outflow=0.21 cfs 648 cf

Pond N2A: CB N2A Peak Elev=136.06' Inflow=0.12 cfs 371 cf
Primary=0.12 cfs 371 cf Secondary=0.00 cfs 0 cf Outflow=0.12 cfs 371 cf

Pond N2B: CB N2B Peak Elev=136.05' Inflow=0.09 cfs 278 cf
Primary=0.09 cfs 278 cf Secondary=0.00 cfs 0 cf Outflow=0.09 cfs 278 cf

Pond N3: DMH N3 Peak Elev=136.63' Storage=32 cf Inflow=5.17 cfs 18,692 cf
Primary=5.17 cfs 18,692 cf Secondary=0.00 cfs 0 cf Outflow=5.17 cfs 18,692 cf

Pond N3A: DI N3A Peak Elev=147.49' Inflow=0.11 cfs 435 cf
Primary=0.11 cfs 435 cf Secondary=0.00 cfs 0 cf Outflow=0.11 cfs 435 cf

Pond N4: DMH N4 Peak Elev=142.62' Inflow=5.08 cfs 18,257 cf
Primary=5.08 cfs 18,257 cf Secondary=0.00 cfs 0 cf Outflow=5.08 cfs 18,257 cf

Pond N4A: DI N4A Peak Elev=147.22' Inflow=0.00 cfs 14 cf
Primary=0.00 cfs 14 cf Secondary=0.00 cfs 0 cf Outflow=0.00 cfs 14 cf

Pond N5: DMH N5 Peak Elev=143.28' Inflow=5.08 cfs 18,243 cf
Primary=5.08 cfs 18,243 cf Secondary=0.00 cfs 0 cf Outflow=5.08 cfs 18,243 cf

Pond N5-1: DMH N5-1 Peak Elev=144.72' Inflow=0.42 cfs 1,300 cf
Primary=0.42 cfs 1,300 cf Secondary=0.00 cfs 0 cf Outflow=0.42 cfs 1,300 cf

Pond N5-1A: CB N5-1A Peak Elev=145.07' Inflow=0.24 cfs 730 cf
Primary=0.24 cfs 730 cf Secondary=0.00 cfs 0 cf Outflow=0.24 cfs 730 cf

Pond N5-1B: CB N5-1B Peak Elev=144.99' Inflow=0.17 cfs 569 cf
Primary=0.17 cfs 569 cf Secondary=0.00 cfs 0 cf Outflow=0.17 cfs 569 cf

Pond N5A: CB N5A Peak Elev=147.78' Inflow=0.14 cfs 437 cf
Primary=0.14 cfs 437 cf Secondary=0.00 cfs 0 cf Outflow=0.14 cfs 437 cf

Pond N5B: CB N5B Peak Elev=147.81' Inflow=0.38 cfs 1,162 cf
Primary=0.38 cfs 1,162 cf Secondary=0.00 cfs 0 cf Outflow=0.38 cfs 1,162 cf

Pond N6: DMH N6 Peak Elev=144.93' Inflow=4.24 cfs 15,343 cf
Primary=4.24 cfs 15,343 cf Secondary=0.00 cfs 0 cf Outflow=4.24 cfs 15,343 cf

Pond N6-1: DMH N6-1 Peak Elev=148.90' Inflow=2.33 cfs 6,928 cf
Primary=2.33 cfs 6,928 cf Secondary=0.00 cfs 0 cf Outflow=2.33 cfs 6,928 cf

Pond N6A: CB N6A Peak Elev=150.12' Inflow=0.06 cfs 187 cf
Primary=0.06 cfs 187 cf Secondary=0.00 cfs 0 cf Outflow=0.06 cfs 187 cf

Pond N6B: CB N6B Peak Elev=150.14' Inflow=0.08 cfs 246 cf
Primary=0.08 cfs 246 cf Secondary=0.00 cfs 0 cf Outflow=0.08 cfs 246 cf

Pond N7: DMH N7 Peak Elev=147.01' Inflow=2.00 cfs 7,983 cf
Primary=2.00 cfs 7,983 cf Secondary=0.00 cfs 0 cf Outflow=2.00 cfs 7,983 cf

Pond N7A: DGCB N7A Peak Elev=150.27' Inflow=1.38 cfs 5,046 cf
Primary=1.38 cfs 5,046 cf Secondary=0.00 cfs 0 cf Outflow=1.38 cfs 5,046 cf

Pond N7B: CB N7B Peak Elev=150.36' Inflow=1.05 cfs 2,937 cf
Primary=1.05 cfs 2,937 cf Secondary=0.00 cfs 0 cf Outflow=1.05 cfs 2,937 cf

Pond NE1: DMH NE1 Peak Elev=133.95' Inflow=0.10 cfs 285 cf
Primary=0.10 cfs 284 cf Secondary=0.00 cfs 0 cf Outflow=0.10 cfs 284 cf

Pond NE1A: DI NE1A Peak Elev=133.95' Inflow=0.05 cfs 138 cf
Primary=0.05 cfs 138 cf Secondary=0.00 cfs 0 cf Outflow=0.05 cfs 138 cf

Pond NE1B: DI NE1B Peak Elev=133.95' Inflow=0.05 cfs 147 cf
Primary=0.05 cfs 147 cf Secondary=0.00 cfs 0 cf Outflow=0.05 cfs 147 cf

Pond P BSN N: DETENTION BASIN NORTH Peak Elev=130.54' Storage=2,906 cf Inflow=2.89 cfs 7,068 cf
Discarded=0.02 cfs 413 cf Primary=1.39 cfs 6,650 cf Secondary=0.00 cfs 0 cf Outflow=1.41 cfs 7,063 cf

Pond P SE 1: DMH SE1 Peak Elev=97.33' Inflow=2.48 cfs 17,022 cf
Primary=2.48 cfs 17,022 cf Secondary=0.00 cfs 0 cf Outflow=2.48 cfs 17,022 cf

Pond P-BSN-S: DETENTION BASIN SOUTH Peak Elev=111.60' Storage=1,208 cf Inflow=2.42 cfs 20,149 cf
Discarded=0.06 cfs 4,113 cf Primary=2.27 cfs 15,524 cf Secondary=0.00 cfs 0 cf Outflow=2.33 cfs 19,637 cf

Pond P-E1: DMH E1 Peak Elev=114.85' Inflow=1.39 cfs 6,650 cf
Primary=1.39 cfs 6,650 cf Secondary=0.00 cfs 0 cf Outflow=1.39 cfs 6,650 cf

Pond P-E2: DMH E2 Peak Elev=122.65' Inflow=1.39 cfs 6,650 cf
Primary=1.39 cfs 6,650 cf Secondary=0.00 cfs 0 cf Outflow=1.39 cfs 6,650 cf

Pond P-SF: WQ SAND FILTER Peak Elev=133.95' Storage=5,155 cf Inflow=3.11 cfs 16,194 cf
Primary=0.20 cfs 12,952 cf Secondary=1.35 cfs 3,242 cf Outflow=1.55 cfs 16,194 cf

Pond RF N-1: RF N-1 Peak Elev=151.80' Inflow=0.62 cfs 1,854 cf
Primary=0.62 cfs 1,854 cf Secondary=0.00 cfs 0 cf Outflow=0.62 cfs 1,854 cf

Pond RF S-1: RF S-1 Peak Elev=150.17' Inflow=1.71 cfs 5,073 cf
Primary=1.71 cfs 5,073 cf Secondary=0.00 cfs 0 cf Outflow=1.71 cfs 5,073 cf

Pond S1: DMH S1 Peak Elev=113.88' Inflow=1.36 cfs 8,550 cf
Primary=1.36 cfs 8,550 cf Secondary=0.00 cfs 0 cf Outflow=1.36 cfs 8,550 cf

Pond S1A: CB S1A Peak Elev=119.37' Inflow=0.54 cfs 1,606 cf
Primary=0.54 cfs 1,606 cf Secondary=0.00 cfs 0 cf Outflow=0.54 cfs 1,606 cf

Pond S1B: CB S1B Peak Elev=119.28' Inflow=0.78 cfs 2,334 cf
Primary=0.78 cfs 2,334 cf Secondary=0.00 cfs 0 cf Outflow=0.78 cfs 2,334 cf

Pond SF PT N: SF PT N Peak Elev=134.03' Inflow=3.01 cfs 15,797 cf
Primary=3.01 cfs 15,797 cf Secondary=0.00 cfs 0 cf Outflow=3.01 cfs 15,797 cf

Pond SF PT NE: SF PT NE Peak Elev=133.95' Inflow=0.10 cfs 284 cf
Primary=0.10 cfs 284 cf Secondary=0.00 cfs 0 cf Outflow=0.10 cfs 284 cf

Pond SW1: CB SW 1 Peak Elev=138.49' Inflow=0.29 cfs 869 cf
Primary=0.29 cfs 869 cf Secondary=0.00 cfs 0 cf Outflow=0.29 cfs 869 cf

Pond SW2: CB SW 2 Peak Elev=149.17' Inflow=0.12 cfs 718 cf
Primary=0.12 cfs 718 cf Secondary=0.00 cfs 0 cf Outflow=0.12 cfs 718 cf

Link L E: OFFSITE EAST Inflow=0.04 cfs 629 cf
Primary=0.04 cfs 629 cf

Link L GLAD: OFFSITE GLADSTONE Inflow=0.34 cfs 1,034 cf
Primary=0.34 cfs 1,034 cf

Link L T: TOTAL LEAVING SITE Inflow=2.88 cfs 19,626 cf
Primary=2.88 cfs 19,626 cf

Total Runoff Area = 393,811 sf Runoff Volume = 33,011 cf Average Runoff Depth = 1.01"
54.91% Pervious = 216,244 sf 45.09% Impervious = 177,567 sf

Summary for Subcatchment WS 10191: WS 10191

Runoff = 0.41 cfs @ 12.16 hrs, Volume= 1,498 cf, Depth= 1.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	9,062	98	Imp Surfaces & Misc Structures
	6,609	61	>75% Grass cover, Good, HSG B
	15,671	82	Weighted Average
	6,609		42.17% Pervious Area
	9,062		57.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	13	1.0000	4.46		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
6.1	96	0.0570	0.26		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
0.5	63	0.0110	2.13		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.9	132	0.0117	0.76		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.2	133	0.0422	9.63	67.39	**Channel Flow, Swale West** Area= 7.0 sf Perim= 10.0' r= 0.70' n= 0.025 Earth, grassed & winding
1.0	290	0.0850	4.79	19.17	**Channel Flow, Swale South** Area= 4.0 sf Perim= 6.0' r= 0.67' n= 0.069 Riprap, 6-inch
10.7	727	Total			

Summary for Subcatchment WS BSN N: WS BSN N

Runoff = 0.05 cfs @ 12.12 hrs, Volume= 282 cf, Depth= 0.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	482	98	Imp Surfaces & Misc Structures
	10,279	61	>75% Grass cover, Good, HSG B
	10,761	63	Weighted Average
	10,279		95.52% Pervious Area
	482		4.48% Impervious Area

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

Summary for Subcatchment WS BSN S: WS BSN S

Runoff = 0.85 cfs @ 12.16 hrs, Volume= 3,362 cf, Depth= 0.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	615	98	Imp Surfaces & Misc Structures
	23,145	61	>75% Grass cover, Good, HSG B
	28,612	85	1/8 acre lots, 65% imp, HSG B
	52,372	75	Weighted Average
	33,159		63.31% Pervious Area
	19,213		36.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	13	1.0000	4.46		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
6.1	96	0.0570	0.26		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
0.5	63	0.0110	2.13		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.9	132	0.0117	0.76		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.2	133	0.0422	9.63	67.39	**Channel Flow, Swale West** Area= 7.0 sf Perim= 10.0' r= 0.70' n= 0.025 Earth, grassed & winding
1.0	290	0.0850	4.79	19.17	**Channel Flow, Swale South** Area= 4.0 sf Perim= 6.0' r= 0.67' n= 0.069 Riprap, 6-inch
10.7	727	Total			

Summary for Subcatchment WS N: SITE NORTH

Runoff = 0.34 cfs @ 12.03 hrs, Volume= 1,034 cf, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
5,895	98	Paved parking, HSG B
13,627	61	>75% Grass cover, Good, HSG B
19,522	72	Weighted Average
13,627		69.80% Pervious Area
5,895		30.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	53	0.0750	2.10		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.33"
0.5	163	0.0711	5.41		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.4	81	0.0630	3.76		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.3	86	0.0512	4.59		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.6	383	Total			

Summary for Subcatchment WS N2A: WS N2A

Runoff = 0.12 cfs @ 12.08 hrs, Volume= 371 cf, Depth= 1.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	2,213	98	Imp Surfaces & Misc Structures
	1,283	61	>75% Grass cover, Good, HSG B
	3,496	84	Weighted Average
	1,283		36.70% Pervious Area
	2,213		63.30% Impervious Area

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

Summary for Subcatchment WS N2B: WS N2B

Runoff = 0.09 cfs @ 12.08 hrs, Volume= 278 cf, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	1,622	98	Imp Surfaces & Misc Structures
	2,446	61	>75% Grass cover, Good, HSG B
	4,068	76	Weighted Average
	2,446		60.13% Pervious Area
	1,622		39.87% Impervious Area

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

Summary for Subcatchment WS N3A: WS N3A

Runoff = 0.11 cfs @ 12.10 hrs, Volume= 435 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	2,098	98	Imp Surfaces & Misc Structures
	8,823	61	>75% Grass cover, Good, HSG B
	10,921	68	Weighted Average
	8,823		80.79% Pervious Area
	2,098		19.21% Impervious Area

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

Summary for Subcatchment WS N4A: WS N4A

Runoff = 0.00 cfs @ 12.14 hrs, Volume= 14 cf, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
669	61	>75% Grass cover, Good, HSG B
669		100.00% Pervious Area

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

Summary for Subcatchment WS N5-1A: WS N5-1A

Runoff = 0.24 cfs @ 12.08 hrs, Volume= 730 cf, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	4,318	98	Imp Surfaces & Misc Structures
	2,225	61	>75% Grass cover, Good, HSG B
	6,543	85	Weighted Average
	2,225		34.01% Pervious Area
	4,318		65.99% Impervious Area

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

Summary for Subcatchment WS N5-1B: WS N5-1B

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 569 cf, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	2,766	98	Imp Surfaces & Misc Structures
	2,766		100.00% Impervious Area

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

Summary for Subcatchment WS N5A: WS N5A

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 437 cf, Depth= 2.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	2,306	98	Imp Surfaces & Misc Structures
	241	61	>75% Grass cover, Good, HSG B
	2,547	94	Weighted Average
	241		9.46% Pervious Area
	2,306		90.54% Impervious Area

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

Summary for Subcatchment WS N5B: WS N5B

Runoff = 0.38 cfs @ 12.08 hrs, Volume= 1,162 cf, Depth= 1.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	6,769	98	Imp Surfaces & Misc Structures
	5,385	61	>75% Grass cover, Good, HSG B
	12,154	82	Weighted Average
	5,385		44.31% Pervious Area
	6,769		55.69% Impervious Area

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

Summary for Subcatchment WS N6A: WS N6A

Runoff = 0.06 cfs @ 12.08 hrs, Volume= 187 cf, Depth= 1.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	1,080	98	Imp Surfaces & Misc Structures
	771	61	>75% Grass cover, Good, HSG B
	1,851	83	Weighted Average
	771		41.65% Pervious Area
	1,080		58.35% Impervious Area

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

Summary for Subcatchment WS N6B: WS N6B

Runoff = 0.08 cfs @ 12.07 hrs, Volume= 246 cf, Depth= 2.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	1,278	98	Imp Surfaces & Misc Structures
	153	61	>75% Grass cover, Good, HSG B
	1,431	94	Weighted Average
	153		10.69% Pervious Area
	1,278		89.31% Impervious Area

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

Summary for Subcatchment WS N7A: WS N7A

Runoff = 1.38 cfs @ 12.16 hrs, Volume= 5,046 cf, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	19,430	98	Imp Surfaces & Misc Structures
	10,969	61	>75% Grass cover, Good, HSG B
	14,800	85	1/8 acre lots, 65% imp, HSG B
	45,199	85	Weighted Average
	16,149		35.73% Pervious Area
	29,050		64.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	18	1.0000	4.76		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
7.2	95	0.0368	0.22		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
1.2	100	0.0400	1.40		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
2.5	308	0.0105	2.08		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
11.0	521	Total			

Summary for Subcatchment WS N7B: WS N7B

Runoff = 1.05 cfs @ 12.04 hrs, Volume= 2,937 cf, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	15,308	98	Imp Surfaces & Misc Structures
	15,508	61	>75% Grass cover, Good, HSG B
	3,410	85	1/8 acre lots, 65% imp, HSG B
	34,226	80	Weighted Average
	16,702		48.80% Pervious Area
	17,525		51.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	61	0.0300	1.49		**Sheet Flow, Paved Driveway** Smooth surfaces n= 0.011 P2= 3.33"
0.4	33	0.0406	1.49		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.33"
0.9	129	0.0140	2.40		**Shallow Concentrated Flow, Parking Lot** Paved Kv= 20.3 fps
0.2	28	0.0960	2.17		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	22	0.0518	4.62		**Shallow Concentrated Flow, Sidewalk** Paved Kv= 20.3 fps
0.3	67	0.0280	3.40		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.6	340	Total			

Summary for Subcatchment WS NE: WOODS NORTHEAST

Runoff = 0.02 cfs @ 12.50 hrs, Volume= 298 cf, Depth= 0.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
	29,178	55	Woods, Good, HSG B
	29,178		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	96	0.1666	0.18		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.33"
0.8	123	0.2440	2.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
9.5	219	Total			

Summary for Subcatchment WS NE1A: WS NE1A

Runoff = 0.05 cfs @ 12.08 hrs, Volume= 138 cf, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	808	98	Imp Surfaces & Misc Structures
	426	61	>75% Grass cover, Good, HSG B
	1,234	85	Weighted Average
	426		34.52% Pervious Area
	808		65.48% Impervious Area

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

Summary for Subcatchment WS NE1B: WS NE1B

Runoff = 0.05 cfs @ 12.08 hrs, Volume= 147 cf, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	846	98	Imp Surfaces & Misc Structures
	470	61	>75% Grass cover, Good, HSG B
	1,316	85	Weighted Average
	470		35.71% Pervious Area
	846		64.29% Impervious Area

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

Summary for Subcatchment WS RF N: WS ROOF N

Runoff = 0.62 cfs @ 12.03 hrs, Volume= 1,854 cf, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	9,011	98	Roof
	9,011		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	90	0.0050	0.79		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"

Summary for Subcatchment WS RF S: WS ROOF S

Runoff = 1.71 cfs @ 12.03 hrs, Volume= 5,073 cf, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	24,651	98	Roof
	24,651		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	90	0.0050	0.79		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"

Summary for Subcatchment WS S1A: WS S1A

Runoff = 0.54 cfs @ 12.07 hrs, Volume= 1,606 cf, Depth= 1.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	9,157	98	Parking Lot South
	3,241	61	>75% Grass cover, Good, HSG B
	12,398	88	Weighted Average
	3,241		26.14% Pervious Area
	9,157		73.86% Impervious Area

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

Summary for Subcatchment WS S1B: WS S1B

Runoff = 0.78 cfs @ 12.08 hrs, Volume= 2,334 cf, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	13,523	98	Parking Lot South
	7,386	61	>75% Grass cover, Good, HSG B
	20,909	85	Weighted Average
	7,386		35.32% Pervious Area
	13,523		64.68% Impervious Area

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

Summary for Subcatchment WS SE: WOODS SOUTHEAST

Runoff = 0.02 cfs @ 12.46 hrs, Volume= 331 cf, Depth= 0.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

Area (sf)	CN	Description
32,465	55	Woods, Good, HSG B
32,465		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.3260	0.24		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.33"

Summary for Subcatchment WS SF: WS SF

Runoff = 0.02 cfs @ 12.13 hrs, Volume= 112 cf, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	114	98	Imp Surfaces & Misc Structures
	4,598	61	>75% Grass cover, Good, HSG B
	4,712	62	Weighted Average
	4,598		97.58% Pervious Area
	114		2.42% Impervious Area

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

Summary for Subcatchment WS STE SE: SITE SOUTHEAST

Runoff = 0.31 cfs @ 12.08 hrs, Volume= 941 cf, Depth= 1.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	5,600	98	Imp Surfaces & Misc Structures
	3,738	61	>75% Grass cover, Good, HSG B
	9,338	83	Weighted Average
	3,738		40.03% Pervious Area
	5,600		59.97% Impervious Area

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

Summary for Subcatchment WS SW1: WS SW1

Runoff = 0.29 cfs @ 12.07 hrs, Volume= 869 cf, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	4,808	98	Imp Surfaces & Misc Structures
	1,587	61	>75% Grass cover, Good, HSG B
	6,395	89	Weighted Average
	1,587		24.82% Pervious Area
	4,808		75.18% Impervious Area

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

Summary for Subcatchment WS SW2: WS SW2

Runoff = 0.12 cfs @ 12.33 hrs, Volume= 718 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.70"

	Area (sf)	CN	Description
*	3,373	98	Imp Surfaces & Misc Structures
	14,634	61	>75% Grass cover, Good, HSG B
	18,007	68	Weighted Average
	14,634		81.27% Pervious Area
	3,373		18.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.1	159	0.0140	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
2.5	95	0.0080	0.63		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
18.6	254	Total			

Summary for Pond 10191: GICB EX 10191

Inflow Area = 15,671 sf, 57.83% Impervious, Inflow Depth = 1.15" for 1-YR event
Inflow = 0.41 cfs @ 12.16 hrs, Volume= 1,498 cf
Outflow = 0.41 cfs @ 12.16 hrs, Volume= 1,498 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.41 cfs @ 12.16 hrs, Volume= 1,498 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.32' @ 12.16 hrs
Flood Elev= 105.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	102.00'	**12.0" Round 12" RCP** L= 6.4' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 102.00' / 100.00' S= 0.3125 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	105.08'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.41 cfs @ 12.16 hrs HW=102.32' TW=97.33' (Dynamic Tailwater)
↑—**1=12" RCP** (Inlet Controls 0.41 cfs @ 1.91 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=102.00' TW=81.01' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond 10322: DMH EX 10322

Inflow Area = 136,513 sf, 43.67% Impervious, Inflow Depth > 1.50" for 1-YR event
Inflow = 2.48 cfs @ 12.16 hrs, Volume= 17,022 cf
Outflow = 2.48 cfs @ 12.16 hrs, Volume= 17,022 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.48 cfs @ 12.16 hrs, Volume= 17,022 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 94.09' @ 12.16 hrs
Flood Elev= 100.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	93.17'	**12.0" Round 12" RCP** L= 181.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 93.17' / 81.11' S= 0.0666 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	100.67'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.47 cfs @ 12.16 hrs HW=94.09' TW=82.02' (Dynamic Tailwater)
↑—**1=12" RCP** (Inlet Controls 2.47 cfs @ 3.27 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=93.17' TW=81.01' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond 111710: DMH EX 111710

Inflow Area = 145,851 sf, 44.72% Impervious, Inflow Depth > 1.48" for 1-YR event
Inflow = 2.70 cfs @ 12.15 hrs, Volume= 17,963 cf
Outflow = 2.70 cfs @ 12.15 hrs, Volume= 17,963 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.70 cfs @ 12.15 hrs, Volume= 17,963 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 82.02' @ 12.15 hrs
Flood Elev= 86.86'

Device	Routing	Invert	Outlet Devices
#1	Primary	81.01'	**12.0" Round 12" RCP** L= 166.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 81.01' / 66.00' S= 0.0904 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	86.86'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads
#3	Secondary	86.49'	**24.0" W x 6.0" H Vert. GICB 111708** C= 0.600

Primary OutFlow Max=2.70 cfs @ 12.15 hrs HW=82.02' TW=0.00' (Dynamic Tailwater)
└—**1=12" RCP** (Inlet Controls 2.70 cfs @ 3.43 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=81.01' TW=0.00' (Dynamic Tailwater)
├—**2=DMH SURCHARGE** (Controls 0.00 cfs)
└—**3=GICB 111708** (Controls 0.00 cfs)

Summary for Pond N0: DMH N0

Inflow =	2.35 cfs @	12.05 hrs, Volume=	3,543 cf	
Outflow =	2.35 cfs @	12.05 hrs, Volume=	3,543 cf,	Atten= 0%, Lag= 0.0 min
Primary =	2.35 cfs @	12.05 hrs, Volume=	3,543 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 133.51' @ 12.05 hrs
Flood Elev= 139.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.62'	**18.0" Round 18" CPP** L= 29.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 132.62' / 132.50' S= 0.0041 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	139.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.35 cfs @ 12.05 hrs HW=133.51' TW=129.62' (Dynamic Tailwater)
└—**1=18" CPP** (Barrel Controls 2.35 cfs @ 3.08 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.62' TW=129.00' (Dynamic Tailwater)
└—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N1: DMH N1

Inflow Area = 159,533 sf, 65.62% Impervious, Inflow Depth = 1.45" for 1-YR event

Inflow =	5.36 cfs @	12.05 hrs, Volume=	19,341 cf	
Outflow =	5.36 cfs @	12.05 hrs, Volume=	19,341 cf,	Atten= 0%, Lag= 0.0 min
Primary =	3.01 cfs @	12.05 hrs, Volume=	15,797 cf	
Secondary =	2.35 cfs @	12.05 hrs, Volume=	3,543 cf	
Tertiary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 134.17' @ 12.05 hrs
Flood Elev= 138.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.99'	**15.0" Round 15" CPP** L= 3.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 132.99' / 132.89' S= 0.0313 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	132.91'	**18.0" Round 18" CPP**

			L= 43.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 132.91' / 132.72' S= 0.0044 '/' Cc= 0.900
			n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	133.90'	**6.0' long x 0.5' breadth OVERFLOW WEIR**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Tertiary	138.20'	**32.0" Horiz. DMH SURCHARGE** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=3.01 cfs @ 12.05 hrs HW=134.17' TW=133.89' (Dynamic Tailwater)
└─**1=15" CPP** (Inlet Controls 3.01 cfs @ 2.51 fps)

Secondary OutFlow Max=2.35 cfs @ 12.05 hrs HW=134.17' TW=133.51' (Dynamic Tailwater)
└─**2=18" CPP** (Passes 2.35 cfs of 4.32 cfs potential flow)
  └─**3=OVERFLOW WEIR** (Weir Controls 2.35 cfs @ 1.47 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.99' TW=128.50' (Dynamic Tailwater)
└─**4=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N2: DMH N2

Inflow Area = 7,564 sf, 50.70% Impervious, Inflow Depth = 1.03" for 1-YR event
Inflow = 0.21 cfs @ 12.08 hrs, Volume= 648 cf
Outflow = 0.21 cfs @ 12.08 hrs, Volume= 648 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.21 cfs @ 12.08 hrs, Volume= 648 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 135.81' @ 12.08 hrs
Flood Elev= 139.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.60'	**15.0" Round 15" CPP**
			L= 17.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 135.60' / 133.10' S= 0.1471 '/' Cc= 0.900
			n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	139.20'	**32.0" Horiz. DMH SURCHARGE** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=0.21 cfs @ 12.08 hrs HW=135.81' TW=134.15' (Dynamic Tailwater)
└─**1=15" CPP** (Inlet Controls 0.21 cfs @ 1.56 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.60' TW=128.50' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N2A: CB N2A

Inflow Area = 3,496 sf, 63.30% Impervious, Inflow Depth = 1.27" for 1-YR event
Inflow = 0.12 cfs @ 12.08 hrs, Volume= 371 cf
Outflow = 0.12 cfs @ 12.08 hrs, Volume= 371 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 12.08 hrs, Volume= 371 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 136.06' @ 12.08 hrs
Flood Elev= 139.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.90'	**15.0" Round 15" CPP** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.90' / 135.69' S= 0.0140 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	139.10'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.12 cfs @ 12.08 hrs HW=136.06' TW=135.81' (Dynamic Tailwater)
↑—**1=15" CPP** (Inlet Controls 0.12 cfs @ 1.36 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.90' TW=133.50' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N2B: CB N2B

Inflow Area = 4,068 sf, 39.87% Impervious, Inflow Depth = 0.82" for 1-YR event
Inflow = 0.09 cfs @ 12.08 hrs, Volume= 278 cf
Outflow = 0.09 cfs @ 12.08 hrs, Volume= 278 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.09 cfs @ 12.08 hrs, Volume= 278 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 136.05' @ 12.08 hrs
Flood Elev= 138.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.90'	**12.0" Round 12" CPP** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.90' / 135.69' S= 0.0091 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	138.90'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.09 cfs @ 12.08 hrs HW=136.05' TW=135.81' (Dynamic Tailwater)
↑—**1=12" CPP** (Outlet Controls 0.09 cfs @ 1.87 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.90' TW=133.50' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N3: DMH N3

Inflow Area = 151,969 sf, 66.36% Impervious, Inflow Depth = 1.48" for 1-YR event
Inflow = 5.17 cfs @ 12.05 hrs, Volume= 18,692 cf
Outflow = 5.17 cfs @ 12.05 hrs, Volume= 18,692 cf, Atten= 0%, Lag= 0.1 min
Primary = 5.17 cfs @ 12.05 hrs, Volume= 18,692 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 136.63' @ 12.05 hrs Surf.Area= 28 sf Storage= 32 cf
Flood Elev= 150.20' Surf.Area= 28 sf Storage= 416 cf

Plug-Flow detention time= 0.4 min calculated for 18,692 cf (100% of inflow)
Center-of-Mass det. time= 0.3 min (807.5 - 807.2)

Volume	Invert	Avail.Storage	Storage Description
#1	135.50'	416 cf	**6.00'D x 14.71'H 6' DMH**

Device	Routing	Invert	Outlet Devices
#1	Primary	135.50'	**18.0" Round 18" CPP** L= 21.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.50' / 134.00' S= 0.0701 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	150.20'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.17 cfs @ 12.05 hrs HW=136.63' TW=134.17' (Dynamic Tailwater)
└**1=18" CPP** (Inlet Controls 5.17 cfs @ 3.62 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.50' TW=132.99' (Dynamic Tailwater)
└**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N3A: DI N3A

Inflow Area = 10,921 sf, 19.21% Impervious, Inflow Depth = 0.48" for 1-YR event
Inflow = 0.11 cfs @ 12.10 hrs, Volume= 435 cf
Outflow = 0.11 cfs @ 12.10 hrs, Volume= 435 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 12.10 hrs, Volume= 435 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 147.49' @ 12.10 hrs
Flood Elev= 149.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.30'	**12.0" Round 12" CPP** L= 2.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.30' / 147.27' S= 0.0107 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	149.30'	**2.5" x 2.5" Horiz. DI Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.11 cfs @ 12.10 hrs HW=147.48' TW=136.56' (Dynamic Tailwater)
↑—**1=12" CPP** (Barrel Controls 0.11 cfs @ 1.67 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=147.30' TW=135.90' (Dynamic Tailwater)
↑—**2=DI Surcharge** (Controls 0.00 cfs)

Summary for Pond N4: DMH N4

Inflow Area = 141,048 sf, 70.01% Impervious, Inflow Depth = 1.55" for 1-YR event
Inflow = 5.08 cfs @ 12.05 hrs, Volume= 18,257 cf
Outflow = 5.08 cfs @ 12.05 hrs, Volume= 18,257 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.08 cfs @ 12.05 hrs, Volume= 18,257 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 142.62' @ 12.05 hrs
Flood Elev= 150.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	141.65'	**24.0" Round 24" CPP** L= 54.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 141.65' / 140.20' S= 0.0269 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	150.50'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.08 cfs @ 12.05 hrs HW=142.62' TW=136.63' (Dynamic Tailwater)
↑—**1=24" CPP** (Inlet Controls 5.08 cfs @ 3.36 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=141.65' TW=135.90' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N4A: DI N4A

Inflow Area = 669 sf, 0.00% Impervious, Inflow Depth = 0.26" for 1-YR event
Inflow = 0.00 cfs @ 12.14 hrs, Volume= 14 cf
Outflow = 0.00 cfs @ 12.14 hrs, Volume= 14 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 12.14 hrs, Volume= 14 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 147.22' @ 12.14 hrs
Flood Elev= 149.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.20'	**12.0" Round 12" CPP** L= 14.3' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.20' / 146.85' S= 0.0245 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	149.20'	**2.5" x 2.5" Horiz. DI Surcharge X 6.00 columns**

X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area)
Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 12.14 hrs HW=147.22' TW=142.47' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 0.00 cfs @ 0.49 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=147.20' TW=135.90' (Dynamic Tailwater)
↑—**2=DI Surcharge** (Controls 0.00 cfs)

Summary for Pond N5: DMH N5

Inflow Area =	140,379 sf, 70.35% Impervious,	Inflow Depth = 1.56"	for 1-YR event
Inflow =	5.08 cfs @ 12.05 hrs, Volume=	18,243 cf	
Outflow =	5.08 cfs @ 12.05 hrs, Volume=	18,243 cf, Atten= 0%, Lag= 0.0 min	
Primary =	5.08 cfs @ 12.05 hrs, Volume=	18,243 cf	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 143.28' @ 12.05 hrs
Flood Elev= 151.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	142.28'	**24.0" Round 24" CPP** L= 36.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 142.28' / 141.65' S= 0.0174 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	151.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.08 cfs @ 12.05 hrs HW=143.28' TW=142.62' (Dynamic Tailwater)
↑—**1=24" CPP** (Outlet Controls 5.08 cfs @ 4.70 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=142.28' TW=133.50' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N5-1: DMH N5-1

Inflow Area =	9,309 sf, 76.10% Impervious,	Inflow Depth = 1.68"	for 1-YR event
Inflow =	0.42 cfs @ 12.07 hrs, Volume=	1,300 cf	
Outflow =	0.42 cfs @ 12.07 hrs, Volume=	1,300 cf, Atten= 0%, Lag= 0.0 min	
Primary =	0.42 cfs @ 12.07 hrs, Volume=	1,300 cf	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 144.72' @ 12.07 hrs
Flood Elev= 149.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.40'	**15.0" Round 15" CPP** L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.40' / 143.97' S= 0.0054 '/' Cc= 0.900

			n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	149.10'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.41 cfs @ 12.07 hrs HW=144.72' TW=143.26' (Dynamic Tailwater)
└─**1=15" CPP** (Barrel Controls 0.41 cfs @ 2.51 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=144.40' TW=135.90' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N5-1A: CB N5-1A

Inflow Area = 6,543 sf, 65.99% Impervious, Inflow Depth = 1.34" for 1-YR event
Inflow = 0.24 cfs @ 12.08 hrs, Volume= 730 cf
Outflow = 0.24 cfs @ 12.08 hrs, Volume= 730 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.08 hrs, Volume= 730 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 145.07' @ 12.08 hrs
Flood Elev= 148.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.80'	**12.0" Round 12" CPP** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.80' / 144.64' S= 0.0057 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	148.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.24 cfs @ 12.08 hrs HW=145.07' TW=144.72' (Dynamic Tailwater)
└─**1=12" CPP** (Barrel Controls 0.24 cfs @ 2.16 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=144.80' TW=135.90' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N5-1B: CB N5-1B

Inflow Area = 2,766 sf,100.00% Impervious, Inflow Depth = 2.47" for 1-YR event
Inflow = 0.17 cfs @ 12.07 hrs, Volume= 569 cf
Outflow = 0.17 cfs @ 12.07 hrs, Volume= 569 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.17 cfs @ 12.07 hrs, Volume= 569 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 144.99' @ 12.07 hrs
Flood Elev= 150.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.76'	**12.0" Round 12" CPP** L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.76' / 144.64' S= 0.0057 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	150.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.17 cfs @ 12.07 hrs HW=144.99' TW=144.72' (Dynamic Tailwater)
↑—**1=12" CPP** (Barrel Controls 0.17 cfs @ 1.94 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=144.76' TW=135.90' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N5A: CB N5A

Inflow Area = 2,547 sf, 90.54% Impervious, Inflow Depth = 2.06" for 1-YR event
Inflow = 0.14 cfs @ 12.07 hrs, Volume= 437 cf
Outflow = 0.14 cfs @ 12.07 hrs, Volume= 437 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 12.07 hrs, Volume= 437 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 147.78' @ 12.07 hrs
Flood Elev= 150.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.60'	**12.0" Round 12" CPP** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.60' / 147.46' S= 0.0140 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	150.60'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.14 cfs @ 12.07 hrs HW=147.78' TW=143.26' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 0.14 cfs @ 1.45 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=147.60' TW=144.80' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N5B: CB N5B

Inflow Area = 12,154 sf, 55.69% Impervious, Inflow Depth = 1.15" for 1-YR event
Inflow = 0.38 cfs @ 12.08 hrs, Volume= 1,162 cf
Outflow = 0.38 cfs @ 12.08 hrs, Volume= 1,162 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.08 hrs, Volume= 1,162 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 147.81' @ 12.08 hrs
Flood Elev= 150.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.50'	**12.0" Round 12" CPP** L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.50' / 147.34' S= 0.0133 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	150.50'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.38 cfs @ 12.08 hrs HW=147.81' TW=143.25' (Dynamic Tailwater)
└─**1=12" CPP** (Barrel Controls 0.38 cfs @ 2.71 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=147.50' TW=144.76' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N6: DMH N6

Inflow Area =	116,369 sf, 70.98% Impervious,	Inflow Depth = 1.58" for 1-YR event		
Inflow =	4.24 cfs @	12.04 hrs, Volume=	15,343 cf	
Outflow =	4.24 cfs @	12.04 hrs, Volume=	15,343 cf,	Atten= 0%, Lag= 0.0 min
Primary =	4.24 cfs @	12.04 hrs, Volume=	15,343 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 144.93' @ 12.04 hrs
Flood Elev= 152.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.05'	**24.0" Round 24" CPP** L= 67.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.05' / 143.32' S= 0.0109 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	152.70'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.23 cfs @ 12.04 hrs HW=144.93' TW=143.28' (Dynamic Tailwater)
└─**1=24" CPP** (Inlet Controls 4.23 cfs @ 3.19 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=144.05' TW=147.60' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N6-1: DMH N6-1

Inflow Area =	33,662 sf,100.00% Impervious,	Inflow Depth = 2.47" for 1-YR event		
Inflow =	2.33 cfs @	12.03 hrs, Volume=	6,928 cf	
Outflow =	2.33 cfs @	12.03 hrs, Volume=	6,928 cf,	Atten= 0%, Lag= 0.0 min
Primary =	2.33 cfs @	12.03 hrs, Volume=	6,928 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 148.90' @ 12.03 hrs
Flood Elev= 153.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	148.02'	**12.0" Round 12" CPP** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 148.02' / 146.80' S= 0.0469 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.32 cfs @ 12.03 hrs HW=148.90' TW=144.92' (Dynamic Tailwater)
↑**1=12" CPP** (Inlet Controls 2.32 cfs @ 3.19 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=148.02' TW=147.50' (Dynamic Tailwater)
↑**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N6A: CB N6A

