

STORMWATER CALCULATIONS

for

SHERBORN VILLAGE

a

RESIDENTIAL DEVELOPMENT

located at

59 NORTH MAIN STREET

Sherborn, Massachusetts 01772

Prepared for:

Heritage Properties

490-B Boston Post Road

Sudbury, MA 01776



Prepared By:

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July 25, 2017

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DRAINAGE SUMMARY

As required by the Department of Environmental Protection Stormwater Policy Handbook a storm water analysis was performed for the “Sherborn Village” property in Sherborn, Massachusetts. The method of analysis was the SCS method for hydrologic conditions. The SCS method utilized TR-55 and the HydroCAD stormwater modeling system to analysis the 2-year, 10-year, 25-year and 100-year storm events.

Hydrologic Existing Conditions:

The overall property contains 263,179± S.F. (6.04± Acres) of land and the proposed development is clustered on the southern portion of the property. The area analyzed in this report for both existing and proposed conditions will be the area disturbed and up to the property line and wetland line, 3.50± Acres).

The existing property’s stormwater runoff drains in two directions and is shown as Subcatchments 1S & 2S in this report. Subcatchment 1S (74,218 S.F.) drains toward the East toward North Main Street. Subcatchment 2S (78,340 S.F.) drains toward the Northwest to the wetland area.

The soils are mapped as follows:

Hinckley Loamy Sand-----Hydrologic Group “A”
Merrimac Fine Sandy Loam----- Hydrologic Group “A”
Paxton Fine Sandy Loam----- Hydrologic Group “C”
Whitman Fine Sandy Loam----- Hydrologic Group “D”

The soils are located on the “Existing Conditions” plan.

Hydrologic Proposed Conditions:

The proposed plan for stormwater runoff is to infiltrate the roof areas of the proposed twelve (12) dwelling units), and to reduce the TSS off of the paved areas through the use of structural treatment BMP’s and infiltrate these treated paved areas as well.

The proposed underground infiltration consists of Cultec 150xlhd infiltration chambers placed around the dwellings, roof leaders will be connected to the underground chambers. Some lawn areas, and paved areas will runoff into “Contech Vortsentry HS36” units for TSS treatment before flowing into the larger Cultec 330xlhd underground chambers. Overflow outlet scuppers are proposed at all underground chambers as an overflow device for large storms.

Under proposed conditions the same design point was analyzed for peak flow discharge for the 2-year, 10-year, 25-year and 100-year storm events. The following is a summary of the proposed hydrologic conditions of each watershed.

Twelve (12) buildings are proposed, with two bedrooms per building. The 12 dwelling units are proposed as subcatchments 20S through 23S. Some of the roof subcatchments contain more than one roof and were grouped by the hydrologic soil type that the infiltration chambers are located. No infiltration chambers are located in a hydrologic group “D” soil. The infiltration chambers are labeled 20P through 23P.

20P (Infiltration system #1) consists of 24 Cultec 150xlhd infiltration chambers

21P (Infiltration system #2) consists of 6 Cultec 150xlhd infiltration chambers

22P (Infiltration system #3) consists of 18 Cultec 150xlhd infiltration chambers

23P (Infiltration system #4) consists of 30 Cultec 150xlhd infiltration chambers

Two areas of lawn and pavement will flow into Vortsentry treatment units, subcatchments 11S, & 12S, containing 16,866 S.F. and 32,805 S.F.

Three lawn areas that will not be infiltrated are, subcatchments 10S, 13S and 14S. Subcatchment 14S is proposed to flow to the northwest toward the wetland and contains 41,762 S.F. Subcatchment 10S and 13S flow to the east toward North Main Street and contains 18,278 S.F. and 20,776 S.F.

Two infiltration areas located at the front of the project labeled Infiltration Area “A” and “B,” consist of underground Cultec 330xlhd chambers. In the stormwater model they are labeled 11P and 12P. Area “A” consists of 16 – 330xlhd chambers and Area “B” consists of 42 – 330xlhd chambers.

Total proposed runoff to the northwest is summarized as link 2L, labeled Proposed Northwest, total proposed runoff to the east is summarized as link 1L, labeled Proposed East.

The peak discharge results are in the following table:

	Peak Runoff Discharge Summary Table Design Storms (cfs)			
	2-Year	10-Year	25-Year	100-year
Existing East (1S)	0.00	0.17	0.39	1.34
Proposed East (1L)	0.01	0.10	0.21	0.63
Existing Northwest (2S)	1.09	3.05	4.04	6.30
Proposed Northwest (2L)	0.45	1.46	1.97	3.18

In conclusion, the 2-year, 10-year, 25-year and 100-year peak rates of runoff are predominately maintained under proposed conditions.

The peak runoff volume as well as infiltration volume results are in the following table.

	Peak Runoff Volume Summary Table Design Storms (cf)			
	2-Year	10-Year	25-Year	100-year
Existing East (1S)	135	1,854	3,117	6,644
Proposed East (1L)	138	1,064	1,735	3,625
Existing Northwest (2S)	4,485	10,870	14,097	21,589
Proposed Northwest (2L)	1,946	5,061	6,885	10,814

In conclusion, the 2-year, 10-year, 25-year and 100-year peak volumes of runoff are predominately maintained under proposed conditions.

Detention/Infiltration:

The following table is a summary of the infiltration basins:

Infiltration Basin Summary	
Infiltration Basins	Time to Drain* (100yr)
Area "A" (11P)	12.0 hrs.
Area "B" (12P)	12.0 hrs.
20P (Inf. #1)	12.0 hrs.
21P (Inf. #2)	6.0 hrs.
22P (Inf. #3)	69.0 hrs.
23P (Inf. #4)	15.0 hrs.

*Time to drain is calculated by using the hydrographs within this report. The time between the basin full and completely empty for the 100-year storm.

DEP Stormwater Management Standards:

Standard 1: All proposed impervious surfaces are treated and will not cause erosion in adjacent wetlands and waters of the Commonwealth, as BMP measures are proposed in accordance with the design requirements of the Stormwater Management Handbook.

Standard 2. The proposed development peak discharge rates predominately meet predevelopment discharge rates for the 2-year, 10-year, 25-year and 100-year storm events.

Standard 3. 41,849 s.f. (0.96 acres) of impervious surfaces will be created as part of the proposed project. The amount of recharge required is $(25,250 \times 0.60 + 14,045 \times 0.25 + 2,554 \times 0.10)/12 = 1,576$ cf, based upon underlying hydrologic soil groups A, C & D. The 2-year rainfall will generate 8,689 cf of infiltration from the proposed project. (Total "Static" storage capacity of all chambers is 9,590 c.f.)

Standard 4. 93% TSS removal will occur based upon the BMP measures proposed for the project. Stormwater from paved surfaces will runoff into Vortsentry units (65% removal) and then into the underground infiltration system (80% removal). Calculations using the WQF from the 1" runoff, Vortsentry "A," has a TSS removal of 91.5% And Vortsentry "B," has a TSS removal of 91.3% without the additional infiltration units calculated in.
(See the Vortsentry TSS reduction calculation within this report.)

Standard 5. The proposed development will not generate higher potential pollutant loads, and therefore will not require additional BMP practices.

Standard 6. The proposed development is not within a critical area. As seen in Standard 4 above, the design includes a TSS reduction of 93%.

Standard 7. The portions of the project where proposed improvements are to occur are treated as a new project.

Standard 8. Erosion and sediment control measures are proposed during construction. They include first the installation of an erosion control barrier at the limit of all construction and shall consist of a staked compost sock. All disturbed areas will be stabilized upon completion with loaming and seeding practices. Slopes greater than 3:1 will be reinforced with erosion control blankets to further prevent erosion. In addition, an anti-tracking construction apron will be installed at the entrance to ensure that existing adjacent streets will be kept clean of tire tracking materials.

Standard 9. An operation and maintenance plan will be provided, and will demonstrate that upon completion of construction, the proposed project will maintain water quality standards. The plan will also outline the Stormwater Management System's Owner, Responsible parties during and after construction, and Inspection and Maintenance requirements.



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Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



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Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

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

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- ☒ New development
- ☐ Redevelopment
- ☐ Mix of New Development and Redevelopment



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Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☒ No disturbance to any Wetland Resource Areas
- ☒ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
 - ☐ Credit 1
 - ☐ Credit 2
 - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): _____

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



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Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- ☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- ☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- ☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- ☒ Soil Analysis provided.
- ☒ Required Recharge Volume calculation provided.
- ☐ Required Recharge volume reduced through use of the LID site Design Credits.
- ☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - ☒ Static
 - ☐ Simple Dynamic
 - ☐ Dynamic Field¹
- ☒ Runoff from all impervious areas at the site discharging to the infiltration BMP.
- ☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- ☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
 - ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
 - ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- ☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- ☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



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Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- ☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☒ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- ☐ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - ☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - ☐ is within the Zone II or Interim Wellhead Protection Area
 - ☐ is near or to other critical areas
 - ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - ☐ involves runoff from land uses with higher potential pollutant loads.
 - ☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - ☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



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Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- ☒ The BMP is sized (and calculations provided) based on:
 - ☐ The ½" or 1" Water Quality Volume or
 - ☒ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- ☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- ☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- ☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- ☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- ☐ The NPDES Multi-Sector General Permit does **not** cover the land use.
- ☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- ☐ All exposure has been eliminated.
- ☐ All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- ☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- ☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- ☐ Critical areas and BMPs are identified in the Stormwater Report.



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Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- ☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - ☐ Limited Project
 - ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - ☐ Bike Path and/or Foot Path
 - ☐ Redevelopment Project
 - ☐ Redevelopment portion of mix of new and redevelopment.
- ☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- ☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- ☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



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Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

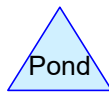
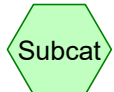
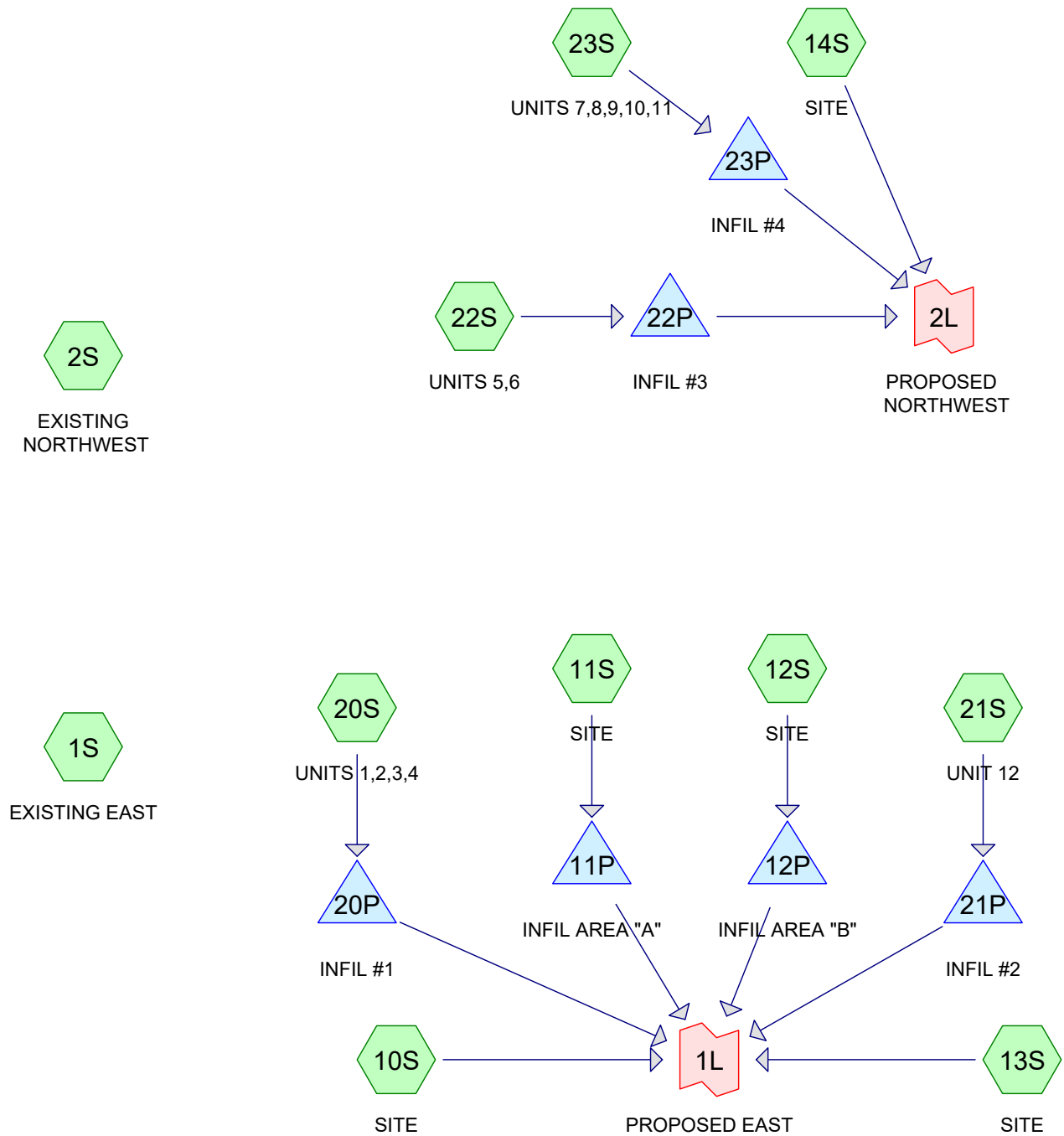
- ☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- ☐ The project is **not** covered by a NPDES Construction General Permit.
- ☒ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- ☐ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- ☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - ☒ Name of the stormwater management system owners;
 - ☒ Party responsible for operation and maintenance;
 - ☒ Schedule for implementation of routine and non-routine maintenance tasks;
 - ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
 - ☒ Description and delineation of public safety features;
 - ☒ Estimated operation and maintenance budget; and
 - ☒ Operation and Maintenance Log Form.
- ☐ The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- ☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- ☒ An Illicit Discharge Compliance Statement is attached;
- ☐ NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.



Routing Diagram for 3438 40B DRAINAGE
 Prepared by Engineering Design Consultants, Inc.
 HydroCAD® 10.00-20 s/n 03310 © 2017 HydroCAD Software Solutions LLC

Type III 24-hr 2 YR Rainfall=3.20"

Type III 24-hr 2 YR Rainfall=3.20"

Page 2

Page 3

Summary for Subcatchment 1S: EXISTING EAST

Runoff = 0.00 cfs @ 17.19 hrs, Volume= 135 cf, Depth= 0.02"
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2 YR Rainfall=3.20"

Area (sf)	CN	Description
1,416	30	Woods, Good, HSG A
64,382	39	>75% Grass cover, Good, HSG A
878	70	Woods, Good, HSG C
6,266	74	>75% Grass cover, Good, HSG C
1,276	98	Roofs, HSG A
74,218	43	Weighted Average
72,942		98.28% Pervious Area
1,276		1.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	12	0.0700	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.9	25	0.0700	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
1.4	161	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.4	134	0.0520	1.60		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
8.1	332	Total			

Hydrograph for Subcatchment 1S: EXISTING EAST

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	3.20	0.02	0.00
0.60	0.02	0.00	0.00	32.40	3.20	0.02	0.00
1.20	0.04	0.00	0.00	33.00	3.20	0.02	0.00
1.80	0.06	0.00	0.00	33.60	3.20	0.02	0.00
2.40	0.08	0.00	0.00	34.20	3.20	0.02	0.00
3.00	0.10	0.00	0.00	34.80	3.20	0.02	0.00
3.60	0.12	0.00	0.00	35.40	3.20	0.02	0.00
4.20	0.15	0.00	0.00	36.00	3.20	0.02	0.00
4.80	0.17	0.00	0.00	36.60	3.20	0.02	0.00
5.40	0.20	0.00	0.00	37.20	3.20	0.02	0.00
6.00	0.23	0.00	0.00	37.80	3.20	0.02	0.00
6.60	0.26	0.00	0.00	38.40	3.20	0.02	0.00
7.20	0.30	0.00	0.00	39.00	3.20	0.02	0.00
7.80	0.35	0.00	0.00	39.60	3.20	0.02	0.00
8.40	0.40	0.00	0.00	40.20	3.20	0.02	0.00
9.00	0.47	0.00	0.00	40.80	3.20	0.02	0.00
9.60	0.55	0.00	0.00	41.40	3.20	0.02	0.00
10.20	0.64	0.00	0.00	42.00	3.20	0.02	0.00
10.80	0.75	0.00	0.00	42.60	3.20	0.02	0.00
11.40	0.92	0.00	0.00	43.20	3.20	0.02	0.00
12.00	1.60	0.00	0.00	43.80	3.20	0.02	0.00
12.60	2.28	0.00	0.00	44.40	3.20	0.02	0.00
13.20	2.45	0.00	0.00	45.00	3.20	0.02	0.00
13.80	2.56	0.00	0.00	45.60	3.20	0.02	0.00
14.40	2.65	0.00	0.00	46.20	3.20	0.02	0.00
15.00	2.73	0.00	0.00	46.80	3.20	0.02	0.00
15.60	2.80	0.00	0.00	47.40	3.20	0.02	0.00
16.20	2.85	0.00	0.00	48.00	3.20	0.02	0.00
16.80	2.90	0.00	0.00	48.60	3.20	0.02	0.00
17.40	2.94	0.01	0.00	49.20	3.20	0.02	0.00
18.00	2.97	0.01	0.00	49.80	3.20	0.02	0.00
18.60	3.00	0.01	0.00	50.40	3.20	0.02	0.00
19.20	3.03	0.01	0.00	51.00	3.20	0.02	0.00
19.80	3.05	0.01	0.00	51.60	3.20	0.02	0.00
20.40	3.08	0.01	0.00	52.20	3.20	0.02	0.00
21.00	3.10	0.01	0.00	52.80	3.20	0.02	0.00
21.60	3.12	0.02	0.00	53.40	3.20	0.02	0.00
22.20	3.15	0.02	0.00	54.00	3.20	0.02	0.00
22.80	3.16	0.02	0.00	54.60	3.20	0.02	0.00
23.40	3.18	0.02	0.00	55.20	3.20	0.02	0.00
24.00	3.20	0.02	0.00	55.80	3.20	0.02	0.00
24.60	3.20	0.02	0.00	56.40	3.20	0.02	0.00
25.20	3.20	0.02	0.00	57.00	3.20	0.02	0.00
25.80	3.20	0.02	0.00	57.60	3.20	0.02	0.00
26.40	3.20	0.02	0.00	58.20	3.20	0.02	0.00
27.00	3.20	0.02	0.00	58.80	3.20	0.02	0.00
27.60	3.20	0.02	0.00	59.40	3.20	0.02	0.00
28.20	3.20	0.02	0.00	60.00	3.20	0.02	0.00
28.80	3.20	0.02	0.00	60.60	3.20	0.02	0.00
29.40	3.20	0.02	0.00	61.20	3.20	0.02	0.00
30.00	3.20	0.02	0.00	61.80	3.20	0.02	0.00
30.60	3.20	0.02	0.00	62.40	3.20	0.02	0.00
31.20	3.20	0.02	0.00	63.00	3.20	0.02	0.00

Summary for Subcatchment 2S: EXISTING NORTHWEST

Runoff = 1.09 cfs @ 12.14 hrs, Volume= 4,485 cf, Depth= 0.69"
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2 YR Rainfall=3.20"

Area (sf)	CN	Description
1,708	30	Woods, Good, HSG A
19,125	39	>75% Grass cover, Good, HSG A
2,537	70	Woods, Good, HSG C
24,853	74	>75% Grass cover, Good, HSG C
9,394	77	Woods, Good, HSG D
17,789	80	>75% Grass cover, Good, HSG D
2,934	98	Roofs, HSG A
78,340	67	Weighted Average
75,406		96.25% Pervious Area
2,934		3.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	13	0.0700	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.9	25	0.0700	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
1.2	148	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kx= 7.0 fps
2.1	163	0.0350	1.31		Shallow Concentrated Flow, Short Grass Pasture Kx= 7.0 fps
8.7	349	Total			

Summary for Subcatchment 10S: SITE

Runoff = 0.01 cfs @ 14.66 hrs, Volume= 137 cf, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR Rainfall=3.20"

Area (sf)	CN	Description
433	30	Woods, Good, HSG A
1,184	70	Woods, Good, HSG C
13,395	39	>75% Grass cover, Good, HSG A
2,637	74	>75% Grass cover, Good, HSG C
629	98	Paved parking, HSG A
18,278	48	Weighted Average
17,649		96.56% Pervious Area
629		3.44% Impervious Area

Tc Length Slope Velocity Capacity Description

(min)	(feet)	(ft/s)	(ft/sec)	(cfs)	Description
10.8	50	0.0100	0.08		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
2.0	228	0.0750	1.92		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
12.8	278	Total			

Hydrograph for Subcatchment 10S: SITE

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	3.20	0.09	0.00
0.60	0.02	0.00	0.00	32.40	3.20	0.09	0.00
1.20	0.04	0.00	0.00	33.00	3.20	0.09	0.00
1.80	0.06	0.00	0.00	33.60	3.20	0.09	0.00
2.40	0.08	0.00	0.00	34.20	3.20	0.09	0.00
3.00	0.10	0.00	0.00	34.80	3.20	0.09	0.00
3.60	0.12	0.00	0.00	35.40	3.20	0.09	0.00
4.20	0.15	0.00	0.00	36.00	3.20	0.09	0.00
4.80	0.17	0.00	0.00	36.60	3.20	0.09	0.00
5.40	0.20	0.00	0.00	37.20	3.20	0.09	0.00
6.00	0.23	0.00	0.00	37.80	3.20	0.09	0.00
6.60	0.26	0.00	0.00	38.40	3.20	0.09	0.00
7.20	0.30	0.00	0.00	39.00	3.20	0.09	0.00
7.80	0.35	0.00	0.00	39.60	3.20	0.09	0.00
8.40	0.40	0.00	0.00	40.20	3.20	0.09	0.00
9.00	0.47	0.00	0.00	40.80	3.20	0.09	0.00
9.60	0.55	0.00	0.00	41.40	3.20	0.09	0.00
10.20	0.64	0.00	0.00	42.00	3.20	0.09	0.00
10.80	0.75	0.00	0.00	42.60	3.20	0.09	0.00
11.40	0.92	0.00	0.00	43.20	3.20	0.09	0.00
12.00	1.60	0.00	0.00	43.80	3.20	0.09	0.00
12.60	2.28	0.00	0.00	44.40	3.20	0.09	0.00
13.20	2.45	0.01	0.00	45.00	3.20	0.09	0.00
13.80	2.56	0.01	0.01	45.60	3.20	0.09	0.00
14.40	2.65	0.02	0.01	46.20	3.20	0.09	0.00
15.00	2.73	0.03	0.01	46.80	3.20	0.09	0.00
15.60	2.80	0.03	0.00	47.40	3.20	0.09	0.00
16.20	2.85	0.04	0.00	48.00	3.20	0.09	0.00
16.80	2.90	0.05	0.00	48.60	3.20	0.09	0.00
17.40	2.94	0.05	0.00	49.20	3.20	0.09	0.00
18.00	2.97	0.06	0.00	49.80	3.20	0.09	0.00
18.60	3.00	0.06	0.00	50.40	3.20	0.09	0.00
19.20	3.03	0.06	0.00	51.00	3.20	0.09	0.00
19.80	3.05	0.07	0.00	51.60	3.20	0.09	0.00
20.40	3.08	0.07	0.00	52.20	3.20	0.09	0.00
21.00	3.10	0.07	0.00	52.80	3.20	0.09	0.00
21.60	3.12	0.08	0.00	53.40	3.20	0.09	0.00
22.20	3.15	0.08	0.00	54.00	3.20	0.09	0.00
22.80	3.16	0.08	0.00	54.60	3.20	0.09	0.00
23.40	3.18	0.09	0.00	55.20	3.20	0.09	0.00
24.00	3.20	0.09	0.00	55.80	3.20	0.09	0.00
24.60	3.20	0.09	0.00	56.40	3.20	0.09	0.00
25.20	3.20	0.09	0.00	57.00	3.20	0.09	0.00
25.80	3.20	0.09	0.00	57.60	3.20	0.09	0.00
26.40	3.20	0.09	0.00	58.20	3.20	0.09	0.00
27.00	3.20	0.09	0.00	58.80	3.20	0.09	0.00
27.60	3.20	0.09	0.00	59.40	3.20	0.09	0.00
28.20	3.20	0.09	0.00	60.00	3.20	0.09	0.00
28.80	3.20	0.09	0.00	60.60	3.20	0.09	0.00
29.40	3.20	0.09	0.00	61.20	3.20	0.09	0.00
30.00	3.20	0.09	0.00	61.80	3.20	0.09	0.00
30.60	3.20	0.09	0.00	62.40	3.20	0.09	0.00
31.20	3.20	0.09	0.00	63.00	3.20	0.09	0.00

Summary for Subcatchment 11S: SITE

Runoff = 0.23 cfs @ 12.15 hrs, Volume= 966 cf, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2 YR Rainfall=3.20"

Area (sf)	CN	Description			
4,738	98	Paved parking, HSG A			
1,581	98	Paved parking, HSG C			
7,866	39	>75% Grass cover, Good, HSG A			
2,681	74	>75% Grass cover, Good, HSG C			
16,866	67	Weighted Average			
10,547		62.53% Pervious Area			
6,319		37.47% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	50	0.0200	0.10		Sheet Flow,
					Grass: Dense n= 0.240 P2= 3.20"
0.2	17	0.0300	1.21		Shallow Concentrated Flow,
					Short Grass Pasture Kv= 7.0 fps
0.5	140	0.0550	4.76		Shallow Concentrated Flow,
					Paved Kv= 20.3 fps
8.9	207	Total			

Hydrograph for Subcatchment 11S: SITE

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	3.20	0.69	0.00
0.60	0.02	0.00	0.00	32.40	3.20	0.69	0.00
1.20	0.04	0.00	0.00	33.00	3.20	0.69	0.00
1.80	0.06	0.00	0.00	33.60	3.20	0.69	0.00
2.40	0.08	0.00	0.00	34.20	3.20	0.69	0.00
3.00	0.10	0.00	0.00	34.80	3.20	0.69	0.00
3.60	0.12	0.00	0.00	35.40	3.20	0.69	0.00
4.20	0.15	0.00	0.00	36.00	3.20	0.69	0.00
4.80	0.17	0.00	0.00	36.60	3.20	0.69	0.00
5.40	0.20	0.00	0.00	37.20	3.20	0.69	0.00
6.00	0.23	0.00	0.00	37.80	3.20	0.69	0.00
6.60	0.26	0.00	0.00	38.40	3.20	0.69	0.00
7.20	0.30	0.00	0.00	39.00	3.20	0.69	0.00
7.80	0.35	0.00	0.00	39.60	3.20	0.69	0.00
8.40	0.40	0.00	0.00	40.20	3.20	0.69	0.00
9.00	0.47	0.00	0.00	40.80	3.20	0.69	0.00
9.60	0.55	0.00	0.00	41.40	3.20	0.69	0.00
10.20	0.64	0.00	0.00	42.00	3.20	0.69	0.00
10.80	0.75	0.00	0.00	42.60	3.20	0.69	0.00
11.40	0.92	0.00	0.00	43.20	3.20	0.69	0.00
12.00	1.60	0.07	0.07	43.80	3.20	0.69	0.00
12.60	2.28	0.27	0.07	44.40	3.20	0.69	0.00
13.20	2.45	0.33	0.04	45.00	3.20	0.69	0.00
13.80	2.56	0.38	0.03	45.60	3.20	0.69	0.00
14.40	2.65	0.42	0.03	46.20	3.20	0.69	0.00
15.00	2.73	0.45	0.02	46.80	3.20	0.69	0.00
15.60	2.80	0.49	0.02	47.40	3.20	0.69	0.00
16.20	2.85	0.51	0.02	48.00	3.20	0.69	0.00
16.80	2.90	0.53	0.01	48.60	3.20	0.69	0.00
17.40	2.94	0.55	0.01	49.20	3.20	0.69	0.00
18.00	2.97	0.57	0.01	49.80	3.20	0.69	0.00
18.60	3.00	0.58	0.01	50.40	3.20	0.69	0.00
19.20	3.03	0.60	0.01	51.00	3.20	0.69	0.00
19.80	3.05	0.61	0.01	51.60	3.20	0.69	0.00
20.40	3.08	0.62	0.01	52.20	3.20	0.69	0.00
21.00	3.10	0.64	0.01	52.80	3.20	0.69	0.00
21.60	3.12	0.65	0.01	53.40	3.20	0.69	0.00
22.20	3.15	0.66	0.01	54.00	3.20	0.69	0.00
22.80	3.16	0.67	0.01	54.60	3.20	0.69	0.00
23.40	3.18	0.68	0.01	55.20	3.20	0.69	0.00
24.00	3.20	0.69	0.01	55.80	3.20	0.69	0.00
24.60	3.20	0.69	0.00	56.40	3.20	0.69	0.00
25.20	3.20	0.69	0.00	57.00	3.20	0.69	0.00
25.80	3.20	0.69	0.00	57.60	3.20	0.69	0.00
26.40	3.20	0.69	0.00	58.20	3.20	0.69	0.00
27.00	3.20	0.69	0.00	58.80	3.20	0.69	0.00
27.60	3.20	0.69	0.00	59.40	3.20	0.69	0.00
28.20	3.20	0.69	0.00	60.00	3.20	0.69	0.00
28.80	3.20	0.69	0.00	60.60	3.20	0.69	0.00
29.40	3.20	0.69	0.00	61.20	3.20	0.69	0.00
30.00	3.20	0.69	0.00	61.80	3.20	0.69	0.00
30.60	3.20	0.69	0.00	62.40	3.20	0.69	0.00
31.20	3.20	0.69	0.00	63.00	3.20	0.69	0.00

Summary for Subcatchment 12S: SITE

Runoff = 0.46 cfs @ 12.27 hrs, Volume= 2,264 cf, Depth= 0.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 YR Rainfall=3.20"

Area (sf)	CN	Description			
1,561	70	Woods, Good, HSG C			
12,374	39	>75% Grass cover, Good, HSG A			
6,069	74	>75% Grass cover, Good, HSG C			
6,906	98	Paved parking, HSG A			
5,895	98	Paved parking, HSG C			
32,805	70	Weighted Average			
20,004		60.98% Pervious Area			
12,801		39.02% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	50	0.0050	0.06		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20" Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.5	114	0.0320	1.25		
1.7	355	0.0280	3.40		
17.5	519	Total			

Hydrograph for Subcatchment 12S: SITE

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	3.20	0.83	0.00
0.60	0.02	0.00	0.00	32.40	3.20	0.83	0.00
1.20	0.04	0.00	0.00	33.00	3.20	0.83	0.00
1.80	0.06	0.00	0.00	33.60	3.20	0.83	0.00
2.40	0.08	0.00	0.00	34.20	3.20	0.83	0.00
3.00	0.10	0.00	0.00	34.80	3.20	0.83	0.00
3.60	0.12	0.00	0.00	35.40	3.20	0.83	0.00
4.20	0.15	0.00	0.00	36.00	3.20	0.83	0.00
4.80	0.17	0.00	0.00	36.60	3.20	0.83	0.00
5.40	0.20	0.00	0.00	37.20	3.20	0.83	0.00
6.00	0.23	0.00	0.00	37.80	3.20	0.83	0.00
6.60	0.26	0.00	0.00	38.40	3.20	0.83	0.00
7.20	0.30	0.00	0.00	39.00	3.20	0.83	0.00
7.80	0.35	0.00	0.00	39.60	3.20	0.83	0.00
8.40	0.40	0.00	0.00	40.20	3.20	0.83	0.00
9.00	0.47	0.00	0.00	40.80	3.20	0.83	0.00
9.60	0.55	0.00	0.00	41.40	3.20	0.83	0.00
10.20	0.64	0.00	0.00	42.00	3.20	0.83	0.00
10.80	0.75	0.00	0.00	42.60	3.20	0.83	0.00
11.40	0.92	0.00	0.00	43.20	3.20	0.83	0.00
12.00	1.60	0.11	0.11	43.80	3.20	0.83	0.00
12.60	2.28	0.36	0.26	44.40	3.20	0.83	0.00
13.20	2.45	0.43	0.09	45.00	3.20	0.83	0.00
13.80	2.56	0.49	0.07	45.60	3.20	0.83	0.00
14.40	2.65	0.53	0.06	46.20	3.20	0.83	0.00
15.00	2.73	0.57	0.05	46.80	3.20	0.83	0.00
15.60	2.80	0.61	0.04	47.40	3.20	0.83	0.00
16.20	2.85	0.63	0.03	48.00	3.20	0.83	0.00
16.80	2.90	0.66	0.03	48.60	3.20	0.83	0.00
17.40	2.94	0.68	0.03	49.20	3.20	0.83	0.00
18.00	2.97	0.70	0.02	49.80	3.20	0.83	0.00
18.60	3.00	0.71	0.02	50.40	3.20	0.83	0.00
19.20	3.03	0.73	0.02	51.00	3.20	0.83	0.00
19.80	3.05	0.74	0.02	51.60	3.20	0.83	0.00
20.40	3.08	0.76	0.02	52.20	3.20	0.83	0.00
21.00	3.10	0.77	0.02	52.80	3.20	0.83	0.00
21.60	3.12	0.78	0.02	53.40	3.20	0.83	0.00
22.20	3.15	0.80	0.02	54.00	3.20	0.83	0.00
22.80	3.16	0.81	0.01	54.60	3.20	0.83	0.00
23.40	3.18	0.82	0.01	55.20	3.20	0.83	0.00
24.00	3.20	0.83	0.01	55.80	3.20	0.83	0.00
24.60	3.20	0.83	0.00	56.40	3.20	0.83	0.00
25.20	3.20	0.83	0.00	57.00	3.20	0.83	0.00
25.80	3.20	0.83	0.00	57.60	3.20	0.83	0.00
26.40	3.20	0.83	0.00	58.20	3.20	0.83	0.00
27.00	3.20	0.83	0.00	58.80	3.20	0.83	0.00
27.60	3.20	0.83	0.00	59.40	3.20	0.83	0.00
28.20	3.20	0.83	0.00	60.00	3.20	0.83	0.00
28.80	3.20	0.83	0.00	60.60	3.20	0.83	0.00
29.40	3.20	0.83	0.00	61.20	3.20	0.83	0.00
30.00	3.20	0.83	0.00	61.80	3.20	0.83	0.00
30.60	3.20	0.83	0.00	62.40	3.20	0.83	0.00
31.20	3.20	0.83	0.00	63.00	3.20	0.83	0.00

Summary for Subcatchment 13S: SITE

Runoff = 0.00 cfs @ 24.03 hrs, Volume= 1 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2 YR Rainfall=3.20"

Area (sf)	CN	Description			
921	30	Woods, Good, HSG A			
19,828	39	>75% Grass cover, Good, HSG A			
27	98	Paved parking, HSG A			
20,776	39	Weighted Average			
20,749		99.87% Pervious Area			
27		0.13% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0700	0.06		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.20"
0.8	88	0.0700	1.85		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
13.8	138	Total			

Hydrograph for Subcatchment 13S: SITE

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	3.20	0.00	0.00
0.60	0.02	0.00	0.00	32.40	3.20	0.00	0.00
1.20	0.04	0.00	0.00	33.00	3.20	0.00	0.00
1.80	0.06	0.00	0.00	33.60	3.20	0.00	0.00
2.40	0.08	0.00	0.00	34.20	3.20	0.00	0.00
3.00	0.10	0.00	0.00	34.80	3.20	0.00	0.00
3.60	0.12	0.00	0.00	35.40	3.20	0.00	0.00
4.20	0.15	0.00	0.00	36.00	3.20	0.00	0.00
4.80	0.17	0.00	0.00	36.60	3.20	0.00	0.00
5.40	0.20	0.00	0.00	37.20	3.20	0.00	0.00
6.00	0.23	0.00	0.00	37.80	3.20	0.00	0.00
6.60	0.26	0.00	0.00	38.40	3.20	0.00	0.00
7.20	0.30	0.00	0.00	39.00	3.20	0.00	0.00
7.80	0.35	0.00	0.00	39.60	3.20	0.00	0.00
8.40	0.40	0.00	0.00	40.20	3.20	0.00	0.00
9.00	0.47	0.00	0.00	40.80	3.20	0.00	0.00
9.60	0.55	0.00	0.00	41.40	3.20	0.00	0.00
10.20	0.64	0.00	0.00	42.00	3.20	0.00	0.00
10.80	0.75	0.00	0.00	42.60	3.20	0.00	0.00
11.40	0.92	0.00	0.00	43.20	3.20	0.00	0.00
12.00	1.60	0.00	0.00	43.80	3.20	0.00	0.00
12.60	2.28	0.00	0.00	44.40	3.20	0.00	0.00
13.20	2.45	0.00	0.00	45.00	3.20	0.00	0.00
13.80	2.56	0.00	0.00	45.60	3.20	0.00	0.00
14.40	2.65	0.00	0.00	46.20	3.20	0.00	0.00
15.00	2.73	0.00	0.00	46.80	3.20	0.00	0.00
15.60	2.80	0.00	0.00	47.40	3.20	0.00	0.00
16.20	2.85	0.00	0.00	48.00	3.20	0.00	0.00
16.80	2.90	0.00	0.00	48.60	3.20	0.00	0.00
17.40	2.94	0.00	0.00	49.20	3.20	0.00	0.00
18.00	2.97	0.00	0.00	49.80	3.20	0.00	0.00
18.60	3.00	0.00	0.00	50.40	3.20	0.00	0.00
19.20	3.03	0.00	0.00	51.00	3.20	0.00	0.00
19.80	3.05	0.00	0.00	51.60	3.20	0.00	0.00
20.40	3.08	0.00	0.00	52.20	3.20	0.00	0.00
21.00	3.10	0.00	0.00	52.80	3.20	0.00	0.00
21.60	3.12	0.00	0.00	53.40	3.20	0.00	0.00
22.20	3.15	0.00	0.00	54.00	3.20	0.00	0.00
22.80	3.16	0.00	0.00	54.60	3.20	0.00	0.00
23.40	3.18	0.00	0.00	55.20	3.20	0.00	0.00
24.00	3.20	0.00	0.00	55.80	3.20	0.00	0.00
24.60	3.20	0.00	0.00	56.40	3.20	0.00	0.00
25.20	3.20	0.00	0.00	57.00	3.20	0.00	0.00
25.80	3.20	0.00	0.00	57.60	3.20	0.00	0.00
26.40	3.20	0.00	0.00	58.20	3.20	0.00	0.00
27.00	3.20	0.00	0.00	58.80	3.20	0.00	0.00
27.60	3.20	0.00	0.00	59.40	3.20	0.00	0.00
28.20	3.20	0.00	0.00	60.00	3.20	0.00	0.00
28.80	3.20	0.00	0.00	60.60	3.20	0.00	0.00
29.40	3.20	0.00	0.00	61.20	3.20	0.00	0.00
30.00	3.20	0.00	0.00	61.80	3.20	0.00	0.00
30.60	3.20	0.00	0.00	62.40	3.20	0.00	0.00
31.20	3.20	0.00	0.00	63.00	3.20	0.00	0.00

Summary for Subcatchment 14S: SITE

Runoff = 0.45 cfs @ 12.13 hrs, Volume= 1,946 cf, Depth= 0.56"
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2 YR Rainfall=3.20"

Area (sf)	CN	Description
13,490	39	>75% Grass cover, Good, HSG A
1,728	30	Woods, Good, HSG A
1,966	74	>75% Grass cover, Good, HSG C
670	70	Woods, Good, HSG C
14,514	80	>75% Grass cover, Good, HSG D
9,394	77	Woods, Good, HSG D
41,762	64	Weighted Average
41,762		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0630	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
1.9	192	0.0560	1.66		Shallow Concentrated Flow, Short Grass Pasture Kx= 7.0 fps
7.1	242	Total			

Hydrograph for Subcatchment 14S: SITE

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	3.20	0.56	0.00
0.60	0.02	0.00	0.00	32.40	3.20	0.56	0.00
1.20	0.04	0.00	0.00	33.00	3.20	0.56	0.00
1.80	0.06	0.00	0.00	33.60	3.20	0.56	0.00
2.40	0.08	0.00	0.00	34.20	3.20	0.56	0.00
3.00	0.10	0.00	0.00	34.80	3.20	0.56	0.00
3.60	0.12	0.00	0.00	35.40	3.20	0.56	0.00
4.20	0.15	0.00	0.00	36.00	3.20	0.56	0.00
4.80	0.17	0.00	0.00	36.60	3.20	0.56	0.00
5.40	0.20	0.00	0.00	37.20	3.20	0.56	0.00
6.00	0.23	0.00	0.00	37.80	3.20	0.56	0.00
6.60	0.26	0.00	0.00	38.40	3.20	0.56	0.00
7.20	0.30	0.00	0.00	39.00	3.20	0.56	0.00
7.80	0.35	0.00	0.00	39.60	3.20	0.56	0.00
8.40	0.40	0.00	0.00	40.20	3.20	0.56	0.00
9.00	0.47	0.00	0.00	40.80	3.20	0.56	0.00
9.60	0.55	0.00	0.00	41.40	3.20	0.56	0.00
10.20	0.64	0.00	0.00	42.00	3.20	0.56	0.00
10.80	0.75	0.00	0.00	42.60	3.20	0.56	0.00
11.40	0.92	0.00	0.00	43.20	3.20	0.56	0.00
12.00	1.60	0.04	0.13	43.80	3.20	0.56	0.00
12.60	2.28	0.20	0.13	44.40	3.20	0.56	0.00
13.20	2.45	0.25	0.07	45.00	3.20	0.56	0.00
13.80	2.56	0.29	0.06	45.60	3.20	0.56	0.00
14.40	2.65	0.33	0.05	46.20	3.20	0.56	0.00
15.00	2.73	0.36	0.05	46.80	3.20	0.56	0.00
15.60	2.80	0.38	0.04	47.40	3.20	0.56	0.00
16.20	2.85	0.41	0.03	48.00	3.20	0.56	0.00
16.80	2.90	0.42	0.03	48.60	3.20	0.56	0.00
17.40	2.94	0.44	0.03	49.20	3.20	0.56	0.00
18.00	2.97	0.46	0.02	49.80	3.20	0.56	0.00
18.60	3.00	0.47	0.02	50.40	3.20	0.56	0.00
19.20	3.03	0.48	0.02	51.00	3.20	0.56	0.00
19.80	3.05	0.49	0.02	51.60	3.20	0.56	0.00
20.40	3.08	0.50	0.02	52.20	3.20	0.56	0.00
21.00	3.10	0.51	0.02	52.80	3.20	0.56	0.00
21.60	3.12	0.52	0.02	53.40	3.20	0.56	0.00
22.20	3.15	0.53	0.02	54.00	3.20	0.56	0.00
22.80	3.16	0.54	0.01	54.60	3.20	0.56	0.00
23.40	3.18	0.55	0.01	55.20	3.20	0.56	0.00
24.00	3.20	0.56	0.01	55.80	3.20	0.56	0.00
24.60	3.20	0.56	0.00	56.40	3.20	0.56	0.00
25.20	3.20	0.56	0.00	57.00	3.20	0.56	0.00
25.80	3.20	0.56	0.00	57.60	3.20	0.56	0.00
26.40	3.20	0.56	0.00	58.20	3.20	0.56	0.00
27.00	3.20	0.56	0.00	58.80	3.20	0.56	0.00
27.60	3.20	0.56	0.00	59.40	3.20	0.56	0.00
28.20	3.20	0.56	0.00	60.00	3.20	0.56	0.00
28.80	3.20	0.56	0.00	60.60	3.20	0.56	0.00
29.40	3.20	0.56	0.00	61.20	3.20	0.56	0.00
30.00	3.20	0.56	0.00	61.80	3.20	0.56	0.00
30.60	3.20	0.56	0.00	62.40	3.20	0.56	0.00
31.20	3.20	0.56	0.00	63.00	3.20	0.56	0.00

Hydrograph for Subcatchment 21S: UNIT 12

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	3.20	2.97	0.00	63.60	3.20	2.97	0.00
0.60	0.02	0.00	0.00	32.40	3.20	2.97	0.00	64.20	3.20	2.97	0.00
1.20	0.04	0.00	0.00	33.00	3.20	2.97	0.00	64.80	3.20	2.97	0.00
1.80	0.06	0.00	0.00	33.60	3.20	2.97	0.00	65.40	3.20	2.97	0.00
2.40	0.08	0.01	0.00	34.20	3.20	2.97	0.00	66.00	3.20	2.97	0.00
3.00	0.10	0.01	0.00	34.80	3.20	2.97	0.00	66.60	3.20	2.97	0.00
3.60	0.12	0.02	0.00	35.40	3.20	2.97	0.00	67.20	3.20	2.97	0.00
4.20	0.15	0.04	0.00	36.00	3.20	2.97	0.00	67.80	3.20	2.97	0.00
4.80	0.17	0.05	0.00	36.60	3.20	2.97	0.00	68.40	3.20	2.97	0.00
5.40	0.20	0.07	0.00	37.20	3.20	2.97	0.00	69.00	3.20	2.97	0.00
6.00	0.23	0.09	0.00	37.80	3.20	2.97	0.00	69.60	3.20	2.97	0.00
6.60	0.26	0.12	0.00	38.40	3.20	2.97	0.00	70.20	3.20	2.97	0.00
7.20	0.30	0.15	0.00	39.00	3.20	2.97	0.00	70.80	3.20	2.97	0.00
7.80	0.35	0.18	0.00	39.60	3.20	2.97	0.00	71.40	3.20	2.97	0.00
8.40	0.40	0.23	0.00	40.20	3.20	2.97	0.00	72.00	3.20	2.97	0.00
9.00	0.47	0.29	0.00	40.80	3.20	2.97	0.00				
9.60	0.55	0.36	0.01	41.40	3.20	2.97	0.00				
10.20	0.64	0.44	0.01	42.00	3.20	2.97	0.00				
10.80	0.75	0.56	0.01	42.60	3.20	2.97	0.00				
11.40	0.92	0.71	0.01	43.20	3.20	2.97	0.00				
12.00	1.60	1.38	0.08	43.80	3.20	2.97	0.00				
12.60	2.28	2.06	0.02	44.40	3.20	2.97	0.00				
13.20	2.45	2.22	0.01	45.00	3.20	2.97	0.00				
13.80	2.56	2.33	0.01	45.60	3.20	2.97	0.00				
14.40	2.65	2.42	0.01	46.20	3.20	2.97	0.00				
15.00	2.73	2.50	0.00	46.80	3.20	2.97	0.00				
15.60	2.80	2.57	0.00	47.40	3.20	2.97	0.00				
16.20	2.85	2.62	0.00	48.00	3.20	2.97	0.00				
16.80	2.90	2.67	0.00	48.60	3.20	2.97	0.00				
17.40	2.94	2.70	0.00	49.20	3.20	2.97	0.00				
18.00	2.97	2.74	0.00	49.80	3.20	2.97	0.00				
18.60	3.00	2.77	0.00	50.40	3.20	2.97	0.00				
19.20	3.03	2.80	0.00	51.00	3.20	2.97	0.00				
19.80	3.05	2.82	0.00	51.60	3.20	2.97	0.00				
20.40	3.08	2.85	0.00	52.20	3.20	2.97	0.00				
21.00	3.10	2.87	0.00	52.80	3.20	2.97	0.00				
21.60	3.12	2.89	0.00	53.40	3.20	2.97	0.00				
22.20	3.15	2.91	0.00	54.00	3.20	2.97	0.00				
22.80	3.16	2.93	0.00	54.60	3.20	2.97	0.00				
23.40	3.18	2.95	0.00	55.20	3.20	2.97	0.00				
24.00	3.20	2.97	0.00	55.80	3.20	2.97	0.00				
24.60	3.20	2.97	0.00	56.40	3.20	2.97	0.00				
25.20	3.20	2.97	0.00	57.00	3.20	2.97	0.00				
25.80	3.20	2.97	0.00	57.60	3.20	2.97	0.00				
26.40	3.20	2.97	0.00	58.20	3.20	2.97	0.00				
27.00	3.20	2.97	0.00	58.80	3.20	2.97	0.00				
27.60	3.20	2.97	0.00	59.40	3.20	2.97	0.00				
28.20	3.20	2.97	0.00	60.00	3.20	2.97	0.00				
28.80	3.20	2.97	0.00	60.60	3.20	2.97	0.00				
29.40	3.20	2.97	0.00	61.20	3.20	2.97	0.00				
30.00	3.20	2.97	0.00	61.80	3.20	2.97	0.00				
30.60	3.20	2.97	0.00	62.40	3.20	2.97	0.00				
31.20	3.20	2.97	0.00	63.00	3.20	2.97	0.00				

Summary for Subcatchment 21S: UNIT 12

Runoff	=	0.12 cfs @ 12.08 hrs, Volume=	428 cf, Depth= 2.97"
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs			
Type III 24-hr 2 YR Rainfall=3.20"			
Area (sf)	CN	Description	
1,730	98	Roofs, HSG A	
1,730		100.00% Impervious Area	
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)
6.0			
Direct Entry,			

Summary for Subcatchment 22S: UNITS 5.6

Runoff = 0.26 cfs @ 12.08 hrs, Volume= 910 cf, Depth= 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2 YR Rainfall=3.20"

Area (sf)	CN	Description
3.681	98	Roofs, HSG C
3.681		100.00% Impervious Area
Tc	Length	Slope
(min)	(feet)	(ft/ft)
6.0		

Capacity

(cfs)

Velocity

(ft/sec)

Description

Direct Entry,

Hydrograph for Subcatchment 22S: UNITS 5.6

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	3.20	2.97	0.00
0.60	0.02	0.00	0.00	32.40	3.20	2.97	0.00
1.20	0.04	0.00	0.00	33.00	3.20	2.97	0.00
1.80	0.06	0.00	0.00	33.60	3.20	2.97	0.00
2.40	0.08	0.01	0.00	34.20	3.20	2.97	0.00
3.00	0.10	0.01	0.00	34.80	3.20	2.97	0.00
3.60	0.12	0.02	0.00	35.40	3.20	2.97	0.00
4.20	0.15	0.04	0.00	36.00	3.20	2.97	0.00
4.80	0.17	0.05	0.00	36.60	3.20	2.97	0.00
5.40	0.20	0.07	0.00	37.20	3.20	2.97	0.00
6.00	0.23	0.09	0.00	37.80	3.20	2.97	0.00
6.60	0.26	0.12	0.00	38.40	3.20	2.97	0.00
7.20	0.30	0.15	0.00	39.00	3.20	2.97	0.00
7.80	0.35	0.18	0.01	39.60	3.20	2.97	0.00
8.40	0.40	0.23	0.01	40.20	3.20	2.97	0.00
9.00	0.47	0.29	0.01	40.80	3.20	2.97	0.00
9.60	0.55	0.36	0.01	41.40	3.20	2.97	0.00
10.20	0.64	0.44	0.01	42.00	3.20	2.97	0.00
10.80	0.75	0.56	0.02	42.60	3.20	2.97	0.00
11.40	0.92	0.71	0.03	43.20	3.20	2.97	0.00
12.00	1.60	1.38	0.17	43.80	3.20	2.97	0.00
12.60	2.28	2.06	0.04	44.40	3.20	2.97	0.00
13.20	2.45	2.22	0.02	45.00	3.20	2.97	0.00
13.80	2.56	2.33	0.02	45.60	3.20	2.97	0.00
14.40	2.65	2.42	0.01	46.20	3.20	2.97	0.00
15.00	2.73	2.50	0.01	46.80	3.20	2.97	0.00
15.60	2.80	2.57	0.01	47.40	3.20	2.97	0.00
16.20	2.85	2.62	0.01	48.00	3.20	2.97	0.00
16.80	2.90	2.67	0.01	48.60	3.20	2.97	0.00
17.40	2.94	2.70	0.01	49.20	3.20	2.97	0.00
18.00	2.97	2.74	0.00	49.80	3.20	2.97	0.00
18.60	3.00	2.77	0.00	50.40	3.20	2.97	0.00
19.20	3.03	2.80	0.00	51.00	3.20	2.97	0.00
19.80	3.05	2.82	0.00	51.60	3.20	2.97	0.00
20.40	3.08	2.85	0.00	52.20	3.20	2.97	0.00
21.00	3.10	2.87	0.00	52.80	3.20	2.97	0.00
21.60	3.12	2.89	0.00	53.40	3.20	2.97	0.00
22.20	3.15	2.91	0.00	54.00	3.20	2.97	0.00
22.80	3.16	2.93	0.00	54.60	3.20	2.97	0.00
23.40	3.18	2.95	0.00	55.20	3.20	2.97	0.00
24.00	3.20	2.97	0.00	55.80	3.20	2.97	0.00
24.60	3.20	2.97	0.00	56.40	3.20	2.97	0.00
25.20	3.20	2.97	0.00	57.00	3.20	2.97	0.00
25.80	3.20	2.97	0.00	57.60	3.20	2.97	0.00
26.40	3.20	2.97	0.00	58.20	3.20	2.97	0.00
27.00	3.20	2.97	0.00	58.80	3.20	2.97	0.00
27.60	3.20	2.97	0.00	59.40	3.20	2.97	0.00
28.20	3.20	2.97	0.00	60.00	3.20	2.97	0.00
28.80	3.20	2.97	0.00	60.60	3.20	2.97	0.00
29.40	3.20	2.97	0.00	61.20	3.20	2.97	0.00
30.00	3.20	2.97	0.00	61.80	3.20	2.97	0.00
30.60	3.20	2.97	0.00	62.40	3.20	2.97	0.00
31.20	3.20	2.97	0.00	63.00	3.20	2.97	0.00

Hydrograph for Subcatchment 23S: UNITS 7.8,9,10,11

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	3.20	2.97	0.00	63.60	3.20	2.97	0.00
0.60	0.02	0.00	0.00	32.40	3.20	2.97	0.00	64.20	3.20	2.97	0.00
1.20	0.04	0.00	0.00	33.00	3.20	2.97	0.00	64.80	3.20	2.97	0.00
1.80	0.06	0.00	0.00	33.60	3.20	2.97	0.00	65.40	3.20	2.97	0.00
2.40	0.08	0.01	0.00	34.20	3.20	2.97	0.00	66.00	3.20	2.97	0.00
3.00	0.10	0.01	0.00	34.80	3.20	2.97	0.00	66.60	3.20	2.97	0.00
3.60	0.12	0.02	0.00	35.40	3.20	2.97	0.00	67.20	3.20	2.97	0.00
4.20	0.15	0.04	0.00	36.00	3.20	2.97	0.00	67.80	3.20	2.97	0.00
4.80	0.17	0.05	0.01	36.60	3.20	2.97	0.00	68.40	3.20	2.97	0.00
5.40	0.20	0.07	0.01	37.20	3.20	2.97	0.00	69.00	3.20	2.97	0.00
6.00	0.23	0.09	0.01	37.80	3.20	2.97	0.00	69.60	3.20	2.97	0.00
6.60	0.26	0.12	0.01	38.40	3.20	2.97	0.00	70.20	3.20	2.97	0.00
7.20	0.30	0.15	0.01	39.00	3.20	2.97	0.00	70.80	3.20	2.97	0.00
7.80	0.35	0.18	0.01	39.60	3.20	2.97	0.00	71.40	3.20	2.97	0.00
8.40	0.40	0.23	0.02	40.20	3.20	2.97	0.00	72.00	3.20	2.97	0.00
9.00	0.47	0.29	0.02	40.80	3.20	2.97	0.00				
9.60	0.55	0.36	0.03	41.40	3.20	2.97	0.00				
10.20	0.64	0.44	0.03	42.00	3.20	2.97	0.00				
10.80	0.75	0.56	0.04	42.60	3.20	2.97	0.00				
11.40	0.92	0.71	0.06	43.20	3.20	2.97	0.00				
12.00	1.60	1.38	0.40	43.80	3.20	2.97	0.00				
12.60	2.28	2.06	0.09	44.40	3.20	2.97	0.00				
13.20	2.45	2.22	0.05	45.00	3.20	2.97	0.00				
13.80	2.56	2.33	0.04	45.60	3.20	2.97	0.00				
14.40	2.65	2.42	0.03	46.20	3.20	2.97	0.00				
15.00	2.73	2.50	0.03	46.80	3.20	2.97	0.00				
15.60	2.80	2.57	0.02	47.40	3.20	2.97	0.00				
16.20	2.85	2.62	0.02	48.00	3.20	2.97	0.00				
16.80	2.90	2.67	0.01	48.60	3.20	2.97	0.00				
17.40	2.94	2.70	0.01	49.20	3.20	2.97	0.00				
18.00	2.97	2.74	0.01	49.80	3.20	2.97	0.00				
18.60	3.00	2.77	0.01	50.40	3.20	2.97	0.00				
19.20	3.03	2.80	0.01	51.00	3.20	2.97	0.00				
19.80	3.05	2.82	0.01	51.60	3.20	2.97	0.00				
20.40	3.08	2.85	0.01	52.20	3.20	2.97	0.00				
21.00	3.10	2.87	0.01	52.80	3.20	2.97	0.00				
21.60	3.12	2.89	0.01	53.40	3.20	2.97	0.00				
22.20	3.15	2.91	0.01	54.00	3.20	2.97	0.00				
22.80	3.16	2.93	0.01	54.60	3.20	2.97	0.00				
23.40	3.18	2.95	0.01	55.20	3.20	2.97	0.00				
24.00	3.20	2.97	0.01	55.80	3.20	2.97	0.00				
24.60	3.20	2.97	0.00	56.40	3.20	2.97	0.00				
25.20	3.20	2.97	0.00	57.00	3.20	2.97	0.00				
25.80	3.20	2.97	0.00	57.60	3.20	2.97	0.00				
26.40	3.20	2.97	0.00	58.20	3.20	2.97	0.00				
27.00	3.20	2.97	0.00	58.80	3.20	2.97	0.00				
27.60	3.20	2.97	0.00	59.40	3.20	2.97	0.00				
28.20	3.20	2.97	0.00	60.00	3.20	2.97	0.00				
28.80	3.20	2.97	0.00	60.60	3.20	2.97	0.00				
29.40	3.20	2.97	0.00	61.20	3.20	2.97	0.00				
30.00	3.20	2.97	0.00	61.80	3.20	2.97	0.00				
30.60	3.20	2.97	0.00	62.40	3.20	2.97	0.00				
31.20	3.20	2.97	0.00	63.00	3.20	2.97	0.00				

Summary for Subcatchment 23S: UNITS 7.8,9,10,11

Runoff = 0.64 cfs @ 12.08 hrs, Volume= 2,227 cf, Depth= 2.97"
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2 YR Rainfall=3.20"

Area (sf)	CN	Description
5,521	98	Roofs, HSG C
3,485	98	Roofs, HSG C
9,006	98	Weighted Average
		100.00% Impervious Area

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

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Type III 24-hr 2 YR Rainfall=3.20"

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Summary for Pond 11P: INFIL AREA "A"

Inflow Area = 16,866 sf, 37.47% Impervious, Inflow Depth = 0.69" for 2 YR event
 Inflow = 0.23 cfs @ 12.15 hrs, Volume= 966 cf
 Outflow = 0.13 cfs @ 12.41 hrs, Volume= 966 cf, Atten= 43%, Lag= 15.8 min
 Discarded = 0.13 cfs @ 12.41 hrs, Volume= 966 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 158.80' @ 12.41 hrs Surf.Area= 657 sf Storage= 79 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 3.5 min (893.3 - 889.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	158.50'	578 cf	20.83'W x 31.50'L x 3.54'H Field A 2,324 cf Overall - 879 cf Embedded = 1,445 cf x 40.0% Voids
#2A	159.00'	879 cf	Cultec R-330XLHD x16 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 4 rows
#3	159.50'	3 cf	0.83'D x 5.00'H Vertical Cone/Cylinder
		1,460 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	163.40'	10.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Discarded	158.50'	8.270 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.13 cfs @ 12.41 hrs HW=158.80' (Free Discharge)
 ↳2=Exfiltration (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=158.50' (Free Discharge)
 ↳1=Orifice/Grate (Controls 0.00 cfs)

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Type III 24-hr 2 YR Rainfall=3.20"

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Hydrograph for Pond 11P: INFIL AREA "A"

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	158.50	0.00	0.00	0.00
1.50	0.00	0	158.50	0.00	0.00	0.00
3.00	0.00	0	158.50	0.00	0.00	0.00
4.50	0.00	0	158.50	0.00	0.00	0.00
6.00	0.00	0	158.50	0.00	0.00	0.00
7.50	0.00	0	158.50	0.00	0.00	0.00
9.00	0.00	0	158.50	0.00	0.00	0.00
10.50	0.00	0	158.50	0.00	0.00	0.00
12.00	0.07	6	158.52	0.06	0.06	0.00
13.50	0.03	3	158.51	0.03	0.03	0.00
15.00	0.02	2	158.51	0.02	0.02	0.00
16.50	0.01	2	158.51	0.01	0.01	0.00
18.00	0.01	1	158.50	0.01	0.01	0.00
19.50	0.01	1	158.50	0.01	0.01	0.00
21.00	0.01	1	158.50	0.01	0.01	0.00
22.50	0.01	1	158.50	0.01	0.01	0.00
24.00	0.01	1	158.50	0.01	0.01	0.00
25.50	0.00	0	158.50	0.00	0.00	0.00
27.00	0.00	0	158.50	0.00	0.00	0.00
28.50	0.00	0	158.50	0.00	0.00	0.00
30.00	0.00	0	158.50	0.00	0.00	0.00
31.50	0.00	0	158.50	0.00	0.00	0.00
33.00	0.00	0	158.50	0.00	0.00	0.00
34.50	0.00	0	158.50	0.00	0.00	0.00
36.00	0.00	0	158.50	0.00	0.00	0.00
37.50	0.00	0	158.50	0.00	0.00	0.00
39.00	0.00	0	158.50	0.00	0.00	0.00
40.50	0.00	0	158.50	0.00	0.00	0.00
42.00	0.00	0	158.50	0.00	0.00	0.00
43.50	0.00	0	158.50	0.00	0.00	0.00
45.00	0.00	0	158.50	0.00	0.00	0.00
46.50	0.00	0	158.50	0.00	0.00	0.00
48.00	0.00	0	158.50	0.00	0.00	0.00
49.50	0.00	0	158.50	0.00	0.00	0.00
51.00	0.00	0	158.50	0.00	0.00	0.00
52.50	0.00	0	158.50	0.00	0.00	0.00
54.00	0.00	0	158.50	0.00	0.00	0.00
55.50	0.00	0	158.50	0.00	0.00	0.00
57.00	0.00	0	158.50	0.00	0.00	0.00
58.50	0.00	0	158.50	0.00	0.00	0.00
60.00	0.00	0	158.50	0.00	0.00	0.00
61.50	0.00	0	158.50	0.00	0.00	0.00
63.00	0.00	0	158.50	0.00	0.00	0.00
64.50	0.00	0	158.50	0.00	0.00	0.00
66.00	0.00	0	158.50	0.00	0.00	0.00
67.50	0.00	0	158.50	0.00	0.00	0.00
69.00	0.00	0	158.50	0.00	0.00	0.00
70.50	0.00	0	158.50	0.00	0.00	0.00
72.00	0.00	0	158.50	0.00	0.00	0.00

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Type III 24-hr 2 YR Rainfall=3.20"

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Summary for Pond 12P: INFIL AREA "B"

Inflow Area = 32,805 sf, 39.02% Impervious, Inflow Depth = 0.83" for 2 YR event
 Inflow = 0.46 cfs @ 12.27 hrs, Volume= 2,264 cf
 Outflow = 0.31 cfs @ 12.53 hrs, Volume= 2,263 cf, Atten= 32%, Lag= 15.2 min
 Discarded = 0.31 cfs @ 12.53 hrs, Volume= 2,263 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 6
 Peak Elev= 158.24' @ 12.53 hrs Surf. Area= 1,602 sf Storage= 153 cf

Plug-Flow detention time= 3.4 min calculated for 2,262 cf (100% of inflow)
 Center-of-Mass det. time= 3.2 min (889.6 - 886.4)

Volume	Invert	Avail. Storage	Storage Description
#1A 158.00'		1,365 cf	30.50'W x 52.50'L x 3.54'H Field A
			5,671 cf Overall - 2,258 cf Embedded = 3,413 cf x 40.0% Voids
#2A 158.50'		2,258 cf	Cultec R-330XLHD x 42 Inside #1
			Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
			Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
			Row Length Adjustment= +1.50' x 7.45 sf x 6 rows
#3 158.00'		3 cf	0.83'D x 5.00'H Vertical Cone/Cylinder
		3,626 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 Primary	162.50'	10.0" Horiz. Orifice/Grate	C= 0.600 Limited to weir flow at low heads
#2 Discarded	158.00'	8.270 in/hr Exfiltration over	Wetted area

Discarded Outflow Max=0.31 cfs @ 12.53 hrs HW=158.24' (Free Discharge)
 ↳2=Exfiltration (Exfiltration Controls 0.31 cfs)

Primary Outflow Max=0.00 cfs @ 0.00 hrs HW=158.00' (Free Discharge)
 ↳1=Orifice/Grate (Controls 0.00 cfs)

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Type III 24-hr 2 YR Rainfall=3.20"

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Hydrograph for Pond 12P: INFIL AREA "B"

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	158.00	0.00	0.00	0.00
1.50	0.00	0	158.00	0.00	0.00	0.00
3.00	0.00	0	158.00	0.00	0.00	0.00
4.50	0.00	0	158.00	0.00	0.00	0.00
6.00	0.00	0	158.00	0.00	0.00	0.00
7.50	0.00	0	158.00	0.00	0.00	0.00
9.00	0.00	0	158.00	0.00	0.00	0.00
10.50	0.00	0	158.00	0.00	0.00	0.00
12.00	0.11	9	158.01	0.09	0.09	0.00
13.50	0.08	8	158.01	0.08	0.08	0.00
15.00	0.05	5	158.01	0.05	0.05	0.00
16.50	0.03	3	158.01	0.03	0.03	0.00
18.00	0.02	2	158.00	0.02	0.02	0.00
19.50	0.02	2	158.00	0.02	0.02	0.00
21.00	0.02	2	158.00	0.02	0.02	0.00
22.50	0.01	2	158.00	0.01	0.01	0.00
24.00	0.01	1	158.00	0.01	0.01	0.00
25.50	0.00	0	158.00	0.00	0.00	0.00
27.00	0.00	0	158.00	0.00	0.00	0.00
28.50	0.00	0	158.00	0.00	0.00	0.00
30.00	0.00	0	158.00	0.00	0.00	0.00
31.50	0.00	0	158.00	0.00	0.00	0.00
33.00	0.00	0	158.00	0.00	0.00	0.00
34.50	0.00	0	158.00	0.00	0.00	0.00
36.00	0.00	0	158.00	0.00	0.00	0.00
37.50	0.00	0	158.00	0.00	0.00	0.00
39.00	0.00	0	158.00	0.00	0.00	0.00
40.50	0.00	0	158.00	0.00	0.00	0.00
42.00	0.00	0	158.00	0.00	0.00	0.00
43.50	0.00	0	158.00	0.00	0.00	0.00
45.00	0.00	0	158.00	0.00	0.00	0.00
46.50	0.00	0	158.00	0.00	0.00	0.00
48.00	0.00	0	158.00	0.00	0.00	0.00
49.50	0.00	0	158.00	0.00	0.00	0.00
51.00	0.00	0	158.00	0.00	0.00	0.00
52.50	0.00	0	158.00	0.00	0.00	0.00
54.00	0.00	0	158.00	0.00	0.00	0.00
55.50	0.00	0	158.00	0.00	0.00	0.00
57.00	0.00	0	158.00	0.00	0.00	0.00
58.50	0.00	0	158.00	0.00	0.00	0.00
60.00	0.00	0	158.00	0.00	0.00	0.00
61.50	0.00	0	158.00	0.00	0.00	0.00
63.00	0.00	0	158.00	0.00	0.00	0.00
64.50	0.00	0	158.00	0.00	0.00	0.00
66.00	0.00	0	158.00	0.00	0.00	0.00
67.50	0.00	0	158.00	0.00	0.00	0.00
69.00	0.00	0	158.00	0.00	0.00	0.00
70.50	0.00	0	158.00	0.00	0.00	0.00
72.00	0.00	0	158.00	0.00	0.00	0.00

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Type III 24-hr 2 YR Rainfall=3.20"

Summary for Pond 20P: INFIL #1

Inflow Area = 7,656 sf 100.00% Impervious; Inflow Depth = 2.97" for 2 YR event
Inflow = 0.54 cfs @ 12.08 hrs, Volume= 1,893 cf
Outflow = 0.20 cfs @ 12.33 hrs, Volume= 1,893 cf, Atten= 64%, Lag= 15.0 min
Discarded = 0.20 cfs @ 12.33 hrs, Volume= 1,893 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 164.59' @ 12.33 hrs Surf. Area= 932 sf Storage= 253 cf

Plug-Flow detention time= 6.4 min calculated for 1,893 cf (100% of inflow)
Center-of-Mass det. time= 6.1 min (762.5 - 756.4)

Volume	Invert	Avail. Storage	Storage Description
#1A 164.00'		683 cf	14.50'W x 64.25'L x 2.54'H Field A
			2,368 cf Overall - 660 cf Embedded = 1,708 cf x 40.0% Voids
#2A 164.50'		660 cf	Cultec R-150XLHD x 24 Inside #1
			Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf
			Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap
			Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
#3 164.00'		2 cf	0.83'D x 4.00'H Vertical Cone/Cylinder
		1,345 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 Primary	167.50'	10.0' Horiz. Orifice/Grate X 2.00	C= 0.600 Limited to weir flow at low heads
#2 Discarded	164.00'	8.270 m/hr Exfiltration over Wetted area	
Discarded OutFlow Max=0.20 cfs @ 12.33 hrs HW=164.59' (Free Discharge)			
←2=Exfiltration (Exfiltration Controls 0.20 cfs)			
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=164.00' (Free Discharge)			
←1=Orifice/Grate (Controls 0.00 cfs)			

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Type III 24-hr 2 YR Rainfall=3.20"

Hydrograph for Pond 20P: INFIL #1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	164.00	0.00	0.00	0.00
1.50	0.00	0	164.00	0.00	0.00	0.00
3.00	0.00	0	164.00	0.00	0.00	0.00
4.50	0.00	0	164.00	0.00	0.00	0.00
6.00	0.01	1	164.00	0.01	0.01	0.00
7.50	0.01	1	164.00	0.01	0.01	0.00
9.00	0.02	2	164.00	0.02	0.02	0.00
10.50	0.03	3	164.01	0.03	0.03	0.00
12.00	0.34	48	164.13	0.18	0.18	0.00
13.50	0.04	3	164.01	0.04	0.04	0.00
15.00	0.02	2	164.00	0.02	0.02	0.00
16.50	0.01	1	164.00	0.01	0.01	0.00
18.00	0.01	1	164.00	0.01	0.01	0.00
19.50	0.01	1	164.00	0.01	0.01	0.00
21.00	0.01	1	164.00	0.01	0.01	0.00
22.50	0.01	0	164.00	0.01	0.01	0.00
24.00	0.00	0	164.00	0.00	0.00	0.00
25.50	0.00	0	164.00	0.00	0.00	0.00
27.00	0.00	0	164.00	0.00	0.00	0.00
28.50	0.00	0	164.00	0.00	0.00	0.00
30.00	0.00	0	164.00	0.00	0.00	0.00
31.50	0.00	0	164.00	0.00	0.00	0.00
33.00	0.00	0	164.00	0.00	0.00	0.00
34.50	0.00	0	164.00	0.00	0.00	0.00
36.00	0.00	0	164.00	0.00	0.00	0.00
37.50	0.00	0	164.00	0.00	0.00	0.00
39.00	0.00	0	164.00	0.00	0.00	0.00
40.50	0.00	0	164.00	0.00	0.00	0.00
42.00	0.00	0	164.00	0.00	0.00	0.00
43.50	0.00	0	164.00	0.00	0.00	0.00
45.00	0.00	0	164.00	0.00	0.00	0.00
46.50	0.00	0	164.00	0.00	0.00	0.00
48.00	0.00	0	164.00	0.00	0.00	0.00
49.50	0.00	0	164.00	0.00	0.00	0.00
51.00	0.00	0	164.00	0.00	0.00	0.00
52.50	0.00	0	164.00	0.00	0.00	0.00
54.00	0.00	0	164.00	0.00	0.00	0.00
55.50	0.00	0	164.00	0.00	0.00	0.00
57.00	0.00	0	164.00	0.00	0.00	0.00
58.50	0.00	0	164.00	0.00	0.00	0.00
60.00	0.00	0	164.00	0.00	0.00	0.00
61.50	0.00	0	164.00	0.00	0.00	0.00
63.00	0.00	0	164.00	0.00	0.00	0.00
64.50	0.00	0	164.00	0.00	0.00	0.00
66.00	0.00	0	164.00	0.00	0.00	0.00
67.50	0.00	0	164.00	0.00	0.00	0.00
69.00	0.00	0	164.00	0.00	0.00	0.00
70.50	0.00	0	164.00	0.00	0.00	0.00
72.00	0.00	0	164.00	0.00	0.00	0.00

Summary for Pond 21P: INFIL #2

Inflow Area = 1.730 sf 100.00% Impervious; Inflow Depth = 2.97" for 2 YR event
Inflow = 0.12 cfs @ 12.08 hrs, Volume= 428 cf
Outflow = 0.06 cfs @ 12.25 hrs, Volume= 428 cf, Atten= 53%, Lag= 9.7 min
Discarded = 0.06 cfs @ 12.25 hrs, Volume= 428 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 162.37' @ 12.25 hrs Surf.Area= 269 sf Storage= 40 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 3.5 min (759.9 - 756.4)

Volume	Invert	Avail.Storage	Storage Description
#1A 162.00'	206 cf	8.00'W x 33.50'L x 2.54'H Field A	681 cf Overall - 167 cf Embedded = 514 cf x 40.0% Voids
#2A 162.50'	167 cf	Cultec R-150XLHD x 6 Inside #1	Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
#3 162.00'	2 cf	0.83'D x 4.00'H Vertical Cone/Cylinder	
	375 cf	Total Available Storage	

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 Primary	165.50'	10.0" Horiz. Orifice/Grate	C= 0.600 Limited to weir flow at low heads
#2 Discarded	162.00'	8.270 m/hr Exfiltration over Wetted area	

Discarded OutFlow Max=0.06 cfs @ 12.25 hrs HW=162.37' (Free Discharge)
←2=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=162.00' (Free Discharge)
←1=Orifice/Grate (Controls 0.00 cfs)

Hydrograph for Pond 21P: INFIL #2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	162.00	0.00	0.00	0.00
1.50	0.00	0	162.00	0.00	0.00	0.00
3.00	0.00	0	162.00	0.00	0.00	0.00
4.50	0.00	0	162.00	0.00	0.00	0.00
6.00	0.00	0	162.00	0.00	0.00	0.00
7.50	0.00	0	162.00	0.00	0.00	0.00
9.00	0.00	0	162.00	0.00	0.00	0.00
10.50	0.01	1	162.01	0.01	0.01	0.00
12.00	0.08	7	162.06	0.05	0.05	0.00
13.50	0.01	1	162.01	0.01	0.01	0.00
15.00	0.00	0	162.00	0.00	0.00	0.00
16.50	0.00	0	162.00	0.00	0.00	0.00
18.00	0.00	0	162.00	0.00	0.00	0.00
19.50	0.00	0	162.00	0.00	0.00	0.00
21.00	0.00	0	162.00	0.00	0.00	0.00
22.50	0.00	0	162.00	0.00	0.00	0.00
24.00	0.00	0	162.00	0.00	0.00	0.00
25.50	0.00	0	162.00	0.00	0.00	0.00
27.00	0.00	0	162.00	0.00	0.00	0.00
28.50	0.00	0	162.00	0.00	0.00	0.00
30.00	0.00	0	162.00	0.00	0.00	0.00
31.50	0.00	0	162.00	0.00	0.00	0.00
33.00	0.00	0	162.00	0.00	0.00	0.00
34.50	0.00	0	162.00	0.00	0.00	0.00
36.00	0.00	0	162.00	0.00	0.00	0.00
37.50	0.00	0	162.00	0.00	0.00	0.00
39.00	0.00	0	162.00	0.00	0.00	0.00
40.50	0.00	0	162.00	0.00	0.00	0.00
42.00	0.00	0	162.00	0.00	0.00	0.00
43.50	0.00	0	162.00	0.00	0.00	0.00
45.00	0.00	0	162.00	0.00	0.00	0.00
46.50	0.00	0	162.00	0.00	0.00	0.00
48.00	0.00	0	162.00	0.00	0.00	0.00
49.50	0.00	0	162.00	0.00	0.00	0.00
51.00	0.00	0	162.00	0.00	0.00	0.00
52.50	0.00	0	162.00	0.00	0.00	0.00
54.00	0.00	0	162.00	0.00	0.00	0.00
55.50	0.00	0	162.00	0.00	0.00	0.00
57.00	0.00	0	162.00	0.00	0.00	0.00
58.50	0.00	0	162.00	0.00	0.00	0.00
60.00	0.00	0	162.00	0.00	0.00	0.00
61.50	0.00	0	162.00	0.00	0.00	0.00
63.00	0.00	0	162.00	0.00	0.00	0.00
64.50	0.00	0	162.00	0.00	0.00	0.00
66.00	0.00	0	162.00	0.00	0.00	0.00
67.50	0.00	0	162.00	0.00	0.00	0.00
69.00	0.00	0	162.00	0.00	0.00	0.00
70.50	0.00	0	162.00	0.00	0.00	0.00
72.00	0.00	0	162.00	0.00	0.00	0.00

Summary for Pond 22P: INFIL #3

Inflow Area = 3,681 sf 100.00% Impervious, Inflow Depth = 2.97" for 2 YR event
Inflow = 0.26 cfs @ 12.08 hrs, Volume= 910 cf
Outflow = 0.01 cfs @ 17.34 hrs, Volume= 910 cf, Atten= 98%, Lag= 315.3 min
Discarded = 0.01 cfs @ 17.34 hrs, Volume= 910 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 172.38' @ 17.34 hrs Surf.Area= 704 sf Storage= 613 cf

Plug-Flow detention time= 1.064.8 min calculated for 910 cf (100% of inflow)
Center-of-Mass det. time= 1.065.2 min (1.821.6 - 756.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	171.00'	515 cf	21.00'W x 33.50'L x 2.54'H Field A 1,788 cf Overall - 501 cf Embedded = 1,287 cf x 40.0% Voids
#2A	171.50'	501 cf	Cultec R-150XLHD x 18 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 6 rows
#3	171.00'	2 cf	0.83'D x 4.00'H Vertical Cone/Cylinder 1,018 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	174.50'	10.0' Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Discarded	171.00'	0.270 m/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.01 cfs @ 17.34 hrs HW=172.38' (Free Discharge)
←2-Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=171.00' (Free Discharge)
←1-Orifice/Grate (Controls 0.00 cfs)

Hydrograph for Pond 22P: INFIL #3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	171.00	0.00	0.00	0.00
1.50	0.00	0	171.00	0.00	0.00	0.00
3.00	0.00	2	171.01	0.00	0.00	0.00
4.50	0.00	4	171.02	0.00	0.00	0.00
6.00	0.00	7	171.02	0.00	0.00	0.00
7.50	0.01	11	171.04	0.00	0.00	0.00
9.00	0.01	23	171.08	0.00	0.00	0.00
10.50	0.02	61	171.22	0.00	0.00	0.00
12.00	0.17	238	171.67	0.00	0.00	0.00
13.50	0.02	553	172.27	0.01	0.01	0.00
15.00	0.01	596	172.35	0.01	0.01	0.00
16.50	0.01	611	172.38	0.01	0.01	0.00
18.00	0.00	612	172.38	0.01	0.01	0.00
19.50	0.00	605	172.37	0.01	0.01	0.00
21.00	0.00	595	172.35	0.01	0.01	0.00
22.50	0.00	583	172.32	0.01	0.01	0.00
24.00	0.00	568	172.29	0.01	0.01	0.00
25.50	0.00	540	172.24	0.01	0.01	0.00
27.00	0.00	512	172.18	0.01	0.01	0.00
28.50	0.00	484	172.13	0.01	0.01	0.00
30.00	0.00	456	172.08	0.01	0.01	0.00
31.50	0.00	428	172.03	0.01	0.01	0.00
33.00	0.00	401	171.97	0.01	0.01	0.00
34.50	0.00	373	171.92	0.01	0.01	0.00
36.00	0.00	346	171.87	0.01	0.01	0.00
37.50	0.00	319	171.82	0.00	0.00	0.00
39.00	0.00	292	171.77	0.00	0.00	0.00
40.50	0.00	266	171.73	0.00	0.00	0.00
42.00	0.00	239	171.68	0.00	0.00	0.00
43.50	0.00	213	171.63	0.00	0.00	0.00
45.00	0.00	187	171.58	0.00	0.00	0.00
46.50	0.00	161	171.54	0.00	0.00	0.00
48.00	0.00	136	171.48	0.00	0.00	0.00
49.50	0.00	110	171.39	0.00	0.00	0.00
51.00	0.00	85	171.30	0.00	0.00	0.00
52.50	0.00	60	171.21	0.00	0.00	0.00
54.00	0.00	36	171.13	0.00	0.00	0.00
55.50	0.00	12	171.04	0.00	0.00	0.00
57.00	0.00	1	171.01	0.00	0.00	0.00
58.50	0.00	0	171.00	0.00	0.00	0.00
60.00	0.00	0	171.00	0.00	0.00	0.00
61.50	0.00	0	171.00	0.00	0.00	0.00
63.00	0.00	0	171.00	0.00	0.00	0.00
64.50	0.00	0	171.00	0.00	0.00	0.00
66.00	0.00	0	171.00	0.00	0.00	0.00
67.50	0.00	0	171.00	0.00	0.00	0.00
69.00	0.00	0	171.00	0.00	0.00	0.00
70.50	0.00	0	171.00	0.00	0.00	0.00
72.00	0.00	0	171.00	0.00	0.00	0.00

Summary for Pond 23P: INFIL #4

Inflow Area = 9,006 sf 100.00% Impervious, Inflow Depth = 2.97" for 2 YR event
 Inflow = 0.64 cfs @ 12.08 hrs, Volume= 2,227 cf
 Outflow = 0.27 cfs @ 12.28 hrs, Volume= 2,229 cf, Atten= 58%, Lag= 11.6 min
 Discarded = 0.27 cfs @ 12.28 hrs, Volume= 2,229 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 164.49' @ 12.28 hrs Surf. Area= 1,253 sf Storage= 245 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 4.4 min (760.8 - 756.4)

Volume	Invert	Avail. Storage	Storage Description
#1A 164.00'		945 cf	8.00'W x 156.50'L x 2.54'H Field A
			3,182 cf Overall - 819 cf Embedded = 2,364 cf x 40.0% Voids
#2A 164.50'		819 cf	Cultec R-150XLHD x 30 Inside #1
			Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf
			Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap
			Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
#3 164.00'		2 cf	0.83'D x 4.00'H Vertical Cone/Cylinder
		1,766 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 Primary	167.80'	10.0" Horiz. Orifice/Grate	C= 0.600 Limited to weir flow at low heads
#2 Discarded	164.00'	8.270 in/hr Exfiltration over	Wetted area

Discarded OutFlow Max=0.27 cfs @ 12.28 hrs HW=164.49' (Free Discharge)
 ↳2=Exfiltration (Exfiltration Controls 0.27 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=164.00' (Free Discharge)
 ↳1=Orifice/Grate (Controls 0.00 cfs)

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Type III 24-hr 2 YR Rainfall=3.20"

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Summary for Link 1L: PROPOSED EAST

Inflow Area = 98,111 sf, 29.72% Impervious, Inflow Depth = 0.02" for 2 YR event
 Inflow = 0.01 cfs @ 14.66 hrs, Volume= 138 cf
 Primary = 0.01 cfs @ 14.66 hrs, Volume= 138 cf, Atten= 0%, Lag= 0.0 min
 Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

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Type III 24-hr 2 YR Rainfall=3.20"

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Hydrograph for Link 1L: PROPOSED EAST

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	31.80	0.00	0.00	0.00	63.60	0.00	0.00	0.00
0.60	0.00	0.00	0.00	32.40	0.00	0.00	0.00	64.20	0.00	0.00	0.00
1.20	0.00	0.00	0.00	33.00	0.00	0.00	0.00	64.80	0.00	0.00	0.00
1.80	0.00	0.00	0.00	33.60	0.00	0.00	0.00	65.40	0.00	0.00	0.00
2.40	0.00	0.00	0.00	34.20	0.00	0.00	0.00	66.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	34.80	0.00	0.00	0.00	66.60	0.00	0.00	0.00
3.60	0.00	0.00	0.00	35.40	0.00	0.00	0.00	67.20	0.00	0.00	0.00
4.20	0.00	0.00	0.00	36.00	0.00	0.00	0.00	67.80	0.00	0.00	0.00
4.80	0.00	0.00	0.00	36.60	0.00	0.00	0.00	68.40	0.00	0.00	0.00
5.40	0.00	0.00	0.00	37.20	0.00	0.00	0.00	69.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	37.80	0.00	0.00	0.00	69.60	0.00	0.00	0.00
6.60	0.00	0.00	0.00	38.40	0.00	0.00	0.00	70.20	0.00	0.00	0.00
7.20	0.00	0.00	0.00	39.00	0.00	0.00	0.00	70.80	0.00	0.00	0.00
7.80	0.00	0.00	0.00	39.60	0.00	0.00	0.00	71.40	0.00	0.00	0.00
8.40	0.00	0.00	0.00	40.20	0.00	0.00	0.00	72.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	40.80	0.00	0.00	0.00				
9.60	0.00	0.00	0.00	41.40	0.00	0.00	0.00				
10.20	0.00	0.00	0.00	42.00	0.00	0.00	0.00				
10.80	0.00	0.00	0.00	42.60	0.00	0.00	0.00				
11.40	0.00	0.00	0.00	43.20	0.00	0.00	0.00				
12.00	0.00	0.00	0.00	43.80	0.00	0.00	0.00				
12.60	0.00	0.00	0.00	44.40	0.00	0.00	0.00				
13.20	0.00	0.00	0.00	45.00	0.00	0.00	0.00				
13.80	0.01	0.00	0.00	45.60	0.00	0.00	0.00				
14.40	0.01	0.00	0.01	46.20	0.00	0.00	0.00				
15.00	0.01	0.00	0.01	46.80	0.00	0.00	0.00				
15.60	0.00	0.00	0.00	47.40	0.00	0.00	0.00				
16.20	0.00	0.00	0.00	48.00	0.00	0.00	0.00				
16.80	0.00	0.00	0.00	48.60	0.00	0.00	0.00				
17.40	0.00	0.00	0.00	49.20	0.00	0.00	0.00				
18.00	0.00	0.00	0.00	49.80	0.00	0.00	0.00				
18.60	0.00	0.00	0.00	50.40	0.00	0.00	0.00				
19.20	0.00	0.00	0.00	51.00	0.00	0.00	0.00				
19.80	0.00	0.00	0.00	51.60	0.00	0.00	0.00				
20.40	0.00	0.00	0.00	52.20	0.00	0.00	0.00				
21.00	0.00	0.00	0.00	52.80	0.00	0.00	0.00				
21.60	0.00	0.00	0.00	53.40	0.00	0.00	0.00				
22.20	0.00	0.00	0.00	54.00	0.00	0.00	0.00				
22.80	0.00	0.00	0.00	54.60	0.00	0.00	0.00				
23.40	0.00	0.00	0.00	55.20	0.00	0.00	0.00				
24.00	0.00	0.00	0.00	55.80	0.00	0.00	0.00				
24.60	0.00	0.00	0.00	56.40	0.00	0.00	0.00				
25.20	0.00	0.00	0.00	57.00	0.00	0.00	0.00				
25.80	0.00	0.00	0.00	57.60	0.00	0.00	0.00				
26.40	0.00	0.00	0.00	58.20	0.00	0.00	0.00				
27.00	0.00	0.00	0.00	58.80	0.00	0.00	0.00				
27.60	0.00	0.00	0.00	59.40	0.00	0.00	0.00				
28.20	0.00	0.00	0.00	60.00	0.00	0.00	0.00				
28.80	0.00	0.00	0.00	60.60	0.00	0.00	0.00				
29.40	0.00	0.00	0.00	61.20	0.00	0.00	0.00				
30.00	0.00	0.00	0.00	61.80	0.00	0.00	0.00				
30.60	0.00	0.00	0.00	62.40	0.00	0.00	0.00				
31.20	0.00	0.00	0.00	63.00	0.00	0.00	0.00				

Summary for Link 2L: PROPOSED NORTHWEST

Inflow Area = 54,449 sf, 23.30% Impervious, Inflow Depth = 0.43" for 2 YR event
Inflow = 0.45 cfs @ 12.13 hrs, Volume= 1,946 cf
Primary = 0.45 cfs @ 12.13 hrs, Volume= 1,946 cf, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Hydrograph for Link 2L: PROPOSED NORTHWEST

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	31.80	0.00	0.00	0.00	63.60	0.00	0.00	0.00
0.60	0.00	0.00	0.00	32.40	0.00	0.00	0.00	64.20	0.00	0.00	0.00
1.20	0.00	0.00	0.00	33.00	0.00	0.00	0.00	64.80	0.00	0.00	0.00
1.80	0.00	0.00	0.00	33.60	0.00	0.00	0.00	65.40	0.00	0.00	0.00
2.40	0.00	0.00	0.00	34.20	0.00	0.00	0.00	66.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	34.80	0.00	0.00	0.00	66.60	0.00	0.00	0.00
3.60	0.00	0.00	0.00	35.40	0.00	0.00	0.00	67.20	0.00	0.00	0.00
4.20	0.00	0.00	0.00	36.00	0.00	0.00	0.00	67.80	0.00	0.00	0.00
4.80	0.00	0.00	0.00	36.60	0.00	0.00	0.00	68.40	0.00	0.00	0.00
5.40	0.00	0.00	0.00	37.20	0.00	0.00	0.00	69.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	37.80	0.00	0.00	0.00	69.60	0.00	0.00	0.00
6.60	0.00	0.00	0.00	38.40	0.00	0.00	0.00	70.20	0.00	0.00	0.00
7.20	0.00	0.00	0.00	39.00	0.00	0.00	0.00	70.80	0.00	0.00	0.00
7.80	0.00	0.00	0.00	39.60	0.00	0.00	0.00	71.40	0.00	0.00	0.00
8.40	0.00	0.00	0.00	40.20	0.00	0.00	0.00	72.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	40.80	0.00	0.00	0.00				
9.60	0.00	0.00	0.00	41.40	0.00	0.00	0.00				
10.20	0.00	0.00	0.00	42.00	0.00	0.00	0.00				
10.80	0.00	0.00	0.00	42.60	0.00	0.00	0.00				
11.40	0.00	0.00	0.00	43.20	0.00	0.00	0.00				
12.00	0.13	0.00	0.13	43.80	0.00	0.00	0.00				
12.60	0.13	0.00	0.13	44.40	0.00	0.00	0.00				
13.20	0.07	0.00	0.07	45.00	0.00	0.00	0.00				
13.80	0.06	0.00	0.06	45.60	0.00	0.00	0.00				
14.40	0.05	0.00	0.05	46.20	0.00	0.00	0.00				
15.00	0.05	0.00	0.05	46.80	0.00	0.00	0.00				
15.60	0.04	0.00	0.04	47.40	0.00	0.00	0.00				
16.20	0.03	0.00	0.03	48.00	0.00	0.00	0.00				
16.80	0.03	0.00	0.03	48.60	0.00	0.00	0.00				
17.40	0.03	0.00	0.03	49.20	0.00	0.00	0.00				
18.00	0.02	0.00	0.02	49.80	0.00	0.00	0.00				
18.60	0.02	0.00	0.02	50.40	0.00	0.00	0.00				
19.20	0.02	0.00	0.02	51.00	0.00	0.00	0.00				
19.80	0.02	0.00	0.02	51.60	0.00	0.00	0.00				
20.40	0.02	0.00	0.02	52.20	0.00	0.00	0.00				
21.00	0.02	0.00	0.02	52.80	0.00	0.00	0.00				
21.60	0.02	0.00	0.02	53.40	0.00	0.00	0.00				
22.20	0.02	0.00	0.02	54.00	0.00	0.00	0.00				
22.80	0.01	0.00	0.01	54.60	0.00	0.00	0.00				
23.40	0.01	0.00	0.01	55.20	0.00	0.00	0.00				
24.00	0.01	0.00	0.01	55.80	0.00	0.00	0.00				
24.60	0.00	0.00	0.00	56.40	0.00	0.00	0.00				
25.20	0.00	0.00	0.00	57.00	0.00	0.00	0.00				
25.80	0.00	0.00	0.00	57.60	0.00	0.00	0.00				
26.40	0.00	0.00	0.00	58.20	0.00	0.00	0.00				
27.00	0.00	0.00	0.00	58.80	0.00	0.00	0.00				
27.60	0.00	0.00	0.00	59.40	0.00	0.00	0.00				
28.20	0.00	0.00	0.00	60.00	0.00	0.00	0.00				
28.80	0.00	0.00	0.00	60.60	0.00	0.00	0.00				
29.40	0.00	0.00	0.00	61.20	0.00	0.00	0.00				
30.00	0.00	0.00	0.00	61.80	0.00	0.00	0.00				
30.60	0.00	0.00	0.00	62.40	0.00	0.00	0.00				
31.20	0.00	0.00	0.00	63.00	0.00	0.00	0.00				

Summary for Subcatchment 1S: EXISTING EAST

Runoff = 0.17 cfs @ 12.41 hrs, Volume= 1,854 cf, Depth= 0.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description
1,416	30	Woods, Good, HSG A
64,382	39	>75% Grass cover, Good, HSG A
878	70	Woods, Good, HSG C
6,266	74	>75% Grass cover, Good, HSG C
1,276	98	Roofs, HSG A
74,218	43	Weighted Average
72,942		98.28% Pervious Area
1,276		1.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	12	0.0700	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.9	25	0.0700	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
1.4	161	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kx= 7.0 fps
1.4	134	0.0520	1.60		Shallow Concentrated Flow, Short Grass Pasture Kx= 7.0 fps
8.1	332	Total			

Hydrograph for Subcatchment 1S: EXISTING EAST

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	4.80	0.30	0.00
0.60	0.03	0.00	0.00	32.40	4.80	0.30	0.00
1.20	0.06	0.00	0.00	33.00	4.80	0.30	0.00
1.80	0.09	0.00	0.00	33.60	4.80	0.30	0.00
2.40	0.12	0.00	0.00	34.20	4.80	0.30	0.00
3.00	0.15	0.00	0.00	34.80	4.80	0.30	0.00
3.60	0.18	0.00	0.00	35.40	4.80	0.30	0.00
4.20	0.22	0.00	0.00	36.00	4.80	0.30	0.00
4.80	0.26	0.00	0.00	36.60	4.80	0.30	0.00
5.40	0.30	0.00	0.00	37.20	4.80	0.30	0.00
6.00	0.35	0.00	0.00	37.80	4.80	0.30	0.00
6.60	0.40	0.00	0.00	38.40	4.80	0.30	0.00
7.20	0.46	0.00	0.00	39.00	4.80	0.30	0.00
7.80	0.52	0.00	0.00	39.60	4.80	0.30	0.00
8.40	0.60	0.00	0.00	40.20	4.80	0.30	0.00
9.00	0.70	0.00	0.00	40.80	4.80	0.30	0.00
9.60	0.82	0.00	0.00	41.40	4.80	0.30	0.00
10.20	0.96	0.00	0.00	42.00	4.80	0.30	0.00
10.80	1.13	0.00	0.00	42.60	4.80	0.30	0.00
11.40	1.38	0.00	0.00	43.20	4.80	0.30	0.00
12.00	2.40	0.00	0.00	43.80	4.80	0.30	0.00
12.60	3.42	0.04	0.12	44.40	4.80	0.30	0.00
13.20	3.67	0.07	0.08	45.00	4.80	0.30	0.00
13.80	3.84	0.10	0.07	45.60	4.80	0.30	0.00
14.40	3.98	0.12	0.06	46.20	4.80	0.30	0.00
15.00	4.10	0.14	0.06	46.80	4.80	0.30	0.00
15.60	4.20	0.16	0.05	47.40	4.80	0.30	0.00
16.20	4.28	0.18	0.04	48.00	4.80	0.30	0.00
16.80	4.34	0.19	0.04	48.60	4.80	0.30	0.00
17.40	4.40	0.20	0.04	49.20	4.80	0.30	0.00
18.00	4.45	0.22	0.03	49.80	4.80	0.30	0.00
18.60	4.50	0.23	0.03	50.40	4.80	0.30	0.00
19.20	4.54	0.24	0.03	51.00	4.80	0.30	0.00
19.80	4.58	0.25	0.03	51.60	4.80	0.30	0.00
20.40	4.62	0.25	0.03	52.20	4.80	0.30	0.00
21.00	4.65	0.26	0.02	52.80	4.80	0.30	0.00
21.60	4.69	0.27	0.02	53.40	4.80	0.30	0.00
22.20	4.72	0.28	0.02	54.00	4.80	0.30	0.00
22.80	4.75	0.29	0.02	54.60	4.80	0.30	0.00
23.40	4.77	0.29	0.02	55.20	4.80	0.30	0.00
24.00	4.80	0.30	0.02	55.80	4.80	0.30	0.00
24.60	4.80	0.30	0.00	56.40	4.80	0.30	0.00
25.20	4.80	0.30	0.00	57.00	4.80	0.30	0.00
25.80	4.80	0.30	0.00	57.60	4.80	0.30	0.00
26.40	4.80	0.30	0.00	58.20	4.80	0.30	0.00
27.00	4.80	0.30	0.00	58.80	4.80	0.30	0.00
27.60	4.80	0.30	0.00	59.40	4.80	0.30	0.00
28.20	4.80	0.30	0.00	60.00	4.80	0.30	0.00
28.80	4.80	0.30	0.00	60.60	4.80	0.30	0.00
29.40	4.80	0.30	0.00	61.20	4.80	0.30	0.00
30.00	4.80	0.30	0.00	61.80	4.80	0.30	0.00
30.60	4.80	0.30	0.00	62.40	4.80	0.30	0.00
31.20	4.80	0.30	0.00	63.00	4.80	0.30	0.00

Summary for Subcatchment 2S: EXISTING NORTHWEST

Runoff = 3.05 cfs @ 12.13 hrs, Volume= 10,870 cf, Depth= 1.67"
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description
1,708	30	Woods, Good, HSG A
19,125	39	>75% Grass cover, Good, HSG A
2,537	70	Woods, Good, HSG C
24,853	74	>75% Grass cover, Good, HSG C
9,394	77	Woods, Good, HSG D
17,789	80	>75% Grass cover, Good, HSG D
2,934	98	Roofs, HSG A
78,340	67	Weighted Average
75,406		96.25% Pervious Area
2,934		3.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	13	0.0700	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.9	25	0.0700	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
1.2	148	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kx= 7.0 fps
2.1	163	0.0350	1.31		Shallow Concentrated Flow, Short Grass Pasture Kx= 7.0 fps
8.7	349	Total			

Hydrograph for Subcatchment 2S: EXISTING NORTHWEST

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	4.80	1.67	0.00
0.60	0.03	0.00	0.00	32.40	4.80	1.67	0.00
1.20	0.06	0.00	0.00	33.00	4.80	1.67	0.00
1.80	0.09	0.00	0.00	33.60	4.80	1.67	0.00
2.40	0.12	0.00	0.00	34.20	4.80	1.67	0.00
3.00	0.15	0.00	0.00	34.80	4.80	1.67	0.00
3.60	0.18	0.00	0.00	35.40	4.80	1.67	0.00
4.20	0.22	0.00	0.00	36.00	4.80	1.67	0.00
4.80	0.26	0.00	0.00	36.60	4.80	1.67	0.00
5.40	0.30	0.00	0.00	37.20	4.80	1.67	0.00
6.00	0.35	0.00	0.00	37.80	4.80	1.67	0.00
6.60	0.40	0.00	0.00	38.40	4.80	1.67	0.00
7.20	0.46	0.00	0.00	39.00	4.80	1.67	0.00
7.80	0.52	0.00	0.00	39.60	4.80	1.67	0.00
8.40	0.60	0.00	0.00	40.20	4.80	1.67	0.00
9.00	0.70	0.00	0.00	40.80	4.80	1.67	0.00
9.60	0.82	0.00	0.00	41.40	4.80	1.67	0.00
10.20	0.96	0.00	0.00	42.00	4.80	1.67	0.00
10.80	1.13	0.00	0.02	42.60	4.80	1.67	0.00
11.40	1.38	0.03	0.10	43.20	4.80	1.67	0.00
12.00	2.40	0.32	1.32	43.80	4.80	1.67	0.00
12.60	3.42	0.81	0.73	44.40	4.80	1.67	0.00
13.20	3.67	0.95	0.36	45.00	4.80	1.67	0.00
13.80	3.84	1.05	0.30	45.60	4.80	1.67	0.00
14.40	3.98	1.13	0.24	46.20	4.80	1.67	0.00
15.00	4.10	1.21	0.21	46.80	4.80	1.67	0.00
15.60	4.20	1.27	0.18	47.40	4.80	1.67	0.00
16.20	4.28	1.32	0.14	48.00	4.80	1.67	0.00
16.80	4.34	1.36	0.13	48.60	4.80	1.67	0.00
17.40	4.40	1.40	0.11	49.20	4.80	1.67	0.00
18.00	4.45	1.43	0.10	49.80	4.80	1.67	0.00
18.60	4.50	1.46	0.09	50.40	4.80	1.67	0.00
19.20	4.54	1.49	0.08	51.00	4.80	1.67	0.00
19.80	4.58	1.52	0.08	51.60	4.80	1.67	0.00
20.40	4.62	1.54	0.07	52.20	4.80	1.67	0.00
21.00	4.65	1.57	0.07	52.80	4.80	1.67	0.00
21.60	4.69	1.59	0.07	53.40	4.80	1.67	0.00
22.20	4.72	1.61	0.06	54.00	4.80	1.67	0.00
22.80	4.75	1.63	0.06	54.60	4.80	1.67	0.00
23.40	4.77	1.65	0.06	55.20	4.80	1.67	0.00
24.00	4.80	1.67	0.05	55.80	4.80	1.67	0.00
24.60	4.80	1.67	0.00	56.40	4.80	1.67	0.00
25.20	4.80	1.67	0.00	57.00	4.80	1.67	0.00
25.80	4.80	1.67	0.00	57.60	4.80	1.67	0.00
26.40	4.80	1.67	0.00	58.20	4.80	1.67	0.00
27.00	4.80	1.67	0.00	58.80	4.80	1.67	0.00
27.60	4.80	1.67	0.00	59.40	4.80	1.67	0.00
28.20	4.80	1.67	0.00	60.00	4.80	1.67	0.00
28.80	4.80	1.67	0.00	60.60	4.80	1.67	0.00
29.40	4.80	1.67	0.00	61.20	4.80	1.67	0.00
30.00	4.80	1.67	0.00	61.80	4.80	1.67	0.00
30.60	4.80	1.67	0.00	62.40	4.80	1.67	0.00
31.20	4.80	1.67	0.00	63.00	4.80	1.67	0.00