Inflow Area =	1,851 sf,	58.35% Impervious,	Inflow Depth = 1.21"	for 1-YR event
Inflow =	0.06 cfs @	12.08 hrs, Volume=	187 cf	
Outflow =	0.06 cfs @	12.08 hrs, Volume=	187 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.06 cfs @	12.08 hrs, Volume=	187 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.12' @ 12.08 hrs
Flood Elev= 153.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	150.00'	**12.0" Round 12" CPP** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.00' / 149.71' S= 0.0112 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.06 cfs @ 12.08 hrs HW=150.12' TW=144.89' (Dynamic Tailwater)
↑**1=12" CPP** (Inlet Controls 0.06 cfs @ 1.17 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=150.00' TW=147.50' (Dynamic Tailwater)
↑**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N6B: CB N6B

Inflow Area = 1,431 sf, 89.31% Impervious, Inflow Depth = 2.06" for 1-YR event
Inflow = 0.08 cfs @ 12.07 hrs, Volume= 246 cf
Outflow = 0.08 cfs @ 12.07 hrs, Volume= 246 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.08 cfs @ 12.07 hrs, Volume= 246 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.14' @ 12.07 hrs
Flood Elev= 153.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	150.00'	**12.0" Round 12" CPP** L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.00' / 149.78' S= 0.0122 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.08 cfs @ 12.07 hrs HW=150.14' TW=144.90' (Dynamic Tailwater)
└─**1=12" CPP** (Inlet Controls 0.08 cfs @ 1.25 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=150.00' TW=147.60' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N7: DMH N7

Inflow Area = 79,425 sf, 58.64% Impervious, Inflow Depth = 1.21" for 1-YR event
Inflow = 2.00 cfs @ 12.09 hrs, Volume= 7,983 cf
Outflow = 2.00 cfs @ 12.09 hrs, Volume= 7,983 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.00 cfs @ 12.09 hrs, Volume= 7,983 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 147.01' @ 12.09 hrs
Flood Elev= 154.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	146.42'	**24.0" Round 24" CPP** L= 46.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 146.42' / 144.40' S= 0.0439 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	154.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.00 cfs @ 12.09 hrs HW=147.01' TW=144.86' (Dynamic Tailwater)
↑—**1=24" CPP** (Inlet Controls 2.00 cfs @ 2.61 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=146.42' (Free Discharge)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N7A: DGCB N7A

Inflow Area =	45,199 sf, 64.27% Impervious,	Inflow Depth = 1.34"	for 1-YR event
Inflow =	1.38 cfs @ 12.16 hrs, Volume=	5,046 cf	
Outflow =	1.38 cfs @ 12.16 hrs, Volume=	5,046 cf, Atten= 0%, Lag= 0.0 min	
Primary =	1.38 cfs @ 12.16 hrs, Volume=	5,046 cf	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.27' @ 12.16 hrs
Flood Elev= 153.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.60'	**12.0" Round 12" CPP** L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.60' / 149.42' S= 0.0129 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.60'	**2.5" x 2.5" Horiz. DGCB Surcharge X 6.00 columns** X 12 rows C= 0.600 in 48.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.37 cfs @ 12.16 hrs HW=150.27' TW=146.99' (Dynamic Tailwater)
↑—**1=12" CPP** (Barrel Controls 1.37 cfs @ 3.51 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=149.60' (Free Discharge)
↑—**2=DGCB Surcharge** (Controls 0.00 cfs)

Summary for Pond N7B: CB N7B

Inflow Area =	34,226 sf, 51.20% Impervious,	Inflow Depth = 1.03"	for 1-YR event
Inflow =	1.05 cfs @ 12.04 hrs, Volume=	2,937 cf	
Outflow =	1.05 cfs @ 12.04 hrs, Volume=	2,937 cf, Atten= 0%, Lag= 0.0 min	
Primary =	1.05 cfs @ 12.04 hrs, Volume=	2,937 cf	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.36' @ 12.04 hrs
Flood Elev= 153.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.80'	**12.0" Round 12" CPP** L= 16.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.80' / 149.60' S= 0.0125 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf

#2	Secondary	153.80'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.04 cfs @ 12.04 hrs HW=150.36' TW=146.99' (Dynamic Tailwater)
↑—**1=12" CPP** (Barrel Controls 1.04 cfs @ 3.37 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=149.80' (Free Discharge)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond NE1: DMH NE1

Inflow Area = 2,550 sf, 64.86% Impervious, Inflow Depth = 1.34" for 1-YR event
Inflow = 0.10 cfs @ 12.08 hrs, Volume= 285 cf
Outflow = 0.10 cfs @ 12.08 hrs, Volume= 284 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 12.08 hrs, Volume= 284 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 133.95' @ 12.25 hrs
Flood Elev= 136.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.20'	**12.0" Round 12" CPP** L= 8.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.20' / 133.09' S= 0.0137 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	136.30'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.10 cfs @ 12.08 hrs HW=133.40' TW=133.35' (Dynamic Tailwater)
↑—**1=12" CPP** (Outlet Controls 0.10 cfs @ 1.27 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.20' TW=133.09' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond NE1A: DI NE1A

Inflow Area = 1,234 sf, 65.48% Impervious, Inflow Depth = 1.34" for 1-YR event
Inflow = 0.05 cfs @ 12.08 hrs, Volume= 138 cf
Outflow = 0.05 cfs @ 12.08 hrs, Volume= 138 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.08 hrs, Volume= 138 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 133.95' @ 12.26 hrs
Flood Elev= 135.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.50'	**12.0" Round 12" CPP** L= 24.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.50' / 133.30' S= 0.0081 '/' Cc= 0.900

			n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	135.40'	**2.5" x 2.5" Horiz. DI Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.04 cfs @ 12.08 hrs HW=133.61' TW=133.40' (Dynamic Tailwater)
1=12" CPP (Outlet Controls 0.04 cfs @ 1.48 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.50' TW=0.00' (Dynamic Tailwater)
2=DI Surcharge (Controls 0.00 cfs)

Summary for Pond NE1B: DI NE1B

Inflow Area = 1,316 sf, 64.29% Impervious, Inflow Depth = 1.34" for 1-YR event
Inflow = 0.05 cfs @ 12.08 hrs, Volume= 147 cf
Outflow = 0.05 cfs @ 12.08 hrs, Volume= 147 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.08 hrs, Volume= 147 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 133.95' @ 12.26 hrs
Flood Elev= 135.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.50'	**12.0" Round 12" CPP** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.50' / 133.44' S= 0.0120 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	135.40'	**2.5" x 2.5" Horiz. DI Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.05 cfs @ 12.08 hrs HW=133.61' TW=133.40' (Dynamic Tailwater)
1=12" CPP (Barrel Controls 0.05 cfs @ 1.55 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.50' TW=0.00' (Dynamic Tailwater)
2=DI Surcharge (Controls 0.00 cfs)

Summary for Pond P BSN N: DETENTION BASIN NORTH

Inflow Area = 10,761 sf, 4.48% Impervious, Inflow Depth = 7.88" for 1-YR event
Inflow = 2.89 cfs @ 12.24 hrs, Volume= 7,068 cf
Outflow = 1.41 cfs @ 12.48 hrs, Volume= 7,063 cf, Atten= 51%, Lag= 14.2 min
Discarded = 0.02 cfs @ 12.20 hrs, Volume= 413 cf
Primary = 1.39 cfs @ 12.48 hrs, Volume= 6,650 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 130.54' @ 12.48 hrs Surf.Area= 5,068 sf Storage= 2,906 cf
Flood Elev= 135.00' Surf.Area= 10,572 sf Storage= 23,771 cf

Plug-Flow detention time= 112.9 min calculated for 7,063 cf (100% of inflow)

Center-of-Mass det. time= 112.5 min (885.9 - 773.4)

Volume	Invert	Avail.Storage	Storage Description
#1	129.00'	274 cf	**Loamy Sand Basin Bottom (Prismatic)** Listed below (Recalc) 1,100 cf Overall - 4 cf Embedded = 1,096 cf x 25.0% Voids
#2	129.00'	4 cf	**6.0" Round 6" Underdrain** Inside #1 L= 20.0'
#3	129.50'	23,493 cf	**Basin Contours (Irregular)** Listed below (Recalc)
		23,771 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
129.00	2,200	0	0
129.50	2,200	1,100	1,100

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
129.50	2,200	233.0	0	0	2,200
130.00	2,518	241.0	1,179	1,179	2,524
131.00	3,186	257.0	2,845	4,024	3,205
132.00	3,869	272.0	3,522	7,546	3,890
133.00	4,578	288.0	4,219	11,765	4,656
134.00	5,316	303.0	4,942	16,707	5,421
135.00	8,372	394.0	6,786	23,493	10,480

Device	Routing	Invert	Outlet Devices
#1	Discarded	129.00'	**2.410 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#2	Device 1	129.50'	**2.410 in/hr Flow through Loamy Sand over Surface area from 129.50' - 130.00'** Excluded Surface area = 4,400 sf Phase-In= 0.01'
#3	Primary	127.84'	**15.0" Round 15" CPP** L= 17.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 127.84' / 126.10' S= 0.0989 '/' Cc= 0.900 n= 0.012 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#4	Device 3	127.84'	**13.0" Vert. 13" Plug Orifice** C= 0.600
#5	Device 4	129.00'	**2.0" Vert. 2" Underdrain Orifice** C= 0.600
#6	Device 4	130.20'	**24.0" W x 6.0" H Vert. 24" x 6" Low Orifice** C= 0.600
#7	Device 4	132.50'	**1.5' long x 0.5' breadth 18"W Outflow Structure Weirs (3) X 3.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#8	Device 4	133.00'	**16.0' long x 0.5' breadth Outflow Structure Top** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#9	Secondary	134.50'	**12.5' long x 14.0' breadth Emergency Overflow Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.64 2.67 2.70 2.65 2.64 2.65 2.65 2.63

Discarded OutFlow Max=0.02 cfs @ 12.20 hrs HW=130.01' (Free Discharge)
└─**1=Exfiltration** (Passes 0.02 cfs of 0.26 cfs potential flow)
  └─**2=Flow through Loamy Sand** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.39 cfs @ 12.48 hrs HW=130.54' TW=122.65' (Dynamic Tailwater)
└─**3=15" CPP** (Passes 1.39 cfs of 8.51 cfs potential flow)
  └─**4=13" Plug Orifice** (Passes 1.39 cfs of 6.52 cfs potential flow)
    ├─**5=2" Underdrain Orifice** (Orifice Controls 0.13 cfs @ 5.81 fps)
    ├─**6=24" x 6" Low Orifice** (Orifice Controls 1.26 cfs @ 1.87 fps)
    ├─**7=18"W Outflow Structure Weirs (3)** (Controls 0.00 cfs)
    └─**8=Outflow Structure Top** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=129.00' TW=118.83' (Dynamic Tailwater)
└─**9=Emergency Overflow Weir** (Controls 0.00 cfs)

Summary for Pond P SE 1: DMH SE1

Inflow Area =	136,513 sf, 43.67% Impervious,	Inflow Depth > 1.50" for 1-YR event		
Inflow =	2.48 cfs @	12.16 hrs, Volume=	17,022 cf	
Outflow =	2.48 cfs @	12.16 hrs, Volume=	17,022 cf,	Atten= 0%, Lag= 0.0 min
Primary =	2.48 cfs @	12.16 hrs, Volume=	17,022 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 97.33' @ 12.16 hrs
Flood Elev= 105.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	96.50'	**18.0" Round 18" CPP** L= 22.6' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 96.50' / 93.30' S= 0.1416 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	105.30'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.47 cfs @ 12.16 hrs HW=97.33' TW=94.09' (Dynamic Tailwater)
└─**1=18" CPP** (Inlet Controls 2.47 cfs @ 2.45 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=96.50' TW=81.01' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond P-BSN-S: DETENTION BASIN SOUTH

Inflow Area =	120,842 sf, 41.84% Impervious,	Inflow Depth > 2.00" for 1-YR event		
Inflow =	2.42 cfs @	12.42 hrs, Volume=	20,149 cf	
Outflow =	2.33 cfs @	12.48 hrs, Volume=	19,637 cf,	Atten= 4%, Lag= 3.3 min
Discarded =	0.06 cfs @	9.98 hrs, Volume=	4,113 cf	
Primary =	2.27 cfs @	12.48 hrs, Volume=	15,524 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 111.60' @ 12.48 hrs Surf.Area= 2,306 sf Storage= 1,208 cf
Flood Elev= 115.00' Surf.Area= 4,793 sf Storage= 9,206 cf

Plug-Flow detention time= 51.4 min calculated for 19,630 cf (97% of inflow)
Center-of-Mass det. time= 27.2 min (914.0 - 886.7)

Volume	Invert	Avail.Storage	Storage Description
#1	109.00'	504 cf	**Loamy Sand Basin Bottom (Prismatic)** Listed below (Recalc) 2,024 cf Overall - 8 cf Embedded = 2,016 cf x 25.0% Voids
#2	110.50'	8 cf	**6.0" Round 6" Underdrain** Inside #1 L= 40.0'
#3	111.00'	18,507 cf	**Basin Contours (Irregular)** Listed below (Recalc)
		19,019 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
109.00	1,012	0	0
111.00	1,012	2,024	2,024

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
111.00	1,012	144.0	0	0	1,012
112.00	1,497	171.0	1,247	1,247	1,707
113.00	2,081	202.0	1,781	3,028	2,646
114.00	2,757	233.0	2,411	5,439	3,741
115.00	3,781	280.0	3,256	8,694	5,676
116.00	4,597	294.0	4,182	12,877	6,377
117.00	6,731	382.0	5,630	18,507	11,123

Device	Routing	Invert	Outlet Devices
#1	Discarded	109.00'	**2.410 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#2	Device 1	110.50'	**2.410 in/hr Flow through Loamy Sand over Surface area from 110.50' - 111.00'** Excluded Surface area = 1,012 sf Phase-In= 0.01'
#3	Primary	108.00'	**18.0" Round 18" CPP** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.00' / 98.00' S= 0.1333 '/' Cc= 0.900 n= 0.012 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#4	Device 3	108.00'	**17.0" Vert. 17" Plug Orifice** C= 0.600
#5	Device 4	110.50'	**1.0" Vert. 1" Underdrain Orifice** C= 0.600
#6	Device 4	111.00'	**10.0" Vert. 10" Low Orifice X 2.00** C= 0.600
#7	Device 4	112.00'	**1.5' long x 0.5' breadth 18" W Outflow Structure Weirs (3) X 3.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#8	Device 4	112.60'	**16.0' long x 0.5' breadth Outflow Structure Top** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#9	Secondary	114.90'	**10.0' long x 20.0' breadth Emergency Overflow 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=0.06 cfs @ 9.98 hrs HW=111.00' (Free Discharge)
└─**1=Exfiltration** (Passes 0.06 cfs of 0.11 cfs potential flow)
  └─**2=Flow through Loamy Sand** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=2.27 cfs @ 12.48 hrs HW=111.60' TW=97.33' (Dynamic Tailwater)
└─**3=18" CPP** (Passes 2.27 cfs of 14.38 cfs potential flow)
  └─**4=17" Plug Orifice** (Passes 2.27 cfs of 12.92 cfs potential flow)
    ├─**5=1" Underdrain Orifice** (Orifice Controls 0.03 cfs @ 4.96 fps)
    ├─**6=10" Low Orifice** (Orifice Controls 2.25 cfs @ 2.65 fps)
    ├─**7=18" W Outflow Structure Weirs (3)** (Controls 0.00 cfs)
    └─**8=Outflow Structure Top** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=109.00' TW=81.01' (Dynamic Tailwater)
└─**9=Emergency Overflow Weir** (Controls 0.00 cfs)

Summary for Pond P-E1: DMH E1

Inflow Area =	10,761 sf,	4.48% Impervious,	Inflow Depth > 7.42"	for 1-YR event
Inflow =	1.39 cfs @	12.48 hrs, Volume=	6,650 cf	
Outflow =	1.39 cfs @	12.48 hrs, Volume=	6,650 cf,	Atten= 0%, Lag= 0.0 min
Primary =	1.39 cfs @	12.48 hrs, Volume=	6,650 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 114.85' @ 12.48 hrs
Flood Elev= 119.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	114.25'	**18.0" Round 18" CPP** L= 99.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 114.25' / 112.00' S= 0.0227 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	119.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.39 cfs @ 12.48 hrs HW=114.85' TW=111.60' (Dynamic Tailwater)
└─**1=18" CPP** (Inlet Controls 1.39 cfs @ 2.09 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.25' TW=102.00' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond P-E2: DMH E2

Inflow Area =	10,761 sf,	4.48% Impervious,	Inflow Depth > 7.42"	for 1-YR event
Inflow =	1.39 cfs @	12.48 hrs, Volume=	6,650 cf	
Outflow =	1.39 cfs @	12.48 hrs, Volume=	6,650 cf,	Atten= 0%, Lag= 0.0 min
Primary =	1.39 cfs @	12.48 hrs, Volume=	6,650 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 122.65' @ 12.48 hrs
Flood Elev= 130.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	122.00'	**15.0" Round 15" CPP** L= 140.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 122.00' / 114.50' S= 0.0536 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	130.10'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.39 cfs @ 12.48 hrs HW=122.65' TW=114.85' (Dynamic Tailwater)
1=15" CPP (Inlet Controls 1.39 cfs @ 2.16 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' TW=102.00' (Dynamic Tailwater)
2=DMH SURCHARGE (Controls 0.00 cfs)

Summary for Pond P-SF: WQ SAND FILTER

Inflow Area = 166,795 sf, 63.82% Impervious, Inflow Depth = 1.17" for 1-YR event
Inflow = 3.11 cfs @ 12.05 hrs, Volume= 16,194 cf
Outflow = 1.55 cfs @ 12.25 hrs, Volume= 16,194 cf, Atten= 50%, Lag= 12.0 min
Primary = 0.20 cfs @ 12.25 hrs, Volume= 12,952 cf
Secondary = 1.35 cfs @ 12.25 hrs, Volume= 3,242 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 133.95' @ 12.25 hrs Surf.Area= 3,561 sf Storage= 5,155 cf
Flood Elev= 135.00' Surf.Area= 10,052 sf Storage= 10,002 cf

Plug-Flow detention time= 238.1 min calculated for 16,189 cf (100% of inflow)
Center-of-Mass det. time= 238.1 min (1,061.3 - 823.1)

Volume	Invert	Avail.Storage	Storage Description
#1	128.50'	416 cf	**Sand Filter Media (Irregular)** Listed below (Recalc) 1,260 cf Overall x 33.0% Voids
#2	130.00'	139 cf	**Loam (Irregular)** Listed below (Recalc) 420 cf Overall x 33.0% Voids
#3	130.50'	9,447 cf	**Sand Filter Contours (Irregular)** Listed below (Recalc)
		10,002 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
128.50	840	114.0	0	0	840
130.00	840	114.0	1,260	1,260	1,011

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
130.00	840	114.0	0	0	840
130.50	840	114.0	420	420	897

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
130.50	840	114.0	0	0	840
131.00	972	122.0	453	453	1,001
132.00	1,253	138.0	1,110	1,562	1,357
133.00	1,562	153.0	1,405	2,967	1,734
134.00	1,899	168.0	1,728	4,695	2,149
135.00	8,372	394.0	4,753	9,447	12,260

Device	Routing	Invert	Outlet Devices
#1	Primary	128.50'	**2.410 in/hr BOTTOM OF SAND FILTER over Surface area** Phase-In= 0.01'
#2	Device 1	128.50'	**8.270 in/hr FLOW THRU FILTER over Surface area** Phase-In= 0.01'
#3	Secondary	133.90'	**45.0' long x 1.0' breadth OVERFLOW WEIR** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.20 cfs @ 12.25 hrs HW=133.95' (Free Discharge)
└─**1=BOTTOM OF SAND FILTER** (Exfiltration Controls 0.20 cfs)
  └─**2=FLOW THRU FILTER** (Passes 0.20 cfs of 0.68 cfs potential flow)

Secondary OutFlow Max=1.35 cfs @ 12.25 hrs HW=133.95' TW=130.20' (Dynamic Tailwater)
└─**3=OVERFLOW WEIR** (Weir Controls 1.35 cfs @ 0.60 fps)

Summary for Pond RF N-1: RF N-1

Inflow Area = 9,011 sf,100.00% Impervious, Inflow Depth = 2.47" for 1-YR event
Inflow = 0.62 cfs @ 12.03 hrs, Volume= 1,854 cf
Outflow = 0.62 cfs @ 12.03 hrs, Volume= 1,854 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.62 cfs @ 12.03 hrs, Volume= 1,854 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 151.80' @ 12.03 hrs
Flood Elev= 155.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	151.32'	**8.0" Round 8" CPP** L= 65.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 151.32' / 150.66' S= 0.0101 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Secondary	155.25'	**6.0" Horiz. CO SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.62 cfs @ 12.03 hrs HW=151.79' TW=148.90' (Dynamic Tailwater)
└─**1=8" CPP** (Inlet Controls 0.62 cfs @ 2.34 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=151.32' TW=147.50' (Dynamic Tailwater)
└─**2=CO SURCHARGE** (Controls 0.00 cfs)

Summary for Pond RF S-1: RF S-1

Inflow Area = 24,651 sf,100.00% Impervious, Inflow Depth = 2.47" for 1-YR event
Inflow = 1.71 cfs @ 12.03 hrs, Volume= 5,073 cf
Outflow = 1.71 cfs @ 12.03 hrs, Volume= 5,073 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.71 cfs @ 12.03 hrs, Volume= 5,073 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.17' @ 12.03 hrs
Flood Elev= 155.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.46'	**12.0" Round 12" CPP** L= 105.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.46' / 148.40' S= 0.0100 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	155.70'	**6.0" Horiz. CO SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.70 cfs @ 12.03 hrs HW=150.17' TW=148.90' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 1.70 cfs @ 2.86 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=149.46' TW=149.60' (Dynamic Tailwater)
↑—**2=CO SURCHARGE** (Controls 0.00 cfs)

Summary for Pond S1: DMH S1

Inflow Area = 33,307 sf, 68.09% Impervious, Inflow Depth > 3.08" for 1-YR event
Inflow = 1.36 cfs @ 12.08 hrs, Volume= 8,550 cf, Incl. 0.04 cfs Base Flow
Outflow = 1.36 cfs @ 12.08 hrs, Volume= 8,550 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.36 cfs @ 12.08 hrs, Volume= 8,550 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 113.88' @ 12.08 hrs
Flood Elev= 124.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	113.16'	**12.0" Round 12" CPP** L= 16.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 113.16' / 113.00' S= 0.0097 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	124.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.35 cfs @ 12.08 hrs HW=113.88' TW=111.49' (Dynamic Tailwater)
↑—**1=12" CPP** (Barrel Controls 1.35 cfs @ 3.12 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=113.27' TW=109.00' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond S1A: CB S1A

Inflow Area = 12,398 sf, 73.86% Impervious, Inflow Depth = 1.55" for 1-YR event
Inflow = 0.54 cfs @ 12.07 hrs, Volume= 1,606 cf
Outflow = 0.54 cfs @ 12.07 hrs, Volume= 1,606 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.54 cfs @ 12.07 hrs, Volume= 1,606 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 119.37' @ 12.07 hrs
Flood Elev= 123.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	119.00'	**12.0" Round 12" CPP** L= 57.3' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 119.00' / 117.77' S= 0.0215 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	123.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.54 cfs @ 12.07 hrs HW=119.37' TW=113.88' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 0.54 cfs @ 2.06 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=119.00' TW=109.00' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond S1B: CB S1B

Inflow Area = 20,909 sf, 64.68% Impervious, Inflow Depth = 1.34" for 1-YR event
Inflow = 0.78 cfs @ 12.08 hrs, Volume= 2,334 cf
Outflow = 0.78 cfs @ 12.08 hrs, Volume= 2,334 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.78 cfs @ 12.08 hrs, Volume= 2,334 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 119.28' @ 12.08 hrs
Flood Elev= 123.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	118.83'	**12.0" Round 12" CPP** L= 79.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.83' / 118.00' S= 0.0105 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	123.20'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.78 cfs @ 12.08 hrs HW=119.28' TW=113.88' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 0.78 cfs @ 2.28 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=118.83' TW=109.00' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond SF PT N: SF PT N

Inflow Area =	159,533 sf,	65.62% Impervious,	Inflow Depth = 1.19"	for 1-YR event
Inflow =	3.01 cfs @	12.05 hrs, Volume=	15,797 cf	
Outflow =	3.01 cfs @	12.05 hrs, Volume=	15,797 cf,	Atten= 0%, Lag= 0.0 min
Primary =	3.01 cfs @	12.05 hrs, Volume=	15,797 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 134.03' @ 12.23 hrs
Flood Elev= 136.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.89'	**15.0" Round 15" CPP** L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 132.89' / 132.75' S= 0.0127 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	136.50'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.01 cfs @ 12.05 hrs HW=133.89' TW=133.13' (Dynamic Tailwater)
↑—**1=15" CPP** (Barrel Controls 3.01 cfs @ 3.90 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.89' TW=128.50' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond SF PT NE: SF PT NE

Inflow Area =	2,550 sf,	64.86% Impervious,	Inflow Depth = 1.34"	for 1-YR event
Inflow =	0.10 cfs @	12.08 hrs, Volume=	284 cf	
Outflow =	0.10 cfs @	12.08 hrs, Volume=	284 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.10 cfs @	12.08 hrs, Volume=	284 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 133.95' @ 12.25 hrs
Flood Elev= 136.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.09'	**12.0" Round 12" CPP** L= 9.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.09' / 133.00' S= 0.0100 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	136.90'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.10 cfs @ 12.08 hrs HW=133.35' TW=133.32' (Dynamic Tailwater)
↑—**1=12" CPP** (Outlet Controls 0.10 cfs @ 0.92 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.09' TW=128.50' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond SW1: CB SW 1

Inflow Area = 6,395 sf, 75.18% Impervious, Inflow Depth = 1.63" for 1-YR event
Inflow = 0.29 cfs @ 12.07 hrs, Volume= 869 cf
Outflow = 0.29 cfs @ 12.07 hrs, Volume= 869 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.29 cfs @ 12.07 hrs, Volume= 869 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 138.49' @ 12.07 hrs
Flood Elev= 152.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	138.23'	**12.0" Round 12" CPP** L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 138.23' / 138.00' S= 0.1150 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	152.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.29 cfs @ 12.07 hrs HW=138.49' TW=111.49' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 0.29 cfs @ 1.75 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=138.23' TW=109.00' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond SW2: CB SW 2

Inflow Area = 18,007 sf, 18.73% Impervious, Inflow Depth = 0.48" for 1-YR event
Inflow = 0.12 cfs @ 12.33 hrs, Volume= 718 cf
Outflow = 0.12 cfs @ 12.33 hrs, Volume= 718 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 12.33 hrs, Volume= 718 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 149.17' @ 12.33 hrs
Flood Elev= 152.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.00'	**12.0" Round 12" CPP** L= 8.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.00' / 148.50' S= 0.0625 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	152.90'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area)

Limited to weir flow at low heads

Primary OutFlow Max=0.12 cfs @ 12.33 hrs HW=149.17' TW=111.53' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 0.12 cfs @ 1.40 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=149.00' TW=109.00' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Link L E: OFFSITE EAST

Inflow Area = 61,643 sf, 0.00% Impervious, Inflow Depth = 0.12" for 1-YR event
Inflow = 0.04 cfs @ 12.48 hrs, Volume= 629 cf
Primary = 0.04 cfs @ 12.48 hrs, Volume= 629 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L GLAD: OFFSITE GLADSTONE

Inflow Area = 19,522 sf, 30.20% Impervious, Inflow Depth = 0.64" for 1-YR event
Inflow = 0.34 cfs @ 12.03 hrs, Volume= 1,034 cf
Primary = 0.34 cfs @ 12.03 hrs, Volume= 1,034 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L T: TOTAL LEAVING SITE

Inflow Area = 227,016 sf, 31.33% Impervious, Inflow Depth > 1.04" for 1-YR event
Inflow = 2.88 cfs @ 12.14 hrs, Volume= 19,626 cf
Primary = 2.88 cfs @ 12.14 hrs, Volume= 19,626 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

10 & 100-YR STORMS

Time span=0.00-32.00 hrs, dt=0.01 hrs, 3201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment WS 10191: WS 10191 Runoff Area=15,671 sf 57.83% Impervious Runoff Depth=2.99"
Flow Length=727' Tc=10.7 min CN=82 Runoff=1.08 cfs 3,904 cf

Subcatchment WS BSN N: WS BSN N Runoff Area=10,761 sf 4.48% Impervious Runoff Depth=1.45"
Tc=5.0 min CN=63 Runoff=0.40 cfs 1,297 cf

Subcatchment WS BSN S: WS BSN S Runoff Area=52,372 sf 36.69% Impervious Runoff Depth=2.37"
Flow Length=727' Tc=10.7 min CN=75 Runoff=2.84 cfs 10,337 cf

Subcatchment WS N: SITE NORTH Runoff Area=19,522 sf 30.20% Impervious Runoff Depth=2.12"
Flow Length=383' Tc=1.6 min CN=72 Runoff=1.29 cfs 3,451 cf

Subcatchment WS N2A: WS N2A Runoff Area=3,496 sf 63.30% Impervious Runoff Depth=3.18"
Tc=5.0 min CN=84 Runoff=0.31 cfs 926 cf

Subcatchment WS N2B: WS N2B Runoff Area=4,068 sf 39.87% Impervious Runoff Depth=2.45"
Tc=5.0 min CN=76 Runoff=0.28 cfs 832 cf

Subcatchment WS N3A: WS N3A Runoff Area=10,921 sf 19.21% Impervious Runoff Depth=1.81"
Tc=5.0 min CN=68 Runoff=0.53 cfs 1,646 cf

Subcatchment WS N4A: WS N4A Runoff Area=669 sf 0.00% Impervious Runoff Depth=1.31"
Tc=5.0 min CN=61 Runoff=0.02 cfs 73 cf

Subcatchment WS N5-1A: WS N5-1A Runoff Area=6,543 sf 65.99% Impervious Runoff Depth=3.28"
Tc=5.0 min CN=85 Runoff=0.59 cfs 1,786 cf

Subcatchment WS N5-1B: WS N5-1B Runoff Area=2,766 sf 100.00% Impervious Runoff Depth=4.66"
Tc=5.0 min CN=98 Runoff=0.32 cfs 1,075 cf

Subcatchment WS N5A: WS N5A Runoff Area=2,547 sf 90.54% Impervious Runoff Depth=4.21"
Tc=5.0 min CN=94 Runoff=0.28 cfs 893 cf

Subcatchment WS N5B: WS N5B Runoff Area=12,154 sf 55.69% Impervious Runoff Depth=2.99"
Tc=5.0 min CN=82 Runoff=1.01 cfs 3,028 cf

Subcatchment WS N6A: WS N6A Runoff Area=1,851 sf 58.35% Impervious Runoff Depth=3.08"
Tc=5.0 min CN=83 Runoff=0.16 cfs 476 cf

Subcatchment WS N6B: WS N6B Runoff Area=1,431 sf 89.31% Impervious Runoff Depth=4.21"
Tc=5.0 min CN=94 Runoff=0.16 cfs 502 cf

Subcatchment WS N7A: WS N7A Runoff Area=45,199 sf 64.27% Impervious Runoff Depth=3.28"
Flow Length=521' Tc=11.0 min CN=85 Runoff=3.35 cfs 12,338 cf

Subcatchment WS N7B: WS N7B Runoff Area=34,226 sf 51.20% Impervious Runoff Depth=2.81"
Flow Length=340' Tc=2.6 min CN=80 Runoff=2.93 cfs 8,003 cf

Subcatchment WS NE: WOODS NORTHEAST Runoff Area=29,178 sf 0.00% Impervious Runoff Depth=0.93"
Flow Length=219' Tc=9.5 min CN=55 Runoff=0.50 cfs 2,263 cf

Subcatchment WS NE1A: WS NE1A Runoff Area=1,234 sf 65.48% Impervious Runoff Depth=3.28"
Tc=5.0 min CN=85 Runoff=0.11 cfs 337 cf

Subcatchment WS NE1B: WS NE1B Runoff Area=1,316 sf 64.29% Impervious Runoff Depth=3.28"
Tc=5.0 min CN=85 Runoff=0.12 cfs 359 cf

Subcatchment WS RF N: WS ROOF N Runoff Area=9,011 sf 100.00% Impervious Runoff Depth=4.66"
Flow Length=90' Slope=0.0050 '/' Tc=1.9 min CN=98 Runoff=1.15 cfs 3,502 cf

Subcatchment WS RF S: WS ROOF S Runoff Area=24,651 sf 100.00% Impervious Runoff Depth=4.66"
Flow Length=90' Slope=0.0050 '/' Tc=1.9 min CN=98 Runoff=3.14 cfs 9,580 cf

Subcatchment WS S1A: WS S1A Runoff Area=12,398 sf 73.86% Impervious Runoff Depth=3.57"
Tc=5.0 min CN=88 Runoff=1.21 cfs 3,693 cf

Subcatchment WS S1B: WS S1B Runoff Area=20,909 sf 64.68% Impervious Runoff Depth=3.28"
Tc=5.0 min CN=85 Runoff=1.89 cfs 5,708 cf

Subcatchment WS SE: WOODS SOUTHEAST Runoff Area=32,465 sf 0.00% Impervious Runoff Depth=0.93"
Flow Length=100' Slope=0.3260 '/' Tc=6.9 min CN=55 Runoff=0.62 cfs 2,518 cf

Subcatchment WS SF: WS SF Runoff Area=4,712 sf 2.42% Impervious Runoff Depth=1.38"
Tc=5.0 min CN=62 Runoff=0.17 cfs 541 cf

Subcatchment WS STE SE: SITE SOUTHEAST Runoff Area=9,338 sf 59.97% Impervious Runoff Depth=3.08"
Tc=5.0 min CN=83 Runoff=0.80 cfs 2,400 cf

Subcatchment WS SW1: WS SW1 Runoff Area=6,395 sf 75.18% Impervious Runoff Depth=3.68"
Tc=5.0 min CN=89 Runoff=0.64 cfs 1,959 cf

Subcatchment WS SW2: WS SW2 Runoff Area=18,007 sf 18.73% Impervious Runoff Depth=1.81"
Flow Length=254' Tc=18.6 min CN=68 Runoff=0.59 cfs 2,714 cf

Pond 10191: GICB EX 10191 Peak Elev=104.76' Inflow=1.08 cfs 3,904 cf
Primary=1.08 cfs 3,904 cf Secondary=0.00 cfs 0 cf Outflow=1.08 cfs 3,904 cf

Pond 10322: DMH EX 10322 Peak Elev=100.90' Inflow=13.05 cfs 57,857 cf
Primary=9.94 cfs 55,630 cf Secondary=3.10 cfs 2,227 cf Outflow=13.05 cfs 57,857 cf

Pond 111710: DMH EX 111710 Peak Elev=87.04' Inflow=13.61 cfs 60,257 cf
Primary=8.90 cfs 55,665 cf Secondary=4.71 cfs 4,591 cf Outflow=13.61 cfs 60,257 cf

Pond N0: DMH N0 Peak Elev=134.51' Inflow=7.19 cfs 14,798 cf
Primary=7.19 cfs 14,798 cf Secondary=0.00 cfs 0 cf Outflow=7.19 cfs 14,798 cf

Pond N1: DMH N1 Peak Elev=135.66' Inflow=12.52 cfs 44,660 cf
Primary=5.34 cfs 29,862 cf Secondary=7.19 cfs 14,798 cf Tertiary=0.00 cfs 0 cf Outflow=12.52 cfs 44,660 cf

Pond N2: DMH N2 Peak Elev=135.96' Inflow=0.59 cfs 1,758 cf
Primary=0.59 cfs 1,758 cf Secondary=0.00 cfs 0 cf Outflow=0.59 cfs 1,758 cf

Pond N2A: CB N2A Peak Elev=136.17' Inflow=0.31 cfs 926 cf
Primary=0.31 cfs 926 cf Secondary=0.00 cfs 0 cf Outflow=0.31 cfs 926 cf

Pond N2B: CB N2B Peak Elev=136.18' Inflow=0.28 cfs 832 cf
Primary=0.28 cfs 832 cf Secondary=0.00 cfs 0 cf Outflow=0.28 cfs 832 cf

Pond N3: DMH N3 Peak Elev=138.23' Storage=77 cf Inflow=11.97 cfs 42,902 cf
Primary=11.96 cfs 42,902 cf Secondary=0.00 cfs 0 cf Outflow=11.96 cfs 42,902 cf

Pond N3A: DI N3A Peak Elev=147.74' Inflow=0.53 cfs 1,646 cf
Primary=0.53 cfs 1,646 cf Secondary=0.00 cfs 0 cf Outflow=0.53 cfs 1,646 cf

Pond N4: DMH N4 Peak Elev=143.24' Inflow=11.48 cfs 41,256 cf
Primary=11.48 cfs 41,256 cf Secondary=0.00 cfs 0 cf Outflow=11.48 cfs 41,256 cf

Pond N4A: DI N4A Peak Elev=147.27' Inflow=0.02 cfs 73 cf
Primary=0.02 cfs 73 cf Secondary=0.00 cfs 0 cf Outflow=0.02 cfs 73 cf

Pond N5: DMH N5 Peak Elev=144.01' Inflow=11.46 cfs 41,183 cf
Primary=11.46 cfs 41,183 cf Secondary=0.00 cfs 0 cf Outflow=11.46 cfs 41,183 cf

Pond N5-1: DMH N5-1 Peak Elev=144.88' Inflow=0.91 cfs 2,861 cf
Primary=0.91 cfs 2,861 cf Secondary=0.00 cfs 0 cf Outflow=0.91 cfs 2,861 cf

Pond N5-1A: CB N5-1A Peak Elev=145.24' Inflow=0.59 cfs 1,786 cf
Primary=0.59 cfs 1,786 cf Secondary=0.00 cfs 0 cf Outflow=0.59 cfs 1,786 cf

Pond N5-1B: CB N5-1B Peak Elev=145.08' Inflow=0.32 cfs 1,075 cf
Primary=0.32 cfs 1,075 cf Secondary=0.00 cfs 0 cf Outflow=0.32 cfs 1,075 cf

Pond N5A: CB N5A Peak Elev=147.86' Inflow=0.28 cfs 893 cf
Primary=0.28 cfs 893 cf Secondary=0.00 cfs 0 cf Outflow=0.28 cfs 893 cf

Pond N5B: CB N5B Peak Elev=148.06' Inflow=1.01 cfs 3,028 cf
Primary=1.01 cfs 3,028 cf Secondary=0.00 cfs 0 cf Outflow=1.01 cfs 3,028 cf

Pond N6: DMH N6 Peak Elev=145.45' Inflow=9.45 cfs 34,400 cf
Primary=9.45 cfs 34,400 cf Secondary=0.00 cfs 0 cf Outflow=9.45 cfs 34,400 cf

Pond N6-1: DMH N6-1 Peak Elev=149.80' Inflow=4.29 cfs 13,081 cf
Primary=4.29 cfs 13,081 cf Secondary=0.00 cfs 0 cf Outflow=4.29 cfs 13,081 cf

Pond N6A: CB N6A Peak Elev=150.19' Inflow=0.16 cfs 476 cf
Primary=0.16 cfs 476 cf Secondary=0.00 cfs 0 cf Outflow=0.16 cfs 476 cf

Pond N6B: CB N6B Peak Elev=150.19' Inflow=0.16 cfs 502 cf
Primary=0.16 cfs 502 cf Secondary=0.00 cfs 0 cf Outflow=0.16 cfs 502 cf

Pond N7: DMH N7 Peak Elev=147.40' Inflow=5.20 cfs 20,341 cf
Primary=5.20 cfs 20,341 cf Secondary=0.00 cfs 0 cf Outflow=5.20 cfs 20,341 cf

Pond N7A: DGCB N7A Peak Elev=150.91' Inflow=3.35 cfs 12,338 cf
Primary=3.35 cfs 12,338 cf Secondary=0.00 cfs 0 cf Outflow=3.35 cfs 12,338 cf

Pond N7B: CB N7B Peak Elev=150.92' Inflow=2.93 cfs 8,003 cf
Primary=2.93 cfs 8,003 cf Secondary=0.00 cfs 0 cf Outflow=2.93 cfs 8,003 cf

Pond NE1: DMH NE1 Peak Elev=134.04' Inflow=0.23 cfs 696 cf
Primary=0.23 cfs 696 cf Secondary=0.00 cfs 0 cf Outflow=0.23 cfs 696 cf

Pond NE1A: DI NE1A Peak Elev=134.04' Inflow=0.11 cfs 337 cf
Primary=0.11 cfs 337 cf Secondary=0.00 cfs 0 cf Outflow=0.11 cfs 337 cf

Pond NE1B: DI NE1B Peak Elev=134.04' Inflow=0.12 cfs 359 cf
Primary=0.12 cfs 359 cf Secondary=0.00 cfs 0 cf Outflow=0.12 cfs 359 cf

Pond P BSN N: DETENTION BASIN NORTH Peak Elev=132.18' Storage=8,539 cf Inflow=13.02 cfs 30,712 cf
Discarded=0.02 cfs 662 cf Primary=6.52 cfs 30,043 cf Secondary=0.00 cfs 0 cf Outflow=6.53 cfs 30,705 cf

Pond P SE 1: DMH SE1 Peak Elev=104.68' Inflow=13.05 cfs 57,857 cf
Primary=13.05 cfs 57,857 cf Secondary=0.00 cfs 0 cf Outflow=13.05 cfs 57,857 cf

Pond P-BSN-S: DETENTION BASIN SOUTH Peak Elev=112.59' Storage=2,736 cf Inflow=12.24 cfs 59,063 cf
Discarded=0.06 cfs 4,598 cf Primary=11.97 cfs 53,952 cf Secondary=0.00 cfs 0 cf Outflow=12.03 cfs 58,551 cf

Pond P-E1: DMH E1 Peak Elev=115.94' Inflow=6.52 cfs 30,043 cf
Primary=6.52 cfs 30,043 cf Secondary=0.00 cfs 0 cf Outflow=6.52 cfs 30,043 cf

Pond P-E2: DMH E2 Peak Elev=124.58' Inflow=6.52 cfs 30,043 cf
Primary=6.52 cfs 30,043 cf Secondary=0.00 cfs 0 cf Outflow=6.52 cfs 30,043 cf

Pond P-SF: WQ SAND FILTER Peak Elev=134.03' Storage=5,302 cf Inflow=5.71 cfs 31,098 cf
Primary=0.21 cfs 16,149 cf Secondary=5.48 cfs 14,617 cf Outflow=5.68 cfs 30,766 cf

Pond RF N-1: RF N-1 Peak Elev=152.12' Inflow=1.15 cfs 3,502 cf
Primary=1.15 cfs 3,502 cf Secondary=0.00 cfs 0 cf Outflow=1.15 cfs 3,502 cf

Pond RF S-1: RF S-1 Peak Elev=150.71' Inflow=3.14 cfs 9,580 cf
Primary=3.14 cfs 9,580 cf Secondary=0.00 cfs 0 cf Outflow=3.14 cfs 9,580 cf

Pond S1: DMH S1 Peak Elev=114.77' Inflow=3.14 cfs 14,010 cf
Primary=3.14 cfs 14,010 cf Secondary=0.00 cfs 0 cf Outflow=3.14 cfs 14,010 cf

Pond S1A: CB S1A Peak Elev=119.58' Inflow=1.21 cfs 3,693 cf
Primary=1.21 cfs 3,693 cf Secondary=0.00 cfs 0 cf Outflow=1.21 cfs 3,693 cf

Pond S1B: CB S1B Peak Elev=119.59' Inflow=1.89 cfs 5,708 cf
Primary=1.89 cfs 5,708 cf Secondary=0.00 cfs 0 cf Outflow=1.89 cfs 5,708 cf

Pond SF PT N: SF PT N Peak Elev=134.84' Inflow=5.34 cfs 29,862 cf
Primary=5.34 cfs 29,862 cf Secondary=0.00 cfs 0 cf Outflow=5.34 cfs 29,862 cf

Pond SF PT NE: SF PT NE Peak Elev=134.03' Inflow=0.23 cfs 696 cf
Primary=0.23 cfs 695 cf Secondary=0.00 cfs 0 cf Outflow=0.23 cfs 695 cf

Pond SW1: CB SW 1 Peak Elev=138.63' Inflow=0.64 cfs 1,959 cf
Primary=0.64 cfs 1,959 cf Secondary=0.00 cfs 0 cf Outflow=0.64 cfs 1,959 cf

Pond SW2: CB SW 2 Peak Elev=149.38' Inflow=0.59 cfs 2,714 cf
Primary=0.59 cfs 2,714 cf Secondary=0.00 cfs 0 cf Outflow=0.59 cfs 2,714 cf

Link L E: OFFSITE EAST Inflow=1.10 cfs 4,780 cf
Primary=1.10 cfs 4,780 cf

Link L GLAD: OFFSITE GLADSTONE Inflow=1.29 cfs 3,451 cf
Primary=1.29 cfs 3,451 cf

Link L T: TOTAL LEAVING SITE Inflow=15.30 cfs 68,488 cf
Primary=15.30 cfs 68,488 cf

Total Runoff Area = 393,811 sf Runoff Volume = 86,139 cf Average Runoff Depth = 2.62"
54.91% Pervious = 216,244 sf 45.09% Impervious = 177,567 sf

Summary for Subcatchment WS 10191: WS 10191

Runoff = 1.08 cfs @ 12.15 hrs, Volume= 3,904 cf, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	9,062	98	Imp Surfaces & Misc Structures
	6,609	61	>75% Grass cover, Good, HSG B
	15,671	82	Weighted Average
	6,609		42.17% Pervious Area
	9,062		57.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	13	1.0000	4.46		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
6.1	96	0.0570	0.26		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
0.5	63	0.0110	2.13		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.9	132	0.0117	0.76		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.2	133	0.0422	9.63	67.39	**Channel Flow, Swale West** Area= 7.0 sf Perim= 10.0' r= 0.70' n= 0.025 Earth, grassed & winding
1.0	290	0.0850	4.79	19.17	**Channel Flow, Swale South** Area= 4.0 sf Perim= 6.0' r= 0.67' n= 0.069 Riprap, 6-inch
10.7	727	Total			

Summary for Subcatchment WS BSN N: WS BSN N

Runoff = 0.40 cfs @ 12.08 hrs, Volume= 1,297 cf, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	482	98	Imp Surfaces & Misc Structures
	10,279	61	>75% Grass cover, Good, HSG B
	10,761	63	Weighted Average
	10,279		95.52% Pervious Area
	482		4.48% Impervious Area

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

Summary for Subcatchment WS BSN S: WS BSN S

Runoff = 2.84 cfs @ 12.15 hrs, Volume= 10,337 cf, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	615	98	Imp Surfaces & Misc Structures
	23,145	61	>75% Grass cover, Good, HSG B
	28,612	85	1/8 acre lots, 65% imp, HSG B
	52,372	75	Weighted Average
	33,159		63.31% Pervious Area
	19,213		36.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	13	1.0000	4.46		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
6.1	96	0.0570	0.26		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
0.5	63	0.0110	2.13		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.9	132	0.0117	0.76		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.2	133	0.0422	9.63	67.39	**Channel Flow, Swale West** Area= 7.0 sf Perim= 10.0' r= 0.70' n= 0.025 Earth, grassed & winding
1.0	290	0.0850	4.79	19.17	**Channel Flow, Swale South** Area= 4.0 sf Perim= 6.0' r= 0.67' n= 0.069 Riprap, 6-inch
10.7	727	Total			

Summary for Subcatchment WS N: SITE NORTH

Runoff = 1.29 cfs @ 12.03 hrs, Volume= 3,451 cf, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
5,895	98	Paved parking, HSG B
13,627	61	>75% Grass cover, Good, HSG B
19,522	72	Weighted Average
13,627		69.80% Pervious Area
5,895		30.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	53	0.0750	2.10		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.33"
0.5	163	0.0711	5.41		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.4	81	0.0630	3.76		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.3	86	0.0512	4.59		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.6	383	Total			

Summary for Subcatchment WS N2A: WS N2A

Runoff = 0.31 cfs @ 12.07 hrs, Volume= 926 cf, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	2,213	98	Imp Surfaces & Misc Structures
	1,283	61	>75% Grass cover, Good, HSG B
	3,496	84	Weighted Average
	1,283		36.70% Pervious Area
	2,213		63.30% Impervious Area

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

Summary for Subcatchment WS N2B: WS N2B

Runoff = 0.28 cfs @ 12.08 hrs, Volume= 832 cf, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	1,622	98	Imp Surfaces & Misc Structures
	2,446	61	>75% Grass cover, Good, HSG B
	4,068	76	Weighted Average
	2,446		60.13% Pervious Area
	1,622		39.87% Impervious Area

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

Summary for Subcatchment WS N3A: WS N3A

Runoff = 0.53 cfs @ 12.08 hrs, Volume= 1,646 cf, Depth= 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	2,098	98	Imp Surfaces & Misc Structures
	8,823	61	>75% Grass cover, Good, HSG B
	10,921	68	Weighted Average
	8,823		80.79% Pervious Area
	2,098		19.21% Impervious Area

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

Summary for Subcatchment WS N4A: WS N4A

Runoff = 0.02 cfs @ 12.08 hrs, Volume= 73 cf, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
669	61	>75% Grass cover, Good, HSG B
669		100.00% Pervious Area

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

Summary for Subcatchment WS N5-1A: WS N5-1A

Runoff = 0.59 cfs @ 12.07 hrs, Volume= 1,786 cf, Depth= 3.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	4,318	98	Imp Surfaces & Misc Structures
	2,225	61	>75% Grass cover, Good, HSG B
	6,543	85	Weighted Average
	2,225		34.01% Pervious Area
	4,318		65.99% Impervious Area

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

Summary for Subcatchment WS N5-1B: WS N5-1B

Runoff = 0.32 cfs @ 12.07 hrs, Volume= 1,075 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	2,766	98	Imp Surfaces & Misc Structures
	2,766		100.00% Impervious Area

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

Summary for Subcatchment WS N5A: WS N5A

Runoff = 0.28 cfs @ 12.07 hrs, Volume= 893 cf, Depth= 4.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	2,306	98	Imp Surfaces & Misc Structures
	241	61	>75% Grass cover, Good, HSG B
	2,547	94	Weighted Average
	241		9.46% Pervious Area
	2,306		90.54% Impervious Area

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

Summary for Subcatchment WS N5B: WS N5B

Runoff = 1.01 cfs @ 12.07 hrs, Volume= 3,028 cf, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	6,769	98	Imp Surfaces & Misc Structures
	5,385	61	>75% Grass cover, Good, HSG B
	12,154	82	Weighted Average
	5,385		44.31% Pervious Area
	6,769		55.69% Impervious Area

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

Summary for Subcatchment WS N6A: WS N6A

Runoff = 0.16 cfs @ 12.07 hrs, Volume= 476 cf, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	1,080	98	Imp Surfaces & Misc Structures
	771	61	>75% Grass cover, Good, HSG B
	1,851	83	Weighted Average
	771		41.65% Pervious Area
	1,080		58.35% Impervious Area

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

Summary for Subcatchment WS N6B: WS N6B

Runoff = 0.16 cfs @ 12.07 hrs, Volume= 502 cf, Depth= 4.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	1,278	98	Imp Surfaces & Misc Structures
	153	61	>75% Grass cover, Good, HSG B
	1,431	94	Weighted Average
	153		10.69% Pervious Area
	1,278		89.31% Impervious Area

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

Summary for Subcatchment WS N7A: WS N7A

Runoff = 3.35 cfs @ 12.15 hrs, Volume= 12,338 cf, Depth= 3.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	19,430	98	Imp Surfaces & Misc Structures
	10,969	61	>75% Grass cover, Good, HSG B
	14,800	85	1/8 acre lots, 65% imp, HSG B
	45,199	85	Weighted Average
	16,149		35.73% Pervious Area
	29,050		64.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	18	1.0000	4.76		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
7.2	95	0.0368	0.22		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
1.2	100	0.0400	1.40		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
2.5	308	0.0105	2.08		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
11.0	521	Total			

Summary for Subcatchment WS N7B: WS N7B

Runoff = 2.93 cfs @ 12.04 hrs, Volume= 8,003 cf, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	15,308	98	Imp Surfaces & Misc Structures
	15,508	61	>75% Grass cover, Good, HSG B
	3,410	85	1/8 acre lots, 65% imp, HSG B
	34,226	80	Weighted Average
	16,702		48.80% Pervious Area
	17,525		51.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	61	0.0300	1.49		**Sheet Flow, Paved Driveway** Smooth surfaces n= 0.011 P2= 3.33"
0.4	33	0.0406	1.49		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.33"
0.9	129	0.0140	2.40		**Shallow Concentrated Flow, Parking Lot** Paved Kv= 20.3 fps
0.2	28	0.0960	2.17		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	22	0.0518	4.62		**Shallow Concentrated Flow, Sidewalk** Paved Kv= 20.3 fps
0.3	67	0.0280	3.40		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.6	340	Total			

Summary for Subcatchment WS NE: WOODS NORTHEAST

Runoff = 0.50 cfs @ 12.16 hrs, Volume= 2,263 cf, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
	29,178	55	Woods, Good, HSG B
	29,178		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	96	0.1666	0.18		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.33"
0.8	123	0.2440	2.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
9.5	219	Total			

Summary for Subcatchment WS NE1A: WS NE1A

Runoff = 0.11 cfs @ 12.07 hrs, Volume= 337 cf, Depth= 3.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	808	98	Imp Surfaces & Misc Structures
	426	61	>75% Grass cover, Good, HSG B
	1,234	85	Weighted Average
	426		34.52% Pervious Area
	808		65.48% Impervious Area

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

Summary for Subcatchment WS NE1B: WS NE1B

Runoff = 0.12 cfs @ 12.07 hrs, Volume= 359 cf, Depth= 3.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	846	98	Imp Surfaces & Misc Structures
	470	61	>75% Grass cover, Good, HSG B
	1,316	85	Weighted Average
	470		35.71% Pervious Area
	846		64.29% Impervious Area

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

Summary for Subcatchment WS RF N: WS ROOF N

Runoff = 1.15 cfs @ 12.03 hrs, Volume= 3,502 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	9,011	98	Roof
	9,011		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	90	0.0050	0.79		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"

Summary for Subcatchment WS RF S: WS ROOF S

Runoff = 3.14 cfs @ 12.03 hrs, Volume= 9,580 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	24,651	98	Roof
	24,651		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	90	0.0050	0.79		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"

Summary for Subcatchment WS S1A: WS S1A

Runoff = 1.21 cfs @ 12.07 hrs, Volume= 3,693 cf, Depth= 3.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	9,157	98	Parking Lot South
	3,241	61	>75% Grass cover, Good, HSG B
	12,398	88	Weighted Average
	3,241		26.14% Pervious Area
	9,157		73.86% Impervious Area

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

Summary for Subcatchment WS S1B: WS S1B

Runoff = 1.89 cfs @ 12.07 hrs, Volume= 5,708 cf, Depth= 3.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	13,523	98	Parking Lot South
	7,386	61	>75% Grass cover, Good, HSG B
	20,909	85	Weighted Average
	7,386		35.32% Pervious Area
	13,523		64.68% Impervious Area

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

Summary for Subcatchment WS SE: WOODS SOUTHEAST

Runoff = 0.62 cfs @ 12.12 hrs, Volume= 2,518 cf, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

Area (sf)	CN	Description
32,465	55	Woods, Good, HSG B
32,465		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.3260	0.24		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.33"

Summary for Subcatchment WS SF: WS SF

Runoff = 0.17 cfs @ 12.08 hrs, Volume= 541 cf, Depth= 1.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	114	98	Imp Surfaces & Misc Structures
	4,598	61	>75% Grass cover, Good, HSG B
	4,712	62	Weighted Average
	4,598		97.58% Pervious Area
	114		2.42% Impervious Area

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

Summary for Subcatchment WS STE SE: SITE SOUTHEAST

Runoff = 0.80 cfs @ 12.07 hrs, Volume= 2,400 cf, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	5,600	98	Imp Surfaces & Misc Structures
	3,738	61	>75% Grass cover, Good, HSG B
	9,338	83	Weighted Average
	3,738		40.03% Pervious Area
	5,600		59.97% Impervious Area

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

Summary for Subcatchment WS SW1: WS SW1

Runoff = 0.64 cfs @ 12.07 hrs, Volume= 1,959 cf, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	4,808	98	Imp Surfaces & Misc Structures
	1,587	61	>75% Grass cover, Good, HSG B
	6,395	89	Weighted Average
	1,587		24.82% Pervious Area
	4,808		75.18% Impervious Area

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

Summary for Subcatchment WS SW2: WS SW2

Runoff = 0.59 cfs @ 12.27 hrs, Volume= 2,714 cf, Depth= 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.90"

	Area (sf)	CN	Description
*	3,373	98	Imp Surfaces & Misc Structures
	14,634	61	>75% Grass cover, Good, HSG B
	18,007	68	Weighted Average
	14,634		81.27% Pervious Area
	3,373		18.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.1	159	0.0140	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
2.5	95	0.0080	0.63		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
18.6	254	Total			

Summary for Pond 10191: GICB EX 10191

Inflow Area = 15,671 sf, 57.83% Impervious, Inflow Depth = 2.99" for 10-YR event
Inflow = 1.08 cfs @ 12.15 hrs, Volume= 3,904 cf
Outflow = 1.08 cfs @ 12.15 hrs, Volume= 3,904 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.08 cfs @ 12.15 hrs, Volume= 3,904 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 104.76' @ 12.15 hrs
Flood Elev= 105.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	102.00'	**12.0" Round 12" RCP** L= 6.4' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 102.00' / 100.00' S= 0.3125 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	105.08'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.07 cfs @ 12.15 hrs HW=104.75' TW=104.67' (Dynamic Tailwater)
↑—**1=12" RCP** (Inlet Controls 1.07 cfs @ 1.37 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=102.00' TW=81.01' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond 10322: DMH EX 10322

Inflow Area =	136,513 sf,	43.67% Impervious,	Inflow Depth > 5.09"	for 10-YR event
Inflow =	13.05 cfs @	12.15 hrs, Volume=	57,857 cf	
Outflow =	13.05 cfs @	12.15 hrs, Volume=	57,857 cf,	Atten= 0%, Lag= 0.0 min
Primary =	9.94 cfs @	12.19 hrs, Volume=	55,630 cf	
Secondary =	3.10 cfs @	12.15 hrs, Volume=	2,227 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 100.90' @ 12.15 hrs
Flood Elev= 100.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	93.17'	**12.0" Round 12" RCP** L= 181.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 93.17' / 81.11' S= 0.0666 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	100.67'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=9.94 cfs @ 12.19 hrs HW=100.89' TW=87.03' (Dynamic Tailwater)
└—**1=12" RCP** (Outlet Controls 9.94 cfs @ 12.66 fps)

Secondary OutFlow Max=3.10 cfs @ 12.15 hrs HW=100.90' TW=87.04' (Dynamic Tailwater)
└—**2=DMH SURCHARGE** (Weir Controls 3.10 cfs @ 1.58 fps)

Summary for Pond 111710: DMH EX 111710

Inflow Area =	145,851 sf,	44.72% Impervious,	Inflow Depth > 4.96"	for 10-YR event
Inflow =	13.61 cfs @	12.14 hrs, Volume=	60,257 cf	
Outflow =	13.61 cfs @	12.14 hrs, Volume=	60,257 cf,	Atten= 0%, Lag= 0.0 min
Primary =	8.90 cfs @	12.14 hrs, Volume=	55,665 cf	
Secondary =	4.71 cfs @	12.14 hrs, Volume=	4,591 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 87.04' @ 12.14 hrs
Flood Elev= 86.86'

Device	Routing	Invert	Outlet Devices
#1	Primary	81.01'	**12.0" Round 12" RCP** L= 166.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 81.01' / 66.00' S= 0.0904 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	86.86'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads
#3	Secondary	86.49'	**24.0" W x 6.0" H Vert. GICB 111708** C= 0.600

Primary OutFlow Max=8.90 cfs @ 12.14 hrs HW=87.04' TW=0.00' (Dynamic Tailwater)
└─**1=12" RCP** (Inlet Controls 8.90 cfs @ 11.33 fps)

Secondary OutFlow Max=4.70 cfs @ 12.14 hrs HW=87.04' TW=0.00' (Dynamic Tailwater)
├─**2=DMH SURCHARGE** (Weir Controls 2.14 cfs @ 1.40 fps)
└─**3=GICB 111708** (Orifice Controls 2.56 cfs @ 2.56 fps)

Summary for Pond N0: DMH N0

Inflow =	7.19 cfs @	12.05 hrs,	Volume=	14,798 cf
Outflow =	7.19 cfs @	12.05 hrs,	Volume=	14,798 cf, Atten= 0%, Lag= 0.0 min
Primary =	7.19 cfs @	12.05 hrs,	Volume=	14,798 cf
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 134.51' @ 12.05 hrs
Flood Elev= 139.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.62'	**18.0" Round 18" CPP** L= 29.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 132.62' / 132.50' S= 0.0041 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	139.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.18 cfs @ 12.05 hrs HW=134.51' TW=131.44' (Dynamic Tailwater)
└─**1=18" CPP** (Inlet Controls 7.18 cfs @ 4.06 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.62' TW=129.00' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N1: DMH N1

Inflow Area = 159,533 sf, 65.62% Impervious, Inflow Depth = 3.36" for 10-YR event

Inflow =	12.52 cfs @	12.05 hrs,	Volume=	44,660 cf
Outflow =	12.52 cfs @	12.05 hrs,	Volume=	44,660 cf, Atten= 0%, Lag= 0.0 min
Primary =	5.34 cfs @	12.05 hrs,	Volume=	29,862 cf
Secondary =	7.19 cfs @	12.05 hrs,	Volume=	14,798 cf
Tertiary =	0.00 cfs @	0.00 hrs,	Volume=	0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 135.66' @ 12.05 hrs
Flood Elev= 138.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.99'	**15.0" Round 15" CPP** L= 3.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 132.99' / 132.89' S= 0.0313 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	132.91'	**18.0" Round 18" CPP**

			L= 43.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 132.91' / 132.72' S= 0.0044 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	133.90'	**6.0' long x 0.5' breadth OVERFLOW WEIR** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Tertiary	138.20'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.33 cfs @ 12.05 hrs HW=135.65' TW=134.84' (Dynamic Tailwater)
└─**1=15" CPP** (Inlet Controls 5.33 cfs @ 4.34 fps)

Secondary OutFlow Max=7.18 cfs @ 12.05 hrs HW=135.65' TW=134.51' (Dynamic Tailwater)
└─**2=18" CPP** (Inlet Controls 7.18 cfs @ 4.06 fps)
  └─**3=OVERFLOW WEIR** (Passes 7.18 cfs of 42.31 cfs potential flow)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.99' TW=128.50' (Dynamic Tailwater)
└─**4=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N2: DMH N2

Inflow Area = 7,564 sf, 50.70% Impervious, Inflow Depth = 2.79" for 10-YR event
Inflow = 0.59 cfs @ 12.07 hrs, Volume= 1,758 cf
Outflow = 0.59 cfs @ 12.07 hrs, Volume= 1,758 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.59 cfs @ 12.07 hrs, Volume= 1,758 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 135.96' @ 12.07 hrs
Flood Elev= 139.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.60'	**15.0" Round 15" CPP** L= 17.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.60' / 133.10' S= 0.1471 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	139.20'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.58 cfs @ 12.07 hrs HW=135.96' TW=135.57' (Dynamic Tailwater)
└─**1=15" CPP** (Inlet Controls 0.58 cfs @ 2.03 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.60' TW=128.50' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N2A: CB N2A

Inflow Area =	3,496 sf, 63.30% Impervious,	Inflow Depth = 3.18"	for 10-YR event
Inflow =	0.31 cfs @ 12.07 hrs,	Volume=	926 cf
Outflow =	0.31 cfs @ 12.07 hrs,	Volume=	926 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.31 cfs @ 12.07 hrs,	Volume=	926 cf
Secondary =	0.00 cfs @ 0.00 hrs,	Volume=	0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 136.17' @ 12.07 hrs
Flood Elev= 139.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.90'	**15.0" Round 15" CPP** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.90' / 135.69' S= 0.0140 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	139.10'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.31 cfs @ 12.07 hrs HW=136.17' TW=135.96' (Dynamic Tailwater)
1=15" CPP (Outlet Controls 0.31 cfs @ 2.41 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.90' TW=133.50' (Dynamic Tailwater)
2=CB Surcharge (Controls 0.00 cfs)

Summary for Pond N2B: CB N2B

Inflow Area =	4,068 sf, 39.87% Impervious,	Inflow Depth = 2.45"	for 10-YR event
Inflow =	0.28 cfs @ 12.08 hrs,	Volume=	832 cf
Outflow =	0.28 cfs @ 12.08 hrs,	Volume=	832 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.28 cfs @ 12.08 hrs,	Volume=	832 cf
Secondary =	0.00 cfs @ 0.00 hrs,	Volume=	0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 136.18' @ 12.08 hrs
Flood Elev= 138.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.90'	**12.0" Round 12" CPP** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.90' / 135.69' S= 0.0091 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	138.90'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.28 cfs @ 12.08 hrs HW=136.18' TW=135.96' (Dynamic Tailwater)
1=12" CPP (Outlet Controls 0.28 cfs @ 2.29 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.90' TW=133.50' (Dynamic Tailwater)
2=CB Surcharge (Controls 0.00 cfs)

Summary for Pond N3: DMH N3

Inflow Area = 151,969 sf, 66.36% Impervious, Inflow Depth = 3.39" for 10-YR event
Inflow = 11.97 cfs @ 12.05 hrs, Volume= 42,902 cf
Outflow = 11.96 cfs @ 12.05 hrs, Volume= 42,902 cf, Atten= 0%, Lag= 0.2 min
Primary = 11.96 cfs @ 12.05 hrs, Volume= 42,902 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 138.23' @ 12.05 hrs Surf.Area= 28 sf Storage= 77 cf
Flood Elev= 150.20' Surf.Area= 28 sf Storage= 416 cf

Plug-Flow detention time= 0.3 min calculated for 42,902 cf (100% of inflow)
Center-of-Mass det. time= 0.2 min (792.3 - 792.0)

Volume	Invert	Avail.Storage	Storage Description
#1	135.50'	416 cf	**6.00'D x 14.71'H 6' DMH**

Device	Routing	Invert	Outlet Devices
#1	Primary	135.50'	**18.0" Round 18" CPP** L= 21.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.50' / 134.00' S= 0.0701 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	150.20'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=11.95 cfs @ 12.05 hrs HW=138.22' TW=135.65' (Dynamic Tailwater)
↑—**1=18" CPP** (Inlet Controls 11.95 cfs @ 6.76 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.50' TW=132.99' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N3A: DI N3A

Inflow Area = 10,921 sf, 19.21% Impervious, Inflow Depth = 1.81" for 10-YR event
Inflow = 0.53 cfs @ 12.08 hrs, Volume= 1,646 cf
Outflow = 0.53 cfs @ 12.08 hrs, Volume= 1,646 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.53 cfs @ 12.08 hrs, Volume= 1,646 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 147.74' @ 12.08 hrs
Flood Elev= 149.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.30'	**12.0" Round 12" CPP** L= 2.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.30' / 147.27' S= 0.0107 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	149.30'	**2.5" x 2.5" Horiz. DI Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.53 cfs @ 12.08 hrs HW=147.74' TW=138.08' (Dynamic Tailwater)
└─**1=12" CPP** (Barrel Controls 0.53 cfs @ 2.37 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=147.30' TW=135.90' (Dynamic Tailwater)
└─**2=DI Surcharge** (Controls 0.00 cfs)

Summary for Pond N4: DMH N4

Inflow Area =	141,048 sf,	70.01% Impervious,	Inflow Depth = 3.51"	for 10-YR event	
Inflow =	11.48 cfs @	12.05 hrs,	Volume=	41,256 cf	
Outflow =	11.48 cfs @	12.05 hrs,	Volume=	41,256 cf,	Atten= 0%, Lag= 0.0 min
Primary =	11.48 cfs @	12.05 hrs,	Volume=	41,256 cf	
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 143.24' @ 12.05 hrs
Flood Elev= 150.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	141.65'	**24.0" Round 24" CPP** L= 54.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 141.65' / 140.20' S= 0.0269 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	150.50'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=11.47 cfs @ 12.05 hrs HW=143.24' TW=138.22' (Dynamic Tailwater)
└─**1=24" CPP** (Inlet Controls 11.47 cfs @ 4.29 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=141.65' TW=135.90' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N4A: DI N4A

Inflow Area =	669 sf,	0.00% Impervious,	Inflow Depth = 1.31"	for 10-YR event	
Inflow =	0.02 cfs @	12.08 hrs,	Volume=	73 cf	
Outflow =	0.02 cfs @	12.08 hrs,	Volume=	73 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.02 cfs @	12.08 hrs,	Volume=	73 cf	
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 147.27' @ 12.08 hrs
Flood Elev= 149.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.20'	**12.0" Round 12" CPP** L= 14.3' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.20' / 146.85' S= 0.0245 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	149.20'	**2.5" x 2.5" Horiz. DI Surcharge X 6.00 columns**

X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area)
Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 12.08 hrs HW=147.27' TW=143.17' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 0.02 cfs @ 0.90 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=147.20' TW=135.90' (Dynamic Tailwater)
↑—**2=DI Surcharge** (Controls 0.00 cfs)

Summary for Pond N5: DMH N5

Inflow Area =	140,379 sf, 70.35% Impervious,	Inflow Depth = 3.52"	for 10-YR event
Inflow =	11.46 cfs @ 12.05 hrs,	Volume=	41,183 cf
Outflow =	11.46 cfs @ 12.05 hrs,	Volume=	41,183 cf, Atten= 0%, Lag= 0.0 min
Primary =	11.46 cfs @ 12.05 hrs,	Volume=	41,183 cf
Secondary =	0.00 cfs @ 0.00 hrs,	Volume=	0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 144.01' @ 12.05 hrs
Flood Elev= 151.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	142.28'	**24.0" Round 24" CPP** L= 36.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 142.28' / 141.65' S= 0.0174 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	151.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=11.45 cfs @ 12.05 hrs HW=144.01' TW=143.24' (Dynamic Tailwater)
↑—**1=24" CPP** (Outlet Controls 11.45 cfs @ 5.31 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=142.28' TW=133.50' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N5-1: DMH N5-1

Inflow Area =	9,309 sf, 76.10% Impervious,	Inflow Depth = 3.69"	for 10-YR event
Inflow =	0.91 cfs @ 12.07 hrs,	Volume=	2,861 cf
Outflow =	0.91 cfs @ 12.07 hrs,	Volume=	2,861 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.91 cfs @ 12.07 hrs,	Volume=	2,861 cf
Secondary =	0.00 cfs @ 0.00 hrs,	Volume=	0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 144.88' @ 12.07 hrs
Flood Elev= 149.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.40'	**15.0" Round 15" CPP** L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.40' / 143.97' S= 0.0054 '/' Cc= 0.900

			n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	149.10'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.91 cfs @ 12.07 hrs HW=144.88' TW=143.97' (Dynamic Tailwater)
└─**1=15" CPP** (Barrel Controls 0.91 cfs @ 3.06 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=144.40' TW=135.90' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N5-1A: CB N5-1A

Inflow Area =	6,543 sf, 65.99% Impervious,	Inflow Depth = 3.28"	for 10-YR event
Inflow =	0.59 cfs @ 12.07 hrs, Volume=	1,786 cf	
Outflow =	0.59 cfs @ 12.07 hrs, Volume=	1,786 cf, Atten= 0%, Lag= 0.0 min	
Primary =	0.59 cfs @ 12.07 hrs, Volume=	1,786 cf	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 145.24' @ 12.07 hrs
Flood Elev= 148.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.80'	**12.0" Round 12" CPP** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.80' / 144.64' S= 0.0057 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	148.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.59 cfs @ 12.07 hrs HW=145.24' TW=144.88' (Dynamic Tailwater)
└─**1=12" CPP** (Barrel Controls 0.59 cfs @ 2.66 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=144.80' TW=135.90' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N5-1B: CB N5-1B

Inflow Area =	2,766 sf,100.00% Impervious,	Inflow Depth = 4.66"	for 10-YR event
Inflow =	0.32 cfs @ 12.07 hrs, Volume=	1,075 cf	
Outflow =	0.32 cfs @ 12.07 hrs, Volume=	1,075 cf, Atten= 0%, Lag= 0.0 min	
Primary =	0.32 cfs @ 12.07 hrs, Volume=	1,075 cf	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 145.08' @ 12.07 hrs
Flood Elev= 150.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.76'	**12.0" Round 12" CPP** L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.76' / 144.64' S= 0.0057 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	150.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.32 cfs @ 12.07 hrs HW=145.08' TW=144.88' (Dynamic Tailwater)
↑—**1=12" CPP** (Outlet Controls 0.32 cfs @ 2.21 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=144.76' TW=135.90' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N5A: CB N5A

Inflow Area =	2,547 sf, 90.54% Impervious,	Inflow Depth = 4.21"	for 10-YR event
Inflow =	0.28 cfs @ 12.07 hrs, Volume=	893 cf	
Outflow =	0.28 cfs @ 12.07 hrs, Volume=	893 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.28 cfs @ 12.07 hrs, Volume=	893 cf	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 147.86' @ 12.07 hrs
Flood Elev= 150.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.60'	**12.0" Round 12" CPP** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.60' / 147.46' S= 0.0140 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	150.60'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.28 cfs @ 12.07 hrs HW=147.86' TW=143.97' (Dynamic Tailwater)
↑—**1=12" CPP** (Barrel Controls 0.28 cfs @ 2.51 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=147.60' TW=144.80' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N5B: CB N5B

Inflow Area =	12,154 sf, 55.69% Impervious,	Inflow Depth = 2.99"	for 10-YR event
Inflow =	1.01 cfs @ 12.07 hrs, Volume=	3,028 cf	
Outflow =	1.01 cfs @ 12.07 hrs, Volume=	3,028 cf,	Atten= 0%, Lag= 0.0 min
Primary =	1.01 cfs @ 12.07 hrs, Volume=	3,028 cf	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 148.06' @ 12.07 hrs
Flood Elev= 150.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.50'	**12.0" Round 12" CPP** L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.50' / 147.34' S= 0.0133 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	150.50'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.01 cfs @ 12.07 hrs HW=148.06' TW=143.96' (Dynamic Tailwater)
└─**1=12" CPP** (Barrel Controls 1.01 cfs @ 3.25 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=147.50' TW=144.76' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N6: DMH N6

Inflow Area = 116,369 sf, 70.98% Impervious, Inflow Depth = 3.55" for 10-YR event
Inflow = 9.45 cfs @ 12.04 hrs, Volume= 34,400 cf
Outflow = 9.45 cfs @ 12.04 hrs, Volume= 34,400 cf, Atten= 0%, Lag= 0.0 min
Primary = 9.45 cfs @ 12.04 hrs, Volume= 34,400 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 145.45' @ 12.04 hrs
Flood Elev= 152.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.05'	**24.0" Round 24" CPP** L= 67.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.05' / 143.32' S= 0.0109 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	152.70'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=9.45 cfs @ 12.04 hrs HW=145.45' TW=144.01' (Dynamic Tailwater)
└─**1=24" CPP** (Inlet Controls 9.45 cfs @ 4.03 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=144.05' TW=147.60' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N6-1: DMH N6-1

Inflow Area = 33,662 sf,100.00% Impervious, Inflow Depth = 4.66" for 10-YR event
Inflow = 4.29 cfs @ 12.03 hrs, Volume= 13,081 cf
Outflow = 4.29 cfs @ 12.03 hrs, Volume= 13,081 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.29 cfs @ 12.03 hrs, Volume= 13,081 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 149.80' @ 12.03 hrs
Flood Elev= 153.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	148.02'	**12.0" Round 12" CPP** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 148.02' / 146.80' S= 0.0469 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.27 cfs @ 12.03 hrs HW=149.80' TW=145.43' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 4.27 cfs @ 5.44 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=148.02' TW=147.50' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N6A: CB N6A

Inflow Area =	1,851 sf,	58.35% Impervious,	Inflow Depth = 3.08"	for 10-YR event
Inflow =	0.16 cfs @	12.07 hrs, Volume=	476 cf	
Outflow =	0.16 cfs @	12.07 hrs, Volume=	476 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.16 cfs @	12.07 hrs, Volume=	476 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.19' @ 12.07 hrs
Flood Elev= 153.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	150.00'	**12.0" Round 12" CPP** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.00' / 149.71' S= 0.0112 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.16 cfs @ 12.07 hrs HW=150.19' TW=145.39' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 0.16 cfs @ 1.49 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=150.00' TW=147.50' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N6B: CB N6B

Inflow Area = 1,431 sf, 89.31% Impervious, Inflow Depth = 4.21" for 10-YR event
Inflow = 0.16 cfs @ 12.07 hrs, Volume= 502 cf
Outflow = 0.16 cfs @ 12.07 hrs, Volume= 502 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.07 hrs, Volume= 502 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.19' @ 12.07 hrs
Flood Elev= 153.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	150.00'	**12.0" Round 12" CPP** L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.00' / 149.78' S= 0.0122 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.16 cfs @ 12.07 hrs HW=150.19' TW=145.40' (Dynamic Tailwater)
└─**1=12" CPP** (Inlet Controls 0.16 cfs @ 1.49 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=150.00' TW=147.60' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N7: DMH N7

Inflow Area = 79,425 sf, 58.64% Impervious, Inflow Depth = 3.07" for 10-YR event
Inflow = 5.20 cfs @ 12.08 hrs, Volume= 20,341 cf
Outflow = 5.20 cfs @ 12.08 hrs, Volume= 20,341 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.20 cfs @ 12.08 hrs, Volume= 20,341 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 147.40' @ 12.08 hrs
Flood Elev= 154.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	146.42'	**24.0" Round 24" CPP** L= 46.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 146.42' / 144.40' S= 0.0439 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	154.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.19 cfs @ 12.08 hrs HW=147.40' TW=145.39' (Dynamic Tailwater)
↑—**1=24" CPP** (Inlet Controls 5.19 cfs @ 3.38 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=146.42' (Free Discharge)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N7A: DGCB N7A