Summary for Subcatchment 10S: SITE

Runoff = 0.10 cfs @ 12.36 hrs, Volume= 784 cf, Depth= 0.51"
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description
433	30	Woods, Good, HSG A
1,184	70	Woods, Good, HSG C
13,395	39	>75% Grass cover, Good, HSG A
2,637	74	>75% Grass cover, Good, HSG C
629	98	Paved parking, HSG A
18,278	48	Weighted Average
17,649		96.56% Pervious Area
629		3.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	50	0.0100	0.08		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
2.0	228	0.0750	1.92		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
12.8	278	Total			

Hydrograph for Subcatchment 10S: SITE

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	4.80	0.51	0.00
0.60	0.03	0.00	0.00	32.40	4.80	0.51	0.00
1.20	0.06	0.00	0.00	33.00	4.80	0.51	0.00
1.80	0.09	0.00	0.00	33.60	4.80	0.51	0.00
2.40	0.12	0.00	0.00	34.20	4.80	0.51	0.00
3.00	0.15	0.00	0.00	34.80	4.80	0.51	0.00
3.60	0.18	0.00	0.00	35.40	4.80	0.51	0.00
4.20	0.22	0.00	0.00	36.00	4.80	0.51	0.00
4.80	0.26	0.00	0.00	36.60	4.80	0.51	0.00
5.40	0.30	0.00	0.00	37.20	4.80	0.51	0.00
6.00	0.35	0.00	0.00	37.80	4.80	0.51	0.00
6.60	0.40	0.00	0.00	38.40	4.80	0.51	0.00
7.20	0.46	0.00	0.00	39.00	4.80	0.51	0.00
7.80	0.52	0.00	0.00	39.60	4.80	0.51	0.00
8.40	0.60	0.00	0.00	40.20	4.80	0.51	0.00
9.00	0.70	0.00	0.00	40.80	4.80	0.51	0.00
9.60	0.82	0.00	0.00	41.40	4.80	0.51	0.00
10.20	0.96	0.00	0.00	42.00	4.80	0.51	0.00
10.80	1.13	0.00	0.00	42.60	4.80	0.51	0.00
11.40	1.38	0.00	0.00	43.20	4.80	0.51	0.00
12.00	2.40	0.00	0.00	43.80	4.80	0.51	0.00
12.60	3.42	0.13	0.07	44.40	4.80	0.51	0.00
13.20	3.67	0.18	0.03	45.00	4.80	0.51	0.00
13.80	3.84	0.22	0.03	45.60	4.80	0.51	0.00
14.40	3.98	0.26	0.02	46.20	4.80	0.51	0.00
15.00	4.10	0.29	0.02	46.80	4.80	0.51	0.00
15.60	4.20	0.32	0.02	47.40	4.80	0.51	0.00
16.20	4.28	0.34	0.02	48.00	4.80	0.51	0.00
16.80	4.34	0.36	0.01	48.60	4.80	0.51	0.00
17.40	4.40	0.38	0.01	49.20	4.80	0.51	0.00
18.00	4.45	0.40	0.01	49.80	4.80	0.51	0.00
18.60	4.50	0.41	0.01	50.40	4.80	0.51	0.00
19.20	4.54	0.43	0.01	51.00	4.80	0.51	0.00
19.80	4.58	0.44	0.01	51.60	4.80	0.51	0.00
20.40	4.62	0.45	0.01	52.20	4.80	0.51	0.00
21.00	4.65	0.46	0.01	52.80	4.80	0.51	0.00
21.60	4.69	0.48	0.01	53.40	4.80	0.51	0.00
22.20	4.72	0.49	0.01	54.00	4.80	0.51	0.00
22.80	4.75	0.50	0.01	54.60	4.80	0.51	0.00
23.40	4.77	0.51	0.01	55.20	4.80	0.51	0.00
24.00	4.80	0.51	0.01	55.80	4.80	0.51	0.00
24.60	4.80	0.51	0.00	56.40	4.80	0.51	0.00
25.20	4.80	0.51	0.00	57.00	4.80	0.51	0.00
25.80	4.80	0.51	0.00	57.60	4.80	0.51	0.00
26.40	4.80	0.51	0.00	58.20	4.80	0.51	0.00
27.00	4.80	0.51	0.00	58.80	4.80	0.51	0.00
27.60	4.80	0.51	0.00	59.40	4.80	0.51	0.00
28.20	4.80	0.51	0.00	60.00	4.80	0.51	0.00
28.80	4.80	0.51	0.00	60.60	4.80	0.51	0.00
29.40	4.80	0.51	0.00	61.20	4.80	0.51	0.00
30.00	4.80	0.51	0.00	61.80	4.80	0.51	0.00
30.60	4.80	0.51	0.00	62.40	4.80	0.51	0.00
31.20	4.80	0.51	0.00	63.00	4.80	0.51	0.00

Summary for Subcatchment 11S: SITE

Runoff = 0.65 cfs @ 12.13 hrs, Volume= 2,340 cf, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description			
4,738	98	Paved parking, HSG A			
1,581	98	Paved parking, HSG C			
7,866	39	>75% Grass cover, Good, HSG A			
2,681	74	>75% Grass cover, Good, HSG C			
16,866	67	Weighted Average			
10,547		62.53% Pervious Area			
6,319		37.47% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	50	0.0200	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20" Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	17	0.0300	1.21		
0.5	140	0.0550	4.76		
8.9	207	Total			

Hydrograph for Subcatchment 11S: SITE

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	4.80	1.67	0.00
0.60	0.03	0.00	0.00	32.40	4.80	1.67	0.00
1.20	0.06	0.00	0.00	33.00	4.80	1.67	0.00
1.80	0.09	0.00	0.00	33.60	4.80	1.67	0.00
2.40	0.12	0.00	0.00	34.20	4.80	1.67	0.00
3.00	0.15	0.00	0.00	34.80	4.80	1.67	0.00
3.60	0.18	0.00	0.00	35.40	4.80	1.67	0.00
4.20	0.22	0.00	0.00	36.00	4.80	1.67	0.00
4.80	0.26	0.00	0.00	36.60	4.80	1.67	0.00
5.40	0.30	0.00	0.00	37.20	4.80	1.67	0.00
6.00	0.35	0.00	0.00	37.80	4.80	1.67	0.00
6.60	0.40	0.00	0.00	38.40	4.80	1.67	0.00
7.20	0.46	0.00	0.00	39.00	4.80	1.67	0.00
7.80	0.52	0.00	0.00	39.60	4.80	1.67	0.00
8.40	0.60	0.00	0.00	40.20	4.80	1.67	0.00
9.00	0.70	0.00	0.00	40.80	4.80	1.67	0.00
9.60	0.82	0.00	0.00	41.40	4.80	1.67	0.00
10.20	0.96	0.00	0.00	42.00	4.80	1.67	0.00
10.80	1.13	0.00	0.00	42.60	4.80	1.67	0.00
11.40	1.38	0.03	0.02	43.20	4.80	1.67	0.00
12.00	2.40	0.32	0.28	43.80	4.80	1.67	0.00
12.60	3.42	0.81	0.16	44.40	4.80	1.67	0.00
13.20	3.67	0.95	0.08	45.00	4.80	1.67	0.00
13.80	3.84	1.05	0.06	45.60	4.80	1.67	0.00
14.40	3.98	1.13	0.05	46.20	4.80	1.67	0.00
15.00	4.10	1.21	0.05	46.80	4.80	1.67	0.00
15.60	4.20	1.27	0.04	47.40	4.80	1.67	0.00
16.20	4.28	1.32	0.03	48.00	4.80	1.67	0.00
16.80	4.34	1.36	0.03	48.60	4.80	1.67	0.00
17.40	4.40	1.40	0.02	49.20	4.80	1.67	0.00
18.00	4.45	1.43	0.02	49.80	4.80	1.67	0.00
18.60	4.50	1.46	0.02	50.40	4.80	1.67	0.00
19.20	4.54	1.49	0.02	51.00	4.80	1.67	0.00
19.80	4.58	1.52	0.02	51.60	4.80	1.67	0.00
20.40	4.62	1.54	0.02	52.20	4.80	1.67	0.00
21.00	4.65	1.57	0.02	52.80	4.80	1.67	0.00
21.60	4.69	1.59	0.01	53.40	4.80	1.67	0.00
22.20	4.72	1.61	0.01	54.00	4.80	1.67	0.00
22.80	4.75	1.63	0.01	54.60	4.80	1.67	0.00
23.40	4.77	1.65	0.01	55.20	4.80	1.67	0.00
24.00	4.80	1.67	0.01	55.80	4.80	1.67	0.00
24.60	4.80	1.67	0.00	56.40	4.80	1.67	0.00
25.20	4.80	1.67	0.00	57.00	4.80	1.67	0.00
25.80	4.80	1.67	0.00	57.60	4.80	1.67	0.00
26.40	4.80	1.67	0.00	58.20	4.80	1.67	0.00
27.00	4.80	1.67	0.00	58.80	4.80	1.67	0.00
27.60	4.80	1.67	0.00	59.40	4.80	1.67	0.00
28.20	4.80	1.67	0.00	60.00	4.80	1.67	0.00
28.80	4.80	1.67	0.00	60.60	4.80	1.67	0.00
29.40	4.80	1.67	0.00	61.20	4.80	1.67	0.00
30.00	4.80	1.67	0.00	61.80	4.80	1.67	0.00
30.60	4.80	1.67	0.00	62.40	4.80	1.67	0.00
31.20	4.80	1.67	0.00	63.00	4.80	1.67	0.00

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Summary for Subcatchment 12S: SITE

Runoff = 1.15 cfs @ 12.25 hrs, Volume= 5.165 cf, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description			
1,561	70	Woods, Good, HSG C			
12,374	39	>75% Grass cover, Good, HSG A			
6,069	74	>75% Grass cover, Good, HSG C			
6,906	98	Paved parking, HSG A			
5,895	98	Paved parking, HSG C			
32,805	70	Weighted Average			
20,004		60.98% Pervious Area			
12,801		39.02% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	50	0.0050	0.06		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
1.5	114	0.0320	1.25		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.7	355	0.0280	3.40		Shallow Concentrated Flow, Paved Kv= 20.3 fps
17.5	519	Total			

Hydrograph for Subcatchment 12S: SITE

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	4.80	1.89	0.00
0.60	0.03	0.00	0.00	32.40	4.80	1.89	0.00
1.20	0.06	0.00	0.00	33.00	4.80	1.89	0.00
1.80	0.09	0.00	0.00	33.60	4.80	1.89	0.00
2.40	0.12	0.00	0.00	34.20	4.80	1.89	0.00
3.00	0.15	0.00	0.00	34.80	4.80	1.89	0.00
3.60	0.18	0.00	0.00	35.40	4.80	1.89	0.00
4.20	0.22	0.00	0.00	36.00	4.80	1.89	0.00
4.80	0.26	0.00	0.00	36.60	4.80	1.89	0.00
5.40	0.30	0.00	0.00	37.20	4.80	1.89	0.00
6.00	0.35	0.00	0.00	37.80	4.80	1.89	0.00
6.60	0.40	0.00	0.00	38.40	4.80	1.89	0.00
7.20	0.46	0.00	0.00	39.00	4.80	1.89	0.00
7.80	0.52	0.00	0.00	39.60	4.80	1.89	0.00
8.40	0.60	0.00	0.00	40.20	4.80	1.89	0.00
9.00	0.70	0.00	0.00	40.80	4.80	1.89	0.00
9.60	0.82	0.00	0.00	41.40	4.80	1.89	0.00
10.20	0.96	0.00	0.00	42.00	4.80	1.89	0.00
10.80	1.13	0.02	0.02	42.60	4.80	1.89	0.00
11.40	1.38	0.06	0.05	43.20	4.80	1.89	0.00
12.00	2.40	0.41	0.38	43.80	4.80	1.89	0.00
12.60	3.42	0.96	0.57	44.40	4.80	1.89	0.00
13.20	3.67	1.11	0.18	45.00	4.80	1.89	0.00
13.80	3.84	1.23	0.14	45.60	4.80	1.89	0.00
14.40	3.98	1.32	0.11	46.20	4.80	1.89	0.00
15.00	4.10	1.40	0.10	46.80	4.80	1.89	0.00
15.60	4.20	1.46	0.08	47.40	4.80	1.89	0.00
16.20	4.28	1.52	0.07	48.00	4.80	1.89	0.00
16.80	4.34	1.56	0.06	48.60	4.80	1.89	0.00
17.40	4.40	1.61	0.05	49.20	4.80	1.89	0.00
18.00	4.45	1.64	0.04	49.80	4.80	1.89	0.00
18.60	4.50	1.67	0.04	50.40	4.80	1.89	0.00
19.20	4.54	1.70	0.04	51.00	4.80	1.89	0.00
19.80	4.58	1.73	0.04	51.60	4.80	1.89	0.00
20.40	4.62	1.76	0.03	52.20	4.80	1.89	0.00
21.00	4.65	1.78	0.03	52.80	4.80	1.89	0.00
21.60	4.69	1.81	0.03	53.40	4.80	1.89	0.00
22.20	4.72	1.83	0.03	54.00	4.80	1.89	0.00
22.80	4.75	1.85	0.03	54.60	4.80	1.89	0.00
23.40	4.77	1.87	0.03	55.20	4.80	1.89	0.00
24.00	4.80	1.89	0.02	55.80	4.80	1.89	0.00
24.60	4.80	1.89	0.00	56.40	4.80	1.89	0.00
25.20	4.80	1.89	0.00	57.00	4.80	1.89	0.00
25.80	4.80	1.89	0.00	57.60	4.80	1.89	0.00
26.40	4.80	1.89	0.00	58.20	4.80	1.89	0.00
27.00	4.80	1.89	0.00	58.80	4.80	1.89	0.00
27.60	4.80	1.89	0.00	59.40	4.80	1.89	0.00
28.20	4.80	1.89	0.00	60.00	4.80	1.89	0.00
28.80	4.80	1.89	0.00	60.60	4.80	1.89	0.00
29.40	4.80	1.89	0.00	61.20	4.80	1.89	0.00
30.00	4.80	1.89	0.00	61.80	4.80	1.89	0.00
30.60	4.80	1.89	0.00	62.40	4.80	1.89	0.00
31.20	4.80	1.89	0.00	63.00	4.80	1.89	0.00

Summary for Subcatchment 13S: SITE

Runoff = 0.01 cfs @ 13.80 hrs, Volume= 279 cf, Depth= 0.16"
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description
921	30	Woods, Good, HSG A
19,828	39	>75% Grass cover, Good, HSG A
27	98	Paved parking, HSG A
20,776	39	Weighted Average
20,749		99.87% Pervious Area
27		0.13% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description
13.0	50	0.0700 0.06 Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.20"
0.8	88	0.0700 1.85 Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
13.8	138	Total

Hydrograph for Subcatchment 13S: SITE

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	4.80	0.16	0.00
0.60	0.03	0.00	0.00	32.40	4.80	0.16	0.00
1.20	0.06	0.00	0.00	33.00	4.80	0.16	0.00
1.80	0.09	0.00	0.00	33.60	4.80	0.16	0.00
2.40	0.12	0.00	0.00	34.20	4.80	0.16	0.00
3.00	0.15	0.00	0.00	34.80	4.80	0.16	0.00
3.60	0.18	0.00	0.00	35.40	4.80	0.16	0.00
4.20	0.22	0.00	0.00	36.00	4.80	0.16	0.00
4.80	0.26	0.00	0.00	36.60	4.80	0.16	0.00
5.40	0.30	0.00	0.00	37.20	4.80	0.16	0.00
6.00	0.35	0.00	0.00	37.80	4.80	0.16	0.00
6.60	0.40	0.00	0.00	38.40	4.80	0.16	0.00
7.20	0.46	0.00	0.00	39.00	4.80	0.16	0.00
7.80	0.52	0.00	0.00	39.60	4.80	0.16	0.00
8.40	0.60	0.00	0.00	40.20	4.80	0.16	0.00
9.00	0.70	0.00	0.00	40.80	4.80	0.16	0.00
9.60	0.82	0.00	0.00	41.40	4.80	0.16	0.00
10.20	0.96	0.00	0.00	42.00	4.80	0.16	0.00
10.80	1.13	0.00	0.00	42.60	4.80	0.16	0.00
11.40	1.38	0.00	0.00	43.20	4.80	0.16	0.00
12.00	2.40	0.00	0.00	43.80	4.80	0.16	0.00
12.60	3.42	0.01	0.01	44.40	4.80	0.16	0.00
13.20	3.67	0.02	0.01	45.00	4.80	0.16	0.00
13.80	3.84	0.03	0.01	45.60	4.80	0.16	0.00
14.40	3.98	0.04	0.01	46.20	4.80	0.16	0.00
15.00	4.10	0.06	0.01	46.80	4.80	0.16	0.00
15.60	4.20	0.07	0.01	47.40	4.80	0.16	0.00
16.20	4.28	0.08	0.01	48.00	4.80	0.16	0.00
16.80	4.34	0.09	0.01	48.60	4.80	0.16	0.00
17.40	4.40	0.10	0.01	49.20	4.80	0.16	0.00
18.00	4.45	0.11	0.01	49.80	4.80	0.16	0.00
18.60	4.50	0.11	0.01	50.40	4.80	0.16	0.00
19.20	4.54	0.12	0.01	51.00	4.80	0.16	0.00
19.80	4.58	0.12	0.01	51.60	4.80	0.16	0.00
20.40	4.62	0.13	0.00	52.20	4.80	0.16	0.00
21.00	4.65	0.14	0.00	52.80	4.80	0.16	0.00
21.60	4.69	0.14	0.00	53.40	4.80	0.16	0.00
22.20	4.72	0.15	0.00	54.00	4.80	0.16	0.00
22.80	4.75	0.15	0.00	54.60	4.80	0.16	0.00
23.40	4.77	0.16	0.00	55.20	4.80	0.16	0.00
24.00	4.80	0.16	0.00	55.80	4.80	0.16	0.00
24.60	4.80	0.16	0.00	56.40	4.80	0.16	0.00
25.20	4.80	0.16	0.00	57.00	4.80	0.16	0.00
25.80	4.80	0.16	0.00	57.60	4.80	0.16	0.00
26.40	4.80	0.16	0.00	58.20	4.80	0.16	0.00
27.00	4.80	0.16	0.00	58.80	4.80	0.16	0.00
27.60	4.80	0.16	0.00	59.40	4.80	0.16	0.00
28.20	4.80	0.16	0.00	60.00	4.80	0.16	0.00
28.80	4.80	0.16	0.00	60.60	4.80	0.16	0.00
29.40	4.80	0.16	0.00	61.20	4.80	0.16	0.00
30.00	4.80	0.16	0.00	61.80	4.80	0.16	0.00
30.60	4.80	0.16	0.00	62.40	4.80	0.16	0.00
31.20	4.80	0.16	0.00	63.00	4.80	0.16	0.00

Type III 24-hr 10 YR Rainfall=4.80"

Type III 24-hr 10 YR Rainfall=4.80"

Summary for Subcatchment 14S: SITE

Hydrograph for Subcatchment 14S: SITE

Runoff = 1.46 cfs @ 12.11 hrs, Volume= 5.054 cf, Depth= 1.45"
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
13,490	39	>75% Grass cover, Good, HSG A	0.00	0.00	0.00	0.00	31.80	4.80	1.45	0.00
1,728	30	Woods, Good, HSG A	0.60	0.03	0.00	0.00	32.40	4.80	1.45	0.00
1,966	74	>75% Grass cover, Good, HSG C	1.20	0.06	0.00	0.00	33.00	4.80	1.45	0.00
670	70	Woods, Good, HSG C	1.80	0.09	0.00	0.00	33.60	4.80	1.45	0.00
14,514	80	>75% Grass cover, Good, HSG D	2.40	0.12	0.00	0.00	34.20	4.80	1.45	0.00
9,394	77	Woods, Good, HSG D	3.00	0.15	0.00	0.00	34.80	4.80	1.45	0.00
41,762	64	Weighted Average	3.60	0.18	0.00	0.00	35.40	4.80	1.45	0.00
41,762	100.00%	Pervious Area	4.20	0.22	0.00	0.00	36.00	4.80	1.45	0.00
			4.80	0.26	0.00	0.00	36.60	4.80	1.45	0.00
			5.40	0.30	0.00	0.00	37.20	4.80	1.45	0.00
			6.00	0.35	0.00	0.00	37.80	4.80	1.45	0.00
			6.60	0.40	0.00	0.00	38.40	4.80	1.45	0.00
			7.20	0.46	0.00	0.00	39.00	4.80	1.45	0.00
			7.80	0.52	0.00	0.00	39.60	4.80	1.45	0.00
			8.40	0.60	0.00	0.00	40.20	4.80	1.45	0.00
			9.00	0.70	0.00	0.00	40.80	4.80	1.45	0.00
			9.60	0.82	0.00	0.00	41.40	4.80	1.45	0.00
			10.20	0.96	0.00	0.00	42.00	4.80	1.45	0.00
			10.80	1.13	0.00	0.00	42.60	4.80	1.45	0.00
			11.40	1.38	0.01	0.03	43.20	4.80	1.45	0.00
			12.00	2.40	0.24	0.67	43.80	4.80	1.45	0.00
			12.60	3.42	0.67	0.31	44.40	4.80	1.45	0.00
			13.20	3.67	0.79	0.17	45.00	4.80	1.45	0.00
			13.80	3.84	0.89	0.14	45.60	4.80	1.45	0.00
			14.40	3.98	0.96	0.12	46.20	4.80	1.45	0.00
			15.00	4.10	1.03	0.10	46.80	4.80	1.45	0.00
			15.60	4.20	1.09	0.09	47.40	4.80	1.45	0.00
			16.20	4.28	1.13	0.07	48.00	4.80	1.45	0.00
			16.80	4.34	1.17	0.06	48.60	4.80	1.45	0.00
			17.40	4.40	1.21	0.05	49.20	4.80	1.45	0.00
			18.00	4.45	1.24	0.05	49.80	4.80	1.45	0.00
			18.60	4.50	1.27	0.04	50.40	4.80	1.45	0.00
			19.20	4.54	1.29	0.04	51.00	4.80	1.45	0.00
			19.80	4.58	1.32	0.04	51.60	4.80	1.45	0.00
			20.40	4.62	1.34	0.04	52.20	4.80	1.45	0.00
			21.00	4.65	1.36	0.03	52.80	4.80	1.45	0.00
			21.60	4.69	1.38	0.03	53.40	4.80	1.45	0.00
			22.20	4.72	1.40	0.03	54.00	4.80	1.45	0.00
			22.80	4.75	1.42	0.03	54.60	4.80	1.45	0.00
			23.40	4.77	1.44	0.03	55.20	4.80	1.45	0.00
			24.00	4.80	1.45	0.03	55.80	4.80	1.45	0.00
			24.60	4.80	1.45	0.00	56.40	4.80	1.45	0.00
			25.20	4.80	1.45	0.00	57.00	4.80	1.45	0.00
			25.80	4.80	1.45	0.00	57.60	4.80	1.45	0.00
			26.40	4.80	1.45	0.00	58.20	4.80	1.45	0.00
			27.00	4.80	1.45	0.00	58.80	4.80	1.45	0.00
			27.60	4.80	1.45	0.00	59.40	4.80	1.45	0.00
			28.20	4.80	1.45	0.00	60.00	4.80	1.45	0.00
			28.80	4.80	1.45	0.00	60.60	4.80	1.45	0.00
			29.40	4.80	1.45	0.00	61.20	4.80	1.45	0.00
			30.00	4.80	1.45	0.00	61.80	4.80	1.45	0.00
			30.60	4.80	1.45	0.00	62.40	4.80	1.45	0.00
			31.20	4.80	1.45	0.00	63.00	4.80	1.45	0.00

3438 40B DRAINAGE

Prepared by Engineering Design Consultants, Inc.

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Summary for Subcatchment 20S: UNITS 1.2,3.4

Runoff = 0.82 cfs @ 12.08 hrs, Volume= 2,912 cf, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description
3,975	98	Roofs, HSG A
3,681	98	Roofs, HSG C
7,656	98	Weighted Average
7,656		100.00% Impervious Area

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

Hydrograph for Subcatchment 20S: UNITS 1.2,3.4

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	4.80	4.56	0.00
0.60	0.03	0.00	0.00	32.40	4.80	4.56	0.00
1.20	0.06	0.00	0.00	33.00	4.80	4.56	0.00
1.80	0.09	0.01	0.00	33.60	4.80	4.56	0.00
2.40	0.12	0.02	0.00	34.20	4.80	4.56	0.00
3.00	0.15	0.04	0.01	34.80	4.80	4.56	0.00
3.60	0.18	0.06	0.01	35.40	4.80	4.56	0.00
4.20	0.22	0.08	0.01	36.00	4.80	4.56	0.00
4.80	0.26	0.11	0.01	36.60	4.80	4.56	0.00
5.40	0.30	0.15	0.01	37.20	4.80	4.56	0.00
6.00	0.35	0.18	0.01	37.80	4.80	4.56	0.00
6.60	0.40	0.23	0.01	38.40	4.80	4.56	0.00
7.20	0.46	0.28	0.02	39.00	4.80	4.56	0.00
7.80	0.52	0.34	0.02	39.60	4.80	4.56	0.00
8.40	0.60	0.41	0.02	40.20	4.80	4.56	0.00
9.00	0.70	0.50	0.03	40.80	4.80	4.56	0.00
9.60	0.82	0.62	0.04	41.40	4.80	4.56	0.00
10.20	0.96	0.75	0.04	42.00	4.80	4.56	0.00
10.80	1.13	0.92	0.05	42.60	4.80	4.56	0.00
11.40	1.38	1.16	0.08	43.20	4.80	4.56	0.00
12.00	2.40	2.17	0.52	43.80	4.80	4.56	0.00
12.60	3.42	3.19	0.11	44.40	4.80	4.56	0.00
13.20	3.67	3.43	0.06	45.00	4.80	4.56	0.00
13.80	3.84	3.61	0.05	45.60	4.80	4.56	0.00
14.40	3.98	3.75	0.04	46.20	4.80	4.56	0.00
15.00	4.10	3.87	0.03	46.80	4.80	4.56	0.00
15.60	4.20	3.96	0.03	47.40	4.80	4.56	0.00
16.20	4.28	4.04	0.02	48.00	4.80	4.56	0.00
16.80	4.34	4.11	0.02	48.60	4.80	4.56	0.00
17.40	4.40	4.17	0.02	49.20	4.80	4.56	0.00
18.00	4.45	4.22	0.01	49.80	4.80	4.56	0.00
18.60	4.50	4.26	0.01	50.40	4.80	4.56	0.00
19.20	4.54	4.31	0.01	51.00	4.80	4.56	0.00
19.80	4.58	4.34	0.01	51.60	4.80	4.56	0.00
20.40	4.62	4.38	0.01	52.20	4.80	4.56	0.00
21.00	4.65	4.42	0.01	52.80	4.80	4.56	0.00
21.60	4.69	4.45	0.01	53.40	4.80	4.56	0.00
22.20	4.72	4.48	0.01	54.00	4.80	4.56	0.00
22.80	4.75	4.51	0.01	54.60	4.80	4.56	0.00
23.40	4.77	4.54	0.01	55.20	4.80	4.56	0.00
24.00	4.80	4.56	0.01	55.80	4.80	4.56	0.00
24.60	4.80	4.56	0.00	56.40	4.80	4.56	0.00
25.20	4.80	4.56	0.00	57.00	4.80	4.56	0.00
25.80	4.80	4.56	0.00	57.60	4.80	4.56	0.00
26.40	4.80	4.56	0.00	58.20	4.80	4.56	0.00
27.00	4.80	4.56	0.00	58.80	4.80	4.56	0.00
27.60	4.80	4.56	0.00	59.40	4.80	4.56	0.00
28.20	4.80	4.56	0.00	60.00	4.80	4.56	0.00
28.80	4.80	4.56	0.00	60.60	4.80	4.56	0.00
29.40	4.80	4.56	0.00	61.20	4.80	4.56	0.00
30.00	4.80	4.56	0.00	61.80	4.80	4.56	0.00
30.60	4.80	4.56	0.00	62.40	4.80	4.56	0.00
31.20	4.80	4.56	0.00	63.00	4.80	4.56	0.00

Summary for Subcatchment 21S: UNIT 12

Runoff = 0.19 cfs @ 12.08 hrs, Volume= 658 cf, Depth= 4.56"
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description			
1,730	98	Roofs, HSG A			
1,730		100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Hydrograph for Subcatchment 21S: UNIT 12

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	4.80	4.56	0.00
0.60	0.03	0.00	0.00	32.40	4.80	4.56	0.00
1.20	0.06	0.00	0.00	33.00	4.80	4.56	0.00
1.80	0.09	0.01	0.00	33.60	4.80	4.56	0.00
2.40	0.12	0.02	0.00	34.20	4.80	4.56	0.00
3.00	0.15	0.04	0.00	34.80	4.80	4.56	0.00
3.60	0.18	0.06	0.00	35.40	4.80	4.56	0.00
4.20	0.22	0.08	0.00	36.00	4.80	4.56	0.00
4.80	0.26	0.11	0.00	36.60	4.80	4.56	0.00
5.40	0.30	0.15	0.00	37.20	4.80	4.56	0.00
6.00	0.35	0.18	0.00	37.80	4.80	4.56	0.00
6.60	0.40	0.23	0.00	38.40	4.80	4.56	0.00
7.20	0.46	0.28	0.00	39.00	4.80	4.56	0.00
7.80	0.52	0.34	0.00	39.60	4.80	4.56	0.00
8.40	0.60	0.41	0.01	40.20	4.80	4.56	0.00
9.00	0.70	0.50	0.01	40.80	4.80	4.56	0.00
9.60	0.82	0.62	0.01	41.40	4.80	4.56	0.00
10.20	0.96	0.75	0.01	42.00	4.80	4.56	0.00
10.80	1.13	0.92	0.01	42.60	4.80	4.56	0.00
11.40	1.38	1.16	0.02	43.20	4.80	4.56	0.00
12.00	2.40	2.17	0.12	43.80	4.80	4.56	0.00
12.60	3.42	3.19	0.02	44.40	4.80	4.56	0.00
13.20	3.67	3.43	0.01	45.00	4.80	4.56	0.00
13.80	3.84	3.61	0.01	45.60	4.80	4.56	0.00
14.40	3.98	3.75	0.01	46.20	4.80	4.56	0.00
15.00	4.10	3.87	0.01	46.80	4.80	4.56	0.00
15.60	4.20	3.96	0.01	47.40	4.80	4.56	0.00
16.20	4.28	4.04	0.00	48.00	4.80	4.56	0.00
16.80	4.34	4.11	0.00	48.60	4.80	4.56	0.00
17.40	4.40	4.17	0.00	49.20	4.80	4.56	0.00
18.00	4.45	4.22	0.00	49.80	4.80	4.56	0.00
18.60	4.50	4.26	0.00	50.40	4.80	4.56	0.00
19.20	4.54	4.31	0.00	51.00	4.80	4.56	0.00
19.80	4.58	4.34	0.00	51.60	4.80	4.56	0.00
20.40	4.62	4.38	0.00	52.20	4.80	4.56	0.00
21.00	4.65	4.42	0.00	52.80	4.80	4.56	0.00
21.60	4.69	4.45	0.00	53.40	4.80	4.56	0.00
22.20	4.72	4.48	0.00	54.00	4.80	4.56	0.00
22.80	4.75	4.51	0.00	54.60	4.80	4.56	0.00
23.40	4.77	4.54	0.00	55.20	4.80	4.56	0.00
24.00	4.80	4.56	0.00	55.80	4.80	4.56	0.00
24.60	4.80	4.56	0.00	56.40	4.80	4.56	0.00
25.20	4.80	4.56	0.00	57.00	4.80	4.56	0.00
25.80	4.80	4.56	0.00	57.60	4.80	4.56	0.00
26.40	4.80	4.56	0.00	58.20	4.80	4.56	0.00
27.00	4.80	4.56	0.00	58.80	4.80	4.56	0.00
27.60	4.80	4.56	0.00	59.40	4.80	4.56	0.00
28.20	4.80	4.56	0.00	60.00	4.80	4.56	0.00
28.80	4.80	4.56	0.00	60.60	4.80	4.56	0.00
29.40	4.80	4.56	0.00	61.20	4.80	4.56	0.00
30.00	4.80	4.56	0.00	61.80	4.80	4.56	0.00
30.60	4.80	4.56	0.00	62.40	4.80	4.56	0.00
31.20	4.80	4.56	0.00	63.00	4.80	4.56	0.00

Summary for Subcatchment 22S: UNITS 5.6

Runoff = 0.39 cfs @ 12.08 hrs, Volume= 1,400 cf, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description			
3,681	98	Roofs, HSG C			
3,681		100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Hydrograph for Subcatchment 22S: UNITS 5.6

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	4.80	4.56	0.00
0.60	0.03	0.00	0.00	32.40	4.80	4.56	0.00
1.20	0.06	0.00	0.00	33.00	4.80	4.56	0.00
1.80	0.09	0.01	0.00	33.60	4.80	4.56	0.00
2.40	0.12	0.02	0.00	34.20	4.80	4.56	0.00
3.00	0.15	0.04	0.00	34.80	4.80	4.56	0.00
3.60	0.18	0.06	0.00	35.40	4.80	4.56	0.00
4.20	0.22	0.08	0.00	36.00	4.80	4.56	0.00
4.80	0.26	0.11	0.00	36.60	4.80	4.56	0.00
5.40	0.30	0.15	0.00	37.20	4.80	4.56	0.00
6.00	0.35	0.18	0.01	37.80	4.80	4.56	0.00
6.60	0.40	0.23	0.01	38.40	4.80	4.56	0.00
7.20	0.46	0.28	0.01	39.00	4.80	4.56	0.00
7.80	0.52	0.34	0.01	39.60	4.80	4.56	0.00
8.40	0.60	0.41	0.01	40.20	4.80	4.56	0.00
9.00	0.70	0.50	0.01	40.80	4.80	4.56	0.00
9.60	0.82	0.62	0.02	41.40	4.80	4.56	0.00
10.20	0.96	0.75	0.02	42.00	4.80	4.56	0.00
10.80	1.13	0.92	0.03	42.60	4.80	4.56	0.00
11.40	1.38	1.16	0.04	43.20	4.80	4.56	0.00
12.00	2.40	2.17	0.25	43.80	4.80	4.56	0.00
12.60	3.42	3.19	0.05	44.40	4.80	4.56	0.00
13.20	3.67	3.43	0.03	45.00	4.80	4.56	0.00
13.80	3.84	3.61	0.02	45.60	4.80	4.56	0.00
14.40	3.98	3.75	0.02	46.20	4.80	4.56	0.00
15.00	4.10	3.87	0.02	46.80	4.80	4.56	0.00
15.60	4.20	3.96	0.01	47.40	4.80	4.56	0.00
16.20	4.28	4.04	0.01	48.00	4.80	4.56	0.00
16.80	4.34	4.11	0.01	48.60	4.80	4.56	0.00
17.40	4.40	4.17	0.01	49.20	4.80	4.56	0.00
18.00	4.45	4.22	0.01	49.80	4.80	4.56	0.00
18.60	4.50	4.26	0.01	50.40	4.80	4.56	0.00
19.20	4.54	4.31	0.01	51.00	4.80	4.56	0.00
19.80	4.58	4.34	0.01	51.60	4.80	4.56	0.00
20.40	4.62	4.38	0.01	52.20	4.80	4.56	0.00
21.00	4.65	4.42	0.00	52.80	4.80	4.56	0.00
21.60	4.69	4.45	0.00	53.40	4.80	4.56	0.00
22.20	4.72	4.48	0.00	54.00	4.80	4.56	0.00
22.80	4.75	4.51	0.00	54.60	4.80	4.56	0.00
23.40	4.77	4.54	0.00	55.20	4.80	4.56	0.00
24.00	4.80	4.56	0.00	55.80	4.80	4.56	0.00
24.60	4.80	4.56	0.00	56.40	4.80	4.56	0.00
25.20	4.80	4.56	0.00	57.00	4.80	4.56	0.00
25.80	4.80	4.56	0.00	57.60	4.80	4.56	0.00
26.40	4.80	4.56	0.00	58.20	4.80	4.56	0.00
27.00	4.80	4.56	0.00	58.80	4.80	4.56	0.00
27.60	4.80	4.56	0.00	59.40	4.80	4.56	0.00
28.20	4.80	4.56	0.00	60.00	4.80	4.56	0.00
28.80	4.80	4.56	0.00	60.60	4.80	4.56	0.00
29.40	4.80	4.56	0.00	61.20	4.80	4.56	0.00
30.00	4.80	4.56	0.00	61.80	4.80	4.56	0.00
30.60	4.80	4.56	0.00	62.40	4.80	4.56	0.00
31.20	4.80	4.56	0.00	63.00	4.80	4.56	0.00

Hydrograph for Subcatchment 23S: UNITS 7.8,9,10,11

Summary for Subcatchment 23S: UNITS 7.8,9,10,11

Runoff = 0.96 cfs @ 12.08 hrs, Volume= 3.425 cf, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description
5,521	98	Roofs, HSG C
3,485	98	Roofs, HSG C
9,006	98	Weighted Average
9,006		100.00% Impervious Area

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

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	4.80	4.56	0.00
0.60	0.03	0.00	0.00	32.40	4.80	4.56	0.00
1.20	0.06	0.00	0.00	33.00	4.80	4.56	0.00
1.80	0.09	0.01	0.00	33.60	4.80	4.56	0.00
2.40	0.12	0.02	0.00	34.20	4.80	4.56	0.00
3.00	0.15	0.04	0.01	34.80	4.80	4.56	0.00
3.60	0.18	0.06	0.01	35.40	4.80	4.56	0.00
4.20	0.22	0.08	0.01	36.00	4.80	4.56	0.00
4.80	0.26	0.11	0.01	36.60	4.80	4.56	0.00
5.40	0.30	0.15	0.01	37.20	4.80	4.56	0.00
6.00	0.35	0.18	0.01	37.80	4.80	4.56	0.00
6.60	0.40	0.23	0.02	38.40	4.80	4.56	0.00
7.20	0.46	0.28	0.02	39.00	4.80	4.56	0.00
7.80	0.52	0.34	0.02	39.60	4.80	4.56	0.00
8.40	0.60	0.41	0.03	40.20	4.80	4.56	0.00
9.00	0.70	0.50	0.03	40.80	4.80	4.56	0.00
9.60	0.82	0.62	0.04	41.40	4.80	4.56	0.00
10.20	0.96	0.75	0.05	42.00	4.80	4.56	0.00
10.80	1.13	0.92	0.06	42.60	4.80	4.56	0.00
11.40	1.38	1.16	0.10	43.20	4.80	4.56	0.00
12.00	2.40	2.17	0.61	43.80	4.80	4.56	0.00
12.60	3.42	3.19	0.13	44.40	4.80	4.56	0.00
13.20	3.67	3.43	0.07	45.00	4.80	4.56	0.00
13.80	3.84	3.61	0.06	45.60	4.80	4.56	0.00
14.40	3.98	3.75	0.05	46.20	4.80	4.56	0.00
15.00	4.10	3.87	0.04	46.80	4.80	4.56	0.00
15.60	4.20	3.96	0.03	47.40	4.80	4.56	0.00
16.20	4.28	4.04	0.03	48.00	4.80	4.56	0.00
16.80	4.34	4.11	0.02	48.60	4.80	4.56	0.00
17.40	4.40	4.17	0.02	49.20	4.80	4.56	0.00
18.00	4.45	4.22	0.02	49.80	4.80	4.56	0.00
18.60	4.50	4.26	0.02	50.40	4.80	4.56	0.00
19.20	4.54	4.31	0.01	51.00	4.80	4.56	0.00
19.80	4.58	4.34	0.01	51.60	4.80	4.56	0.00
20.40	4.62	4.38	0.01	52.20	4.80	4.56	0.00
21.00	4.65	4.42	0.01	52.80	4.80	4.56	0.00
21.60	4.69	4.45	0.01	53.40	4.80	4.56	0.00
22.20	4.72	4.48	0.01	54.00	4.80	4.56	0.00
22.80	4.75	4.51	0.01	54.60	4.80	4.56	0.00
23.40	4.77	4.54	0.01	55.20	4.80	4.56	0.00
24.00	4.80	4.56	0.01	55.80	4.80	4.56	0.00
24.60	4.80	4.56	0.00	56.40	4.80	4.56	0.00
25.20	4.80	4.56	0.00	57.00	4.80	4.56	0.00
25.80	4.80	4.56	0.00	57.60	4.80	4.56	0.00
26.40	4.80	4.56	0.00	58.20	4.80	4.56	0.00
27.00	4.80	4.56	0.00	58.80	4.80	4.56	0.00
27.60	4.80	4.56	0.00	59.40	4.80	4.56	0.00
28.20	4.80	4.56	0.00	60.00	4.80	4.56	0.00
28.80	4.80	4.56	0.00	60.60	4.80	4.56	0.00
29.40	4.80	4.56	0.00	61.20	4.80	4.56	0.00
30.00	4.80	4.56	0.00	61.80	4.80	4.56	0.00
30.60	4.80	4.56	0.00	62.40	4.80	4.56	0.00
31.20	4.80	4.56	0.00	63.00	4.80	4.56	0.00

Summary for Pond 11P: INFIL AREA "A"

Inflow Area = 16,866 sf, 37.47% Impervious, Inflow Depth = 1.67" for 10 YR event
Inflow = 0.65 cfs @ 12.13 hrs, Volume= 2,340 cf
Outflow = 0.15 cfs @ 12.61 hrs, Volume= 2,341 cf, Atten= 76%, Lag= 28.8 min
Discarded = 0.15 cfs @ 12.61 hrs, Volume= 2,341 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 159.84' @ 12.61 hrs Surf.Area= 657 sf Storage= 583 cf

Plug-Flow detention time= 25.4 min calculated for 2,340 cf (100% of inflow)
Center-of-Mass det. time= 25.4 min (886.0 - 860.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	158.50'	578 cf	20.83'W x 31.50'L x 3.54'H Field A 2,324 cf Overall - 879 cf Embedded = 1,445 cf x 40.0% Voids
#2A	159.00'	879 cf	Cultec R-330XLHD x16 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 4 rows
#3	158.50'	3 cf	0.83'D x 5.00'H Vertical Cone/Cylinder
		1,460 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	163.40'	10.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Discarded	158.50'	8.270 in/hr Exfiltration over Wetted area

Discarded Outflow Max=0.15 cfs @ 12.61 hrs HW=159.84' (Free Discharge)
└─2=Exfiltration (Exfiltration Controls 0.15 cfs)

Primary Outflow Max=0.00 cfs @ 0.00 hrs HW=158.50' (Free Discharge)
└─1=Orifice/Grate (Controls 0.00 cfs)

Hydrograph for Pond 11P: INFIL AREA "A"

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	158.50	0.00	0.00	0.00
1.50	0.00	0	158.50	0.00	0.00	0.00
3.00	0.00	0	158.50	0.00	0.00	0.00
4.50	0.00	0	158.50	0.00	0.00	0.00
6.00	0.00	0	158.50	0.00	0.00	0.00
7.50	0.00	0	158.50	0.00	0.00	0.00
9.00	0.00	0	158.50	0.00	0.00	0.00
10.50	0.00	0	158.50	0.00	0.00	0.00
12.00	0.28	46	158.68	0.13	0.13	0.00
13.50	0.07	399	159.50	0.15	0.15	0.00
15.00	0.05	5	158.52	0.05	0.05	0.00
16.50	0.03	3	158.51	0.03	0.03	0.00
18.00	0.02	2	158.51	0.02	0.02	0.00
19.50	0.02	2	158.51	0.02	0.02	0.00
21.00	0.02	2	158.51	0.02	0.02	0.00
22.50	0.01	1	158.51	0.01	0.01	0.00
24.00	0.01	1	158.50	0.01	0.01	0.00
25.50	0.00	0	158.50	0.00	0.00	0.00
27.00	0.00	0	158.50	0.00	0.00	0.00
28.50	0.00	0	158.50	0.00	0.00	0.00
30.00	0.00	0	158.50	0.00	0.00	0.00
31.50	0.00	0	158.50	0.00	0.00	0.00
33.00	0.00	0	158.50	0.00	0.00	0.00
34.50	0.00	0	158.50	0.00	0.00	0.00
36.00	0.00	0	158.50	0.00	0.00	0.00
37.50	0.00	0	158.50	0.00	0.00	0.00
39.00	0.00	0	158.50	0.00	0.00	0.00
40.50	0.00	0	158.50	0.00	0.00	0.00
42.00	0.00	0	158.50	0.00	0.00	0.00
43.50	0.00	0	158.50	0.00	0.00	0.00
45.00	0.00	0	158.50	0.00	0.00	0.00
46.50	0.00	0	158.50	0.00	0.00	0.00
48.00	0.00	0	158.50	0.00	0.00	0.00
49.50	0.00	0	158.50	0.00	0.00	0.00
51.00	0.00	0	158.50	0.00	0.00	0.00
52.50	0.00	0	158.50	0.00	0.00	0.00
54.00	0.00	0	158.50	0.00	0.00	0.00
55.50	0.00	0	158.50	0.00	0.00	0.00
57.00	0.00	0	158.50	0.00	0.00	0.00
58.50	0.00	0	158.50	0.00	0.00	0.00
60.00	0.00	0	158.50	0.00	0.00	0.00
61.50	0.00	0	158.50	0.00	0.00	0.00
63.00	0.00	0	158.50	0.00	0.00	0.00
64.50	0.00	0	158.50	0.00	0.00	0.00
66.00	0.00	0	158.50	0.00	0.00	0.00
67.50	0.00	0	158.50	0.00	0.00	0.00
69.00	0.00	0	158.50	0.00	0.00	0.00
70.50	0.00	0	158.50	0.00	0.00	0.00
72.00	0.00	0	158.50	0.00	0.00	0.00

Summary for Pond 12P: INFIL AREA "B"

Inflow Area = 32,805 sf, 39.02% Impervious, Inflow Depth = 1.89" for 10 YR event
 Inflow = 1.15 cfs @ 12.25 hrs, Volume= 5,165 cf
 Outflow = 0.34 cfs @ 12.77 hrs, Volume= 5,165 cf, Atten= 70%, Lag= 31.1 min
 Discarded = 0.34 cfs @ 12.77 hrs, Volume= 5,165 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 6
 Peak Elev= 159.17' @ 12.77 hrs Surf.Area= 1,602 sf Storage= 1,221 cf

Plug-Flow detention time= 22.9 min calculated for 5,163 cf (100% of inflow)
 Center-of-Mass det. time= 22.9 min (883.5 - 860.5)

Volume	Invert	Avail.Storage	Storage Description
#1A 158.00'	1,365 cf	30.50'W x 52.50'L x 3.54'H Field A	5,671 cf Overall - 2,258 cf Embedded = 3,413 cf x 40.0% Voids
#2A 158.50'	2,258 cf	Cultec R-330XLHD x 42 Inside #1	Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
			Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
#3 158.00'	3 cf	0.83'D x 5.00'H Vertical Cone/Cylinder	Row Length Adjustment= +1.50' x 7.45 sf x 6 rows
	3,626 cf	Total Available Storage	

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 Primary	162.50'	10.0' Horiz. Orifice/Grate	C= 0.600 Limited to weir flow at low heads
#2 Discarded	158.00'	8.270 in/hr Exfiltration over Wetted area	

Discarded OutFlow Max=0.34 cfs @ 12.77 hrs HW=159.17' (Free Discharge)
 ↳2=Exfiltration (Exfiltration Controls 0.34 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=158.00' (Free Discharge)
 ↳1=Orifice/Grate (Controls 0.00 cfs)

Hydrograph for Pond 12P: INFIL AREA "B"

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	158.00	0.00	0.00	0.00
1.50	0.00	0	158.00	0.00	0.00	0.00
3.00	0.00	0	158.00	0.00	0.00	0.00
4.50	0.00	0	158.00	0.00	0.00	0.00
6.00	0.00	0	158.00	0.00	0.00	0.00
7.50	0.00	0	158.00	0.00	0.00	0.00
9.00	0.00	0	158.00	0.00	0.00	0.00
10.50	0.01	1	158.00	0.01	0.01	0.00
12.00	0.38	37	158.06	0.31	0.31	0.00
13.50	0.16	884	158.92	0.34	0.34	0.00
15.00	0.10	10	158.02	0.10	0.10	0.00
16.50	0.06	7	158.01	0.06	0.06	0.00
18.00	0.04	5	158.01	0.04	0.04	0.00
19.50	0.04	4	158.01	0.04	0.04	0.00
21.00	0.03	3	158.01	0.03	0.03	0.00
22.50	0.03	3	158.00	0.03	0.03	0.00
24.00	0.02	2	158.00	0.02	0.02	0.00
25.50	0.00	0	158.00	0.00	0.00	0.00
27.00	0.00	0	158.00	0.00	0.00	0.00
28.50	0.00	0	158.00	0.00	0.00	0.00
30.00	0.00	0	158.00	0.00	0.00	0.00
31.50	0.00	0	158.00	0.00	0.00	0.00
33.00	0.00	0	158.00	0.00	0.00	0.00
34.50	0.00	0	158.00	0.00	0.00	0.00
36.00	0.00	0	158.00	0.00	0.00	0.00
37.50	0.00	0	158.00	0.00	0.00	0.00
39.00	0.00	0	158.00	0.00	0.00	0.00
40.50	0.00	0	158.00	0.00	0.00	0.00
42.00	0.00	0	158.00	0.00	0.00	0.00
43.50	0.00	0	158.00	0.00	0.00	0.00
45.00	0.00	0	158.00	0.00	0.00	0.00
46.50	0.00	0	158.00	0.00	0.00	0.00
48.00	0.00	0	158.00	0.00	0.00	0.00
49.50	0.00	0	158.00	0.00	0.00	0.00
51.00	0.00	0	158.00	0.00	0.00	0.00
52.50	0.00	0	158.00	0.00	0.00	0.00
54.00	0.00	0	158.00	0.00	0.00	0.00
55.50	0.00	0	158.00	0.00	0.00	0.00
57.00	0.00	0	158.00	0.00	0.00	0.00
58.50	0.00	0	158.00	0.00	0.00	0.00
60.00	0.00	0	158.00	0.00	0.00	0.00
61.50	0.00	0	158.00	0.00	0.00	0.00
63.00	0.00	0	158.00	0.00	0.00	0.00
64.50	0.00	0	158.00	0.00	0.00	0.00
66.00	0.00	0	158.00	0.00	0.00	0.00
67.50	0.00	0	158.00	0.00	0.00	0.00
69.00	0.00	0	158.00	0.00	0.00	0.00
70.50	0.00	0	158.00	0.00	0.00	0.00
72.00	0.00	0	158.00	0.00	0.00	0.00

Summary for Pond 20P: INFIL #1

Inflow Area = 7,656 sf 100.00% Impervious; Inflow Depth = 4.56" for 10 YR event
Inflow = 0.82 cfs @ 12.08 hrs, Volume= 2,912 cf
Outflow = 0.21 cfs @ 12.45 hrs, Volume= 2,911 cf, Atten= 74%, Lag= 21.7 min
Discarded = 0.21 cfs @ 12.45 hrs, Volume= 2,911 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 165.04' @ 12.45 hrs Surf. Area= 932 sf Storage= 575 cf

Plug-Flow detention time= 13.6 min calculated for 2,910 cf (100% of inflow)
Center-of-Mass det. time= 13.6 min (762.3 - 748.7)

Volume	Invert	Avail. Storage	Storage Description
#1A 164.00'		683 cf	14.50'W x 64.25'L x 2.54'H Field A 2,368 cf Overall - 660 cf Embedded = 1,708 cf x 40.0% Voids
#2A 164.50'		660 cf	Cultec R-150XLHD x 24 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
#3 164.00'		2 cf	0.83'D x 4.00'H Vertical Cone/Cylinder
		1,345 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 Primary	167.50'	10.0'	Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#2 Discarded	164.00'	8.270 in/hr	Exfiltration over Wetted area