Inflow Area = 45,199 sf, 64.27% Impervious, Inflow Depth = 3.28" for 10-YR event
Inflow = 3.35 cfs @ 12.15 hrs, Volume= 12,338 cf
Outflow = 3.35 cfs @ 12.15 hrs, Volume= 12,338 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.35 cfs @ 12.15 hrs, Volume= 12,338 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.91' @ 12.15 hrs
Flood Elev= 153.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.60'	**12.0" Round 12" CPP** L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.60' / 149.42' S= 0.0129 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.60'	**2.5" x 2.5" Horiz. DGCB Surcharge X 6.00 columns** X 12 rows C= 0.600 in 48.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=3.35 cfs @ 12.15 hrs HW=150.91' TW=147.36' (Dynamic Tailwater)
↑—**1=12" CPP** (Barrel Controls 3.35 cfs @ 4.28 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=149.60' (Free Discharge)
↑—**2=DGCB Surcharge** (Controls 0.00 cfs)

Summary for Pond N7B: CB N7B

Inflow Area = 34,226 sf, 51.20% Impervious, Inflow Depth = 2.81" for 10-YR event
Inflow = 2.93 cfs @ 12.04 hrs, Volume= 8,003 cf
Outflow = 2.93 cfs @ 12.04 hrs, Volume= 8,003 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.93 cfs @ 12.04 hrs, Volume= 8,003 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.92' @ 12.04 hrs
Flood Elev= 153.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.80'	**12.0" Round 12" CPP** L= 16.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.80' / 149.60' S= 0.0125 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf

#2	Secondary	153.80'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=2.92 cfs @ 12.04 hrs HW=150.92' TW=147.38' (Dynamic Tailwater)
↑—**1=12" CPP** (Barrel Controls 2.92 cfs @ 4.17 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=149.80' (Free Discharge)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond NE1: DMH NE1

Inflow Area = 2,550 sf, 64.86% Impervious, Inflow Depth = 3.27" for 10-YR event
Inflow = 0.23 cfs @ 12.07 hrs, Volume= 696 cf
Outflow = 0.23 cfs @ 12.07 hrs, Volume= 696 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.23 cfs @ 12.07 hrs, Volume= 696 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 134.04' @ 12.07 hrs
Flood Elev= 136.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.20'	**12.0" Round 12" CPP** L= 8.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.20' / 133.09' S= 0.0137 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	136.30'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.23 cfs @ 12.07 hrs HW=134.04' TW=134.03' (Dynamic Tailwater)
↑—**1=12" CPP** (Outlet Controls 0.23 cfs @ 0.44 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.20' TW=133.09' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond NE1A: DI NE1A

Inflow Area = 1,234 sf, 65.48% Impervious, Inflow Depth = 3.28" for 10-YR event
Inflow = 0.11 cfs @ 12.07 hrs, Volume= 337 cf
Outflow = 0.11 cfs @ 12.07 hrs, Volume= 337 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 12.07 hrs, Volume= 337 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 134.04' @ 12.07 hrs
Flood Elev= 135.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.50'	**12.0" Round 12" CPP** L= 24.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.50' / 133.30' S= 0.0081 '/' Cc= 0.900

			n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	135.40'	**2.5" x 2.5" Horiz. DI Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.12 cfs @ 12.07 hrs HW=134.04' TW=134.04' (Dynamic Tailwater)
1=12" CPP (Outlet Controls 0.12 cfs @ 0.39 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.50' TW=0.00' (Dynamic Tailwater)
2=DI Surcharge (Controls 0.00 cfs)

Summary for Pond NE1B: DI NE1B

Inflow Area = 1,316 sf, 64.29% Impervious, Inflow Depth = 3.28" for 10-YR event
Inflow = 0.12 cfs @ 12.07 hrs, Volume= 359 cf
Outflow = 0.12 cfs @ 12.07 hrs, Volume= 359 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 12.07 hrs, Volume= 359 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 134.04' @ 12.07 hrs
Flood Elev= 135.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.50'	**12.0" Round 12" CPP** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.50' / 133.44' S= 0.0120 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	135.40'	**2.5" x 2.5" Horiz. DI Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.12 cfs @ 12.07 hrs HW=134.04' TW=134.04' (Dynamic Tailwater)
1=12" CPP (Outlet Controls 0.12 cfs @ 0.42 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.50' TW=0.00' (Dynamic Tailwater)
2=DI Surcharge (Controls 0.00 cfs)

Summary for Pond P BSN N: DETENTION BASIN NORTH

Inflow Area = 10,761 sf, 4.48% Impervious, Inflow Depth = 34.25" for 10-YR event
Inflow = 13.02 cfs @ 12.06 hrs, Volume= 30,712 cf
Outflow = 6.53 cfs @ 12.27 hrs, Volume= 30,705 cf, Atten= 50%, Lag= 12.8 min
Discarded = 0.02 cfs @ 11.81 hrs, Volume= 662 cf
Primary = 6.52 cfs @ 12.27 hrs, Volume= 30,043 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 132.18' @ 12.27 hrs Surf.Area= 6,194 sf Storage= 8,539 cf
Flood Elev= 135.00' Surf.Area= 10,572 sf Storage= 23,771 cf

Plug-Flow detention time= 50.9 min calculated for 30,705 cf (100% of inflow)

Center-of-Mass det. time= 50.7 min (828.0 - 777.3)

Volume	Invert	Avail.Storage	Storage Description
#1	129.00'	274 cf	**Loamy Sand Basin Bottom (Prismatic)** Listed below (Recalc) 1,100 cf Overall - 4 cf Embedded = 1,096 cf x 25.0% Voids
#2	129.00'	4 cf	**6.0" Round 6" Underdrain** Inside #1 L= 20.0'
#3	129.50'	23,493 cf	**Basin Contours (Irregular)** Listed below (Recalc)
		23,771 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
129.00	2,200	0	0
129.50	2,200	1,100	1,100

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
129.50	2,200	233.0	0	0	2,200
130.00	2,518	241.0	1,179	1,179	2,524
131.00	3,186	257.0	2,845	4,024	3,205
132.00	3,869	272.0	3,522	7,546	3,890
133.00	4,578	288.0	4,219	11,765	4,656
134.00	5,316	303.0	4,942	16,707	5,421
135.00	8,372	394.0	6,786	23,493	10,480

Device	Routing	Invert	Outlet Devices
#1	Discarded	129.00'	**2.410 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#2	Device 1	129.50'	**2.410 in/hr Flow through Loamy Sand over Surface area from 129.50' - 130.00'** Excluded Surface area = 4,400 sf Phase-In= 0.01'
#3	Primary	127.84'	**15.0" Round 15" CPP** L= 17.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 127.84' / 126.10' S= 0.0989 '/' Cc= 0.900 n= 0.012 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#4	Device 3	127.84'	**13.0" Vert. 13" Plug Orifice** C= 0.600
#5	Device 4	129.00'	**2.0" Vert. 2" Underdrain Orifice** C= 0.600
#6	Device 4	130.20'	**24.0" W x 6.0" H Vert. 24" x 6" Low Orifice** C= 0.600
#7	Device 4	132.50'	**1.5' long x 0.5' breadth 18"W Outflow Structure Weirs (3) X 3.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#8	Device 4	133.00'	**16.0' long x 0.5' breadth Outflow Structure Top** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#9	Secondary	134.50'	**12.5' long x 14.0' breadth Emergency Overflow Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.64 2.67 2.70 2.65 2.64 2.65 2.65 2.63

Discarded OutFlow Max=0.02 cfs @ 11.81 hrs HW=130.03' (Free Discharge)
└─**1=Exfiltration** (Passes 0.02 cfs of 0.26 cfs potential flow)
  └─**2=Flow through Loamy Sand** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=6.52 cfs @ 12.27 hrs HW=132.18' TW=124.58' (Dynamic Tailwater)
└─**3=15" CPP** (Passes 6.52 cfs of 11.39 cfs potential flow)
  └─**4=13" Plug Orifice** (Passes 6.52 cfs of 8.65 cfs potential flow)
    ├─**5=2" Underdrain Orifice** (Orifice Controls 0.18 cfs @ 8.48 fps)
    ├─**6=24" x 6" Low Orifice** (Orifice Controls 6.33 cfs @ 6.33 fps)
    ├─**7=18"W Outflow Structure Weirs (3)** (Controls 0.00 cfs)
    └─**8=Outflow Structure Top** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=129.00' TW=118.83' (Dynamic Tailwater)
└─**9=Emergency Overflow Weir** (Controls 0.00 cfs)

Summary for Pond P SE 1: DMH SE1

Inflow Area =	136,513 sf,	43.67% Impervious,	Inflow Depth > 5.09"	for 10-YR event
Inflow =	13.05 cfs @	12.15 hrs, Volume=	57,857 cf	
Outflow =	13.05 cfs @	12.15 hrs, Volume=	57,857 cf,	Atten= 0%, Lag= 0.0 min
Primary =	13.05 cfs @	12.15 hrs, Volume=	57,857 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 104.68' @ 12.15 hrs
Flood Elev= 105.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	96.50'	**18.0" Round 18" CPP** L= 22.6' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 96.50' / 93.30' S= 0.1416 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	105.30'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=13.04 cfs @ 12.15 hrs HW=104.67' TW=100.90' (Dynamic Tailwater)
└─**1=18" CPP** (Inlet Controls 13.04 cfs @ 7.38 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=96.50' TW=81.01' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond P-BSN-S: DETENTION BASIN SOUTH

Inflow Area =	120,842 sf,	41.84% Impervious,	Inflow Depth > 5.87"	for 10-YR event
Inflow =	12.24 cfs @	12.12 hrs, Volume=	59,063 cf	
Outflow =	12.03 cfs @	12.15 hrs, Volume=	58,551 cf,	Atten= 2%, Lag= 2.0 min
Discarded =	0.06 cfs @	7.66 hrs, Volume=	4,598 cf	
Primary =	11.97 cfs @	12.15 hrs, Volume=	53,952 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 112.59' @ 12.15 hrs Surf.Area= 2,841 sf Storage= 2,736 cf
Flood Elev= 115.00' Surf.Area= 4,793 sf Storage= 9,206 cf

Plug-Flow detention time= 20.3 min calculated for 58,532 cf (99% of inflow)
Center-of-Mass det. time= 11.7 min (846.8 - 835.0)

Volume	Invert	Avail.Storage	Storage Description
#1	109.00'	504 cf	**Loamy Sand Basin Bottom (Prismatic)** Listed below (Recalc) 2,024 cf Overall - 8 cf Embedded = 2,016 cf x 25.0% Voids
#2	110.50'	8 cf	**6.0" Round 6" Underdrain** Inside #1 L= 40.0'
#3	111.00'	18,507 cf	**Basin Contours (Irregular)** Listed below (Recalc)
		19,019 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
109.00	1,012	0	0
111.00	1,012	2,024	2,024

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
111.00	1,012	144.0	0	0	1,012
112.00	1,497	171.0	1,247	1,247	1,707
113.00	2,081	202.0	1,781	3,028	2,646
114.00	2,757	233.0	2,411	5,439	3,741
115.00	3,781	280.0	3,256	8,694	5,676
116.00	4,597	294.0	4,182	12,877	6,377
117.00	6,731	382.0	5,630	18,507	11,123

Device	Routing	Invert	Outlet Devices
#1	Discarded	109.00'	**2.410 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#2	Device 1	110.50'	**2.410 in/hr Flow through Loamy Sand over Surface area from 110.50' - 111.00'** Excluded Surface area = 1,012 sf Phase-In= 0.01'
#3	Primary	108.00'	**18.0" Round 18" CPP** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.00' / 98.00' S= 0.1333 '/' Cc= 0.900 n= 0.012 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#4	Device 3	108.00'	**17.0" Vert. 17" Plug Orifice** C= 0.600
#5	Device 4	110.50'	**1.0" Vert. 1" Underdrain Orifice** C= 0.600
#6	Device 4	111.00'	**10.0" Vert. 10" Low Orifice X 2.00** C= 0.600
#7	Device 4	112.00'	**1.5' long x 0.5' breadth 18" W Outflow Structure Weirs (3) X 3.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#8	Device 4	112.60'	**16.0' long x 0.5' breadth Outflow Structure Top** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#9	Secondary	114.90'	**10.0' long x 20.0' breadth Emergency Overflow 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=0.06 cfs @ 7.66 hrs HW=111.00' (Free Discharge)
└─**1=Exfiltration** (Passes 0.06 cfs of 0.11 cfs potential flow)
  └─**2=Flow through Loamy Sand** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=11.97 cfs @ 12.15 hrs HW=112.59' TW=104.67' (Dynamic Tailwater)
└─**3=18" CPP** (Passes 11.97 cfs of 16.67 cfs potential flow)
  └─**4=17" Plug Orifice** (Passes 11.97 cfs of 14.95 cfs potential flow)
    ├─**5=1" Underdrain Orifice** (Orifice Controls 0.04 cfs @ 6.89 fps)
    ├─**6=10" Low Orifice** (Orifice Controls 5.69 cfs @ 5.21 fps)
    ├─**7=18" W Outflow Structure Weirs (3)** (Weir Controls 6.24 cfs @ 2.36 fps)
    └─**8=Outflow Structure Top** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=109.00' TW=81.01' (Dynamic Tailwater)
└─**9=Emergency Overflow Weir** (Controls 0.00 cfs)

Summary for Pond P-E1: DMH E1

Inflow Area =	10,761 sf,	4.48% Impervious,	Inflow Depth = 33.50" for 10-YR event
Inflow =	6.52 cfs @	12.27 hrs, Volume=	30,043 cf
Outflow =	6.52 cfs @	12.27 hrs, Volume=	30,043 cf, Atten= 0%, Lag= 0.0 min
Primary =	6.52 cfs @	12.27 hrs, Volume=	30,043 cf
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 115.94' @ 12.27 hrs
Flood Elev= 119.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	114.25'	**18.0" Round 18" CPP** L= 99.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 114.25' / 112.00' S= 0.0227 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	119.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=6.52 cfs @ 12.27 hrs HW=115.94' TW=112.54' (Dynamic Tailwater)
└─**1=18" CPP** (Inlet Controls 6.52 cfs @ 3.69 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.25' TW=102.00' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond P-E2: DMH E2

Inflow Area =	10,761 sf,	4.48% Impervious,	Inflow Depth = 33.50" for 10-YR event
Inflow =	6.52 cfs @	12.27 hrs, Volume=	30,043 cf
Outflow =	6.52 cfs @	12.27 hrs, Volume=	30,043 cf, Atten= 0%, Lag= 0.0 min
Primary =	6.52 cfs @	12.27 hrs, Volume=	30,043 cf
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 124.58' @ 12.27 hrs
Flood Elev= 130.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	122.00'	**15.0" Round 15" CPP** L= 140.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 122.00' / 114.50' S= 0.0536 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	130.10'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=6.52 cfs @ 12.27 hrs HW=124.58' TW=115.94' (Dynamic Tailwater)
↑—**1=15" CPP** (Inlet Controls 6.52 cfs @ 5.31 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' TW=102.00' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond P-SF: WQ SAND FILTER

Inflow Area = 166,795 sf, 63.82% Impervious, Inflow Depth = 2.24" for 10-YR event
Inflow = 5.71 cfs @ 12.06 hrs, Volume= 31,098 cf
Outflow = 5.68 cfs @ 12.06 hrs, Volume= 30,766 cf, Atten= 1%, Lag= 0.6 min
Primary = 0.21 cfs @ 12.06 hrs, Volume= 16,149 cf
Secondary = 5.48 cfs @ 12.06 hrs, Volume= 14,617 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 134.03' @ 12.06 hrs Surf.Area= 3,693 sf Storage= 5,302 cf
Flood Elev= 135.00' Surf.Area= 10,052 sf Storage= 10,002 cf

Plug-Flow detention time= 165.5 min calculated for 30,757 cf (99% of inflow)
Center-of-Mass det. time= 159.0 min (972.3 - 813.3)

Volume	Invert	Avail.Storage	Storage Description
#1	128.50'	416 cf	**Sand Filter Media (Irregular)** Listed below (Recalc) 1,260 cf Overall x 33.0% Voids
#2	130.00'	139 cf	**Loam (Irregular)** Listed below (Recalc) 420 cf Overall x 33.0% Voids
#3	130.50'	9,447 cf	**Sand Filter Contours (Irregular)** Listed below (Recalc)
		10,002 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
128.50	840	114.0	0	0	840
130.00	840	114.0	1,260	1,260	1,011

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
130.00	840	114.0	0	0	840
130.50	840	114.0	420	420	897

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
130.50	840	114.0	0	0	840
131.00	972	122.0	453	453	1,001
132.00	1,253	138.0	1,110	1,562	1,357
133.00	1,562	153.0	1,405	2,967	1,734
134.00	1,899	168.0	1,728	4,695	2,149
135.00	8,372	394.0	4,753	9,447	12,260

Device	Routing	Invert	Outlet Devices
#1	Primary	128.50'	**2.410 in/hr BOTTOM OF SAND FILTER over Surface area** Phase-In= 0.01'
#2	Device 1	128.50'	**8.270 in/hr FLOW THRU FILTER over Surface area** Phase-In= 0.01'
#3	Secondary	133.90'	**45.0' long x 1.0' breadth OVERFLOW WEIR** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.21 cfs @ 12.06 hrs HW=134.03' (Free Discharge)
↑—**1=BOTTOM OF SAND FILTER** (Exfiltration Controls 0.21 cfs)
↑—**2=FLOW THRU FILTER** (Passes 0.21 cfs of 0.71 cfs potential flow)

Secondary OutFlow Max=5.47 cfs @ 12.06 hrs HW=134.03' TW=131.53' (Dynamic Tailwater)
↑—**3=OVERFLOW WEIR** (Weir Controls 5.47 cfs @ 0.96 fps)

Summary for Pond RF N-1: RF N-1

Inflow Area = 9,011 sf,100.00% Impervious, Inflow Depth = 4.66" for 10-YR event
Inflow = 1.15 cfs @ 12.03 hrs, Volume= 3,502 cf
Outflow = 1.15 cfs @ 12.03 hrs, Volume= 3,502 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.15 cfs @ 12.03 hrs, Volume= 3,502 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 152.12' @ 12.03 hrs
Flood Elev= 155.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	151.32'	**8.0" Round 8" CPP** L= 65.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 151.32' / 150.66' S= 0.0101 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Secondary	155.25'	**6.0" Horiz. CO SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.14 cfs @ 12.03 hrs HW=152.12' TW=149.80' (Dynamic Tailwater)
↑—**1=8" CPP** (Inlet Controls 1.14 cfs @ 3.28 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=151.32' TW=147.50' (Dynamic Tailwater)
↑—**2=CO SURCHARGE** (Controls 0.00 cfs)

Summary for Pond RF S-1: RF S-1

Inflow Area = 24,651 sf,100.00% Impervious, Inflow Depth = 4.66" for 10-YR event
Inflow = 3.14 cfs @ 12.03 hrs, Volume= 9,580 cf
Outflow = 3.14 cfs @ 12.03 hrs, Volume= 9,580 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.14 cfs @ 12.03 hrs, Volume= 9,580 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.71' @ 12.03 hrs
Flood Elev= 155.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.46'	**12.0" Round 12" CPP** L= 105.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.46' / 148.40' S= 0.0100 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	155.70'	**6.0" Horiz. CO SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.13 cfs @ 12.03 hrs HW=150.70' TW=149.80' (Dynamic Tailwater)
↑—**1=12" CPP** (Outlet Controls 3.13 cfs @ 4.12 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=149.46' TW=149.60' (Dynamic Tailwater)
↑—**2=CO SURCHARGE** (Controls 0.00 cfs)

Summary for Pond S1: DMH S1

Inflow Area = 33,307 sf, 68.09% Impervious, Inflow Depth > 5.05" for 10-YR event
Inflow = 3.14 cfs @ 12.07 hrs, Volume= 14,010 cf, Incl. 0.04 cfs Base Flow
Outflow = 3.14 cfs @ 12.07 hrs, Volume= 14,010 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.14 cfs @ 12.07 hrs, Volume= 14,010 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 114.77' @ 12.07 hrs
Flood Elev= 124.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	113.16'	**12.0" Round 12" CPP** L= 16.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 113.16' / 113.00' S= 0.0097 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	124.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.14 cfs @ 12.07 hrs HW=114.76' TW=112.47' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 3.14 cfs @ 3.99 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=113.27' TW=109.00' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond S1A: CB S1A

Inflow Area = 12,398 sf, 73.86% Impervious, Inflow Depth = 3.57" for 10-YR event
Inflow = 1.21 cfs @ 12.07 hrs, Volume= 3,693 cf
Outflow = 1.21 cfs @ 12.07 hrs, Volume= 3,693 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.21 cfs @ 12.07 hrs, Volume= 3,693 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 119.58' @ 12.07 hrs
Flood Elev= 123.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	119.00'	**12.0" Round 12" CPP** L= 57.3' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 119.00' / 117.77' S= 0.0215 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	123.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.21 cfs @ 12.07 hrs HW=119.58' TW=114.76' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 1.21 cfs @ 2.58 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=119.00' TW=109.00' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond S1B: CB S1B

Inflow Area = 20,909 sf, 64.68% Impervious, Inflow Depth = 3.28" for 10-YR event
Inflow = 1.89 cfs @ 12.07 hrs, Volume= 5,708 cf
Outflow = 1.89 cfs @ 12.07 hrs, Volume= 5,708 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.89 cfs @ 12.07 hrs, Volume= 5,708 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 119.59' @ 12.07 hrs
Flood Elev= 123.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	118.83'	**12.0" Round 12" CPP** L= 79.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.83' / 118.00' S= 0.0105 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	123.20'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.89 cfs @ 12.07 hrs HW=119.59' TW=114.76' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 1.89 cfs @ 2.96 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=118.83' TW=109.00' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond SF PT N: SF PT N

Inflow Area =	159,533 sf, 65.62% Impervious,	Inflow Depth = 2.25"	for 10-YR event
Inflow =	5.34 cfs @ 12.05 hrs, Volume=	29,862 cf	
Outflow =	5.34 cfs @ 12.05 hrs, Volume=	29,862 cf,	Atten= 0%, Lag= 0.0 min
Primary =	5.34 cfs @ 12.05 hrs, Volume=	29,862 cf	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 134.84' @ 12.05 hrs
Flood Elev= 136.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.89'	**15.0" Round 15" CPP** L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 132.89' / 132.75' S= 0.0127 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	136.50'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.33 cfs @ 12.05 hrs HW=134.84' TW=134.03' (Dynamic Tailwater)
↑—**1=15" CPP** (Inlet Controls 5.33 cfs @ 4.34 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.89' TW=128.50' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond SF PT NE: SF PT NE

Inflow Area =	2,550 sf, 64.86% Impervious,	Inflow Depth = 3.27"	for 10-YR event
Inflow =	0.23 cfs @ 12.07 hrs, Volume=	696 cf	
Outflow =	0.23 cfs @ 12.07 hrs, Volume=	695 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.23 cfs @ 12.07 hrs, Volume=	695 cf	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 134.03' @ 12.07 hrs
Flood Elev= 136.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.09'	**12.0" Round 12" CPP** L= 9.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.09' / 133.00' S= 0.0100 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	136.90'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.23 cfs @ 12.07 hrs HW=134.03' TW=134.03' (Dynamic Tailwater)
└─**1=12" CPP** (Outlet Controls 0.23 cfs @ 0.39 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.09' TW=128.50' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond SW1: CB SW 1

Inflow Area = 6,395 sf, 75.18% Impervious, Inflow Depth = 3.68" for 10-YR event
Inflow = 0.64 cfs @ 12.07 hrs, Volume= 1,959 cf
Outflow = 0.64 cfs @ 12.07 hrs, Volume= 1,959 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.64 cfs @ 12.07 hrs, Volume= 1,959 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 138.63' @ 12.07 hrs
Flood Elev= 152.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	138.23'	**12.0" Round 12" CPP** L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 138.23' / 138.00' S= 0.1150 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	152.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.64 cfs @ 12.07 hrs HW=138.63' TW=112.47' (Dynamic Tailwater)
└─**1=12" CPP** (Inlet Controls 0.64 cfs @ 2.16 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=138.23' TW=109.00' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond SW2: CB SW 2

Inflow Area = 18,007 sf, 18.73% Impervious, Inflow Depth = 1.81" for 10-YR event
Inflow = 0.59 cfs @ 12.27 hrs, Volume= 2,714 cf
Outflow = 0.59 cfs @ 12.27 hrs, Volume= 2,714 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.59 cfs @ 12.27 hrs, Volume= 2,714 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 149.38' @ 12.27 hrs
Flood Elev= 152.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.00'	**12.0" Round 12" CPP** L= 8.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.00' / 148.50' S= 0.0625 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	152.90'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area)

Limited to weir flow at low heads

Primary OutFlow Max=0.59 cfs @ 12.27 hrs HW=149.38' TW=112.54' (Dynamic Tailwater)
└─**1=12" CPP** (Inlet Controls 0.59 cfs @ 2.11 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=149.00' TW=109.00' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Link L E: OFFSITE EAST

Inflow Area = 61,643 sf, 0.00% Impervious, Inflow Depth = 0.93" for 10-YR event
Inflow = 1.10 cfs @ 12.14 hrs, Volume= 4,780 cf
Primary = 1.10 cfs @ 12.14 hrs, Volume= 4,780 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L GLAD: OFFSITE GLADSTONE

Inflow Area = 19,522 sf, 30.20% Impervious, Inflow Depth = 2.12" for 10-YR event
Inflow = 1.29 cfs @ 12.03 hrs, Volume= 3,451 cf
Primary = 1.29 cfs @ 12.03 hrs, Volume= 3,451 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L T: TOTAL LEAVING SITE

Inflow Area = 227,016 sf, 31.33% Impervious, Inflow Depth > 3.62" for 10-YR event
Inflow = 15.30 cfs @ 12.14 hrs, Volume= 68,488 cf
Primary = 15.30 cfs @ 12.14 hrs, Volume= 68,488 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Time span=0.00-32.00 hrs, dt=0.01 hrs, 3201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment WS 10191: WS 10191 Runoff Area=15,671 sf 57.83% Impervious Runoff Depth=6.53"
Flow Length=727' Tc=10.7 min CN=82 Runoff=2.30 cfs 8,523 cf

Subcatchment WS BSN N: WS BSN N Runoff Area=10,761 sf 4.48% Impervious Runoff Depth=4.23"
Tc=5.0 min CN=63 Runoff=1.27 cfs 3,790 cf

Subcatchment WS BSN S: WS BSN S Runoff Area=52,372 sf 36.69% Impervious Runoff Depth=5.68"
Flow Length=727' Tc=10.7 min CN=75 Runoff=6.80 cfs 24,779 cf

Subcatchment WS N: SITE NORTH Runoff Area=19,522 sf 30.20% Impervious Runoff Depth=5.31"
Flow Length=383' Tc=1.6 min CN=72 Runoff=3.27 cfs 8,645 cf

Subcatchment WS N2A: WS N2A Runoff Area=3,496 sf 63.30% Impervious Runoff Depth=6.77"
Tc=5.0 min CN=84 Runoff=0.64 cfs 1,972 cf

Subcatchment WS N2B: WS N2B Runoff Area=4,068 sf 39.87% Impervious Runoff Depth=5.80"
Tc=5.0 min CN=76 Runoff=0.65 cfs 1,966 cf

Subcatchment WS N3A: WS N3A Runoff Area=10,921 sf 19.21% Impervious Runoff Depth=4.83"
Tc=5.0 min CN=68 Runoff=1.47 cfs 4,395 cf

Subcatchment WS N4A: WS N4A Runoff Area=669 sf 0.00% Impervious Runoff Depth=3.99"
Tc=5.0 min CN=61 Runoff=0.07 cfs 222 cf

Subcatchment WS N5-1A: WS N5-1A Runoff Area=6,543 sf 65.99% Impervious Runoff Depth=6.89"
Tc=5.0 min CN=85 Runoff=1.21 cfs 3,757 cf

Subcatchment WS N5-1B: WS N5-1B Runoff Area=2,766 sf 100.00% Impervious Runoff Depth=8.46"
Tc=5.0 min CN=98 Runoff=0.56 cfs 1,950 cf

Subcatchment WS N5A: WS N5A Runoff Area=2,547 sf 90.54% Impervious Runoff Depth=7.98"
Tc=5.0 min CN=94 Runoff=0.51 cfs 1,693 cf

Subcatchment WS N5B: WS N5B Runoff Area=12,154 sf 55.69% Impervious Runoff Depth=6.53"
Tc=5.0 min CN=82 Runoff=2.15 cfs 6,610 cf

Subcatchment WS N6A: WS N6A Runoff Area=1,851 sf 58.35% Impervious Runoff Depth=6.65"
Tc=5.0 min CN=83 Runoff=0.33 cfs 1,025 cf

Subcatchment WS N6B: WS N6B Runoff Area=1,431 sf 89.31% Impervious Runoff Depth=7.98"
Tc=5.0 min CN=94 Runoff=0.29 cfs 951 cf

Subcatchment WS N7A: WS N7A Runoff Area=45,199 sf 64.27% Impervious Runoff Depth=6.89"
Flow Length=521' Tc=11.0 min CN=85 Runoff=6.83 cfs 25,953 cf

Subcatchment WS N7B: WS N7B Runoff Area=34,226 sf 51.20% Impervious Runoff Depth=6.28"
Flow Length=340' Tc=2.6 min CN=80 Runoff=6.41 cfs 17,923 cf

Subcatchment WS NE: WOODS NORTHEAST Runoff Area=29,178 sf 0.00% Impervious Runoff Depth=3.27"
Flow Length=219' Tc=9.5 min CN=55 Runoff=2.21 cfs 7,958 cf

Subcatchment WS NE1A: WS NE1A Runoff Area=1,234 sf 65.48% Impervious Runoff Depth=6.89"
Tc=5.0 min CN=85 Runoff=0.23 cfs 709 cf

Subcatchment WS NE1B: WS NE1B Runoff Area=1,316 sf 64.29% Impervious Runoff Depth=6.89"
Tc=5.0 min CN=85 Runoff=0.24 cfs 756 cf

Subcatchment WS RF N: WS ROOF N Runoff Area=9,011 sf 100.00% Impervious Runoff Depth=8.46"
Flow Length=90' Slope=0.0050 '/' Tc=1.9 min CN=98 Runoff=2.05 cfs 6,353 cf

Subcatchment WS RF S: WS ROOF S Runoff Area=24,651 sf 100.00% Impervious Runoff Depth=8.46"
Flow Length=90' Slope=0.0050 '/' Tc=1.9 min CN=98 Runoff=5.60 cfs 17,379 cf

Subcatchment WS S1A: WS S1A Runoff Area=12,398 sf 73.86% Impervious Runoff Depth=7.25"
Tc=5.0 min CN=88 Runoff=2.36 cfs 7,494 cf

Subcatchment WS S1B: WS S1B Runoff Area=20,909 sf 64.68% Impervious Runoff Depth=6.89"
Tc=5.0 min CN=85 Runoff=3.85 cfs 12,006 cf

Subcatchment WS SE: WOODS SOUTHEAST Runoff Area=32,465 sf 0.00% Impervious Runoff Depth=3.27"
Flow Length=100' Slope=0.3260 '/' Tc=6.9 min CN=55 Runoff=2.69 cfs 8,854 cf

Subcatchment WS SF: WS SF Runoff Area=4,712 sf 2.42% Impervious Runoff Depth=4.11"
Tc=5.0 min CN=62 Runoff=0.54 cfs 1,613 cf

Subcatchment WS STE SE: SITE SOUTHEAST Runoff Area=9,338 sf 59.97% Impervious Runoff Depth=6.65"
Tc=5.0 min CN=83 Runoff=1.68 cfs 5,173 cf

Subcatchment WS SW1: WS SW1 Runoff Area=6,395 sf 75.18% Impervious Runoff Depth=7.37"
Tc=5.0 min CN=89 Runoff=1.23 cfs 3,930 cf

Subcatchment WS SW2: WS SW2 Runoff Area=18,007 sf 18.73% Impervious Runoff Depth=4.83"
Flow Length=254' Tc=18.6 min CN=68 Runoff=1.63 cfs 7,247 cf

Pond 10191: GICB EX 10191 Peak Elev=105.27' Inflow=2.30 cfs 8,523 cf
Primary=1.08 cfs 5,121 cf Secondary=2.30 cfs 3,444 cf Outflow=2.30 cfs 8,523 cf

Pond 10322: DMH EX 10322 Peak Elev=100.97' Inflow=14.42 cfs 129,401 cf
Primary=9.95 cfs 114,224 cf Secondary=4.55 cfs 15,176 cf Outflow=14.42 cfs 129,401 cf

Pond 111710: DMH EX 111710 Peak Elev=87.31' Inflow=21.05 cfs 147,186 cf
Primary=9.11 cfs 113,235 cf Secondary=11.94 cfs 33,951 cf Outflow=21.05 cfs 147,186 cf

Pond N0: DMH N0 Peak Elev=136.19' Inflow=10.83 cfs 35,740 cf
Primary=10.83 cfs 35,740 cf Secondary=0.00 cfs 0 cf Outflow=10.83 cfs 35,740 cf

Pond N1: DMH N1 Peak Elev=138.55' Inflow=25.17 cfs 92,123 cf
Primary=8.81 cfs 54,341 cf Secondary=10.83 cfs 35,740 cf Tertiary=5.57 cfs 2,041 cf Outflow=25.17 cfs 92,123 cf

Pond N2: DMH N2 Peak Elev=138.77' Inflow=2.82 cfs 4,354 cf
Primary=2.82 cfs 4,354 cf Secondary=0.00 cfs 0 cf Outflow=2.82 cfs 4,354 cf

Pond N2A: CB N2A Peak Elev=138.81' Inflow=1.23 cfs 2,043 cf
Primary=1.23 cfs 2,043 cf Secondary=0.00 cfs 0 cf Outflow=1.23 cfs 2,043 cf

Pond N2B: CB N2B Peak Elev=138.95' Inflow=1.86 cfs 2,342 cf
Primary=1.81 cfs 2,311 cf Secondary=0.27 cfs 32 cf Outflow=1.86 cfs 2,342 cf

Pond N3: DMH N3 Peak Elev=145.48' Storage=282 cf Inflow=22.63 cfs 87,769 cf
Primary=22.44 cfs 87,769 cf Secondary=0.00 cfs 0 cf Outflow=22.44 cfs 87,769 cf

Pond N3A: DI N3A Peak Elev=148.09' Inflow=1.47 cfs 4,395 cf
Primary=1.47 cfs 4,395 cf Secondary=0.00 cfs 0 cf Outflow=1.47 cfs 4,395 cf

Pond N4: DMH N4 Peak Elev=147.49' Inflow=21.41 cfs 83,374 cf
Primary=21.41 cfs 83,374 cf Secondary=0.00 cfs 0 cf Outflow=21.41 cfs 83,374 cf

Pond N4A: DI N4A Peak Elev=147.55' Inflow=0.07 cfs 222 cf
Primary=0.07 cfs 222 cf Secondary=0.00 cfs 0 cf Outflow=0.07 cfs 222 cf

Pond N5: DMH N5 Peak Elev=149.44' Inflow=21.35 cfs 83,152 cf
Primary=21.35 cfs 83,152 cf Secondary=0.00 cfs 0 cf Outflow=21.35 cfs 83,152 cf

Pond N5-1: DMH N5-1 Peak Elev=149.18' Inflow=1.67 cfs 5,355 cf
Primary=1.67 cfs 5,284 cf Secondary=0.61 cfs 71 cf Outflow=1.67 cfs 5,355 cf

Pond N5-1A: CB N5-1A Peak Elev=148.13' Inflow=1.21 cfs 3,757 cf
Primary=1.19 cfs 3,405 cf Secondary=1.21 cfs 376 cf Outflow=1.21 cfs 3,757 cf

Pond N5-1B: CB N5-1B Peak Elev=149.20' Inflow=0.56 cfs 1,950 cf
Primary=0.56 cfs 1,950 cf Secondary=0.00 cfs 0 cf Outflow=0.56 cfs 1,950 cf

Pond N5A: CB N5A Peak Elev=149.38' Inflow=0.51 cfs 1,693 cf
Primary=0.51 cfs 1,693 cf Secondary=0.00 cfs 0 cf Outflow=0.51 cfs 1,693 cf

Pond N5B: CB N5B Peak Elev=150.12' Inflow=3.29 cfs 6,773 cf
Primary=3.29 cfs 6,773 cf Secondary=0.00 cfs 0 cf Outflow=3.29 cfs 6,773 cf

Pond N6: DMH N6 Peak Elev=150.65' Inflow=17.84 cfs 69,401 cf
Primary=17.84 cfs 69,401 cf Secondary=0.00 cfs 0 cf Outflow=17.84 cfs 69,401 cf

Pond N6-1: DMH N6-1 Peak Elev=153.13' Inflow=7.38 cfs 23,706 cf
Primary=7.26 cfs 23,544 cf Secondary=1.30 cfs 162 cf Outflow=7.38 cfs 23,706 cf

Pond N6A: CB N6A Peak Elev=150.75' Inflow=0.33 cfs 1,025 cf
Primary=0.33 cfs 1,025 cf Secondary=0.00 cfs 0 cf Outflow=0.33 cfs 1,025 cf

Pond N6B: CB N6B Peak Elev=150.74' Inflow=0.29 cfs 951 cf
Primary=0.29 cfs 951 cf Secondary=0.00 cfs 0 cf Outflow=0.29 cfs 951 cf

Pond N7: DMH N7 Peak Elev=151.23' Inflow=11.03 cfs 43,881 cf
Primary=11.03 cfs 43,881 cf Secondary=0.00 cfs 0 cf Outflow=11.03 cfs 43,881 cf

Pond N7A: DGCB N7A Peak Elev=153.36' Inflow=6.83 cfs 25,978 cf
Primary=6.83 cfs 25,978 cf Secondary=0.00 cfs 0 cf Outflow=6.83 cfs 25,978 cf

Pond N7B: CB N7B Peak Elev=153.87' Inflow=6.41 cfs 17,923 cf
Primary=6.34 cfs 17,902 cf Secondary=0.36 cfs 21 cf Outflow=6.41 cfs 17,923 cf

Pond NE1: DMH NE1 Peak Elev=134.43' Inflow=0.74 cfs 1,496 cf
Primary=0.74 cfs 1,496 cf Secondary=0.00 cfs 0 cf Outflow=0.74 cfs 1,496 cf

Pond NE1A: DI NE1A Peak Elev=134.43' Inflow=0.50 cfs 741 cf
Primary=0.50 cfs 741 cf Secondary=0.00 cfs 0 cf Outflow=0.50 cfs 741 cf

Pond NE1B: DI NE1B Peak Elev=134.43' Inflow=0.24 cfs 756 cf
Primary=0.24 cfs 756 cf Secondary=0.00 cfs 0 cf Outflow=0.24 cfs 756 cf

Pond P BSN N: DETENTION BASIN NORTH Peak Elev=134.42' Storage=19,483 cf Inflow=27.25 cfs 80,417 cf
Discarded=0.02 cfs 1,059 cf Primary=10.91 cfs 79,339 cf Secondary=0.00 cfs 0 cf Outflow=10.93 cfs 80,398 cf

Pond P SE 1: DMH SE1 Peak Elev=105.58' Inflow=18.55 cfs 138,569 cf
Primary=14.42 cfs 129,401 cf Secondary=4.12 cfs 9,168 cf Outflow=18.55 cfs 138,569 cf