Discarded OutFlow Max=0.21 cfs @ 12.45 hrs HW=165.04' (Free Discharge)
←2=Exfiltration (Exfiltration Controls 0.21 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=164.00' (Free Discharge)
←1=Orifice/Grate (Controls 0.00 cfs)

Hydrograph for Pond 20P: INFIL #1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	164.00	0.00	0.00	0.00
1.50	0.00	0	164.00	0.00	0.00	0.00
3.00	0.01	0	164.00	0.01	0.01	0.00
4.50	0.01	1	164.00	0.01	0.01	0.00
6.00	0.01	1	164.00	0.01	0.01	0.00
7.50	0.02	1	164.00	0.02	0.02	0.00
9.00	0.03	2	164.01	0.03	0.03	0.00
10.50	0.05	4	164.01	0.05	0.05	0.00
12.00	0.52	141	164.38	0.19	0.19	0.00
13.50	0.05	126	164.34	0.19	0.19	0.00
15.00	0.03	3	164.01	0.03	0.03	0.00
16.50	0.02	2	164.00	0.02	0.02	0.00
18.00	0.01	1	164.00	0.01	0.01	0.00
19.50	0.01	1	164.00	0.01	0.01	0.00
21.00	0.01	1	164.00	0.01	0.01	0.00
22.50	0.01	1	164.00	0.01	0.01	0.00
24.00	0.01	1	164.00	0.01	0.01	0.00
25.50	0.00	0	164.00	0.00	0.00	0.00
27.00	0.00	0	164.00	0.00	0.00	0.00
28.50	0.00	0	164.00	0.00	0.00	0.00
30.00	0.00	0	164.00	0.00	0.00	0.00
31.50	0.00	0	164.00	0.00	0.00	0.00
33.00	0.00	0	164.00	0.00	0.00	0.00
34.50	0.00	0	164.00	0.00	0.00	0.00
36.00	0.00	0	164.00	0.00	0.00	0.00
37.50	0.00	0	164.00	0.00	0.00	0.00
39.00	0.00	0	164.00	0.00	0.00	0.00
40.50	0.00	0	164.00	0.00	0.00	0.00
42.00	0.00	0	164.00	0.00	0.00	0.00
43.50	0.00	0	164.00	0.00	0.00	0.00
45.00	0.00	0	164.00	0.00	0.00	0.00
46.50	0.00	0	164.00	0.00	0.00	0.00
48.00	0.00	0	164.00	0.00	0.00	0.00
49.50	0.00	0	164.00	0.00	0.00	0.00
51.00	0.00	0	164.00	0.00	0.00	0.00
52.50	0.00	0	164.00	0.00	0.00	0.00
54.00	0.00	0	164.00	0.00	0.00	0.00
55.50	0.00	0	164.00	0.00	0.00	0.00
57.00	0.00	0	164.00	0.00	0.00	0.00
58.50	0.00	0	164.00	0.00	0.00	0.00
60.00	0.00	0	164.00	0.00	0.00	0.00
61.50	0.00	0	164.00	0.00	0.00	0.00
63.00	0.00	0	164.00	0.00	0.00	0.00
64.50	0.00	0	164.00	0.00	0.00	0.00
66.00	0.00	0	164.00	0.00	0.00	0.00
67.50	0.00	0	164.00	0.00	0.00	0.00
69.00	0.00	0	164.00	0.00	0.00	0.00
70.50	0.00	0	164.00	0.00	0.00	0.00
72.00	0.00	0	164.00	0.00	0.00	0.00

Summary for Pond 21P: INFIL #2

Hydrograph for Pond 21P: INFIL #2

Inflow Area = 1,730 sf 100.00% Impervious, Inflow Depth = 4.56" for 10 YR event
Inflow = 0.19 cfs @ 12.08 hrs, Volume= 658 cf
Outflow = 0.06 cfs @ 12.35 hrs, Volume= 658 cf, Atten= 66%, Lag= 16.2 min
Discarded = 0.06 cfs @ 12.35 hrs, Volume= 658 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 162.72' @ 12.35 hrs Surf. Area= 269 sf Storage= 98 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 7.5 min (756.2 - 748.7)

Volume	Invert	Avail. Storage	Storage Description
#1A 162.00'		206 cf	8.00'W x 33.50'L x 2.54'H Field A
			681 cf Overall - 167 cf Embedded = 514 cf x 40.0% Voids
#2A 162.50'		167 cf	Cultec R-150XLHD x 6 Inside #1
			Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf
			Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap
			Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
#3 162.00'		2 cf	0.83'D x 4.00'H Vertical Cone/Cylinder
		375 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 Primary	165.50'	10.0' Horiz. Orifice/Grate	C= 0.600 Limited to weir flow at low heads
#2 Discarded	162.00'	8.270 m/hr Exfiltration over Wetted area	

Discarded OutFlow Max=0.06 cfs @ 12.35 hrs HW=162.72' (Free Discharge)
←2=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=162.00' (Free Discharge)
←1=Orifice/Grate (Controls 0.00 cfs)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	162.00	0.00	0.00	0.00
1.50	0.00	0	162.00	0.00	0.00	0.00
3.00	0.00	0	162.00	0.00	0.00	0.00
4.50	0.00	0	162.00	0.00	0.00	0.00
6.00	0.00	0	162.00	0.00	0.00	0.00
7.50	0.00	0	162.00	0.00	0.00	0.00
9.00	0.01	1	162.01	0.01	0.01	0.00
10.50	0.01	1	162.01	0.01	0.01	0.00
12.00	0.12	22	162.20	0.05	0.05	0.00
13.50	0.01	1	162.01	0.01	0.01	0.00
15.00	0.01	1	162.01	0.01	0.01	0.00
16.50	0.00	0	162.00	0.00	0.00	0.00
18.00	0.00	0	162.00	0.00	0.00	0.00
19.50	0.00	0	162.00	0.00	0.00	0.00
21.00	0.00	0	162.00	0.00	0.00	0.00
22.50	0.00	0	162.00	0.00	0.00	0.00
24.00	0.00	0	162.00	0.00	0.00	0.00
25.50	0.00	0	162.00	0.00	0.00	0.00
27.00	0.00	0	162.00	0.00	0.00	0.00
28.50	0.00	0	162.00	0.00	0.00	0.00
30.00	0.00	0	162.00	0.00	0.00	0.00
31.50	0.00	0	162.00	0.00	0.00	0.00
33.00	0.00	0	162.00	0.00	0.00	0.00
34.50	0.00	0	162.00	0.00	0.00	0.00
36.00	0.00	0	162.00	0.00	0.00	0.00
37.50	0.00	0	162.00	0.00	0.00	0.00
39.00	0.00	0	162.00	0.00	0.00	0.00
40.50	0.00	0	162.00	0.00	0.00	0.00
42.00	0.00	0	162.00	0.00	0.00	0.00
43.50	0.00	0	162.00	0.00	0.00	0.00
45.00	0.00	0	162.00	0.00	0.00	0.00
46.50	0.00	0	162.00	0.00	0.00	0.00
48.00	0.00	0	162.00	0.00	0.00	0.00
49.50	0.00	0	162.00	0.00	0.00	0.00
51.00	0.00	0	162.00	0.00	0.00	0.00
52.50	0.00	0	162.00	0.00	0.00	0.00
54.00	0.00	0	162.00	0.00	0.00	0.00
55.50	0.00	0	162.00	0.00	0.00	0.00
57.00	0.00	0	162.00	0.00	0.00	0.00
58.50	0.00	0	162.00	0.00	0.00	0.00
60.00	0.00	0	162.00	0.00	0.00	0.00
61.50	0.00	0	162.00	0.00	0.00	0.00
63.00	0.00	0	162.00	0.00	0.00	0.00
64.50	0.00	0	162.00	0.00	0.00	0.00
66.00	0.00	0	162.00	0.00	0.00	0.00
67.50	0.00	0	162.00	0.00	0.00	0.00
69.00	0.00	0	162.00	0.00	0.00	0.00
70.50	0.00	0	162.00	0.00	0.00	0.00
72.00	0.00	0	162.00	0.00	0.00	0.00

Summary for Pond 22P: INFIL #3

Inflow Area = 3,681 sf 100.00% Impervious, Inflow Depth = 4.56" for 10 YR event
Inflow = 0.39 cfs @ 12.08 hrs, Volume= 1,400 cf
Outflow = 0.01 cfs @ 17.23 hrs, Volume= 1,320 cf, Atten= 97%, Lag= 309.0 min
Discarded = 0.01 cfs @ 17.22 hrs, Volume= 1,314 cf
Primary = 0.00 cfs @ 17.23 hrs, Volume= 7 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 174.50' @ 17.22 hrs Surf.Area= 704 sf Storage= 1,018 cf

Plug-Flow detention time= 1.496.3 min calculated for 1,320 cf (94% of inflow)
Center-of-Mass det. time= 1,464.4 min (2,213.1 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1A 171.00'	515 cf	21,00'W x 33.50'L x 2.54'H Field A	1,788 cf Overall - 501 cf Embedded = 1,287 cf x 40.0% Voids
#2A 171.50'	501 cf	Cultec R-150XLHD x 18 Inside #1	Cultec Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 6 rows
#3 171.00'	2 cf	0.83'D x 4.00'H Vertical Cone/Cylinder	
			1,018 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 Primary	174.50'	10.0' Horiz. Orifice/Grate	C= 0.600 Limited to weir flow at low heads
#2 Discarded	171.00'	0.270 in/hr Exfiltration over	Wetted area
Discarded Outflow Max=0.01 cfs @ 17.22 hrs HW=174.50' (Free Discharge)			
↳ 2-Exfiltration (Exfiltration Controls 0.01 cfs)			
Primary Outflow Max=0.00 cfs @ 17.23 hrs HW=174.50' (Free Discharge)			
↳ 1-Orifice/Grate (Weir Controls 0.00 cfs @ 0.18 fps)			

Hydrograph for Pond 22P: INFIL #3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	171.00	0.00	0.00	0.00
1.50	0.00	1	171.00	0.00	0.00	0.00
3.00	0.00	5	171.02	0.00	0.00	0.00
4.50	0.00	9	171.03	0.00	0.00	0.00
6.00	0.01	12	171.04	0.00	0.00	0.00
7.50	0.01	26	171.09	0.00	0.00	0.00
9.00	0.01	60	171.21	0.00	0.00	0.00
10.50	0.02	131	171.47	0.00	0.00	0.00
12.00	0.25	414	172.00	0.01	0.01	0.00
13.50	0.03	902	173.13	0.01	0.01	0.00
15.00	0.02	976	173.40	0.01	0.01	0.00
16.50	0.01	1,010	173.52	0.01	0.01	0.00
18.00	0.01	1,018	174.50	0.01	0.01	0.00
19.50	0.01	1,017	173.54	0.01	0.01	0.00
21.00	0.00	1,012	173.52	0.01	0.01	0.00
22.50	0.00	1,003	173.49	0.01	0.01	0.00
24.00	0.00	991	173.45	0.01	0.01	0.00
25.50	0.00	959	173.34	0.01	0.01	0.00
27.00	0.00	927	173.22	0.01	0.01	0.00
28.50	0.00	895	173.11	0.01	0.01	0.00
30.00	0.00	864	173.00	0.01	0.01	0.00
31.50	0.00	832	172.90	0.01	0.01	0.00
33.00	0.00	802	172.81	0.01	0.01	0.00
34.50	0.00	771	172.73	0.01	0.01	0.00
36.00	0.00	741	172.66	0.01	0.01	0.00
37.50	0.00	711	172.59	0.01	0.01	0.00
39.00	0.00	682	172.53	0.01	0.01	0.00
40.50	0.00	652	172.46	0.01	0.01	0.00
42.00	0.00	623	172.40	0.01	0.01	0.00
43.50	0.00	594	172.35	0.01	0.01	0.00
45.00	0.00	565	172.29	0.01	0.01	0.00
46.50	0.00	537	172.23	0.01	0.01	0.00
48.00	0.00	509	172.18	0.01	0.01	0.00
49.50	0.00	480	172.12	0.01	0.01	0.00
51.00	0.00	453	172.07	0.01	0.01	0.00
52.50	0.00	425	172.02	0.01	0.01	0.00
54.00	0.00	397	171.97	0.01	0.01	0.00
55.50	0.00	370	171.92	0.01	0.01	0.00
57.00	0.00	343	171.87	0.01	0.01	0.00
58.50	0.00	316	171.82	0.00	0.00	0.00
60.00	0.00	289	171.77	0.00	0.00	0.00
61.50	0.00	263	171.72	0.00	0.00	0.00
63.00	0.00	236	171.67	0.00	0.00	0.00
64.50	0.00	210	171.62	0.00	0.00	0.00
66.00	0.00	184	171.58	0.00	0.00	0.00
67.50	0.00	158	171.53	0.00	0.00	0.00
69.00	0.00	133	171.47	0.00	0.00	0.00
70.50	0.00	107	171.38	0.00	0.00	0.00
72.00	0.00	82	171.29	0.00	0.00	0.00

Summary for Pond 23P: INFIL #4

Inflow Area = 9,006 sf 100.00% Impervious, Inflow Depth = 4.56" for 10 YR event
 Inflow = 0.96 cfs @ 12.08 hrs, Volume= 3,425 cf
 Outflow = 0.29 cfs @ 12.39 hrs, Volume= 3,426 cf, Atten= 70%, Lag= 18.6 min
 Discarded = 0.29 cfs @ 12.39 hrs, Volume= 3,426 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 164.85' @ 12.39 hrs Surf. Area= 1,253 sf Storage= 580 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 9.7 min (758.4 - 748.7)

Volume	Invert	Avail. Storage	Storage Description
#1A 164.00'		945 cf	8,00'W x 156.50'L x 2.54'H Field A 3,182 cf Overall - 819 cf Embedded = 2,364 cf x 40.0% Voids
#2A 164.50'		819 cf	Cultec R-150XLHD x 30 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
#3 164.00'		2 cf	0.83'D x 4.00'H Vertical Cone/Cylinder
		1,766 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 Primary	167.80'	10.0'	Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2 Discarded	164.00'	8.270 m/hr	Exfiltration over Wetted area

Discarded OutFlow Max=0.29 cfs @ 12.39 hrs HW=164.85' (Free Discharge)
 ↳2=Exfiltration (Exfiltration Controls 0.29 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=164.00' (Free Discharge)
 ↳1=Orifice/Grate (Controls 0.00 cfs)

Hydrograph for Pond 23P: INFIL #4

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	164.00	0.00	0.00	0.00
1.50	0.00	0	164.00	0.00	0.00	0.00
3.00	0.01	1	164.00	0.01	0.01	0.00
4.50	0.01	1	164.00	0.01	0.01	0.00
6.00	0.01	1	164.00	0.01	0.01	0.00
7.50	0.02	2	164.00	0.02	0.02	0.00
9.00	0.03	3	164.01	0.03	0.03	0.00
10.50	0.06	5	164.01	0.06	0.06	0.00
12.00	0.61	137	164.27	0.26	0.26	0.00
13.50	0.06	5	164.01	0.06	0.06	0.00
15.00	0.04	3	164.01	0.04	0.04	0.00
16.50	0.02	2	164.00	0.02	0.02	0.00
18.00	0.02	1	164.00	0.02	0.02	0.00
19.50	0.01	1	164.00	0.01	0.01	0.00
21.00	0.01	1	164.00	0.01	0.01	0.00
22.50	0.01	1	164.00	0.01	0.01	0.00
24.00	0.01	1	164.00	0.01	0.01	0.00
25.50	0.00	0	164.00	0.00	0.00	0.00
27.00	0.00	0	164.00	0.00	0.00	0.00
28.50	0.00	0	164.00	0.00	0.00	0.00
30.00	0.00	0	164.00	0.00	0.00	0.00
31.50	0.00	0	164.00	0.00	0.00	0.00
33.00	0.00	0	164.00	0.00	0.00	0.00
34.50	0.00	0	164.00	0.00	0.00	0.00
36.00	0.00	0	164.00	0.00	0.00	0.00
37.50	0.00	0	164.00	0.00	0.00	0.00
39.00	0.00	0	164.00	0.00	0.00	0.00
40.50	0.00	0	164.00	0.00	0.00	0.00
42.00	0.00	0	164.00	0.00	0.00	0.00
43.50	0.00	0	164.00	0.00	0.00	0.00
45.00	0.00	0	164.00	0.00	0.00	0.00
46.50	0.00	0	164.00	0.00	0.00	0.00
48.00	0.00	0	164.00	0.00	0.00	0.00
49.50	0.00	0	164.00	0.00	0.00	0.00
51.00	0.00	0	164.00	0.00	0.00	0.00
52.50	0.00	0	164.00	0.00	0.00	0.00
54.00	0.00	0	164.00	0.00	0.00	0.00
55.50	0.00	0	164.00	0.00	0.00	0.00
57.00	0.00	0	164.00	0.00	0.00	0.00
58.50	0.00	0	164.00	0.00	0.00	0.00
60.00	0.00	0	164.00	0.00	0.00	0.00
61.50	0.00	0	164.00	0.00	0.00	0.00
63.00	0.00	0	164.00	0.00	0.00	0.00
64.50	0.00	0	164.00	0.00	0.00	0.00
66.00	0.00	0	164.00	0.00	0.00	0.00
67.50	0.00	0	164.00	0.00	0.00	0.00
69.00	0.00	0	164.00	0.00	0.00	0.00
70.50	0.00	0	164.00	0.00	0.00	0.00
72.00	0.00	0	164.00	0.00	0.00	0.00

Summary for Link 1L: PROPOSED EAST

Inflow Area = 98,111 sf, 29.72% Impervious, Inflow Depth = 0.13" for 10 YR event
 Inflow = 0.10 cfs @ 12.37 hrs, Volume= 1,064 cf
 Primary = 0.10 cfs @ 12.37 hrs, Volume= 1,064 cf, Atten= 0%, Lag= 0.0 min
 Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Hydrograph for Link 1L: PROPOSED EAST

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	31.80	0.00	0.00	0.00	63.60	0.00	0.00	0.00
0.60	0.00	0.00	0.00	32.40	0.00	0.00	0.00	64.20	0.00	0.00	0.00
1.20	0.00	0.00	0.00	33.00	0.00	0.00	0.00	64.80	0.00	0.00	0.00
1.80	0.00	0.00	0.00	33.60	0.00	0.00	0.00	65.40	0.00	0.00	0.00
2.40	0.00	0.00	0.00	34.20	0.00	0.00	0.00	66.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	34.80	0.00	0.00	0.00	66.60	0.00	0.00	0.00
3.60	0.00	0.00	0.00	35.40	0.00	0.00	0.00	67.20	0.00	0.00	0.00
4.20	0.00	0.00	0.00	36.00	0.00	0.00	0.00	67.80	0.00	0.00	0.00
4.80	0.00	0.00	0.00	36.60	0.00	0.00	0.00	68.40	0.00	0.00	0.00
5.40	0.00	0.00	0.00	37.20	0.00	0.00	0.00	69.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	37.80	0.00	0.00	0.00	69.60	0.00	0.00	0.00
6.60	0.00	0.00	0.00	38.40	0.00	0.00	0.00	70.20	0.00	0.00	0.00
7.20	0.00	0.00	0.00	39.00	0.00	0.00	0.00	70.80	0.00	0.00	0.00
7.80	0.00	0.00	0.00	39.60	0.00	0.00	0.00	71.40	0.00	0.00	0.00
8.40	0.00	0.00	0.00	40.20	0.00	0.00	0.00	72.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	40.80	0.00	0.00	0.00				
9.60	0.00	0.00	0.00	41.40	0.00	0.00	0.00				
10.20	0.00	0.00	0.00	42.00	0.00	0.00	0.00				
10.80	0.00	0.00	0.00	42.60	0.00	0.00	0.00				
11.40	0.00	0.00	0.00	43.20	0.00	0.00	0.00				
12.00	0.00	0.00	0.00	43.80	0.00	0.00	0.00				
12.60	0.08	0.00	0.08	44.40	0.00	0.00	0.00				
13.20	0.04	0.00	0.04	45.00	0.00	0.00	0.00				
13.80	0.04	0.00	0.04	45.60	0.00	0.00	0.00				
14.40	0.04	0.00	0.04	46.20	0.00	0.00	0.00				
15.00	0.03	0.00	0.03	46.80	0.00	0.00	0.00				
15.60	0.03	0.00	0.03	47.40	0.00	0.00	0.00				
16.20	0.02	0.00	0.02	48.00	0.00	0.00	0.00				
16.80	0.02	0.00	0.02	48.60	0.00	0.00	0.00				
17.40	0.02	0.00	0.02	49.20	0.00	0.00	0.00				
18.00	0.02	0.00	0.02	49.80	0.00	0.00	0.00				
18.60	0.02	0.00	0.02	50.40	0.00	0.00	0.00				
19.20	0.01	0.00	0.01	51.00	0.00	0.00	0.00				
19.80	0.01	0.00	0.01	51.60	0.00	0.00	0.00				
20.40	0.01	0.00	0.01	52.20	0.00	0.00	0.00				
21.00	0.01	0.00	0.01	52.80	0.00	0.00	0.00				
21.60	0.01	0.00	0.01	53.40	0.00	0.00	0.00				
22.20	0.01	0.00	0.01	54.00	0.00	0.00	0.00				
22.80	0.01	0.00	0.01	54.60	0.00	0.00	0.00				
23.40	0.01	0.00	0.01	55.20	0.00	0.00	0.00				
24.00	0.01	0.00	0.01	55.80	0.00	0.00	0.00				
24.60	0.01	0.00	0.01	56.40	0.00	0.00	0.00				
25.20	0.00	0.00	0.00	57.00	0.00	0.00	0.00				
25.80	0.00	0.00	0.00	57.60	0.00	0.00	0.00				
26.40	0.00	0.00	0.00	58.20	0.00	0.00	0.00				
27.00	0.00	0.00	0.00	58.80	0.00	0.00	0.00				
27.60	0.00	0.00	0.00	59.40	0.00	0.00	0.00				
28.20	0.00	0.00	0.00	60.00	0.00	0.00	0.00				
28.80	0.00	0.00	0.00	60.60	0.00	0.00	0.00				
29.40	0.00	0.00	0.00	61.20	0.00	0.00	0.00				
30.00	0.00	0.00	0.00	61.80	0.00	0.00	0.00				
30.60	0.00	0.00	0.00	62.40	0.00	0.00	0.00				
31.20	0.00	0.00	0.00	63.00	0.00	0.00	0.00				

Summary for Link 2L: PROPOSED NORTHWEST

Inflow Area = 54,449 sf, 23.30% Impervious, Inflow Depth = 1.12" for 10 YR event
Inflow = 1.46 cfs @ 12.11 hrs, Volume= 5,061 cf
Primary = 1.46 cfs @ 12.11 hrs, Volume= 5,061 cf, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Hydrograph for Link 2L: PROPOSED NORTHWEST

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	31.80	0.00	0.00	0.00	63.60	0.00	0.00	0.00
0.60	0.00	0.00	0.00	32.40	0.00	0.00	0.00	64.20	0.00	0.00	0.00
1.20	0.00	0.00	0.00	33.00	0.00	0.00	0.00	64.80	0.00	0.00	0.00
1.80	0.00	0.00	0.00	33.60	0.00	0.00	0.00	65.40	0.00	0.00	0.00
2.40	0.00	0.00	0.00	34.20	0.00	0.00	0.00	66.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	34.80	0.00	0.00	0.00	66.60	0.00	0.00	0.00
3.60	0.00	0.00	0.00	35.40	0.00	0.00	0.00	67.20	0.00	0.00	0.00
4.20	0.00	0.00	0.00	36.00	0.00	0.00	0.00	67.80	0.00	0.00	0.00
4.80	0.00	0.00	0.00	36.60	0.00	0.00	0.00	68.40	0.00	0.00	0.00
5.40	0.00	0.00	0.00	37.20	0.00	0.00	0.00	69.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	37.80	0.00	0.00	0.00	69.60	0.00	0.00	0.00
6.60	0.00	0.00	0.00	38.40	0.00	0.00	0.00	70.20	0.00	0.00	0.00
7.20	0.00	0.00	0.00	39.00	0.00	0.00	0.00	70.80	0.00	0.00	0.00
7.80	0.00	0.00	0.00	39.60	0.00	0.00	0.00	71.40	0.00	0.00	0.00
8.40	0.00	0.00	0.00	40.20	0.00	0.00	0.00	72.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	40.80	0.00	0.00	0.00				
9.60	0.00	0.00	0.00	41.40	0.00	0.00	0.00				
10.20	0.00	0.00	0.00	42.00	0.00	0.00	0.00				
10.80	0.00	0.00	0.00	42.60	0.00	0.00	0.00				
11.40	0.03	0.00	0.03	43.20	0.00	0.00	0.00				
12.00	0.67	0.00	0.67	43.80	0.00	0.00	0.00				
12.60	0.31	0.00	0.31	44.40	0.00	0.00	0.00				
13.20	0.17	0.00	0.17	45.00	0.00	0.00	0.00				
13.80	0.14	0.00	0.14	45.60	0.00	0.00	0.00				
14.40	0.12	0.00	0.12	46.20	0.00	0.00	0.00				
15.00	0.10	0.00	0.10	46.80	0.00	0.00	0.00				
15.60	0.09	0.00	0.09	47.40	0.00	0.00	0.00				
16.20	0.07	0.00	0.07	48.00	0.00	0.00	0.00				
16.80	0.06	0.00	0.06	48.60	0.00	0.00	0.00				
17.40	0.06	0.00	0.06	49.20	0.00	0.00	0.00				
18.00	0.05	0.00	0.05	49.80	0.00	0.00	0.00				
18.60	0.04	0.00	0.04	50.40	0.00	0.00	0.00				
19.20	0.04	0.00	0.04	51.00	0.00	0.00	0.00				
19.80	0.04	0.00	0.04	51.60	0.00	0.00	0.00				
20.40	0.04	0.00	0.04	52.20	0.00	0.00	0.00				
21.00	0.03	0.00	0.03	52.80	0.00	0.00	0.00				
21.60	0.03	0.00	0.03	53.40	0.00	0.00	0.00				
22.20	0.03	0.00	0.03	54.00	0.00	0.00	0.00				
22.80	0.03	0.00	0.03	54.60	0.00	0.00	0.00				
23.40	0.03	0.00	0.03	55.20	0.00	0.00	0.00				
24.00	0.03	0.00	0.03	55.80	0.00	0.00	0.00				
24.60	0.00	0.00	0.00	56.40	0.00	0.00	0.00				
25.20	0.00	0.00	0.00	57.00	0.00	0.00	0.00				
25.80	0.00	0.00	0.00	57.60	0.00	0.00	0.00				
26.40	0.00	0.00	0.00	58.20	0.00	0.00	0.00				
27.00	0.00	0.00	0.00	58.80	0.00	0.00	0.00				
27.60	0.00	0.00	0.00	59.40	0.00	0.00	0.00				
28.20	0.00	0.00	0.00	60.00	0.00	0.00	0.00				
28.80	0.00	0.00	0.00	60.60	0.00	0.00	0.00				
29.40	0.00	0.00	0.00	61.20	0.00	0.00	0.00				
30.00	0.00	0.00	0.00	61.80	0.00	0.00	0.00				
30.60	0.00	0.00	0.00	62.40	0.00	0.00	0.00				
31.20	0.00	0.00	0.00	63.00	0.00	0.00	0.00				

Summary for Subcatchment 1S: EXISTING EAST

Runoff = 0.39 cfs @ 12.33 hrs, Volume= 3.117 cf, Depth= 0.50"
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description			
1,416	30	Woods, Good, HSG A			
64,382	39	>75% Grass cover, Good, HSG A			
878	70	Woods, Good, HSG C			
6,266	74	>75% Grass cover, Good, HSG C			
1,276	98	Roofs, HSG A			
74,218	43	Weighted Average			
72,942		98.28% Pervious Area			
1,276		1.72% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	12	0.0700	0.08		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.9	25	0.0700	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
1.4	161	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.4	134	0.0520	1.60		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
8.1	332	Total			

Hydrograph for Subcatchment 1S: EXISTING EAST

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	5.50	0.50	0.00
0.60	0.03	0.00	0.00	32.40	5.50	0.50	0.00
1.20	0.07	0.00	0.00	33.00	5.50	0.50	0.00
1.80	0.10	0.00	0.00	33.60	5.50	0.50	0.00
2.40	0.13	0.00	0.00	34.20	5.50	0.50	0.00
3.00	0.17	0.00	0.00	34.80	5.50	0.50	0.00
3.60	0.21	0.00	0.00	35.40	5.50	0.50	0.00
4.20	0.25	0.00	0.00	36.00	5.50	0.50	0.00
4.80	0.30	0.00	0.00	36.60	5.50	0.50	0.00
5.40	0.34	0.00	0.00	37.20	5.50	0.50	0.00
6.00	0.40	0.00	0.00	37.80	5.50	0.50	0.00
6.60	0.45	0.00	0.00	38.40	5.50	0.50	0.00
7.20	0.52	0.00	0.00	39.00	5.50	0.50	0.00
7.80	0.60	0.00	0.00	39.60	5.50	0.50	0.00
8.40	0.69	0.00	0.00	40.20	5.50	0.50	0.00
9.00	0.80	0.00	0.00	40.80	5.50	0.50	0.00
9.60	0.94	0.00	0.00	41.40	5.50	0.50	0.00
10.20	1.10	0.00	0.00	42.00	5.50	0.50	0.00
10.80	1.30	0.00	0.00	42.60	5.50	0.50	0.00
11.40	1.58	0.00	0.00	43.20	5.50	0.50	0.00
12.00	2.75	0.00	0.00	43.80	5.50	0.50	0.00
12.60	3.92	0.11	0.22	44.40	5.50	0.50	0.00
13.20	4.20	0.16	0.13	45.00	5.50	0.50	0.00
13.80	4.40	0.20	0.12	45.60	5.50	0.50	0.00
14.40	4.56	0.24	0.10	46.20	5.50	0.50	0.00
15.00	4.70	0.27	0.09	46.80	5.50	0.50	0.00
15.60	4.81	0.30	0.08	47.40	5.50	0.50	0.00
16.20	4.90	0.33	0.06	48.00	5.50	0.50	0.00
16.80	4.98	0.35	0.06	48.60	5.50	0.50	0.00
17.40	5.05	0.37	0.05	49.20	5.50	0.50	0.00
18.00	5.10	0.38	0.05	49.80	5.50	0.50	0.00
18.60	5.16	0.40	0.04	50.40	5.50	0.50	0.00
19.20	5.20	0.41	0.04	51.00	5.50	0.50	0.00
19.80	5.25	0.43	0.04	51.60	5.50	0.50	0.00
20.40	5.29	0.44	0.04	52.20	5.50	0.50	0.00
21.00	5.33	0.45	0.03	52.80	5.50	0.50	0.00
21.60	5.37	0.46	0.03	53.40	5.50	0.50	0.00
22.20	5.41	0.47	0.03	54.00	5.50	0.50	0.00
22.80	5.44	0.48	0.03	54.60	5.50	0.50	0.00
23.40	5.47	0.49	0.03	55.20	5.50	0.50	0.00
24.00	5.50	0.50	0.03	55.80	5.50	0.50	0.00
24.60	5.50	0.50	0.00	56.40	5.50	0.50	0.00
25.20	5.50	0.50	0.00	57.00	5.50	0.50	0.00
25.80	5.50	0.50	0.00	57.60	5.50	0.50	0.00
26.40	5.50	0.50	0.00	58.20	5.50	0.50	0.00
27.00	5.50	0.50	0.00	58.80	5.50	0.50	0.00
27.60	5.50	0.50	0.00	59.40	5.50	0.50	0.00
28.20	5.50	0.50	0.00	60.00	5.50	0.50	0.00
28.80	5.50	0.50	0.00	60.60	5.50	0.50	0.00
29.40	5.50	0.50	0.00	61.20	5.50	0.50	0.00
30.00	5.50	0.50	0.00	61.80	5.50	0.50	0.00
30.60	5.50	0.50	0.00	62.40	5.50	0.50	0.00
31.20	5.50	0.50	0.00	63.00	5.50	0.50	0.00

Type III 24-hr 25 YR Rainfall=5.50"

Type III 24-hr 25 YR Rainfall=5.50"

Summary for Subcatchment 2S: EXISTING NORTHWEST

Hydrograph for Subcatchment 2S: EXISTING NORTHWEST

Runoff = 4.04 cfs @ 12.13 hrs, Volume= 14,097 cf, Depth= 2.16"
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description
1,708	30	Woods, Good, HSG A
19,125	39	>75% Grass cover, Good, HSG A
2,537	70	Woods, Good, HSG C
24,853	74	>75% Grass cover, Good, HSG C
9,394	77	Woods, Good, HSG D
17,789	80	>75% Grass cover, Good, HSG D
2,934	98	Roofs, HSG A
78,340	67	Weighted Average
75,406		96.25% Pervious Area
2,934		3.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	13	0.0700	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.9	25	0.0700	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
1.2	148	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kx= 7.0 fps
2.1	163	0.0350	1.31		Shallow Concentrated Flow, Short Grass Pasture Kx= 7.0 fps
8.7	349	Total			

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	5.50	2.16	0.00
0.60	0.03	0.00	0.00	32.40	5.50	2.16	0.00
1.20	0.07	0.00	0.00	33.00	5.50	2.16	0.00
1.80	0.10	0.00	0.00	33.60	5.50	2.16	0.00
2.40	0.13	0.00	0.00	34.20	5.50	2.16	0.00
3.00	0.17	0.00	0.00	34.80	5.50	2.16	0.00
3.60	0.21	0.00	0.00	35.40	5.50	2.16	0.00
4.20	0.25	0.00	0.00	36.00	5.50	2.16	0.00
4.80	0.30	0.00	0.00	36.60	5.50	2.16	0.00
5.40	0.34	0.00	0.00	37.20	5.50	2.16	0.00
6.00	0.40	0.00	0.00	37.80	5.50	2.16	0.00
6.60	0.45	0.00	0.00	38.40	5.50	2.16	0.00
7.20	0.52	0.00	0.00	39.00	5.50	2.16	0.00
7.80	0.60	0.00	0.00	39.60	5.50	2.16	0.00
8.40	0.69	0.00	0.00	40.20	5.50	2.16	0.00
9.00	0.80	0.00	0.00	40.80	5.50	2.16	0.00
9.60	0.94	0.00	0.00	41.40	5.50	2.16	0.00
10.20	1.10	0.00	0.01	42.00	5.50	2.16	0.00
10.80	1.30	0.02	0.06	42.60	5.50	2.16	0.00
11.40	1.58	0.06	0.18	43.20	5.50	2.16	0.00
12.00	2.75	0.47	1.83	43.80	5.50	2.16	0.00
12.60	3.92	1.10	0.93	44.40	5.50	2.16	0.00
13.20	4.20	1.27	0.45	45.00	5.50	2.16	0.00
13.80	4.40	1.40	0.37	45.60	5.50	2.16	0.00
14.40	4.56	1.51	0.30	46.20	5.50	2.16	0.00
15.00	4.70	1.60	0.26	46.80	5.50	2.16	0.00
15.60	4.81	1.67	0.22	47.40	5.50	2.16	0.00
16.20	4.90	1.73	0.18	48.00	5.50	2.16	0.00
16.80	4.98	1.79	0.16	48.60	5.50	2.16	0.00
17.40	5.05	1.84	0.14	49.20	5.50	2.16	0.00
18.00	5.10	1.88	0.12	49.80	5.50	2.16	0.00
18.60	5.16	1.91	0.11	50.40	5.50	2.16	0.00
19.20	5.20	1.95	0.10	51.00	5.50	2.16	0.00
19.80	5.25	1.98	0.10	51.60	5.50	2.16	0.00
20.40	5.29	2.01	0.09	52.20	5.50	2.16	0.00
21.00	5.33	2.04	0.09	52.80	5.50	2.16	0.00
21.60	5.37	2.07	0.08	53.40	5.50	2.16	0.00
22.20	5.41	2.09	0.08	54.00	5.50	2.16	0.00
22.80	5.44	2.12	0.07	54.60	5.50	2.16	0.00
23.40	5.47	2.14	0.07	55.20	5.50	2.16	0.00
24.00	5.50	2.16	0.06	55.80	5.50	2.16	0.00
24.60	5.50	2.16	0.00	56.40	5.50	2.16	0.00
25.20	5.50	2.16	0.00	57.00	5.50	2.16	0.00
25.80	5.50	2.16	0.00	57.60	5.50	2.16	0.00
26.40	5.50	2.16	0.00	58.20	5.50	2.16	0.00
27.00	5.50	2.16	0.00	58.80	5.50	2.16	0.00
27.60	5.50	2.16	0.00	59.40	5.50	2.16	0.00
28.20	5.50	2.16	0.00	60.00	5.50	2.16	0.00
28.80	5.50	2.16	0.00	60.60	5.50	2.16	0.00
29.40	5.50	2.16	0.00	61.20	5.50	2.16	0.00
30.00	5.50	2.16	0.00	61.80	5.50	2.16	0.00
30.60	5.50	2.16	0.00	62.40	5.50	2.16	0.00
31.20	5.50	2.16	0.00	63.00	5.50	2.16	0.00

Summary for Subcatchment 10S: SITE

Runoff = 0.20 cfs @ 12.25 hrs, Volume= 1.195 cf, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description			
433	30	Woods, Good, HSG A			
1,184	70	Woods, Good, HSG C			
13,395	39	>75% Grass cover, Good, HSG A			
2,637	74	>75% Grass cover, Good, HSG C			
629	98	Paved parking, HSG A			
18,278	48	Weighted Average			
17,649		96.56% Pervious Area			
629		3.44% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	50	0.0100	0.08		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
2.0	228	0.0750	1.92		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps

Hydrograph for Subcatchment 10S: SITE

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	5.50	0.78	0.00
0.60	0.03	0.00	0.00	32.40	5.50	0.78	0.00
1.20	0.07	0.00	0.00	33.00	5.50	0.78	0.00
1.80	0.10	0.00	0.00	33.60	5.50	0.78	0.00
2.40	0.13	0.00	0.00	34.20	5.50	0.78	0.00
3.00	0.17	0.00	0.00	34.80	5.50	0.78	0.00
3.60	0.21	0.00	0.00	35.40	5.50	0.78	0.00
4.20	0.25	0.00	0.00	36.00	5.50	0.78	0.00
4.80	0.30	0.00	0.00	36.60	5.50	0.78	0.00
5.40	0.34	0.00	0.00	37.20	5.50	0.78	0.00
6.00	0.40	0.00	0.00	37.80	5.50	0.78	0.00
6.60	0.45	0.00	0.00	38.40	5.50	0.78	0.00
7.20	0.52	0.00	0.00	39.00	5.50	0.78	0.00
7.80	0.60	0.00	0.00	39.60	5.50	0.78	0.00
8.40	0.69	0.00	0.00	40.20	5.50	0.78	0.00
9.00	0.80	0.00	0.00	40.80	5.50	0.78	0.00
9.60	0.94	0.00	0.00	41.40	5.50	0.78	0.00
10.20	1.10	0.00	0.00	42.00	5.50	0.78	0.00
10.80	1.30	0.00	0.00	42.60	5.50	0.78	0.00
11.40	1.58	0.00	0.00	43.20	5.50	0.78	0.00
12.00	2.75	0.03	0.01	43.80	5.50	0.78	0.00
12.60	3.92	0.25	0.11	44.40	5.50	0.78	0.00
13.20	4.20	0.32	0.05	45.00	5.50	0.78	0.00
13.80	4.40	0.38	0.04	45.60	5.50	0.78	0.00
14.40	4.56	0.43	0.04	46.20	5.50	0.78	0.00
15.00	4.70	0.48	0.03	46.80	5.50	0.78	0.00
15.60	4.81	0.52	0.03	47.40	5.50	0.78	0.00
16.20	4.90	0.55	0.02	48.00	5.50	0.78	0.00
16.80	4.98	0.58	0.02	48.60	5.50	0.78	0.00
17.40	5.05	0.60	0.02	49.20	5.50	0.78	0.00
18.00	5.10	0.63	0.02	49.80	5.50	0.78	0.00
18.60	5.16	0.65	0.01	50.40	5.50	0.78	0.00
19.20	5.20	0.66	0.01	51.00	5.50	0.78	0.00
19.80	5.25	0.68	0.01	51.60	5.50	0.78	0.00
20.40	5.29	0.70	0.01	52.20	5.50	0.78	0.00
21.00	5.33	0.72	0.01	52.80	5.50	0.78	0.00
21.60	5.37	0.73	0.01	53.40	5.50	0.78	0.00
22.20	5.41	0.75	0.01	54.00	5.50	0.78	0.00
22.80	5.44	0.76	0.01	54.60	5.50	0.78	0.00
23.40	5.47	0.77	0.01	55.20	5.50	0.78	0.00
24.00	5.50	0.78	0.01	55.80	5.50	0.78	0.00
24.60	5.50	0.78	0.00	56.40	5.50	0.78	0.00
25.20	5.50	0.78	0.00	57.00	5.50	0.78	0.00
25.80	5.50	0.78	0.00	57.60	5.50	0.78	0.00
26.40	5.50	0.78	0.00	58.20	5.50	0.78	0.00
27.00	5.50	0.78	0.00	58.80	5.50	0.78	0.00
27.60	5.50	0.78	0.00	59.40	5.50	0.78	0.00
28.20	5.50	0.78	0.00	60.00	5.50	0.78	0.00
28.80	5.50	0.78	0.00	60.60	5.50	0.78	0.00
29.40	5.50	0.78	0.00	61.20	5.50	0.78	0.00
30.00	5.50	0.78	0.00	61.80	5.50	0.78	0.00
30.60	5.50	0.78	0.00	62.40	5.50	0.78	0.00
31.20	5.50	0.78	0.00	63.00	5.50	0.78	0.00

Summary for Subcatchment 11S: SITE

Runoff = 0.86 cfs @ 12.13 hrs, Volume= 3.035 cf, Depth= 2.16"
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description			
4,738	98	Paved parking, HSG A			
1,581	98	Paved parking, HSG C			
7,866	39	>75% Grass cover, Good, HSG A			
2,681	74	>75% Grass cover, Good, HSG C			
16,866	67	Weighted Average			
10,547		62.53% Pervious Area			
6,319		37.47% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	50	0.0200	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
0.2	17	0.0300	1.21		Shallow Concentrated Flow, Short Grass Pasture Kx= 7.0 fps
0.5	140	0.0550	4.76		Shallow Concentrated Flow, Paved Kx= 20.3 fps
8.9	207	Total			

Hydrograph for Subcatchment 11S: SITE

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	5.50	2.16	0.00
0.60	0.03	0.00	0.00	32.40	5.50	2.16	0.00
1.20	0.07	0.00	0.00	33.00	5.50	2.16	0.00
1.80	0.10	0.00	0.00	33.60	5.50	2.16	0.00
2.40	0.13	0.00	0.00	34.20	5.50	2.16	0.00
3.00	0.17	0.00	0.00	34.80	5.50	2.16	0.00
3.60	0.21	0.00	0.00	35.40	5.50	2.16	0.00
4.20	0.25	0.00	0.00	36.00	5.50	2.16	0.00
4.80	0.30	0.00	0.00	36.60	5.50	2.16	0.00
5.40	0.34	0.00	0.00	37.20	5.50	2.16	0.00
6.00	0.40	0.00	0.00	37.80	5.50	2.16	0.00
6.60	0.45	0.00	0.00	38.40	5.50	2.16	0.00
7.20	0.52	0.00	0.00	39.00	5.50	2.16	0.00
7.80	0.60	0.00	0.00	39.60	5.50	2.16	0.00
8.40	0.69	0.00	0.00	40.20	5.50	2.16	0.00
9.00	0.80	0.00	0.00	40.80	5.50	2.16	0.00
9.60	0.94	0.00	0.00	41.40	5.50	2.16	0.00
10.20	1.10	0.00	0.00	42.00	5.50	2.16	0.00
10.80	1.30	0.02	0.01	42.60	5.50	2.16	0.00
11.40	1.58	0.06	0.04	43.20	5.50	2.16	0.00
12.00	2.75	0.47	0.39	43.80	5.50	2.16	0.00
12.60	3.92	1.10	0.20	44.40	5.50	2.16	0.00
13.20	4.20	1.27	0.10	45.00	5.50	2.16	0.00
13.80	4.40	1.40	0.08	45.60	5.50	2.16	0.00
14.40	4.56	1.51	0.07	46.20	5.50	2.16	0.00
15.00	4.70	1.60	0.06	46.80	5.50	2.16	0.00
15.60	4.81	1.67	0.05	47.40	5.50	2.16	0.00
16.20	4.90	1.73	0.04	48.00	5.50	2.16	0.00
16.80	4.98	1.79	0.03	48.60	5.50	2.16	0.00
17.40	5.05	1.84	0.03	49.20	5.50	2.16	0.00
18.00	5.10	1.88	0.03	49.80	5.50	2.16	0.00
18.60	5.16	1.91	0.02	50.40	5.50	2.16	0.00
19.20	5.20	1.95	0.02	51.00	5.50	2.16	0.00
19.80	5.25	1.98	0.02	51.60	5.50	2.16	0.00
20.40	5.29	2.01	0.02	52.20	5.50	2.16	0.00
21.00	5.33	2.04	0.02	52.80	5.50	2.16	0.00
21.60	5.37	2.07	0.02	53.40	5.50	2.16	0.00
22.20	5.41	2.09	0.02	54.00	5.50	2.16	0.00
22.80	5.44	2.12	0.02	54.60	5.50	2.16	0.00
23.40	5.47	2.14	0.01	55.20	5.50	2.16	0.00
24.00	5.50	2.16	0.01	55.80	5.50	2.16	0.00
24.60	5.50	2.16	0.00	56.40	5.50	2.16	0.00
25.20	5.50	2.16	0.00	57.00	5.50	2.16	0.00
25.80	5.50	2.16	0.00	57.60	5.50	2.16	0.00
26.40	5.50	2.16	0.00	58.20	5.50	2.16	0.00
27.00	5.50	2.16	0.00	58.80	5.50	2.16	0.00
27.60	5.50	2.16	0.00	59.40	5.50	2.16	0.00
28.20	5.50	2.16	0.00	60.00	5.50	2.16	0.00
28.80	5.50	2.16	0.00	60.60	5.50	2.16	0.00
29.40	5.50	2.16	0.00	61.20	5.50	2.16	0.00
30.00	5.50	2.16	0.00	61.80	5.50	2.16	0.00
30.60	5.50	2.16	0.00	62.40	5.50	2.16	0.00
31.20	5.50	2.16	0.00	63.00	5.50	2.16	0.00

Summary for Subcatchment 12S: SITE

Runoff = 1.50 cfs @ 12.25 hrs, Volume= 6,600 cf, Depth= 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description			
1,561	70	Woods, Good, HSG C			
12,374	39	>75% Grass cover, Good, HSG A			
6,069	74	>75% Grass cover, Good, HSG C			
6,906	98	Paved parking, HSG A			
5,895	98	Paved parking, HSG C			
32,805	70	Weighted Average			
20,004		60.98% Pervious Area			
12,801		39.02% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	50	0.0050	0.06		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20" Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	114	0.0320	1.25		Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.7	355	0.0280	3.40		
17.5	519	Total			

Hydrograph for Subcatchment 12S: SITE

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	5.50	2.41	0.00
0.60	0.03	0.00	0.00	32.40	5.50	2.41	0.00
1.20	0.07	0.00	0.00	33.00	5.50	2.41	0.00
1.80	0.10	0.00	0.00	33.60	5.50	2.41	0.00
2.40	0.13	0.00	0.00	34.20	5.50	2.41	0.00
3.00	0.17	0.00	0.00	34.80	5.50	2.41	0.00
3.60	0.21	0.00	0.00	35.40	5.50	2.41	0.00
4.20	0.25	0.00	0.00	36.00	5.50	2.41	0.00
4.80	0.30	0.00	0.00	36.60	5.50	2.41	0.00
5.40	0.34	0.00	0.00	37.20	5.50	2.41	0.00
6.00	0.40	0.00	0.00	37.80	5.50	2.41	0.00
6.60	0.45	0.00	0.00	38.40	5.50	2.41	0.00
7.20	0.52	0.00	0.00	39.00	5.50	2.41	0.00
7.80	0.60	0.00	0.00	39.60	5.50	2.41	0.00
8.40	0.69	0.00	0.00	40.20	5.50	2.41	0.00
9.00	0.80	0.00	0.00	40.80	5.50	2.41	0.00
9.60	0.94	0.00	0.00	41.40	5.50	2.41	0.00
10.20	1.10	0.01	0.01	42.00	5.50	2.41	0.00
10.80	1.30	0.04	0.04	42.60	5.50	2.41	0.00
11.40	1.58	0.10	0.08	43.20	5.50	2.41	0.00
12.00	2.75	0.58	0.53	43.80	5.50	2.41	0.00
12.60	3.92	1.28	0.72	44.40	5.50	2.41	0.00
13.20	4.20	1.47	0.23	45.00	5.50	2.41	0.00
13.80	4.40	1.61	0.17	45.60	5.50	2.41	0.00
14.40	4.56	1.72	0.14	46.20	5.50	2.41	0.00
15.00	4.70	1.82	0.12	46.80	5.50	2.41	0.00
15.60	4.81	1.90	0.10	47.40	5.50	2.41	0.00
16.20	4.90	1.96	0.08	48.00	5.50	2.41	0.00
16.80	4.98	2.02	0.07	48.60	5.50	2.41	0.00
17.40	5.05	2.07	0.06	49.20	5.50	2.41	0.00
18.00	5.10	2.11	0.05	49.80	5.50	2.41	0.00
18.60	5.16	2.15	0.05	50.40	5.50	2.41	0.00
19.20	5.20	2.19	0.05	51.00	5.50	2.41	0.00
19.80	5.25	2.22	0.04	51.60	5.50	2.41	0.00
20.40	5.29	2.26	0.04	52.20	5.50	2.41	0.00
21.00	5.33	2.29	0.04	52.80	5.50	2.41	0.00
21.60	5.37	2.31	0.04	53.40	5.50	2.41	0.00
22.20	5.41	2.34	0.03	54.00	5.50	2.41	0.00
22.80	5.44	2.37	0.03	54.60	5.50	2.41	0.00
23.40	5.47	2.39	0.03	55.20	5.50	2.41	0.00
24.00	5.50	2.41	0.03	55.80	5.50	2.41	0.00
24.60	5.50	2.41	0.00	56.40	5.50	2.41	0.00
25.20	5.50	2.41	0.00	57.00	5.50	2.41	0.00
25.80	5.50	2.41	0.00	57.60	5.50	2.41	0.00
26.40	5.50	2.41	0.00	58.20	5.50	2.41	0.00
27.00	5.50	2.41	0.00	58.80	5.50	2.41	0.00
27.60	5.50	2.41	0.00	59.40	5.50	2.41	0.00
28.20	5.50	2.41	0.00	60.00	5.50	2.41	0.00
28.80	5.50	2.41	0.00	60.60	5.50	2.41	0.00
29.40	5.50	2.41	0.00	61.20	5.50	2.41	0.00
30.00	5.50	2.41	0.00	61.80	5.50	2.41	0.00
30.60	5.50	2.41	0.00	62.40	5.50	2.41	0.00
31.20	5.50	2.41	0.00	63.00	5.50	2.41	0.00

Summary for Subcatchment 13S: SITE

Runoff = 0.04 cfs @ 12.52 hrs, Volume= 541 cf, Depth= 0.31"
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description			
921	30	Woods, Good, HSG A			
19,828	39	>75% Grass cover, Good, HSG A			
27	98	Paved parking, HSG A			
20,776	39	Weighted Average			
20,749		99.87% Pervious Area			
27		0.13% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0700	0.06		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.20"
0.8	88	0.0700	1.85		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
138	138	Total			

Hydrograph for Subcatchment 13S: SITE

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	5.50	0.31	0.00
0.60	0.03	0.00	0.00	32.40	5.50	0.31	0.00
1.20	0.07	0.00	0.00	33.00	5.50	0.31	0.00
1.80	0.10	0.00	0.00	33.60	5.50	0.31	0.00
2.40	0.13	0.00	0.00	34.20	5.50	0.31	0.00
3.00	0.17	0.00	0.00	34.80	5.50	0.31	0.00
3.60	0.21	0.00	0.00	35.40	5.50	0.31	0.00
4.20	0.25	0.00	0.00	36.00	5.50	0.31	0.00
4.80	0.30	0.00	0.00	36.60	5.50	0.31	0.00
5.40	0.34	0.00	0.00	37.20	5.50	0.31	0.00
6.00	0.40	0.00	0.00	37.80	5.50	0.31	0.00
6.60	0.45	0.00	0.00	38.40	5.50	0.31	0.00
7.20	0.52	0.00	0.00	39.00	5.50	0.31	0.00
7.80	0.60	0.00	0.00	39.60	5.50	0.31	0.00
8.40	0.69	0.00	0.00	40.20	5.50	0.31	0.00
9.00	0.80	0.00	0.00	40.80	5.50	0.31	0.00
9.60	0.94	0.00	0.00	41.40	5.50	0.31	0.00
10.20	1.10	0.00	0.00	42.00	5.50	0.31	0.00
10.80	1.30	0.00	0.00	42.60	5.50	0.31	0.00
11.40	1.58	0.00	0.00	43.20	5.50	0.31	0.00
12.00	2.75	0.00	0.00	43.80	5.50	0.31	0.00
12.60	3.92	0.04	0.04	44.40	5.50	0.31	0.00
13.20	4.20	0.07	0.02	45.00	5.50	0.31	0.00
13.80	4.40	0.10	0.02	45.60	5.50	0.31	0.00
14.40	4.56	0.12	0.02	46.20	5.50	0.31	0.00
15.00	4.70	0.14	0.02	46.80	5.50	0.31	0.00
15.60	4.81	0.16	0.02	47.40	5.50	0.31	0.00
16.20	4.90	0.18	0.01	48.00	5.50	0.31	0.00
16.80	4.98	0.20	0.01	48.60	5.50	0.31	0.00
17.40	5.05	0.21	0.01	49.20	5.50	0.31	0.00
18.00	5.10	0.22	0.01	49.80	5.50	0.31	0.00
18.60	5.16	0.23	0.01	50.40	5.50	0.31	0.00
19.20	5.20	0.24	0.01	51.00	5.50	0.31	0.00
19.80	5.25	0.25	0.01	51.60	5.50	0.31	0.00
20.40	5.29	0.26	0.01	52.20	5.50	0.31	0.00
21.00	5.33	0.27	0.01	52.80	5.50	0.31	0.00
21.60	5.37	0.28	0.01	53.40	5.50	0.31	0.00
22.20	5.41	0.29	0.01	54.00	5.50	0.31	0.00
22.80	5.44	0.30	0.01	54.60	5.50	0.31	0.00
23.40	5.47	0.31	0.01	55.20	5.50	0.31	0.00
24.00	5.50	0.31	0.01	55.80	5.50	0.31	0.00
24.60	5.50	0.31	0.00	56.40	5.50	0.31	0.00
25.20	5.50	0.31	0.00	57.00	5.50	0.31	0.00
25.80	5.50	0.31	0.00	57.60	5.50	0.31	0.00
26.40	5.50	0.31	0.00	58.20	5.50	0.31	0.00
27.00	5.50	0.31	0.00	58.80	5.50	0.31	0.00
27.60	5.50	0.31	0.00	59.40	5.50	0.31	0.00
28.20	5.50	0.31	0.00	60.00	5.50	0.31	0.00
28.80	5.50	0.31	0.00	60.60	5.50	0.31	0.00
29.40	5.50	0.31	0.00	61.20	5.50	0.31	0.00
30.00	5.50	0.31	0.00	61.80	5.50	0.31	0.00
30.60	5.50	0.31	0.00	62.40	5.50	0.31	0.00
31.20	5.50	0.31	0.00	63.00	5.50	0.31	0.00

Summary for Subcatchment 14S: SITE

Runoff	=	1.97 cfs @	12.11 hrs,	Volume=	6.661 cf,	Depth= 1.91"
Runoff by SCS TR-20 method. UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs						
Type III 24-hr 25 YR Rainfall=5.50"						
Area (sf)	CN	Description				
13,490	39	>75% Grass cover, Good, HSG A				
1,728	30	Woods, Good, HSG A				
1,966	74	>75% Grass cover, Good, HSG C				
670	70	Woods, Good, HSG C				
14,514	80	>75% Grass cover, Good, HSG D				
9,394	77	Woods, Good, HSG D				
41,762	64	Weighted Average				
41,762		100.00% Pervious Area				
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
5.2	50	0.0630	0.16		Sheet Flow,	
					Grass: Dense n= 0.240 P2= 3.20"	
1.9	192	0.0560	1.66		Shallow Concentrated Flow,	
					Short Grass Pasture Ky= 7.0 lbs	

Hydrograph for Subcatchment 14S: SITE

[illegible]

Summary for Subcatchment 20S: UNITS 1.2,3,4

Runoff = 0.94 cfs @ 12.08 hrs, Volume= 3.357 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description
3,975	98	Roofs, HSG A
3,681	98	Roofs, HSG C
7,656	98	Weighted Average
7,656	98	100.00% Impervious Area

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

Hydrograph for Subcatchment 20S: UNITS 1.2,3,4

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	5.50	5.26	0.00
0.60	0.03	0.00	0.00	32.40	5.50	5.26	0.00
1.20	0.07	0.00	0.00	33.00	5.50	5.26	0.00
1.80	0.10	0.01	0.00	33.60	5.50	5.26	0.00
2.40	0.13	0.03	0.01	34.20	5.50	5.26	0.00
3.00	0.17	0.05	0.01	34.80	5.50	5.26	0.00
3.60	0.21	0.08	0.01	35.40	5.50	5.26	0.00
4.20	0.25	0.11	0.01	36.00	5.50	5.26	0.00
4.80	0.30	0.14	0.01	36.60	5.50	5.26	0.00
5.40	0.34	0.18	0.01	37.20	5.50	5.26	0.00
6.00	0.40	0.23	0.01	37.80	5.50	5.26	0.00
6.60	0.45	0.28	0.02	38.40	5.50	5.26	0.00
7.20	0.52	0.34	0.02	39.00	5.50	5.26	0.00
7.80	0.60	0.41	0.02	39.60	5.50	5.26	0.00
8.40	0.69	0.49	0.03	40.20	5.50	5.26	0.00
9.00	0.80	0.60	0.03	40.80	5.50	5.26	0.00
9.60	0.94	0.73	0.04	41.40	5.50	5.26	0.00
10.20	1.10	0.88	0.05	42.00	5.50	5.26	0.00
10.80	1.30	1.08	0.06	42.60	5.50	5.26	0.00
11.40	1.58	1.36	0.10	43.20	5.50	5.26	0.00
12.00	2.75	2.52	0.60	43.80	5.50	5.26	0.00
12.60	3.92	3.69	0.13	44.40	5.50	5.26	0.00
13.20	4.20	3.97	0.07	45.00	5.50	5.26	0.00
13.80	4.40	4.17	0.05	45.60	5.50	5.26	0.00
14.40	4.56	4.33	0.04	46.20	5.50	5.26	0.00
15.00	4.70	4.46	0.04	46.80	5.50	5.26	0.00
15.60	4.81	4.57	0.03	47.40	5.50	5.26	0.00
16.20	4.90	4.66	0.02	48.00	5.50	5.26	0.00
16.80	4.98	4.74	0.02	48.60	5.50	5.26	0.00
17.40	5.05	4.81	0.02	49.20	5.50	5.26	0.00
18.00	5.10	4.87	0.02	49.80	5.50	5.26	0.00
18.60	5.16	4.92	0.01	50.40	5.50	5.26	0.00
19.20	5.20	4.97	0.01	51.00	5.50	5.26	0.00
19.80	5.25	5.01	0.01	51.60	5.50	5.26	0.00
20.40	5.29	5.05	0.01	52.20	5.50	5.26	0.00
21.00	5.33	5.09	0.01	52.80	5.50	5.26	0.00
21.60	5.37	5.13	0.01	53.40	5.50	5.26	0.00
22.20	5.41	5.17	0.01	54.00	5.50	5.26	0.00
22.80	5.44	5.20	0.01	54.60	5.50	5.26	0.00
23.40	5.47	5.23	0.01	55.20	5.50	5.26	0.00
24.00	5.50	5.26	0.01	55.80	5.50	5.26	0.00
24.60	5.50	5.26	0.00	56.40	5.50	5.26	0.00
25.20	5.50	5.26	0.00	57.00	5.50	5.26	0.00
25.80	5.50	5.26	0.00	57.60	5.50	5.26	0.00
26.40	5.50	5.26	0.00	58.20	5.50	5.26	0.00
27.00	5.50	5.26	0.00	58.80	5.50	5.26	0.00
27.60	5.50	5.26	0.00	59.40	5.50	5.26	0.00
28.20	5.50	5.26	0.00	60.00	5.50	5.26	0.00
28.80	5.50	5.26	0.00	60.60	5.50	5.26	0.00
29.40	5.50	5.26	0.00	61.20	5.50	5.26	0.00
30.00	5.50	5.26	0.00	61.80	5.50	5.26	0.00
30.60	5.50	5.26	0.00	62.40	5.50	5.26	0.00
31.20	5.50	5.26	0.00	63.00	5.50	5.26	0.00

Summary for Subcatchment 21S: UNIT 12

Runoff = 0.21 cfs @ 12.08 hrs, Volume= 759 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description			
1,730	98	Roofs, HSG A			
1,730		100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Hydrograph for Subcatchment 21S: UNIT 12

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	5.50	5.26	0.00
0.60	0.03	0.00	0.00	32.40	5.50	5.26	0.00
1.20	0.07	0.00	0.00	33.00	5.50	5.26	0.00
1.80	0.10	0.01	0.00	33.60	5.50	5.26	0.00
2.40	0.13	0.03	0.00	34.20	5.50	5.26	0.00
3.00	0.17	0.05	0.00	34.80	5.50	5.26	0.00
3.60	0.21	0.08	0.00	35.40	5.50	5.26	0.00
4.20	0.25	0.11	0.00	36.00	5.50	5.26	0.00
4.80	0.30	0.14	0.00	36.60	5.50	5.26	0.00
5.40	0.34	0.18	0.00	37.20	5.50	5.26	0.00
6.00	0.40	0.23	0.00	37.80	5.50	5.26	0.00
6.60	0.45	0.28	0.00	38.40	5.50	5.26	0.00
7.20	0.52	0.34	0.00	39.00	5.50	5.26	0.00
7.80	0.60	0.41	0.01	39.60	5.50	5.26	0.00
8.40	0.69	0.49	0.01	40.20	5.50	5.26	0.00
9.00	0.80	0.60	0.01	40.80	5.50	5.26	0.00
9.60	0.94	0.73	0.01	41.40	5.50	5.26	0.00
10.20	1.10	0.88	0.01	42.00	5.50	5.26	0.00
10.80	1.30	1.08	0.01	42.60	5.50	5.26	0.00
11.40	1.58	1.36	0.02	43.20	5.50	5.26	0.00
12.00	2.75	2.52	0.14	43.80	5.50	5.26	0.00
12.60	3.92	3.69	0.03	44.40	5.50	5.26	0.00
13.20	4.20	3.97	0.02	45.00	5.50	5.26	0.00
13.80	4.40	4.17	0.01	45.60	5.50	5.26	0.00
14.40	4.56	4.33	0.01	46.20	5.50	5.26	0.00
15.00	4.70	4.46	0.01	46.80	5.50	5.26	0.00
15.60	4.81	4.57	0.01	47.40	5.50	5.26	0.00
16.20	4.90	4.66	0.01	48.00	5.50	5.26	0.00
16.80	4.98	4.74	0.00	48.60	5.50	5.26	0.00
17.40	5.05	4.81	0.00	49.20	5.50	5.26	0.00
18.00	5.10	4.87	0.00	49.80	5.50	5.26	0.00
18.60	5.16	4.92	0.00	50.40	5.50	5.26	0.00
19.20	5.20	4.97	0.00	51.00	5.50	5.26	0.00
19.80	5.25	5.01	0.00	51.60	5.50	5.26	0.00
20.40	5.29	5.05	0.00	52.20	5.50	5.26	0.00
21.00	5.33	5.09	0.00	52.80	5.50	5.26	0.00
21.60	5.37	5.13	0.00	53.40	5.50	5.26	0.00
22.20	5.41	5.17	0.00	54.00	5.50	5.26	0.00
22.80	5.44	5.20	0.00	54.60	5.50	5.26	0.00
23.40	5.47	5.23	0.00	55.20	5.50	5.26	0.00
24.00	5.50	5.26	0.00	55.80	5.50	5.26	0.00
24.60	5.50	5.26	0.00	56.40	5.50	5.26	0.00
25.20	5.50	5.26	0.00	57.00	5.50	5.26	0.00
25.80	5.50	5.26	0.00	57.60	5.50	5.26	0.00
26.40	5.50	5.26	0.00	58.20	5.50	5.26	0.00
27.00	5.50	5.26	0.00	58.80	5.50	5.26	0.00
27.60	5.50	5.26	0.00	59.40	5.50	5.26	0.00
28.20	5.50	5.26	0.00	60.00	5.50	5.26	0.00
28.80	5.50	5.26	0.00	60.60	5.50	5.26	0.00
29.40	5.50	5.26	0.00	61.20	5.50	5.26	0.00
30.00	5.50	5.26	0.00	61.80	5.50	5.26	0.00
30.60	5.50	5.26	0.00	62.40	5.50	5.26	0.00
31.20	5.50	5.26	0.00	63.00	5.50	5.26	0.00

3438 40B DRAINAGE

Prepared by Engineering Design Consultants, Inc.

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Type III 24-hr 25 YR Rainfall=5.50"

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Summary for Subcatchment 22S: UNITS 5.6

Runoff = 0.45 cfs @ 12.08 hrs, Volume= 1,614 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description
3,681	98	Roofs, HSG C
3,681		100.00% Impervious Area

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

3438 40B DRAINAGE

Prepared by Engineering Design Consultants, Inc.

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Type III 24-hr 25 YR Rainfall=5.50"

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Hydrograph for Subcatchment 22S: UNITS 5.6

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	5.50	5.26	0.00	63.60	5.50	5.26	0.00
0.60	0.03	0.00	0.00	32.40	5.50	5.26	0.00	64.20	5.50	5.26	0.00
1.20	0.07	0.00	0.00	33.00	5.50	5.26	0.00	64.80	5.50	5.26	0.00
1.80	0.10	0.01	0.00	33.60	5.50	5.26	0.00	65.40	5.50	5.26	0.00
2.40	0.13	0.03	0.00	34.20	5.50	5.26	0.00	66.00	5.50	5.26	0.00
3.00	0.17	0.05	0.00	34.80	5.50	5.26	0.00	66.60	5.50	5.26	0.00
3.60	0.21	0.08	0.00	35.40	5.50	5.26	0.00	67.20	5.50	5.26	0.00
4.20	0.25	0.11	0.00	36.00	5.50	5.26	0.00	67.80	5.50	5.26	0.00
4.80	0.30	0.14	0.01	36.60	5.50	5.26	0.00	68.40	5.50	5.26	0.00
5.40	0.34	0.18	0.01	37.20	5.50	5.26	0.00	69.00	5.50	5.26	0.00
6.00	0.40	0.23	0.01	37.80	5.50	5.26	0.00	69.60	5.50	5.26	0.00
6.60	0.45	0.28	0.01	38.40	5.50	5.26	0.00	70.20	5.50	5.26	0.00
7.20	0.52	0.34	0.01	39.00	5.50	5.26	0.00	70.80	5.50	5.26	0.00
7.80	0.60	0.41	0.01	39.60	5.50	5.26	0.00	71.40	5.50	5.26	0.00
8.40	0.69	0.49	0.01	40.20	5.50	5.26	0.00	72.00	5.50	5.26	0.00
9.00	0.80	0.60	0.02	40.80	5.50	5.26	0.00				
9.60	0.94	0.73	0.02	41.40	5.50	5.26	0.00				
10.20	1.10	0.88	0.02	42.00	5.50	5.26	0.00				
10.80	1.30	1.08	0.03	42.60	5.50	5.26	0.00				
11.40	1.58	1.36	0.05	43.20	5.50	5.26	0.00				
12.00	2.75	2.52	0.29	43.80	5.50	5.26	0.00				
12.60	3.92	3.69	0.06	44.40	5.50	5.26	0.00				
13.20	4.20	3.97	0.03	45.00	5.50	5.26	0.00				
13.80	4.40	4.17	0.03	45.60	5.50	5.26	0.00				
14.40	4.56	4.33	0.02	46.20	5.50	5.26	0.00				
15.00	4.70	4.46	0.02	46.80	5.50	5.26	0.00				
15.60	4.81	4.57	0.01	47.40	5.50	5.26	0.00				
16.20	4.90	4.66	0.01	48.00	5.50	5.26	0.00				
16.80	4.98	4.74	0.01	48.60	5.50	5.26	0.00				
17.40	5.05	4.81	0.01	49.20	5.50	5.26	0.00				
18.00	5.10	4.87	0.01	49.80	5.50	5.26	0.00				
18.60	5.16	4.92	0.01	50.40	5.50	5.26	0.00				
19.20	5.20	4.97	0.01	51.00	5.50	5.26	0.00				
19.80	5.25	5.01	0.01	51.60	5.50	5.26	0.00				
20.40	5.29	5.05	0.01	52.20	5.50	5.26	0.00				
21.00	5.33	5.09	0.01	52.80	5.50	5.26	0.00				
21.60	5.37	5.13	0.01	53.40	5.50	5.26	0.00				
22.20	5.41	5.17	0.00	54.00	5.50	5.26	0.00				
22.80	5.44	5.20	0.00	54.60	5.50	5.26	0.00				
23.40	5.47	5.23	0.00	55.20	5.50	5.26	0.00				
24.00	5.50	5.26	0.00	55.80	5.50	5.26	0.00				
24.60	5.50	5.26	0.00	56.40	5.50	5.26	0.00				
25.20	5.50	5.26	0.00	57.00	5.50	5.26	0.00				
25.80	5.50	5.26	0.00	57.60	5.50	5.26	0.00				
26.40	5.50	5.26	0.00	58.20	5.50	5.26	0.00				
27.00	5.50	5.26	0.00	58.80	5.50	5.26	0.00				
27.60	5.50	5.26	0.00	59.40	5.50	5.26	0.00				
28.20	5.50	5.26	0.00	60.00	5.50	5.26	0.00				
28.80	5.50	5.26	0.00	60.60	5.50	5.26	0.00				
29.40	5.50	5.26	0.00	61.20	5.50	5.26	0.00				
30.00	5.50	5.26	0.00	61.80	5.50	5.26	0.00				
30.60	5.50	5.26	0.00	62.40	5.50	5.26	0.00				
31.20	5.50	5.26	0.00	63.00	5.50	5.26	0.00				

Summary for Subcatchment 23S: UNITS 7.8,9,10,11

Hydrograph for Subcatchment 23S: UNITS 7.8,9,10,11

Runoff = 1.11 cfs @ 12.08 hrs, Volume= 3,949 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description
5,521	98	Roofs, HSG C
3,485	98	Roofs, HSG C
9,006	98	Weighted Average
9,006		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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6.0

Direct Entry,

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	5.50	5.26	0.00
0.60	0.03	0.00	0.00	32.40	5.50	5.26	0.00
1.20	0.07	0.00	0.00	33.00	5.50	5.26	0.00
1.80	0.10	0.01	0.00	33.60	5.50	5.26	0.00
2.40	0.13	0.03	0.01	34.20	5.50	5.26	0.00
3.00	0.17	0.05	0.01	34.80	5.50	5.26	0.00
3.60	0.21	0.08	0.01	35.40	5.50	5.26	0.00
4.20	0.25	0.11	0.01	36.00	5.50	5.26	0.00
4.80	0.30	0.14	0.01	36.60	5.50	5.26	0.00
5.40	0.34	0.18	0.01	37.20	5.50	5.26	0.00
6.00	0.40	0.23	0.02	37.80	5.50	5.26	0.00
6.60	0.45	0.28	0.02	38.40	5.50	5.26	0.00
7.20	0.52	0.34	0.02	39.00	5.50	5.26	0.00
7.80	0.60	0.41	0.03	39.60	5.50	5.26	0.00
8.40	0.69	0.49	0.03	40.20	5.50	5.26	0.00
9.00	0.80	0.60	0.04	40.80	5.50	5.26	0.00
9.60	0.94	0.73	0.05	41.40	5.50	5.26	0.00
10.20	1.10	0.88	0.06	42.00	5.50	5.26	0.00
10.80	1.30	1.08	0.07	42.60	5.50	5.26	0.00
11.40	1.58	1.36	0.11	43.20	5.50	5.26	0.00
12.00	2.75	2.52	0.70	43.80	5.50	5.26	0.00
12.60	3.92	3.69	0.15	44.40	5.50	5.26	0.00
13.20	4.20	3.97	0.08	45.00	5.50	5.26	0.00
13.80	4.40	4.17	0.06	45.60	5.50	5.26	0.00
14.40	4.56	4.33	0.05	46.20	5.50	5.26	0.00
15.00	4.70	4.46	0.04	46.80	5.50	5.26	0.00
15.60	4.81	4.57	0.04	47.40	5.50	5.26	0.00
16.20	4.90	4.66	0.03	48.00	5.50	5.26	0.00
16.80	4.98	4.74	0.03	48.60	5.50	5.26	0.00
17.40	5.05	4.81	0.02	49.20	5.50	5.26	0.00
18.00	5.10	4.87	0.02	49.80	5.50	5.26	0.00
18.60	5.16	4.92	0.02	50.40	5.50	5.26	0.00
19.20	5.20	4.97	0.02	51.00	5.50	5.26	0.00
19.80	5.25	5.01	0.02	51.60	5.50	5.26	0.00
20.40	5.29	5.05	0.01	52.20	5.50	5.26	0.00
21.00	5.33	5.09	0.01	52.80	5.50	5.26	0.00
21.60	5.37	5.13	0.01	53.40	5.50	5.26	0.00
22.20	5.41	5.17	0.01	54.00	5.50	5.26	0.00
22.80	5.44	5.20	0.01	54.60	5.50	5.26	0.00
23.40	5.47	5.23	0.01	55.20	5.50	5.26	0.00
24.00	5.50	5.26	0.01	55.80	5.50	5.26	0.00
24.60	5.50	5.26	0.00	56.40	5.50	5.26	0.00
25.20	5.50	5.26	0.00	57.00	5.50	5.26	0.00
25.80	5.50	5.26	0.00	57.60	5.50	5.26	0.00
26.40	5.50	5.26	0.00	58.20	5.50	5.26	0.00
27.00	5.50	5.26	0.00	58.80	5.50	5.26	0.00
27.60	5.50	5.26	0.00	59.40	5.50	5.26	0.00
28.20	5.50	5.26	0.00	60.00	5.50	5.26	0.00
28.80	5.50	5.26	0.00	60.60	5.50	5.26	0.00
29.40	5.50	5.26	0.00	61.20	5.50	5.26	0.00
30.00	5.50	5.26	0.00	61.80	5.50	5.26	0.00
30.60	5.50	5.26	0.00	62.40	5.50	5.26	0.00
31.20	5.50	5.26	0.00	63.00	5.50	5.26	0.00

Summary for Pond 11P: INFIL AREA "A"

Inflow Area = 16,866 sf, 37.47% Impervious, Inflow Depth = 2.16" for 25 YR event
Inflow = 0.86 cfs @ 12.13 hrs, Volume= 3,035 cf
Outflow = 0.17 cfs @ 12.67 hrs, Volume= 3,035 cf, Atten= 81%, Lag= 32.3 min
Discarded = 0.17 cfs @ 12.67 hrs, Volume= 3,035 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 160.43' @ 12.67 hrs Surf.Area= 657 sf Storage= 880 cf

Plug-Flow detention time= 40.3 min calculated for 3,034 cf (100% of inflow)
Center-of-Mass det. time= 40.3 min (893.1 - 852.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	158.50'	578 cf	20.83'W x 31.50'L x 3.54'H Field A 2,324 cf Overall - 879 cf Embedded = 1,445 cf x 40.0% Voids
#2A	159.00'	879 cf	Cultec R-330XLHD x16 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 4 rows
#3	158.50'	3 cf	0.83'D x 5.00'H Vertical Cone/Cylinder
		1,460 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	163.40'	10.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Discarded	158.50'	8.270 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.17 cfs @ 12.67 hrs HW=160.43' (Free Discharge)
└─2=Exfiltration (Exfiltration Controls 0.17 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=158.50' (Free Discharge)
└─1=Orifice/Grate (Controls 0.00 cfs)

Hydrograph for Pond 11P: INFIL AREA "A"

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	158.50	0.00	0.00	0.00
1.50	0.00	0	158.50	0.00	0.00	0.00
3.00	0.00	0	158.50	0.00	0.00	0.00
4.50	0.00	0	158.50	0.00	0.00	0.00
6.00	0.00	0	158.50	0.00	0.00	0.00
7.50	0.00	0	158.50	0.00	0.00	0.00
9.00	0.00	0	158.50	0.00	0.00	0.00
10.50	0.01	1	158.50	0.01	0.01	0.00
12.00	0.39	98	158.87	0.13	0.13	0.00
13.50	0.09	729	160.13	0.16	0.16	0.00
15.00	0.06	291	159.29	0.14	0.14	0.00
16.50	0.04	4	158.51	0.04	0.04	0.00
18.00	0.03	3	158.51	0.03	0.03	0.00
19.50	0.02	2	158.51	0.02	0.02	0.00
21.00	0.02	2	158.51	0.02	0.02	0.00
22.50	0.02	2	158.51	0.02	0.02	0.00
24.00	0.01	1	158.51	0.01	0.01	0.00
25.50	0.00	0	158.50	0.00	0.00	0.00
27.00	0.00	0	158.50	0.00	0.00	0.00
28.50	0.00	0	158.50	0.00	0.00	0.00
30.00	0.00	0	158.50	0.00	0.00	0.00
31.50	0.00	0	158.50	0.00	0.00	0.00
33.00	0.00	0	158.50	0.00	0.00	0.00
34.50	0.00	0	158.50	0.00	0.00	0.00
36.00	0.00	0	158.50	0.00	0.00	0.00
37.50	0.00	0	158.50	0.00	0.00	0.00
39.00	0.00	0	158.50	0.00	0.00	0.00
40.50	0.00	0	158.50	0.00	0.00	0.00
42.00	0.00	0	158.50	0.00	0.00	0.00
43.50	0.00	0	158.50	0.00	0.00	0.00
45.00	0.00	0	158.50	0.00	0.00	0.00
46.50	0.00	0	158.50	0.00	0.00	0.00
48.00	0.00	0	158.50	0.00	0.00	0.00
49.50	0.00	0	158.50	0.00	0.00	0.00
51.00	0.00	0	158.50	0.00	0.00	0.00
52.50	0.00	0	158.50	0.00	0.00	0.00
54.00	0.00	0	158.50	0.00	0.00	0.00
55.50	0.00	0	158.50	0.00	0.00	0.00
57.00	0.00	0	158.50	0.00	0.00	0.00
58.50	0.00	0	158.50	0.00	0.00	0.00
60.00	0.00	0	158.50	0.00	0.00	0.00
61.50	0.00	0	158.50	0.00	0.00	0.00
63.00	0.00	0	158.50	0.00	0.00	0.00
64.50	0.00	0	158.50	0.00	0.00	0.00
66.00	0.00	0	158.50	0.00	0.00	0.00
67.50	0.00	0	158.50	0.00	0.00	0.00
69.00	0.00	0	158.50	0.00	0.00	0.00
70.50	0.00	0	158.50	0.00	0.00	0.00
72.00	0.00	0	158.50	0.00	0.00	0.00

3438 40B DRAINAGE

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Type III 24-hr 25 YR Rainfall=5.50"

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Summary for Pond 12P: INFIL AREA "B"

Inflow Area = 32,805 sf, 39.02% Impervious, Inflow Depth = 2.41" for 25 YR event
Inflow = 1.50 cfs @ 12.25 hrs, Volume= 6,600 cf
Outflow = 0.36 cfs @ 12.85 hrs, Volume= 6,599 cf, Atten= 76%, Lag= 36.1 min
Discarded = 0.36 cfs @ 12.85 hrs, Volume= 6,599 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 6

Peak Elev= 159.65' @ 12.85 hrs Surf.Area= 1,602 sf Storage= 1,848 cf

Plug-Flow detention time= 37.0 min calculated for 6,599 cf (100% of inflow)

Center-of-Mass det. time= 36.9 min (890.2 - 853.3)

Volume	Invert	Avail.Storage	Storage Description
#1A 158.00'	1,365 cf	30.50'W x 52.50'L x 3.54'H Field A	5,671 cf Overall - 2,258 cf Embedded = 3,413 cf x 40.0% Voids
#2A 158.50'	2,258 cf	Cultec R-330XLHD x 42 Inside #1	Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 6 rows
#3 158.00'	3 cf	0.83'D x 5.00'H Vertical Cone/Cylinder	
	3,626 cf	Total Available Storage	

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 Primary	162.50'	10.0' Horiz. Orifice/Grate	C= 0.600 Limited to weir flow at low heads
#2 Discarded	158.00'	8.270 m/hr Exfiltration over Wetted area	

Discarded OutFlow Max=0.36 cfs @ 12.85 hrs HW=159.65' (Free Discharge)

←2=Exfiltration (Exfiltration Controls 0.36 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=158.00' (Free Discharge)

←1=Orifice/Grate (Controls 0.00 cfs)

Hydrograph for Pond 12P: INFIL AREA "B"

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	158.00	0.00	0.00	0.00
1.50	0.00	0	158.00	0.00	0.00	0.00
3.00	0.00	0	158.00	0.00	0.00	0.00
4.50	0.00	0	158.00	0.00	0.00	0.00
6.00	0.00	0	158.00	0.00	0.00	0.00
7.50	0.00	0	158.00	0.00	0.00	0.00
9.00	0.00	0	158.00	0.00	0.00	0.00
10.50	0.02	2	158.00	0.02	0.02	0.00
12.00	0.53	76	158.12	0.31	0.31	0.00
13.50	0.19	1,593	159.45	0.35	0.35	0.00
15.00	0.12	569	158.68	0.33	0.33	0.00
16.50	0.08	8	158.01	0.08	0.08	0.00
18.00	0.05	6	158.01	0.05	0.05	0.00
19.50	0.04	5	158.01	0.04	0.04	0.00
21.00	0.04	4	158.01	0.04	0.04	0.00
22.50	0.03	3	158.01	0.03	0.03	0.00
24.00	0.03	3	158.00	0.03	0.03	0.00
25.50	0.00	0	158.00	0.00	0.00	0.00
27.00	0.00	0	158.00	0.00	0.00	0.00
28.50	0.00	0	158.00	0.00	0.00	0.00
30.00	0.00	0	158.00	0.00	0.00	0.00
31.50	0.00	0	158.00	0.00	0.00	0.00
33.00	0.00	0	158.00	0.00	0.00	0.00
34.50	0.00	0	158.00	0.00	0.00	0.00
36.00	0.00	0	158.00	0.00	0.00	0.00
37.50	0.00	0	158.00	0.00	0.00	0.00
39.00	0.00	0	158.00	0.00	0.00	0.00
40.50	0.00	0	158.00	0.00	0.00	0.00
42.00	0.00	0	158.00	0.00	0.00	0.00
43.50	0.00	0	158.00	0.00	0.00	0.00
45.00	0.00	0	158.00	0.00	0.00	0.00
46.50	0.00	0	158.00	0.00	0.00	0.00
48.00	0.00	0	158.00	0.00	0.00	0.00
49.50	0.00	0	158.00	0.00	0.00	0.00
51.00	0.00	0	158.00	0.00	0.00	0.00
52.50	0.00	0	158.00	0.00	0.00	0.00
54.00	0.00	0	158.00	0.00	0.00	0.00
55.50	0.00	0	158.00	0.00	0.00	0.00
57.00	0.00	0	158.00	0.00	0.00	0.00
58.50	0.00	0	158.00	0.00	0.00	0.00
60.00	0.00	0	158.00	0.00	0.00	0.00
61.50	0.00	0	158.00	0.00	0.00	0.00
63.00	0.00	0	158.00	0.00	0.00	0.00
64.50	0.00	0	158.00	0.00	0.00	0.00
66.00	0.00	0	158.00	0.00	0.00	0.00
67.50	0.00	0	158.00	0.00	0.00	0.00
69.00	0.00	0	158.00	0.00	0.00	0.00
70.50	0.00	0	158.00	0.00	0.00	0.00
72.00	0.00	0	158.00	0.00	0.00	0.00

Type III 24-hr 25 YR Rainfall=5.50"

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3438 40B DRAINAGE

Prepared by Engineering Design Consultants, Inc.

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Summary for Pond 20P: INFIL #1

Inflow Area = 7,656 sf 100.00% Impervious; Inflow Depth = 5.26" for 25 YR event
Inflow = 0.94 cfs @ 12.08 hrs, Volume= 3,357 cf
Outflow = 0.22 cfs @ 12.47 hrs, Volume= 3,357 cf, Lag= 23.4 min
Discarded = 0.22 cfs @ 12.47 hrs, Volume= 3,357 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 165.26' @ 12.47 hrs Surf. Area= 932 sf Storage= 728 cf

Plug-Flow detention time= 17.4 min calculated for 3,356 cf (100% of inflow)
Center-of-Mass det. time= 17.3 min (763.8 - 746.5)

Volume	Invert	Avail. Storage	Storage Description
#1A 164.00'		683 cf	14.50'W x 64.25'L x 2.54'H Field A
			2,368 cf Overall - 660 cf Embedded = 1,708 cf x 40.0% Voids
#2A 164.50'		660 cf	Cultec R-150XLHD x 24 Inside #1
			Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf
			Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap
			Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
#3 164.00'		2 cf	0.83'D x 4.00'H Vertical Cone/Cylinder
		1,345 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 Primary	167.50'	10.0' Horiz. Orifice/Grate X 2.00	C= 0.600 Limited to weir flow at low heads
#2 Discarded	164.00'	8.270 m/hr Exfiltration over Wetted area	
Discarded OutFlow Max=0.22 cfs @ 12.47 hrs HW=165.26' (Free Discharge)			
←2-Exfiltration (Exfiltration Controls 0.22 cfs)			
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=164.00' (Free Discharge)			
←1-Orifice/Grate (Controls 0.00 cfs)			

Hydrograph for Pond 20P: INFIL #1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	164.00	0.00	0.00	0.00
1.50	0.00	0	164.00	0.00	0.00	0.00
3.00	0.01	1	164.00	0.01	0.01	0.00
4.50	0.01	1	164.00	0.01	0.01	0.00
6.00	0.01	1	164.00	0.01	0.01	0.00
7.50	0.02	2	164.00	0.02	0.02	0.00
9.00	0.03	3	164.01	0.03	0.03	0.00
10.50	0.06	5	164.01	0.06	0.06	0.00
12.00	0.60	189	164.50	0.19	0.19	0.00
13.50	0.06	297	164.65	0.20	0.20	0.00
15.00	0.04	3	164.01	0.04	0.04	0.00
16.50	0.02	2	164.01	0.02	0.02	0.00
18.00	0.02	1	164.00	0.02	0.02	0.00
19.50	0.01	1	164.00	0.01	0.01	0.00
21.00	0.01	1	164.00	0.01	0.01	0.00
22.50	0.01	1	164.00	0.01	0.01	0.00
24.00	0.01	1	164.00	0.01	0.01	0.00
25.50	0.00	0	164.00	0.00	0.00	0.00
27.00	0.00	0	164.00	0.00	0.00	0.00
28.50	0.00	0	164.00	0.00	0.00	0.00
30.00	0.00	0	164.00	0.00	0.00	0.00
31.50	0.00	0	164.00	0.00	0.00	0.00
33.00	0.00	0	164.00	0.00	0.00	0.00
34.50	0.00	0	164.00	0.00	0.00	0.00
36.00	0.00	0	164.00	0.00	0.00	0.00
37.50	0.00	0	164.00	0.00	0.00	0.00
39.00	0.00	0	164.00	0.00	0.00	0.00
40.50	0.00	0	164.00	0.00	0.00	0.00
42.00	0.00	0	164.00	0.00	0.00	0.00
43.50	0.00	0	164.00	0.00	0.00	0.00
45.00	0.00	0	164.00	0.00	0.00	0.00
46.50	0.00	0	164.00	0.00	0.00	0.00
48.00	0.00	0	164.00	0.00	0.00	0.00
49.50	0.00	0	164.00	0.00	0.00	0.00
51.00	0.00	0	164.00	0.00	0.00	0.00
52.50	0.00	0	164.00	0.00	0.00	0.00
54.00	0.00	0	164.00	0.00	0.00	0.00
55.50	0.00	0	164.00	0.00	0.00	0.00
57.00	0.00	0	164.00	0.00	0.00	0.00
58.50	0.00	0	164.00	0.00	0.00	0.00
60.00	0.00	0	164.00	0.00	0.00	0.00
61.50	0.00	0	164.00	0.00	0.00	0.00
63.00	0.00	0	164.00	0.00	0.00	0.00
64.50	0.00	0	164.00	0.00	0.00	0.00
66.00	0.00	0	164.00	0.00	0.00	0.00
67.50	0.00	0	164.00	0.00	0.00	0.00
69.00	0.00	0	164.00	0.00	0.00	0.00
70.50	0.00	0	164.00	0.00	0.00	0.00
72.00	0.00	0	164.00	0.00	0.00	0.00

Summary for Pond 21P: INFIL #2

Inflow Area = 1,730 sf 100.00% Impervious; Inflow Depth = 5.26" for 25 YR event
Inflow = 0.21 cfs @ 12.08 hrs, Volume= 759 cf
Outflow = 0.07 cfs @ 12.39 hrs, Volume= 759 cf, Atten= 69%; Lag= 18.2 min
Discarded = 0.07 cfs @ 12.39 hrs, Volume= 759 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 162.88' @ 12.39 hrs Surf. Area= 269 sf Storage= 128 cf

Plug-Flow detention time= 9.5 min calculated for 758 cf (100% of inflow)
Center-of-Mass det. time= 9.6 min (756.1 - 746.5)

Volume	Invert	Avail. Storage	Storage Description
#1A 162.00'		206 cf	8.00'W x 33.50'L x 2.54'H Field A
			681 cf Overall - 167 cf Embedded = 514 cf x 40.0% Voids
#2A 162.50'		167 cf	Cultec R-150XLHD x 6 Inside #1
			Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf
			Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap
			Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
#3 162.00'		2 cf	0.83'D x 4.00'H Vertical Cone/Cylinder
		375 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 Primary	165.50'	10.0" Horiz. Orifice/Grate	C= 0.600 Limited to weir flow at low heads
#2 Discarded	162.00'	8.270 in/hr Exfiltration over	Wetted area

Discarded OutFlow Max=0.07 cfs @ 12.39 hrs HW=162.88' (Free Discharge)
←2-Exfiltration (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=162.00' (Free Discharge)
←1-Orifice/Grate (Controls 0.00 cfs)

Hydrograph for Pond 21P: INFIL #2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	162.00	0.00	0.00	0.00
1.50	0.00	0	162.00	0.00	0.00	0.00
3.00	0.00	0	162.00	0.00	0.00	0.00
4.50	0.00	0	162.00	0.00	0.00	0.00
6.00	0.00	0	162.00	0.00	0.00	0.00
7.50	0.00	0	162.00	0.00	0.00	0.00
9.00	0.01	1	162.01	0.01	0.01	0.00
10.50	0.01	1	162.01	0.01	0.01	0.00
12.00	0.14	31	162.29	0.06	0.06	0.00
13.50	0.01	1	162.01	0.01	0.01	0.00
15.00	0.01	1	162.01	0.01	0.01	0.00
16.50	0.01	0	162.00	0.01	0.01	0.00
18.00	0.00	0	162.00	0.00	0.00	0.00
19.50	0.00	0	162.00	0.00	0.00	0.00
21.00	0.00	0	162.00	0.00	0.00	0.00
22.50	0.00	0	162.00	0.00	0.00	0.00
24.00	0.00	0	162.00	0.00	0.00	0.00
25.50	0.00	0	162.00	0.00	0.00	0.00
27.00	0.00	0	162.00	0.00	0.00	0.00
28.50	0.00	0	162.00	0.00	0.00	0.00
30.00	0.00	0	162.00	0.00	0.00	0.00
31.50	0.00	0	162.00	0.00	0.00	0.00
33.00	0.00	0	162.00	0.00	0.00	0.00
34.50	0.00	0	162.00	0.00	0.00	0.00
36.00	0.00	0	162.00	0.00	0.00	0.00
37.50	0.00	0	162.00	0.00	0.00	0.00
39.00	0.00	0	162.00	0.00	0.00	0.00
40.50	0.00	0	162.00	0.00	0.00	0.00
42.00	0.00	0	162.00	0.00	0.00	0.00
43.50	0.00	0	162.00	0.00	0.00	0.00
45.00	0.00	0	162.00	0.00	0.00	0.00
46.50	0.00	0	162.00	0.00	0.00	0.00
48.00	0.00	0	162.00	0.00	0.00	0.00
49.50	0.00	0	162.00	0.00	0.00	0.00
51.00	0.00	0	162.00	0.00	0.00	0.00
52.50	0.00	0	162.00	0.00	0.00	0.00
54.00	0.00	0	162.00	0.00	0.00	0.00
55.50	0.00	0	162.00	0.00	0.00	0.00
57.00	0.00	0	162.00	0.00	0.00	0.00
58.50	0.00	0	162.00	0.00	0.00	0.00
60.00	0.00	0	162.00	0.00	0.00	0.00
61.50	0.00	0	162.00	0.00	0.00	0.00
63.00	0.00	0	162.00	0.00	0.00	0.00
64.50	0.00	0	162.00	0.00	0.00	0.00
66.00	0.00	0	162.00	0.00	0.00	0.00
67.50	0.00	0	162.00	0.00	0.00	0.00
69.00	0.00	0	162.00	0.00	0.00	0.00
70.50	0.00	0	162.00	0.00	0.00	0.00
72.00	0.00	0	162.00	0.00	0.00	0.00

Summary for Pond 22P: INFIL #3

Inflow Area = 3,681 sf 100.00% Impervious, Inflow Depth = 5.26" for 25 YR event
Inflow = 0.45 cfs @ 12.08 hrs, Volume= 1,614 cf
Outflow = 0.05 cfs @ 13.09 hrs, Volume= 1,553 cf, Atten= 88%, Lag= 60.6 min
Discarded = 0.01 cfs @ 13.08 hrs, Volume= 1,329 cf
Primary = 0.05 cfs @ 13.09 hrs, Volume= 224 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 174.53' @ 13.08 hrs Surf. Area= 704 sf Storage= 1,018 cf

Plug-Flow detention time= 1,287.6 min calculated for 1,552 cf (96% of inflow)
Center-of-Mass det. time= 1,265.0 min (2,011.5 - 746.5)

Volume	Invert	Avail. Storage	Storage Description
#1A	171.00'	515 cf	21.00'W x 33.50'L x 2.54'H Field A 1,788 cf Overall - 501 cf Embedded = 1,287 cf x 40.0% Voids
#2A	171.50'	501 cf	Cultec R-150XLHD x 18 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 6 rows
#3	171.00'	2 cf	0.83'D x 4.00'H Vertical Cone/Cylinder 1,018 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	174.50'	10.0' Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Discarded	171.00'	0.270 m/hr Exfiltration over Wetted area
Discarded OutFlow Max=0.01 cfs @ 13.08 hrs HW=174.53' (Free Discharge)			
└─2-Exfiltration (Exfiltration Controls 0.01 cfs)			
Primary OutFlow Max=0.04 cfs @ 13.09 hrs HW=174.53' (Free Discharge)			
└─1-Orifice/Grate (Weir Controls 0.04 cfs @ 0.54 fps)			

Hydrograph for Pond 22P: INFIL #3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	171.00	0.00	0.00	0.00
1.50	0.00	1	171.00	0.00	0.00	0.00
3.00	0.00	6	171.02	0.00	0.00	0.00
4.50	0.00	11	171.04	0.00	0.00	0.00
6.00	0.01	17	171.06	0.00	0.00	0.00
7.50	0.01	37	171.13	0.00	0.00	0.00
9.00	0.02	80	171.28	0.00	0.00	0.00
10.50	0.03	167	171.55	0.00	0.00	0.00
12.00	0.29	495	172.15	0.01	0.01	0.00
13.50	0.03	1,018	174.52	0.04	0.01	0.03
15.00	0.02	1,018	174.51	0.02	0.01	0.01
16.50	0.01	1,018	174.50	0.01	0.01	0.01
18.00	0.01	1,018	174.50	0.01	0.01	0.00
19.50	0.01	1,018	174.50	0.01	0.01	0.00
21.00	0.01	1,016	173.54	0.01	0.01	0.00
22.50	0.00	1,011	173.52	0.01	0.01	0.00
24.00	0.00	1,002	173.49	0.01	0.01	0.00
25.50	0.00	970	173.38	0.01	0.01	0.00
27.00	0.00	938	173.26	0.01	0.01	0.00
28.50	0.00	906	173.15	0.01	0.01	0.00
30.00	0.00	874	173.03	0.01	0.01	0.00
31.50	0.00	843	172.93	0.01	0.01	0.00
33.00	0.00	812	172.84	0.01	0.01	0.00
34.50	0.00	782	172.76	0.01	0.01	0.00
36.00	0.00	751	172.68	0.01	0.01	0.00
37.50	0.00	721	172.61	0.01	0.01	0.00
39.00	0.00	692	172.55	0.01	0.01	0.00
40.50	0.00	662	172.49	0.01	0.01	0.00
42.00	0.00	633	172.42	0.01	0.01	0.00
43.50	0.00	604	172.37	0.01	0.01	0.00
45.00	0.00	575	172.31	0.01	0.01	0.00
46.50	0.00	547	172.25	0.01	0.01	0.00
48.00	0.00	518	172.20	0.01	0.01	0.00
49.50	0.00	490	172.14	0.01	0.01	0.00
51.00	0.00	462	172.09	0.01	0.01	0.00
52.50	0.00	434	172.04	0.01	0.01	0.00
54.00	0.00	407	171.99	0.01	0.01	0.00
55.50	0.00	379	171.93	0.01	0.01	0.00
57.00	0.00	352	171.88	0.01	0.01	0.00
58.50	0.00	325	171.83	0.00	0.00	0.00
60.00	0.00	298	171.78	0.00	0.00	0.00
61.50	0.00	272	171.74	0.00	0.00	0.00
63.00	0.00	245	171.69	0.00	0.00	0.00
64.50	0.00	219	171.64	0.00	0.00	0.00
66.00	0.00	193	171.59	0.00	0.00	0.00
67.50	0.00	167	171.55	0.00	0.00	0.00
69.00	0.00	141	171.50	0.00	0.00	0.00
70.50	0.00	116	171.41	0.00	0.00	0.00
72.00	0.00	91	171.32	0.00	0.00	0.00

Summary for Pond 23P: INFIL #4

Inflow Area = 9,006 sf 100.00% Impervious, Inflow Depth = 5.26" for 25 YR event
Inflow = 1.11 cfs @ 12.08 hrs, Volume= 3,949 cf
Outflow = 0.31 cfs @ 12.42 hrs, Volume= 3,951 cf, Atten= 72%, Lag= 20.4 min
Discarded = 0.31 cfs @ 12.42 hrs, Volume= 3,951 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 165.03' @ 12.42 hrs Surf. Area= 1,253 sf Storage= 746 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 12.3 min (758.8 - 746.5)

Volume	Invert	Avail. Storage	Storage Description
#1A 164.00'		945 cf	8.00'W x 156.50'L x 2.54'H Field A 3,182 cf Overall - 819 cf Embedded = 2,364 cf x 40.0% Voids
#2A 164.50'		819 cf	Cultec R-150XLHD x 30 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
#3 164.00'		2 cf	0.83'D x 4.00'H Vertical Cone/Cylinder
		1,766 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 Primary	167.80'	10.0'	Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2 Discarded	164.00'	8.270 m/hr	Exfiltration over Wetted area
Discarded OutFlow Max=0.31 cfs @ 12.42 hrs HW=165.03' (Free Discharge)			
←2-Exfiltration (Exfiltration Controls 0.31 cfs)			
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=164.00' (Free Discharge)			
←1-Orifice/Grate (Controls 0.00 cfs)			

Hydrograph for Pond 23P: INFIL #4

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	164.00	0.00	0.00	0.00
1.50	0.00	0	164.00	0.00	0.00	0.00
3.00	0.01	1	164.00	0.01	0.01	0.00
4.50	0.01	1	164.00	0.01	0.01	0.00
6.00	0.02	1	164.00	0.02	0.02	0.00
7.50	0.02	2	164.00	0.02	0.02	0.00
9.00	0.04	3	164.01	0.04	0.04	0.00
10.50	0.07	5	164.01	0.07	0.07	0.00
12.00	0.70	189	164.38	0.26	0.26	0.00
13.50	0.07	95	164.19	0.25	0.25	0.00
15.00	0.04	4	164.01	0.04	0.04	0.00
16.50	0.03	2	164.00	0.03	0.03	0.00
18.00	0.02	2	164.00	0.02	0.02	0.00
19.50	0.02	1	164.00	0.02	0.02	0.00
21.00	0.01	1	164.00	0.01	0.01	0.00
22.50	0.01	1	164.00	0.01	0.01	0.00
24.00	0.01	1	164.00	0.01	0.01	0.00
25.50	0.00	0	164.00	0.00	0.00	0.00
27.00	0.00	0	164.00	0.00	0.00	0.00
28.50	0.00	0	164.00	0.00	0.00	0.00
30.00	0.00	0	164.00	0.00	0.00	0.00
31.50	0.00	0	164.00	0.00	0.00	0.00
33.00	0.00	0	164.00	0.00	0.00	0.00
34.50	0.00	0	164.00	0.00	0.00	0.00
36.00	0.00	0	164.00	0.00	0.00	0.00
37.50	0.00	0	164.00	0.00	0.00	0.00
39.00	0.00	0	164.00	0.00	0.00	0.00
40.50	0.00	0	164.00	0.00	0.00	0.00
42.00	0.00	0	164.00	0.00	0.00	0.00
43.50	0.00	0	164.00	0.00	0.00	0.00
45.00	0.00	0	164.00	0.00	0.00	0.00
46.50	0.00	0	164.00	0.00	0.00	0.00
48.00	0.00	0	164.00	0.00	0.00	0.00
49.50	0.00	0	164.00	0.00	0.00	0.00
51.00	0.00	0	164.00	0.00	0.00	0.00
52.50	0.00	0	164.00	0.00	0.00	0.00
54.00	0.00	0	164.00	0.00	0.00	0.00
55.50	0.00	0	164.00	0.00	0.00	0.00
57.00	0.00	0	164.00	0.00	0.00	0.00
58.50	0.00	0	164.00	0.00	0.00	0.00
60.00	0.00	0	164.00	0.00	0.00	0.00
61.50	0.00	0	164.00	0.00	0.00	0.00
63.00	0.00	0	164.00	0.00	0.00	0.00
64.50	0.00	0	164.00	0.00	0.00	0.00
66.00	0.00	0	164.00	0.00	0.00	0.00
67.50	0.00	0	164.00	0.00	0.00	0.00
69.00	0.00	0	164.00	0.00	0.00	0.00
70.50	0.00	0	164.00	0.00	0.00	0.00
72.00	0.00	0	164.00	0.00	0.00	0.00