Pond P-BSN-S: DETENTION BASIN SOUTH Peak Elev=114.68' Storage=8,053 cf Inflow=24.50 cfs 139,404 cf
Discarded=0.06 cfs 5,444 cf Primary=18.55 cfs 133,448 cf Secondary=0.00 cfs 0 cf Outflow=18.60 cfs 138,892 cf

Pond P-E1: DMH E1 Peak Elev=117.64' Inflow=10.91 cfs 79,339 cf
Primary=10.91 cfs 79,339 cf Secondary=0.00 cfs 0 cf Outflow=10.91 cfs 79,339 cf

Pond P-E2: DMH E2 Peak Elev=128.09' Inflow=10.91 cfs 79,339 cf
Primary=10.91 cfs 79,339 cf Secondary=0.00 cfs 0 cf Outflow=10.91 cfs 79,339 cf

Pond P-SF: WQ SAND FILTER Peak Elev=134.42' Storage=6,486 cf Inflow=15.56 cfs 59,492 cf
Primary=0.32 cfs 18,207 cf Secondary=15.19 cfs 40,886 cf Outflow=15.42 cfs 59,093 cf

Pond RF N-1: RF N-1 Peak Elev=155.26' Inflow=2.05 cfs 6,353 cf
Primary=2.04 cfs 6,352 cf Secondary=0.00 cfs 0 cf Outflow=2.05 cfs 6,353 cf

Pond RF S-1: RF S-1 Peak Elev=155.85' Inflow=5.60 cfs 17,379 cf
Primary=5.35 cfs 17,353 cf Secondary=0.30 cfs 25 cf Outflow=5.60 cfs 17,379 cf

Pond S1: DMH S1 Peak Elev=118.05' Inflow=6.26 cfs 24,109 cf
Primary=6.26 cfs 24,109 cf Secondary=0.00 cfs 0 cf Outflow=6.26 cfs 24,109 cf

Pond S1A: CB S1A Peak Elev=119.89' Inflow=2.36 cfs 7,494 cf
Primary=2.36 cfs 7,494 cf Secondary=0.00 cfs 0 cf Outflow=2.36 cfs 7,494 cf

Pond S1B: CB S1B Peak Elev=120.37' Inflow=3.85 cfs 12,006 cf
Primary=3.85 cfs 12,006 cf Secondary=0.00 cfs 0 cf Outflow=3.85 cfs 12,006 cf

Pond SF PT N: SF PT N Peak Elev=136.36' Inflow=8.81 cfs 54,341 cf
Primary=8.81 cfs 54,341 cf Secondary=0.00 cfs 0 cf Outflow=8.81 cfs 54,341 cf

Pond SF PT NE: SF PT NE Peak Elev=134.43' Inflow=0.74 cfs 1,496 cf
Primary=0.74 cfs 1,496 cf Secondary=0.00 cfs 0 cf Outflow=0.74 cfs 1,496 cf

Pond SW1: CB SW 1 Peak Elev=138.81' Inflow=1.23 cfs 3,930 cf
Primary=1.23 cfs 3,930 cf Secondary=0.00 cfs 0 cf Outflow=1.23 cfs 3,930 cf

Pond SW2: CB SW 2 Peak Elev=149.69' Inflow=1.63 cfs 7,247 cf
Primary=1.63 cfs 7,247 cf Secondary=0.00 cfs 0 cf Outflow=1.63 cfs 7,247 cf

Link L E: OFFSITE EAST Inflow=4.82 cfs 16,812 cf
Primary=4.82 cfs 16,812 cf

Link L GLAD: OFFSITE GLADSTONE Inflow=3.27 cfs 8,645 cf
Primary=3.27 cfs 8,645 cf

Link L T: TOTAL LEAVING SITE Inflow=27.22 cfs 172,642 cf
Primary=27.22 cfs 172,642 cf

Total Runoff Area = 393,811 sf Runoff Volume = 193,627 cf Average Runoff Depth = 5.90"
54.91% Pervious = 216,244 sf 45.09% Impervious = 177,567 sf

Summary for Subcatchment WS 10191: WS 10191

Runoff = 2.30 cfs @ 12.14 hrs, Volume= 8,523 cf, Depth= 6.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	9,062	98	Imp Surfaces & Misc Structures
	6,609	61	>75% Grass cover, Good, HSG B
	15,671	82	Weighted Average
	6,609		42.17% Pervious Area
	9,062		57.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	13	1.0000	4.46		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
6.1	96	0.0570	0.26		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
0.5	63	0.0110	2.13		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.9	132	0.0117	0.76		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.2	133	0.0422	9.63	67.39	**Channel Flow, Swale West** Area= 7.0 sf Perim= 10.0' r= 0.70' n= 0.025 Earth, grassed & winding
1.0	290	0.0850	4.79	19.17	**Channel Flow, Swale South** Area= 4.0 sf Perim= 6.0' r= 0.67' n= 0.069 Riprap, 6-inch
10.7	727	Total			

Summary for Subcatchment WS BSN N: WS BSN N

Runoff = 1.27 cfs @ 12.08 hrs, Volume= 3,790 cf, Depth= 4.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	482	98	Imp Surfaces & Misc Structures
	10,279	61	>75% Grass cover, Good, HSG B
	10,761	63	Weighted Average
	10,279		95.52% Pervious Area
	482		4.48% Impervious Area

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

Summary for Subcatchment WS BSN S: WS BSN S

Runoff = 6.80 cfs @ 12.15 hrs, Volume= 24,779 cf, Depth= 5.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	615	98	Imp Surfaces & Misc Structures
	23,145	61	>75% Grass cover, Good, HSG B
	28,612	85	1/8 acre lots, 65% imp, HSG B
	52,372	75	Weighted Average
	33,159		63.31% Pervious Area
	19,213		36.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	13	1.0000	4.46		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
6.1	96	0.0570	0.26		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
0.5	63	0.0110	2.13		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.9	132	0.0117	0.76		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.2	133	0.0422	9.63	67.39	**Channel Flow, Swale West** Area= 7.0 sf Perim= 10.0' r= 0.70' n= 0.025 Earth, grassed & winding
1.0	290	0.0850	4.79	19.17	**Channel Flow, Swale South** Area= 4.0 sf Perim= 6.0' r= 0.67' n= 0.069 Riprap, 6-inch
10.7	727	Total			

Summary for Subcatchment WS N: SITE NORTH

Runoff = 3.27 cfs @ 12.02 hrs, Volume= 8,645 cf, Depth= 5.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

Area (sf)	CN	Description
5,895	98	Paved parking, HSG B
13,627	61	>75% Grass cover, Good, HSG B
19,522	72	Weighted Average
13,627		69.80% Pervious Area
5,895		30.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	53	0.0750	2.10		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.33"
0.5	163	0.0711	5.41		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.4	81	0.0630	3.76		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.3	86	0.0512	4.59		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.6	383	Total			

Summary for Subcatchment WS N2A: WS N2A

Runoff = 0.64 cfs @ 12.07 hrs, Volume= 1,972 cf, Depth= 6.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	2,213	98	Imp Surfaces & Misc Structures
	1,283	61	>75% Grass cover, Good, HSG B
	3,496	84	Weighted Average
	1,283		36.70% Pervious Area
	2,213		63.30% Impervious Area

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

Summary for Subcatchment WS N2B: WS N2B

Runoff = 0.65 cfs @ 12.07 hrs, Volume= 1,966 cf, Depth= 5.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	1,622	98	Imp Surfaces & Misc Structures
	2,446	61	>75% Grass cover, Good, HSG B
	4,068	76	Weighted Average
	2,446		60.13% Pervious Area
	1,622		39.87% Impervious Area

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

Summary for Subcatchment WS N3A: WS N3A

Runoff = 1.47 cfs @ 12.07 hrs, Volume= 4,395 cf, Depth= 4.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	2,098	98	Imp Surfaces & Misc Structures
	8,823	61	>75% Grass cover, Good, HSG B
	10,921	68	Weighted Average
	8,823		80.79% Pervious Area
	2,098		19.21% Impervious Area

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

Summary for Subcatchment WS N4A: WS N4A

Runoff = 0.07 cfs @ 12.08 hrs, Volume= 222 cf, Depth= 3.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

Area (sf)	CN	Description
669	61	>75% Grass cover, Good, HSG B
669		100.00% Pervious Area

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

Summary for Subcatchment WS N5-1A: WS N5-1A

Runoff = 1.21 cfs @ 12.07 hrs, Volume= 3,757 cf, Depth= 6.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	4,318	98	Imp Surfaces & Misc Structures
	2,225	61	>75% Grass cover, Good, HSG B
	6,543	85	Weighted Average
	2,225		34.01% Pervious Area
	4,318		65.99% Impervious Area

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

Summary for Subcatchment WS N5-1B: WS N5-1B

Runoff = 0.56 cfs @ 12.07 hrs, Volume= 1,950 cf, Depth= 8.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	2,766	98	Imp Surfaces & Misc Structures
	2,766		100.00% Impervious Area

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

Summary for Subcatchment WS N5A: WS N5A

Runoff = 0.51 cfs @ 12.07 hrs, Volume= 1,693 cf, Depth= 7.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	2,306	98	Imp Surfaces & Misc Structures
	241	61	>75% Grass cover, Good, HSG B
	2,547	94	Weighted Average
	241		9.46% Pervious Area
	2,306		90.54% Impervious Area

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

Summary for Subcatchment WS N5B: WS N5B

Runoff = 2.15 cfs @ 12.07 hrs, Volume= 6,610 cf, Depth= 6.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	6,769	98	Imp Surfaces & Misc Structures
	5,385	61	>75% Grass cover, Good, HSG B
	12,154	82	Weighted Average
	5,385		44.31% Pervious Area
	6,769		55.69% Impervious Area

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

Summary for Subcatchment WS N6A: WS N6A

Runoff = 0.33 cfs @ 12.07 hrs, Volume= 1,025 cf, Depth= 6.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	1,080	98	Imp Surfaces & Misc Structures
	771	61	>75% Grass cover, Good, HSG B
	1,851	83	Weighted Average
	771		41.65% Pervious Area
	1,080		58.35% Impervious Area

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

Summary for Subcatchment WS N6B: WS N6B

Runoff = 0.29 cfs @ 12.07 hrs, Volume= 951 cf, Depth= 7.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	1,278	98	Imp Surfaces & Misc Structures
	153	61	>75% Grass cover, Good, HSG B
	1,431	94	Weighted Average
	153		10.69% Pervious Area
	1,278		89.31% Impervious Area

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

Summary for Subcatchment WS N7A: WS N7A

Runoff = 6.83 cfs @ 12.15 hrs, Volume= 25,953 cf, Depth= 6.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	19,430	98	Imp Surfaces & Misc Structures
	10,969	61	>75% Grass cover, Good, HSG B
	14,800	85	1/8 acre lots, 65% imp, HSG B
	45,199	85	Weighted Average
	16,149		35.73% Pervious Area
	29,050		64.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	18	1.0000	4.76		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
7.2	95	0.0368	0.22		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
1.2	100	0.0400	1.40		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
2.5	308	0.0105	2.08		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
11.0	521	Total			

Summary for Subcatchment WS N7B: WS N7B

Runoff = 6.41 cfs @ 12.04 hrs, Volume= 17,923 cf, Depth= 6.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	15,308	98	Imp Surfaces & Misc Structures
	15,508	61	>75% Grass cover, Good, HSG B
	3,410	85	1/8 acre lots, 65% imp, HSG B
	34,226	80	Weighted Average
	16,702		48.80% Pervious Area
	17,525		51.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	61	0.0300	1.49		**Sheet Flow, Paved Driveway** Smooth surfaces n= 0.011 P2= 3.33"
0.4	33	0.0406	1.49		**Sheet Flow, Parking Lot** Smooth surfaces n= 0.011 P2= 3.33"
0.9	129	0.0140	2.40		**Shallow Concentrated Flow, Parking Lot** Paved Kv= 20.3 fps
0.2	28	0.0960	2.17		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.1	22	0.0518	4.62		**Shallow Concentrated Flow, Sidewalk** Paved Kv= 20.3 fps
0.3	67	0.0280	3.40		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.6	340	Total			

Summary for Subcatchment WS NE: WOODS NORTHEAST

Runoff = 2.21 cfs @ 12.14 hrs, Volume= 7,958 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

Area (sf)	CN	Description
29,178	55	Woods, Good, HSG B
29,178		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	96	0.1666	0.18		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.33"
0.8	123	0.2440	2.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
9.5	219	Total			

Summary for Subcatchment WS NE1A: WS NE1A

Runoff = 0.23 cfs @ 12.07 hrs, Volume= 709 cf, Depth= 6.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	808	98	Imp Surfaces & Misc Structures
	426	61	>75% Grass cover, Good, HSG B
	1,234	85	Weighted Average
	426		34.52% Pervious Area
	808		65.48% Impervious Area

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

Summary for Subcatchment WS NE1B: WS NE1B

Runoff = 0.24 cfs @ 12.07 hrs, Volume= 756 cf, Depth= 6.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	846	98	Imp Surfaces & Misc Structures
	470	61	>75% Grass cover, Good, HSG B
	1,316	85	Weighted Average
	470		35.71% Pervious Area
	846		64.29% Impervious Area

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

Summary for Subcatchment WS RF N: WS ROOF N

Runoff = 2.05 cfs @ 12.03 hrs, Volume= 6,353 cf, Depth= 8.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	9,011	98	Roof
	9,011		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	90	0.0050	0.79		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"

Summary for Subcatchment WS RF S: WS ROOF S

Runoff = 5.60 cfs @ 12.03 hrs, Volume= 17,379 cf, Depth= 8.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	24,651	98	Roof
	24,651		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	90	0.0050	0.79		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"

Summary for Subcatchment WS S1A: WS S1A

Runoff = 2.36 cfs @ 12.07 hrs, Volume= 7,494 cf, Depth= 7.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	9,157	98	Parking Lot South
	3,241	61	>75% Grass cover, Good, HSG B
	12,398	88	Weighted Average
	3,241		26.14% Pervious Area
	9,157		73.86% Impervious Area

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

Summary for Subcatchment WS S1B: WS S1B

Runoff = 3.85 cfs @ 12.07 hrs, Volume= 12,006 cf, Depth= 6.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	13,523	98	Parking Lot South
	7,386	61	>75% Grass cover, Good, HSG B
	20,909	85	Weighted Average
	7,386		35.32% Pervious Area
	13,523		64.68% Impervious Area

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

Summary for Subcatchment WS SE: WOODS SOUTHEAST

Runoff = 2.69 cfs @ 12.11 hrs, Volume= 8,854 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

Area (sf)	CN	Description
32,465	55	Woods, Good, HSG B
32,465		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.3260	0.24		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.33"

Summary for Subcatchment WS SF: WS SF

Runoff = 0.54 cfs @ 12.08 hrs, Volume= 1,613 cf, Depth= 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	114	98	Imp Surfaces & Misc Structures
	4,598	61	>75% Grass cover, Good, HSG B
	4,712	62	Weighted Average
	4,598		97.58% Pervious Area
	114		2.42% Impervious Area

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

Summary for Subcatchment WS STE SE: SITE SOUTHEAST

Runoff = 1.68 cfs @ 12.07 hrs, Volume= 5,173 cf, Depth= 6.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	5,600	98	Imp Surfaces & Misc Structures
	3,738	61	>75% Grass cover, Good, HSG B
	9,338	83	Weighted Average
	3,738		40.03% Pervious Area
	5,600		59.97% Impervious Area

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

Summary for Subcatchment WS SW1: WS SW1

Runoff = 1.23 cfs @ 12.07 hrs, Volume= 3,930 cf, Depth= 7.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	4,808	98	Imp Surfaces & Misc Structures
	1,587	61	>75% Grass cover, Good, HSG B
	6,395	89	Weighted Average
	1,587		24.82% Pervious Area
	4,808		75.18% Impervious Area

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

Summary for Subcatchment WS SW2: WS SW2

Runoff = 1.63 cfs @ 12.26 hrs, Volume= 7,247 cf, Depth= 4.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.70"

	Area (sf)	CN	Description
*	3,373	98	Imp Surfaces & Misc Structures
	14,634	61	>75% Grass cover, Good, HSG B
	18,007	68	Weighted Average
	14,634		81.27% Pervious Area
	3,373		18.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.1	159	0.0140	0.17		**Sheet Flow, Grass**
					Grass: Short n= 0.150 P2= 3.33"
2.5	95	0.0080	0.63		**Shallow Concentrated Flow, Grass**
					Short Grass Pasture Kv= 7.0 fps
18.6	254	Total			

Summary for Pond 10191: GICB EX 10191

Inflow Area = 15,671 sf, 57.83% Impervious, Inflow Depth = 6.53" for 100-YR event
Inflow = 2.30 cfs @ 12.14 hrs, Volume= 8,523 cf
Outflow = 2.30 cfs @ 12.14 hrs, Volume= 8,523 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.08 cfs @ 11.97 hrs, Volume= 5,121 cf
Secondary = 2.30 cfs @ 12.14 hrs, Volume= 3,444 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 105.27' @ 12.14 hrs
Flood Elev= 105.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	102.00'	**12.0" Round 12" RCP** L= 6.4' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 102.00' / 100.00' S= 0.3125 '/' Cc= 0.900
			n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	105.08'	**32.0" Horiz. DMH SURCHARGE** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 11.97 hrs HW=104.84' TW=105.01' (Dynamic Tailwater)
↑—**1=12" RCP** (Controls 0.00 cfs)

Secondary OutFlow Max=2.29 cfs @ 12.14 hrs HW=105.27' TW=87.31' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Weir Controls 2.29 cfs @ 1.43 fps)

Summary for Pond 10322: DMH EX 10322

Inflow Area =	136,513 sf, 43.67% Impervious,	Inflow Depth > 11.37" for 100-YR event	
Inflow =	14.42 cfs @ 12.35 hrs, Volume=	129,401 cf	
Outflow =	14.42 cfs @ 12.35 hrs, Volume=	129,401 cf,	Atten= 0%, Lag= 0.0 min
Primary =	9.95 cfs @ 12.86 hrs, Volume=	114,224 cf	
Secondary =	4.55 cfs @ 12.32 hrs, Volume=	15,176 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 100.97' @ 12.32 hrs
Flood Elev= 100.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	93.17'	**12.0" Round 12" RCP** L= 181.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 93.17' / 81.11' S= 0.0666 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	100.67'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=9.95 cfs @ 12.86 hrs HW=100.87' TW=86.99' (Dynamic Tailwater)
└─**1=12" RCP** (Outlet Controls 9.95 cfs @ 12.67 fps)

Secondary OutFlow Max=4.55 cfs @ 12.32 hrs HW=100.97' TW=87.29' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Weir Controls 4.55 cfs @ 1.80 fps)

Summary for Pond 111710: DMH EX 111710

Inflow Area =	145,851 sf, 44.72% Impervious,	Inflow Depth > 12.11" for 100-YR event	
Inflow =	21.05 cfs @ 12.17 hrs, Volume=	147,186 cf	
Outflow =	21.05 cfs @ 12.17 hrs, Volume=	147,186 cf,	Atten= 0%, Lag= 0.0 min
Primary =	9.11 cfs @ 12.17 hrs, Volume=	113,235 cf	
Secondary =	11.94 cfs @ 12.17 hrs, Volume=	33,951 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 87.31' @ 12.17 hrs
Flood Elev= 86.86'

Device	Routing	Invert	Outlet Devices
#1	Primary	81.01'	**12.0" Round 12" RCP** L= 166.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 81.01' / 66.00' S= 0.0904 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	86.86'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads
#3	Secondary	86.49'	**24.0" W x 6.0" H Vert. GICB 111708** C= 0.600

Primary OutFlow Max=9.11 cfs @ 12.17 hrs HW=87.31' TW=0.00' (Dynamic Tailwater)
└─**1=12" RCP** (Inlet Controls 9.11 cfs @ 11.60 fps)

Secondary OutFlow Max=11.94 cfs @ 12.17 hrs HW=87.31' TW=0.00' (Dynamic Tailwater)
├─**2=DMH SURCHARGE** (Weir Controls 8.33 cfs @ 2.20 fps)
└─**3=GICB 111708** (Orifice Controls 3.61 cfs @ 3.61 fps)

Summary for Pond N0: DMH N0

Inflow	=	10.83 cfs @	12.04 hrs,	Volume=	35,740 cf
Outflow	=	10.83 cfs @	12.04 hrs,	Volume=	35,740 cf, Atten= 0%, Lag= 0.0 min
Primary	=	10.83 cfs @	12.04 hrs,	Volume=	35,740 cf
Secondary	=	0.00 cfs @	0.00 hrs,	Volume=	0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 136.19' @ 12.15 hrs
Flood Elev= 139.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.62'	**18.0" Round 18" CPP** L= 29.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 132.62' / 132.50' S= 0.0041 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	139.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=10.82 cfs @ 12.04 hrs HW=135.97' TW=133.00' (Dynamic Tailwater)
└─**1=18" CPP** (Inlet Controls 10.82 cfs @ 6.12 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.62' TW=129.00' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N1: DMH N1

Inflow Area = 159,533 sf, 65.62% Impervious, Inflow Depth = 6.93" for 100-YR event

Inflow	=	25.17 cfs @	12.06 hrs,	Volume=	92,123 cf
Outflow	=	25.17 cfs @	12.06 hrs,	Volume=	92,123 cf, Atten= 0%, Lag= 0.0 min
Primary	=	8.81 cfs @	12.02 hrs,	Volume=	54,341 cf
Secondary	=	10.83 cfs @	12.04 hrs,	Volume=	35,740 cf
Tertiary	=	5.57 cfs @	12.06 hrs,	Volume=	2,041 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 138.55' @ 12.06 hrs
Flood Elev= 138.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.99'	**15.0" Round 15" CPP** L= 3.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 132.99' / 132.89' S= 0.0313 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	132.91'	**18.0" Round 18" CPP**

			L= 43.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 132.91' / 132.72' S= 0.0044 '/' Cc= 0.900
			n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	133.90'	**6.0' long x 0.5' breadth OVERFLOW WEIR**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Tertiary	138.20'	**32.0" Horiz. DMH SURCHARGE** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=8.66 cfs @ 12.02 hrs HW=138.47' TW=136.32' (Dynamic Tailwater)
↑—**1=15" CPP** (Inlet Controls 8.66 cfs @ 7.06 fps)

Secondary OutFlow Max=10.78 cfs @ 12.04 hrs HW=138.54' TW=135.97' (Dynamic Tailwater)
↑—**2=18" CPP** (Inlet Controls 10.78 cfs @ 6.10 fps)
  ↑—**3=OVERFLOW WEIR** (Passes 10.78 cfs of 173.85 cfs potential flow)

Tertiary OutFlow Max=5.53 cfs @ 12.06 hrs HW=138.54' TW=134.15' (Dynamic Tailwater)
↑—**4=DMH SURCHARGE** (Weir Controls 5.53 cfs @ 1.92 fps)

Summary for Pond N2: DMH N2

Inflow Area = 7,564 sf, 50.70% Impervious, Inflow Depth = 6.91" for 100-YR event
Inflow = 2.82 cfs @ 12.06 hrs, Volume= 4,354 cf
Outflow = 2.82 cfs @ 12.06 hrs, Volume= 4,354 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.82 cfs @ 12.06 hrs, Volume= 4,354 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 138.77' @ 12.06 hrs
Flood Elev= 139.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.60'	**15.0" Round 15" CPP**
			L= 17.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 135.60' / 133.10' S= 0.1471 '/' Cc= 0.900
			n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	139.20'	**32.0" Horiz. DMH SURCHARGE** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=2.77 cfs @ 12.06 hrs HW=138.76' TW=138.54' (Dynamic Tailwater)
↑—**1=15" CPP** (Inlet Controls 2.77 cfs @ 2.26 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.60' TW=128.50' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N2A: CB N2A

Inflow Area =	3,496 sf, 63.30% Impervious,	Inflow Depth = 7.01"	for 100-YR event
Inflow =	1.23 cfs @ 12.06 hrs, Volume=	2,043 cf	
Outflow =	1.23 cfs @ 12.06 hrs, Volume=	2,043 cf, Atten= 0%, Lag= 0.0 min	
Primary =	1.23 cfs @ 12.06 hrs, Volume=	2,043 cf	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 138.81' @ 12.06 hrs
Flood Elev= 139.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.90'	**15.0" Round 15" CPP** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.90' / 135.69' S= 0.0140 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	139.10'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.17 cfs @ 12.06 hrs HW=138.80' TW=138.76' (Dynamic Tailwater)
└─**1=15" CPP** (Inlet Controls 1.17 cfs @ 0.95 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.90' TW=133.50' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N2B: CB N2B

Inflow Area =	4,068 sf, 39.87% Impervious,	Inflow Depth = 6.91"	for 100-YR event
Inflow =	1.86 cfs @ 12.07 hrs, Volume=	2,342 cf	
Outflow =	1.86 cfs @ 12.07 hrs, Volume=	2,342 cf, Atten= 0%, Lag= 0.0 min	
Primary =	1.81 cfs @ 12.09 hrs, Volume=	2,311 cf	
Secondary =	0.27 cfs @ 12.07 hrs, Volume=	32 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 138.95' @ 12.07 hrs
Flood Elev= 138.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.90'	**12.0" Round 12" CPP** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.90' / 135.69' S= 0.0091 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	138.90'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.72 cfs @ 12.09 hrs HW=138.90' TW=138.69' (Dynamic Tailwater)
└─**1=12" CPP** (Inlet Controls 1.72 cfs @ 2.19 fps)

Secondary OutFlow Max=0.25 cfs @ 12.07 hrs HW=138.94' TW=134.25' (Dynamic Tailwater)
└─**2=CB Surcharge** (Weir Controls 0.25 cfs @ 0.69 fps)

Summary for Pond N3: DMH N3

Inflow Area = 151,969 sf, 66.36% Impervious, Inflow Depth = 6.93" for 100-YR event
Inflow = 22.63 cfs @ 12.03 hrs, Volume= 87,769 cf
Outflow = 22.44 cfs @ 12.07 hrs, Volume= 87,769 cf, Atten= 1%, Lag= 2.1 min
Primary = 22.44 cfs @ 12.07 hrs, Volume= 87,769 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 145.48' @ 12.04 hrs Surf.Area= 28 sf Storage= 282 cf
Flood Elev= 150.20' Surf.Area= 28 sf Storage= 416 cf

Plug-Flow detention time= 0.3 min calculated for 87,769 cf (100% of inflow)
Center-of-Mass det. time= 0.2 min (778.0 - 777.8)

Volume	Invert	Avail.Storage	Storage Description
#1	135.50'	416 cf	**6.00'D x 14.71'H 6' DMH**

Device	Routing	Invert	Outlet Devices
#1	Primary	135.50'	**18.0" Round 18" CPP** L= 21.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.50' / 134.00' S= 0.0701 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	150.20'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=22.40 cfs @ 12.07 hrs HW=145.47' TW=138.54' (Dynamic Tailwater)
↑—**1=18" CPP** (Inlet Controls 22.40 cfs @ 12.67 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.50' TW=132.99' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N3A: DI N3A

Inflow Area = 10,921 sf, 19.21% Impervious, Inflow Depth = 4.83" for 100-YR event
Inflow = 1.47 cfs @ 12.07 hrs, Volume= 4,395 cf
Outflow = 1.47 cfs @ 12.07 hrs, Volume= 4,395 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.47 cfs @ 12.07 hrs, Volume= 4,395 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 148.09' @ 12.07 hrs
Flood Elev= 149.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.30'	**12.0" Round 12" CPP** L= 2.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.30' / 147.27' S= 0.0107 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	149.30'	**2.5" x 2.5" Horiz. DI Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.47 cfs @ 12.07 hrs HW=148.08' TW=145.37' (Dynamic Tailwater)
└─**1=12" CPP** (Barrel Controls 1.47 cfs @ 3.06 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=147.30' TW=135.90' (Dynamic Tailwater)
└─**2=DI Surcharge** (Controls 0.00 cfs)

Summary for Pond N4: DMH N4

Inflow Area =	141,048 sf,	70.01% Impervious,	Inflow Depth = 7.09"	for 100-YR event
Inflow =	21.41 cfs @	12.03 hrs, Volume=	83,374 cf	
Outflow =	21.41 cfs @	12.03 hrs, Volume=	83,374 cf,	Atten= 0%, Lag= 0.0 min
Primary =	21.41 cfs @	12.03 hrs, Volume=	83,374 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 147.49' @ 12.04 hrs
Flood Elev= 150.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	141.65'	**24.0" Round 24" CPP** L= 54.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 141.65' / 140.20' S= 0.0269 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	150.50'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=21.42 cfs @ 12.03 hrs HW=147.39' TW=145.38' (Dynamic Tailwater)
└─**1=24" CPP** (Inlet Controls 21.42 cfs @ 6.82 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=141.65' TW=135.90' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N4A: DI N4A

Inflow Area =	669 sf,	0.00% Impervious,	Inflow Depth = 3.99"	for 100-YR event
Inflow =	0.07 cfs @	12.08 hrs, Volume=	222 cf	
Outflow =	0.07 cfs @	12.08 hrs, Volume=	222 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.07 cfs @	12.08 hrs, Volume=	222 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 147.55' @ 12.04 hrs
Flood Elev= 149.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.20'	**12.0" Round 12" CPP** L= 14.3' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.20' / 146.85' S= 0.0245 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	149.20'	**2.5" x 2.5" Horiz. DI Surcharge X 6.00 columns**

X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area)
Limited to weir flow at low heads

Primary OutFlow Max=0.08 cfs @ 12.08 hrs HW=147.34' TW=147.17' (Dynamic Tailwater)
↑—**1=12" CPP** (Outlet Controls 0.08 cfs @ 1.78 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=147.20' TW=135.90' (Dynamic Tailwater)
↑—**2=DI Surcharge** (Controls 0.00 cfs)

Summary for Pond N5: DMH N5

Inflow Area =	140,379 sf, 70.35% Impervious,	Inflow Depth = 7.11"	for 100-YR event
Inflow =	21.35 cfs @ 12.03 hrs,	Volume=	83,152 cf
Outflow =	21.35 cfs @ 12.03 hrs,	Volume=	83,152 cf, Atten= 0%, Lag= 0.0 min
Primary =	21.35 cfs @ 12.03 hrs,	Volume=	83,152 cf
Secondary =	0.00 cfs @ 0.00 hrs,	Volume=	0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 149.44' @ 12.04 hrs
Flood Elev= 151.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	142.28'	**24.0" Round 24" CPP** L= 36.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 142.28' / 141.65' S= 0.0174 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	151.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=21.18 cfs @ 12.03 hrs HW=149.35' TW=147.39' (Dynamic Tailwater)
↑—**1=24" CPP** (Inlet Controls 21.18 cfs @ 6.74 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=142.28' TW=133.50' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N5-1: DMH N5-1

Inflow Area =	9,309 sf, 76.10% Impervious,	Inflow Depth = 6.90"	for 100-YR event
Inflow =	1.67 cfs @ 12.11 hrs,	Volume=	5,355 cf
Outflow =	1.67 cfs @ 12.11 hrs,	Volume=	5,355 cf, Atten= 0%, Lag= 0.0 min
Primary =	1.67 cfs @ 12.11 hrs,	Volume=	5,284 cf
Secondary =	0.61 cfs @ 12.06 hrs,	Volume=	71 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 149.18' @ 12.06 hrs
Flood Elev= 149.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.40'	**15.0" Round 15" CPP** L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.40' / 143.97' S= 0.0054 '/' Cc= 0.900

			n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	149.10'	**32.0" Horiz. DMH SURCHARGE** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=3.39 cfs @ 12.11 hrs HW=147.53' TW=147.19' (Dynamic Tailwater)
└─**1=15" CPP** (Outlet Controls 3.39 cfs @ 2.76 fps)

Secondary OutFlow Max=0.55 cfs @ 12.06 hrs HW=149.17' TW=138.80' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Weir Controls 0.55 cfs @ 0.89 fps)

Summary for Pond N5-1A: CB N5-1A

Inflow Area = 6,543 sf, 65.99% Impervious, Inflow Depth = 6.89" for 100-YR event
Inflow = 1.21 cfs @ 12.07 hrs, Volume= 3,757 cf
Outflow = 1.21 cfs @ 12.07 hrs, Volume= 3,757 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.19 cfs @ 12.11 hrs, Volume= 3,405 cf
Secondary = 1.21 cfs @ 12.07 hrs, Volume= 376 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 148.13' @ 12.07 hrs
Flood Elev= 148.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.80'	**12.0" Round 12" CPP**
			L= 28.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 144.80' / 144.64' S= 0.0057 '/' Cc= 0.900
			n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	148.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns**
			X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area)
			Limited to weir flow at low heads

Primary OutFlow Max=1.31 cfs @ 12.11 hrs HW=147.64' TW=147.52' (Dynamic Tailwater)
└─**1=12" CPP** (Inlet Controls 1.31 cfs @ 1.67 fps)

Secondary OutFlow Max=1.20 cfs @ 12.07 hrs HW=148.13' TW=138.94' (Dynamic Tailwater)
└─**2=CB Surcharge** (Weir Controls 1.20 cfs @ 1.17 fps)

Summary for Pond N5-1B: CB N5-1B

Inflow Area = 2,766 sf,100.00% Impervious, Inflow Depth = 8.46" for 100-YR event
Inflow = 0.56 cfs @ 12.07 hrs, Volume= 1,950 cf
Outflow = 0.56 cfs @ 12.07 hrs, Volume= 1,950 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.56 cfs @ 12.07 hrs, Volume= 1,950 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 149.20' @ 12.07 hrs
Flood Elev= 150.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.76'	**12.0" Round 12" CPP** L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.76' / 144.64' S= 0.0057 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	150.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.99 cfs @ 12.07 hrs HW=149.20' TW=149.13' (Dynamic Tailwater)
└─**1=12" CPP** (Inlet Controls 0.99 cfs @ 1.26 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=144.76' TW=135.90' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N5A: CB N5A

Inflow Area = 2,547 sf, 90.54% Impervious, Inflow Depth = 7.98" for 100-YR event
Inflow = 0.51 cfs @ 12.07 hrs, Volume= 1,693 cf
Outflow = 0.51 cfs @ 12.07 hrs, Volume= 1,693 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.51 cfs @ 12.07 hrs, Volume= 1,693 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 149.38' @ 12.05 hrs
Flood Elev= 150.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.60'	**12.0" Round 12" CPP** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.60' / 147.46' S= 0.0140 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	150.60'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.92 cfs @ 12.07 hrs HW=149.14' TW=149.08' (Dynamic Tailwater)
└─**1=12" CPP** (Inlet Controls 0.92 cfs @ 1.18 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=147.60' TW=144.80' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N5B: CB N5B

Inflow Area = 12,154 sf, 55.69% Impervious, Inflow Depth = 6.69" for 100-YR event
Inflow = 3.29 cfs @ 12.04 hrs, Volume= 6,773 cf
Outflow = 3.29 cfs @ 12.04 hrs, Volume= 6,773 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.29 cfs @ 12.04 hrs, Volume= 6,773 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 150.12' @ 12.05 hrs
Flood Elev= 150.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.50'	**12.0" Round 12" CPP** L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.50' / 147.34' S= 0.0133 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	150.50'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=3.17 cfs @ 12.04 hrs HW=150.08' TW=149.37' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 3.17 cfs @ 4.04 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=147.50' TW=144.76' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N6: DMH N6

Inflow Area =	116,369 sf,	70.98% Impervious,	Inflow Depth = 7.16"	for 100-YR event
Inflow =	17.84 cfs @	12.02 hrs, Volume=	69,401 cf	
Outflow =	17.84 cfs @	12.02 hrs, Volume=	69,401 cf,	Atten= 0%, Lag= 0.0 min
Primary =	17.84 cfs @	12.02 hrs, Volume=	69,401 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.65' @ 12.05 hrs
Flood Elev= 152.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.05'	**24.0" Round 24" CPP** L= 67.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.05' / 143.32' S= 0.0109 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	152.70'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=12.84 cfs @ 12.02 hrs HW=149.82' TW=149.10' (Dynamic Tailwater)
↑—**1=24" CPP** (Inlet Controls 12.84 cfs @ 4.09 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=144.05' TW=147.60' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N6-1: DMH N6-1

Inflow Area =	33,662 sf,	100.00% Impervious,	Inflow Depth = 8.45"	for 100-YR event
Inflow =	7.38 cfs @	12.02 hrs, Volume=	23,706 cf	
Outflow =	7.38 cfs @	12.02 hrs, Volume=	23,706 cf,	Atten= 0%, Lag= 0.0 min
Primary =	7.26 cfs @	12.01 hrs, Volume=	23,544 cf	
Secondary =	1.30 cfs @	12.04 hrs, Volume=	162 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 153.13' @ 12.04 hrs
Flood Elev= 153.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	148.02'	**12.0" Round 12" CPP** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 148.02' / 146.80' S= 0.0469 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.33 cfs @ 12.01 hrs HW=152.58' TW=148.83' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 7.33 cfs @ 9.33 fps)

Secondary OutFlow Max=1.26 cfs @ 12.04 hrs HW=153.13' TW=150.07' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Weir Controls 1.26 cfs @ 1.17 fps)

Summary for Pond N6A: CB N6A

Inflow Area = 1,851 sf, 58.35% Impervious, Inflow Depth = 6.65" for 100-YR event

Inflow =	0.33 cfs @	12.07 hrs, Volume=	1,025 cf
Outflow =	0.33 cfs @	12.07 hrs, Volume=	1,025 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.33 cfs @	12.07 hrs, Volume=	1,025 cf
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.75' @ 12.05 hrs
Flood Elev= 153.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	150.00'	**12.0" Round 12" CPP** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.00' / 149.71' S= 0.0112 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.49 cfs @ 12.07 hrs HW=150.56' TW=150.47' (Dynamic Tailwater)
↑—**1=12" CPP** (Outlet Controls 0.49 cfs @ 1.57 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=150.00' TW=147.50' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N6B: CB N6B

Inflow Area = 1,431 sf, 89.31% Impervious, Inflow Depth = 7.98" for 100-YR event
Inflow = 0.29 cfs @ 12.07 hrs, Volume= 951 cf
Outflow = 0.29 cfs @ 12.07 hrs, Volume= 951 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.29 cfs @ 12.07 hrs, Volume= 951 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.74' @ 12.05 hrs
Flood Elev= 153.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	150.00'	**12.0" Round 12" CPP** L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.00' / 149.78' S= 0.0122 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.53 cfs @ 12.07 hrs HW=150.56' TW=150.48' (Dynamic Tailwater)
1=12" CPP (Outlet Controls 0.53 cfs @ 1.68 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=150.00' TW=147.60' (Dynamic Tailwater)
2=CB Surcharge (Controls 0.00 cfs)

Summary for Pond N7: DMH N7

Inflow Area = 79,425 sf, 58.64% Impervious, Inflow Depth = 6.63" for 100-YR event
Inflow = 11.03 cfs @ 12.07 hrs, Volume= 43,881 cf
Outflow = 11.03 cfs @ 12.07 hrs, Volume= 43,881 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.03 cfs @ 12.07 hrs, Volume= 43,881 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 151.23' @ 12.05 hrs
Flood Elev= 154.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	146.42'	**24.0" Round 24" CPP** L= 46.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 146.42' / 144.40' S= 0.0439 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	154.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=11.62 cfs @ 12.07 hrs HW=151.11' TW=150.52' (Dynamic Tailwater)
↑—**1=24" CPP** (Inlet Controls 11.62 cfs @ 3.70 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=146.42' (Free Discharge)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N7A: DGCB N7A