Summary for Link 1L: PROPOSED EAST

Inflow Area = 98,111 sf, 29.72% Impervious, Inflow Depth = 0.21" for 25 YR event
 Inflow = 0.21 cfs @ 12.36 hrs, Volume= 1,735 cf
 Primary = 0.21 cfs @ 12.36 hrs, Volume= 1,735 cf, Atten= 0%, Lag= 0.0 min
 Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Hydrograph for Link 1L: PROPOSED EAST

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	31.80	0.00	0.00	0.00	63.60	0.00	0.00	0.00
0.60	0.00	0.00	0.00	32.40	0.00	0.00	0.00	64.20	0.00	0.00	0.00
1.20	0.00	0.00	0.00	33.00	0.00	0.00	0.00	64.80	0.00	0.00	0.00
1.80	0.00	0.00	0.00	33.60	0.00	0.00	0.00	65.40	0.00	0.00	0.00
2.40	0.00	0.00	0.00	34.20	0.00	0.00	0.00	66.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	34.80	0.00	0.00	0.00	66.60	0.00	0.00	0.00
3.60	0.00	0.00	0.00	35.40	0.00	0.00	0.00	67.20	0.00	0.00	0.00
4.20	0.00	0.00	0.00	36.00	0.00	0.00	0.00	67.80	0.00	0.00	0.00
4.80	0.00	0.00	0.00	36.60	0.00	0.00	0.00	68.40	0.00	0.00	0.00
5.40	0.00	0.00	0.00	37.20	0.00	0.00	0.00	69.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	37.80	0.00	0.00	0.00	69.60	0.00	0.00	0.00
6.60	0.00	0.00	0.00	38.40	0.00	0.00	0.00	70.20	0.00	0.00	0.00
7.20	0.00	0.00	0.00	39.00	0.00	0.00	0.00	70.80	0.00	0.00	0.00
7.80	0.00	0.00	0.00	39.60	0.00	0.00	0.00	71.40	0.00	0.00	0.00
8.40	0.00	0.00	0.00	40.20	0.00	0.00	0.00	72.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	40.80	0.00	0.00	0.00				
9.60	0.00	0.00	0.00	41.40	0.00	0.00	0.00				
10.20	0.00	0.00	0.00	42.00	0.00	0.00	0.00				
10.80	0.00	0.00	0.00	42.60	0.00	0.00	0.00				
11.40	0.00	0.00	0.00	43.20	0.00	0.00	0.00				
12.00	0.01	0.00	0.01	43.80	0.00	0.00	0.00				
12.60	0.15	0.00	0.15	44.40	0.00	0.00	0.00				
13.20	0.07	0.00	0.07	45.00	0.00	0.00	0.00				
13.80	0.06	0.00	0.06	45.60	0.00	0.00	0.00				
14.40	0.05	0.00	0.05	46.20	0.00	0.00	0.00				
15.00	0.05	0.00	0.05	46.80	0.00	0.00	0.00				
15.60	0.04	0.00	0.04	47.40	0.00	0.00	0.00				
16.20	0.04	0.00	0.04	48.00	0.00	0.00	0.00				
16.80	0.03	0.00	0.03	48.60	0.00	0.00	0.00				
17.40	0.03	0.00	0.03	49.20	0.00	0.00	0.00				
18.00	0.02	0.00	0.02	49.80	0.00	0.00	0.00				
18.60	0.02	0.00	0.02	50.40	0.00	0.00	0.00				
19.20	0.02	0.00	0.02	51.00	0.00	0.00	0.00				
19.80	0.02	0.00	0.02	51.60	0.00	0.00	0.00				
20.40	0.02	0.00	0.02	52.20	0.00	0.00	0.00				
21.00	0.02	0.00	0.02	52.80	0.00	0.00	0.00				
21.60	0.02	0.00	0.02	53.40	0.00	0.00	0.00				
22.20	0.02	0.00	0.02	54.00	0.00	0.00	0.00				
22.80	0.02	0.00	0.02	54.60	0.00	0.00	0.00				
23.40	0.02	0.00	0.02	55.20	0.00	0.00	0.00				
24.00	0.01	0.00	0.01	55.80	0.00	0.00	0.00				
24.60	0.00	0.00	0.00	56.40	0.00	0.00	0.00				
25.20	0.00	0.00	0.00	57.00	0.00	0.00	0.00				
25.80	0.00	0.00	0.00	57.60	0.00	0.00	0.00				
26.40	0.00	0.00	0.00	58.20	0.00	0.00	0.00				
27.00	0.00	0.00	0.00	58.80	0.00	0.00	0.00				
27.60	0.00	0.00	0.00	59.40	0.00	0.00	0.00				
28.20	0.00	0.00	0.00	60.00	0.00	0.00	0.00				
28.80	0.00	0.00	0.00	60.60	0.00	0.00	0.00				
29.40	0.00	0.00	0.00	61.20	0.00	0.00	0.00				
30.00	0.00	0.00	0.00	61.80	0.00	0.00	0.00				
30.60	0.00	0.00	0.00	62.40	0.00	0.00	0.00				
31.20	0.00	0.00	0.00	63.00	0.00	0.00	0.00				

Summary for Link 2L: PROPOSED NORTHWEST

Inflow Area = 54,449 sf, 23.30% Impervious, Inflow Depth = 1.52" for 25 YR event
 Inflow = 1.97 cfs @ 12.11 hrs, Volume= 6,885 cf
 Primary = 1.97 cfs @ 12.11 hrs, Volume= 6,885 cf, Atten= 0%, Lag= 0.0 min
 Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Hydrograph for Link 2L: PROPOSED NORTHWEST

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	31.80	0.00	0.00	0.00	63.60	0.00	0.00	0.00
0.60	0.00	0.00	0.00	32.40	0.00	0.00	0.00	64.20	0.00	0.00	0.00
1.20	0.00	0.00	0.00	33.00	0.00	0.00	0.00	64.80	0.00	0.00	0.00
1.80	0.00	0.00	0.00	33.60	0.00	0.00	0.00	65.40	0.00	0.00	0.00
2.40	0.00	0.00	0.00	34.20	0.00	0.00	0.00	66.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	34.80	0.00	0.00	0.00	66.60	0.00	0.00	0.00
3.60	0.00	0.00	0.00	35.40	0.00	0.00	0.00	67.20	0.00	0.00	0.00
4.20	0.00	0.00	0.00	36.00	0.00	0.00	0.00	67.80	0.00	0.00	0.00
4.80	0.00	0.00	0.00	36.60	0.00	0.00	0.00	68.40	0.00	0.00	0.00
5.40	0.00	0.00	0.00	37.20	0.00	0.00	0.00	69.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	37.80	0.00	0.00	0.00	69.60	0.00	0.00	0.00
6.60	0.00	0.00	0.00	38.40	0.00	0.00	0.00	70.20	0.00	0.00	0.00
7.20	0.00	0.00	0.00	39.00	0.00	0.00	0.00	70.80	0.00	0.00	0.00
7.80	0.00	0.00	0.00	39.60	0.00	0.00	0.00	71.40	0.00	0.00	0.00
8.40	0.00	0.00	0.00	40.20	0.00	0.00	0.00	72.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	40.80	0.00	0.00	0.00				
9.60	0.00	0.00	0.00	41.40	0.00	0.00	0.00				
10.20	0.00	0.00	0.00	42.00	0.00	0.00	0.00				
10.80	0.02	0.00	0.02	42.60	0.00	0.00	0.00				
11.40	0.07	0.00	0.07	43.20	0.00	0.00	0.00				
12.00	0.95	0.00	0.95	43.80	0.00	0.00	0.00				
12.60	0.40	0.00	0.40	44.40	0.00	0.00	0.00				
13.20	0.26	0.00	0.26	45.00	0.00	0.00	0.00				
13.80	0.20	0.00	0.20	45.60	0.00	0.00	0.00				
14.40	0.16	0.00	0.16	46.20	0.00	0.00	0.00				
15.00	0.14	0.00	0.14	46.80	0.00	0.00	0.00				
15.60	0.12	0.00	0.12	47.40	0.00	0.00	0.00				
16.20	0.09	0.00	0.09	48.00	0.00	0.00	0.00				
16.80	0.08	0.00	0.08	48.60	0.00	0.00	0.00				
17.40	0.07	0.00	0.07	49.20	0.00	0.00	0.00				
18.00	0.06	0.00	0.06	49.80	0.00	0.00	0.00				
18.60	0.05	0.00	0.05	50.40	0.00	0.00	0.00				
19.20	0.05	0.00	0.05	51.00	0.00	0.00	0.00				
19.80	0.05	0.00	0.05	51.60	0.00	0.00	0.00				
20.40	0.05	0.00	0.05	52.20	0.00	0.00	0.00				
21.00	0.04	0.00	0.04	52.80	0.00	0.00	0.00				
21.60	0.04	0.00	0.04	53.40	0.00	0.00	0.00				
22.20	0.04	0.00	0.04	54.00	0.00	0.00	0.00				
22.80	0.04	0.00	0.04	54.60	0.00	0.00	0.00				
23.40	0.03	0.00	0.03	55.20	0.00	0.00	0.00				
24.00	0.03	0.00	0.03	55.80	0.00	0.00	0.00				
24.60	0.00	0.00	0.00	56.40	0.00	0.00	0.00				
25.20	0.00	0.00	0.00	57.00	0.00	0.00	0.00				
25.80	0.00	0.00	0.00	57.60	0.00	0.00	0.00				
26.40	0.00	0.00	0.00	58.20	0.00	0.00	0.00				
27.00	0.00	0.00	0.00	58.80	0.00	0.00	0.00				
27.60	0.00	0.00	0.00	59.40	0.00	0.00	0.00				
28.20	0.00	0.00	0.00	60.00	0.00	0.00	0.00				
28.80	0.00	0.00	0.00	60.60	0.00	0.00	0.00				
29.40	0.00	0.00	0.00	61.20	0.00	0.00	0.00				
30.00	0.00	0.00	0.00	61.80	0.00	0.00	0.00				
30.60	0.00	0.00	0.00	62.40	0.00	0.00	0.00				
31.20	0.00	0.00	0.00	63.00	0.00	0.00	0.00				

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Type III 24-hr 100 YR Rainfall=7.00"

Type III 24-hr 100 YR Rainfall=7.00"

Summary for Subcatchment 1S: EXISTING EAST

Hydrograph for Subcatchment 1S: EXISTING EAST

Runoff = 1.34 cfs @ 12.15 hrs, Volume= 6,644 cf, Depth= 1.07"
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description	Time (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1,416	30	Woods, Good, HSG A	2.4	12	0.0700	0.08		Sheet Flow,	31.80	7.00	1.07	0.00	63.60	7.00	1.07	0.00
64,382	39	>75% Grass cover, Good, HSG A	2.9	25	0.0700	0.15		Woods: Light underbrush n= 0.400 P2= 3.20"	32.40	7.00	1.07	0.00	64.20	7.00	1.07	0.00
878	70	Woods, Good, HSG C	1.4	161	0.0800	1.98		Grass: Dense n= 0.240 P2= 3.20"	33.00	7.00	1.07	0.00	64.80	7.00	1.07	0.00
6,266	74	>75% Grass cover, Good, HSG C	1.4	134	0.0520	1.60		Shallow Concentrated Flow,	33.60	7.00	1.07	0.00	65.40	7.00	1.07	0.00
1,276	98	Roofs, HSG A	1.4	134	0.0520	1.60		Short Grass Pasture Kx= 7.0 fps	34.20	7.00	1.07	0.00	66.00	7.00	1.07	0.00
74,218	43	Weighted Average	8.1	332	Total			Shallow Concentrated Flow,	34.80	7.00	1.07	0.00	66.60	7.00	1.07	0.00
72,942		98.28% Pervious Area						Short Grass Pasture Kx= 7.0 fps	35.40	7.00	1.07	0.00	67.20	7.00	1.07	0.00
1,276		1.72% Impervious Area							36.00	7.00	1.07	0.00	67.80	7.00	1.07	0.00
									36.60	7.00	1.07	0.00	68.40	7.00	1.07	0.00
									37.20	7.00	1.07	0.00	69.00	7.00	1.07	0.00
									37.80	7.00	1.07	0.00	69.60	7.00	1.07	0.00
									38.40	7.00	1.07	0.00	70.20	7.00	1.07	0.00
									39.00	7.00	1.07	0.00	70.80	7.00	1.07	0.00
									39.60	7.00	1.07	0.00	71.40	7.00	1.07	0.00
									40.20	7.00	1.07	0.00	72.00	7.00	1.07	0.00
									41.40	7.00	1.07	0.00				
									42.00	7.00	1.07	0.00				
									42.60	7.00	1.07	0.00				
									43.20	7.00	1.07	0.00				
									43.80	7.00	1.07	0.00				
									44.40	7.00	1.07	0.00				
									45.00	7.00	1.07	0.00				
									45.60	7.00	1.07	0.00				
									46.20	7.00	1.07	0.00				
									46.80	7.00	1.07	0.00				
									47.40	7.00	1.07	0.00				
									48.00	7.00	1.07	0.00				
									48.60	7.00	1.07	0.00				
									49.20	7.00	1.07	0.00				
									49.80	7.00	1.07	0.00				
									50.40	7.00	1.07	0.00				
									51.00	7.00	1.07	0.00				
									51.60	7.00	1.07	0.00				
									52.20	7.00	1.07	0.00				
									52.80	7.00	1.07	0.00				
									53.40	7.00	1.07	0.00				
									54.00	7.00	1.07	0.00				
									54.60	7.00	1.07	0.00				
									55.20	7.00	1.07	0.00				
									55.80	7.00	1.07	0.00				
									56.40	7.00	1.07	0.00				
									57.00	7.00	1.07	0.00				
									57.60	7.00	1.07	0.00				
									58.20	7.00	1.07	0.00				
									58.80	7.00	1.07	0.00				
									59.40	7.00	1.07	0.00				
									60.00	7.00	1.07	0.00				
									60.60	7.00	1.07	0.00				
									61.20	7.00	1.07	0.00				
									61.80	7.00	1.07	0.00				
									62.40	7.00	1.07	0.00				
									63.00	7.00	1.07	0.00				

Type III 24-hr 100 YR Rainfall=7.00"

Type III 24-hr 100 YR Rainfall=7.00"

Summary for Subcatchment 2S: EXISTING NORTHWEST

Runoff = 6.30 cfs @ 12.13 hrs, Volume= 21,589 cf, Depth= 3.31"
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description
1,708	30	Woods, Good, HSG A
19,125	39	>75% Grass cover, Good, HSG A
2,537	70	Woods, Good, HSG C
24,853	74	>75% Grass cover, Good, HSG C
9,394	77	Woods, Good, HSG D
17,789	80	>75% Grass cover, Good, HSG D
2,934	98	Roofs, HSG A
78,340	67	Weighted Average
75,406		96.25% Pervious Area
2,934		3.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	13	0.0700	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.9	25	0.0700	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
1.2	148	0.0800	1.98		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	163	0.0350	1.31		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
8.7	349	Total			

Hydrograph for Subcatchment 2S: EXISTING NORTHWEST

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	7.00	3.31	0.00
0.60	0.04	0.00	0.00	32.40	7.00	3.31	0.00
1.20	0.08	0.00	0.00	33.00	7.00	3.31	0.00
1.80	0.13	0.00	0.00	33.60	7.00	3.31	0.00
2.40	0.17	0.00	0.00	34.20	7.00	3.31	0.00
3.00	0.22	0.00	0.00	34.80	7.00	3.31	0.00
3.60	0.27	0.00	0.00	35.40	7.00	3.31	0.00
4.20	0.32	0.00	0.00	36.00	7.00	3.31	0.00
4.80	0.38	0.00	0.00	36.60	7.00	3.31	0.00
5.40	0.44	0.00	0.00	37.20	7.00	3.31	0.00
6.00	0.50	0.00	0.00	37.80	7.00	3.31	0.00
6.60	0.58	0.00	0.00	38.40	7.00	3.31	0.00
7.20	0.66	0.00	0.00	39.00	7.00	3.31	0.00
7.80	0.76	0.00	0.00	39.60	7.00	3.31	0.00
8.40	0.88	0.00	0.00	40.20	7.00	3.31	0.00
9.00	1.02	0.00	0.00	40.80	7.00	3.31	0.00
9.60	1.19	0.01	0.03	41.40	7.00	3.31	0.00
10.20	1.39	0.03	0.08	42.00	7.00	3.31	0.00
10.80	1.65	0.08	0.17	42.60	7.00	3.31	0.00
11.40	2.01	0.18	0.36	43.20	7.00	3.31	0.00
12.00	3.50	0.85	3.02	43.80	7.00	3.31	0.00
12.60	4.99	1.80	1.36	44.40	7.00	3.31	0.00
13.20	5.35	2.05	0.65	45.00	7.00	3.31	0.00
13.80	5.61	2.24	0.53	45.60	7.00	3.31	0.00
14.40	5.81	2.39	0.43	46.20	7.00	3.31	0.00
15.00	5.98	2.51	0.37	46.80	7.00	3.31	0.00
15.60	6.12	2.62	0.31	47.40	7.00	3.31	0.00
16.20	6.24	2.71	0.25	48.00	7.00	3.31	0.00
16.80	6.34	2.79	0.22	48.60	7.00	3.31	0.00
17.40	6.42	2.85	0.19	49.20	7.00	3.31	0.00
18.00	6.50	2.91	0.16	49.80	7.00	3.31	0.00
18.60	6.56	2.96	0.15	50.40	7.00	3.31	0.00
19.20	6.62	3.01	0.14	51.00	7.00	3.31	0.00
19.80	6.68	3.05	0.13	51.60	7.00	3.31	0.00
20.40	6.73	3.10	0.13	52.20	7.00	3.31	0.00
21.00	6.79	3.14	0.12	52.80	7.00	3.31	0.00
21.60	6.83	3.18	0.11	53.40	7.00	3.31	0.00
22.20	6.88	3.21	0.11	54.00	7.00	3.31	0.00
22.80	6.92	3.25	0.10	54.60	7.00	3.31	0.00
23.40	6.96	3.28	0.09	55.20	7.00	3.31	0.00
24.00	7.00	3.31	0.09	55.80	7.00	3.31	0.00
24.60	7.00	3.31	0.00	56.40	7.00	3.31	0.00
25.20	7.00	3.31	0.00	57.00	7.00	3.31	0.00
25.80	7.00	3.31	0.00	57.60	7.00	3.31	0.00
26.40	7.00	3.31	0.00	58.20	7.00	3.31	0.00
27.00	7.00	3.31	0.00	58.80	7.00	3.31	0.00
27.60	7.00	3.31	0.00	59.40	7.00	3.31	0.00
28.20	7.00	3.31	0.00	60.00	7.00	3.31	0.00
28.80	7.00	3.31	0.00	60.60	7.00	3.31	0.00
29.40	7.00	3.31	0.00	61.20	7.00	3.31	0.00
30.00	7.00	3.31	0.00	61.80	7.00	3.31	0.00
30.60	7.00	3.31	0.00	62.40	7.00	3.31	0.00
31.20	7.00	3.31	0.00	63.00	7.00	3.31	0.00

Summary for Subcatchment 10S: SITE

Runoff = 0.48 cfs @ 12.21 hrs, Volume= 2,271 cf, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description
433	30	Woods, Good, HSG A
1,184	70	Woods, Good, HSG C
13,395	39	>75% Grass cover, Good, HSG A
2,637	74	>75% Grass cover, Good, HSG C
629	98	Paved parking, HSG A
18,278	48	Weighted Average
17,649		96.56% Pervious Area
629		3.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	50	0.0100	0.08		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
2.0	228	0.0750	1.92		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
12.8	278	Total			

Hydrograph for Subcatchment 10S: SITE

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	7.00	1.49	0.00
0.60	0.04	0.00	0.00	32.40	7.00	1.49	0.00
1.20	0.08	0.00	0.00	33.00	7.00	1.49	0.00
1.80	0.13	0.00	0.00	33.60	7.00	1.49	0.00
2.40	0.17	0.00	0.00	34.20	7.00	1.49	0.00
3.00	0.22	0.00	0.00	34.80	7.00	1.49	0.00
3.60	0.27	0.00	0.00	35.40	7.00	1.49	0.00
4.20	0.32	0.00	0.00	36.00	7.00	1.49	0.00
4.80	0.38	0.00	0.00	36.60	7.00	1.49	0.00
5.40	0.44	0.00	0.00	37.20	7.00	1.49	0.00
6.00	0.50	0.00	0.00	37.80	7.00	1.49	0.00
6.60	0.58	0.00	0.00	38.40	7.00	1.49	0.00
7.20	0.66	0.00	0.00	39.00	7.00	1.49	0.00
7.80	0.76	0.00	0.00	39.60	7.00	1.49	0.00
8.40	0.88	0.00	0.00	40.20	7.00	1.49	0.00
9.00	1.02	0.00	0.00	40.80	7.00	1.49	0.00
9.60	1.19	0.00	0.00	41.40	7.00	1.49	0.00
10.20	1.39	0.00	0.00	42.00	7.00	1.49	0.00
10.80	1.65	0.00	0.00	42.60	7.00	1.49	0.00
11.40	2.01	0.00	0.00	43.20	7.00	1.49	0.00
12.00	3.50	0.15	0.11	43.80	7.00	1.49	0.00
12.60	4.99	0.59	0.21	44.40	7.00	1.49	0.00
13.20	5.35	0.72	0.09	45.00	7.00	1.49	0.00
13.80	5.61	0.83	0.07	45.60	7.00	1.49	0.00
14.40	5.81	0.92	0.06	46.20	7.00	1.49	0.00
15.00	5.98	0.99	0.05	46.80	7.00	1.49	0.00
15.60	6.12	1.06	0.04	47.40	7.00	1.49	0.00
16.20	6.24	1.11	0.04	48.00	7.00	1.49	0.00
16.80	6.34	1.16	0.03	48.60	7.00	1.49	0.00
17.40	6.42	1.20	0.03	49.20	7.00	1.49	0.00
18.00	6.50	1.24	0.02	49.80	7.00	1.49	0.00
18.60	6.56	1.27	0.02	50.40	7.00	1.49	0.00
19.20	6.62	1.30	0.02	51.00	7.00	1.49	0.00
19.80	6.68	1.33	0.02	51.60	7.00	1.49	0.00
20.40	6.73	1.35	0.02	52.20	7.00	1.49	0.00
21.00	6.79	1.38	0.02	52.80	7.00	1.49	0.00
21.60	6.83	1.41	0.02	53.40	7.00	1.49	0.00
22.20	6.88	1.43	0.02	54.00	7.00	1.49	0.00
22.80	6.92	1.45	0.02	54.60	7.00	1.49	0.00
23.40	6.96	1.47	0.01	55.20	7.00	1.49	0.00
24.00	7.00	1.49	0.01	55.80	7.00	1.49	0.00
24.60	7.00	1.49	0.00	56.40	7.00	1.49	0.00
25.20	7.00	1.49	0.00	57.00	7.00	1.49	0.00
25.80	7.00	1.49	0.00	57.60	7.00	1.49	0.00
26.40	7.00	1.49	0.00	58.20	7.00	1.49	0.00
27.00	7.00	1.49	0.00	58.80	7.00	1.49	0.00
27.60	7.00	1.49	0.00	59.40	7.00	1.49	0.00
28.20	7.00	1.49	0.00	60.00	7.00	1.49	0.00
28.80	7.00	1.49	0.00	60.60	7.00	1.49	0.00
29.40	7.00	1.49	0.00	61.20	7.00	1.49	0.00
30.00	7.00	1.49	0.00	61.80	7.00	1.49	0.00
30.60	7.00	1.49	0.00	62.40	7.00	1.49	0.00
31.20	7.00	1.49	0.00	63.00	7.00	1.49	0.00

Summary for Subcatchment 11S: SITE

Runoff = 1.35 cfs @ 12.13 hrs, Volume= 4,648 cf, Depth= 3.31"
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description			
4,738	98	Paved parking, HSG A			
1,581	98	Paved parking, HSG C			
7,866	39	>75% Grass cover, Good, HSG A			
2,681	74	>75% Grass cover, Good, HSG C			
16,866	67	Weighted Average			
10,547		62.53% Pervious Area			
6,319		37.47% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	50	0.0200	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.20"
0.2	17	0.0300	1.21		Shallow Concentrated Flow, Short Grass Pasture Kx= 7.0 fps
0.5	140	0.0550	4.76		Shallow Concentrated Flow, Paved Kx= 20.3 fps
8.9	207	Total			

Hydrograph for Subcatchment 11S: SITE

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	7.00	3.31	0.00
0.60	0.04	0.00	0.00	32.40	7.00	3.31	0.00
1.20	0.08	0.00	0.00	33.00	7.00	3.31	0.00
1.80	0.13	0.00	0.00	33.60	7.00	3.31	0.00
2.40	0.17	0.00	0.00	34.20	7.00	3.31	0.00
3.00	0.22	0.00	0.00	34.80	7.00	3.31	0.00
3.60	0.27	0.00	0.00	35.40	7.00	3.31	0.00
4.20	0.32	0.00	0.00	36.00	7.00	3.31	0.00
4.80	0.38	0.00	0.00	36.60	7.00	3.31	0.00
5.40	0.44	0.00	0.00	37.20	7.00	3.31	0.00
6.00	0.50	0.00	0.00	37.80	7.00	3.31	0.00
6.60	0.58	0.00	0.00	38.40	7.00	3.31	0.00
7.20	0.66	0.00	0.00	39.00	7.00	3.31	0.00
7.80	0.76	0.00	0.00	39.60	7.00	3.31	0.00
8.40	0.88	0.00	0.00	40.20	7.00	3.31	0.00
9.00	1.02	0.00	0.00	40.80	7.00	3.31	0.00
9.60	1.19	0.01	0.01	41.40	7.00	3.31	0.00
10.20	1.39	0.03	0.02	42.00	7.00	3.31	0.00
10.80	1.65	0.08	0.04	42.60	7.00	3.31	0.00
11.40	2.01	0.18	0.08	43.20	7.00	3.31	0.00
12.00	3.50	0.85	0.64	43.80	7.00	3.31	0.00
12.60	4.99	1.80	0.30	44.40	7.00	3.31	0.00
13.20	5.35	2.05	0.14	45.00	7.00	3.31	0.00
13.80	5.61	2.24	0.11	45.60	7.00	3.31	0.00
14.40	5.81	2.39	0.09	46.20	7.00	3.31	0.00
15.00	5.98	2.51	0.08	46.80	7.00	3.31	0.00
15.60	6.12	2.62	0.07	47.40	7.00	3.31	0.00
16.20	6.24	2.71	0.05	48.00	7.00	3.31	0.00
16.80	6.34	2.79	0.05	48.60	7.00	3.31	0.00
17.40	6.42	2.85	0.04	49.20	7.00	3.31	0.00
18.00	6.50	2.91	0.04	49.80	7.00	3.31	0.00
18.60	6.56	2.96	0.03	50.40	7.00	3.31	0.00
19.20	6.62	3.01	0.03	51.00	7.00	3.31	0.00
19.80	6.68	3.05	0.03	51.60	7.00	3.31	0.00
20.40	6.73	3.10	0.03	52.20	7.00	3.31	0.00
21.00	6.79	3.14	0.03	52.80	7.00	3.31	0.00
21.60	6.83	3.18	0.02	53.40	7.00	3.31	0.00
22.20	6.88	3.21	0.02	54.00	7.00	3.31	0.00
22.80	6.92	3.25	0.02	54.60	7.00	3.31	0.00
23.40	6.96	3.28	0.02	55.20	7.00	3.31	0.00
24.00	7.00	3.31	0.02	55.80	7.00	3.31	0.00
24.60	7.00	3.31	0.00	56.40	7.00	3.31	0.00
25.20	7.00	3.31	0.00	57.00	7.00	3.31	0.00
25.80	7.00	3.31	0.00	57.60	7.00	3.31	0.00
26.40	7.00	3.31	0.00	58.20	7.00	3.31	0.00
27.00	7.00	3.31	0.00	58.80	7.00	3.31	0.00
27.60	7.00	3.31	0.00	59.40	7.00	3.31	0.00
28.20	7.00	3.31	0.00	60.00	7.00	3.31	0.00
28.80	7.00	3.31	0.00	60.60	7.00	3.31	0.00
29.40	7.00	3.31	0.00	61.20	7.00	3.31	0.00
30.00	7.00	3.31	0.00	61.80	7.00	3.31	0.00
30.60	7.00	3.31	0.00	62.40	7.00	3.31	0.00
31.20	7.00	3.31	0.00	63.00	7.00	3.31	0.00

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Summary for Subcatchment 12S: SITE

Runoff = 2.27 cfs @ 12.24 hrs, Volume= 9.892 cf, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description		
1,561	70	Woods, Good, HSG C		
12,374	39	>75% Grass cover, Good, HSG A		
6,069	74	>75% Grass cover, Good, HSG C		
6,906	98	Paved parking, HSG A		
5,895	98	Paved parking, HSG C		
32,805	70	Weighted Average		
20,004		60.98% Pervious Area		
12,801		39.02% Impervious Area		
Tc (min)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	50	0.0050	0.06	Sheet Flow, Grass: Dense n= 0.240 P2= 3.20" Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	114	0.0320	1.25	Shallow Concentrated Flow, Paved Kv= 20.3 fps
1.7	355	0.0280	3.40	
17.5	519	Total		

Hydrograph for Subcatchment 12S: SITE

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	7.00	3.62	0.00
0.60	0.04	0.00	0.00	32.40	7.00	3.62	0.00
1.20	0.08	0.00	0.00	33.00	7.00	3.62	0.00
1.80	0.13	0.00	0.00	33.60	7.00	3.62	0.00
2.40	0.17	0.00	0.00	34.20	7.00	3.62	0.00
3.00	0.22	0.00	0.00	34.80	7.00	3.62	0.00
3.60	0.27	0.00	0.00	35.40	7.00	3.62	0.00
4.20	0.32	0.00	0.00	36.00	7.00	3.62	0.00
4.80	0.38	0.00	0.00	36.60	7.00	3.62	0.00
5.40	0.44	0.00	0.00	37.20	7.00	3.62	0.00
6.00	0.50	0.00	0.00	37.80	7.00	3.62	0.00
6.60	0.58	0.00	0.00	38.40	7.00	3.62	0.00
7.20	0.66	0.00	0.00	39.00	7.00	3.62	0.00
7.80	0.76	0.00	0.00	39.60	7.00	3.62	0.00
8.40	0.88	0.00	0.00	40.20	7.00	3.62	0.00
9.00	1.02	0.01	0.01	40.80	7.00	3.62	0.00
9.60	1.19	0.02	0.02	41.40	7.00	3.62	0.00
10.20	1.39	0.06	0.05	42.00	7.00	3.62	0.00
10.80	1.65	0.12	0.08	42.60	7.00	3.62	0.00
11.40	2.01	0.24	0.15	43.20	7.00	3.62	0.00
12.00	3.50	1.01	0.86	43.80	7.00	3.62	0.00
12.60	4.99	2.03	1.05	44.40	7.00	3.62	0.00
13.20	5.35	2.30	0.33	45.00	7.00	3.62	0.00
13.80	5.61	2.50	0.25	45.60	7.00	3.62	0.00
14.40	5.81	2.65	0.20	46.20	7.00	3.62	0.00
15.00	5.98	2.79	0.17	46.80	7.00	3.62	0.00
15.60	6.12	2.90	0.14	47.40	7.00	3.62	0.00
16.20	6.24	2.99	0.11	48.00	7.00	3.62	0.00
16.80	6.34	3.07	0.10	48.60	7.00	3.62	0.00
17.40	6.42	3.14	0.09	49.20	7.00	3.62	0.00
18.00	6.50	3.20	0.07	49.80	7.00	3.62	0.00
18.60	6.56	3.26	0.07	50.40	7.00	3.62	0.00
19.20	6.62	3.31	0.06	51.00	7.00	3.62	0.00
19.80	6.68	3.35	0.06	51.60	7.00	3.62	0.00
20.40	6.73	3.40	0.06	52.20	7.00	3.62	0.00
21.00	6.79	3.44	0.05	52.80	7.00	3.62	0.00
21.60	6.83	3.48	0.05	53.40	7.00	3.62	0.00
22.20	6.88	3.52	0.05	54.00	7.00	3.62	0.00
22.80	6.92	3.55	0.04	54.60	7.00	3.62	0.00
23.40	6.96	3.59	0.04	55.20	7.00	3.62	0.00
24.00	7.00	3.62	0.04	55.80	7.00	3.62	0.00
24.60	7.00	3.62	0.00	56.40	7.00	3.62	0.00
25.20	7.00	3.62	0.00	57.00	7.00	3.62	0.00
25.80	7.00	3.62	0.00	57.60	7.00	3.62	0.00
26.40	7.00	3.62	0.00	58.20	7.00	3.62	0.00
27.00	7.00	3.62	0.00	58.80	7.00	3.62	0.00
27.60	7.00	3.62	0.00	59.40	7.00	3.62	0.00
28.20	7.00	3.62	0.00	60.00	7.00	3.62	0.00
28.80	7.00	3.62	0.00	60.60	7.00	3.62	0.00
29.40	7.00	3.62	0.00	61.20	7.00	3.62	0.00
30.00	7.00	3.62	0.00	61.80	7.00	3.62	0.00
30.60	7.00	3.62	0.00	62.40	7.00	3.62	0.00
31.20	7.00	3.62	0.00	63.00	7.00	3.62	0.00

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Type III 24-hr 100 YR Rainfall=7.00"

Type III 24-hr 100 YR Rainfall=7.00"

Summary for Subcatchment 13S: SITE

Hydrograph for Subcatchment 13S: SITE

Runoff = 0.18 cfs @ 12.37 hrs, Volume= 1,330 cf, Depth= 0.77"
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description			
921	30	Woods, Good, HSG A			
19,828	39	>75% Grass cover, Good, HSG A			
27	98	Paved parking, HSG A			
20,776	39	Weighted Average			
20,749		99.87% Pervious Area			
27		0.13% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	50	0.0700	0.06		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.20" Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	88	0.0700	1.85		
13.8	138	Total			

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	7.00	0.77	0.00	63.60	7.00	0.77	0.00
0.60	0.04	0.00	0.00	32.40	7.00	0.77	0.00	64.20	7.00	0.77	0.00
1.20	0.08	0.00	0.00	33.00	7.00	0.77	0.00	64.80	7.00	0.77	0.00
1.80	0.13	0.00	0.00	33.60	7.00	0.77	0.00	65.40	7.00	0.77	0.00
2.40	0.17	0.00	0.00	34.20	7.00	0.77	0.00	66.00	7.00	0.77	0.00
3.00	0.22	0.00	0.00	34.80	7.00	0.77	0.00	66.60	7.00	0.77	0.00
3.60	0.27	0.00	0.00	35.40	7.00	0.77	0.00	67.20	7.00	0.77	0.00
4.20	0.32	0.00	0.00	36.00	7.00	0.77	0.00	67.80	7.00	0.77	0.00
4.80	0.38	0.00	0.00	36.60	7.00	0.77	0.00	68.40	7.00	0.77	0.00
5.40	0.44	0.00	0.00	37.20	7.00	0.77	0.00	69.00	7.00	0.77	0.00
6.00	0.50	0.00	0.00	37.80	7.00	0.77	0.00	69.60	7.00	0.77	0.00
6.60	0.58	0.00	0.00	38.40	7.00	0.77	0.00	70.20	7.00	0.77	0.00
7.20	0.66	0.00	0.00	39.00	7.00	0.77	0.00	70.80	7.00	0.77	0.00
7.80	0.76	0.00	0.00	39.60	7.00	0.77	0.00	71.40	7.00	0.77	0.00
8.40	0.88	0.00	0.00	40.20	7.00	0.77	0.00	72.00	7.00	0.77	0.00
9.00	1.02	0.00	0.00	40.80	7.00	0.77	0.00				
9.60	1.19	0.00	0.00	41.40	7.00	0.77	0.00				
10.20	1.39	0.00	0.00	42.00	7.00	0.77	0.00				
10.80	1.65	0.00	0.00	42.60	7.00	0.77	0.00				
11.40	2.01	0.00	0.00	43.20	7.00	0.77	0.00				
12.00	3.50	0.01	0.00	43.80	7.00	0.77	0.00				
12.60	4.99	0.20	0.13	44.40	7.00	0.77	0.00				
13.20	5.35	0.28	0.06	45.00	7.00	0.77	0.00				
13.80	5.61	0.34	0.05	45.60	7.00	0.77	0.00				
14.40	5.81	0.39	0.04	46.20	7.00	0.77	0.00				
15.00	5.98	0.44	0.04	46.80	7.00	0.77	0.00				
15.60	6.12	0.48	0.03	47.40	7.00	0.77	0.00				
16.20	6.24	0.52	0.03	48.00	7.00	0.77	0.00				
16.80	6.34	0.55	0.02	48.60	7.00	0.77	0.00				
17.40	6.42	0.57	0.02	49.20	7.00	0.77	0.00				
18.00	6.50	0.60	0.02	49.80	7.00	0.77	0.00				
18.60	6.56	0.62	0.02	50.40	7.00	0.77	0.00				
19.20	6.62	0.64	0.02	51.00	7.00	0.77	0.00				
19.80	6.68	0.66	0.02	51.60	7.00	0.77	0.00				
20.40	6.73	0.68	0.01	52.20	7.00	0.77	0.00				
21.00	6.79	0.69	0.01	52.80	7.00	0.77	0.00				
21.60	6.83	0.71	0.01	53.40	7.00	0.77	0.00				
22.20	6.88	0.73	0.01	54.00	7.00	0.77	0.00				
22.80	6.92	0.74	0.01	54.60	7.00	0.77	0.00				
23.40	6.96	0.76	0.01	55.20	7.00	0.77	0.00				
24.00	7.00	0.77	0.01	55.80	7.00	0.77	0.00				
24.60	7.00	0.77	0.00	56.40	7.00	0.77	0.00				
25.20	7.00	0.77	0.00	57.00	7.00	0.77	0.00				
25.80	7.00	0.77	0.00	57.60	7.00	0.77	0.00				
26.40	7.00	0.77	0.00	58.20	7.00	0.77	0.00				
27.00	7.00	0.77	0.00	58.80	7.00	0.77	0.00				
27.60	7.00	0.77	0.00	59.40	7.00	0.77	0.00				
28.20	7.00	0.77	0.00	60.00	7.00	0.77	0.00				
28.80	7.00	0.77	0.00	60.60	7.00	0.77	0.00				
29.40	7.00	0.77	0.00	61.20	7.00	0.77	0.00				
30.00	7.00	0.77	0.00	61.80	7.00	0.77	0.00				
30.60	7.00	0.77	0.00	62.40	7.00	0.77	0.00				
31.20	7.00	0.77	0.00	63.00	7.00	0.77	0.00				

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Type III 24-hr 100 YR Rainfall=7.00"

Type III 24-hr 100 YR Rainfall=7.00"

Summary for Subcatchment 14S: SITE

Hydrograph for Subcatchment 14S: SITE

Runoff = 3.18 cfs @ 12.11 hrs, Volume= 10,445 cf, Depth= 3.00"

Runoff (cfs)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description
13,490	39	>75% Grass cover, Good, HSG A
1,728	30	Woods, Good, HSG A
1,966	74	>75% Grass cover, Good, HSG C
670	70	Woods, Good, HSG C
14,514	80	>75% Grass cover, Good, HSG D
9,394	77	Woods, Good, HSG D
41,762	64	Weighted Average
41,762		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0630	0.16		Sheet Flow, Grass: Dense
1.9	192	0.0560	1.66		Shallow Concentrated Flow, Short Grass Pasture
7.1	242	Total			

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	7.00	3.00	0.00
0.60	0.04	0.00	0.00	32.40	7.00	3.00	0.00
1.20	0.08	0.00	0.00	33.00	7.00	3.00	0.00
1.80	0.13	0.00	0.00	33.60	7.00	3.00	0.00
2.40	0.17	0.00	0.00	34.20	7.00	3.00	0.00
3.00	0.22	0.00	0.00	34.80	7.00	3.00	0.00
3.60	0.27	0.00	0.00	35.40	7.00	3.00	0.00
4.20	0.32	0.00	0.00	36.00	7.00	3.00	0.00
4.80	0.38	0.00	0.00	36.60	7.00	3.00	0.00
5.40	0.44	0.00	0.00	37.20	7.00	3.00	0.00
6.00	0.50	0.00	0.00	37.80	7.00	3.00	0.00
6.60	0.58	0.00	0.00	38.40	7.00	3.00	0.00
7.20	0.66	0.00	0.00	39.00	7.00	3.00	0.00
7.80	0.76	0.00	0.00	39.60	7.00	3.00	0.00
8.40	0.88	0.00	0.00	40.20	7.00	3.00	0.00
9.00	1.02	0.00	0.00	40.80	7.00	3.00	0.00
9.60	1.19	0.00	0.00	41.40	7.00	3.00	0.00
10.20	1.39	0.01	0.03	42.00	7.00	3.00	0.00
10.80	1.65	0.05	0.07	42.60	7.00	3.00	0.00
11.40	2.01	0.12	0.16	43.20	7.00	3.00	0.00
12.00	3.50	0.71	1.63	43.80	7.00	3.00	0.00
12.60	4.99	1.58	0.60	44.40	7.00	3.00	0.00
13.20	5.35	1.81	0.32	45.00	7.00	3.00	0.00
13.80	5.61	1.99	0.26	45.60	7.00	3.00	0.00
14.40	5.81	2.13	0.22	46.20	7.00	3.00	0.00
15.00	5.98	2.25	0.19	46.80	7.00	3.00	0.00
15.60	6.12	2.35	0.15	47.40	7.00	3.00	0.00
16.20	6.24	2.43	0.13	48.00	7.00	3.00	0.00
16.80	6.34	2.51	0.11	48.60	7.00	3.00	0.00
17.40	6.42	2.57	0.10	49.20	7.00	3.00	0.00
18.00	6.50	2.62	0.08	49.80	7.00	3.00	0.00
18.60	6.56	2.67	0.08	50.40	7.00	3.00	0.00
19.20	6.62	2.72	0.07	51.00	7.00	3.00	0.00
19.80	6.68	2.76	0.07	51.60	7.00	3.00	0.00
20.40	6.73	2.80	0.06	52.20	7.00	3.00	0.00
21.00	6.79	2.84	0.06	52.80	7.00	3.00	0.00
21.60	6.83	2.88	0.06	53.40	7.00	3.00	0.00
22.20	6.88	2.91	0.05	54.00	7.00	3.00	0.00
22.80	6.92	2.94	0.05	54.60	7.00	3.00	0.00
23.40	6.96	2.97	0.05	55.20	7.00	3.00	0.00
24.00	7.00	3.00	0.04	55.80	7.00	3.00	0.00
24.60	7.00	3.00	0.00	56.40	7.00	3.00	0.00
25.20	7.00	3.00	0.00	57.00	7.00	3.00	0.00
25.80	7.00	3.00	0.00	57.60	7.00	3.00	0.00
26.40	7.00	3.00	0.00	58.20	7.00	3.00	0.00
27.00	7.00	3.00	0.00	58.80	7.00	3.00	0.00
27.60	7.00	3.00	0.00	59.40	7.00	3.00	0.00
28.20	7.00	3.00	0.00	60.00	7.00	3.00	0.00
28.80	7.00	3.00	0.00	60.60	7.00	3.00	0.00
29.40	7.00	3.00	0.00	61.20	7.00	3.00	0.00
30.00	7.00	3.00	0.00	61.80	7.00	3.00	0.00
30.60	7.00	3.00	0.00	62.40	7.00	3.00	0.00
31.20	7.00	3.00	0.00	63.00	7.00	3.00	0.00

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Type III 24-hr 100 YR Rainfall=7.00"

Type III 24-hr 100 YR Rainfall=7.00"

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Summary for Subcatchment 20S: UNITS 1.2,3,4

Hydrograph for Subcatchment 20S: UNITS 1.2,3,4

Runoff = 1.20 cfs @ 12.08 hrs, Volume= 4,313 cf, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description
3,975	98	Roofs, HSG A
3,681	98	Roofs, HSG C
7,656	98	Weighted Average
7,656		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 100% Impervious

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	7.00	6.76	0.00
0.60	0.04	0.00	0.00	32.40	7.00	6.76	0.00
1.20	0.08	0.01	0.00	33.00	7.00	6.76	0.00
1.80	0.13	0.03	0.01	33.60	7.00	6.76	0.00
2.40	0.17	0.05	0.01	34.20	7.00	6.76	0.00
3.00	0.22	0.08	0.01	34.80	7.00	6.76	0.00
3.60	0.27	0.12	0.01	35.40	7.00	6.76	0.00
4.20	0.32	0.16	0.01	36.00	7.00	6.76	0.00
4.80	0.38	0.21	0.01	36.60	7.00	6.76	0.00
5.40	0.44	0.26	0.02	37.20	7.00	6.76	0.00
6.00	0.50	0.32	0.02	37.80	7.00	6.76	0.00
6.60	0.58	0.39	0.02	38.40	7.00	6.76	0.00
7.20	0.66	0.47	0.03	39.00	7.00	6.76	0.00
7.80	0.76	0.56	0.03	39.60	7.00	6.76	0.00
8.40	0.88	0.67	0.04	40.20	7.00	6.76	0.00
9.00	1.02	0.81	0.04	40.80	7.00	6.76	0.00
9.60	1.19	0.98	0.05	41.40	7.00	6.76	0.00
10.20	1.39	1.18	0.06	42.00	7.00	6.76	0.00
10.80	1.65	1.43	0.08	42.60	7.00	6.76	0.00
11.40	2.01	1.78	0.12	43.20	7.00	6.76	0.00
12.00	3.50	3.27	0.76	43.80	7.00	6.76	0.00
12.60	4.99	4.76	0.16	44.40	7.00	6.76	0.00
13.20	5.35	5.11	0.09	45.00	7.00	6.76	0.00
13.80	5.61	5.37	0.07	45.60	7.00	6.76	0.00
14.40	5.81	5.57	0.06	46.20	7.00	6.76	0.00
15.00	5.98	5.74	0.05	46.80	7.00	6.76	0.00
15.60	6.12	5.88	0.04	47.40	7.00	6.76	0.00
16.20	6.24	6.00	0.03	48.00	7.00	6.76	0.00
16.80	6.34	6.10	0.03	48.60	7.00	6.76	0.00
17.40	6.42	6.18	0.02	49.20	7.00	6.76	0.00
18.00	6.50	6.26	0.02	49.80	7.00	6.76	0.00
18.60	6.56	6.32	0.02	50.40	7.00	6.76	0.00
19.20	6.62	6.38	0.02	51.00	7.00	6.76	0.00
19.80	6.68	6.44	0.02	51.60	7.00	6.76	0.00
20.40	6.73	6.50	0.02	52.20	7.00	6.76	0.00
21.00	6.79	6.55	0.01	52.80	7.00	6.76	0.00
21.60	6.83	6.60	0.01	53.40	7.00	6.76	0.00
22.20	6.88	6.64	0.01	54.00	7.00	6.76	0.00
22.80	6.92	6.68	0.01	54.60	7.00	6.76	0.00
23.40	6.96	6.72	0.01	55.20	7.00	6.76	0.00
24.00	7.00	6.76	0.01	55.80	7.00	6.76	0.00
24.60	7.00	6.76	0.00	56.40	7.00	6.76	0.00
25.20	7.00	6.76	0.00	57.00	7.00	6.76	0.00
25.80	7.00	6.76	0.00	57.60	7.00	6.76	0.00
26.40	7.00	6.76	0.00	58.20	7.00	6.76	0.00
27.00	7.00	6.76	0.00	58.80	7.00	6.76	0.00
27.60	7.00	6.76	0.00	59.40	7.00	6.76	0.00
28.20	7.00	6.76	0.00	60.00	7.00	6.76	0.00
28.80	7.00	6.76	0.00	60.60	7.00	6.76	0.00
29.40	7.00	6.76	0.00	61.20	7.00	6.76	0.00
30.00	7.00	6.76	0.00	61.80	7.00	6.76	0.00
30.60	7.00	6.76	0.00	62.40	7.00	6.76	0.00
31.20	7.00	6.76	0.00	63.00	7.00	6.76	0.00

Summary for Subcatchment 21S: UNIT 12

Runoff = 0.27 cfs @ 12.08 hrs, Volume= 975 cf, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description			
1,730	98	Roofs, HSG A			
1,730		100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry.

Hydrograph for Subcatchment 21S: UNIT 12

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	7.00	6.76	0.00	63.60	7.00	6.76	0.00
0.60	0.04	0.00	0.00	32.40	7.00	6.76	0.00	64.20	7.00	6.76	0.00
1.20	0.08	0.01	0.00	33.00	7.00	6.76	0.00	64.80	7.00	6.76	0.00
1.80	0.13	0.03	0.00	33.60	7.00	6.76	0.00	65.40	7.00	6.76	0.00
2.40	0.17	0.05	0.00	34.20	7.00	6.76	0.00	66.00	7.00	6.76	0.00
3.00	0.22	0.08	0.00	34.80	7.00	6.76	0.00	66.60	7.00	6.76	0.00
3.60	0.27	0.12	0.00	35.40	7.00	6.76	0.00	67.20	7.00	6.76	0.00
4.20	0.32	0.16	0.00	36.00	7.00	6.76	0.00	67.80	7.00	6.76	0.00
4.80	0.38	0.21	0.00	36.60	7.00	6.76	0.00	68.40	7.00	6.76	0.00
5.40	0.44	0.26	0.00	37.20	7.00	6.76	0.00	69.00	7.00	6.76	0.00
6.00	0.50	0.32	0.00	37.80	7.00	6.76	0.00	69.60	7.00	6.76	0.00
6.60	0.58	0.39	0.00	38.40	7.00	6.76	0.00	70.20	7.00	6.76	0.00
7.20	0.66	0.47	0.01	39.00	7.00	6.76	0.00	70.80	7.00	6.76	0.00
7.80	0.76	0.56	0.01	39.60	7.00	6.76	0.00	71.40	7.00	6.76	0.00
8.40	0.88	0.67	0.01	40.20	7.00	6.76	0.00	72.00	7.00	6.76	0.00
9.00	1.02	0.81	0.01	40.80	7.00	6.76	0.00				
9.60	1.19	0.98	0.01	41.40	7.00	6.76	0.00				
10.20	1.39	1.18	0.01	42.00	7.00	6.76	0.00				
10.80	1.65	1.43	0.02	42.60	7.00	6.76	0.00				
11.40	2.01	1.78	0.03	43.20	7.00	6.76	0.00				
12.00	3.50	3.27	0.17	43.80	7.00	6.76	0.00				
12.60	4.99	4.76	0.04	44.40	7.00	6.76	0.00				
13.20	5.35	5.11	0.02	45.00	7.00	6.76	0.00				
13.80	5.61	5.37	0.02	45.60	7.00	6.76	0.00				
14.40	5.81	5.57	0.01	46.20	7.00	6.76	0.00				
15.00	5.98	5.74	0.01	46.80	7.00	6.76	0.00				
15.60	6.12	5.88	0.01	47.40	7.00	6.76	0.00				
16.20	6.24	6.00	0.01	48.00	7.00	6.76	0.00				
16.80	6.34	6.10	0.01	48.60	7.00	6.76	0.00				
17.40	6.42	6.18	0.01	49.20	7.00	6.76	0.00				
18.00	6.50	6.26	0.00	49.80	7.00	6.76	0.00				
18.60	6.56	6.32	0.00	50.40	7.00	6.76	0.00				
19.20	6.62	6.38	0.00	51.00	7.00	6.76	0.00				
19.80	6.68	6.44	0.00	51.60	7.00	6.76	0.00				
20.40	6.73	6.50	0.00	52.20	7.00	6.76	0.00				
21.00	6.79	6.55	0.00	52.80	7.00	6.76	0.00				
21.60	6.83	6.60	0.00	53.40	7.00	6.76	0.00				
22.20	6.88	6.64	0.00	54.00	7.00	6.76	0.00				
22.80	6.92	6.68	0.00	54.60	7.00	6.76	0.00				
23.40	6.96	6.72	0.00	55.20	7.00	6.76	0.00				
24.00	7.00	6.76	0.00	55.80	7.00	6.76	0.00				
24.60	7.00	6.76	0.00	56.40	7.00	6.76	0.00				
25.20	7.00	6.76	0.00	57.00	7.00	6.76	0.00				
25.80	7.00	6.76	0.00	57.60	7.00	6.76	0.00				
26.40	7.00	6.76	0.00	58.20	7.00	6.76	0.00				
27.00	7.00	6.76	0.00	58.80	7.00	6.76	0.00				
27.60	7.00	6.76	0.00	59.40	7.00	6.76	0.00				
28.20	7.00	6.76	0.00	60.00	7.00	6.76	0.00				
28.80	7.00	6.76	0.00	60.60	7.00	6.76	0.00				
29.40	7.00	6.76	0.00	61.20	7.00	6.76	0.00				
30.00	7.00	6.76	0.00	61.80	7.00	6.76	0.00				
30.60	7.00	6.76	0.00	62.40	7.00	6.76	0.00				
31.20	7.00	6.76	0.00	63.00	7.00	6.76	0.00				

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Type III 24-hr 100 YR Rainfall=7.00"
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Type III 24-hr 100 YR Rainfall=7.00"
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Summary for Subcatchment 22S: UNITS 5.6

Runoff = 0.58 cfs @ 12.08 hrs, Volume= 2,074 cf, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description			
3,681	98	Roofs, HSG C			
3,681		100.00% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Hydrograph for Subcatchment 22S: UNITS 5.6

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	7.00	6.76	0.00	63.60	7.00	6.76	0.00
0.60	0.04	0.00	0.00	32.40	7.00	6.76	0.00	64.20	7.00	6.76	0.00
1.20	0.08	0.01	0.00	33.00	7.00	6.76	0.00	64.80	7.00	6.76	0.00
1.80	0.13	0.03	0.00	33.60	7.00	6.76	0.00	65.40	7.00	6.76	0.00
2.40	0.17	0.05	0.00	34.20	7.00	6.76	0.00	66.00	7.00	6.76	0.00
3.00	0.22	0.08	0.00	34.80	7.00	6.76	0.00	66.60	7.00	6.76	0.00
3.60	0.27	0.12	0.01	35.40	7.00	6.76	0.00	67.20	7.00	6.76	0.00
4.20	0.32	0.16	0.01	36.00	7.00	6.76	0.00	67.80	7.00	6.76	0.00
4.80	0.38	0.21	0.01	36.60	7.00	6.76	0.00	68.40	7.00	6.76	0.00
5.40	0.44	0.26	0.01	37.20	7.00	6.76	0.00	69.00	7.00	6.76	0.00
6.00	0.50	0.32	0.01	37.80	7.00	6.76	0.00	69.60	7.00	6.76	0.00
6.60	0.58	0.39	0.01	38.40	7.00	6.76	0.00	70.20	7.00	6.76	0.00
7.20	0.66	0.47	0.01	39.00	7.00	6.76	0.00	70.80	7.00	6.76	0.00
7.80	0.76	0.56	0.01	39.60	7.00	6.76	0.00	71.40	7.00	6.76	0.00
8.40	0.88	0.67	0.02	40.20	7.00	6.76	0.00	72.00	7.00	6.76	0.00
9.00	1.02	0.81	0.02	40.80	7.00	6.76	0.00				
9.60	1.19	0.98	0.03	41.40	7.00	6.76	0.00				
10.20	1.39	1.18	0.03	42.00	7.00	6.76	0.00				
10.80	1.65	1.43	0.04	42.60	7.00	6.76	0.00				
11.40	2.01	1.78	0.06	43.20	7.00	6.76	0.00				
12.00	3.50	3.27	0.37	43.80	7.00	6.76	0.00				
12.60	4.99	4.76	0.08	44.40	7.00	6.76	0.00				
13.20	5.35	5.11	0.04	45.00	7.00	6.76	0.00				
13.80	5.61	5.37	0.03	45.60	7.00	6.76	0.00				
14.40	5.81	5.57	0.03	46.20	7.00	6.76	0.00				
15.00	5.98	5.74	0.02	46.80	7.00	6.76	0.00				
15.60	6.12	5.88	0.02	47.40	7.00	6.76	0.00				
16.20	6.24	6.00	0.02	48.00	7.00	6.76	0.00				
16.80	6.34	6.10	0.01	48.60	7.00	6.76	0.00				
17.40	6.42	6.18	0.01	49.20	7.00	6.76	0.00				
18.00	6.50	6.26	0.01	49.80	7.00	6.76	0.00				
18.60	6.56	6.32	0.01	50.40	7.00	6.76	0.00				
19.20	6.62	6.38	0.01	51.00	7.00	6.76	0.00				
19.80	6.68	6.44	0.01	51.60	7.00	6.76	0.00				
20.40	6.73	6.50	0.01	52.20	7.00	6.76	0.00				
21.00	6.79	6.55	0.01	52.80	7.00	6.76	0.00				
21.60	6.83	6.60	0.01	53.40	7.00	6.76	0.00				
22.20	6.88	6.64	0.01	54.00	7.00	6.76	0.00				
22.80	6.92	6.68	0.01	54.60	7.00	6.76	0.00				
23.40	6.96	6.72	0.01	55.20	7.00	6.76	0.00				
24.00	7.00	6.76	0.01	55.80	7.00	6.76	0.00				
24.60	7.00	6.76	0.00	56.40	7.00	6.76	0.00				
25.20	7.00	6.76	0.00	57.00	7.00	6.76	0.00				
25.80	7.00	6.76	0.00	57.60	7.00	6.76	0.00				
26.40	7.00	6.76	0.00	58.20	7.00	6.76	0.00				
27.00	7.00	6.76	0.00	58.80	7.00	6.76	0.00				
27.60	7.00	6.76	0.00	59.40	7.00	6.76	0.00				
28.20	7.00	6.76	0.00	60.00	7.00	6.76	0.00				
28.80	7.00	6.76	0.00	60.60	7.00	6.76	0.00				
29.40	7.00	6.76	0.00	61.20	7.00	6.76	0.00				
30.00	7.00	6.76	0.00	61.80	7.00	6.76	0.00				
30.60	7.00	6.76	0.00	62.40	7.00	6.76	0.00				
31.20	7.00	6.76	0.00	63.00	7.00	6.76	0.00				

Summary for Subcatchment 23S: UNITS 7.8,9,10,11

Runoff = 1.41 cfs @ 12.08 hrs, Volume= 5.074 cf, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs
Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description
5,521	98	Roofs, HSG C
3,485	98	Roofs, HSG C
9,006	98	Weighted Average
9,006		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, 100% Impervious

Hydrograph for Subcatchment 23S: UNITS 7.8,9,10,11

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	31.80	7.00	6.76	0.00
0.60	0.04	0.00	0.00	32.40	7.00	6.76	0.00
1.20	0.08	0.01	0.00	33.00	7.00	6.76	0.00
1.80	0.13	0.03	0.01	33.60	7.00	6.76	0.00
2.40	0.17	0.05	0.01	34.20	7.00	6.76	0.00
3.00	0.22	0.08	0.01	34.80	7.00	6.76	0.00
3.60	0.27	0.12	0.01	35.40	7.00	6.76	0.00
4.20	0.32	0.16	0.02	36.00	7.00	6.76	0.00
4.80	0.38	0.21	0.02	36.60	7.00	6.76	0.00
5.40	0.44	0.26	0.02	37.20	7.00	6.76	0.00
6.00	0.50	0.32	0.02	37.80	7.00	6.76	0.00
6.60	0.58	0.39	0.02	38.40	7.00	6.76	0.00
7.20	0.66	0.47	0.03	39.00	7.00	6.76	0.00
7.80	0.76	0.56	0.03	39.60	7.00	6.76	0.00
8.40	0.88	0.67	0.04	40.20	7.00	6.76	0.00
9.00	1.02	0.81	0.05	40.80	7.00	6.76	0.00
9.60	1.19	0.98	0.06	41.40	7.00	6.76	0.00
10.20	1.39	1.18	0.07	42.00	7.00	6.76	0.00
10.80	1.65	1.43	0.09	42.60	7.00	6.76	0.00
11.40	2.01	1.78	0.15	43.20	7.00	6.76	0.00
12.00	3.50	3.27	0.90	43.80	7.00	6.76	0.00
12.60	4.99	4.76	0.19	44.40	7.00	6.76	0.00
13.20	5.35	5.11	0.10	45.00	7.00	6.76	0.00
13.80	5.61	5.37	0.08	45.60	7.00	6.76	0.00
14.40	5.81	5.57	0.07	46.20	7.00	6.76	0.00
15.00	5.98	5.74	0.06	46.80	7.00	6.76	0.00
15.60	6.12	5.88	0.05	47.40	7.00	6.76	0.00
16.20	6.24	6.00	0.04	48.00	7.00	6.76	0.00
16.80	6.34	6.10	0.03	48.60	7.00	6.76	0.00
17.40	6.42	6.18	0.03	49.20	7.00	6.76	0.00
18.00	6.50	6.26	0.02	49.80	7.00	6.76	0.00
18.60	6.56	6.32	0.02	50.40	7.00	6.76	0.00
19.20	6.62	6.38	0.02	51.00	7.00	6.76	0.00
19.80	6.68	6.44	0.02	51.60	7.00	6.76	0.00
20.40	6.73	6.50	0.02	52.20	7.00	6.76	0.00
21.00	6.79	6.55	0.02	52.80	7.00	6.76	0.00
21.60	6.83	6.60	0.02	53.40	7.00	6.76	0.00
22.20	6.88	6.64	0.02	54.00	7.00	6.76	0.00
22.80	6.92	6.68	0.01	54.60	7.00	6.76	0.00
23.40	6.96	6.72	0.01	55.20	7.00	6.76	0.00
24.00	7.00	6.76	0.01	55.80	7.00	6.76	0.00
24.60	7.00	6.76	0.00	56.40	7.00	6.76	0.00
25.20	7.00	6.76	0.00	57.00	7.00	6.76	0.00
25.80	7.00	6.76	0.00	57.60	7.00	6.76	0.00
26.40	7.00	6.76	0.00	58.20	7.00	6.76	0.00
27.00	7.00	6.76	0.00	58.80	7.00	6.76	0.00
27.60	7.00	6.76	0.00	59.40	7.00	6.76	0.00
28.20	7.00	6.76	0.00	60.00	7.00	6.76	0.00
28.80	7.00	6.76	0.00	60.60	7.00	6.76	0.00
29.40	7.00	6.76	0.00	61.20	7.00	6.76	0.00
30.00	7.00	6.76	0.00	61.80	7.00	6.76	0.00
30.60	7.00	6.76	0.00	62.40	7.00	6.76	0.00
31.20	7.00	6.76	0.00	63.00	7.00	6.76	0.00

3438 40B DRAINAGE

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Type III 24-hr 100 YR Rainfall=7.00"

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Summary for Pond 11P: INFIL AREA "A"

Inflow Area = 16,866 sf, 37.47% Impervious, Inflow Depth = 3.31" for 100 YR event
Inflow = 1.35 cfs @ 12.13 hrs, Volume= 4,648 cf
Outflow = 0.32 cfs @ 12.46 hrs, Volume= 4,530 cf, Atten= 76%, Lag= 19.7 min
Discarded = 0.20 cfs @ 12.45 hrs, Volume= 4,507 cf
Primary = 0.12 cfs @ 12.46 hrs, Volume= 23 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 163.46' @ 12.45 hrs Surf.Area= 657 sf Storage= 1,460 cf

Plug-Flow detention time= 83.0 min calculated for 4,530 cf (97% of inflow)
Center-of-Mass det. time= 68.4 min (908.6 - 840.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	158.50'	578 cf	20.83'W x 31.50'L x 3.54'H Field A 2,324 cf Overall - 879 cf Embedded = 1,445 cf x 40.0% Voids
#2A	159.00'	879 cf	Cultec R-330XLHD x16 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 4 rows
#3	158.50'	3 cf	0.83'D x 5.00'H Vertical Cone/Cylinder
		1,460 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	163.40'	10.0' Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Discarded	158.50'	8.270 in/hr Exfiltration over Wetted area
Discarded OutFlow Max=0.20 cfs @ 12.45 hrs HW=163.46' (Free Discharge)			
└─2-Exfiltration (Exfiltration Controls 0.20 cfs)			
Primary OutFlow Max=0.10 cfs @ 12.46 hrs HW=163.45' (Free Discharge)			
└─1-Orifice/Grate (Weir Controls 0.10 cfs @ 0.75 fps)			

Hydrograph for Pond 11P: INFIL AREA "A"

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	158.50	0.00	0.00	0.00
1.50	0.00	0	158.50	0.00	0.00	0.00
3.00	0.00	0	158.50	0.00	0.00	0.00
4.50	0.00	0	158.50	0.00	0.00	0.00
6.00	0.00	0	158.50	0.00	0.00	0.00
7.50	0.00	0	158.50	0.00	0.00	0.00
9.00	0.00	0	158.50	0.00	0.00	0.00
10.50	0.03	3	158.51	0.03	0.03	0.00
12.00	0.64	256	159.23	0.14	0.14	0.00
13.50	0.13	1,352	161.63	0.19	0.19	0.00
15.00	0.08	929	160.53	0.17	0.17	0.00
16.50	0.05	424	159.54	0.15	0.15	0.00
18.00	0.04	4	158.51	0.04	0.04	0.00
19.50	0.03	3	158.51	0.03	0.03	0.00
21.00	0.03	3	158.51	0.03	0.03	0.00
22.50	0.02	2	158.51	0.02	0.02	0.00
24.00	0.02	2	158.51	0.02	0.02	0.00
25.50	0.00	0	158.50	0.00	0.00	0.00
27.00	0.00	0	158.50	0.00	0.00	0.00
28.50	0.00	0	158.50	0.00	0.00	0.00
30.00	0.00	0	158.50	0.00	0.00	0.00
31.50	0.00	0	158.50	0.00	0.00	0.00
33.00	0.00	0	158.50	0.00	0.00	0.00
34.50	0.00	0	158.50	0.00	0.00	0.00
36.00	0.00	0	158.50	0.00	0.00	0.00
37.50	0.00	0	158.50	0.00	0.00	0.00
39.00	0.00	0	158.50	0.00	0.00	0.00
40.50	0.00	0	158.50	0.00	0.00	0.00
42.00	0.00	0	158.50	0.00	0.00	0.00
43.50	0.00	0	158.50	0.00	0.00	0.00
45.00	0.00	0	158.50	0.00	0.00	0.00
46.50	0.00	0	158.50	0.00	0.00	0.00
48.00	0.00	0	158.50	0.00	0.00	0.00
49.50	0.00	0	158.50	0.00	0.00	0.00
51.00	0.00	0	158.50	0.00	0.00	0.00
52.50	0.00	0	158.50	0.00	0.00	0.00
54.00	0.00	0	158.50	0.00	0.00	0.00
55.50	0.00	0	158.50	0.00	0.00	0.00
57.00	0.00	0	158.50	0.00	0.00	0.00
58.50	0.00	0	158.50	0.00	0.00	0.00
60.00	0.00	0	158.50	0.00	0.00	0.00
61.50	0.00	0	158.50	0.00	0.00	0.00
63.00	0.00	0	158.50	0.00	0.00	0.00
64.50	0.00	0	158.50	0.00	0.00	0.00
66.00	0.00	0	158.50	0.00	0.00	0.00
67.50	0.00	0	158.50	0.00	0.00	0.00
69.00	0.00	0	158.50	0.00	0.00	0.00
70.50	0.00	0	158.50	0.00	0.00	0.00
72.00	0.00	0	158.50	0.00	0.00	0.00

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Type III 24-hr 100 YR Rainfall=7.00"

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Summary for Pond 12P: INFIL AREA "B"

Inflow Area = 32,805 sf, 39.02% Impervious, Inflow Depth = 3.62" for 100 YR event
Inflow = 2.27 cfs @ 12.24 hrs, Volume= 9,892 cf
Outflow = 0.41 cfs @ 13.00 hrs, Volume= 9,892 cf, Atten= 82%, Lag= 45.3 min
Discarded = 0.41 cfs @ 13.00 hrs, Volume= 9,892 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 6
Peak Elev= 161.15' @ 13.00 hrs Surf.Area= 1,602 sf Storage= 3,374 cf

Plug-Flow detention time= 70.1 min calculated for 9,892 cf (100% of inflow)
Center-of-Mass det. time= 70.0 min (911.5 - 841.5)

Volume	Invert	Avail.Storage	Storage Description
#1A 158.00'		1,365 cf	30.50'W x 52.50'L x 3.54'H Field A
			5,671 cf Overall - 2,258 cf Embedded = 3,413 cf x 40.0% Voids
#2A 158.50'		2,258 cf	Cultec R-330XLHD x 42 Inside #1
			Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
			Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
			Row Length Adjustment= +1.50' x 7.45 sf x 6 rows
#3 158.00'		3 cf	0.83'D x 5.00'H Vertical Cone/Cylinder
		3,626 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 Primary	162.50'	10.0" Horiz. Orifice/Grate	C= 0.600 Limited to weir flow at low heads
#2 Discarded	158.00'	8.270 in/hr Exfiltration over Wetted area	

Discarded OutFlow Max=0.41 cfs @ 13.00 hrs HW=161.15' (Free Discharge)
←2=Exfiltration (Exfiltration Controls 0.41 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=158.00' (Free Discharge)
←1=Orifice/Grate (Controls 0.00 cfs)

Hydrograph for Pond 12P: INFIL AREA "B"

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	158.00	0.00	0.00	0.00
1.50	0.00	0	158.00	0.00	0.00	0.00
3.00	0.00	0	158.00	0.00	0.00	0.00
4.50	0.00	0	158.00	0.00	0.00	0.00
6.00	0.00	0	158.00	0.00	0.00	0.00
7.50	0.00	0	158.00	0.00	0.00	0.00
9.00	0.01	1	158.00	0.01	0.01	0.00
10.50	0.06	6	158.01	0.06	0.06	0.00
12.00	0.86	244	158.38	0.32	0.32	0.00
13.50	0.28	3,225	160.92	0.40	0.40	0.00
15.00	0.17	2,294	160.01	0.37	0.37	0.00
16.50	0.11	1,102	159.08	0.34	0.34	0.00
18.00	0.07	8	158.01	0.08	0.08	0.00
19.50	0.06	6	158.01	0.06	0.06	0.00
21.00	0.05	5	158.01	0.05	0.05	0.00
22.50	0.05	5	158.01	0.05	0.05	0.00
24.00	0.04	4	158.01	0.04	0.04	0.00
25.50	0.00	0	158.00	0.00	0.00	0.00
27.00	0.00	0	158.00	0.00	0.00	0.00
28.50	0.00	0	158.00	0.00	0.00	0.00
30.00	0.00	0	158.00	0.00	0.00	0.00
31.50	0.00	0	158.00	0.00	0.00	0.00
33.00	0.00	0	158.00	0.00	0.00	0.00
34.50	0.00	0	158.00	0.00	0.00	0.00
36.00	0.00	0	158.00	0.00	0.00	0.00
37.50	0.00	0	158.00	0.00	0.00	0.00
39.00	0.00	0	158.00	0.00	0.00	0.00
40.50	0.00	0	158.00	0.00	0.00	0.00
42.00	0.00	0	158.00	0.00	0.00	0.00
43.50	0.00	0	158.00	0.00	0.00	0.00
45.00	0.00	0	158.00	0.00	0.00	0.00
46.50	0.00	0	158.00	0.00	0.00	0.00
48.00	0.00	0	158.00	0.00	0.00	0.00
49.50	0.00	0	158.00	0.00	0.00	0.00
51.00	0.00	0	158.00	0.00	0.00	0.00
52.50	0.00	0	158.00	0.00	0.00	0.00
54.00	0.00	0	158.00	0.00	0.00	0.00
55.50	0.00	0	158.00	0.00	0.00	0.00
57.00	0.00	0	158.00	0.00	0.00	0.00
58.50	0.00	0	158.00	0.00	0.00	0.00
60.00	0.00	0	158.00	0.00	0.00	0.00
61.50	0.00	0	158.00	0.00	0.00	0.00
63.00	0.00	0	158.00	0.00	0.00	0.00
64.50	0.00	0	158.00	0.00	0.00	0.00
66.00	0.00	0	158.00	0.00	0.00	0.00
67.50	0.00	0	158.00	0.00	0.00	0.00
69.00	0.00	0	158.00	0.00	0.00	0.00
70.50	0.00	0	158.00	0.00	0.00	0.00
72.00	0.00	0	158.00	0.00	0.00	0.00

Summary for Pond 20P: INFIL #1

Inflow Area = 7,656 sf 100.00% Impervious; Inflow Depth = 6.76" for 100 YR event
Inflow = 1.20 cfs @ 12.08 hrs, Volume= 4,313 cf
Outflow = 0.23 cfs @ 12.51 hrs, Volume= 4,314 cf, Atten= 80%, Lag= 25.7 min
Discarded = 0.23 cfs @ 12.51 hrs, Volume= 4,314 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 165.82' @ 12.51 hrs Surf.Area= 932 sf Storage= 1,067 cf

Plug-Flow detention time= 25.5 min calculated for 4,312 cf (100% of inflow)
Center-of-Mass det. time= 25.6 min (768.5 - 743.0)

Volume	Invert	Avail.Storage	Storage Description
#1A 164.00'		683 cf	14.50'W x 64.25'L x 2.54'H Field A
			2,368 cf Overall - 660 cf Embedded = 1,708 cf x 40.0% Voids
#2A 164.50'		660 cf	Cultec R-150XLHD x 24 Inside #1
			Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf
			Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap
			Row Length Adjustment= +0.75' x 2.65 sf x 4 rows
#3 164.00'		2 cf	0.83'D x 4.00'H Vertical Cone/Cylinder
		1,345 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 Primary	167.50'	10.0'	Horiz. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads
#2 Discarded	164.00'	8.270 m/hr	Exfiltration over Wetted area
Discarded OutFlow Max=0.23 cfs @ 12.51 hrs HW=165.82' (Free Discharge)			
1-2-Exfiltration (Exfiltration Controls 0.23 cfs)			
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=164.00' (Free Discharge)			
1-1-Orifice/Grate (Controls 0.00 cfs)			

Hydrograph for Pond 20P: INFIL #1

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	164.00	0.00	0.00	0.00
1.50	0.00	0	164.00	0.00	0.00	0.00
3.00	0.01	1	164.00	0.01	0.01	0.00
4.50	0.01	1	164.00	0.01	0.01	0.00
6.00	0.02	1	164.00	0.02	0.02	0.00
7.50	0.03	2	164.01	0.03	0.03	0.00
9.00	0.04	4	164.01	0.04	0.04	0.00
10.50	0.07	6	164.02	0.07	0.07	0.00
12.00	0.76	299	164.65	0.20	0.20	0.00
13.50	0.08	664	165.17	0.21	0.21	0.00
15.00	0.05	4	164.01	0.05	0.05	0.00
16.50	0.03	2	164.01	0.03	0.03	0.00
18.00	0.02	2	164.00	0.02	0.02	0.00
19.50	0.02	1	164.00	0.02	0.02	0.00
21.00	0.01	1	164.00	0.01	0.01	0.00
22.50	0.01	1	164.00	0.01	0.01	0.00
24.00	0.01	1	164.00	0.01	0.01	0.00
25.50	0.00	0	164.00	0.00	0.00	0.00
27.00	0.00	0	164.00	0.00	0.00	0.00
28.50	0.00	0	164.00	0.00	0.00	0.00
30.00	0.00	0	164.00	0.00	0.00	0.00
31.50	0.00	0	164.00	0.00	0.00	0.00
33.00	0.00	0	164.00	0.00	0.00	0.00
34.50	0.00	0	164.00	0.00	0.00	0.00
36.00	0.00	0	164.00	0.00	0.00	0.00
37.50	0.00	0	164.00	0.00	0.00	0.00
39.00	0.00	0	164.00	0.00	0.00	0.00
40.50	0.00	0	164.00	0.00	0.00	0.00
42.00	0.00	0	164.00	0.00	0.00	0.00
43.50	0.00	0	164.00	0.00	0.00	0.00
45.00	0.00	0	164.00	0.00	0.00	0.00
46.50	0.00	0	164.00	0.00	0.00	0.00
48.00	0.00	0	164.00	0.00	0.00	0.00
49.50	0.00	0	164.00	0.00	0.00	0.00
51.00	0.00	0	164.00	0.00	0.00	0.00
52.50	0.00	0	164.00	0.00	0.00	0.00
54.00	0.00	0	164.00	0.00	0.00	0.00
55.50	0.00	0	164.00	0.00	0.00	0.00
57.00	0.00	0	164.00	0.00	0.00	0.00
58.50	0.00	0	164.00	0.00	0.00	0.00
60.00	0.00	0	164.00	0.00	0.00	0.00
61.50	0.00	0	164.00	0.00	0.00	0.00
63.00	0.00	0	164.00	0.00	0.00	0.00
64.50	0.00	0	164.00	0.00	0.00	0.00
66.00	0.00	0	164.00	0.00	0.00	0.00
67.50	0.00	0	164.00	0.00	0.00	0.00
69.00	0.00	0	164.00	0.00	0.00	0.00
70.50	0.00	0	164.00	0.00	0.00	0.00
72.00	0.00	0	164.00	0.00	0.00	0.00

Type III 24-hr 100 YR Rainfall=7.00"

Type III 24-hr 100 YR Rainfall=7.00"

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Summary for Pond 21P: INFIL #2

Inflow Area = 1.730 sf 100.00% Impervious, Inflow Depth = 6.76" for 100 YR event
 Inflow = 0.27 cfs @ 12.08 hrs, Volume= 975 cf
 Outflow = 0.07 cfs @ 12.44 hrs, Volume= 975 cf, Atten= 74%, Lag= 21.2 min
 Discarded = 0.07 cfs @ 12.44 hrs, Volume= 975 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
 Peak Elev= 163.23' @ 12.44 hrs Surf. Area= 269 sf Storage= 196 cf

Plug-Flow detention time= 14.1 min calculated for 974 cf (100% of inflow)
 Center-of-Mass det. time= 14.3 min (757.2 - 743.0)

Volume	Invert	Avail. Storage	Storage Description
#1A 162.00'	206 cf	8.00'W x 33.50'L x 2.54'H Field A	681 cf Overall - 167 cf Embedded = 514 cf x 40.0% Voids
#2A 162.50'	167 cf	Cultec R-150XLHD x 6 Inside #1	Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
#3 162.00'	2 cf	0.83'D x 4.00'H Vertical Cone/Cylinder	
	375 cf	Total Available Storage	

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1 Primary	165.50'	10.0' Horiz. Orifice/Grate	C= 0.600 Limited to weir flow at low heads
#2 Discarded	162.00'	8.270 in/hr Exfiltration over Wetted area	

Discarded OutFlow Max=0.07 cfs @ 12.44 hrs HW=163.23' (Free Discharge)
 ↳ 2-Exfiltration (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=162.00' (Free Discharge)
 ↳ 1-Orifice/Grate (Controls 0.00 cfs)

Hydrograph for Pond 21P: INFIL #2

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	162.00	0.00	0.00	0.00
1.50	0.00	0	162.00	0.00	0.00	0.00
3.00	0.00	0	162.00	0.00	0.00	0.00
4.50	0.00	0	162.00	0.00	0.00	0.00
6.00	0.00	0	162.00	0.00	0.00	0.00
7.50	0.01	1	162.00	0.01	0.01	0.00
9.00	0.01	1	162.01	0.01	0.01	0.00
10.50	0.02	1	162.01	0.02	0.02	0.00
12.00	0.17	53	162.49	0.06	0.06	0.00
13.50	0.02	50	162.46	0.06	0.06	0.00
15.00	0.01	1	162.01	0.01	0.01	0.00
16.50	0.01	1	162.01	0.01	0.01	0.00
18.00	0.00	0	162.00	0.00	0.00	0.00
19.50	0.00	0	162.00	0.00	0.00	0.00
21.00	0.00	0	162.00	0.00	0.00	0.00
22.50	0.00	0	162.00	0.00	0.00	0.00
24.00	0.00	0	162.00	0.00	0.00	0.00
25.50	0.00	0	162.00	0.00	0.00	0.00
27.00	0.00	0	162.00	0.00	0.00	0.00
28.50	0.00	0	162.00	0.00	0.00	0.00
30.00	0.00	0	162.00	0.00	0.00	0.00
31.50	0.00	0	162.00	0.00	0.00	0.00
33.00	0.00	0	162.00	0.00	0.00	0.00
34.50	0.00	0	162.00	0.00	0.00	0.00
36.00	0.00	0	162.00	0.00	0.00	0.00
37.50	0.00	0	162.00	0.00	0.00	0.00
39.00	0.00	0	162.00	0.00	0.00	0.00
40.50	0.00	0	162.00	0.00	0.00	0.00
42.00	0.00	0	162.00	0.00	0.00	0.00
43.50	0.00	0	162.00	0.00	0.00	0.00
45.00	0.00	0	162.00	0.00	0.00	0.00
46.50	0.00	0	162.00	0.00	0.00	0.00
48.00	0.00	0	162.00	0.00	0.00	0.00
49.50	0.00	0	162.00	0.00	0.00	0.00
51.00	0.00	0	162.00	0.00	0.00	0.00
52.50	0.00	0	162.00	0.00	0.00	0.00
54.00	0.00	0	162.00	0.00	0.00	0.00
55.50	0.00	0	162.00	0.00	0.00	0.00
57.00	0.00	0	162.00	0.00	0.00	0.00
58.50	0.00	0	162.00	0.00	0.00	0.00
60.00	0.00	0	162.00	0.00	0.00	0.00
61.50	0.00	0	162.00	0.00	0.00	0.00
63.00	0.00	0	162.00	0.00	0.00	0.00
64.50	0.00	0	162.00	0.00	0.00	0.00
66.00	0.00	0	162.00	0.00	0.00	0.00
67.50	0.00	0	162.00	0.00	0.00	0.00
69.00	0.00	0	162.00	0.00	0.00	0.00
70.50	0.00	0	162.00	0.00	0.00	0.00
72.00	0.00	0	162.00	0.00	0.00	0.00

Summary for Pond 22P: INFIL #3

Inflow Area = 3,681 sf 100.00% Impervious, Inflow Depth = 6.76" for 100 YR event
Inflow = 0.58 cfs @ 12.08 hrs, Volume= 2,074 cf
Outflow = 0.24 cfs @ 12.22 hrs, Volume= 1,715 cf, Atten= 59%, Lag= 8.2 min
Discarded = 0.01 cfs @ 12.21 hrs, Volume= 1,347 cf
Primary = 0.23 cfs @ 12.22 hrs, Volume= 369 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2
Peak Elev= 174.58' @ 12.21 hrs Surf.Area= 704 sf Storage= 1,018 cf

Plug-Flow detention time= 1.226.0 min calculated for 1,715 cf (83% of inflow)
Center-of-Mass det. time= 1,155.4 min (1,898.4 - 743.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	171.00'	515 cf	21.00'W x 33.50'L x 2.54'H Field A 1,788 cf Overall - 501 cf Embedded = 1,287 cf x 40.0% Voids
#2A	171.50'	501 cf	Cultec R-150XLHD x 18 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 6 rows
#3	171.00'	2 cf	0.83'D x 4.00'H Vertical Cone/Cylinder 1,018 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	174.50'	10.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Discarded	171.00'	0.270 m/hr Exfiltration over Wetted area
Discarded Outflow Max=0.01 cfs @ 12.21 hrs HW=174.58' (Free Discharge)			
└─2-Exfiltration (Exfiltration Controls 0.01 cfs)			
Primary Outflow Max=0.20 cfs @ 12.22 hrs HW=174.58' (Free Discharge)			
└─1-Orifice/Grate (Weir Controls 0.20 cfs @ 0.93 fps)			

Hydrograph for Pond 22P: INFIL #3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	171.00	0.00	0.00	0.00
1.50	0.00	3	171.01	0.00	0.00	0.00
3.00	0.00	9	171.03	0.00	0.00	0.00
4.50	0.01	17	171.06	0.00	0.00	0.00
6.00	0.01	35	171.12	0.00	0.00	0.00
7.50	0.01	68	171.24	0.00	0.00	0.00
9.00	0.02	131	171.46	0.00	0.00	0.00
10.50	0.03	249	171.69	0.00	0.00	0.00
12.00	0.37	676	172.51	0.01	0.01	0.00
13.50	0.04	1,018	174.51	0.02	0.01	0.01
15.00	0.02	1,018	174.51	0.02	0.01	0.02
16.50	0.01	1,018	174.51	0.01	0.01	0.01
18.00	0.01	1,018	174.50	0.01	0.01	0.00
19.50	0.01	1,018	174.50	0.01	0.01	0.00
21.00	0.01	1,018	174.50	0.01	0.01	0.00
22.50	0.01	1,018	174.48	0.01	0.01	0.00
24.00	0.01	1,015	173.53	0.01	0.01	0.00
25.50	0.00	983	173.42	0.01	0.01	0.00
27.00	0.00	951	173.31	0.01	0.01	0.00
28.50	0.00	918	173.19	0.01	0.01	0.00
30.00	0.00	886	173.08	0.01	0.01	0.00
31.50	0.00	855	172.97	0.01	0.01	0.00
33.00	0.00	824	172.87	0.01	0.01	0.00
34.50	0.00	793	172.79	0.01	0.01	0.00
36.00	0.00	763	172.71	0.01	0.01	0.00
37.50	0.00	733	172.64	0.01	0.01	0.00
39.00	0.00	703	172.57	0.01	0.01	0.00
40.50	0.00	674	172.51	0.01	0.01	0.00
42.00	0.00	644	172.45	0.01	0.01	0.00
43.50	0.00	615	172.39	0.01	0.01	0.00
45.00	0.00	586	172.33	0.01	0.01	0.00
46.50	0.00	558	172.27	0.01	0.01	0.00
48.00	0.00	529	172.22	0.01	0.01	0.00
49.50	0.00	501	172.16	0.01	0.01	0.00
51.00	0.00	473	172.11	0.01	0.01	0.00
52.50	0.00	445	172.06	0.01	0.01	0.00
54.00	0.00	417	172.01	0.01	0.01	0.00
55.50	0.00	390	171.95	0.01	0.01	0.00
57.00	0.00	363	171.90	0.01	0.01	0.00
58.50	0.00	336	171.85	0.00	0.00	0.00
60.00	0.00	309	171.80	0.00	0.00	0.00
61.50	0.00	282	171.76	0.00	0.00	0.00
63.00	0.00	256	171.71	0.00	0.00	0.00
64.50	0.00	229	171.66	0.00	0.00	0.00
66.00	0.00	203	171.61	0.00	0.00	0.00
67.50	0.00	177	171.56	0.00	0.00	0.00
69.00	0.00	151	171.52	0.00	0.00	0.00
70.50	0.00	126	171.45	0.00	0.00	0.00
72.00	0.00	100	171.36	0.00	0.00	0.00

Summary for Pond 23P: INFIL #4

Inflow Area = 9,006 sf 100.00% Impervious, Inflow Depth = 6.76" for 100 YR event
Inflow = 1.41 cfs @ 12.08 hrs, Volume= 5,074 cf
Outflow = 0.33 cfs @ 12.47 hrs, Volume= 5,073 cf, Atten= 76%, Lag= 23.1 min
Discarded = 0.33 cfs @ 12.47 hrs, Volume= 5,073 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs / 2

Peak Elev= 165.45' @ 12.47 hrs Surf. Area= 1,253 sf Storage= 1,117 cf

Plug-Flow detention time= 18.2 min calculated for 5,071 cf (100% of inflow)

Center-of-Mass det. time= 18.1 min (761.0 - 743.0)

Volume	Invert	Avail. Storage	Storage Description
#1A	164.00'	945 cf	8,00'W x 156.50'L x 2.54'H Field A 3,182 cf Overall - 819 cf Embedded = 2,364 cf x 40.0% Voids
#2A	164.50'	819 cf	Cultec R-150XLHD x 30 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 2 rows
#3	164.00'	2 cf	0.83'D x 4.00'H Vertical Cone/Cylinder 1,766 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	167.80'	10.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Discarded	164.00'	8.270 m/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.33 cfs @ 12.47 hrs HW=165.45' (Free Discharge)

←2-Exfiltration (Exfiltration Controls 0.33 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=164.00' (Free Discharge)

←1-Orifice/Grate (Controls 0.00 cfs)

Hydrograph for Pond 23P: INFIL #4

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	164.00	0.00	0.00	0.00
1.50	0.01	0	164.00	0.01	0.01	0.00
3.00	0.01	1	164.00	0.01	0.01	0.00
4.50	0.02	1	164.00	0.02	0.02	0.00
6.00	0.02	2	164.00	0.02	0.02	0.00
7.50	0.03	3	164.01	0.03	0.03	0.00
9.00	0.05	4	164.01	0.05	0.05	0.00
10.50	0.08	7	164.01	0.08	0.08	0.00
12.00	0.90	310	164.56	0.28	0.28	0.00
13.50	0.09	476	164.74	0.29	0.29	0.00
15.00	0.06	5	164.01	0.06	0.06	0.00
16.50	0.03	3	164.01	0.04	0.04	0.00
18.00	0.02	2	164.00	0.02	0.02	0.00
19.50	0.02	2	164.00	0.02	0.02	0.00
21.00	0.02	1	164.00	0.02	0.02	0.00
22.50	0.02	1	164.00	0.02	0.02	0.00
24.00	0.01	1	164.00	0.01	0.01	0.00
25.50	0.00	0	164.00	0.00	0.00	0.00
27.00	0.00	0	164.00	0.00	0.00	0.00
28.50	0.00	0	164.00	0.00	0.00	0.00
30.00	0.00	0	164.00	0.00	0.00	0.00
31.50	0.00	0	164.00	0.00	0.00	0.00
33.00	0.00	0	164.00	0.00	0.00	0.00
34.50	0.00	0	164.00	0.00	0.00	0.00
36.00	0.00	0	164.00	0.00	0.00	0.00
37.50	0.00	0	164.00	0.00	0.00	0.00
39.00	0.00	0	164.00	0.00	0.00	0.00
40.50	0.00	0	164.00	0.00	0.00	0.00
42.00	0.00	0	164.00	0.00	0.00	0.00
43.50	0.00	0	164.00	0.00	0.00	0.00
45.00	0.00	0	164.00	0.00	0.00	0.00
46.50	0.00	0	164.00	0.00	0.00	0.00
48.00	0.00	0	164.00	0.00	0.00	0.00
49.50	0.00	0	164.00	0.00	0.00	0.00
51.00	0.00	0	164.00	0.00	0.00	0.00
52.50	0.00	0	164.00	0.00	0.00	0.00
54.00	0.00	0	164.00	0.00	0.00	0.00
55.50	0.00	0	164.00	0.00	0.00	0.00
57.00	0.00	0	164.00	0.00	0.00	0.00
58.50	0.00	0	164.00	0.00	0.00	0.00
60.00	0.00	0	164.00	0.00	0.00	0.00
61.50	0.00	0	164.00	0.00	0.00	0.00
63.00	0.00	0	164.00	0.00	0.00	0.00
64.50	0.00	0	164.00	0.00	0.00	0.00
66.00	0.00	0	164.00	0.00	0.00	0.00
67.50	0.00	0	164.00	0.00	0.00	0.00
69.00	0.00	0	164.00	0.00	0.00	0.00
70.50	0.00	0	164.00	0.00	0.00	0.00
72.00	0.00	0	164.00	0.00	0.00	0.00

Summary for Link 1L: PROPOSED EAST

Inflow Area = 98,111 sf, 29.72% Impervious, Inflow Depth = 0.44" for 100 YR event
Inflow = 0.63 cfs @ 12.23 hrs, Volume= 3,625 cf
Primary = 0.63 cfs @ 12.23 hrs, Volume= 3,625 cf, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Hydrograph for Link 1L: PROPOSED EAST

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	31.80	0.00	0.00	0.00	63.60	0.00	0.00	0.00
0.60	0.00	0.00	0.00	32.40	0.00	0.00	0.00	64.20	0.00	0.00	0.00
1.20	0.00	0.00	0.00	33.00	0.00	0.00	0.00	64.80	0.00	0.00	0.00
1.80	0.00	0.00	0.00	33.60	0.00	0.00	0.00	65.40	0.00	0.00	0.00
2.40	0.00	0.00	0.00	34.20	0.00	0.00	0.00	66.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	34.80	0.00	0.00	0.00	66.60	0.00	0.00	0.00
3.60	0.00	0.00	0.00	35.40	0.00	0.00	0.00	67.20	0.00	0.00	0.00
4.20	0.00	0.00	0.00	36.00	0.00	0.00	0.00	67.80	0.00	0.00	0.00
4.80	0.00	0.00	0.00	36.60	0.00	0.00	0.00	68.40	0.00	0.00	0.00
5.40	0.00	0.00	0.00	37.20	0.00	0.00	0.00	69.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	37.80	0.00	0.00	0.00	69.60	0.00	0.00	0.00
6.60	0.00	0.00	0.00	38.40	0.00	0.00	0.00	70.20	0.00	0.00	0.00
7.20	0.00	0.00	0.00	39.00	0.00	0.00	0.00	70.80	0.00	0.00	0.00
7.80	0.00	0.00	0.00	39.60	0.00	0.00	0.00	71.40	0.00	0.00	0.00
8.40	0.00	0.00	0.00	40.20	0.00	0.00	0.00	72.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	40.80	0.00	0.00	0.00				
9.60	0.00	0.00	0.00	41.40	0.00	0.00	0.00				
10.20	0.00	0.00	0.00	42.00	0.00	0.00	0.00				
10.80	0.00	0.00	0.00	42.60	0.00	0.00	0.00				
11.40	0.00	0.00	0.00	43.20	0.00	0.00	0.00				
12.00	0.11	0.00	0.11	43.80	0.00	0.00	0.00				
12.60	0.34	0.00	0.34	44.40	0.00	0.00	0.00				
13.20	0.15	0.00	0.15	45.00	0.00	0.00	0.00				
13.80	0.12	0.00	0.12	45.60	0.00	0.00	0.00				
14.40	0.10	0.00	0.10	46.20	0.00	0.00	0.00				
15.00	0.09	0.00	0.09	46.80	0.00	0.00	0.00				
15.60	0.08	0.00	0.08	47.40	0.00	0.00	0.00				
16.20	0.06	0.00	0.06	48.00	0.00	0.00	0.00				
16.80	0.06	0.00	0.06	48.60	0.00	0.00	0.00				
17.40	0.05	0.00	0.05	49.20	0.00	0.00	0.00				
18.00	0.04	0.00	0.04	49.80	0.00	0.00	0.00				
18.60	0.04	0.00	0.04	50.40	0.00	0.00	0.00				
19.20	0.04	0.00	0.04	51.00	0.00	0.00	0.00				
19.80	0.04	0.00	0.04	51.60	0.00	0.00	0.00				
20.40	0.03	0.00	0.03	52.20	0.00	0.00	0.00				
21.00	0.03	0.00	0.03	52.80	0.00	0.00	0.00				
21.60	0.03	0.00	0.03	53.40	0.00	0.00	0.00				
22.20	0.03	0.00	0.03	54.00	0.00	0.00	0.00				
22.80	0.03	0.00	0.03	54.60	0.00	0.00	0.00				
23.40	0.03	0.00	0.03	55.20	0.00	0.00	0.00				
24.00	0.02	0.00	0.02	55.80	0.00	0.00	0.00				
24.60	0.00	0.00	0.00	56.40	0.00	0.00	0.00				
25.20	0.00	0.00	0.00	57.00	0.00	0.00	0.00				
25.80	0.00	0.00	0.00	57.60	0.00	0.00	0.00				
26.40	0.00	0.00	0.00	58.20	0.00	0.00	0.00				
27.00	0.00	0.00	0.00	58.80	0.00	0.00	0.00				
27.60	0.00	0.00	0.00	59.40	0.00	0.00	0.00				
28.20	0.00	0.00	0.00	60.00	0.00	0.00	0.00				
28.80	0.00	0.00	0.00	60.60	0.00	0.00	0.00				
29.40	0.00	0.00	0.00	61.20	0.00	0.00	0.00				
30.00	0.00	0.00	0.00	61.80	0.00	0.00	0.00				
30.60	0.00	0.00	0.00	62.40	0.00	0.00	0.00				
31.20	0.00	0.00	0.00	63.00	0.00	0.00	0.00				

Summary for Link 2L: PROPOSED NORTHWEST

Inflow Area = 54,449 sf, 23.30% Impervious, Inflow Depth = 2.38" for 100 YR event
Inflow = 3.18 cfs @ 12.11 hrs, Volume= 10,814 cf
Primary = 3.18 cfs @ 12.11 hrs, Volume= 10,814 cf, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.03 hrs

Hydrograph for Link 2L: PROPOSED NORTHWEST

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	31.80	0.00	0.00	0.00	63.60	0.00	0.00	0.00
0.60	0.00	0.00	0.00	32.40	0.00	0.00	0.00	64.20	0.00	0.00	0.00
1.20	0.00	0.00	0.00	33.00	0.00	0.00	0.00	64.80	0.00	0.00	0.00
1.80	0.00	0.00	0.00	33.60	0.00	0.00	0.00	65.40	0.00	0.00	0.00
2.40	0.00	0.00	0.00	34.20	0.00	0.00	0.00	66.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	34.80	0.00	0.00	0.00	66.60	0.00	0.00	0.00
3.60	0.00	0.00	0.00	35.40	0.00	0.00	0.00	67.20	0.00	0.00	0.00
4.20	0.00	0.00	0.00	36.00	0.00	0.00	0.00	67.80	0.00	0.00	0.00
4.80	0.00	0.00	0.00	36.60	0.00	0.00	0.00	68.40	0.00	0.00	0.00
5.40	0.00	0.00	0.00	37.20	0.00	0.00	0.00	69.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	37.80	0.00	0.00	0.00	69.60	0.00	0.00	0.00
6.60	0.00	0.00	0.00	38.40	0.00	0.00	0.00	70.20	0.00	0.00	0.00
7.20	0.00	0.00	0.00	39.00	0.00	0.00	0.00	70.80	0.00	0.00	0.00
7.80	0.00	0.00	0.00	39.60	0.00	0.00	0.00	71.40	0.00	0.00	0.00
8.40	0.00	0.00	0.00	40.20	0.00	0.00	0.00	72.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	40.80	0.00	0.00	0.00				
9.60	0.00	0.00	0.00	41.40	0.00	0.00	0.00				
10.20	0.03	0.00	0.03	42.00	0.00	0.00	0.00				
10.80	0.07	0.00	0.07	42.60	0.00	0.00	0.00				
11.40	0.16	0.00	0.16	43.20	0.00	0.00	0.00				
12.00	1.63	0.00	1.63	43.80	0.00	0.00	0.00				
12.60	0.61	0.00	0.61	44.40	0.00	0.00	0.00				
13.20	0.33	0.00	0.33	45.00	0.00	0.00	0.00				
13.80	0.28	0.00	0.28	45.60	0.00	0.00	0.00				
14.40	0.23	0.00	0.23	46.20	0.00	0.00	0.00				
15.00	0.20	0.00	0.20	46.80	0.00	0.00	0.00				
15.60	0.17	0.00	0.17	47.40	0.00	0.00	0.00				
16.20	0.13	0.00	0.13	48.00	0.00	0.00	0.00				
16.80	0.12	0.00	0.12	48.60	0.00	0.00	0.00				
17.40	0.10	0.00	0.10	49.20	0.00	0.00	0.00				
18.00	0.09	0.00	0.09	49.80	0.00	0.00	0.00				
18.60	0.08	0.00	0.08	50.40	0.00	0.00	0.00				
19.20	0.07	0.00	0.07	51.00	0.00	0.00	0.00				
19.80	0.07	0.00	0.07	51.60	0.00	0.00	0.00				
20.40	0.07	0.00	0.07	52.20	0.00	0.00	0.00				
21.00	0.06	0.00	0.06	52.80	0.00	0.00	0.00				
21.60	0.06	0.00	0.06	53.40	0.00	0.00	0.00				
22.20	0.05	0.00	0.05	54.00	0.00	0.00	0.00				
22.80	0.05	0.00	0.05	54.60	0.00	0.00	0.00				
23.40	0.05	0.00	0.05	55.20	0.00	0.00	0.00				
24.00	0.04	0.00	0.04	55.80	0.00	0.00	0.00				
24.60	0.00	0.00	0.00	56.40	0.00	0.00	0.00				
25.20	0.00	0.00	0.00	57.00	0.00	0.00	0.00				
25.80	0.00	0.00	0.00	57.60	0.00	0.00	0.00				
26.40	0.00	0.00	0.00	58.20	0.00	0.00	0.00				
27.00	0.00	0.00	0.00	58.80	0.00	0.00	0.00				
27.60	0.00	0.00	0.00	59.40	0.00	0.00	0.00				
28.20	0.00	0.00	0.00	60.00	0.00	0.00	0.00				
28.80	0.00	0.00	0.00	60.60	0.00	0.00	0.00				
29.40	0.00	0.00	0.00	61.20	0.00	0.00	0.00				
30.00	0.00	0.00	0.00	61.80	0.00	0.00	0.00				
30.60	0.00	0.00	0.00	62.40	0.00	0.00	0.00				
31.20	0.00	0.00	0.00	63.00	0.00	0.00	0.00				

INSTRUCTIONS:

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

Non-automated: Mar. 4, 2008

92

Location: Sherborn Village (59 U. Main St.)

A	B	C	D	E
BMP ¹	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (B*C)	Remaining Load (C-D)
Cyntech Venteray	0.65	1.00	0.65	0.35
Infiltration Basin	0.80	0.35	0.28	0.07

TSS Removal Calculation Worksheet

Separate Form Needs to be Completed for Each Outlet or BMP Train

Total TSS Removal =

93%

Project:	3438
Prepared By:	WM
Date:	2-24-16

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

Mass. Dept. of Environmental Protection

92

Project: Sherborn Village
Location: #59 North Main Street, Sherborn, MA
Prepared For: Walter Lewinski - EDC



Purpose: To calculate the water quality flow rate (WQF) over a given site area. In this situation the WQF is derived from the first 1.0" of runoff.

Reference: Massachusetts Dept. of Environmental Protection Wetlands Program / United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

Given:

Structure Name	Impv. (acres)	A (miles ²)	t _c (min)	t _c (hr)	WQV (in)
A	0.14	0.0002188	6.0	0.100	1.00
B	0.27	0.0004219	6.0	0.100	1.00

Procedure:

Determine unit peak discharge using Figure 1 or 2. Figure 2 is in tabular form so is preferred. Using the t_c, read the unit peak discharge (qu) from Figure 1 or Table in Figure 2. qu is expressed in the following units: cfs/mi²/watershed inches (csm/in).

Structure Name	qu (csm/in.)
A	774.00
B	774.00

1. Compute Q Rate using the following equation:

$$Q_1 = (qu) (A) (WQV)$$

where:

Q₁ = flow rate associated with first 1.0" of runoff

qu = the unit peak discharge, in csm/in.