Inflow Area =	45,199 sf,	64.27% Impervious,	Inflow Depth = 6.90"	for 100-YR event
Inflow =	6.83 cfs @	12.15 hrs, Volume=	25,978 cf	
Outflow =	6.83 cfs @	12.15 hrs, Volume=	25,978 cf,	Atten= 0%, Lag= 0.0 min
Primary =	6.83 cfs @	12.15 hrs, Volume=	25,978 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 153.36' @ 12.15 hrs
Flood Elev= 153.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.60'	**12.0" Round 12" CPP** L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.60' / 149.42' S= 0.0129 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.60'	**2.5" x 2.5" Horiz. DGCB Surcharge X 6.00 columns** X 12 rows C= 0.600 in 48.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=6.83 cfs @ 12.15 hrs HW=153.36' TW=147.85' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 6.83 cfs @ 8.69 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=149.60' (Free Discharge)
↑—**2=DGCB Surcharge** (Controls 0.00 cfs)

Summary for Pond N7B: CB N7B

Inflow Area =	34,226 sf,	51.20% Impervious,	Inflow Depth = 6.28"	for 100-YR event
Inflow =	6.41 cfs @	12.04 hrs, Volume=	17,923 cf	
Outflow =	6.41 cfs @	12.04 hrs, Volume=	17,923 cf,	Atten= 0%, Lag= 0.0 min
Primary =	6.34 cfs @	12.03 hrs, Volume=	17,902 cf	
Secondary =	0.36 cfs @	12.04 hrs, Volume=	21 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 153.87' @ 12.04 hrs
Flood Elev= 153.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.80'	**12.0" Round 12" CPP** L= 16.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.80' / 149.60' S= 0.0125 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Device	Routing	Invert	Outlet Devices
#2	Secondary	153.80'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=6.46 cfs @ 12.03 hrs HW=153.74' TW=150.82' (Dynamic Tailwater)
└─**1=12" CPP** (Inlet Controls 6.46 cfs @ 8.23 fps)

Secondary OutFlow Max=0.31 cfs @ 12.04 hrs HW=153.85' (Free Discharge)
└─**2=CB Surcharge** (Weir Controls 0.31 cfs @ 0.75 fps)

Summary for Pond NE1: DMH NE1

Inflow Area = 2,550 sf, 64.86% Impervious, Inflow Depth = 7.04" for 100-YR event
Inflow = 0.74 cfs @ 12.07 hrs, Volume= 1,496 cf
Outflow = 0.74 cfs @ 12.07 hrs, Volume= 1,496 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.74 cfs @ 12.07 hrs, Volume= 1,496 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 134.43' @ 12.34 hrs
Flood Elev= 136.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.20'	**12.0" Round 12" CPP** L= 8.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.20' / 133.09' S= 0.0137 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	136.30'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.72 cfs @ 12.07 hrs HW=134.22' TW=134.19' (Dynamic Tailwater)
└─**1=12" CPP** (Inlet Controls 0.72 cfs @ 0.92 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.20' TW=133.09' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond NE1A: DI NE1A

Inflow Area = 1,234 sf, 65.48% Impervious, Inflow Depth = 7.20" for 100-YR event
Inflow = 0.50 cfs @ 12.07 hrs, Volume= 741 cf
Outflow = 0.50 cfs @ 12.07 hrs, Volume= 741 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 12.07 hrs, Volume= 741 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 134.43' @ 12.35 hrs
Flood Elev= 135.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.50'	**12.0" Round 12" CPP** L= 24.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.50' / 133.30' S= 0.0081 '/' Cc= 0.900

			n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	135.40'	**2.5" x 2.5" Horiz. DI Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.46 cfs @ 12.07 hrs HW=134.25' TW=134.22' (Dynamic Tailwater)
└─**1=12" CPP** (Outlet Controls 0.46 cfs @ 1.00 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.50' TW=0.00' (Dynamic Tailwater)
└─**2=DI Surcharge** (Controls 0.00 cfs)

Summary for Pond NE1B: DI NE1B

Inflow Area = 1,316 sf, 64.29% Impervious, Inflow Depth = 6.89" for 100-YR event
Inflow = 0.24 cfs @ 12.07 hrs, Volume= 756 cf
Outflow = 0.24 cfs @ 12.07 hrs, Volume= 756 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.07 hrs, Volume= 756 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 134.43' @ 12.35 hrs
Flood Elev= 135.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.50'	**12.0" Round 12" CPP** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.50' / 133.44' S= 0.0120 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	135.40'	**2.5" x 2.5" Horiz. DI Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.26 cfs @ 12.07 hrs HW=134.23' TW=134.22' (Dynamic Tailwater)
└─**1=12" CPP** (Outlet Controls 0.26 cfs @ 0.59 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.50' TW=0.00' (Dynamic Tailwater)
└─**2=DI Surcharge** (Controls 0.00 cfs)

Summary for Pond P BSN N: DETENTION BASIN NORTH

Inflow Area = 10,761 sf, 4.48% Impervious, Inflow Depth = 89.68" for 100-YR event
Inflow = 27.25 cfs @ 12.06 hrs, Volume= 80,417 cf
Outflow = 10.93 cfs @ 12.34 hrs, Volume= 80,398 cf, Atten= 60%, Lag= 16.2 min
Discarded = 0.02 cfs @ 10.38 hrs, Volume= 1,059 cf
Primary = 10.91 cfs @ 12.34 hrs, Volume= 79,339 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 134.42' @ 12.34 hrs Surf.Area= 8,723 sf Storage= 19,483 cf
Flood Elev= 135.00' Surf.Area= 10,572 sf Storage= 23,771 cf

Plug-Flow detention time= 40.5 min calculated for 80,398 cf (100% of inflow)

Center-of-Mass det. time= 40.3 min (826.1 - 785.8)

Volume	Invert	Avail.Storage	Storage Description
#1	129.00'	274 cf	**Loamy Sand Basin Bottom (Prismatic)** Listed below (Recalc) 1,100 cf Overall - 4 cf Embedded = 1,096 cf x 25.0% Voids
#2	129.00'	4 cf	**6.0" Round 6" Underdrain** Inside #1 L= 20.0'
#3	129.50'	23,493 cf	**Basin Contours (Irregular)** Listed below (Recalc)
		23,771 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
129.00	2,200	0	0
129.50	2,200	1,100	1,100

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
129.50	2,200	233.0	0	0	2,200
130.00	2,518	241.0	1,179	1,179	2,524
131.00	3,186	257.0	2,845	4,024	3,205
132.00	3,869	272.0	3,522	7,546	3,890
133.00	4,578	288.0	4,219	11,765	4,656
134.00	5,316	303.0	4,942	16,707	5,421
135.00	8,372	394.0	6,786	23,493	10,480

Device	Routing	Invert	Outlet Devices
#1	Discarded	129.00'	**2.410 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#2	Device 1	129.50'	**2.410 in/hr Flow through Loamy Sand over Surface area from 129.50' - 130.00'** Excluded Surface area = 4,400 sf Phase-In= 0.01'
#3	Primary	127.84'	**15.0" Round 15" CPP** L= 17.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 127.84' / 126.10' S= 0.0989 '/' Cc= 0.900 n= 0.012 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#4	Device 3	127.84'	**13.0" Vert. 13" Plug Orifice** C= 0.600
#5	Device 4	129.00'	**2.0" Vert. 2" Underdrain Orifice** C= 0.600
#6	Device 4	130.20'	**24.0" W x 6.0" H Vert. 24" x 6" Low Orifice** C= 0.600
#7	Device 4	132.50'	**1.5' long x 0.5' breadth 18"W Outflow Structure Weirs (3) X 3.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#8	Device 4	133.00'	**16.0' long x 0.5' breadth Outflow Structure Top** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#9	Secondary	134.50'	**12.5' long x 14.0' breadth Emergency Overflow Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.64 2.67 2.70 2.65 2.64 2.65 2.65 2.63

Discarded OutFlow Max=0.02 cfs @ 10.38 hrs HW=130.00' (Free Discharge)
└─**1=Exfiltration** (Passes 0.02 cfs of 0.26 cfs potential flow)
  └─**2=Flow through Loamy Sand** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=10.91 cfs @ 12.34 hrs HW=134.42' TW=128.09' (Dynamic Tailwater)
└─**3=15" CPP** (Passes 10.91 cfs of 14.42 cfs potential flow)
  └─**4=13" Plug Orifice** (Orifice Controls 10.91 cfs @ 11.83 fps)
    ├─**5=2" Underdrain Orifice** (Passes < 0.24 cfs potential flow)
    ├─**6=24" x 6" Low Orifice** (Passes < 9.60 cfs potential flow)
    ├─**7=18"W Outflow Structure Weirs (3)** (Passes < 39.83 cfs potential flow)
    └─**8=Outflow Structure Top** (Passes < 90.13 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=129.00' TW=118.83' (Dynamic Tailwater)
└─**9=Emergency Overflow Weir** (Controls 0.00 cfs)

Summary for Pond P SE 1: DMH SE1

Inflow Area =	136,513 sf,	43.67% Impervious,	Inflow Depth > 12.18"	for 100-YR event
Inflow =	18.55 cfs @	12.35 hrs, Volume=	138,569 cf	
Outflow =	18.55 cfs @	12.35 hrs, Volume=	138,569 cf,	Atten= 0%, Lag= 0.0 min
Primary =	14.42 cfs @	12.35 hrs, Volume=	129,401 cf	
Secondary =	4.12 cfs @	12.35 hrs, Volume=	9,168 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 105.58' @ 12.35 hrs
Flood Elev= 105.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	96.50'	**18.0" Round 18" CPP** L= 22.6' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 96.50' / 93.30' S= 0.1416 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	105.30'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=14.42 cfs @ 12.35 hrs HW=105.58' TW=100.97' (Dynamic Tailwater)
└─**1=18" CPP** (Inlet Controls 14.42 cfs @ 8.16 fps)

Secondary OutFlow Max=4.12 cfs @ 12.35 hrs HW=105.58' TW=87.29' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Weir Controls 4.12 cfs @ 1.74 fps)

Summary for Pond P-BSN-S: DETENTION BASIN SOUTH

Inflow Area =	120,842 sf,	41.84% Impervious,	Inflow Depth > 13.84"	for 100-YR event
Inflow =	24.50 cfs @	12.11 hrs, Volume=	139,404 cf	
Outflow =	18.60 cfs @	12.35 hrs, Volume=	138,892 cf,	Atten= 24%, Lag= 14.1 min
Discarded =	0.06 cfs @	4.41 hrs, Volume=	5,444 cf	
Primary =	18.55 cfs @	12.35 hrs, Volume=	133,448 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 114.68' @ 12.35 hrs Surf.Area= 4,448 sf Storage= 8,053 cf
Flood Elev= 115.00' Surf.Area= 4,793 sf Storage= 9,206 cf

Plug-Flow detention time= 11.7 min calculated for 138,848 cf (100% of inflow)
Center-of-Mass det. time= 8.0 min (827.6 - 819.6)

Volume	Invert	Avail.Storage	Storage Description
#1	109.00'	504 cf	**Loamy Sand Basin Bottom (Prismatic)** Listed below (Recalc) 2,024 cf Overall - 8 cf Embedded = 2,016 cf x 25.0% Voids
#2	110.50'	8 cf	**6.0" Round 6" Underdrain** Inside #1 L= 40.0'
#3	111.00'	18,507 cf	**Basin Contours (Irregular)** Listed below (Recalc)
		19,019 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
109.00	1,012	0	0
111.00	1,012	2,024	2,024

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
111.00	1,012	144.0	0	0	1,012
112.00	1,497	171.0	1,247	1,247	1,707
113.00	2,081	202.0	1,781	3,028	2,646
114.00	2,757	233.0	2,411	5,439	3,741
115.00	3,781	280.0	3,256	8,694	5,676
116.00	4,597	294.0	4,182	12,877	6,377
117.00	6,731	382.0	5,630	18,507	11,123

Device	Routing	Invert	Outlet Devices
#1	Discarded	109.00'	**2.410 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#2	Device 1	110.50'	**2.410 in/hr Flow through Loamy Sand over Surface area from 110.50' - 111.00'** Excluded Surface area = 1,012 sf Phase-In= 0.01'
#3	Primary	108.00'	**18.0" Round 18" CPP** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.00' / 98.00' S= 0.1333 '/' Cc= 0.900 n= 0.012 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#4	Device 3	108.00'	**17.0" Vert. 17" Plug Orifice** C= 0.600
#5	Device 4	110.50'	**1.0" Vert. 1" Underdrain Orifice** C= 0.600
#6	Device 4	111.00'	**10.0" Vert. 10" Low Orifice X 2.00** C= 0.600
#7	Device 4	112.00'	**1.5' long x 0.5' breadth 18" W Outflow Structure Weirs (3) X 3.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#8	Device 4	112.60'	**16.0' long x 0.5' breadth Outflow Structure Top** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#9	Secondary	114.90'	**10.0' long x 20.0' breadth Emergency Overflow 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=0.06 cfs @ 4.41 hrs HW=111.00' (Free Discharge)
└─**1=Exfiltration** (Passes 0.06 cfs of 0.11 cfs potential flow)
  └─**2=Flow through Loamy Sand** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=18.55 cfs @ 12.35 hrs HW=114.68' TW=105.58' (Dynamic Tailwater)
└─**3=18" CPP** (Passes 18.55 cfs of 20.72 cfs potential flow)
  └─**4=17" Plug Orifice** (Orifice Controls 18.55 cfs @ 11.77 fps)
    ├─**5=1" Underdrain Orifice** (Passes < 0.05 cfs potential flow)
    ├─**6=10" Low Orifice** (Passes < 9.49 cfs potential flow)
    ├─**7=18" W Outflow Structure Weirs (3)** (Passes < 65.55 cfs potential flow)
    └─**8=Outflow Structure Top** (Passes < 159.35 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=109.00' TW=81.01' (Dynamic Tailwater)
└─**9=Emergency Overflow Weir** (Controls 0.00 cfs)

Summary for Pond P-E1: DMH E1

Inflow Area =	10,761 sf,	4.48% Impervious,	Inflow Depth > 88.47"	for 100-YR event
Inflow =	10.91 cfs @	12.34 hrs, Volume=	79,339 cf	
Outflow =	10.91 cfs @	12.34 hrs, Volume=	79,339 cf,	Atten= 0%, Lag= 0.0 min
Primary =	10.91 cfs @	12.34 hrs, Volume=	79,339 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 117.64' @ 12.34 hrs
Flood Elev= 119.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	114.25'	**18.0" Round 18" CPP** L= 99.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 114.25' / 112.00' S= 0.0227 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	119.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=10.91 cfs @ 12.34 hrs HW=117.64' TW=114.68' (Dynamic Tailwater)
└─**1=18" CPP** (Inlet Controls 10.91 cfs @ 6.17 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.25' TW=102.00' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond P-E2: DMH E2

Inflow Area =	10,761 sf,	4.48% Impervious,	Inflow Depth > 88.47"	for 100-YR event
Inflow =	10.91 cfs @	12.34 hrs, Volume=	79,339 cf	
Outflow =	10.91 cfs @	12.34 hrs, Volume=	79,339 cf,	Atten= 0%, Lag= 0.0 min
Primary =	10.91 cfs @	12.34 hrs, Volume=	79,339 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 128.09' @ 12.34 hrs
Flood Elev= 130.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	122.00'	**15.0" Round 15" CPP** L= 140.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 122.00' / 114.50' S= 0.0536 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	130.10'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=10.91 cfs @ 12.34 hrs HW=128.09' TW=117.64' (Dynamic Tailwater)
↑—**1=15" CPP** (Inlet Controls 10.91 cfs @ 8.89 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' TW=102.00' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond P-SF: WQ SAND FILTER

Inflow Area = 166,795 sf, 63.82% Impervious, Inflow Depth = 4.28" for 100-YR event
Inflow = 15.56 cfs @ 12.06 hrs, Volume= 59,492 cf
Outflow = 15.42 cfs @ 12.07 hrs, Volume= 59,093 cf, Atten= 1%, Lag= 0.4 min
Primary = 0.32 cfs @ 12.34 hrs, Volume= 18,207 cf
Secondary = 15.19 cfs @ 12.07 hrs, Volume= 40,886 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 134.42' @ 12.34 hrs Surf.Area= 5,760 sf Storage= 6,486 cf
Flood Elev= 135.00' Surf.Area= 10,052 sf Storage= 10,002 cf

Plug-Flow detention time= 99.7 min calculated for 59,074 cf (99% of inflow)
Center-of-Mass det. time= 95.5 min (885.0 - 789.5)

Volume	Invert	Avail.Storage	Storage Description
#1	128.50'	416 cf	**Sand Filter Media (Irregular)** Listed below (Recalc) 1,260 cf Overall x 33.0% Voids
#2	130.00'	139 cf	**Loam (Irregular)** Listed below (Recalc) 420 cf Overall x 33.0% Voids
#3	130.50'	9,447 cf	**Sand Filter Contours (Irregular)** Listed below (Recalc)
		10,002 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
128.50	840	114.0	0	0	840
130.00	840	114.0	1,260	1,260	1,011

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
130.00	840	114.0	0	0	840
130.50	840	114.0	420	420	897

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
130.50	840	114.0	0	0	840
131.00	972	122.0	453	453	1,001
132.00	1,253	138.0	1,110	1,562	1,357
133.00	1,562	153.0	1,405	2,967	1,734
134.00	1,899	168.0	1,728	4,695	2,149
135.00	8,372	394.0	4,753	9,447	12,260

Device	Routing	Invert	Outlet Devices
#1	Primary	128.50'	**2.410 in/hr BOTTOM OF SAND FILTER over Surface area** Phase-In= 0.01'
#2	Device 1	128.50'	**8.270 in/hr FLOW THRU FILTER over Surface area** Phase-In= 0.01'
#3	Secondary	133.90'	**45.0' long x 1.0' breadth OVERFLOW WEIR** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.32 cfs @ 12.34 hrs HW=134.42' (Free Discharge)
└─**1=BOTTOM OF SAND FILTER** (Exfiltration Controls 0.32 cfs)
  └─**2=FLOW THRU FILTER** (Passes 0.32 cfs of 1.10 cfs potential flow)

Secondary OutFlow Max=15.17 cfs @ 12.07 hrs HW=134.15' TW=133.32' (Dynamic Tailwater)
└─**3=OVERFLOW WEIR** (Weir Controls 15.17 cfs @ 1.35 fps)

Summary for Pond RF N-1: RF N-1

Inflow Area = 9,011 sf,100.00% Impervious, Inflow Depth = 8.46" for 100-YR event
Inflow = 2.05 cfs @ 12.03 hrs, Volume= 6,353 cf
Outflow = 2.05 cfs @ 12.03 hrs, Volume= 6,353 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.04 cfs @ 12.03 hrs, Volume= 6,352 cf
Secondary = 0.00 cfs @ 12.03 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 155.26' @ 12.03 hrs
Flood Elev= 155.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	151.32'	**8.0" Round 8" CPP** L= 65.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 151.32' / 150.66' S= 0.0101 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Secondary	155.25'	**6.0" Horiz. CO SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.04 cfs @ 12.03 hrs HW=155.22' TW=153.09' (Dynamic Tailwater)
└─**1=8" CPP** (Outlet Controls 2.04 cfs @ 5.83 fps)

Secondary OutFlow Max=0.00 cfs @ 12.03 hrs HW=155.26' TW=149.47' (Dynamic Tailwater)
└─**2=CO SURCHARGE** (Weir Controls 0.00 cfs @ 0.30 fps)

Summary for Pond RF S-1: RF S-1

Inflow Area =	24,651 sf,100.00% Impervious,	Inflow Depth = 8.46"	for 100-YR event
Inflow =	5.60 cfs @ 12.03 hrs, Volume=	17,379 cf	
Outflow =	5.60 cfs @ 12.03 hrs, Volume=	17,379 cf, Atten= 0%, Lag= 0.0 min	
Primary =	5.35 cfs @ 12.02 hrs, Volume=	17,353 cf	
Secondary =	0.30 cfs @ 12.03 hrs, Volume=	25 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 155.85' @ 12.03 hrs
Flood Elev= 155.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.46'	**12.0" Round 12" CPP** L= 105.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.46' / 148.40' S= 0.0100 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	155.70'	**6.0" Horiz. CO SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.33 cfs @ 12.02 hrs HW=155.81' TW=153.04' (Dynamic Tailwater)
↑—**1=12" CPP** (Outlet Controls 5.33 cfs @ 6.79 fps)

Secondary OutFlow Max=0.30 cfs @ 12.03 hrs HW=155.85' TW=152.29' (Dynamic Tailwater)
↑—**2=CO SURCHARGE** (Weir Controls 0.30 cfs @ 1.27 fps)

Summary for Pond S1: DMH S1

Inflow Area =	33,307 sf, 68.09% Impervious,	Inflow Depth > 8.69"	for 100-YR event
Inflow =	6.26 cfs @ 12.07 hrs, Volume=	24,109 cf, Incl. 0.04 cfs Base Flow	
Outflow =	6.26 cfs @ 12.07 hrs, Volume=	24,109 cf, Atten= 0%, Lag= 0.0 min	
Primary =	6.26 cfs @ 12.07 hrs, Volume=	24,109 cf	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 118.05' @ 12.07 hrs
Flood Elev= 124.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	113.16'	**12.0" Round 12" CPP** L= 16.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 113.16' / 113.00' S= 0.0097 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	124.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=6.25 cfs @ 12.07 hrs HW=118.04' TW=113.28' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 6.25 cfs @ 7.96 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=113.27' TW=109.00' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond S1A: CB S1A

Inflow Area = 12,398 sf, 73.86% Impervious, Inflow Depth = 7.25" for 100-YR event
Inflow = 2.36 cfs @ 12.07 hrs, Volume= 7,494 cf
Outflow = 2.36 cfs @ 12.07 hrs, Volume= 7,494 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.36 cfs @ 12.07 hrs, Volume= 7,494 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 119.89' @ 12.07 hrs
Flood Elev= 123.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	119.00'	**12.0" Round 12" CPP** L= 57.3' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 119.00' / 117.77' S= 0.0215 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	123.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=2.36 cfs @ 12.07 hrs HW=119.89' TW=118.05' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 2.36 cfs @ 3.21 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=119.00' TW=109.00' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond S1B: CB S1B

Inflow Area = 20,909 sf, 64.68% Impervious, Inflow Depth = 6.89" for 100-YR event
Inflow = 3.85 cfs @ 12.07 hrs, Volume= 12,006 cf
Outflow = 3.85 cfs @ 12.07 hrs, Volume= 12,006 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.85 cfs @ 12.07 hrs, Volume= 12,006 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 120.37' @ 12.07 hrs
Flood Elev= 123.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	118.83'	**12.0" Round 12" CPP** L= 79.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.83' / 118.00' S= 0.0105 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	123.20'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=3.85 cfs @ 12.07 hrs HW=120.37' TW=118.04' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 3.85 cfs @ 4.90 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=118.83' TW=109.00' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond SF PT N: SF PT N

Inflow Area = 159,533 sf, 65.62% Impervious, Inflow Depth = 4.09" for 100-YR event
Inflow = 8.81 cfs @ 12.02 hrs, Volume= 54,341 cf
Outflow = 8.81 cfs @ 12.02 hrs, Volume= 54,341 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.81 cfs @ 12.02 hrs, Volume= 54,341 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 136.36' @ 12.06 hrs
Flood Elev= 136.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.89'	**15.0" Round 15" CPP** L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 132.89' / 132.75' S= 0.0127 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	136.50'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=8.79 cfs @ 12.02 hrs HW=136.32' TW=134.11' (Dynamic Tailwater)
↑—**1=15" CPP** (Inlet Controls 8.79 cfs @ 7.16 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.89' TW=128.50' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond SF PT NE: SF PT NE

Inflow Area = 2,550 sf, 64.86% Impervious, Inflow Depth = 7.04" for 100-YR event
Inflow = 0.74 cfs @ 12.07 hrs, Volume= 1,496 cf
Outflow = 0.74 cfs @ 12.07 hrs, Volume= 1,496 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.74 cfs @ 12.07 hrs, Volume= 1,496 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 134.43' @ 12.33 hrs
Flood Elev= 136.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.09'	**12.0" Round 12" CPP** L= 9.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.09' / 133.00' S= 0.0100 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	136.90'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.72 cfs @ 12.07 hrs HW=134.19' TW=134.15' (Dynamic Tailwater)
└─**1=12" CPP** (Inlet Controls 0.72 cfs @ 0.92 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.09' TW=128.50' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond SW1: CB SW 1

Inflow Area =	6,395 sf, 75.18% Impervious,	Inflow Depth = 7.37"	for 100-YR event
Inflow =	1.23 cfs @ 12.07 hrs, Volume=	3,930 cf	
Outflow =	1.23 cfs @ 12.07 hrs, Volume=	3,930 cf, Atten= 0%, Lag= 0.0 min	
Primary =	1.23 cfs @ 12.07 hrs, Volume=	3,930 cf	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 138.81' @ 12.07 hrs
Flood Elev= 152.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	138.23'	**12.0" Round 12" CPP** L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 138.23' / 138.00' S= 0.1150 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	152.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.23 cfs @ 12.07 hrs HW=138.81' TW=113.28' (Dynamic Tailwater)
└─**1=12" CPP** (Inlet Controls 1.23 cfs @ 2.60 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=138.23' TW=109.00' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond SW2: CB SW 2

Inflow Area =	18,007 sf, 18.73% Impervious,	Inflow Depth = 4.83"	for 100-YR event
Inflow =	1.63 cfs @ 12.26 hrs, Volume=	7,247 cf	
Outflow =	1.63 cfs @ 12.26 hrs, Volume=	7,247 cf, Atten= 0%, Lag= 0.0 min	
Primary =	1.63 cfs @ 12.26 hrs, Volume=	7,247 cf	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 149.69' @ 12.26 hrs
Flood Elev= 152.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.00'	**12.0" Round 12" CPP** L= 8.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.00' / 148.50' S= 0.0625 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	152.90'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area)

Limited to weir flow at low heads

Primary OutFlow Max=1.63 cfs @ 12.26 hrs HW=149.69' TW=114.58' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 1.63 cfs @ 2.82 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=149.00' TW=109.00' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Link L E: OFFSITE EAST

Inflow Area =	61,643 sf,	0.00% Impervious,	Inflow Depth = 3.27"	for 100-YR event
Inflow =	4.82 cfs @	12.12 hrs, Volume=	16,812 cf	
Primary =	4.82 cfs @	12.12 hrs, Volume=	16,812 cf,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L GLAD: OFFSITE GLADSTONE

Inflow Area =	19,522 sf,	30.20% Impervious,	Inflow Depth = 5.31"	for 100-YR event
Inflow =	3.27 cfs @	12.02 hrs, Volume=	8,645 cf	
Primary =	3.27 cfs @	12.02 hrs, Volume=	8,645 cf,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L T: TOTAL LEAVING SITE

Inflow Area =	227,016 sf,	31.33% Impervious,	Inflow Depth > 9.13"	for 100-YR event
Inflow =	27.22 cfs @	12.11 hrs, Volume=	172,642 cf	
Primary =	27.22 cfs @	12.11 hrs, Volume=	172,642 cf,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

F-4 HYDROCAD PRINTOUTS – 1.2” (WQV) STORM

Time span=0.00-32.00 hrs, dt=0.01 hrs, 3201 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment WS 10191: WS 10191 Runoff Area=15,671 sf 57.83% Impervious Runoff Depth=0.21"
Flow Length=727' Tc=10.7 min CN=82.396 Runoff=0.05 cfs 268 cf

Subcatchment WS BSN N: WS BSN N Runoff Area=10,761 sf 4.48% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=62.657 Runoff=0.00 cfs 0 cf

Subcatchment WS BSN S: WS BSN S Runoff Area=52,372 sf 36.69% Impervious Runoff Depth=0.07"
Flow Length=727' Tc=10.7 min CN=74.546 Runoff=0.02 cfs 297 cf

Subcatchment WS N: SITE NORTH Runoff Area=19,522 sf 30.20% Impervious Runoff Depth=0.04"
Flow Length=383' Tc=1.6 min CN=72.173 Runoff=0.00 cfs 70 cf

Subcatchment WS N2A: WS N2A Runoff Area=3,496 sf 0.00% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=90.400 Runoff=0.05 cfs 139 cf

Subcatchment WS N2B: WS N2B Runoff Area=4,068 sf 0.00% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=90.400 Runoff=0.05 cfs 161 cf

Subcatchment WS N3A: WS N3A Runoff Area=10,921 sf 0.00% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=90.400 Runoff=0.14 cfs 433 cf

Subcatchment WS N4A: WS N4A Runoff Area=669 sf 0.00% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=90.400 Runoff=0.01 cfs 27 cf

Subcatchment WS N5-1A: WS N5-1A Runoff Area=6,543 sf 0.00% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=90.400 Runoff=0.09 cfs 259 cf

Subcatchment WS N5-1B: WS N5-1B Runoff Area=2,766 sf 0.00% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=90.400 Runoff=0.04 cfs 110 cf

Subcatchment WS N5A: WS N5A Runoff Area=2,547 sf 0.00% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=90.400 Runoff=0.03 cfs 101 cf

Subcatchment WS N5B: WS N5B Runoff Area=12,154 sf 0.00% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=90.400 Runoff=0.16 cfs 482 cf

Subcatchment WS N6A: WS N6A Runoff Area=1,851 sf 0.00% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=90.400 Runoff=0.02 cfs 73 cf

Subcatchment WS N6B: WS N6B Runoff Area=1,431 sf 0.00% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=90.400 Runoff=0.02 cfs 57 cf

Subcatchment WS N7A: WS N7A Runoff Area=45,199 sf 0.00% Impervious Runoff Depth=0.48"
Flow Length=521' Tc=11.0 min CN=90.400 Runoff=0.48 cfs 1,792 cf

Subcatchment WS N7B: WS N7B Runoff Area=34,226 sf 0.00% Impervious Runoff Depth=0.48"
Flow Length=340' Tc=2.6 min CN=90.400 Runoff=0.49 cfs 1,357 cf

Subcatchment WS NE: WOODS NORTHEAST Runoff Area=29,178 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=219' Tc=9.5 min CN=55.000 Runoff=0.00 cfs 0 cf

Subcatchment WS NE1A: WS NE1A Runoff Area=1,234 sf 0.00% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=90.400 Runoff=0.02 cfs 49 cf

Subcatchment WS NE1B: WS NE1B Runoff Area=1,316 sf 0.00% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=90.400 Runoff=0.02 cfs 52 cf

Subcatchment WS RF N: WS ROOF N Runoff Area=9,011 sf 0.00% Impervious Runoff Depth=0.48"
Flow Length=90' Slope=0.0050 '/' Tc=1.9 min CN=90.400 Runoff=0.13 cfs 357 cf

Subcatchment WS RF S: WS ROOF S Runoff Area=24,651 sf 0.00% Impervious Runoff Depth=0.48"
Flow Length=90' Slope=0.0050 '/' Tc=1.9 min CN=90.400 Runoff=0.36 cfs 978 cf

Subcatchment WS S1A: WS S1A Runoff Area=12,398 sf 73.86% Impervious Runoff Depth=0.39"
Tc=5.0 min CN=88.328 Runoff=0.13 cfs 401 cf

Subcatchment WS S1B: WS S1B Runoff Area=20,909 sf 64.68% Impervious Runoff Depth=0.27"
Tc=5.0 min CN=84.930 Runoff=0.14 cfs 475 cf

Subcatchment WS SE: WOODS SOUTHEAST Runoff Area=32,465 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=100' Slope=0.3260 '/' Tc=6.9 min CN=55.000 Runoff=0.00 cfs 0 cf

Subcatchment WS SF: WS SF Runoff Area=4,712 sf 0.00% Impervious Runoff Depth=0.48"
Tc=5.0 min CN=90.400 Runoff=0.06 cfs 187 cf

Subcatchment WS STE SE: SITE SOUTHEAST Runoff Area=9,338 sf 59.97% Impervious Runoff Depth=0.22"
Tc=5.0 min CN=83.189 Runoff=0.05 cfs 175 cf

Subcatchment WS SW1: WS SW1 Runoff Area=6,395 sf 75.18% Impervious Runoff Depth=0.41"
Tc=5.0 min CN=88.818 Runoff=0.07 cfs 217 cf

Subcatchment WS SW2: WS SW2 Runoff Area=18,007 sf 18.73% Impervious Runoff Depth=0.01"
Flow Length=254' Tc=18.6 min CN=67.931 Runoff=0.00 cfs 20 cf

Pond 10191: GICB EX 10191 Peak Elev=102.11' Inflow=0.05 cfs 268 cf
Primary=0.05 cfs 268 cf Secondary=0.00 cfs 0 cf Outflow=0.05 cfs 268 cf

Pond 10322: DMH EX 10322 Peak Elev=93.40' Inflow=0.22 cfs 2,571 cf
Primary=0.22 cfs 2,571 cf Secondary=0.00 cfs 0 cf Outflow=0.22 cfs 2,571 cf

Pond 111710: DMH EX 111710 Peak Elev=81.26' Inflow=0.25 cfs 2,746 cf
Primary=0.25 cfs 2,746 cf Secondary=0.00 cfs 0 cf Outflow=0.25 cfs 2,746 cf

Pond N0: DMH N0 Peak Elev=132.62' Inflow=0.00 cfs 0 cf
Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Outflow=0.00 cfs 0 cf

Pond N1: DMH N1 Peak Elev=133.83' Inflow=1.81 cfs 6,327 cf
Primary=1.81 cfs 6,327 cf Secondary=0.00 cfs 0 cf Tertiary=0.00 cfs 0 cf Outflow=1.81 cfs 6,327 cf

Pond N2: DMH N2 Peak Elev=135.74' Inflow=0.10 cfs 300 cf
Primary=0.10 cfs 300 cf Secondary=0.00 cfs 0 cf Outflow=0.10 cfs 300 cf

Pond N2A: CB N2A Peak Elev=136.00' Inflow=0.05 cfs 139 cf
Primary=0.05 cfs 139 cf Secondary=0.00 cfs 0 cf Outflow=0.05 cfs 139 cf

Pond N2B: CB N2B Peak Elev=136.01' Inflow=0.05 cfs 161 cf
Primary=0.05 cfs 161 cf Secondary=0.00 cfs 0 cf Outflow=0.05 cfs 161 cf

Pond N3: DMH N3 Peak Elev=136.10' Storage=17 cf Inflow=1.72 cfs 6,027 cf
Primary=1.72 cfs 6,027 cf Secondary=0.00 cfs 0 cf Outflow=1.72 cfs 6,027 cf

Pond N3A: DI N3A Peak Elev=147.51' Inflow=0.14 cfs 433 cf
Primary=0.14 cfs 433 cf Secondary=0.00 cfs 0 cf Outflow=0.14 cfs 433 cf

Pond N4: DMH N4 Peak Elev=142.17' Inflow=1.58 cfs 5,594 cf
Primary=1.58 cfs 5,594 cf Secondary=0.00 cfs 0 cf Outflow=1.58 cfs 5,594 cf

Pond N4A: DI N4A Peak Elev=147.24' Inflow=0.01 cfs 27 cf
Primary=0.01 cfs 27 cf Secondary=0.00 cfs 0 cf Outflow=0.01 cfs 27 cf

Pond N5: DMH N5 Peak Elev=142.80' Inflow=1.57 cfs 5,567 cf
Primary=1.57 cfs 5,567 cf Secondary=0.00 cfs 0 cf Outflow=1.57 cfs 5,567 cf

Pond N5-1: DMH N5-1 Peak Elev=144.57' Inflow=0.12 cfs 369 cf
Primary=0.12 cfs 369 cf Secondary=0.00 cfs 0 cf Outflow=0.12 cfs 369 cf

Pond N5-1A: CB N5-1A Peak Elev=144.96' Inflow=0.09 cfs 259 cf
Primary=0.09 cfs 259 cf Secondary=0.00 cfs 0 cf Outflow=0.09 cfs 259 cf

Pond N5-1B: CB N5-1B Peak Elev=144.86' Inflow=0.04 cfs 110 cf
Primary=0.04 cfs 110 cf Secondary=0.00 cfs 0 cf Outflow=0.04 cfs 110 cf

Pond N5A: CB N5A Peak Elev=147.69' Inflow=0.03 cfs 101 cf
Primary=0.03 cfs 101 cf Secondary=0.00 cfs 0 cf Outflow=0.03 cfs 101 cf

Pond N5B: CB N5B Peak Elev=147.69' Inflow=0.16 cfs 482 cf
Primary=0.16 cfs 482 cf Secondary=0.00 cfs 0 cf Outflow=0.16 cfs 482 cf

Pond N6: DMH N6 Peak Elev=144.51' Inflow=1.28 cfs 4,615 cf
Primary=1.28 cfs 4,615 cf Secondary=0.00 cfs 0 cf Outflow=1.28 cfs 4,615 cf

Pond N6-1: DMH N6-1 Peak Elev=148.37' Inflow=0.49 cfs 1,335 cf
Primary=0.49 cfs 1,335 cf Secondary=0.00 cfs 0 cf Outflow=0.49 cfs 1,335 cf

Pond N6A: CB N6A Peak Elev=150.07' Inflow=0.02 cfs 73 cf
Primary=0.02 cfs 73 cf Secondary=0.00 cfs 0 cf Outflow=0.02 cfs 73 cf

Pond N6B: CB N6B Peak Elev=150.06' Inflow=0.02 cfs 57 cf
Primary=0.02 cfs 57 cf Secondary=0.00 cfs 0 cf Outflow=0.02 cfs 57 cf

Pond N7: DMH N7 Peak Elev=146.78' Inflow=0.79 cfs 3,150 cf
Primary=0.79 cfs 3,150 cf Secondary=0.00 cfs 0 cf Outflow=0.79 cfs 3,150 cf

Pond N7A: DGCB N7A Peak Elev=149.95' Inflow=0.48 cfs 1,792 cf
Primary=0.48 cfs 1,792 cf Secondary=0.00 cfs 0 cf Outflow=0.48 cfs 1,792 cf

Pond N7B: CB N7B Peak Elev=150.15' Inflow=0.49 cfs 1,357 cf
Primary=0.49 cfs 1,357 cf Secondary=0.00 cfs 0 cf Outflow=0.49 cfs 1,357 cf

Pond NE1: DMH NE1 Peak Elev=133.30' Inflow=0.03 cfs 101 cf
Primary=0.03 cfs 101 cf Secondary=0.00 cfs 0 cf Outflow=0.03 cfs 101 cf

Pond NE1A: DI NE1A Peak Elev=133.56' Inflow=0.02 cfs 49 cf
Primary=0.02 cfs 49 cf Secondary=0.00 cfs 0 cf Outflow=0.02 cfs 49 cf