A = impervious surface drainage area (in square miles)

WQV = water quality volume in watershed inches (1.0" in this case)

Structure Name	Q ₁ (cfs)
A	0.17
B	0.33

VortSentry® HS Estimated Net Annual TSS Reduction



SHERBORN VILLAGE
SHERBORN, MA
Model VSHS36
System WQD A

$$\text{Design Ratio}^1 = \frac{0.14 \text{ acres} \times 0.9}{27 \text{ ft}^3} = 0.005$$

<u>Rainfall Intensity</u> "/hr	<u>Flow Rate</u> cfs	<u>Operating Rate</u> ² cfs/ft ³	<u>% Total Rainfall</u> Depth ³	<u>Rmvl. Effic</u> ⁴ (%)	<u>Rel. Effic</u> (%)
0.02	0.00	0.00010	10.2%	98.0%	10.0%
0.04	0.01	0.00019	9.6%	98.0%	9.5%
0.06	0.01	0.00029	9.4%	98.0%	9.3%
0.08	0.01	0.00038	7.7%	98.0%	7.6%
0.10	0.01	0.00048	8.6%	98.0%	8.4%
0.12	0.02	0.00057	6.3%	98.0%	6.2%
0.14	0.02	0.00067	4.7%	98.0%	4.6%
0.16	0.02	0.00076	4.6%	98.0%	4.5%
0.18	0.02	0.00086	3.5%	98.0%	3.5%
0.20	0.03	0.00095	4.3%	98.0%	4.3%
0.25	0.03	0.00119	8.0%	98.0%	7.8%
0.30	0.04	0.00143	5.6%	98.0%	5.5%
0.35	0.04	0.00166	4.4%	98.0%	4.3%
0.40	0.05	0.00190	2.5%	98.0%	2.5%
0.45	0.06	0.00214	2.5%	98.0%	2.5%
0.50	0.06	0.00238	1.4%	98.0%	1.4%
0.75	0.09	0.00357	5.0%	98.0%	4.9%
1.00	0.13	0.00475	1.0%	98.0%	1.0%
1.50	0.19	0.00713	0.0%	98.0%	0.0%
2.00	0.25	0.00951	0.0%	97.1%	0.0%
3.00	0.38	0.01426	0.5%	89.3%	0.4%
					98.0%
% rain falling at >3"/hr =					0.0%
Removal Efficiency Adjustment ⁴ =					6.5%
Predicted Net Annual Load Removal Efficiency =					91.5%

1 - Design Ratio = (Total Drainage Area x Runoff Coefficient) / VortSentry HS Treatment Volume
 = The Total Drainage Area and Runoff Coefficient are specified by the site engineer.

2 - Operating Rate (cfs/ft³) = Rainfall Intensity ("/hr) x Design Ratio

3 - Based on 10 years of hourly precipitation data from NCDC Station 770, Boston WSFO AP, Suffolk County, MA

4 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

Calculated by: CJA Date: 03/01/16 Checked by: Date:

VortSentry® HS Estimated Net Annual TSS Reduction



SHERBORN VILLAGE
SHERBORN, MA
Model VSHS36
System WQD B

$$\text{Design Ratio}^1 = \frac{0.27 \text{ acres} \times 0.9}{27 \text{ ft}^3} = 0.009$$

<u>Rainfall Intensity</u> "/hr	<u>Flow Rate</u> cfs	<u>Operating Rate</u> ² cfs/ft ³	<u>% Total Rainfall</u> Depth ³	<u>Rmvl. Effic</u> ⁴ (%)	<u>Rel. Effic</u> (%)
0.02	0.00	0.00018	10.2%	98.0%	10.0%
0.04	0.01	0.00037	9.6%	98.0%	9.5%
0.06	0.01	0.00055	9.4%	98.0%	9.3%
0.08	0.02	0.00073	7.7%	98.0%	7.6%
0.10	0.02	0.00092	8.6%	98.0%	8.4%
0.12	0.03	0.00110	6.3%	98.0%	6.2%
0.14	0.03	0.00128	4.7%	98.0%	4.6%
0.16	0.04	0.00147	4.6%	98.0%	4.5%
0.18	0.04	0.00165	3.5%	98.0%	3.5%
0.20	0.05	0.00183	4.3%	98.0%	4.3%
0.25	0.06	0.00229	8.0%	98.0%	7.8%
0.30	0.07	0.00275	5.6%	98.0%	5.5%
0.35	0.09	0.00321	4.4%	98.0%	4.3%
0.40	0.10	0.00367	2.5%	98.0%	2.5%
0.45	0.11	0.00413	2.5%	98.0%	2.5%
0.50	0.12	0.00458	1.4%	98.0%	1.4%
0.75	0.18	0.00688	5.0%	98.0%	4.9%
1.00	0.24	0.00917	1.0%	97.8%	1.0%
1.50	0.36	0.01375	0.0%	89.4%	0.0%
2.00	0.49	0.01833	0.0%	88.2%	0.0%
3.00	0.73	0.02750	0.5%	64.4%	0.3%
					97.8%
% rain falling at >3"/hr =					0.0%
Removal Efficiency Adjustment ⁴ =					6.5%
Predicted Net Annual Load Removal Efficiency =					91.3%

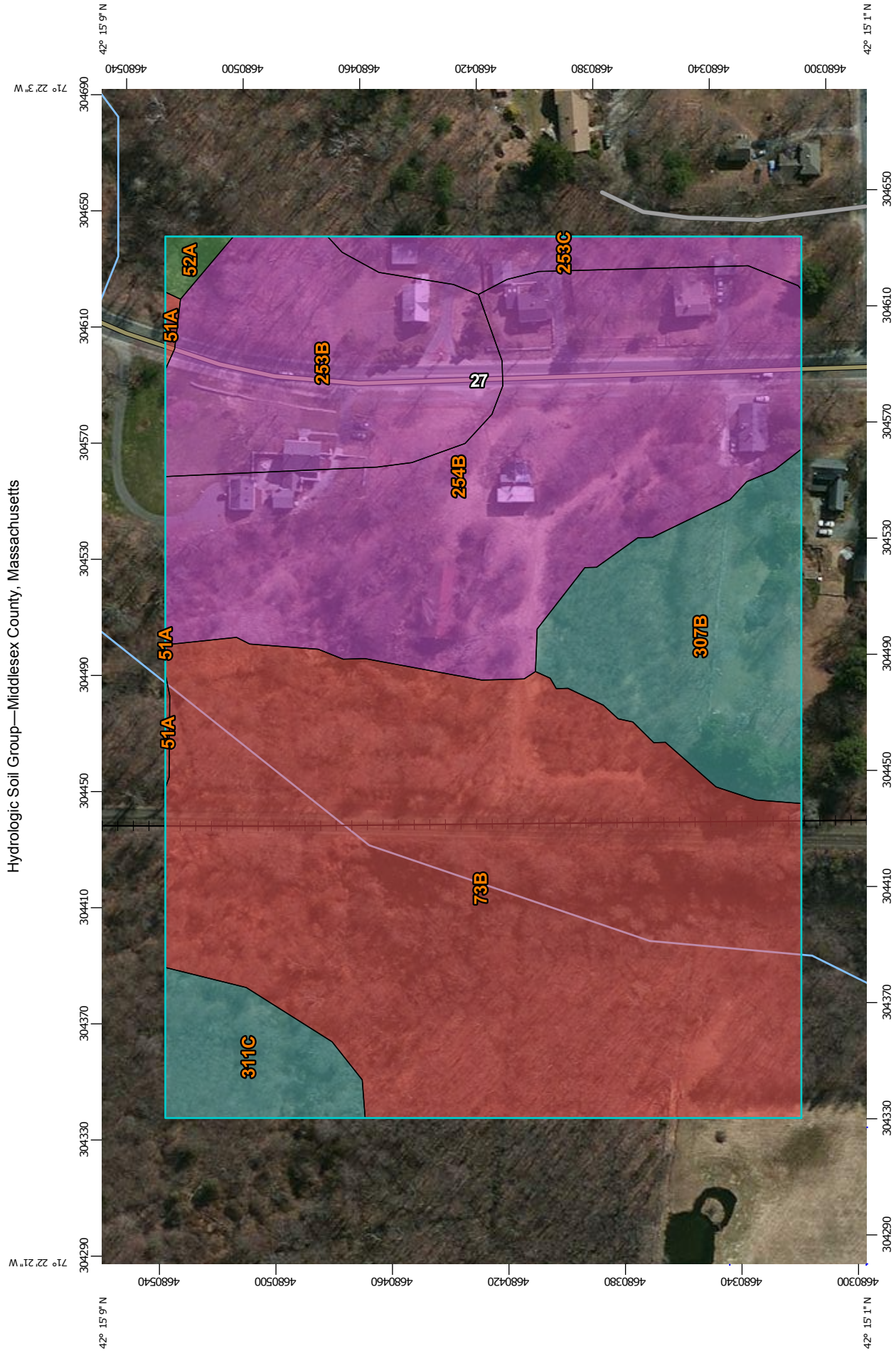
1 - Design Ratio = (Total Drainage Area x Runoff Coefficient) / VortSentry HS Treatment Volume
 = The Total Drainage Area and Runoff Coefficient are specified by the site engineer.

2 - Operating Rate (cfs/ft³) = Rainfall Intensity ("/hr) x Design Ratio

3 - Based on 10 years of hourly precipitation data from NCDC Station 770, Boston WSFO AP, Suffolk County, MA

4 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

Calculated by: CJA Date: 03/01/16 Checked by: Date:



Map Scale: 1:1,850 if printed on A landscape (11" x 8.5") sheet.
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

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

C

C/D

D

Not rated or not available

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 13, Dec 17, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 30, 2011—May 1, 2011

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

Hydrologic Soil Group— Summary by Map Unit — Middlesex County, Massachusetts (MA017)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
51A	Swansea muck, 0 to 1 percent slopes	D	0.0	0.2%
52A	Freetown muck, 0 to 1 percent slopes	A/D	0.1	0.5%
73B	Whitman fine sandy loam, 0 to 5 percent slopes, extremely stony	D	7.2	43.9%
253B	Hinckley loamy sand, 3 to 8 percent slopes	A	1.9	11.6%
253C	Hinckley loamy sand, 8 to 15 percent slopes	A	0.5	3.0%
254B	Merrimac fine sandy loam, 3 to 8 percent slopes	A	4.4	26.5%
307B	Paxton fine sandy loam, 3 to 8 percent slopes, extremely stony	C	1.7	10.3%
311C	Woodbridge fine sandy loam, 8 to 15 percent slopes, very stony	C	0.6	3.9%
Totals for Area of Interest			16.4	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.

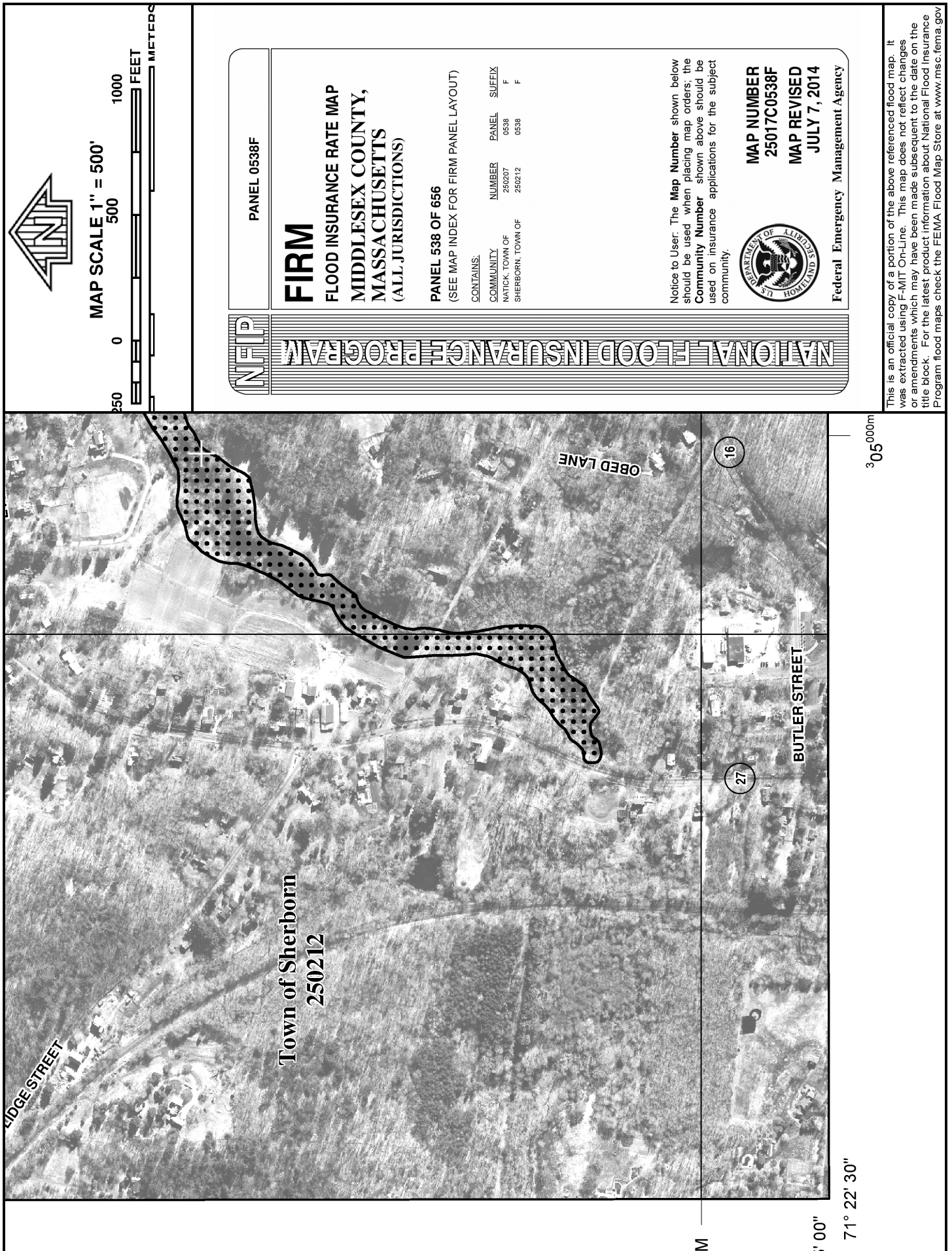
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



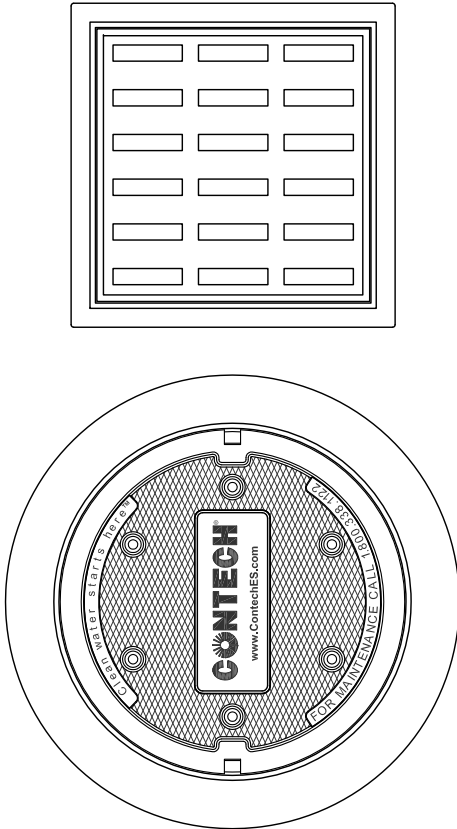
VORTSENTRY HS DESIGN NOTES

VSHS RATED TREATMENT CAPACITY IS SHOWN IN THE TABLE BELOW, OR PER LOCAL REGULATIONS. MAXIMUM HYDRAULIC INTERNAL BYPASS CAPACITY VARIES. CONTACT YOUR CONTECH REPRESENTATIVE FOR ADDITIONAL INFORMATION.	
THE STANDARD SOLID COVER CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW.	
CONFIGURATION OPTION DESCRIPTION	
	GRATE INLET (NO INLET PIPE)
	GRATE INLET WITH INLET PIPE

VORTSENTRY HS GENERAL INFORMATION

Model	Manhole Diameter (ID)		Total Treatment Flow Rate		Typical Total Distance Rim to Outside Bottom A		Typical Distance Rim to Invert B		Typical Depth Below Invert (inside) C		Approximate Minimum Distance Rim to Invert		Maximum Pipe Diameter (ID)	
	FT	mm	CFS	L/S	FT	m	FT	m	FT	mm	FT	m	IN	mm
HS36	3	900	0.55	15.6	10.16	3.10	4.08	1.24	5.58	1702	3.00	0.91	18	450
HS48	4	1200	1.20	34.0	13.25	4.04	6.00	1.83	6.75	2057	4.00	1.22	24	600
HS60	5	1500	2.20	62.3	15.13	4.61	6.50	1.98	7.96	2426	4.82	1.47	30	750
HS72	6	1800	3.70	104.8	16.56	5.05	6.75	2.06	9.15	2788	5.59	1.70	36	900
HS84	7	2100	5.60	158.6	18.85	5.75	7.75	2.36	10.35	3156	5.00	1.52	42	1050
HS96	8	2400	8.10	229.4	20.87	6.36	8.50	2.59	11.54	3518	6.91	2.11	48	1200

SITE SPECIFIC DATA REQUIREMENTS	
STRUCTURE ID	
WATER QUALITY FLOW RATE (CFS)	*
PEAK FLOW RATE (CFS)	*
RETURN PERIOD OF PEAK FLOW (YRS)	*
PIPE DATA:	I.E. MATERIAL DIAMETER
INLET PIPE 1	* *
OUTLET PIPE	* *
RIM ELEVATION	*
ANTI-FLOTATION BALLAST	WIDTH * HEIGHT *
NOTES/SPECIAL REQUIREMENTS:	
* PER ENGINEER OF RECORD	



FRAME AND COVER (DIAMETER VARIES) N.T.S.

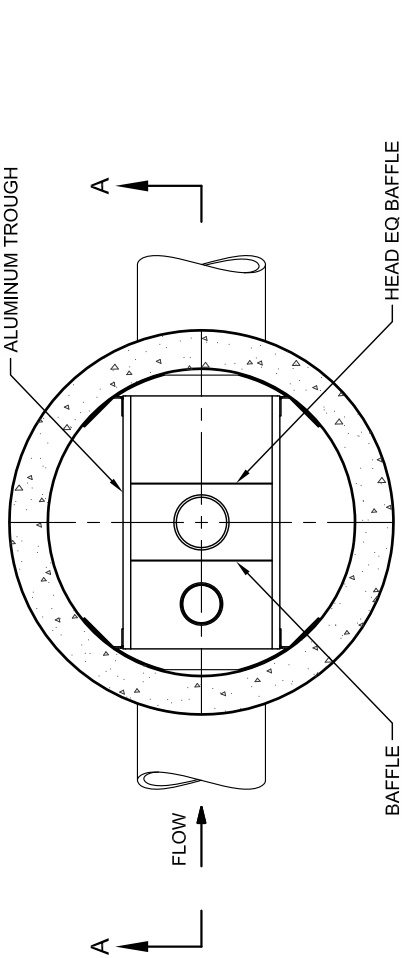
FRAME AND GRATE (24" SQUARE) N.T.S.

GENERAL NOTES

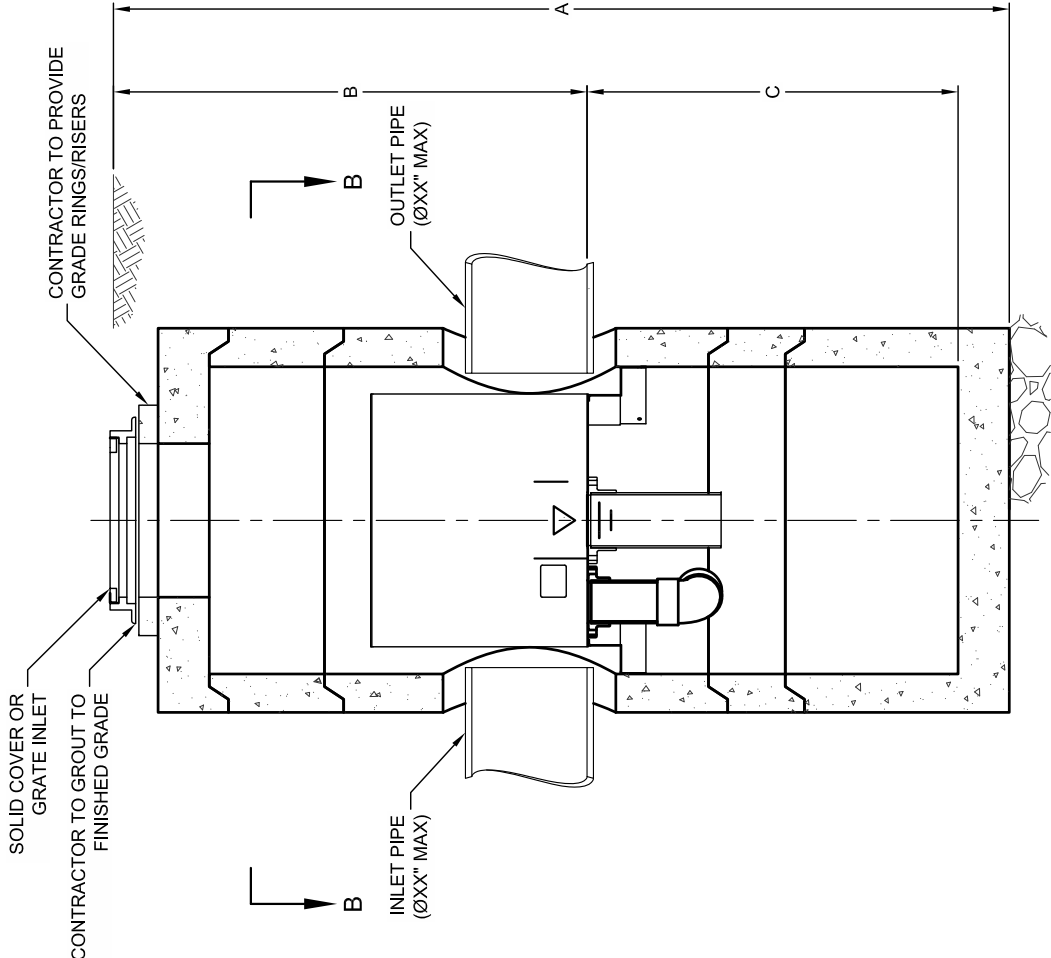
- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
- VORTSENTRY HS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.

INSTALLATION NOTES

- ANY SUB-BASE BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE VORTSENTRY HS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
- CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.



PLAN VIEW B-B



SECTION A-A

VortSentry®

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 6,891,114; 7,298,692; RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

CONTECH®
ENGINEERED SOLUTIONS LLC
www.ContechES.com

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VORTSENTRY HS
STANDARD DETAIL



VortSentry® HS Guide Operation, Design, Performance and Maintenance



VortSentry® HS

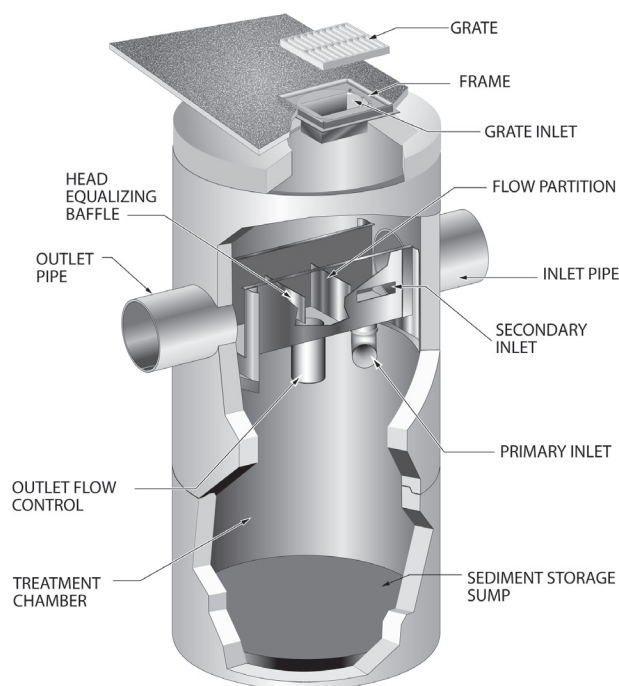
The VortSentry HS is a compact, below grade stormwater treatment system that employs helical flow technology to enhance gravitational separation of floating and settling pollutants from stormwater flows. With the ability to accept a wide range of pipe sizes, the VortSentry HS can treat and convey flows from small to large sites. A unique internal bypass design means higher flows can be diverted without the use of external bypass structures. The VortSentry HS is also available in a grate inlet configuration, which is ideal for retrofit installations.

Operation Overview

Low, frequently occurring storm flows are directed into the treatment chamber through the primary inlet. The tangentially oriented downward pipe induces a swirling motion in the treatment chamber that increases capture and containment abilities. Moderate storm flows are directed into the treatment chamber through the secondary inlet, which allows for capture of floating trash and debris. The secondary inlet also provides for treatment of higher flows without significantly increasing the velocity or turbulence in the treatment chamber. This allows for a more quiescent separation environment. Settleable solids and floating pollutants are captured and contained in the treatment chamber.

Flow exits the treatment chamber through the outlet flow control, which manages the amount of flow that is treated and helps maintain the helical flow patterns developed within the treatment chamber.

Flows exceeding the system's rated treatment flow are diverted away from the treatment chamber by the flow partition. Internal diversion of high flows eliminates the need for external bypass structures. During bypass, the head equalizing baffle applies head on the outlet flow control to limit the flow through the treatment chamber. This helps prevent re-suspension of previously captured pollutants.



Design Basics

There are two primary methods of sizing a VortSentry HS system. The Water Quality Flow Rate Method determines which model size provides the desired removal efficiency at a given flow for a defined particle size. The summation process of the Rational Rainfall Method is used when a specific removal efficiency of the net annual sediment load is required.

Typically, VortSentry HS systems are designed to achieve an 80% annual solids load reduction based on lab generated performance curves for a particle gradation with an average particle size (d_{50}) of 240-microns (μm).

Water Quality Flow Rate Method

In many cases, regulations require that a specific flow rate, often referred to as the water quality design flow (WQQ), be treated. This WQQ represents the peak flow rate from either an event with a specific recurrence interval (i.e. the six-month storm) or a water quality depth (i.e. 1/2-inch of rainfall).

The VortSentry HS is designed to treat all flows up to the WQQ. Due to its internal bypass weir configuration, flow rates in the treatment chamber only increase minimally once the WQQ is surpassed. At influent rates higher than the WQQ, the flow partition will allow most flow exceeding the treatment flow rate to bypass the treatment chamber. This allows removal efficiency to remain relatively constant in the treatment chamber and reduces the risk of washout during bypass flows regardless of influent flow rates.

Treatment flow rates are defined as the rate at which the VortSentry HS will remove a specific gradation of sediment at a specific removal efficiency. Therefore they are variable based on the gradation and removal efficiency specified by the design engineer and the unit size is scaled according to the project goal.

Rational Rainfall Method™

Differences in local climate, topography and scale make every site hydraulically unique. The Rational Rainfall Method is a sizing program Contech uses to estimate a net annual sediment load reduction for a particular VortSentry HS model based on site size, site runoff coefficient, regional rainfall intensity distribution, and anticipated pollutant characteristics. For more information on the Rational Rainfall Method, see *Vortechs Technical Bulletin 4: Modeling Long Term Load Reduction: The Rational Rainfall Method*, available at www.ContechES.com/stormwater

Treatment Flow Rate

The outlet flow control is sized to allow the WQQ to pass entirely through the treatment chamber at a water surface elevation equal to the crest of the flow partition. The head equalizing baffle applies head on the outlet flow control to limit the flow through the treatment chamber when bypass occurs, thus helping to prevent re-suspension or re-entrainment of previously captured particles.

Hydraulic Capacity

The VortSentry HS is available in three standard configurations: inline (with inlet and outlet pipes at 180° to each other), grated inlet, and a combination of grate and pipe inlets. All three configurations are available in 36-inch (900-mm) through 96-inch (2400-mm) diameter manholes.

The configuration of the system is determined by the suffix of the model name:

- A model name without a suffix denotes a standard pipe inlet (Example HS48).
- A “G” at the end of the model designation denotes a grate inlet (Example HS48G).
- A “GP” at the end of the model designation denotes a combination of grate and pipe inlets (Example HS48GP).

Performance

Full-Scale Laboratory Test Results

Laboratory testing of the VortSentry HS was conducted using F-55 Silica, a commercially available sand product with an average particle size of 240- μm (Table 1). This material was metered into a model HS48 VortSentry HS at an average concentration of between 250-mg/L and 300-mg/L at flow rates ranging from 0.50-cfs to 1.5-cfs (14-L/s to 56-L/s).

US Standard Sieve Size	Particle Size Micron (μm)	Cumulative Passing %
30	600	99.7%
40	425	95.7%
50	300	74.7%
70	212	33.7%
100	150	6.7%
140	106	0.7%

Table 1 : US Silica F-55 Particle Size Distribution

Removal efficiencies at each flow rate were calculated based on net sediment loads passing the influent and effluent sampling points. Results are illustrated in Figure 1.

Assuming that sediment in the inlet chamber is ideally mixed, removal rates through the system will decay according to the percentage of flow bypassed. This effect has been observed in the laboratory where the test system is designed to produce a

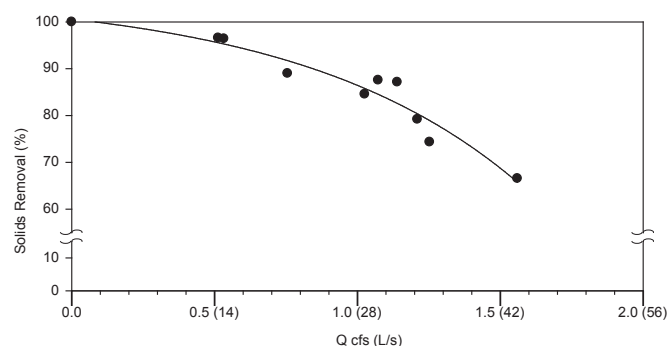


Figure 1: VortSentry HS Removal Efficiencies for 240- μm Particle Gradation

thoroughly mixed inlet stream. All VortSentry HS models have the same aspect ratio regardless of system diameter (i.e. an increase in diameter results in a corresponding increase in depth). Operating rates are expressed volumetrically.

Removal efficiency at each operating rate is calculated according to the average of volumetric and Froude scaling methods and is described by Equation 1.

$$\text{Equation 1: } \left(\frac{\text{Diameter Prototype}}{\text{Diameter Model}} \right)^{2.75} = \left(\frac{\text{Flow Rate Prototype}}{\text{Flow Rate Model}} \right)$$

Equation 1 and actual laboratory test results were used to determine the flow rate which would be required for the various VortSentry HS models to remove 80% of solids.

View report at www.ContechES.com/stormwater

Maintenance

The VortSentry HS system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit, i.e., unstable soils or heavy winter sanding will cause the treatment chamber to fill more quickly, but regular sweeping will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant deposition and transport may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (i.e. spring and fall) however more frequent inspections may be necessary in equipment washdown areas and in climates where winter sanding operations may lead to rapid accumulations of a large volume of sediment. It is useful and often required as part of a permit to keep a record of each inspection. A simple inspection and maintenance log form for doing so is available for download at www.ContechES.com/stormwater

The VortSentry HS should be cleaned when the sediment has accumulated to a depth of two feet in the treatment chamber. This determination can be made by taking two measurements with a stadia rod or similar measuring device; one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than the distance given in Table 2, the VortSentry HS should be maintained to ensure effective treatment.

Cleaning

Cleaning of the VortSentry HS should be done during dry weather conditions when no flow is entering the system. Cleanout of the VortSentry HS with a vacuum truck is generally the most effective and convenient method of excavating pollutants from the system. Simply remove the manhole cover and insert the vacuum hose into the sump. All pollutants can be removed from this one access point from the surface with no requirements for Confined Space Entry.

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, an oil or gasoline spill should be cleaned out immediately. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use adsorbent pads, which solidify the oils. These are usually much easier to remove from the unit individually, and less expensive to dispose than the oil/water emulsion that may be

created by vacuuming the oily layer. Floating trash can be netted out if you wish to separate it from the other pollutants.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure proper safety precautions. If anyone physically enters the unit, Confined Space Entry procedures need to be followed.

Disposal of all material removed from the VortSentry HS should be done in accordance with local regulations. In many locations, disposal of evacuated sediments may be handled in the same manner as disposal of sediments removed from catch basins or deep sump manholes. Check your local regulations for specific requirements on disposal.

VortSentry HS Model	Diameter		Distance		Sediment Storage		Oil Spill Storage	
			Between Water Surface and Top of Storage Sump					
	in.	m	ft.	m	yd ³	m ³	gal.	liter
HS36	36	0.9	3.6	1.1	0.5	0.4	83	314
HS48	48	1.2	4.7	1.4	0.9	0.7	158	598
HS60	60	1.5	6.0	1.8	1.5	1.1	258	978
HS72	72	1.8	7.1	2.2	2.1	1.6	372	1409
HS84	84	2.1	8.4	2.6	2.9	2.2	649	2458
HS96	96	2.4	9.5	2.9	3.7	2.8	845	3199

Note: To avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile. Finer, silty particles at the top of the pile may be more difficult to feel with the measuring stick. These finer particles typically offer less resistance to the end of the rod than larger particles toward the bottom of the pile.

Table 2: VortSentry HS Maintenance Indicators and Sediment Storage Capacities.

Logon to www.ContechES.com/stormwater to download the VortSentry HS Inspection and Maintenance Log.

For assistance with maintaining your VortSentry HS, contact us regarding the Contech Maintenance compliance certification program.



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The product(s) described may be protected by one or more of the following US patents: 5,322,629; 5,624,576; 5,707,527; 5,759,415; 5,788,848; 5,985,157; 6,027,639; 6,350,374; 6,406,218; 6,641,720; 6,511,595; 6,649,048; 6,991,114; 6,998,038; 7,186,058; 7,296,692; 7,297,266; related foreign patents or other patents pending.

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Support

- Drawings and specifications are available at contechstormwater.com.
- Site-specific design support is available from our engineers.

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VORTSENTRY Inspection & Maintenance Log

Model: _____ Location: _____

[illegible]

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than the values listed in table 2 the system should be cleaned out. **Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile.**
2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.

Construction Period Pollution Prevention and Erosion and Sedimentation Control

1. NAME OF PERSON AND ENTITY RESPONSIBLE FOR PLAN COMPLIANCE: _____,
2. PROJECT MANAGER OF SHERBORN VILLAGE IS THE CONTACT PERSON. CONTACT NUMBER IS _____.
3. CONSTRUCTION PERIOD POLLUTION PREVENTION MEASURES: AS DEFINED WITHIN.
4. EROSION AND SEDIMENTATION CONTROL PLAN DRAWINGS: REFER TO PLAN VIEW FOR EROSION CONTROL MEASURE LOCATIONS.
5. DETAIL DRAWINGS AND SPECIFICATIONS FOR EROSION CONTROL: REFER TO INDIVIDUAL DETAILS FOR INSTALLATION OF EROSION CONTROL MEASURES.
6. VEGETATION PLANNING: THE PROPOSED CONSTRUCTION ACTIVITIES WILL BE PERFORMED WITHIN THE LIMITS OF WORK AREA (SILTATION BARRIER BEING THE LIMIT OF WORK). THE FINAL PROPOSED SURFACE WILL CONSIST OF PAVING, TREES/SHRUBS/MULCH AND GRASSED AREAS (REFER TO SEQUENCING BELOW).
7. SITE DEVELOPMENT PLAN: REFER TO PLAN VIEW & APPROVED SITE PLANS.
8. CONSTRUCTION SEQUENCING PLAN: THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE FOLLOWED:
 - a. EROSION CONTROL PROVISIONS IN PLACE AND INSPECTED PRIOR TO ANY AND ALL CONSTRUCTION.
 - b. EROSION CONTROL MEASURES AT EXISTING CATCH BASINS IN NORTH MAIN STREET.
 - c. CLEAR AND GRUB WOODED AREAS, REMOVE ALL UNUSABLE MATERIAL FROM SITE.
 - d. STRIP AND STOCKPILE TOPSOIL. PROVIDE TEMPORARY SEEDING OF STOCKPILE, PLACE SILTATION BARRIER AROUND STOCKPILE AND PLACE TARPS OVER THE STOCKPILE IF NECESSARY.
 - e. ROUGH GRADE LOT AND DRIVES. REMOVE UNUSABLE MATERIAL FROM SITE.
 - f. INSTALL ALL UTILITIES & INFILTRATIVE DRAINAGE SYSTEMS, PROTECT THE INFILTRATION AREA FROM STORMWATER RUNOFF, NO SILT OR TOPSOIL IS TO BE DEPOSITED IN THIS AREA, THE INFILTRATION CAPACITY OF THE NATIVE SOIL MUST BE PROTECTED.
 - g. PERFORM BINDER BASE PAVING OPERATIONS.
 - h. CONSTRUCTION OF BUILDING UNITS.
 - i. EROSION CONTROL MEASURES AT NEW DRAINAGE INLET UNITS.
 - j. FINAL GRADING.
 - k. LOAM AND SEED ALL DISTURBED AREAS & LANDSCAPE.
 - l. PERFORM FINAL PAVING OPERATIONS.
 - m. REMOVE EROSION CONTROL PROVISIONS UPON STABILIZATION AND FINAL SITE INSPECTION.
9. SEQUENCING OF EROSION AND SEDIMENTATION CONTROLS: EROSION CONTROL PROVISIONS IN PLACE AND INSPECTED PRIOR TO ANY AND ALL CONSTRUCTION.
10. OPERATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS: THE CONTRACTOR/OPERATOR IS RESPONSIBLE FOR MAINTAINING A STABLE SITE. THE OPERATOR SHALL EMPLOY EROSION AND SEDIMENTATION CONTROLS TO PREVENT EROSION AND SEDIMENT RELEASES BEYOND THE SEDIMENT BARRIER. THE EROSION CONTROL MEASURES INDICATED ARE THE MINIMUM THAT SHOULD BE EMPLOYED. THE CONTRACTOR/OPERATOR SHALL EMPLOY ADDITIONAL CONTROLS AS THE ON-

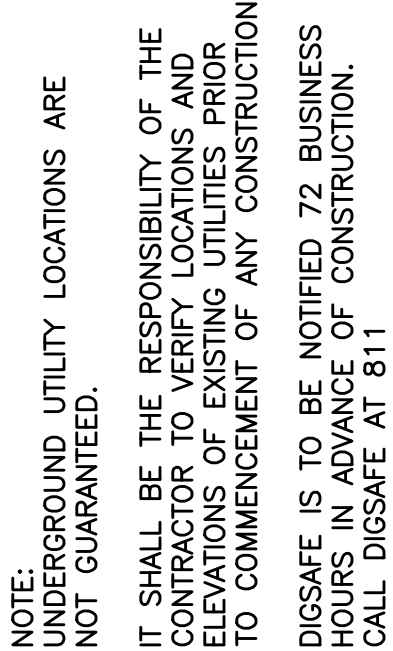
SITE CONSTRUCTION EXPERIENCE DICTATES.

11. INSPECTION SCHEDULE:

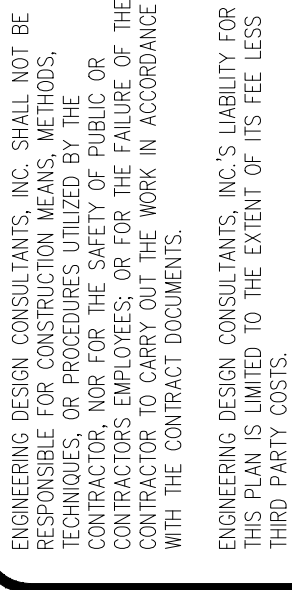
- a. INSPECTIONS SHALL TAKE PLACE AT LEAST ONCE EVERY 7 CALENDAR DAYS OR WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.25" OF RAIN OR GREATER.
- b. INSPECTION FREQUENCY MAY BE REDUCED TO ONCE A MONTH IF THE ENTIRE SITE IS TEMPORARILY STABILIZED OR RUNOFF IS UNLIKELY DUE TO WINTER CONDITIONS.
- c. INSPECTIONS MUST BE CONDUCTED BY A PROPERLY AUTHORIZED QUALIFIED PERSONNEL.
- d. INSPECTIONS SHALL INCLUDE ALL AREAS OF THE SITE DISTURBED BY CONSTRUCTION ACTIVITIES. INSPECTIONS MUST LOOK FOR EVIDENCE OF POLLUTANTS OR POTENTIAL POLLUTANTS ENTERING THE STORM WATER SYSTEM. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSPECTED TO ENSURE PROPER OPERATION. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE MUST BE INSPECTED FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING.

12. MAINTENANCE SCHEDULE: REPORTS SUMMARIZING THE INSPECTIONS SHOULD BE KEPT AS PART OF THIS CONSTRUCTION PERIOD POLLUTION PREVENTION AND SOIL EROSION AND SEDIMENTATION CONTROL PLAN. AT A MINIMUM THE INSPECTION REPORTS SHALL INCLUDE:

- a. INSPECTION DATE;
- b. NAME, TITLE AND QUALIFICATIONS OF THE PERSONNEL MAKING THE INSPECTION;
- c. WEATHER CONDITIONS AT THE TIME OF INSPECTION AND SINCE THE PREVIOUS INSPECTION, INCLUDING A BEST ESTIMATE OF THE BEGINNING OF EACH STORM EVENT THAT OCCURRED, DURATION OF EACH STORM EVENT, APPROXIMATE AMOUNT OF RAINFALL FOR EACH STORM EVENT, AND WHETHER ANY DISCHARGES HAVE OCCURRED;
- d. DISCHARGES THAT OCCUR AT THE TIME OF INSPECTION;
- e. LOCATION OF DISCHARGES OR SEDIMENTATION FROM THE SITE;
- f. LOCATION OF "BMPs" THAT NEED TO BE MAINTAINED;
- g. LOCATION OF "BMPs" THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION;
- h. LOCATIONS WHERE ADDITIONAL "BMPs" ARE NEEDED THAT DID NOT EXIST AT THE TIME OF INSPECTION; AND
- i. CORRECTIVE ACTION REQUIRED INCLUDING ANY CHANGES TO THIS PLAN.
- j. ALL REPORTS SHALL BE SUBMITTED TO THE DIRECTOR OF COMMUNITY MAINTENANCE AND DEVELOPMENT ON A MONTHLY BASIS DURING CONSTRUCTION PERIOD, AND MAINTAINED FOR THREE YEARS AFTER FINAL CONSTRUCTION PROJECT CLOSEOUT IS COMPLETE.



BUILDING SETBACK:	
FRONT	100 FT.
SIDE	60 FT.
REAR	60 FT.
HEIGHT	35' MAX., (NOT EXCEEDED)



DRIN BY:	WML
CHK'D BY:	PSB
APPRO BY:	PSB

ISSUED FOR PEER REVIEW



EDC
Engineering Design Consultants, Inc.
32 Turnpike Road
Southborough, Massachusetts
(508) 480-0225

SHERBORN VILLAGE
A
RESIDENTIAL DEVELOPMENT
IN
SHERBORN, MASSACHUSETTS

OWNER/APPLICANT:

EXISTING CONDITIONS
59 NORTH MAIN STREET
BOSTON, MASSACHUSETTS

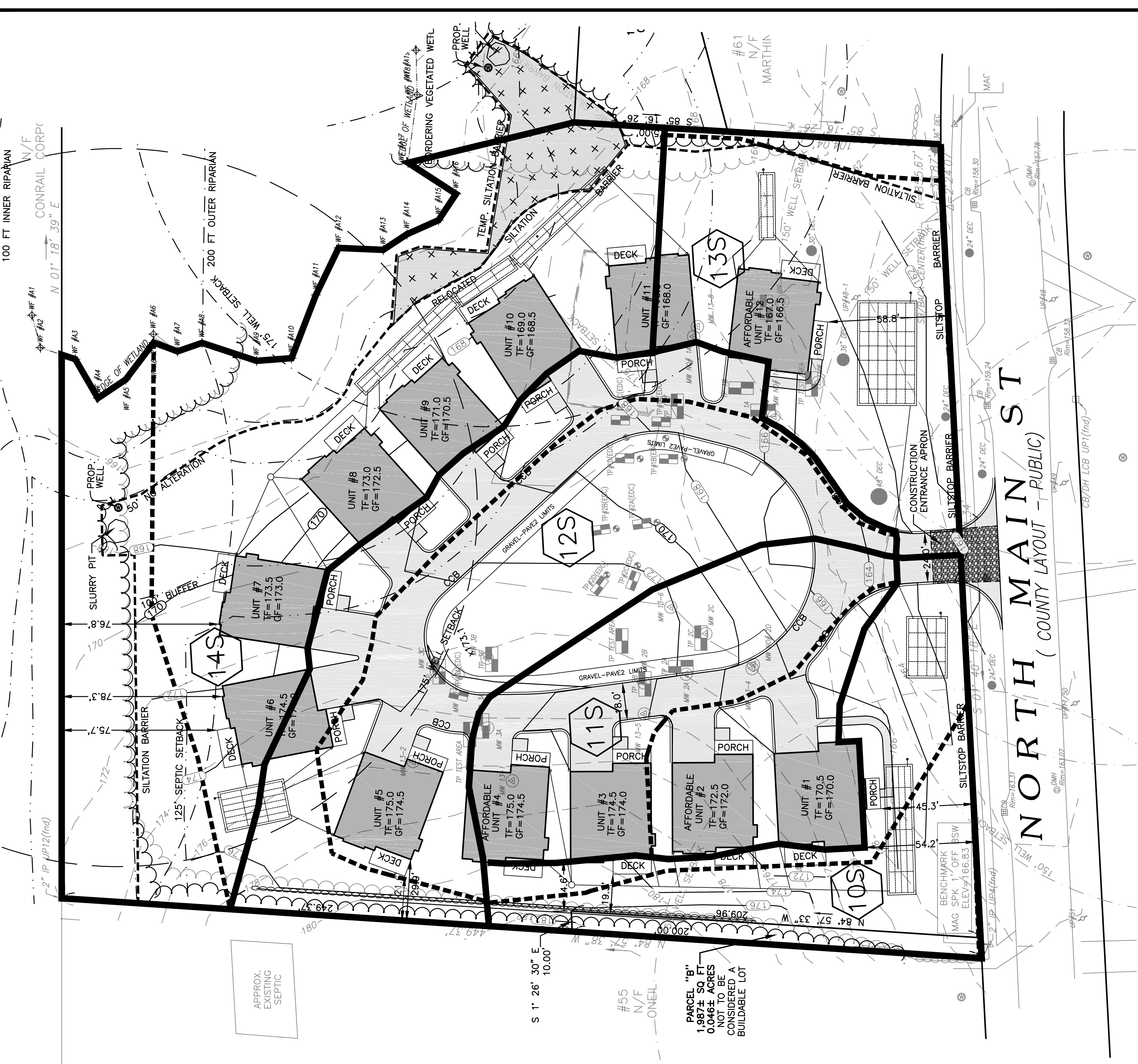
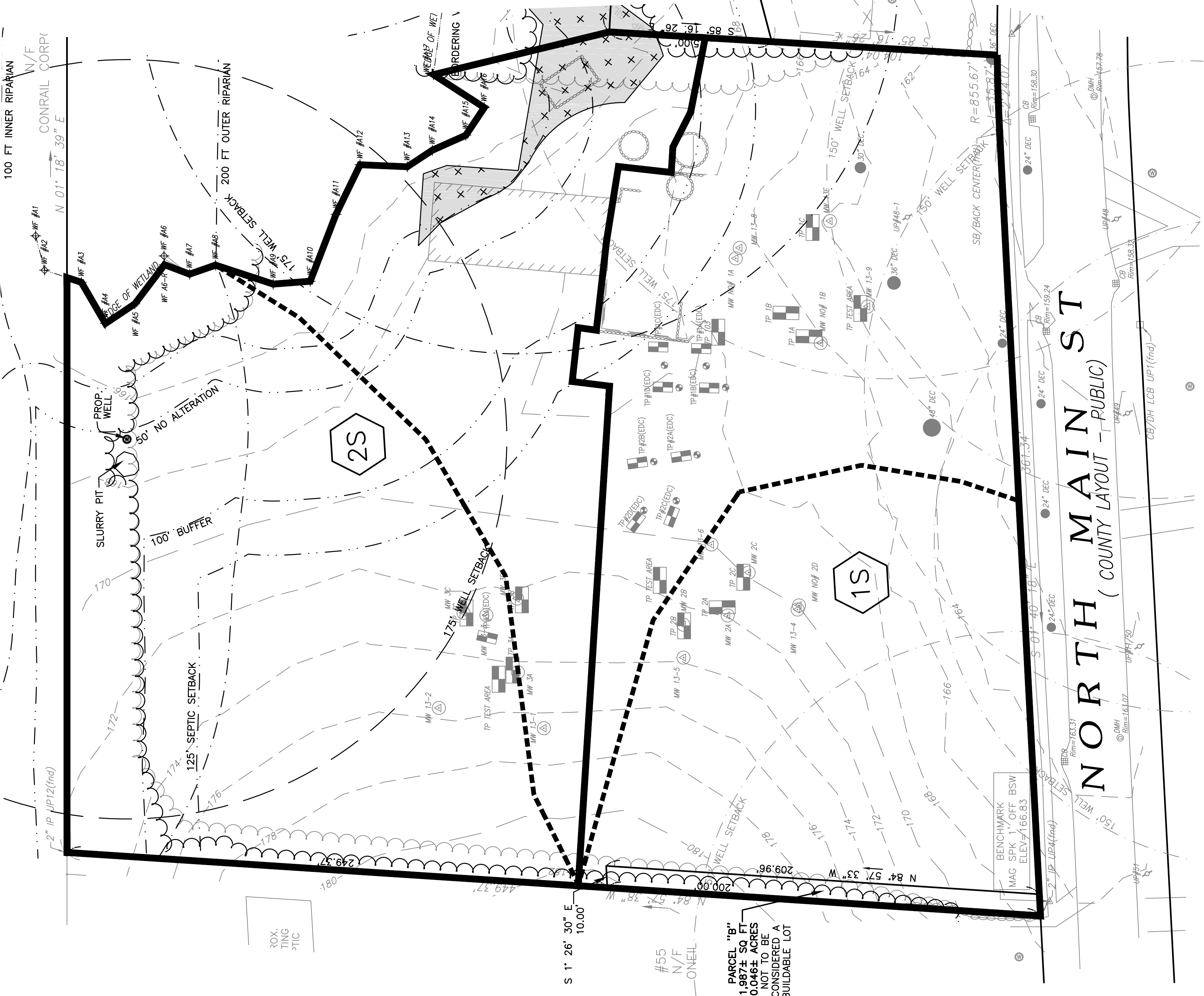
JULIANI LABADINI PROPERTIES, LLC
ONE HOLLIS STREET, SUITE 207
WELLESLEY, MA 02482

FILE NO.: 3438

DATE: JULY 25, 2017

PLAN NO.:

2



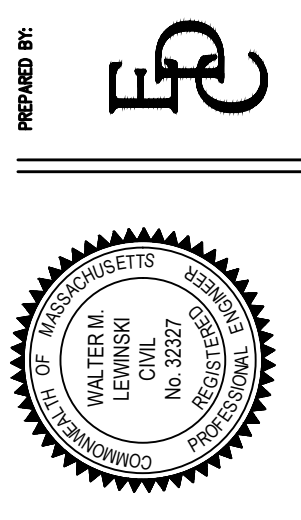
EXISTING RUNOFF AREAS

PROPOSED RUNOFF AREAS

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ENGINEERING DESIGN CONSULTANTS, Inc.
32 Turnpike Road
Southborough, Massachusetts
(508) 480-0225

SHERBORN VILLAGE
A
RESIDENTIAL DEVELOPMENT
IN
SHERBORN, MASSACHUSETTS

#59 NORTH MAIN STREET
SHERBORN, MASSACHUSETTS
JULIANI LABADINI PROPERTIES, LLC
ONE HOLLIS STREET, SUITE 207
WELLESLEY, MA 02482

FILE NO. J358
RUNOFF AREAS
DATE JULY 25, 2017
REV NO. 1 OF 1