Pond NE1B: DI NE1B Peak Elev=133.56' Inflow=0.02 cfs 52 cf
Primary=0.02 cfs 52 cf Secondary=0.00 cfs 0 cf Outflow=0.02 cfs 52 cf

Pond P BSN N: DETENTION BASIN NORTH Peak Elev=129.00' Storage=0 cf Inflow=0.00 cfs 0 cf
Discarded=0.00 cfs 0 cf Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Outflow=0.00 cfs 0 cf

Pond P SE 1: DMH SE1 Peak Elev=96.73' Inflow=0.22 cfs 2,571 cf
Primary=0.22 cfs 2,571 cf Secondary=0.00 cfs 0 cf Outflow=0.22 cfs 2,571 cf

Pond P-BSN-S: DETENTION BASIN SOUTH Peak Elev=111.14' Storage=657 cf Inflow=0.37 cfs 6,019 cf
Discarded=0.06 cfs 3,205 cf Primary=0.17 cfs 2,303 cf Secondary=0.00 cfs 0 cf Outflow=0.23 cfs 5,507 cf

Pond P-E1: DMH E1 Peak Elev=114.25' Inflow=0.00 cfs 0 cf
Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Outflow=0.00 cfs 0 cf

Pond P-E2: DMH E2 Peak Elev=122.00' Inflow=0.00 cfs 0 cf
Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Outflow=0.00 cfs 0 cf

Pond P-SF: WQ SAND FILTER Peak Elev=132.58' Storage=2,887 cf Inflow=1.91 cfs 6,615 cf
Primary=0.17 cfs 6,615 cf Secondary=0.00 cfs 0 cf Outflow=0.17 cfs 6,615 cf

Pond RF N-1: RF N-1 Peak Elev=151.52' Inflow=0.13 cfs 357 cf
Primary=0.13 cfs 357 cf Secondary=0.00 cfs 0 cf Outflow=0.13 cfs 357 cf

Pond RF S-1: RF S-1 Peak Elev=149.76' Inflow=0.36 cfs 978 cf
Primary=0.36 cfs 978 cf Secondary=0.00 cfs 0 cf Outflow=0.36 cfs 978 cf

Pond S1: DMH S1 Peak Elev=113.47' Inflow=0.30 cfs 5,485 cf
Primary=0.30 cfs 5,485 cf Secondary=0.00 cfs 0 cf Outflow=0.30 cfs 5,485 cf

Pond S1A: CB S1A Peak Elev=119.17' Inflow=0.13 cfs 401 cf
Primary=0.13 cfs 401 cf Secondary=0.00 cfs 0 cf Outflow=0.13 cfs 401 cf

Pond S1B: CB S1B Peak Elev=119.01' Inflow=0.14 cfs 475 cf
Primary=0.14 cfs 475 cf Secondary=0.00 cfs 0 cf Outflow=0.14 cfs 475 cf

Pond SF PT N: SF PT N Peak Elev=133.62' Inflow=1.81 cfs 6,327 cf
Primary=1.81 cfs 6,327 cf Secondary=0.00 cfs 0 cf Outflow=1.81 cfs 6,327 cf

Pond SF PT NE: SF PT NE Peak Elev=133.18' Inflow=0.03 cfs 101 cf
Primary=0.03 cfs 101 cf Secondary=0.00 cfs 0 cf Outflow=0.03 cfs 101 cf

Pond SW1: CB SW 1 Peak Elev=138.36' Inflow=0.07 cfs 217 cf
Primary=0.07 cfs 217 cf Secondary=0.00 cfs 0 cf Outflow=0.07 cfs 217 cf

Pond SW2: CB SW 2 Peak Elev=149.01' Inflow=0.00 cfs 20 cf
Primary=0.00 cfs 20 cf Secondary=0.00 cfs 0 cf Outflow=0.00 cfs 20 cf

Link L E: OFFSITE EAST Inflow=0.00 cfs 0 cf
Primary=0.00 cfs 0 cf

Link L GLAD: OFFSITE GLADSTONE Inflow=0.00 cfs 70 cf
Primary=0.00 cfs 70 cf

Link L T: TOTAL LEAVING SITE Inflow=0.25 cfs 2,815 cf
Primary=0.25 cfs 2,815 cf

Total Runoff Area = 393,811 sf Runoff Volume = 8,537 cf Average Runoff Depth = 0.26"
81.94% Pervious = 322,698 sf 18.06% Impervious = 71,113 sf

Summary for Subcatchment WS 10191: WS 10191

Runoff = 0.05 cfs @ 12.18 hrs, Volume= 268 cf, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	9,062	98.000	Imp Surfaces & Misc Structures
	6,609	61.000	>75% Grass cover, Good, HSG B
	15,671	82.396	Weighted Average
	6,609		42.17% Pervious Area
	9,062		57.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	13	1.0000	4.46		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
6.1	96	0.0570	0.26		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
0.5	63	0.0110	2.13		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.9	132	0.0117	0.76		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.2	133	0.0422	9.63	67.39	**Channel Flow, Swale West** Area= 7.0 sf Perim= 10.0' r= 0.70' n= 0.025 Earth, grassed & winding
1.0	290	0.0850	4.79	19.17	**Channel Flow, Swale South** Area= 4.0 sf Perim= 6.0' r= 0.67' n= 0.069 Riprap, 6-inch
10.7	727	Total			

Summary for Subcatchment WS BSN N: WS BSN N

Runoff = 0.00 cfs @ 24.02 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	482	98.000	Imp Surfaces & Misc Structures
	10,279	61.000	>75% Grass cover, Good, HSG B
	10,761	62.657	Weighted Average
	10,279		95.52% Pervious Area
	482		4.48% Impervious Area

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

Summary for Subcatchment WS BSN S: WS BSN S

Runoff = 0.02 cfs @ 12.47 hrs, Volume= 297 cf, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	615	98.000	Imp Surfaces & Misc Structures
	23,145	61.000	>75% Grass cover, Good, HSG B
	28,612	85.000	1/8 acre lots, 65% imp, HSG B
	52,372	74.546	Weighted Average
	33,159		63.31% Pervious Area
	19,213		36.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	13	1.0000	4.46		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
6.1	96	0.0570	0.26		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
0.5	63	0.0110	2.13		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.9	132	0.0117	0.76		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
0.2	133	0.0422	9.63	67.39	**Channel Flow, Swale West** Area= 7.0 sf Perim= 10.0' r= 0.70' n= 0.025 Earth, grassed & winding
1.0	290	0.0850	4.79	19.17	**Channel Flow, Swale South** Area= 4.0 sf Perim= 6.0' r= 0.67' n= 0.069 Riprap, 6-inch
10.7	727	Total			

Summary for Subcatchment WS N: SITE NORTH

Runoff = 0.00 cfs @ 12.43 hrs, Volume= 70 cf, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

Area (sf)	CN	Description
5,895	98.000	Paved parking, HSG B
13,627	61.000	>75% Grass cover, Good, HSG B
19,522	72.173	Weighted Average
13,627		69.80% Pervious Area
5,895		30.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	53	0.0750	2.10		**Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 3.33"
0.5	163	0.0711	5.41		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
0.4	81	0.0630	3.76		**Shallow Concentrated Flow, Grass** Grassed Waterway Kv= 15.0 fps
0.3	86	0.0512	4.59		**Shallow Concentrated Flow, Pavement** Paved Kv= 20.3 fps
1.6	383	Total			

Summary for Subcatchment WS N2A: WS N2A

Runoff = 0.05 cfs @ 12.08 hrs, Volume= 139 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	3,496	90.400	Mod WQ CN
	3,496		100.00% Pervious Area

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

Summary for Subcatchment WS N2B: WS N2B

Runoff = 0.05 cfs @ 12.08 hrs, Volume= 161 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	4,068	90.400	Mod WQ CN
	4,068		100.00% Pervious Area

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

Summary for Subcatchment WS N3A: WS N3A

Runoff = 0.14 cfs @ 12.08 hrs, Volume= 433 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	10,921	90.400	Mod WQ CN
	10,921		100.00% Pervious Area

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

Summary for Subcatchment WS N4A: WS N4A

Runoff = 0.01 cfs @ 12.08 hrs, Volume= 27 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	669	90.400	Mod WQ CN
	669		100.00% Pervious Area

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

Summary for Subcatchment WS N5-1A: WS N5-1A

Runoff = 0.09 cfs @ 12.08 hrs, Volume= 259 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	6,543	90.400	Mod WQ CN
	6,543		100.00% Pervious Area

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

Summary for Subcatchment WS N5-1B: WS N5-1B

Runoff = 0.04 cfs @ 12.08 hrs, Volume= 110 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	2,766	90.400	Mod WQ CN
	2,766		100.00% Pervious Area

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

Summary for Subcatchment WS N5A: WS N5A

Runoff = 0.03 cfs @ 12.08 hrs, Volume= 101 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	2,547	90.400	Mod WQ CN
	2,547		100.00% Pervious Area

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

Summary for Subcatchment WS N5B: WS N5B

Runoff = 0.16 cfs @ 12.08 hrs, Volume= 482 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	12,154	90.400	Mod WQ CN
	12,154		100.00% Pervious Area

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

Summary for Subcatchment WS N6A: WS N6A

Runoff = 0.02 cfs @ 12.08 hrs, Volume= 73 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	1,851	90.400	Mod WQ CN
	1,851		100.00% Pervious Area

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

Summary for Subcatchment WS N6B: WS N6B

Runoff = 0.02 cfs @ 12.08 hrs, Volume= 57 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	1,431	90.400	Mod WQ CN
	1,431		100.00% Pervious Area

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

Summary for Subcatchment WS N7A: WS N7A

Runoff = 0.48 cfs @ 12.16 hrs, Volume= 1,792 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	45,199	90.400	Mod WQ CN
	45,199		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	18	1.0000	4.76		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"
7.2	95	0.0368	0.22		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
1.2	100	0.0400	1.40		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
2.5	308	0.0105	2.08		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
11.0	521	Total			

Summary for Subcatchment WS N7B: WS N7B

Runoff = 0.49 cfs @ 12.04 hrs, Volume= 1,357 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	34,226	90.400	Mod WQ CN
	34,226		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	61	0.0300	1.49		**Sheet Flow, Paved Driveway**
					Smooth surfaces n= 0.011 P2= 3.33"
0.4	33	0.0406	1.49		**Sheet Flow, Parking Lot**
					Smooth surfaces n= 0.011 P2= 3.33"
0.9	129	0.0140	2.40		**Shallow Concentrated Flow, Parking Lot**
					Paved Kv= 20.3 fps
0.2	28	0.0960	2.17		**Shallow Concentrated Flow, Grass**
					Short Grass Pasture Kv= 7.0 fps
0.1	22	0.0518	4.62		**Shallow Concentrated Flow, Sidewalk**
					Paved Kv= 20.3 fps
0.3	67	0.0280	3.40		**Shallow Concentrated Flow, Gutter**
					Paved Kv= 20.3 fps
2.6	340	Total			

Summary for Subcatchment WS NE: WOODS NORTHEAST

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= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

Area (sf)	CN	Description
29,178	55.000	Woods, Good, HSG B
29,178		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	96	0.1666	0.18		**Sheet Flow, Woods**
					Woods: Light underbrush n= 0.400 P2= 3.33"
0.8	123	0.2440	2.47		**Shallow Concentrated Flow, Woods**
					Woodland Kv= 5.0 fps
9.5	219	Total			

Summary for Subcatchment WS NE1A: WS NE1A

Runoff = 0.02 cfs @ 12.08 hrs, Volume= 49 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	1,234	90.400	Mod WQ CN
	1,234		100.00% Pervious Area

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

Summary for Subcatchment WS NE1B: WS NE1B

Runoff = 0.02 cfs @ 12.08 hrs, Volume= 52 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	1,316	90.400	Mod WQ CN
	1,316		100.00% Pervious Area

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

Summary for Subcatchment WS RF N: WS ROOF N

Runoff = 0.13 cfs @ 12.03 hrs, Volume= 357 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	9,011	90.400	Mod WQ CN
	9,011		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	90	0.0050	0.79		**Sheet Flow, Roof** Smooth surfaces n= 0.011 P2= 3.33"

Summary for Subcatchment WS RF S: WS ROOF S

Runoff = 0.36 cfs @ 12.03 hrs, Volume= 978 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	24,651	90.400	Mod WQ CN
	24,651		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	90	0.0050	0.79		**Sheet Flow, Roof**
					Smooth surfaces n= 0.011 P2= 3.33"

Summary for Subcatchment WS S1A: WS S1A

Runoff = 0.13 cfs @ 12.08 hrs, Volume= 401 cf, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	9,157	98.000	Parking Lot South
	3,241	61.000	>75% Grass cover, Good, HSG B
	12,398	88.328	Weighted Average
	3,241		26.14% Pervious Area
	9,157		73.86% Impervious Area

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

Summary for Subcatchment WS S1B: WS S1B

Runoff = 0.14 cfs @ 12.09 hrs, Volume= 475 cf, Depth= 0.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	13,523	98.000	Parking Lot South
	7,386	61.000	>75% Grass cover, Good, HSG B
	20,909	84.930	Weighted Average
	7,386		35.32% Pervious Area
	13,523		64.68% Impervious Area

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

Summary for Subcatchment WS SE: WOODS SOUTHEAST

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= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
	32,465	55.000	Woods, Good, HSG B
	32,465		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.3260	0.24		**Sheet Flow, Woods**
					Woods: Light underbrush n= 0.400 P2= 3.33"

Summary for Subcatchment WS SF: WS SF

Runoff = 0.06 cfs @ 12.08 hrs, Volume= 187 cf, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	4,712	90.400	Mod WQ CN
	4,712		100.00% Pervious Area

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

Summary for Subcatchment WS STE SE: SITE SOUTHEAST

Runoff = 0.05 cfs @ 12.09 hrs, Volume= 175 cf, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	5,600	98.000	Imp Surfaces & Misc Structures
	3,738	61.000	>75% Grass cover, Good, HSG B
	9,338	83.189	Weighted Average
	3,738		40.03% Pervious Area
	5,600		59.97% Impervious Area

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

Summary for Subcatchment WS SW1: WS SW1

Runoff = 0.07 cfs @ 12.08 hrs, Volume= 217 cf, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	4,808	98.000	Imp Surfaces & Misc Structures
	1,587	61.000	>75% Grass cover, Good, HSG B
	6,395	88.818	Weighted Average
	1,587		24.82% Pervious Area
	4,808		75.18% Impervious Area

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

Summary for Subcatchment WS SW2: WS SW2

Runoff = 0.00 cfs @ 15.81 hrs, Volume= 20 cf, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Storm Rainfall=1.20"

	Area (sf)	CN	Description
*	3,373	98.000	Imp Surfaces & Misc Structures
	14,634	61.000	>75% Grass cover, Good, HSG B
	18,007	67.931	Weighted Average
	14,634		81.27% Pervious Area
	3,373		18.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.1	159	0.0140	0.17		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.33"
2.5	95	0.0080	0.63		**Shallow Concentrated Flow, Grass** Short Grass Pasture Kv= 7.0 fps
18.6	254	Total			

Summary for Pond 10191: GICB EX 10191

Inflow Area =	15,671 sf,	57.83% Impervious,	Inflow Depth = 0.21"	for WQ Storm event
Inflow =	0.05 cfs @	12.18 hrs, Volume=	268 cf	
Outflow =	0.05 cfs @	12.18 hrs, Volume=	268 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.05 cfs @	12.18 hrs, Volume=	268 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 102.11' @ 12.18 hrs
Flood Elev= 105.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	102.00'	**12.0" Round 12" RCP** L= 6.4' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 102.00' / 100.00' S= 0.3125 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	105.08'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.05 cfs @ 12.18 hrs HW=102.11' TW=96.73' (Dynamic Tailwater)
↑—**1=12" RCP** (Inlet Controls 0.05 cfs @ 1.13 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=102.00' TW=81.01' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond 10322: DMH EX 10322

Inflow Area =	136,513 sf,	43.67% Impervious,	Inflow Depth > 0.23"	for WQ Storm event
Inflow =	0.22 cfs @	12.21 hrs, Volume=	2,571 cf	
Outflow =	0.22 cfs @	12.21 hrs, Volume=	2,571 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.22 cfs @	12.21 hrs, Volume=	2,571 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 93.40' @ 12.21 hrs
Flood Elev= 100.67'

Device	Routing	Invert	Outlet Devices
#1	Primary	93.17'	**12.0" Round 12" RCP** L= 181.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 93.17' / 81.11' S= 0.0666 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	100.67'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.22 cfs @ 12.21 hrs HW=93.40' TW=81.26' (Dynamic Tailwater)
↑—**1=12" RCP** (Inlet Controls 0.22 cfs @ 1.63 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=93.17' TW=81.01' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond 111710: DMH EX 111710

Inflow Area = 145,851 sf, 44.72% Impervious, Inflow Depth > 0.23" for WQ Storm event
Inflow = 0.25 cfs @ 12.20 hrs, Volume= 2,746 cf
Outflow = 0.25 cfs @ 12.20 hrs, Volume= 2,746 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.25 cfs @ 12.20 hrs, Volume= 2,746 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 81.26' @ 12.20 hrs
Flood Elev= 86.86'

Device	Routing	Invert	Outlet Devices
#1	Primary	81.01'	**12.0" Round 12" RCP** L= 166.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 81.01' / 66.00' S= 0.0904 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	86.86'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads
#3	Secondary	86.49'	**24.0" W x 6.0" H Vert. GICB 111708** C= 0.600

Primary OutFlow Max=0.25 cfs @ 12.20 hrs HW=81.26' TW=0.00' (Dynamic Tailwater)
1=12" RCP (Inlet Controls 0.25 cfs @ 1.69 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=81.01' TW=0.00' (Dynamic Tailwater)
2=DMH SURCHARGE (Controls 0.00 cfs)
3=GICB 111708 (Controls 0.00 cfs)

Summary for Pond N0: DMH N0

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
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 132.62' @ 0.00 hrs
Flood Elev= 139.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.62'	**18.0" Round 18" CPP** L= 29.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 132.62' / 132.50' S= 0.0041 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	139.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.62' TW=129.00' (Dynamic Tailwater)
↑—**1=18" CPP** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.62' TW=129.00' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N1: DMH N1

Inflow Area = 159,533 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 1.81 cfs @ 12.06 hrs, Volume= 6,327 cf
Outflow = 1.81 cfs @ 12.06 hrs, Volume= 6,327 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.81 cfs @ 12.06 hrs, Volume= 6,327 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 133.83' @ 12.06 hrs
Flood Elev= 138.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.99'	**15.0" Round 15" CPP** L= 3.2' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 132.99' / 132.89' S= 0.0313 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	132.91'	**18.0" Round 18" CPP** L= 43.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 132.91' / 132.72' S= 0.0044 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	133.90'	**6.0' long x 0.5' breadth OVERFLOW WEIR** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Tertiary	138.20'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.81 cfs @ 12.06 hrs HW=133.83' TW=133.62' (Dynamic Tailwater)
↑—**1=15" CPP** (Outlet Controls 1.81 cfs @ 2.93 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.99' TW=132.62' (Dynamic Tailwater)
↑—**2=18" CPP** (Passes 0.00 cfs of 0.02 cfs potential flow)
  ↑—**3=OVERFLOW WEIR** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.99' TW=128.50' (Dynamic Tailwater)
↑—**4=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N2: DMH N2

Inflow Area = 7,564 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 0.10 cfs @ 12.08 hrs, Volume= 300 cf
Outflow = 0.10 cfs @ 12.08 hrs, Volume= 300 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 12.08 hrs, Volume= 300 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 135.74' @ 12.08 hrs
Flood Elev= 139.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.60'	**15.0" Round 15" CPP** L= 17.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.60' / 133.10' S= 0.1471 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	139.20'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.10 cfs @ 12.08 hrs HW=135.74' TW=133.82' (Dynamic Tailwater)
↑**1=15" CPP** (Inlet Controls 0.10 cfs @ 1.28 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.60' TW=128.50' (Dynamic Tailwater)
↑**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N2A: CB N2A

Inflow Area = 3,496 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 0.05 cfs @ 12.08 hrs, Volume= 139 cf
Outflow = 0.05 cfs @ 12.08 hrs, Volume= 139 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.08 hrs, Volume= 139 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 136.00' @ 12.08 hrs
Flood Elev= 139.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.90'	**15.0" Round 15" CPP** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.90' / 135.69' S= 0.0140 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	139.10'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.05 cfs @ 12.08 hrs HW=136.00' TW=135.74' (Dynamic Tailwater)
↑**1=15" CPP** (Inlet Controls 0.05 cfs @ 1.05 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.90' TW=133.50' (Dynamic Tailwater)
↑**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N2B: CB N2B

Inflow Area = 4,068 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 0.05 cfs @ 12.08 hrs, Volume= 161 cf
Outflow = 0.05 cfs @ 12.08 hrs, Volume= 161 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.08 hrs, Volume= 161 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 136.01' @ 12.08 hrs
Flood Elev= 138.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	135.90'	**12.0" Round 12" CPP** L= 23.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.90' / 135.69' S= 0.0091 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	138.90'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.05 cfs @ 12.08 hrs HW=136.01' TW=135.74' (Dynamic Tailwater)
└─**1=12" CPP** (Barrel Controls 0.05 cfs @ 1.67 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.90' TW=133.50' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N3: DMH N3

Inflow Area = 151,969 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 1.72 cfs @ 12.06 hrs, Volume= 6,027 cf
Outflow = 1.72 cfs @ 12.06 hrs, Volume= 6,027 cf, Atten= 0%, Lag= 0.1 min
Primary = 1.72 cfs @ 12.06 hrs, Volume= 6,027 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 136.10' @ 12.06 hrs Surf.Area= 28 sf Storage= 17 cf
Flood Elev= 150.20' Surf.Area= 28 sf Storage= 416 cf

Plug-Flow detention time= 0.6 min calculated for 6,027 cf (100% of inflow)
Center-of-Mass det. time= 0.5 min (849.5 - 849.0)

Volume	Invert	Avail.Storage	Storage Description
#1	135.50'	416 cf	**6.00'D x 14.71'H 6' DMH**

Device	Routing	Invert	Outlet Devices
#1	Primary	135.50'	**18.0" Round 18" CPP** L= 21.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 135.50' / 134.00' S= 0.0701 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	150.20'	**32.0" Horiz. DMH SURCHARGE** C= 0.600

Limited to weir flow at low heads

Primary OutFlow Max=1.72 cfs @ 12.06 hrs HW=136.10' TW=133.83' (Dynamic Tailwater)
↑—**1=18" CPP** (Inlet Controls 1.72 cfs @ 2.63 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=135.50' (Free Discharge)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N3A: DI N3A

Inflow Area =	10,921 sf,	0.00% Impervious,	Inflow Depth = 0.48"	for WQ Storm event	
Inflow =	0.14 cfs @	12.08 hrs,	Volume=	433 cf	
Outflow =	0.14 cfs @	12.08 hrs,	Volume=	433 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.14 cfs @	12.08 hrs,	Volume=	433 cf	
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 147.51' @ 12.08 hrs
Flood Elev= 149.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.30'	**12.0" Round 12" CPP** L= 2.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.30' / 147.27' S= 0.0107 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	149.30'	**2.5" x 2.5" Horiz. DI Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.14 cfs @ 12.08 hrs HW=147.51' TW=136.09' (Dynamic Tailwater)
↑—**1=12" CPP** (Barrel Controls 0.14 cfs @ 1.76 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=147.30' TW=135.90' (Dynamic Tailwater)
↑—**2=DI Surcharge** (Controls 0.00 cfs)

Summary for Pond N4: DMH N4

Inflow Area =	141,048 sf,	0.00% Impervious,	Inflow Depth = 0.48"	for WQ Storm event	
Inflow =	1.58 cfs @	12.06 hrs,	Volume=	5,594 cf	
Outflow =	1.58 cfs @	12.06 hrs,	Volume=	5,594 cf,	Atten= 0%, Lag= 0.0 min
Primary =	1.58 cfs @	12.06 hrs,	Volume=	5,594 cf	
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 142.17' @ 12.06 hrs
Flood Elev= 150.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	141.65'	**24.0" Round 24" CPP** L= 54.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 141.65' / 140.20' S= 0.0269 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 3.14 sf

#2	Secondary	150.50'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.58 cfs @ 12.06 hrs HW=142.17' TW=136.09' (Dynamic Tailwater)
↑—**1=24" CPP** (Inlet Controls 1.58 cfs @ 2.45 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=141.65' TW=135.90' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N4A: DI N4A

Inflow Area = 669 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 0.01 cfs @ 12.08 hrs, Volume= 27 cf
Outflow = 0.01 cfs @ 12.08 hrs, Volume= 27 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 12.08 hrs, Volume= 27 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 147.24' @ 12.08 hrs
Flood Elev= 149.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.20'	**12.0" Round 12" CPP** L= 14.3' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.20' / 146.85' S= 0.0245 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	149.20'	**2.5" x 2.5" Horiz. DI Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.01 cfs @ 12.08 hrs HW=147.24' TW=142.16' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 0.01 cfs @ 0.71 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=147.20' TW=135.90' (Dynamic Tailwater)
↑—**2=DI Surcharge** (Controls 0.00 cfs)

Summary for Pond N5: DMH N5

Inflow Area = 140,379 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 1.57 cfs @ 12.06 hrs, Volume= 5,567 cf
Outflow = 1.57 cfs @ 12.06 hrs, Volume= 5,567 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.57 cfs @ 12.06 hrs, Volume= 5,567 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 142.80' @ 12.06 hrs
Flood Elev= 151.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	142.28'	**24.0" Round 24" CPP** L= 36.2' CPP, square edge headwall, Ke= 0.500

			Inlet / Outlet Invert= 142.28' / 141.65' S= 0.0174 '/' Cc= 0.900
			n= 0.011 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	151.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=1.57 cfs @ 12.06 hrs HW=142.80' TW=142.17' (Dynamic Tailwater)
└─**1=24" CPP** (Inlet Controls 1.57 cfs @ 2.45 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=142.28' TW=133.50' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N5-1: DMH N5-1

Inflow Area = 9,309 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 0.12 cfs @ 12.08 hrs, Volume= 369 cf
Outflow = 0.12 cfs @ 12.08 hrs, Volume= 369 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 12.08 hrs, Volume= 369 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 144.57' @ 12.08 hrs
Flood Elev= 149.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.40'	**15.0" Round 15" CPP**
			L= 80.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 144.40' / 143.97' S= 0.0054 '/' Cc= 0.900
			n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	149.10'	**32.0" Horiz. DMH SURCHARGE** C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=0.12 cfs @ 12.08 hrs HW=144.57' TW=142.79' (Dynamic Tailwater)
└─**1=15" CPP** (Barrel Controls 0.12 cfs @ 1.80 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=144.40' TW=135.90' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N5-1A: CB N5-1A

Inflow Area = 6,543 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 0.09 cfs @ 12.08 hrs, Volume= 259 cf
Outflow = 0.09 cfs @ 12.08 hrs, Volume= 259 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.09 cfs @ 12.08 hrs, Volume= 259 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 144.96' @ 12.08 hrs
Flood Elev= 148.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.80'	**12.0" Round 12" CPP** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.80' / 144.64' S= 0.0057 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	148.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.09 cfs @ 12.08 hrs HW=144.96' TW=144.57' (Dynamic Tailwater)
└─**1=12" CPP** (Barrel Controls 0.09 cfs @ 1.65 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=144.80' TW=135.90' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N5-1B: CB N5-1B

Inflow Area = 2,766 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 0.04 cfs @ 12.08 hrs, Volume= 110 cf
Outflow = 0.04 cfs @ 12.08 hrs, Volume= 110 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.04 cfs @ 12.08 hrs, Volume= 110 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 144.86' @ 12.08 hrs
Flood Elev= 150.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.76'	**12.0" Round 12" CPP** L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.76' / 144.64' S= 0.0057 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	150.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.04 cfs @ 12.08 hrs HW=144.86' TW=144.57' (Dynamic Tailwater)
└─**1=12" CPP** (Barrel Controls 0.04 cfs @ 1.29 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=144.76' TW=135.90' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N5A: CB N5A

Inflow Area = 2,547 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 0.03 cfs @ 12.08 hrs, Volume= 101 cf
Outflow = 0.03 cfs @ 12.08 hrs, Volume= 101 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.03 cfs @ 12.08 hrs, Volume= 101 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3

Peak Elev= 147.69' @ 12.08 hrs
Flood Elev= 150.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.60'	**12.0" Round 12" CPP** L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.60' / 147.46' S= 0.0140 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	150.60'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.03 cfs @ 12.08 hrs HW=147.69' TW=142.79' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 0.03 cfs @ 1.00 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=147.60' TW=144.80' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N5B: CB N5B

Inflow Area = 12,154 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 0.16 cfs @ 12.08 hrs, Volume= 482 cf
Outflow = 0.16 cfs @ 12.08 hrs, Volume= 482 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.08 hrs, Volume= 482 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 147.69' @ 12.08 hrs
Flood Elev= 150.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	147.50'	**12.0" Round 12" CPP** L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 147.50' / 147.34' S= 0.0133 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	150.50'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.16 cfs @ 12.08 hrs HW=147.69' TW=142.79' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 0.16 cfs @ 1.49 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=147.50' TW=144.76' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N6: DMH N6

Inflow Area = 116,369 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 1.28 cfs @ 12.05 hrs, Volume= 4,615 cf
Outflow = 1.28 cfs @ 12.05 hrs, Volume= 4,615 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.28 cfs @ 12.05 hrs, Volume= 4,615 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 144.51' @ 12.05 hrs
Flood Elev= 152.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	144.05'	**24.0" Round 24" CPP** L= 67.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 144.05' / 143.32' S= 0.0109 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	152.70'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.28 cfs @ 12.05 hrs HW=144.51' TW=142.80' (Dynamic Tailwater)
↑—**1=24" CPP** (Inlet Controls 1.28 cfs @ 2.32 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=144.05' TW=147.60' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N6-1: DMH N6-1

Inflow Area = 33,662 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 0.49 cfs @ 12.03 hrs, Volume= 1,335 cf
Outflow = 0.49 cfs @ 12.03 hrs, Volume= 1,335 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.49 cfs @ 12.03 hrs, Volume= 1,335 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 148.37' @ 12.03 hrs
Flood Elev= 153.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	148.02'	**12.0" Round 12" CPP** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 148.02' / 146.80' S= 0.0469 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.49 cfs @ 12.03 hrs HW=148.37' TW=144.51' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 0.49 cfs @ 2.01 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=148.02' TW=147.50' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N6A: CB N6A

Inflow Area =	1,851 sf,	0.00% Impervious,	Inflow Depth = 0.48"	for WQ Storm event
Inflow =	0.02 cfs @	12.08 hrs, Volume=	73 cf	
Outflow =	0.02 cfs @	12.08 hrs, Volume=	73 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.02 cfs @	12.08 hrs, Volume=	73 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.07' @ 12.08 hrs
Flood Elev= 153.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	150.00'	**12.0" Round 12" CPP** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.00' / 149.71' S= 0.0112 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 12.08 hrs HW=150.07' TW=144.50' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 0.02 cfs @ 0.92 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=150.00' TW=147.50' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N6B: CB N6B

Inflow Area =	1,431 sf,	0.00% Impervious,	Inflow Depth = 0.48"	for WQ Storm event
Inflow =	0.02 cfs @	12.08 hrs, Volume=	57 cf	
Outflow =	0.02 cfs @	12.08 hrs, Volume=	57 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.02 cfs @	12.08 hrs, Volume=	57 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.06' @ 12.08 hrs
Flood Elev= 153.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	150.00'	**12.0" Round 12" CPP** L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.00' / 149.78' S= 0.0122 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 12.08 hrs HW=150.06' TW=144.50' (Dynamic Tailwater)
↑—**1=12" CPP** (Inlet Controls 0.02 cfs @ 0.87 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=150.00' TW=147.60' (Dynamic Tailwater)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond N7: DMH N7

Inflow Area =	79,425 sf,	0.00% Impervious,	Inflow Depth = 0.48"	for WQ Storm event
Inflow =	0.79 cfs @	12.08 hrs, Volume=	3,150 cf	
Outflow =	0.79 cfs @	12.08 hrs, Volume=	3,150 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.79 cfs @	12.08 hrs, Volume=	3,150 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 146.78' @ 12.08 hrs
Flood Elev= 154.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	146.42'	**24.0" Round 24" CPP** L= 46.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 146.42' / 144.40' S= 0.0439 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	154.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.79 cfs @ 12.08 hrs HW=146.78' TW=144.50' (Dynamic Tailwater)
↑—**1=24" CPP** (Inlet Controls 0.79 cfs @ 2.04 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=146.42' (Free Discharge)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond N7A: DGCB N7A

Inflow Area =	45,199 sf,	0.00% Impervious,	Inflow Depth = 0.48"	for WQ Storm event
Inflow =	0.48 cfs @	12.16 hrs, Volume=	1,792 cf	
Outflow =	0.48 cfs @	12.16 hrs, Volume=	1,792 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.48 cfs @	12.16 hrs, Volume=	1,792 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 149.95' @ 12.16 hrs
Flood Elev= 153.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.60'	**12.0" Round 12" CPP** L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.60' / 149.42' S= 0.0129 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.60'	**2.5" x 2.5" Horiz. DGCB Surcharge X 6.00 columns**

X 12 rows C= 0.600 in 48.0" x 24.0" Grate (39% open area)
Limited to weir flow at low heads

Primary OutFlow Max=0.48 cfs @ 12.16 hrs HW=149.95' TW=146.76' (Dynamic Tailwater)
↑—**1=12" CPP** (Barrel Controls 0.48 cfs @ 2.87 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=149.60' (Free Discharge)
↑—**2=DGCB Surcharge** (Controls 0.00 cfs)

Summary for Pond N7B: CB N7B

Inflow Area =	34,226 sf,	0.00% Impervious,	Inflow Depth = 0.48"	for WQ Storm event
Inflow =	0.49 cfs @	12.04 hrs, Volume=	1,357 cf	
Outflow =	0.49 cfs @	12.04 hrs, Volume=	1,357 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.49 cfs @	12.04 hrs, Volume=	1,357 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 150.15' @ 12.04 hrs
Flood Elev= 153.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.80'	**12.0" Round 12" CPP** L= 16.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.80' / 149.60' S= 0.0125 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	153.80'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.48 cfs @ 12.04 hrs HW=150.15' TW=146.77' (Dynamic Tailwater)
↑—**1=12" CPP** (Barrel Controls 0.48 cfs @ 2.91 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=149.80' (Free Discharge)
↑—**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond NE1: DMH NE1

Inflow Area =	2,550 sf,	0.00% Impervious,	Inflow Depth = 0.48"	for WQ Storm event
Inflow =	0.03 cfs @	12.08 hrs, Volume=	101 cf	
Outflow =	0.03 cfs @	12.08 hrs, Volume=	101 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.03 cfs @	12.08 hrs, Volume=	101 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 133.30' @ 12.08 hrs
Flood Elev= 136.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.20'	**12.0" Round 12" CPP** L= 13.3' CPP, square edge headwall, Ke= 0.500

			Inlet / Outlet Invert= 133.20' / 133.00' S= 0.0150 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	136.30'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.03 cfs @ 12.08 hrs HW=133.30' TW=133.18' (Dynamic Tailwater)
└─**1=12" CPP** (Outlet Controls 0.03 cfs @ 1.31 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.20' TW=133.09' (Dynamic Tailwater)
└─**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond NE1A: DI NE1A

Inflow Area = 1,234 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 0.02 cfs @ 12.08 hrs, Volume= 49 cf
Outflow = 0.02 cfs @ 12.08 hrs, Volume= 49 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 12.08 hrs, Volume= 49 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 133.56' @ 12.08 hrs
Flood Elev= 135.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.50'	**12.0" Round 12" CPP** L= 24.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.50' / 133.30' S= 0.0081 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	135.40'	**2.5" x 2.5" Horiz. DI Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 12.08 hrs HW=133.56' TW=133.30' (Dynamic Tailwater)
└─**1=12" CPP** (Barrel Controls 0.02 cfs @ 1.16 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.50' TW=0.00' (Dynamic Tailwater)
└─**2=DI Surcharge** (Controls 0.00 cfs)

Summary for Pond NE1B: DI NE1B

Inflow Area = 1,316 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 0.02 cfs @ 12.08 hrs, Volume= 52 cf
Outflow = 0.02 cfs @ 12.08 hrs, Volume= 52 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 12.08 hrs, Volume= 52 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 133.56' @ 12.08 hrs
Flood Elev= 135.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.50'	**12.0" Round 12" CPP** L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.50' / 133.44' S= 0.0120 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	135.40'	**2.5" x 2.5" Horiz. DI Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 12.08 hrs HW=133.56' TW=133.30' (Dynamic Tailwater)
└─**1=12" CPP** (Barrel Controls 0.02 cfs @ 1.22 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.50' TW=0.00' (Dynamic Tailwater)
└─**2=DI Surcharge** (Controls 0.00 cfs)

Summary for Pond P BSN N: DETENTION BASIN NORTH

Inflow Area = 10,761 sf, 4.48% Impervious, Inflow Depth = 0.00" for WQ Storm event
Inflow = 0.00 cfs @ 24.02 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 24.27 hrs, Volume= 0 cf, Atten= 100%, Lag= 15.5 min
Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 24.27 hrs, Volume= 0 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 129.00' @ 24.28 hrs Surf.Area= 2,200 sf Storage= 0 cf
Flood Elev= 135.00' Surf.Area= 10,572 sf Storage= 23,771 cf

Plug-Flow detention time= 278.2 min calculated for 0 cf (0% of inflow)
Center-of-Mass det. time= 248.4 min (1,677.7 - 1,429.3)

Volume	Invert	Avail.Storage	Storage Description
#1	129.00'	274 cf	**Loamy Sand Basin Bottom (Prismatic)** Listed below (Recalc) 1,100 cf Overall - 4 cf Embedded = 1,096 cf x 25.0% Voids
#2	129.00'	4 cf	**6.0" Round 6" Underdrain** Inside #1 L= 20.0'
#3	129.50'	23,493 cf	**Basin Contours (Irregular)** Listed below (Recalc)
		23,771 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
129.00	2,200	0	0
129.50	2,200	1,100	1,100

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
129.50	2,200	233.0	0	0	2,200
130.00	2,518	241.0	1,179	1,179	2,524
131.00	3,186	257.0	2,845	4,024	3,205
132.00	3,869	272.0	3,522	7,546	3,890
133.00	4,578	288.0	4,219	11,765	4,656
134.00	5,316	303.0	4,942	16,707	5,421
135.00	8,372	394.0	6,786	23,493	10,480

Device	Routing	Invert	Outlet Devices
#1	Discarded	129.00'	**2.410 in/hr Exfiltration over Surface area** Phase-In= 0.02'
#2	Device 1	129.50'	**2.410 in/hr Flow through Loamy Sand over Surface area from 129.50' - 130.00'** Excluded Surface area = 4,400 sf Phase-In= 0.01'
#3	Primary	127.84'	**15.0" Round 15" CPP** L= 17.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 127.84' / 126.10' S= 0.0989 '/' Cc= 0.900 n= 0.012 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#4	Device 3	127.84'	**13.0" Vert. 13" Plug Orifice** C= 0.600
#5	Device 4	129.00'	**2.0" Vert. 2" Underdrain Orifice** C= 0.600
#6	Device 4	130.20'	**24.0" W x 6.0" H Vert. 24" x 6" Low Orifice** C= 0.600
#7	Device 4	132.50'	**1.5' long x 0.5' breadth 18"W Outflow Structure Weirs (3) X 3.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#8	Device 4	133.00'	**16.0' long x 0.5' breadth Outflow Structure Top** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#9	Secondary	134.50'	**12.0' long x 17.4' breadth Emergency Overflow 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=129.00' (Free Discharge)
└─**1=Exfiltration** (Controls 0.00 cfs)
  └─**2=Flow through Loamy Sand** (Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 24.27 hrs HW=129.00' TW=122.00' (Dynamic Tailwater)
└─**3=15" CPP** (Passes 0.00 cfs of 4.36 cfs potential flow)
  └─**4=13" Plug Orifice** (Passes 0.00 cfs of 3.49 cfs potential flow)
    ├─**5=2" Underdrain Orifice** (Orifice Controls 0.00 cfs @ 0.01 fps)
    ├─**6=24" x 6" Low Orifice** (Controls 0.00 cfs)
    ├─**7=18"W Outflow Structure Weirs (3)** (Controls 0.00 cfs)
    └─**8=Outflow Structure Top** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=129.00' TW=118.83' (Dynamic Tailwater)
└─**9=Emergency Overflow Weir** (Controls 0.00 cfs)

Summary for Pond P SE 1: DMH SE1

Inflow Area =	136,513 sf, 43.67% Impervious,	Inflow Depth > 0.23"	for WQ Storm event
Inflow =	0.22 cfs @ 12.21 hrs, Volume=	2,571 cf	
Outflow =	0.22 cfs @ 12.21 hrs, Volume=	2,571 cf, Atten= 0%, Lag= 0.0 min	
Primary =	0.22 cfs @ 12.21 hrs, Volume=	2,571 cf	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 96.73' @ 12.21 hrs
Flood Elev= 105.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	96.50'	**18.0" Round 18" CPP** L= 22.6' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 96.50' / 93.30' S= 0.1416 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	105.30'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.22 cfs @ 12.21 hrs HW=96.73' TW=93.40' (Dynamic Tailwater)
↑—**1=18" CPP** (Inlet Controls 0.22 cfs @ 1.29 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=96.50' TW=81.01' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond P-BSN-S: DETENTION BASIN SOUTH

Inflow Area =	120,842 sf, 41.84% Impervious,	Inflow Depth > 0.60"	for WQ Storm event
Inflow =	0.37 cfs @ 12.08 hrs, Volume=	6,019 cf	
Outflow =	0.23 cfs @ 12.24 hrs, Volume=	5,507 cf, Atten= 39%, Lag= 9.4 min	
Discarded =	0.06 cfs @ 11.72 hrs, Volume=	3,205 cf	
Primary =	0.17 cfs @ 12.24 hrs, Volume=	2,303 cf	
Secondary =	0.00 cfs @ 0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 111.14' @ 12.24 hrs Surf.Area= 2,086 sf Storage= 657 cf
Flood Elev= 115.00' Surf.Area= 4,793 sf Storage= 9,206 cf

Plug-Flow detention time= 160.9 min calculated for 5,505 cf (91% of inflow)
Center-of-Mass det. time= 80.0 min (1,025.5 - 945.5)

Volume	Invert	Avail.Storage	Storage Description
#1	109.00'	504 cf	**Loamy Sand Basin Bottom (Prismatic)** Listed below (Recalc) 2,024 cf Overall - 8 cf Embedded = 2,016 cf x 25.0% Voids
#2	110.50'	8 cf	**6.0" Round 6" Underdrain** Inside #1 L= 40.0'
#3	111.00'	18,507 cf	**Basin Contours (Irregular)** Listed below (Recalc)
		19,019 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
109.00	1,012	0	0
111.00	1,012	2,024	2,024

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
111.00	1,012	144.0	0	0	1,012
112.00	1,497	171.0	1,247	1,247	1,707
113.00	2,081	202.0	1,781	3,028	2,646
114.00	2,757	233.0	2,411	5,439	3,741
115.00	3,781	280.0	3,256	8,694	5,676
116.00	4,597	294.0	4,182	12,877	6,377
117.00	6,731	382.0	5,630	18,507	11,123

Device	Routing	Invert	Outlet Devices
#1	Discarded	109.00'	**2.410 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Device 1	110.50'	**2.410 in/hr Flow through Loamy Sand over Surface area from 110.50' - 111.00'** Excluded Surface area = 1,012 sf Phase-In= 0.01'
#3	Primary	108.00'	**18.0" Round 18" CPP** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 108.00' / 98.00' S= 0.1333 '/' Cc= 0.900 n= 0.012 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#4	Device 3	108.00'	**17.0" Vert. 17" Plug Orifice** C= 0.600
#5	Device 4	110.50'	**1.0" Vert. 1" Underdrain Orifice** C= 0.600
#6	Device 4	111.00'	**10.0" Vert. 10" Low Orifice X 2.00** C= 0.600
#7	Device 4	112.00'	**1.5' long x 0.5' breadth 18" W Outflow Structure Weirs (3) X 3.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#8	Device 4	112.60'	**16.0' long x 0.5' breadth Outflow Structure Top** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#9	Secondary	114.90'	**4.0' long x 4.0' breadth Emergency Overflow Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.06 cfs @ 11.72 hrs HW=111.00' (Free Discharge)
1=Exfiltration (Passes 0.06 cfs of 0.11 cfs potential flow)
2=Flow through Loamy Sand (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.17 cfs @ 12.24 hrs HW=111.14' TW=96.73' (Dynamic Tailwater)
3=18" CPP (Passes 0.17 cfs of 13.15 cfs potential flow)
4=17" Plug Orifice (Passes 0.17 cfs of 11.83 cfs potential flow)
5=1" Underdrain Orifice (Orifice Controls 0.02 cfs @ 3.72 fps)
6=10" Low Orifice (Orifice Controls 0.15 cfs @ 1.27 fps)
7=18" W Outflow Structure Weirs (3) (Controls 0.00 cfs)
8=Outflow Structure Top (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=109.00' TW=81.01' (Dynamic Tailwater)
9=Emergency Overflow Weir (Controls 0.00 cfs)

Summary for Pond P-E1: DMH E1

Inflow Area = 10,761 sf, 4.48% Impervious, Inflow Depth > 0.00" for WQ Storm event
Inflow = 0.00 cfs @ 24.27 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 24.27 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 24.27 hrs, Volume= 0 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 114.25' @ 24.27 hrs
Flood Elev= 119.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	114.25'	**18.0" Round 18" CPP** L= 99.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 114.25' / 112.00' S= 0.0227 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	119.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 24.27 hrs HW=114.25' TW=111.00' (Dynamic Tailwater)
↑—**1=18" CPP** (Barrel Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.25' TW=102.00' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond P-E2: DMH E2

Inflow Area = 10,761 sf, 4.48% Impervious, Inflow Depth > 0.00" for WQ Storm event
Inflow = 0.00 cfs @ 24.27 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 24.27 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 24.27 hrs, Volume= 0 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 122.00' @ 24.27 hrs
Flood Elev= 130.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	122.00'	**15.0" Round 15" CPP** L= 140.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 122.00' / 114.50' S= 0.0536 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	130.10'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 24.27 hrs HW=122.00' TW=114.25' (Dynamic Tailwater)
↑—**1=15" CPP** (Barrel Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' TW=102.00' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond P-SF: WQ SAND FILTER

Inflow Area = 166,795 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 1.91 cfs @ 12.07 hrs, Volume= 6,615 cf
Outflow = 0.17 cfs @ 13.74 hrs, Volume= 6,615 cf, Atten= 91%, Lag= 100.5 min
Primary = 0.17 cfs @ 13.74 hrs, Volume= 6,615 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 132.58' @ 13.74 hrs Surf.Area= 3,107 sf Storage= 2,887 cf
Flood Elev= 135.00' Surf.Area= 10,052 sf Storage= 10,002 cf

Plug-Flow detention time= 185.8 min calculated for 6,613 cf (100% of inflow)
Center-of-Mass det. time= 185.8 min (1,035.2 - 849.4)

Volume	Invert	Avail.Storage	Storage Description
#1	128.50'	416 cf	**Sand Filter Media (Irregular)** Listed below (Recalc) 1,260 cf Overall x 33.0% Voids
#2	130.00'	139 cf	**Loam (Irregular)** Listed below (Recalc) 420 cf Overall x 33.0% Voids
#3	130.50'	9,447 cf	**Sand Filter Contours (Irregular)** Listed below (Recalc)
		10,002 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
128.50	840	114.0	0	0	840
130.00	840	114.0	1,260	1,260	1,011

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
130.00	840	114.0	0	0	840
130.50	840	114.0	420	420	897

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
130.50	840	114.0	0	0	840
131.00	972	122.0	453	453	1,001
132.00	1,253	138.0	1,110	1,562	1,357
133.00	1,562	153.0	1,405	2,967	1,734
134.00	1,899	168.0	1,728	4,695	2,149
135.00	8,372	394.0	4,753	9,447	12,260

Device	Routing	Invert	Outlet Devices
#1	Primary	128.50'	**2.410 in/hr BOTTOM OF SAND FILTER over Surface area** Phase-In= 0.01'
#2	Device 1	128.50'	**8.270 in/hr FLOW THRU FILTER over Surface area** Phase-In= 0.01'
#3	Secondary	133.90'	**45.0' long x 1.0' breadth OVERFLOW WEIR** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.17 cfs @ 13.74 hrs HW=132.58' (Free Discharge)
└─**1=BOTTOM OF SAND FILTER** (Exfiltration Controls 0.17 cfs)
  └─**2=FLOW THRU FILTER** (Passes 0.17 cfs of 0.59 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.50' TW=129.00' (Dynamic Tailwater)
└─**3=OVERFLOW WEIR** (Controls 0.00 cfs)

Summary for Pond RF N-1: RF N-1

Inflow Area = 9,011 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 0.13 cfs @ 12.03 hrs, Volume= 357 cf
Outflow = 0.13 cfs @ 12.03 hrs, Volume= 357 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.13 cfs @ 12.03 hrs, Volume= 357 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 151.52' @ 12.03 hrs
Flood Elev= 155.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	151.32'	**8.0" Round 8" CPP** L= 65.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 151.32' / 150.66' S= 0.0101 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Secondary	155.25'	**6.0" Horiz. CO SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.13 cfs @ 12.03 hrs HW=151.52' TW=148.37' (Dynamic Tailwater)
└─**1=8" CPP** (Inlet Controls 0.13 cfs @ 1.51 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=151.32' TW=147.50' (Dynamic Tailwater)
└─**2=CO SURCHARGE** (Controls 0.00 cfs)

Summary for Pond RF S-1: RF S-1

Inflow Area = 24,651 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 0.36 cfs @ 12.03 hrs, Volume= 978 cf
Outflow = 0.36 cfs @ 12.03 hrs, Volume= 978 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.03 hrs, Volume= 978 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 149.76' @ 12.03 hrs
Flood Elev= 155.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.46'	**12.0" Round 12" CPP** L= 105.8' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.46' / 148.40' S= 0.0100 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	155.70'	**6.0" Horiz. CO SURCHARGE** C= 0.600

Limited to weir flow at low heads

Primary OutFlow Max=0.36 cfs @ 12.03 hrs HW=149.75' TW=148.37' (Dynamic Tailwater)
└—**1=12" CPP** (Inlet Controls 0.36 cfs @ 1.85 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=149.46' TW=149.60' (Dynamic Tailwater)
└—**2=CO SURCHARGE** (Controls 0.00 cfs)

Summary for Pond S1: DMH S1

Inflow Area = 33,307 sf, 68.09% Impervious, Inflow Depth > 1.98" for WQ Storm event
Inflow = 0.30 cfs @ 12.09 hrs, Volume= 5,485 cf, Incl. 0.04 cfs Base Flow
Outflow = 0.30 cfs @ 12.09 hrs, Volume= 5,485 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.09 hrs, Volume= 5,485 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 113.47' @ 12.09 hrs
Flood Elev= 124.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	113.16'	**12.0" Round 12" CPP** L= 16.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 113.16' / 113.00' S= 0.0097 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	124.00'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.30 cfs @ 12.09 hrs HW=113.47' TW=111.10' (Dynamic Tailwater)
└—**1=12" CPP** (Inlet Controls 0.30 cfs @ 1.49 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=113.27' TW=109.00' (Dynamic Tailwater)
└—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond S1A: CB S1A

Inflow Area = 12,398 sf, 73.86% Impervious, Inflow Depth = 0.39" for WQ Storm event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 401 cf
Outflow = 0.13 cfs @ 12.08 hrs, Volume= 401 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.13 cfs @ 12.08 hrs, Volume= 401 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 119.17' @ 12.08 hrs
Flood Elev= 123.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	119.00'	**12.0" Round 12" CPP** L= 57.3' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 119.00' / 117.77' S= 0.0215 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf

#2	Secondary	123.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.13 cfs @ 12.08 hrs HW=119.17' TW=113.47' (Dynamic Tailwater)
└─**1=12" CPP** (Inlet Controls 0.13 cfs @ 1.41 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=119.00' TW=109.00' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond S1B: CB S1B

Inflow Area = 20,909 sf, 64.68% Impervious, Inflow Depth = 0.27" for WQ Storm event
Inflow = 0.14 cfs @ 12.09 hrs, Volume= 475 cf
Outflow = 0.14 cfs @ 12.09 hrs, Volume= 475 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 12.09 hrs, Volume= 475 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 119.01' @ 12.09 hrs
Flood Elev= 123.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	118.83'	**12.0" Round 12" CPP** L= 79.4' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.83' / 118.00' S= 0.0105 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	123.20'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.14 cfs @ 12.09 hrs HW=119.01' TW=113.47' (Dynamic Tailwater)
└─**1=12" CPP** (Inlet Controls 0.14 cfs @ 1.44 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=118.83' TW=109.00' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond SF PT N: SF PT N

Inflow Area = 159,533 sf, 0.00% Impervious, Inflow Depth = 0.48" for WQ Storm event
Inflow = 1.81 cfs @ 12.06 hrs, Volume= 6,327 cf
Outflow = 1.81 cfs @ 12.06 hrs, Volume= 6,327 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.81 cfs @ 12.06 hrs, Volume= 6,327 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 133.62' @ 12.06 hrs
Flood Elev= 136.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	132.89'	**15.0" Round 15" CPP** L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 132.89' / 132.75' S= 0.0127 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	136.50'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.81 cfs @ 12.06 hrs HW=133.62' TW=131.05' (Dynamic Tailwater)
↑—**1=15" CPP** (Barrel Controls 1.81 cfs @ 3.49 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.89' TW=128.50' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond SF PT NE: SF PT NE

Inflow Area =	2,550 sf,	0.00% Impervious,	Inflow Depth = 0.48"	for WQ Storm event
Inflow =	0.03 cfs @	12.08 hrs, Volume=	101 cf	
Outflow =	0.03 cfs @	12.08 hrs, Volume=	101 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.03 cfs @	12.08 hrs, Volume=	101 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 133.18' @ 12.08 hrs
Flood Elev= 136.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	133.09'	**12.0" Round 12" CPP** L= 9.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.09' / 133.00' S= 0.0100 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	136.90'	**32.0" Horiz. DMH SURCHARGE** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.03 cfs @ 12.08 hrs HW=133.18' TW=131.14' (Dynamic Tailwater)
↑—**1=12" CPP** (Barrel Controls 0.03 cfs @ 1.43 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.09' TW=128.50' (Dynamic Tailwater)
↑—**2=DMH SURCHARGE** (Controls 0.00 cfs)

Summary for Pond SW1: CB SW 1

Inflow Area =	6,395 sf,	75.18% Impervious,	Inflow Depth = 0.41"	for WQ Storm event
Inflow =	0.07 cfs @	12.08 hrs, Volume=	217 cf	
Outflow =	0.07 cfs @	12.08 hrs, Volume=	217 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.07 cfs @	12.08 hrs, Volume=	217 cf	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0 cf	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 138.36' @ 12.08 hrs
Flood Elev= 152.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	138.23'	**12.0" Round 12" CPP** L= 2.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 138.23' / 138.00' S= 0.1150 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	152.00'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.07 cfs @ 12.08 hrs HW=138.36' TW=111.09' (Dynamic Tailwater)
└─**1=12" CPP** (Inlet Controls 0.07 cfs @ 1.21 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=138.23' TW=109.00' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Pond SW2: CB SW 2

Inflow Area = 18,007 sf, 18.73% Impervious, Inflow Depth = 0.01" for WQ Storm event
Inflow = 0.00 cfs @ 15.81 hrs, Volume= 20 cf
Outflow = 0.00 cfs @ 15.81 hrs, Volume= 20 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 15.81 hrs, Volume= 20 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 149.01' @ 15.81 hrs
Flood Elev= 152.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	149.00'	**12.0" Round 12" CPP** L= 8.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 149.00' / 148.50' S= 0.0625 '/' Cc= 0.900 n= 0.011 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	152.90'	**2.5" x 2.5" Horiz. CB Surcharge X 6.00 columns** X 6 rows C= 0.600 in 24.0" x 24.0" Grate (39% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 15.81 hrs HW=149.01' TW=111.00' (Dynamic Tailwater)
└─**1=12" CPP** (Inlet Controls 0.00 cfs @ 0.37 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=149.00' TW=109.00' (Dynamic Tailwater)
└─**2=CB Surcharge** (Controls 0.00 cfs)

Summary for Link L E: OFFSITE EAST

Inflow Area = 61,643 sf, 0.00% Impervious, Inflow Depth = 0.00" for WQ Storm event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

Summary for Link L GLAD: OFFSITE GLADSTONE

Inflow Area =	19,522 sf,	30.20% Impervious,	Inflow Depth = 0.04"	for WQ Storm event
Inflow =	0.00 cfs @	12.43 hrs, Volume=	70 cf	
Primary =	0.00 cfs @	12.43 hrs, Volume=	70 cf,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

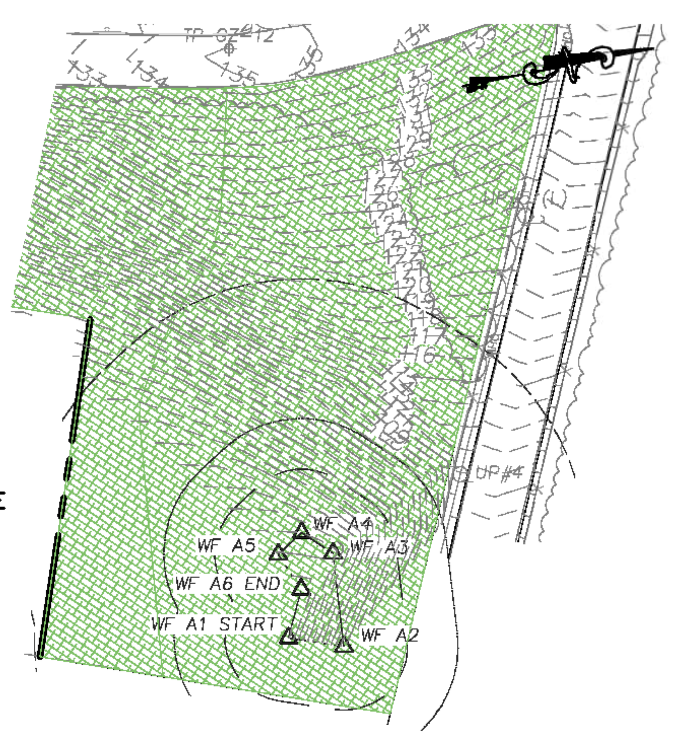
Summary for Link L T: TOTAL LEAVING SITE

Inflow Area =	227,016 sf,	31.33% Impervious,	Inflow Depth > 0.15"	for WQ Storm event
Inflow =	0.25 cfs @	12.20 hrs, Volume=	2,815 cf	
Primary =	0.25 cfs @	12.20 hrs, Volume=	2,815 cf,	Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-32.00 hrs, dt= 0.01 hrs

APPENDIX G WATERSHED/IMPERVIOUS AREA MAPS

PLAN VIEW



DETAIL VIEW
NORTHEAST CORNER OF PARCEL
SCALE: 1"=60'

GENERAL NOTES:

1) THE INFORMATION SHOWN HEREON IS BASED ON AN ON-THE-GROUND SURVEY PERFORMED BETWEEN AUGUST 27 & SEPTEMBER 7, 2021, BY ALPHA SURVEY GROUP, LLC.

2) THE HORIZONTAL DATUM FOR THIS PROJECT IS THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83), CORS ADJUSTMENT (NA2011/GEOID 18) AS DETERMINED BY REDUNDANT GPS OBSERVATIONS MADE ON AUGUST 27, 2021 UTILIZING KEYSTONE PRECISION INSTRUMENTS' KEYNET GPS VIRTUAL REFERENCE SYSTEM (VRS) NETWORK.

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4) SOME FEATURES BEYOND THE LIMITS OF SURVEY ARE SHOWN ON THIS PLAN FOR GRAPHICAL PURPOSES ONLY AND ARE DERIVED FROM AERIAL IMAGERY.

SOILS/SUBSURFACE CONDITIONS NOTES:

1. PER THE USDA WEB SOIL SURVEY, THE ENTIRE SITE IS UNDERLAIN BY CANTON-URBAN LAND COMPLEX SOILS (CB). THESE SOILS ARE CLASSIFIED AS BELONGING TO HSG B.

SURFACE LEGEND

IMPERVIOUS SURFACE

GOOD CONDITION OPEN-SPACE, HSG B, CN 61

GOOD CONDITION WOODS, HSG B, CN 61

RESIDENTIAL 1/8-ACRE LOTS, HSG B, CN 85

WATERSHED AREA/CN/Tc SUMMARY TABLE

SUB-WATERSHED NODE	AREA (SF)	AREA (AC)	IMP AREA (SF)	COMPOSITE CN	Tc (MINUTES)
WS NW	140,956	3.24	54,068	78	11.6
WS M-W	37,980	0.87	9,040	80	4.1
WS SW	45,451	1.04	12,262	77	16.1
WS SCH M-N	8,413	0.19	6,157	88	5.0
WS SCH M-S	8,007	0.18	6,329	90	5.0
WS SCH N	31,476	0.72	12,657	76	5.0
WS SCH NE	1,961	0.05	1,961	98	5.0
WS SCH E	56,251	1.29	33,032	83	5.0
WS NE	29,179	0.67	0	55	9.5
WS SE	32,465	0.75	0	55	6.9
TOTALS:	392,139	9.00	135,506		

NOTES:
1. ALL CURVE NUMBERS BASED ON HSG B SOILS.
2. SUBWATERSHEDS WITH A TIME TO CONCENTRATION (Tc) LESS THAN FIVE (5) MINUTES USE THE PRESCRIBED MINIMUM 5.0 MINUTES.
3. TOTAL AREA OF ALL SUBWATERSHEDS (9.0 ACRES) INCLUDES TRIBUTARY OFF-SITE AREAS TO THE WEST OF THE SCHOOL; THIS IS GREATER THAN THE TOTAL ON-SITE LIMIT OF DISTURBANCE AREA OF 5.47 ACRES.
4. FOR THE PURPOSE OF CALCULATING THE REQUIRED RECHARGE/WATER QUALITY TREATMENT VOLUMES, ONLY ON-SITE IMPERVIOUS AREAS WERE COUNTED.

WATERSHED RUNOFF SUMMARY TABLE

STORMWATER EXISTING CONDITIONS PEAK FLOW RATES & VOLUMES – TO DMH 111710

STORM EVENT	1	2	10	25	100
FLOW RATE (CFS)	5.33	7.91	15.44	21.39	34.55
VOLUME (CF)	23,029	33,297	63,812	88,455	144,440

STORMWATER EXISTING CONDITIONS PEAK FLOW RATES & VOLUMES – TOTAL LEAVING SITE
(HYDROCAD EXISTING NODE L-E – NEPTUNE ST/KEARNEY)

STORM EVENT	1	2	10	25	100
FLOW RATE (CFS)	5.88	8.77	18.05	25.65	42.89
VOLUME (CF)	25,805	37,947	75,028	105,641	176,462

TIMOTHY J. BEHAN
No 6278
REGISTERED PROFESSIONAL ENGINEER

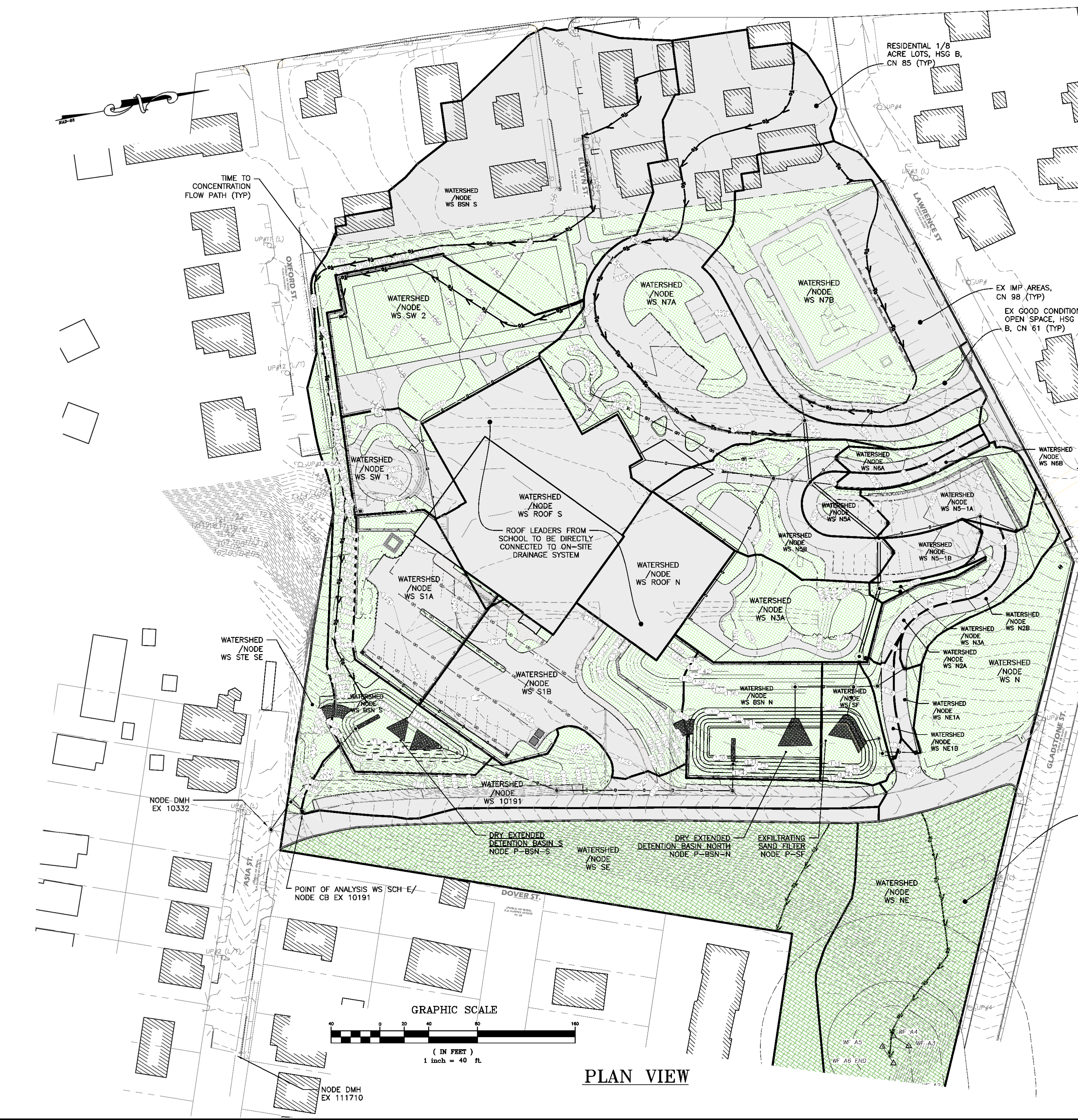
COMMONWEALTH
ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908
(401) 273-6600

REVISIONS

No.	DATE	DRWN	CHKD

PERMITTING PLANS
FOR
GLADSTONE ELEMENTARY SCHOOL
50 GLADTONE STREET
A.P. 7-4, LOT 2357
CRANSTON, RHODE ISLAND
EXISTING WATERSHED PLAN

SCALE: 1"=40'	SHEET NO: WS EX
DRAWN BY: MCZ	DESIGN BY: MCZ / CHECKED BY: TJB
DATE: APRIL 2023	PROJECT NO.: 21052.00



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WATERSHED AREA/CN/Tc SUMMARY TABLE

SUB-WATERSHED NODE	AREA (SF)	AREA (AC)	IMP AREA (SF)	COMPOSITE CN	Tc (MINUTES)
WS 10191	15,603	0.36	9,062	82	10.7
WS BSN N	10,761	0.25	482	63	5.0
WS BSN S	52,372	1.20	615	75	10.7
WS SITE N	19,522	0.45	5,895	72	5.0
WS N2A	3,496	0.08	2,213	84	5.0
WS N2B	4,068	0.09	1,622	76	5.0
WS N3A	10,921	0.25	2,098	68	5.0
WS N4A	669	0.02	0	61	5.0
WS N5-1A	6,543	0.15	4,318	85	5.0
WS N5-1B	2,766	0.06	2,766	98	5.0
WS N5A	2,547	0.06	2,306	94	5.0
WS N5B	12,154	0.28	6,769	82	5.0
WS N6A	1,851	0.04	1,080	83	5.0
WS N6B	1,431	0.03	1,278	94	5.0
WS N7A	45,199	1.04	19,430	85	11.0
WS N7B	34,226	0.79	15,308	80	5.0
WS NE	29,178	0.67	0	55	9.5
WS NE1A	1,234	0.03	808	85	5.0
WS NE1B	1,316	0.03	846	85	9.5
WS ROOF N	9,011	0.21	9,011	98	5.0
WS ROOF S	24,651	0.57	24,651	98	5.0
WS S1A	12,398	0.28	9,157	88	5.0
WS S1B	20,909	0.48	13,523	85	5.0
WS SE	32,465	0.75	0	55	6.9
WS SF	4,712	0.11	114	62	5.0
WS STE SE	9,338	0.21	5,600	83	5.0
WS SW1	6,395	0.15	4,808	89	5.0
WS SW2	18,007	0.41	3,373	68	18.6
TOTALS:	393,743	9.04	147,133		

NOTES:
1. ALL CURVE NUMBERS BASED ON HSG B SOILS.
2. SUBWATERSHEDS WITH A Tc LESS THAN FIVE (5) MINUTES USE THE PRESCRIBED MINIMUM 5.0 MINUTES.
3. SMALL SUBWATERSHEDS FOR WHICH THE Tc FLOW PATHS ARE NOT DEPICTED USE THE PRESCRIBED MINIMUM 5.0 MINUTES.
4. FOR THE PURPOSE OF CALCULATING THE REQUIRED RECHARGE/WATER QUALITY TREATMENT VOLUMES, ONLY ON-SITE IMPERVIOUS AREAS WERE COUNTED.
5. FOR THE PURPOSE OF DETERMINING EXISTING IMPERVIOUS AREA TO REMAIN (REDEVELOPMENT STANDARD – TREATMENT OF 50% OF AREA) VERSUS NEW IMPERVIOUS AREA (REDEVELOPMENT STANDARD – TREATMENT OF 100% OF AREA), THE TOTAL EXISTING AND PROPOSED IMPERVIOUS AREAS (135,506 SF AND 147,133 SF, RESPECTIVELY) WERE COMPARED, AND THE NET INCREASE IN IMPERVIOUS AREA (11,627 SF) WAS TREATED AS NEW IMPERVIOUS AREA.

WATERSHED RUNOFF SUMMARY TABLE

STORMWATER POST-DEV. POST-BMP PEAK FLOW RATES & VOLUMES – TO DMH 111710

STORM EVENT	1	2	10	25	100
FLOW RATE (CFS)	2.65	5.75	13.57	17.61	21.03
Δ FROM EX.	2.68	-2.16	-1.87	-3.78	-13.52
VOLUME (CF)	15,245	25,608	57,340	83,506	143,790
Δ FROM EX.	-7,784	-7,689	-6,472	-4,949	-650

STORMWATER POST-DEV. POST-BMP PEAK FLOW RATES & VOLUMES – TOTAL LEAVING SITE
(HYDROCAD PROPOSED NODE L T – TOTAL LEAVING SITE)

STORM EVENT	1	2	10	25	100
FLOW RATE (CFS)	2.83	6.13	15.25	20.68	27.18
Δ FROM EX.	-3.05	-2.64	-2.80	-4.97	-15.71
VOLUME (CF)	16,892	28,642	65,520	96,528	169,894
Δ FROM EX.	8,913	-9,305	-9,508	-9,113	-6,568

SURFACE LEGEND

- IMPERVIOUS SURFACE – TOTAL 147,129 S.F. REQUIRING TREATMENT
- GOOD CONDITION OPEN-SPACE, HSG B, CN 61
- GOOD CONDITION WOODS, HSG B, CN 61
- RESIDENTIAL 1/8-ACRE LOTS, HSG B, CN 85

TIMOTHY J. BEHAN
STATE OF RHODE ISLAND
No 6278
REGISTERED PROFESSIONAL ENGINEER

REVISIONS

No.	DATE	DRWN	CHKD

Stormwater Management Plan

COMMONWEALTH ENGINEERS & CONSULTANTS, INC.
400 SMITH STREET
PROVIDENCE, RHODE ISLAND 02908
(401) 273-6600

PERMITTING PLANS
FOR
GLADSTONE ELEMENTARY SCHOOL
50 GLADTONE STREET
A.P. 7-4, LOT 2357
CRANSTON, RHODE ISLAND

PROPOSED WATERSHED PLAN

SCALE: 1"=40'	SHEET NO: WS PR
DRAWN BY: MCZ	DESIGN BY: MCZ / CHECKED BY: TJB
DATE: APRIL 2023	PROJECT NO.: 21052.00

<u>APPENDIX H   MAPS</u>

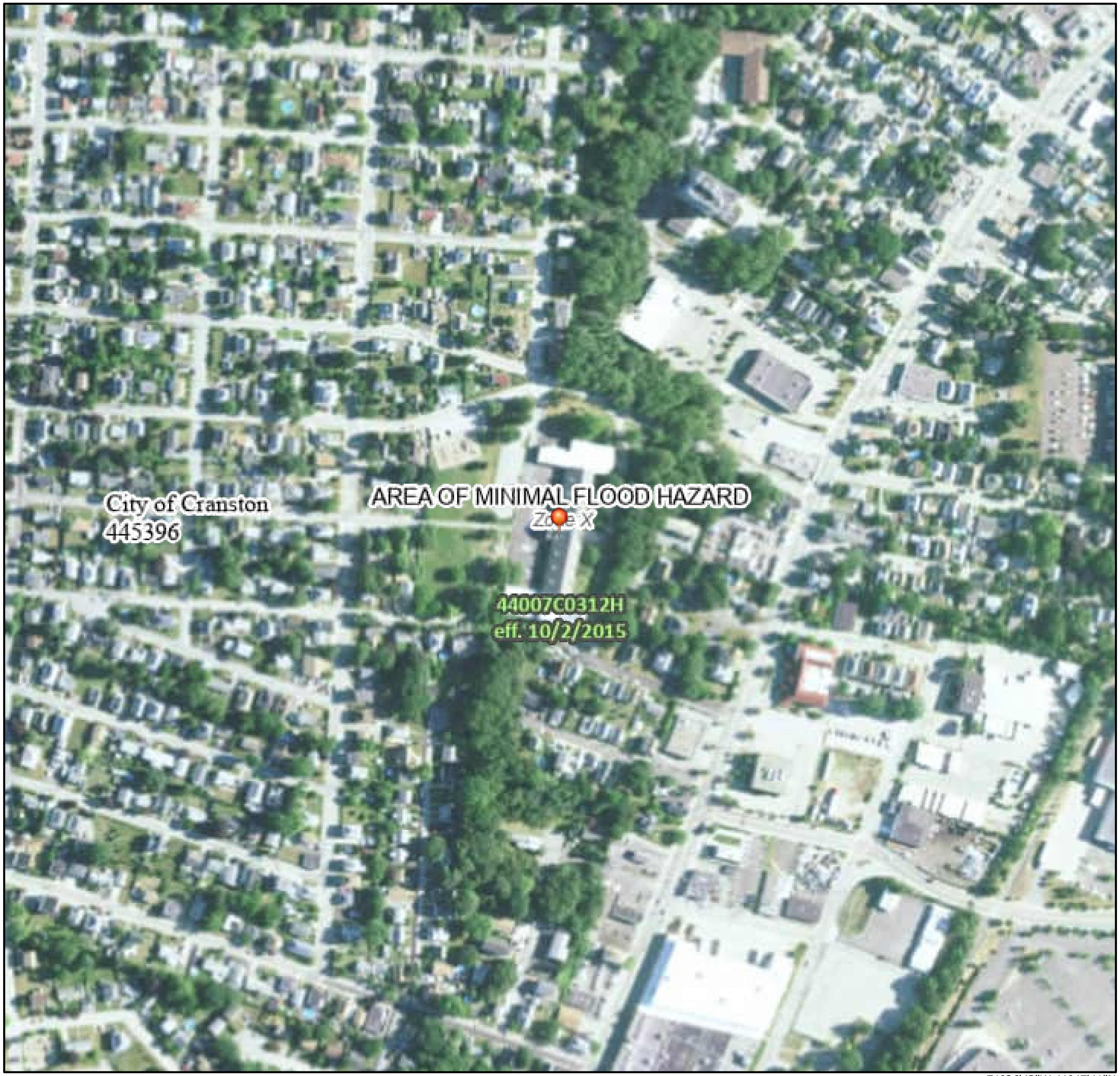
FLOOD INSURANCE RATE MAP

USDA SOILS MAP

National Flood Hazard Layer FIRMette

FEMA

71°27'20"W 41°48'7"N



71°26'43"W 41°47'41"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) *Zone A, V, A99*
		With BFE or Depth *Zone AE, AO, AH, VE, AR*
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
		Future Conditions 1% Annual Chance Flood Hazard *Zone X*
		Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
		Area with Flood Risk due to Levee *Zone D*
OTHER AREAS	NO SCREEN	Area of Minimal Flood Hazard *Zone X*
		Effective LOMRs
		Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES	B 20.2 17.5	Cross Sections with 1% Annual Chance Water Surface Elevation
	8	Coastal Transect
	513	Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/31/2023 at 10:49 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.


71° 27' 8" W
71° 26' 56" W
41° 48' 1" N
41° 47' 47" N
296280
296320
296360
296400
296440
296480
296520
4630510
4630470
4630430
4630390
4630350
4630310
4630270
4630230
4630190
4630150
4630110
Argyle St
Browne St
Gladstone St
Lawrence St
Elwyn St
Oxford St
Dover St
Asia St
Ridge St
CB
Soil Map may not be valid at this scale.
Map Scale: 1:1,240 if printed on B portrait (11" x 17") sheet.
N
0
15
30
60
90
Meters
0
50
100
200
300
Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties
Survey Area Data: Version 19, Sep 12, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CB	Canton-Urban land complex	B	9.7	100.0%
Totals for Area of Interest			**9.7**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher