

APPENDIX E

ENGINEER'S REPORT

CONCEPT STORMWATER MANAGEMENT PLAN

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CONCEPT STORMWATER MANAGEMENT PLAN**

PROPOSED COUNTRY HAMLET ZONING

**LANDS OF ALBANY COUNTRY CLUB
TOWN OF GUILDERLAND
ALBANY COUNTY, NEW YORK**

PREPARED FOR:

ALBANY COUNTRY CLUB

**300 Wormer Road
Voorheesville, NY 12186**

JUNE 2022

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EXHIBITS

- Exhibit A: On-Site Soil Data
- Exhibit B: Existing Conditions Watershed Map and Hydrological Calculations
- Exhibit C: Proposed Conditions Watershed Map and Hydrological Calculations
- Exhibit D: NYSDEC Stormwater Calculations

1. INTRODUCTION

This report will conceptually establish the stormwater management practices which will be employed to mitigate the stormwater runoff impacts associated with the development of the Residential Development at the Albany Country Club project (The Project) for purposes of the current Zone Change Application. The Project would require coverage under the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001) and would require preparation of a full Stormwater Pollution Prevention Plan (SWPPP).

The stormwater management plan will be developed in accordance with Chapter 4 – New Construction of the NYSDEC Stormwater Management Design Manual, January 2015 edition.

The following report will provide an evaluation of the existing property's characteristics, and will identify planned stormwater management measures that will be incorporated into the future project final design in sufficient details to receive approval of reviewing agencies.

2. SITE DESCRIPTION

2.1 LOCATION

The project site is located at the Albany Country Club (ACC) golf course in the Town of Guilderland, Albany County, New York. Albany Country Club owns approximately 860.70 acres, comprised of tax map parcel numbers 50.00-3-10.1 and 51.00-2-10.

The proposed Zone Change Application involves the rezoning of approximately 404.20 acres of lands owned by ACC from Rural Agricultural-3 (RA3) District to Country Hamlet (CH) District. See Location Map for more information.

2.2 TOPOGRAPHY

The Project Area generally slopes in northerly and southerly directions, with a drainage divide generally occurring along Wormer Road. Drainage pattern to the north consists of numerous unnamed drainage courses flowing to the Normans Kill. Drainage flow to the south is intercepted by two drainage courses – one located along Grant Hill Road and the second between Relyea Road and Weatherfield Subdivision. Both are discharged through drainage courses in the Town of New Scotland, ultimately also outletting to Normans Kill.

Existing topography consists of a wide range of slopes ranging from steep to moderately steep and flat. Highest elevation of 460 feet is located southerly from Wormer Road on top of a prominent topographical ridge which continues from Wormer Road generally in a southerly direction.

Slopes within the Project Area vary from generally flat to rolling within developable, upland areas, and steeper slopes descending towards drainage channels and wetlands.

2.3 SOILS AND GROUNDWATER

According to the NRCS Web Soil Survey, onsite soils consist of silt loam (Nunda and Burdett Series), having a Hydrologic Soil Group (HSG) rating of “C”. These soils generally possess relatively limited infiltrative capacity.

Preliminary on-site soil testing consisting of deep test holes performed by a back hoe was performed in various locations to generally confirm the characteristics of the onsite soils. The results of the testing confirmed the presence of silty loam soils. Bedrock was not encountered

Additional soil testing in accordance with the NYSDEC Stormwater Management Design Manual will be performed as part of future design efforts for the project.

Reference: Exhibit A – On-Site Soil Data

2.4 SURFACE CHARACTERISTICS

The Project Area is generally wooded, comprised of hardwood mixed forest and evergreen trees. Typical wetland vegetation exists in low areas classified as wetlands.

2.5 WATERSHED DESCRIPTION

The site drains into unnamed tributaries of Normans Kill. Normans Creek is classified by NYSDEC as a “C” stream and is not on the list of 303(d) impaired waterbodies. The total watershed area analyzed for this Project is 2.168 acres.

2.6 RAINFALL DATA

The following rainfall amounts were utilized in the preparation of this stormwater management plan. These values were obtained from Chapter 4 of the NYSDEC Stormwater Management Design Manual.

Table 1 – Rainfall Data	
24-Hour Storm Event	24-hour rainfall
Water Quality (WQv)	1.15 inches
1-Year	2.25 inches
10-Year	4.00 inches
100-Year	6.60 inches

3. PROJECT DESCRIPTION

The Project proposes to develop two general areas into residential housing consisting of a mix of single-family residential, townhouses, and multi-family residential. All residential units will be serviced by public water and public sewer. The balance of planned site improvements consist of new town roads, paved driveways, walking paths, landscaping, drainage systems, and stormwater management facilities. Development is planned consistent with low-impact development and conservation strategies. Land disturbances have been minimized and existing drainage characteristics have been preserved to the maximum extent practicable.

After development of the Project, approximately 35.4 acres of new impervious surface will be constructed. To mitigate the effects on stormwater runoff associated with this increase in imperviousness, the Project is currently planning to construct multiple stormwater management practices consisting of P-5 Pocket Ponds and P-1 Micropool Extended Detention Ponds conceptually sized to attenuate stormwater runoff up to the 100-Year event. Green Infrastructure Practices consisting of conservation area, rooftop disconnection, and vegetated swales are planned to address the required Water Quality and Runoff Reduction criteria.

The Project is expecting to disturb approximately 80 acres of land.

4. METHODOLOGY

The conceptual evaluation has been prepared in accordance with Chapter 4 (New Construction) of the NYSDEC Stormwater Management Design Manual (SMDM).

Hydrologic and hydraulic stormwater calculations were performed utilizing widely accepted engineering methodologies, including the United States Department of Agriculture (USDA) Soil Conservation Service's (SCS) Technical release 20 (TR-20), and the stormwater modeling computer program HydroCAD (version 10.00) produced by HydroCAD Software Solutions, LLC of New Hampshire.

The hydrologic and hydraulic stormwater analyses have been performed for the Project's watershed under two conditions: the existing watershed condition (prior to development of the Project) and the proposed watershed condition (after development of the Project). The analyses are performed by identifying common points of stormwater discharge from the site and delineating subcatchments and subwatersheds tributary to these points. These common points (herein referred to as "Design Points") serve as the basis for all pre- versus post-development runoff calculations. A stormwater model is then developed for both the existing and proposed conditions, and is used to review the effects development of the Project has on each Design Point. The stormwater management plan is complete when all applicable NYSDEC design criteria have been addressed at each Design Point.

5. EXISTING WATERSHED CONDITIONS

The overall size of the project's watershed used in the analysis has been determined as approximately 248.8 acres (of which 5.24 acres are impervious). Refer to drawing "W-1 Existing Conditions Watershed Map," located in Appendix B for more information.

Under the watershed's existing condition, all stormwater runoff from the project area is conveyed to one of eight (8) locations (Design Points). A brief description of each Design Point is as follows:

- **Design Point-1 (DP-1)** represents an existing drainage channel located in the southeastern portion of the project area. Cover type contributing to this design point consists of undeveloped woodlands as well as a portion of the ACC golf course.
- **DP-2** represents an existing drainage channel located within the southern portion of the project area. Cover type contributing to this design point consists of undeveloped woodlands.
- **DP-3** represents an existing drainage channel located within the southern portion of the project area. Cover type contributing to this design point consists of undeveloped woodlands.
- **DP-4** represents the inlet end of an existing roadside culvert located approximately 400 feet north of the intersection of Grant Hill Road and Stone Road (County Route 201) located in the southwestern portion of the project area. Cover type contributing to this design point consists primarily of undeveloped woodlands.
- **DP-5** represents the roadside swale along the northeast side of Wormer Road, flowing in a northerly direction. Cover type contributing to this design point consists primarily of undeveloped woodlands, and portions of Wormer Road.
- **DP-6** represents an existing drainage channel located in the northern portion of the project area. Cover type contributing to this design point consists primarily of undeveloped woodlands and a portion of Wormer Road.
- **DP-7** represents an existing drainage channel located in the northern portion of the project area. Cover type contributing to this design point consists primarily of undeveloped woodlands and a portion of Wormer Road.
- **DP-8** represents an existing drainage channel located in the northeastern portion of the project area. Cover type contributing to this design point consists primarily of undeveloped woodlands and a portion of the ACC golf course.

Table 2 below provides a summary of the existing conditions subwatershed areas and peak discharge rates for the Project’s watershed.

Table 2 – Existing Conditions Subwatershed Areas and Peak Discharge Rates									
Design Point	DP-1	DP-2	DP-3	DP-4	DP-5	DP-6	DP-7	DP-8	Total
Sub. Area (ac)	103.86	6.945	16.889	41.219	1.696	14.206	23.424	40.520	248.76
Sub. Impervious Area (ac)	2.102	0	0	0.299	0.132	0.101	0.312	2.292	5.238
10-Year Peak Rate (cfs)	74.64	9.43	15.53	24.62	3.40	22.28	22.50	47.34	219.74
100-Year Peak Rate (cfs)	190.52	24.45	40.96	64.56	8.01	56.75	58.26	116.84	560.35

Reference: Exhibit B – Existing Conditions Watershed Map and Hydrological Calculations.

6. PROPOSED WATERSHED CONDITIONS

Under the watershed’s Proposed Condition, all stormwater from the Project will continue to discharge to the same Design Points as in the Existing Condition. The total watershed size has remained the same (248.8 acres), but the total impervious area has increased to 35.395 acres (an increase of 30.157 acres). Refer to drawing “W-2 Proposed Conditions Watershed Map” contained in Appendix D for more information.

The increase in impervious area within the Project’s watershed results in an overall increase in peak discharge rates and volumes. To meet the requirements of the SMDM and General Permit, green infrastructure practices (GIPs) and standard stormwater practices (SMPs) have been incorporated into the stormwater management design to mitigate the quality and quantity of stormwater runoff discharged from the site.

The nature of soil disturbance activities occurring within each subwatershed was reviewed for compliance with the SMDM and General Permit. A summary of the site work proposed within each Design Point (and associated subwatershed), and the strategy for permit compliance, is provided below:

Design Point-1 (DP-1):

Stormwater runoff flowing to this design point consists of developed areas and undeveloped areas. Runoff from developed areas will be treated, reduced, and attenuated by a combination of green infrastructure practices and standard practices. Runoff from

undeveloped areas will continue following the same hydrological patterns as before development of the project.

Subwatershed 1.1S consists of development of new roads, single family housing, townhomes, and a stormwater management area. Green infrastructure practices planned for this area consist of rooftop disconnection. A P-1 Micropool Extended Detention Basin is planned to provide additional water quality treatment and peak rate attenuation.

Subwatershed 1.2S consists of development of new roads and single family housing. Green infrastructure practices planned within this area consist of conservation areas and rooftop disconnection. A P-5 Pocket Pond is planned to provide additional water quality treatment and peak rate attenuation.

Subwatershed 1.3S consists of future multi-family development area. This area will have on-site stormwater management practices designed to meet the required stormwater criteria.

Subwatershed 1.4S consists of development of private access roads and townhome development areas. A P-1 Micropool Extended Detention Basin is planned to provide water quality treatment and peak rate attenuation for this area.

Subwatershed 1.5S consists of a small area of townhome development with the majority of the area consisting of undeveloped woodlands. A P-5 Pocket Pond is planned to provide additional water quality treatment and peak rate attenuation.

Subwatershed 1.6S consists of areas not planned for development. It consists of undeveloped woodlands, and a portion of the ACC golf course. Runoff flowing from this subwatershed will remain unaffected by the proposed project.

Design Point-2 (DP-2):

Areas contributing to this design point (2.1S) are not proposed for development, and will be placed into conservation.

Design Point-3 (DP-3):

Stormwater runoff flowing to this design point consists of developed areas and undeveloped areas. Runoff from developed areas will be treated, reduced, and attenuated by a combination of green infrastructure practices and standard practices. Runoff from undeveloped areas will continue following the same hydrological patterns as before development of the project.

Subwatershed 3.1S consists of development of new roads and single family housing, and a stormwater management area. Green infrastructure practices planned for this area consist of rooftop disconnection. A P-1 Micropool Extended Detention Basin is planned to provide additional water quality treatment and peak rate attenuation.

Subwatershed 3.2S consists of areas not planned for development. It consists of undeveloped woodlands, and runoff will remain unaffected by the proposed project.

Design Point-4 (DP-4):

Stormwater runoff flowing to this design point consists of developed areas and undeveloped areas. Runoff from developed areas will be treated, reduced, and attenuated by a combination of green infrastructure practices and standard practices. Runoff from undeveloped areas will continue following the same hydrological patterns as before development of the project.

Subwatershed 4.1S consists of development of private access roads and townhome development. A P-5 Pocket Pond is planned to provide additional water quality treatment and peak rate attenuation.

Subwatershed 4.2S consists of areas not planned for development. It consists of undeveloped woodlands, and runoff will remain unaffected by the proposed project.

Design Point-5 (DP-5):

Stormwater runoff flowing to this design point (5.1S) consists of a townhome development area. A P-5 Pocket Pond is planned to provide additional water quality treatment and peak rate attenuation.

Design Point-6 (DP-6):

Areas contributing to this design point (6.1S) are not proposed for development, and will be placed into conservation.

Design Point-7 (DP-7):

Stormwater runoff flowing to this design point consists of developed areas and undeveloped areas. Runoff from developed areas will be treated, reduced, and attenuated by a combination of green infrastructure practices and standard practices. Runoff from undeveloped areas will continue following the same hydrological patterns as before development of the project.

Subwatershed 7.1S consists of development of new roads, single family housing, townhomes, and a stormwater management area. Green infrastructure practices planned for this area consist of rooftop disconnection. A P-1 Micropool Extended Detention Basin is planned to provide additional water quality treatment and peak rate attenuation.

Subwatershed 7.2S consists of areas not planned for development. It consists of undeveloped woodlands, and runoff will remain unaffected by the proposed project.

Design Point-8 (DP-8):

Subwatershed 8.1S consists of future multi-family development area. This area will have on-site stormwater management practices designed to meet the required stormwater criteria.

Subwatershed 8.2S consists of areas not planned for development. It consists of undeveloped woodlands, and a portion of the ACC golf course. Runoff flowing from this subwatershed will remain unaffected by the proposed project.

Table 3 below provides a summary of the proposed conditions subwatershed areas and peak discharge rates for the Project's watershed.

Table 3 – Proposed Conditions Subwatershed Areas and Peak Discharge Rates									
Design Point	DP-1	DP-2	DP-3	DP-4	DP-5	DP-6	DP-7	DP-8	Total
Sub. Area (ac)	104.92	4.088	20.885	39.105	3.000	10.125	32.829	33.892	248.84
Sub. Impervious Area (ac)	15.716	0	3.718	1.898	1.476	0.021	10.324	2.242	35.395
10-Year Peak Rate (cfs)	74.28	5.70	12.62	23.85	1.17	15.77	20.91	39.62	193.92
100-Year Peak Rate (cfs)	191.46	14.75	35.65	62.82	5.26	40.33	48.02	96.01	494.30

Table 4 below provides a summary of the existing conditions versus proposed conditions subwatershed areas and peak discharge rates for all Design Points.

Table 4 – Existing vs. Proposed Subwatershed Areas and Peak Discharge Rates			
Design Storm	Existing	Proposed	Net
Sub. Area (ac)	248.76	248.84	0.000
Sub. Impervious Area (ac)	5.238	35.395	+ 30.157
10-Year Peak Rate (cfs)	219.74	193.92	- 25.82
100-Year Peak Rate (cfs)	560.35	494.30	- 66.05

Refer to Appendix D for more information on the proposed conditions watershed modeling.

Reference: Exhibit C – Proposed Conditions Watershed Map and Hydrological Calculations.

7. NYSDEC DESIGN CRITERIA

The NYSDEC Stormwater Management Design Manual (SMDM) includes a five-step process that involves site planning and stormwater management practice selection. The five steps include;

1. Site Planning to preserve natural features and reduce impervious cover.
2. Calculation of the Water Quality Volume (WQv) for the Site.
3. Incorporation of green infrastructure techniques and standard SMPs with Runoff Reduction Volume (RRv) capacity.
4. Use of standard SMPs where applicable, to treat the portion of WQv not addressed by green infrastructure techniques and standard SMPs with RRv capacity.
5. Design of volume and peak rate control (where required).

The approach of the stormwater management plan was to address the stormwater requirements separately. The five steps were reduced to Site Planning to Preserve Natural Features, Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (CPv), and Overbank Flood (Qp) and Extreme Storm (Qf) Attenuation, as discussed in the following sections.

Appendix E of this report contains detailed calculations for determining and summarizing the required and provided volumes for Water Quality and Runoff Reduction. In general, the required design criteria (WQv, RRv, and CPv) were calculated for all areas where site disturbances or green infrastructure techniques are proposed.

7.1 SITE PLANNING TO PRESERVE NATURAL RESOURCES

Within Chapter 3 of the SMDM, Table 3.1 Green Infrastructure Planning General Categories and Specific Practices includes a list of planning practices utilized in the planning and design of a project. There are two categories, Preservation of Natural Resources and Reduction of Impervious Cover.

Table 5 – Site Planning to Preserve Natural Resources	
Preservation of Natural Resources	Reduction of Impervious Cover
Preservation of Undisturbed Areas	Roadway Reduction
Preservation of Buffers	Sidewalk Reduction
Reduction of Clearing and Grading	Driveway Reduction
Open Space Design	Cul-de-sac Reduction
Soil Restoration	Building Footprint Reduction
	Parking Reduction

At the start of the design process, the project site was analyzed, and natural resources and critical environmental areas were identified. Throughout the design, these areas identified

were avoided and protected wherever practical. Where impacts to these features occurred, mitigating measures were proposed to reduce the effects of these impacts. A description of natural resources analyzed is provided below:

Jurisdictional Wetlands

- Wetlands will be protected to the maximum extent practicable.

Waterways

- No waterways are impacted by the Project.

Buffers

- Buffer impacts will be reduced to the maximum extent practicable.

Floodplains

- The Project is not within any floodplains.

Forest, vegetative cover

- Impacts to forested areas have been minimized.

Topography/Steep slopes

- Development has been located to minimize disturbance of any steep slopes where possible.

Existing soils, including hydrologic soil groups and soil erodibility

- Soil characteristics were considered throughout the design, and the probability for erosion was reduced to the maximum extent practicable.

Drainage Patterns

- Existing drainage patterns were maintained to the maximum extent practicable.

Bedrock/Significant geological features

- No bedrock or significant geological features are impacted by the project.

7.2 REQUIRED WATER QUALITY VOLUME (WQV)

The Water Quality Volume (WQv) requirement is designed to improve the water quality of runoff from the project area by treating 90% of the average annual stormwater runoff volumes. The WQv is directly related to the amount of impervious cover created at the project area. The following equation is used to determine the water quality storage volume.

$$WQv = \frac{(P)(Rv)(A)}{12}$$

Where:

WQv	=	Water Quality Volume (acre/feet)
P	=	90% Rainfall Event
Rv	=	0.05 + 0.009(I) where I is impervious cover, in percent
A	=	Site area in acres

The required WQv was calculated for the entire project area and is provided in Table 6, below.

Table 6 – Water Quality Volume (WQv) Required	
Design Point	Required (ac-ft)
Total	3.816

Reference: Exhibit D – NYSDEC Stormwater Calculations.

7.3 RUNOFF REDUCTION VOLUME (RRV) AND TREATMENT

The Project is planned to utilize Conservation Areas and Rooftop Disconnection to provide the minimum required RRv. The existing soil type (HSG C) for the project area prohibits reducing 100% of the required WQv. Refer to Table 7 below for a summary of the required versus provided WQv and RRv for the Project.

Table 7 Summary of Runoff Reduction Volume (RRv) and Water Quality Volume (WQv) Requirements					
	WQv Required	Min. RRv Required	RRv Provided	WQv Provided	WQv + RRv Provided
Design Point	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)
Total	3.816	0.806	0.901	4.152	5.053

Reference: Exhibit D – NYSDEC Stormwater Calculations.

7.4 CHANNEL PROTECTION VOLUME (CPV)

Stream Channel Protection Volume (CPv) requirements are designed to protect stream channels from erosion. In New York State, this goal is accomplished by providing 24-hour (12-hour in trout waters) extended detention of the one-year, 24-hour storm event. The required CPv is calculated utilizing TR-55 (or TR-20) and Appendix B of the SMDM.

The proposed stormwater management ponds have been sized to meet the CPv requirement by utilizing low-flow orifices sized to detain the 1-Year event. Refer to Table 8 below for a summary of the CPv requirements.

Table 8 – Channel Protection Volume (CPv) Requirements		
Design Point	Required (ac-ft)	Provided (ac-ft)
Total	2.822	2.822

Reference: Exhibit D – NYSDEC Stormwater Calculations.

7.5 OVERBANK FLOOD (QP) AND EXTREME FLOOD (QF) ATTENUATION

The primary purpose of the Overbank Flood (Qp) control sizing criterion is to prevent an increase in the frequency and magnitude of out-of-bank flooding generated by urban development. It requires storage and attenuation of the 10-year, 24-hour storm to ensure post-development peak discharge rates do not exceed the pre-development condition.

The intent of the Extreme Flood (Qf) criteria is to (a) prevent the increased risk of flood damage from large storm events, (b) maintain the boundaries of the pre-development 100-year floodplain, and (c) protect the physical integrity of stormwater management practices. It requires storage and attenuation of the 100-year, 24-hour storm to ensure post-development peak discharge rates do not exceed the pre-development condition.

The Overbank Flood (Qp) and Extreme Flood (Qf) criteria are both being met via the proposed stormwater management practices. Refer to Sections 5 and 6 for more information on achieving peak discharge rate attenuation.

Reference: Exhibit B – Existing Conditions Watershed Map and

Hydrological Calculations

Exhibit C – Proposed Conditions Watershed Map and

Hydrological Calculations

8. POST-CONSTRUCTION STORMWATER MANAGEMENT (PCSM) FACILITIES

Runoff generated from the Project will be collected by a series of surface swales, drain inlets, catch basins, and storm sewer piping. The collected runoff will be conveyed to a post-construction stormwater management (PCSM) practice for water quality treatment, runoff reduction, and peak rate attenuation. The Project is proposing to treat and attenuate runoff generated from the disturbed portions of the Project, and any existing tributary areas.

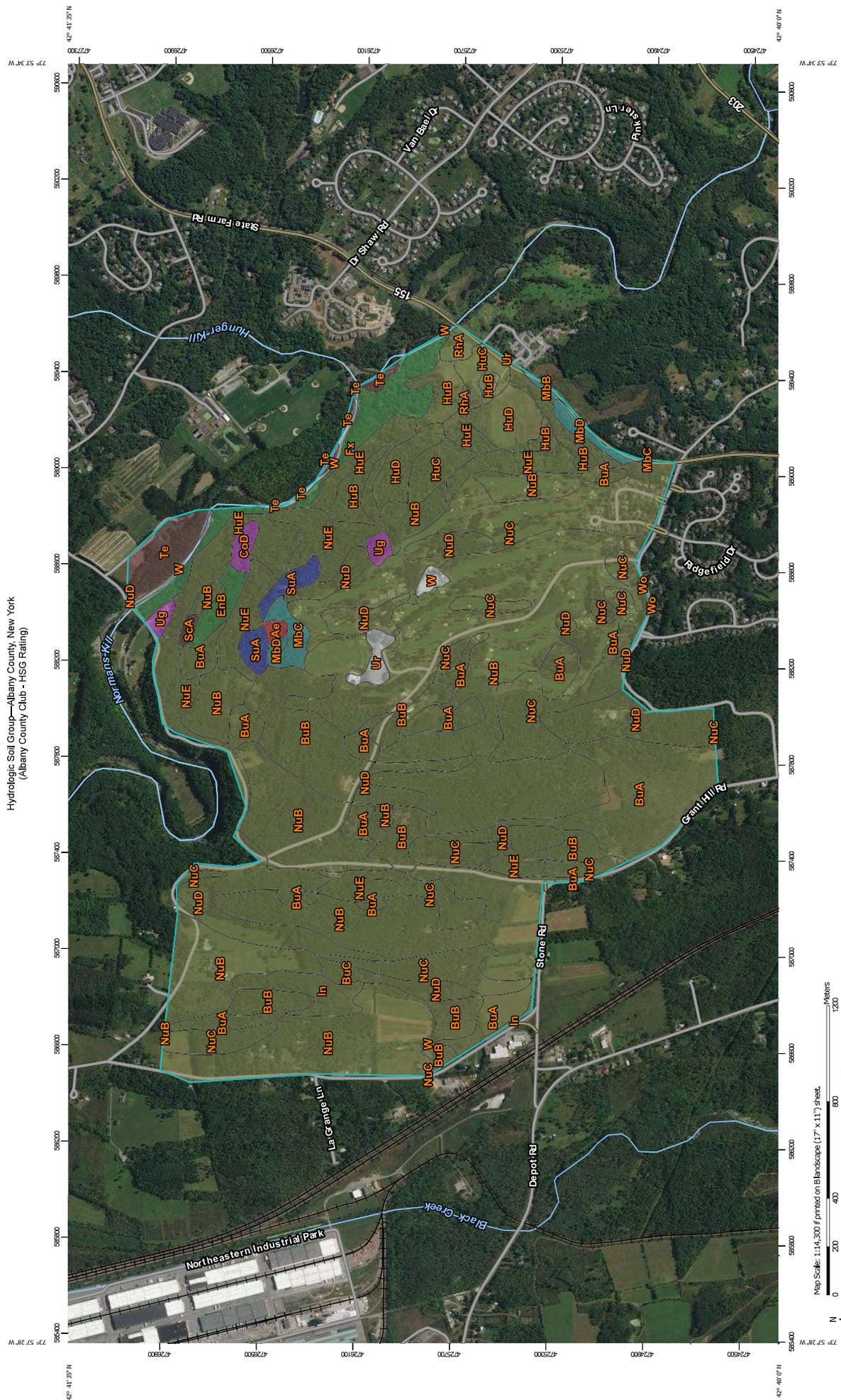
The peak storage elevations and volumes of the PCSM facilities after development of the Project are presented in the attached HydroCAD calculations contained in Appendix D.

Reference: Exhibit C – Proposed Conditions Watershed Map and
Hydrological Calculations

EXHIBIT A

ON-SITE SOIL DATA

Hydrologic Soil Group—Albany County, New York
(Albany County Club - HSG Rating)

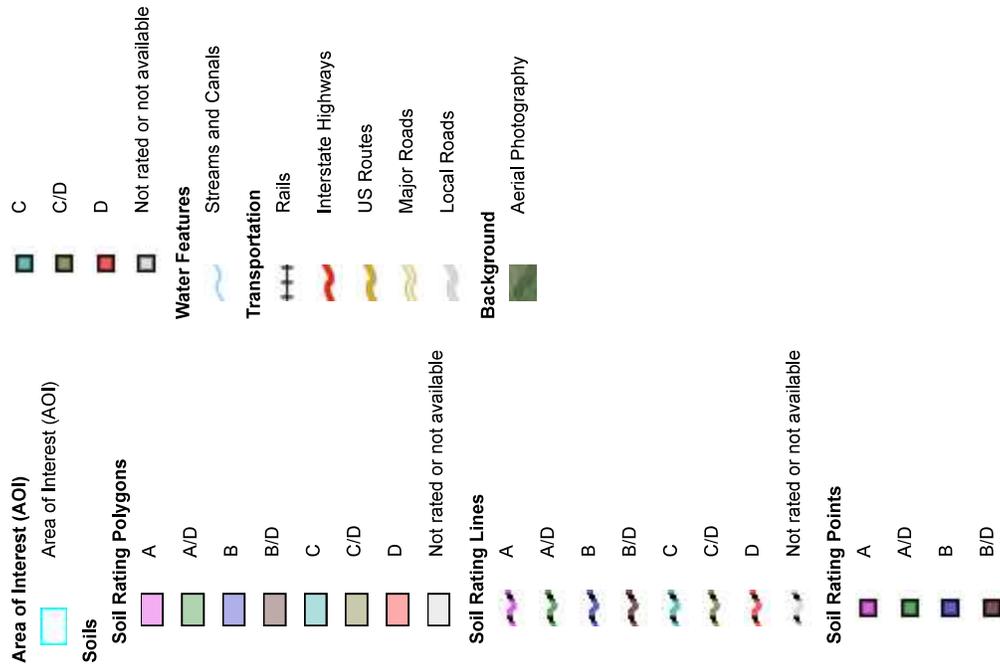


Map Scale: 1:14,300 (printed on B landscape (17" x 11") sheet).
 0 200 400 800 1200 Meters
 0 500 1000 2000 3000 Feet
 Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND



MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Albany County, New York
 Survey Area Data: Version 15, Oct 8, 2017

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

Date(s) aerial images were photographed: Oct 7, 2013—Nov 9, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ae	Allis silt loam	D	1.8	0.1%
BuA	Burdett silt loam, 0 to 3 percent slopes	C/D	118.0	9.6%
BuB	Burdett silt loam, 3 to 8 percent slopes	C/D	78.6	6.4%
BuC	Burdett silt loam, 8 to 15 percent slopes	C/D	4.2	0.3%
CoD	Colonie loamy fine sand, hilly	A	4.0	0.3%
EnB	Enora loamy fine sand, 3 to 8 percent slopes	A/D	7.5	0.6%
Fx	Fluvaquents-Udifluvents complex, frequently flooded	A/D	29.2	2.4%
HuB	Hudson silt loam, 3 to 8 percent slopes	C/D	23.0	1.9%
HuC	Hudson silt loam, 8 to 15 percent slopes	C/D	17.5	1.4%
HuD	Hudson silt loam, hilly	C/D	25.1	2.0%
HuE	Hudson silt loam, 25 to 45 percent slopes	C/D	39.3	3.2%
In	Ilion silt loam	C/D	14.3	1.2%
MbB	Manlius channery silt loam, 3 to 8 percent slopes	C	1.2	0.1%
MbC	Manlius channery silt loam, 8 to 15 percent slopes	C	6.6	0.5%
MbD	Manlius channery silt loam, 15 to 25 percent slopes	C	6.3	0.5%
NuB	Nunda silt loam, 3 to 8 percent slopes	C/D	450.3	36.5%
NuC	Nunda silt loam, 8 to 15 percent slopes	C/D	167.4	13.6%
NuD	Nunda silt loam, 15 to 25 percent slopes	C/D	108.9	8.8%
NuE	Nunda silt loam, 25 to 35 percent slopes	C/D	75.5	6.1%
RhA	Rhinebeck silty clay loam, 0 to 3 percent slopes	C/D	5.2	0.4%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
ScA	Scio silt loam, 0 to 3 percent slopes	B/D	1.7	0.1%
SuA	Sudbury fine sandy loam, 0 to 3 percent slopes	B	9.8	0.8%
Te	Teel silt loam	B/D	19.2	1.6%
Ug	Udorthents, loamy	A	5.2	0.4%
Ur	Urban land		5.2	0.4%
W	Water		7.2	0.6%
Wo	Wayland soils complex, non-calcareous substratum, 0 to 3 percent slopes, frequently flooded	B/D	0.1	0.0%
Totals for Area of Interest			1,232.3	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

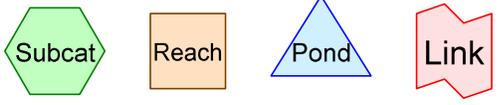
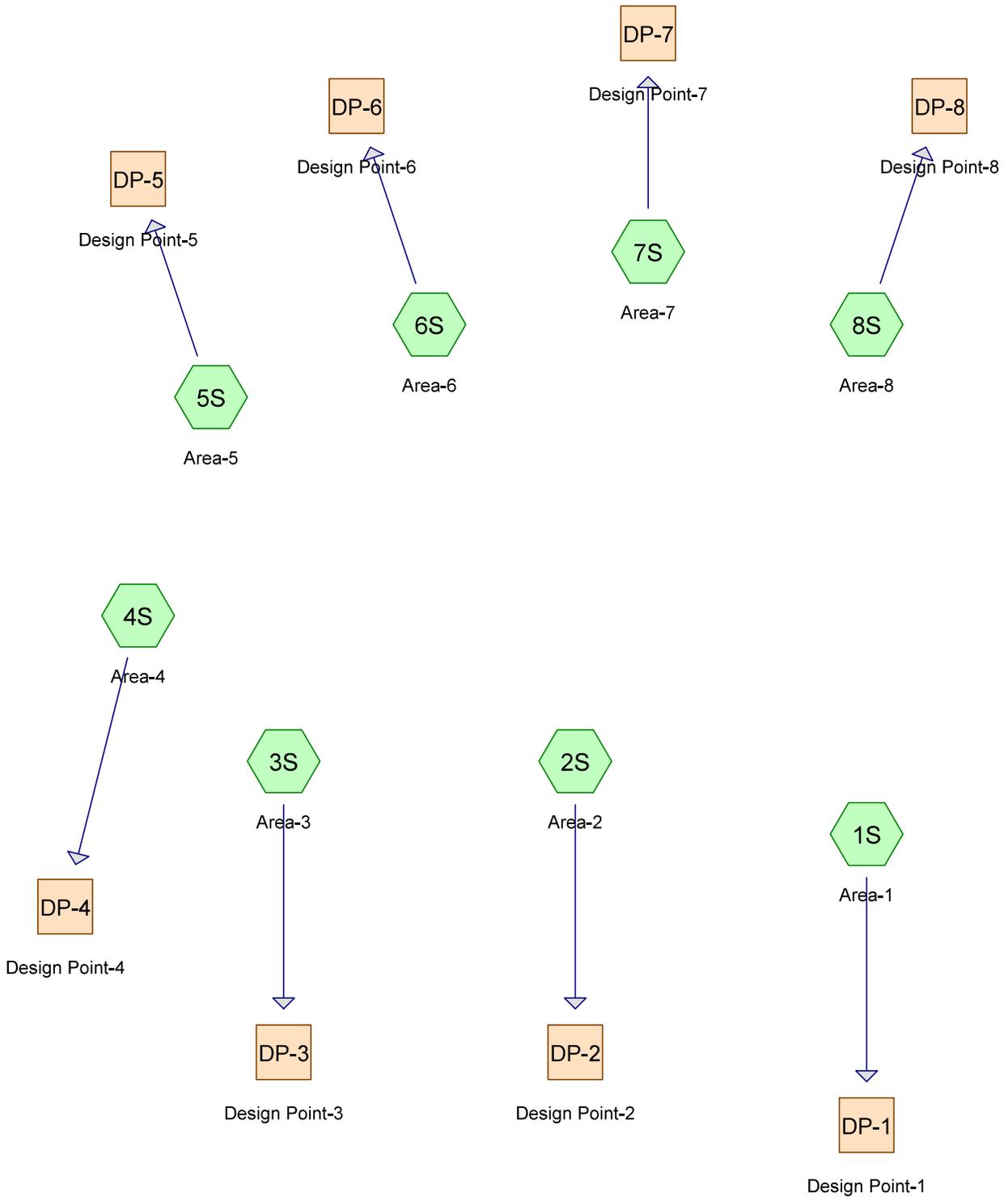
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

EXHIBIT B

**EXISTING CONDITIONS
WATERSHED MAP AND
HYDROLOGICAL CALCULATIONS**



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Type II 24-hr 1-Year Rainfall=2.25"

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Summary for Subcatchment 1S: Area-1

Runoff = 16.11 cfs @ 12.71 hrs, Volume= 3.441 af, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
2.102	98	Paved parking, HSG C
17.305	74	>75% Grass cover, Good, HSG C
84.455	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
103.862		Weighted Average
101.760	71	97.98% Pervious Area
2.102	98	2.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
58.5	3,265	0.0330	0.93		Lag/CN Method,

Summary for Subcatchment 2S: Area-2

Runoff = 1.77 cfs @ 12.19 hrs, Volume= 0.198 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
6.945	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
6.945		Weighted Average
6.945	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	1,086	0.0460	0.86		Lag/CN Method,

Summary for Subcatchment 3S: Area-3

Runoff = 2.87 cfs @ 12.44 hrs, Volume= 0.481 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

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Type II 24-hr 1-Year Rainfall=2.25"

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Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
16.889	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
16.889		Weighted Average
16.889	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.7	1,718	0.0300	0.76		Lag/CN Method,

Summary for Subcatchment 4S: Area-4

Runoff = 4.85 cfs @ 12.91 hrs, Volume= 1.229 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
0.299	98	Paved parking, HSG C
1.279	74	>75% Grass cover, Good, HSG C
39.641	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
41.219		Weighted Average
40.920	70	99.27% Pervious Area
0.299	98	0.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
69.8	3,223	0.0240	0.77		Lag/CN Method,

Summary for Subcatchment 5S: Area-5

Runoff = 0.91 cfs @ 12.08 hrs, Volume= 0.071 af, Depth= 0.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
0.132	98	Paved parking, HSG C
0.366	74	>75% Grass cover, Good, HSG C
1.198	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
1.696		Weighted Average
1.564	71	92.22% Pervious Area
0.132	98	7.78% Impervious Area

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Type II 24-hr 1-Year Rainfall=2.25"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	411	0.0190	0.49		Lag/CN Method,

Summary for Subcatchment 6S: Area-6

Runoff = 4.45 cfs @ 12.13 hrs, Volume= 0.425 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
0.101	98	Paved parking, HSG C
0.551	74	>75% Grass cover, Good, HSG C
13.554	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
14.206		Weighted Average
14.105	70	99.29% Pervious Area
0.101	98	0.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	1,170	0.0790	1.14		Lag/CN Method,

Summary for Subcatchment 7S: Area-7

Runoff = 4.49 cfs @ 12.41 hrs, Volume= 0.723 af, Depth= 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
0.312	98	Paved parking, HSG C
1.121	74	>75% Grass cover, Good, HSG C
21.991	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
23.424		Weighted Average
23.112	70	98.67% Pervious Area
0.312	98	1.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.2	2,188	0.0430	0.98		Lag/CN Method,

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Type II 24-hr 1-Year Rainfall=2.25"

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Summary for Subcatchment 8S: Area-8

Runoff = 11.41 cfs @ 12.31 hrs, Volume= 1.536 af, Depth= 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
2.292	98	Paved parking, HSG C
5.639	74	>75% Grass cover, Good, HSG C
32.589	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
40.520		Weighted Average
38.228	71	94.34% Pervious Area
2.292	98	5.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.8	2,517	0.0700	1.32		Lag/CN Method,

Summary for Reach DP-1: Design Point-1

Inflow Area = 103.862 ac, 2.02% Impervious, Inflow Depth = 0.40" for 1-Year event
 Inflow = 16.11 cfs @ 12.71 hrs, Volume= 3.441 af
 Outflow = 16.11 cfs @ 12.71 hrs, Volume= 3.441 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Design Point-2

Inflow Area = 6.945 ac, 0.00% Impervious, Inflow Depth = 0.34" for 1-Year event
 Inflow = 1.77 cfs @ 12.19 hrs, Volume= 0.198 af
 Outflow = 1.77 cfs @ 12.19 hrs, Volume= 0.198 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-3: Design Point-3

Inflow Area = 16.889 ac, 0.00% Impervious, Inflow Depth = 0.34" for 1-Year event
 Inflow = 2.87 cfs @ 12.44 hrs, Volume= 0.481 af
 Outflow = 2.87 cfs @ 12.44 hrs, Volume= 0.481 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-4: Design Point-4

Inflow Area = 41.219 ac, 0.73% Impervious, Inflow Depth = 0.36" for 1-Year event
Inflow = 4.85 cfs @ 12.91 hrs, Volume= 1.229 af
Outflow = 4.85 cfs @ 12.91 hrs, Volume= 1.229 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-5: Design Point-5

Inflow Area = 1.696 ac, 7.78% Impervious, Inflow Depth = 0.50" for 1-Year event
Inflow = 0.91 cfs @ 12.08 hrs, Volume= 0.071 af
Outflow = 0.91 cfs @ 12.08 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6: Design Point-6

Inflow Area = 14.206 ac, 0.71% Impervious, Inflow Depth = 0.36" for 1-Year event
Inflow = 4.45 cfs @ 12.13 hrs, Volume= 0.425 af
Outflow = 4.45 cfs @ 12.13 hrs, Volume= 0.425 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7: Design Point-7

Inflow Area = 23.424 ac, 1.33% Impervious, Inflow Depth = 0.37" for 1-Year event
Inflow = 4.49 cfs @ 12.41 hrs, Volume= 0.723 af
Outflow = 4.49 cfs @ 12.41 hrs, Volume= 0.723 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-8: Design Point-8

Inflow Area = 40.520 ac, 5.66% Impervious, Inflow Depth = 0.46" for 1-Year event
Inflow = 11.41 cfs @ 12.31 hrs, Volume= 1.536 af
Outflow = 11.41 cfs @ 12.31 hrs, Volume= 1.536 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

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Type II 24-hr 10-Year Rainfall=4.00"

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Summary for Subcatchment 1S: Area-1

Runoff = 74.64 cfs @ 12.64 hrs, Volume= 12.320 af, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
2.102	98	Paved parking, HSG C
17.305	74	>75% Grass cover, Good, HSG C
84.455	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
103.862		Weighted Average
101.760	71	97.98% Pervious Area
2.102	98	2.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
58.5	3,265	0.0330	0.93		Lag/CN Method,

Summary for Subcatchment 2S: Area-2

Runoff = 9.43 cfs @ 12.15 hrs, Volume= 0.770 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
6.945	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
6.945		Weighted Average
6.945	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	1,086	0.0460	0.86		Lag/CN Method,

Summary for Subcatchment 3S: Area-3

Runoff = 15.53 cfs @ 12.36 hrs, Volume= 1.871 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

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Type II 24-hr 10-Year Rainfall=4.00"

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Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
16.889	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
16.889		Weighted Average
16.889	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.7	1,718	0.0300	0.76		Lag/CN Method,

Summary for Subcatchment 4S: Area-4

Runoff = 24.62 cfs @ 12.80 hrs, Volume= 4.656 af, Depth= 1.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
0.299	98	Paved parking, HSG C
1.279	74	>75% Grass cover, Good, HSG C
39.641	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
41.219		Weighted Average
40.920	70	99.27% Pervious Area
0.299	98	0.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
69.8	3,223	0.0240	0.77		Lag/CN Method,

Summary for Subcatchment 5S: Area-5

Runoff = 3.40 cfs @ 12.06 hrs, Volume= 0.223 af, Depth= 1.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
0.132	98	Paved parking, HSG C
0.366	74	>75% Grass cover, Good, HSG C
1.198	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
1.696		Weighted Average
1.564	71	92.22% Pervious Area
0.132	98	7.78% Impervious Area

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Type II 24-hr 10-Year Rainfall=4.00"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	411	0.0190	0.49		Lag/CN Method,

Summary for Subcatchment 6S: Area-6

Runoff = 22.28 cfs @ 12.11 hrs, Volume= 1.607 af, Depth= 1.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
0.101	98	Paved parking, HSG C
0.551	74	>75% Grass cover, Good, HSG C
13.554	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
14.206		Weighted Average
14.105	70	99.29% Pervious Area
0.101	98	0.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	1,170	0.0790	1.14		Lag/CN Method,

Summary for Subcatchment 7S: Area-7

Runoff = 22.50 cfs @ 12.35 hrs, Volume= 2.684 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
0.312	98	Paved parking, HSG C
1.121	74	>75% Grass cover, Good, HSG C
21.991	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
23.424		Weighted Average
23.112	70	98.67% Pervious Area
0.312	98	1.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.2	2,188	0.0430	0.98		Lag/CN Method,

Summary for Subcatchment 8S: Area-8

Runoff = 47.34 cfs @ 12.28 hrs, Volume= 5.080 af, Depth= 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
2.292	98	Paved parking, HSG C
5.639	74	>75% Grass cover, Good, HSG C
32.589	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
40.520		Weighted Average
38.228	71	94.34% Pervious Area
2.292	98	5.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.8	2,517	0.0700	1.32		Lag/CN Method,

Summary for Reach DP-1: Design Point-1

Inflow Area = 103.862 ac, 2.02% Impervious, Inflow Depth = 1.42" for 10-Year event
 Inflow = 74.64 cfs @ 12.64 hrs, Volume= 12.320 af
 Outflow = 74.64 cfs @ 12.64 hrs, Volume= 12.320 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Design Point-2

Inflow Area = 6.945 ac, 0.00% Impervious, Inflow Depth = 1.33" for 10-Year event
 Inflow = 9.43 cfs @ 12.15 hrs, Volume= 0.770 af
 Outflow = 9.43 cfs @ 12.15 hrs, Volume= 0.770 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-3: Design Point-3

Inflow Area = 16.889 ac, 0.00% Impervious, Inflow Depth = 1.33" for 10-Year event
 Inflow = 15.53 cfs @ 12.36 hrs, Volume= 1.871 af
 Outflow = 15.53 cfs @ 12.36 hrs, Volume= 1.871 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-4: Design Point-4

Inflow Area = 41.219 ac, 0.73% Impervious, Inflow Depth = 1.36" for 10-Year event
Inflow = 24.62 cfs @ 12.80 hrs, Volume= 4.656 af
Outflow = 24.62 cfs @ 12.80 hrs, Volume= 4.656 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-5: Design Point-5

Inflow Area = 1.696 ac, 7.78% Impervious, Inflow Depth = 1.58" for 10-Year event
Inflow = 3.40 cfs @ 12.06 hrs, Volume= 0.223 af
Outflow = 3.40 cfs @ 12.06 hrs, Volume= 0.223 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6: Design Point-6

Inflow Area = 14.206 ac, 0.71% Impervious, Inflow Depth = 1.36" for 10-Year event
Inflow = 22.28 cfs @ 12.11 hrs, Volume= 1.607 af
Outflow = 22.28 cfs @ 12.11 hrs, Volume= 1.607 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7: Design Point-7

Inflow Area = 23.424 ac, 1.33% Impervious, Inflow Depth = 1.37" for 10-Year event
Inflow = 22.50 cfs @ 12.35 hrs, Volume= 2.684 af
Outflow = 22.50 cfs @ 12.35 hrs, Volume= 2.684 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-8: Design Point-8

Inflow Area = 40.520 ac, 5.66% Impervious, Inflow Depth = 1.50" for 10-Year event
Inflow = 47.34 cfs @ 12.28 hrs, Volume= 5.080 af
Outflow = 47.34 cfs @ 12.28 hrs, Volume= 5.080 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

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Type II 24-hr 100-Year Rainfall=6.60"

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Summary for Subcatchment 1S: Area-1

Runoff = 190.52 cfs @ 12.61 hrs, Volume= 29.589 af, Depth= 3.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
2.102	98	Paved parking, HSG C
17.305	74	>75% Grass cover, Good, HSG C
84.455	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
103.862		Weighted Average
101.760	71	97.98% Pervious Area
2.102	98	2.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
58.5	3,265	0.0330	0.93		Lag/CN Method,

Summary for Subcatchment 2S: Area-2

Runoff = 24.45 cfs @ 12.14 hrs, Volume= 1.903 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
6.945	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
6.945		Weighted Average
6.945	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	1,086	0.0460	0.86		Lag/CN Method,

Summary for Subcatchment 3S: Area-3

Runoff = 40.96 cfs @ 12.34 hrs, Volume= 4.628 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

17013_Existing

Type II 24-hr 100-Year Rainfall=6.60"

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Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
16.889	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
16.889		Weighted Average
16.889	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.7	1,718	0.0300	0.76		Lag/CN Method,

Summary for Subcatchment 4S: Area-4

Runoff = 64.56 cfs @ 12.77 hrs, Volume= 11.416 af, Depth= 3.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.299	98	Paved parking, HSG C
1.279	74	>75% Grass cover, Good, HSG C
39.641	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
41.219		Weighted Average
40.920	70	99.27% Pervious Area
0.299	98	0.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
69.8	3,223	0.0240	0.77		Lag/CN Method,

Summary for Subcatchment 5S: Area-5

Runoff = 8.01 cfs @ 12.06 hrs, Volume= 0.511 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.132	98	Paved parking, HSG C
0.366	74	>75% Grass cover, Good, HSG C
1.198	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
1.696		Weighted Average
1.564	71	92.22% Pervious Area
0.132	98	7.78% Impervious Area

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Type II 24-hr 100-Year Rainfall=6.60"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	411	0.0190	0.49		Lag/CN Method,

Summary for Subcatchment 6S: Area-6

Runoff = 56.75 cfs @ 12.10 hrs, Volume= 3.938 af, Depth= 3.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.101	98	Paved parking, HSG C
0.551	74	>75% Grass cover, Good, HSG C
13.554	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
14.206		Weighted Average
14.105	70	99.29% Pervious Area
0.101	98	0.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	1,170	0.0790	1.14		Lag/CN Method,

Summary for Subcatchment 7S: Area-7

Runoff = 58.26 cfs @ 12.34 hrs, Volume= 6.537 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.312	98	Paved parking, HSG C
1.121	74	>75% Grass cover, Good, HSG C
21.991	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
23.424		Weighted Average
23.112	70	98.67% Pervious Area
0.312	98	1.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.2	2,188	0.0430	0.98		Lag/CN Method,

Summary for Subcatchment 8S: Area-8

Runoff = 116.84 cfs @ 12.27 hrs, Volume= 11.883 af, Depth= 3.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
2.292	98	Paved parking, HSG C
5.639	74	>75% Grass cover, Good, HSG C
32.589	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
40.520		Weighted Average
38.228	71	94.34% Pervious Area
2.292	98	5.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.8	2,517	0.0700	1.32		Lag/CN Method,

Summary for Reach DP-1: Design Point-1

Inflow Area = 103.862 ac, 2.02% Impervious, Inflow Depth = 3.42" for 100-Year event
Inflow = 190.52 cfs @ 12.61 hrs, Volume= 29.589 af
Outflow = 190.52 cfs @ 12.61 hrs, Volume= 29.589 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Design Point-2

Inflow Area = 6.945 ac, 0.00% Impervious, Inflow Depth = 3.29" for 100-Year event
Inflow = 24.45 cfs @ 12.14 hrs, Volume= 1.903 af
Outflow = 24.45 cfs @ 12.14 hrs, Volume= 1.903 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-3: Design Point-3

Inflow Area = 16.889 ac, 0.00% Impervious, Inflow Depth = 3.29" for 100-Year event
Inflow = 40.96 cfs @ 12.34 hrs, Volume= 4.628 af
Outflow = 40.96 cfs @ 12.34 hrs, Volume= 4.628 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-4: Design Point-4

Inflow Area = 41.219 ac, 0.73% Impervious, Inflow Depth = 3.32" for 100-Year event
Inflow = 64.56 cfs @ 12.77 hrs, Volume= 11.416 af
Outflow = 64.56 cfs @ 12.77 hrs, Volume= 11.416 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-5: Design Point-5

Inflow Area = 1.696 ac, 7.78% Impervious, Inflow Depth = 3.62" for 100-Year event
Inflow = 8.01 cfs @ 12.06 hrs, Volume= 0.511 af
Outflow = 8.01 cfs @ 12.06 hrs, Volume= 0.511 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6: Design Point-6

Inflow Area = 14.206 ac, 0.71% Impervious, Inflow Depth = 3.33" for 100-Year event
Inflow = 56.75 cfs @ 12.10 hrs, Volume= 3.938 af
Outflow = 56.75 cfs @ 12.10 hrs, Volume= 3.938 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7: Design Point-7

Inflow Area = 23.424 ac, 1.33% Impervious, Inflow Depth = 3.35" for 100-Year event
Inflow = 58.26 cfs @ 12.34 hrs, Volume= 6.537 af
Outflow = 58.26 cfs @ 12.34 hrs, Volume= 6.537 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-8: Design Point-8

Inflow Area = 40.520 ac, 5.66% Impervious, Inflow Depth = 3.52" for 100-Year event
Inflow = 116.84 cfs @ 12.27 hrs, Volume= 11.883 af
Outflow = 116.84 cfs @ 12.27 hrs, Volume= 11.883 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

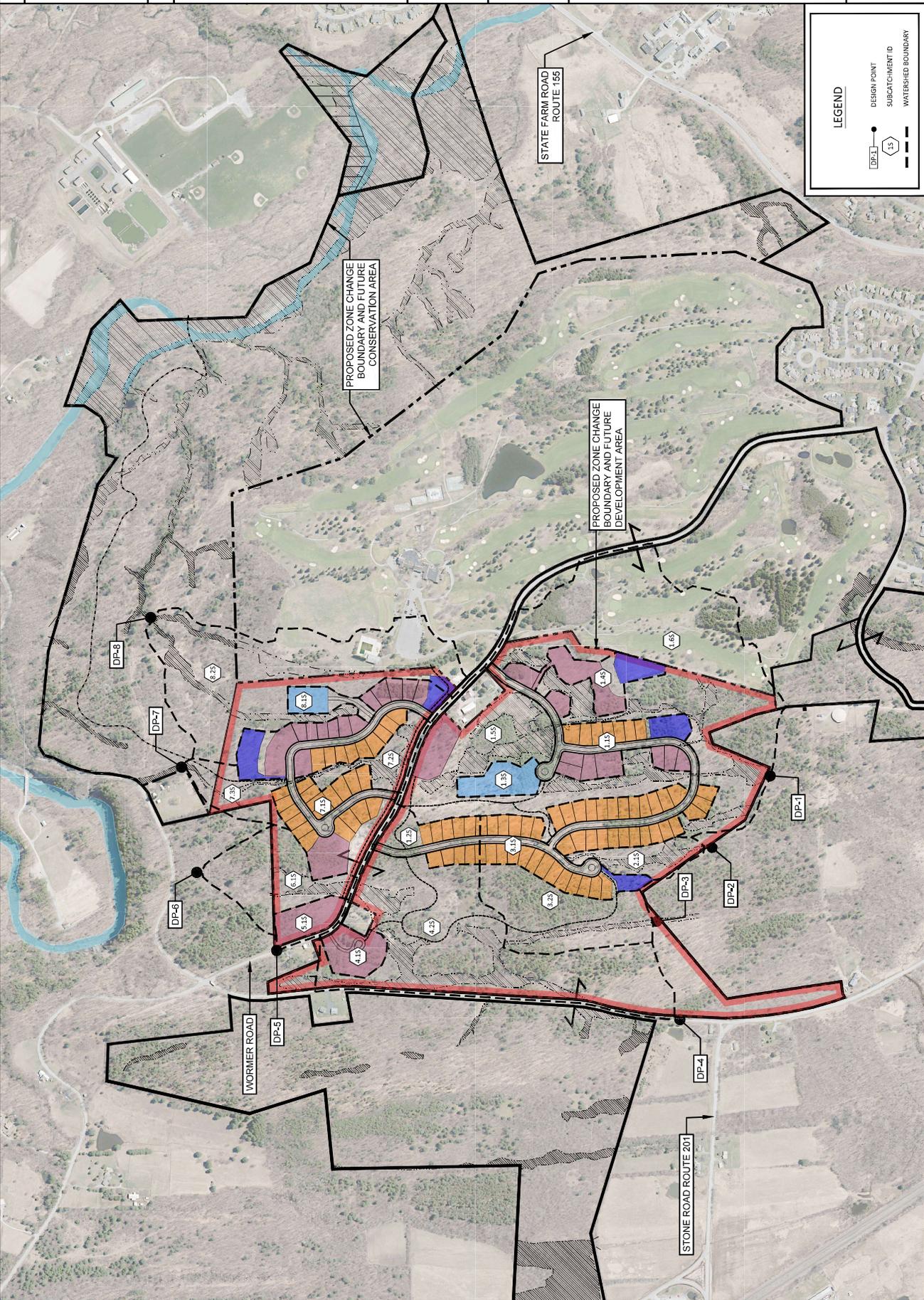
EXHIBIT C

**PROPOSED CONDITIONS
WATERSHED MAP AND
HYDROLOGICAL CALCULATIONS**

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DATE	REVISIONS (RECORD/DESCRIPTION)	APPROVED



LEGEND

- DESIGN POINT (DP-1)
- SUBCATCHMENT ID (4.15)
- WATERSHED BOUNDARY (dashed line)

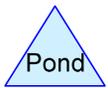
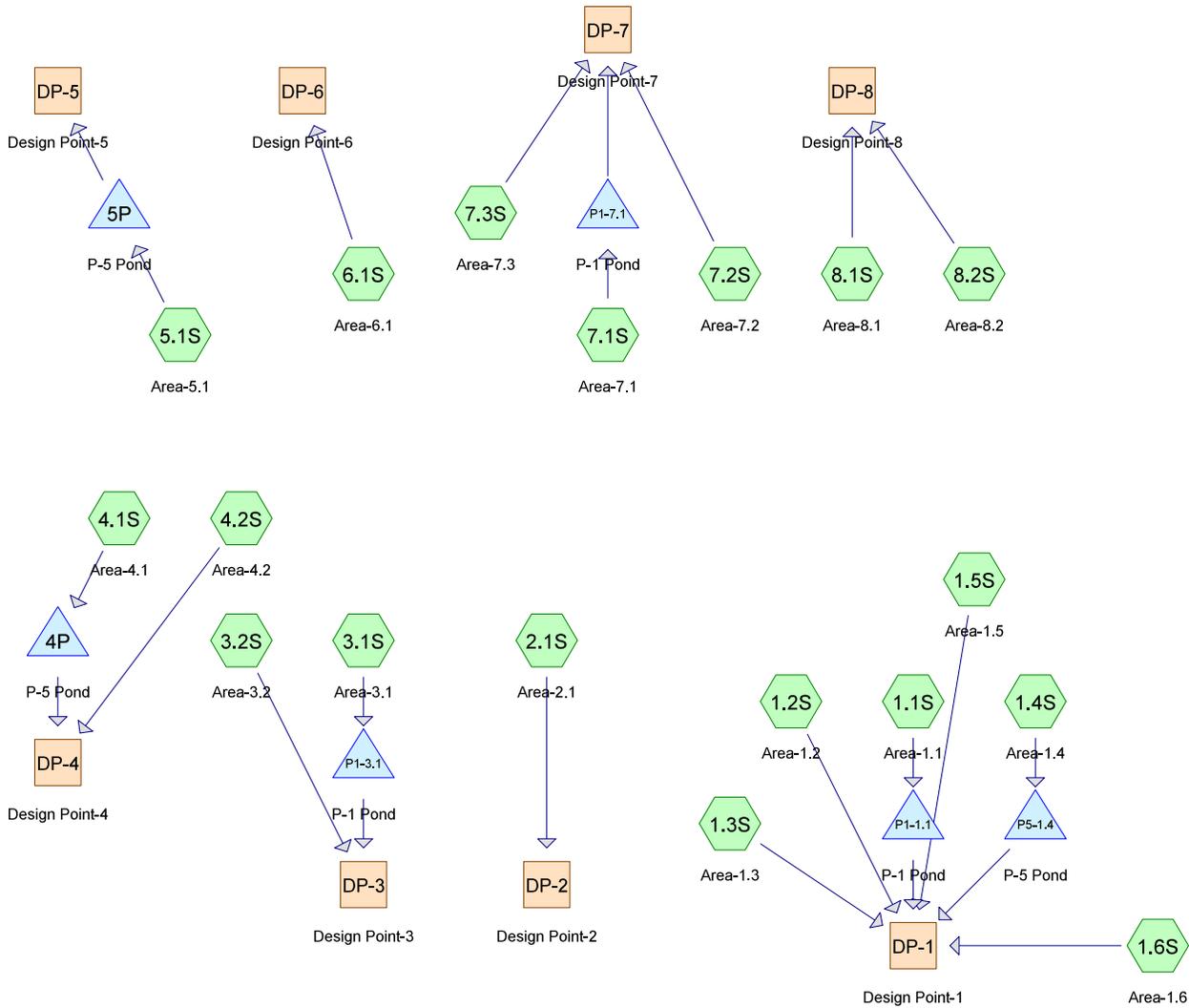
PROPOSED ZONE CHANGE
 BOUNDARY AND FUTURE
 CONSERVATION AREA

PROPOSED ZONE CHANGE
 BOUNDARY AND FUTURE
 DEVELOPMENT AREA

STATE FARM ROAD
 ROUTE 155

WORMIER ROAD

STONE ROAD ROUTE 201



Routing Diagram for 17013_Proposed
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Type II 24-hr 1-Year Rainfall=2.25"

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Summary for Subcatchment 1.1S: Area-1.1

Runoff = 39.35 cfs @ 11.97 hrs, Volume= 2.167 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
10.300	98	Paved parking, HSG C
10.936	74	>75% Grass cover, Good, HSG C
0.000	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
21.236		Weighted Average
10.936	74	51.50% Pervious Area
10.300	98	48.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 1.2S: Area-1.2

Runoff = 5.84 cfs @ 11.98 hrs, Volume= 0.317 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
0.832	98	Paved parking, HSG C
3.705	74	>75% Grass cover, Good, HSG C
1.068	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
5.605		Weighted Average
4.773	73	85.16% Pervious Area
0.832	98	14.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 1.3S: Area-1.3

Runoff = 1.43 cfs @ 12.00 hrs, Volume= 0.083 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

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Type II 24-hr 1-Year Rainfall=2.25"

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Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
2.900	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
2.900		Weighted Average
2.900	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 1.4S: Area-1.4

Runoff = 6.33 cfs @ 11.98 hrs, Volume= 0.352 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
1.429	98	Paved parking, HSG C
1.512	74	>75% Grass cover, Good, HSG C
1.795	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
4.736		Weighted Average
3.307	72	69.83% Pervious Area
1.429	98	30.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 1.5S: Area-1.5

Runoff = 5.22 cfs @ 12.62 hrs, Volume= 1.000 af, Depth= 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
2.144	98	Paved parking, HSG C
3.107	74	>75% Grass cover, Good, HSG C
18.126	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
23.377		Weighted Average
21.233	71	90.83% Pervious Area
2.144	98	9.17% Impervious Area

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Type II 24-hr 1-Year Rainfall=2.25"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
55.4	3,265	0.0330	0.98		Lag/CN Method,

Summary for Subcatchment 1.6S: Area-1.6

Runoff = 9.69 cfs @ 12.50 hrs, Volume= 1.648 af, Depth= 0.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
1.011	98	Paved parking, HSG C
15.164	74	>75% Grass cover, Good, HSG C
30.895	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
47.070		Weighted Average
46.059	71	97.85% Pervious Area
1.011	98	2.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.9	2,219	0.0300	0.84		Lag/CN Method,

Summary for Subcatchment 2.1S: Area-2.1

Runoff = 1.07 cfs @ 12.18 hrs, Volume= 0.116 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
4.088	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
4.088		Weighted Average
4.088	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2	1,024	0.0460	0.85		Lag/CN Method,

Summary for Subcatchment 3.1S: Area-3.1

Runoff = 14.44 cfs @ 11.97 hrs, Volume= 0.795 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

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Area (ac)	CN	Description
3.718	98	Paved parking, HSG C
4.273	74	>75% Grass cover, Good, HSG C
0.000	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
7.991		Weighted Average
4.273	74	53.47% Pervious Area
3.718	98	46.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 3.2S: Area-3.2

Runoff = 2.29 cfs @ 12.40 hrs, Volume= 0.367 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
12.894	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
12.894		Weighted Average
12.894	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.3	1,579	0.0300	0.75		Lag/CN Method,

Summary for Subcatchment 4.1S: Area-4.1

Runoff = 6.17 cfs @ 11.97 hrs, Volume= 0.340 af, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
1.641	98	Paved parking, HSG C
1.609	74	>75% Grass cover, Good, HSG C
0.000	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
3.250		Weighted Average
1.609	74	49.51% Pervious Area
1.641	98	50.49% Impervious Area

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Type II 24-hr 1-Year Rainfall=2.25"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 4.2S: Area-4.2

Runoff = 4.43 cfs @ 12.82 hrs, Volume= 1.067 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
0.257	98	Paved parking, HSG C
0.891	74	>75% Grass cover, Good, HSG C
34.707	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
35.855		Weighted Average
35.598	70	99.28% Pervious Area
0.257	98	0.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
64.9	2,943	0.0240	0.76		Lag/CN Method,

Summary for Subcatchment 5.1S: Area-5.1

Runoff = 5.61 cfs @ 11.97 hrs, Volume= 0.309 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
1.476	98	Paved parking, HSG C
1.524	74	>75% Grass cover, Good, HSG C
0.000	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
3.000		Weighted Average
1.524	74	50.80% Pervious Area
1.476	98	49.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

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Type II 24-hr 1-Year Rainfall=2.25"

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Summary for Subcatchment 6.1S: Area-6.1

Runoff = 3.09 cfs @ 12.13 hrs, Volume= 0.296 af, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
0.021	98	Paved parking, HSG C
0.438	74	>75% Grass cover, Good, HSG C
9.666	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
10.125		Weighted Average
10.104	70	99.79% Pervious Area
0.021	98	0.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	1,170	0.0790	1.14		Lag/CN Method,

Summary for Subcatchment 7.1S: Area-7.1

Runoff = 40.95 cfs @ 11.97 hrs, Volume= 2.254 af, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
10.197	98	Paved parking, HSG C
13.575	74	>75% Grass cover, Good, HSG C
0.000	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
23.772		Weighted Average
13.575	74	57.10% Pervious Area
10.197	98	42.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 7.2S: Area-7.2

Runoff = 0.88 cfs @ 12.40 hrs, Volume= 0.139 af, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

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Type II 24-hr 1-Year Rainfall=2.25"

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Area (ac)	CN	Description
0.127	98	Paved parking, HSG C
0.102	74	>75% Grass cover, Good, HSG C
3.972	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
4.201		Weighted Average
4.074	70	96.98% Pervious Area
0.127	98	3.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.2	2,188	0.0430	0.98		Lag/CN Method,

Summary for Subcatchment 7.3S: Area-7.3

Runoff = 1.15 cfs @ 12.22 hrs, Volume= 0.138 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
4.856	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
4.856		Weighted Average
4.856	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.5	1,188	0.0430	0.84		Lag/CN Method,

Summary for Subcatchment 8.1S: Area-8.1

Runoff = 1.31 cfs @ 11.91 hrs, Volume= 0.061 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
2.148	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
2.148		Weighted Average
2.148	70	100.00% Pervious Area

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Type II 24-hr 1-Year Rainfall=2.25"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 8.2S: Area-8.2

Runoff = 9.85 cfs @ 12.30 hrs, Volume= 1.278 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-Year Rainfall=2.25"

Area (ac)	CN	Description
2.242	98	Paved parking, HSG C
5.480	74	>75% Grass cover, Good, HSG C
24.022	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
31.744		Weighted Average
29.502	71	92.94% Pervious Area
2.242	98	7.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.9	2,517	0.0700	1.36		Lag/CN Method,

Summary for Reach DP-1: Design Point-1Inflow Area = 104.924 ac, 14.98% Impervious, Inflow Depth > 0.52" for 1-Year event
Inflow = 16.10 cfs @ 12.52 hrs, Volume= 4.572 af
Outflow = 16.10 cfs @ 12.52 hrs, Volume= 4.572 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Design Point-2Inflow Area = 4.088 ac, 0.00% Impervious, Inflow Depth = 0.34" for 1-Year event
Inflow = 1.07 cfs @ 12.18 hrs, Volume= 0.116 af
Outflow = 1.07 cfs @ 12.18 hrs, Volume= 0.116 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-3: Design Point-3Inflow Area = 20.885 ac, 17.80% Impervious, Inflow Depth > 0.25" for 1-Year event
Inflow = 2.29 cfs @ 12.40 hrs, Volume= 0.438 af
Outflow = 2.29 cfs @ 12.40 hrs, Volume= 0.438 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-4: Design Point-4

Inflow Area = 39.105 ac, 4.85% Impervious, Inflow Depth > 0.43" for 1-Year event
Inflow = 4.69 cfs @ 12.82 hrs, Volume= 1.403 af
Outflow = 4.69 cfs @ 12.82 hrs, Volume= 1.403 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-5: Design Point-5

Inflow Area = 3.000 ac, 49.20% Impervious, Inflow Depth > 1.23" for 1-Year event
Inflow = 0.27 cfs @ 13.27 hrs, Volume= 0.307 af
Outflow = 0.27 cfs @ 13.27 hrs, Volume= 0.307 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6: Design Point-6

Inflow Area = 10.125 ac, 0.21% Impervious, Inflow Depth = 0.35" for 1-Year event
Inflow = 3.09 cfs @ 12.13 hrs, Volume= 0.296 af
Outflow = 3.09 cfs @ 12.13 hrs, Volume= 0.296 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7: Design Point-7

Inflow Area = 32.829 ac, 31.45% Impervious, Inflow Depth > 0.58" for 1-Year event
Inflow = 2.29 cfs @ 12.28 hrs, Volume= 1.600 af
Outflow = 2.29 cfs @ 12.28 hrs, Volume= 1.600 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-8: Design Point-8

Inflow Area = 33.892 ac, 6.62% Impervious, Inflow Depth = 0.47" for 1-Year event
Inflow = 10.03 cfs @ 12.30 hrs, Volume= 1.339 af
Outflow = 10.03 cfs @ 12.30 hrs, Volume= 1.339 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 4P: P-5 Pond

Inflow Area = 3.250 ac, 50.49% Impervious, Inflow Depth = 1.26" for 1-Year event
Inflow = 6.17 cfs @ 11.97 hrs, Volume= 0.340 af
Outflow = 0.26 cfs @ 13.48 hrs, Volume= 0.336 af, Atten= 96%, Lag= 90.7 min
Primary = 0.26 cfs @ 13.48 hrs, Volume= 0.336 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

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Peak Elev= 391.34' @ 13.48 hrs Surf.Area= 7,285 sf Storage= 8,372 cf

Plug-Flow detention time= 416.5 min calculated for 0.336 af (99% of inflow)

Center-of-Mass det. time= 409.6 min (1,193.6 - 784.0)

Volume	Invert	Avail.Storage	Storage Description
#1	390.00'	45,438 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
390.00	5,200	0	0
395.00	12,975	45,438	45,438

Device	Routing	Invert	Outlet Devices
#1	Primary	390.00'	3.0" Vert. Orifice/Grate C= 0.600
#2	Primary	392.00'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.26 cfs @ 13.48 hrs HW=391.34' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.26 cfs @ 5.31 fps)

2=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond 5P: P-5 Pond

Inflow Area = 3.000 ac, 49.20% Impervious, Inflow Depth = 1.24" for 1-Year event
 Inflow = 5.61 cfs @ 11.97 hrs, Volume= 0.309 af
 Outflow = 0.27 cfs @ 13.27 hrs, Volume= 0.307 af, Atten= 95%, Lag= 77.8 min
 Primary = 0.27 cfs @ 13.27 hrs, Volume= 0.307 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 391.39' @ 13.27 hrs Surf.Area= 6,494 sf Storage= 7,268 cf

Plug-Flow detention time= 349.9 min calculated for 0.307 af (99% of inflow)

Center-of-Mass det. time= 346.5 min (1,131.5 - 785.0)

Volume	Invert	Avail.Storage	Storage Description
#1	390.00'	42,500 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
390.00	4,000	0	0
395.00	13,000	42,500	42,500

Device	Routing	Invert	Outlet Devices
#1	Primary	390.00'	3.0" Vert. Orifice/Grate C= 0.600
#2	Primary	392.00'	12.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.27 cfs @ 13.27 hrs HW=391.39' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.27 cfs @ 5.41 fps)

2=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond P1-1.1: P-1 Pond

Inflow Area = 21.236 ac, 48.50% Impervious, Inflow Depth = 1.22" for 1-Year event
 Inflow = 39.35 cfs @ 11.97 hrs, Volume= 2.167 af
 Outflow = 0.69 cfs @ 17.39 hrs, Volume= 1.525 af, Atten= 98%, Lag= 325.4 min
 Primary = 0.69 cfs @ 17.39 hrs, Volume= 1.525 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 389.87' @ 17.39 hrs Surf.Area= 18,838 sf Storage= 69,510 cf

Plug-Flow detention time= 927.6 min calculated for 1.523 af (70% of inflow)
 Center-of-Mass det. time= 824.3 min (1,609.9 - 785.6)

Volume	Invert	Avail.Storage	Storage Description
#1	385.00'	207,666 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
385.00	9,708	0	0
390.00	19,081	71,973	71,973
396.00	26,150	135,693	207,666

Device	Routing	Invert	Outlet Devices
#1	Primary	387.00'	4.0" Vert. Orifice/Grate C= 0.600
#2	Primary	390.50'	22.0" W x 12.0" H Vert. Orifice/Grate C= 0.600
#3	Primary	392.00'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.69 cfs @ 17.39 hrs HW=389.87' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.69 cfs @ 7.92 fps)
- 2=Orifice/Grate (Controls 0.00 cfs)
- 3=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond P1-3.1: P-1 Pond

Inflow Area = 7.991 ac, 46.53% Impervious, Inflow Depth = 1.19" for 1-Year event
 Inflow = 14.44 cfs @ 11.97 hrs, Volume= 0.795 af
 Outflow = 0.06 cfs @ 24.10 hrs, Volume= 0.070 af, Atten= 100%, Lag= 727.8 min
 Primary = 0.06 cfs @ 24.10 hrs, Volume= 0.070 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 422.20' @ 24.10 hrs Surf.Area= 17,813 sf Storage= 33,892 cf

Plug-Flow detention time= 1,354.9 min calculated for 0.070 af (9% of inflow)
 Center-of-Mass det. time= 1,016.3 min (1,803.5 - 787.2)

Volume	Invert	Avail.Storage	Storage Description
#1	420.00'	118,920 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
420.00	13,010	0	0
425.00	23,930	92,350	92,350
426.00	29,210	26,570	118,920

Device	Routing	Invert	Outlet Devices
#1	Primary	422.00'	3.0" Vert. Orifice/Grate C= 0.600
#2	Primary	424.00'	12.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.06 cfs @ 24.10 hrs HW=422.20' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.06 cfs @ 1.52 fps)

2=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond P1-7.1: P-1 Pond

Inflow Area = 23.772 ac, 42.90% Impervious, Inflow Depth = 1.14" for 1-Year event
 Inflow = 40.95 cfs @ 11.97 hrs, Volume= 2.254 af
 Outflow = 0.54 cfs @ 19.63 hrs, Volume= 1.323 af, Atten= 99%, Lag= 459.8 min
 Primary = 0.54 cfs @ 19.63 hrs, Volume= 1.323 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 357.80' @ 19.63 hrs Surf.Area= 31,597 sf Storage= 76,533 cf

Plug-Flow detention time= 1,025.3 min calculated for 1.323 af (59% of inflow)
 Center-of-Mass det. time= 904.0 min (1,694.4 - 790.4)

Volume	Invert	Avail.Storage	Storage Description
#1	355.00'	236,943 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
355.00	23,045	0	0
360.00	38,310	153,388	153,388
362.00	45,245	83,555	236,943

Device	Routing	Invert	Outlet Devices
#1	Primary	356.00'	4.0" Vert. Orifice/Grate C= 0.600
#2	Primary	357.80'	30.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.54 cfs @ 19.63 hrs HW=357.80' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.54 cfs @ 6.16 fps)

2=Orifice/Grate (Orifice Controls 0.00 cfs @ 0.11 fps)

Summary for Pond P5-1.4: P-5 Pond

Inflow Area = 4.736 ac, 30.17% Impervious, Inflow Depth = 0.89" for 1-Year event
 Inflow = 6.33 cfs @ 11.98 hrs, Volume= 0.352 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

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Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 400.44' @ 24.40 hrs Surf.Area= 35,644 sf Storage= 15,312 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	400.00'	266,015 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
400.00	34,160	0	0
405.00	51,070	213,075	213,075
406.00	54,810	52,940	266,015

Device	Routing	Invert	Outlet Devices
#1	Primary	401.00'	3.0" Vert. Orifice/Grate C= 0.600
#2	Primary	403.00'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=400.00' (Free Discharge)

- └1=Orifice/Grate (Controls 0.00 cfs)
- └2=Orifice/Grate (Controls 0.00 cfs)

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Type II 24-hr 10-Year Rainfall=4.00"

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Summary for Subcatchment 1.1S: Area-1.1

Runoff = 86.68 cfs @ 11.97 hrs, Volume= 4.686 af, Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
10.300	98	Paved parking, HSG C
10.936	74	>75% Grass cover, Good, HSG C
0.000	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
21.236		Weighted Average
10.936	74	51.50% Pervious Area
10.300	98	48.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 1.2S: Area-1.2

Runoff = 17.15 cfs @ 11.97 hrs, Volume= 0.872 af, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
0.832	98	Paved parking, HSG C
3.705	74	>75% Grass cover, Good, HSG C
1.068	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
5.605		Weighted Average
4.773	73	85.16% Pervious Area
0.832	98	14.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 1.3S: Area-1.3

Runoff = 6.66 cfs @ 11.98 hrs, Volume= 0.321 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

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Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
2.900	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
2.900		Weighted Average
2.900	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 1.4S: Area-1.4

Runoff = 16.05 cfs @ 11.97 hrs, Volume= 0.848 af, Depth= 2.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
1.429	98	Paved parking, HSG C
1.512	74	>75% Grass cover, Good, HSG C
1.795	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
4.736		Weighted Average
3.307	72	69.83% Pervious Area
1.429	98	30.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 1.5S: Area-1.5

Runoff = 19.42 cfs @ 12.59 hrs, Volume= 3.094 af, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
2.144	98	Paved parking, HSG C
3.107	74	>75% Grass cover, Good, HSG C
18.126	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
23.377		Weighted Average
21.233	71	90.83% Pervious Area
2.144	98	9.17% Impervious Area

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Type II 24-hr 10-Year Rainfall=4.00"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
55.4	3,265	0.0330	0.98		Lag/CN Method,

Summary for Subcatchment 1.6S: Area-1.6

Runoff = 43.32 cfs @ 12.44 hrs, Volume= 5.758 af, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
1.011	98	Paved parking, HSG C
15.164	74	>75% Grass cover, Good, HSG C
30.895	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
47.070		Weighted Average
46.059	71	97.85% Pervious Area
1.011	98	2.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.9	2,219	0.0300	0.84		Lag/CN Method,

Summary for Subcatchment 2.1S: Area-2.1

Runoff = 5.70 cfs @ 12.14 hrs, Volume= 0.453 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
4.088	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
4.088		Weighted Average
4.088	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2	1,024	0.0460	0.85		Lag/CN Method,

Summary for Subcatchment 3.1S: Area-3.1

Runoff = 32.18 cfs @ 11.97 hrs, Volume= 1.735 af, Depth= 2.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

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Type II 24-hr 10-Year Rainfall=4.00"

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Area (ac)	CN	Description
3.718	98	Paved parking, HSG C
4.273	74	>75% Grass cover, Good, HSG C
0.000	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
7.991		Weighted Average
4.273	74	53.47% Pervious Area
3.718	98	46.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 3.2S: Area-3.2

Runoff = 12.41 cfs @ 12.33 hrs, Volume= 1.429 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
12.894	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
12.894		Weighted Average
12.894	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.3	1,579	0.0300	0.75		Lag/CN Method,

Summary for Subcatchment 4.1S: Area-4.1

Runoff = 13.45 cfs @ 11.97 hrs, Volume= 0.729 af, Depth= 2.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
1.641	98	Paved parking, HSG C
1.609	74	>75% Grass cover, Good, HSG C
0.000	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
3.250		Weighted Average
1.609	74	49.51% Pervious Area
1.641	98	50.49% Impervious Area

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Type II 24-hr 10-Year Rainfall=4.00"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 4.2S: Area-4.2

Runoff = 22.59 cfs @ 12.74 hrs, Volume= 4.045 af, Depth= 1.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
0.257	98	Paved parking, HSG C
0.891	74	>75% Grass cover, Good, HSG C
34.707	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
35.855		Weighted Average
35.598	70	99.28% Pervious Area
0.257	98	0.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
64.9	2,943	0.0240	0.76		Lag/CN Method,

Summary for Subcatchment 5.1S: Area-5.1

Runoff = 12.30 cfs @ 11.97 hrs, Volume= 0.666 af, Depth= 2.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
1.476	98	Paved parking, HSG C
1.524	74	>75% Grass cover, Good, HSG C
0.000	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
3.000		Weighted Average
1.524	74	50.80% Pervious Area
1.476	98	49.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

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Type II 24-hr 10-Year Rainfall=4.00"

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Summary for Subcatchment 6.1S: Area-6.1

Runoff = 15.77 cfs @ 12.11 hrs, Volume= 1.136 af, Depth= 1.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
0.021	98	Paved parking, HSG C
0.438	74	>75% Grass cover, Good, HSG C
9.666	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
10.125		Weighted Average
10.104	70	99.79% Pervious Area
0.021	98	0.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	1,170	0.0790	1.14		Lag/CN Method,

Summary for Subcatchment 7.1S: Area-7.1

Runoff = 93.34 cfs @ 11.97 hrs, Volume= 5.005 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
10.197	98	Paved parking, HSG C
13.575	74	>75% Grass cover, Good, HSG C
0.000	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
23.772		Weighted Average
13.575	74	57.10% Pervious Area
10.197	98	42.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 7.2S: Area-7.2

Runoff = 4.13 cfs @ 12.35 hrs, Volume= 0.494 af, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

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Type II 24-hr 10-Year Rainfall=4.00"

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Area (ac)	CN	Description
0.127	98	Paved parking, HSG C
0.102	74	>75% Grass cover, Good, HSG C
3.972	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
4.201		Weighted Average
4.074	70	96.98% Pervious Area
0.127	98	3.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.2	2,188	0.0430	0.98		Lag/CN Method,

Summary for Subcatchment 7.3S: Area-7.3

Runoff = 6.14 cfs @ 12.18 hrs, Volume= 0.538 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
4.856	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
4.856		Weighted Average
4.856	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.5	1,188	0.0430	0.84		Lag/CN Method,

Summary for Subcatchment 8.1S: Area-8.1

Runoff = 5.89 cfs @ 11.90 hrs, Volume= 0.238 af, Depth= 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
2.148	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
2.148		Weighted Average
2.148	70	100.00% Pervious Area

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Type II 24-hr 10-Year Rainfall=4.00"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 8.2S: Area-8.2

Runoff = 38.98 cfs @ 12.27 hrs, Volume= 4.094 af, Depth= 1.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.00"

Area (ac)	CN	Description
2.242	98	Paved parking, HSG C
5.480	74	>75% Grass cover, Good, HSG C
24.022	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
31.744		Weighted Average
29.502	71	92.94% Pervious Area
2.242	98	7.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.9	2,517	0.0700	1.36		Lag/CN Method,

Summary for Reach DP-1: Design Point-1Inflow Area = 104.924 ac, 14.98% Impervious, Inflow Depth > 1.60" for 10-Year event
Inflow = 74.28 cfs @ 12.46 hrs, Volume= 13.948 af
Outflow = 74.28 cfs @ 12.46 hrs, Volume= 13.948 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Design Point-2Inflow Area = 4.088 ac, 0.00% Impervious, Inflow Depth = 1.33" for 10-Year event
Inflow = 5.70 cfs @ 12.14 hrs, Volume= 0.453 af
Outflow = 5.70 cfs @ 12.14 hrs, Volume= 0.453 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-3: Design Point-3Inflow Area = 20.885 ac, 17.80% Impervious, Inflow Depth > 1.25" for 10-Year event
Inflow = 12.62 cfs @ 12.33 hrs, Volume= 2.181 af
Outflow = 12.62 cfs @ 12.33 hrs, Volume= 2.181 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-4: Design Point-4

Inflow Area = 39.105 ac, 4.85% Impervious, Inflow Depth > 1.46" for 10-Year event
Inflow = 23.85 cfs @ 12.73 hrs, Volume= 4.768 af
Outflow = 23.85 cfs @ 12.73 hrs, Volume= 4.768 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-5: Design Point-5

Inflow Area = 3.000 ac, 49.20% Impervious, Inflow Depth > 2.65" for 10-Year event
Inflow = 1.17 cfs @ 12.45 hrs, Volume= 0.663 af
Outflow = 1.17 cfs @ 12.45 hrs, Volume= 0.663 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6: Design Point-6

Inflow Area = 10.125 ac, 0.21% Impervious, Inflow Depth = 1.35" for 10-Year event
Inflow = 15.77 cfs @ 12.11 hrs, Volume= 1.136 af
Outflow = 15.77 cfs @ 12.11 hrs, Volume= 1.136 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7: Design Point-7

Inflow Area = 32.829 ac, 31.45% Impervious, Inflow Depth > 1.85" for 10-Year event
Inflow = 20.91 cfs @ 12.24 hrs, Volume= 5.052 af
Outflow = 20.91 cfs @ 12.24 hrs, Volume= 5.052 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-8: Design Point-8

Inflow Area = 33.892 ac, 6.62% Impervious, Inflow Depth = 1.53" for 10-Year event
Inflow = 39.62 cfs @ 12.27 hrs, Volume= 4.332 af
Outflow = 39.62 cfs @ 12.27 hrs, Volume= 4.332 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 4P: P-5 Pond

Inflow Area = 3.250 ac, 50.49% Impervious, Inflow Depth = 2.69" for 10-Year event
Inflow = 13.45 cfs @ 11.97 hrs, Volume= 0.729 af
Outflow = 1.53 cfs @ 12.34 hrs, Volume= 0.723 af, Atten= 89%, Lag= 22.4 min
Primary = 1.53 cfs @ 12.34 hrs, Volume= 0.723 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

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Peak Elev= 392.32' @ 12.34 hrs Surf.Area= 8,812 sf Storage= 16,272 cf

Plug-Flow detention time= 433.9 min calculated for 0.722 af (99% of inflow)

Center-of-Mass det. time= 429.4 min (1,206.0 - 776.6)

Volume	Invert	Avail.Storage	Storage Description
#1	390.00'	45,438 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
390.00	5,200	0	0
395.00	12,975	45,438	45,438

Device	Routing	Invert	Outlet Devices
#1	Primary	390.00'	3.0" Vert. Orifice/Grate C= 0.600
#2	Primary	392.00'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.53 cfs @ 12.34 hrs HW=392.32' (Free Discharge)

└1=Orifice/Grate (Orifice Controls 0.35 cfs @ 7.14 fps)

└2=Orifice/Grate (Orifice Controls 1.18 cfs @ 1.82 fps)

Summary for Pond 5P: P-5 Pond

Inflow Area = 3.000 ac, 49.20% Impervious, Inflow Depth = 2.66" for 10-Year event

Inflow = 12.30 cfs @ 11.97 hrs, Volume= 0.666 af

Outflow = 1.17 cfs @ 12.45 hrs, Volume= 0.663 af, Atten= 90%, Lag= 28.7 min

Primary = 1.17 cfs @ 12.45 hrs, Volume= 0.663 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 392.40' @ 12.45 hrs Surf.Area= 8,323 sf Storage= 14,796 cf

Plug-Flow detention time= 382.6 min calculated for 0.663 af (100% of inflow)

Center-of-Mass det. time= 379.7 min (1,157.4 - 777.7)

Volume	Invert	Avail.Storage	Storage Description
#1	390.00'	42,500 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
390.00	4,000	0	0
395.00	13,000	42,500	42,500

Device	Routing	Invert	Outlet Devices
#1	Primary	390.00'	3.0" Vert. Orifice/Grate C= 0.600
#2	Primary	392.00'	12.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.17 cfs @ 12.45 hrs HW=392.40' (Free Discharge)

└1=Orifice/Grate (Orifice Controls 0.36 cfs @ 7.26 fps)

└2=Orifice/Grate (Orifice Controls 0.82 cfs @ 2.03 fps)

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Summary for Pond P1-1.1: P-1 Pond

Inflow Area = 21.236 ac, 48.50% Impervious, Inflow Depth = 2.65" for 10-Year event
 Inflow = 86.68 cfs @ 11.97 hrs, Volume= 4.686 af
 Outflow = 10.53 cfs @ 12.30 hrs, Volume= 3.898 af, Atten= 88%, Lag= 20.1 min
 Primary = 10.53 cfs @ 12.30 hrs, Volume= 3.898 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 392.13' @ 12.30 hrs Surf.Area= 21,586 sf Storage= 115,209 cf

Plug-Flow detention time= 545.4 min calculated for 3.894 af (83% of inflow)
 Center-of-Mass det. time= 470.7 min (1,249.0 - 778.3)

Volume	Invert	Avail.Storage	Storage Description
#1	385.00'	207,666 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
385.00	9,708	0	0
390.00	19,081	71,973	71,973
396.00	26,150	135,693	207,666

Device	Routing	Invert	Outlet Devices
#1	Primary	387.00'	4.0" Vert. Orifice/Grate C= 0.600
#2	Primary	390.50'	22.0" W x 12.0" H Vert. Orifice/Grate C= 0.600
#3	Primary	392.00'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=10.51 cfs @ 12.30 hrs HW=392.13' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.94 cfs @ 10.72 fps)
 2=Orifice/Grate (Orifice Controls 9.29 cfs @ 5.07 fps)
 3=Orifice/Grate (Orifice Controls 0.29 cfs @ 1.14 fps)

Summary for Pond P1-3.1: P-1 Pond

Inflow Area = 7.991 ac, 46.53% Impervious, Inflow Depth = 2.61" for 10-Year event
 Inflow = 32.18 cfs @ 11.97 hrs, Volume= 1.735 af
 Outflow = 0.30 cfs @ 23.99 hrs, Volume= 0.752 af, Atten= 99%, Lag= 721.3 min
 Primary = 0.30 cfs @ 23.99 hrs, Volume= 0.752 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 423.71' @ 23.99 hrs Surf.Area= 21,119 sf Storage= 63,359 cf

Plug-Flow detention time= 1,087.2 min calculated for 0.752 af (43% of inflow)
 Center-of-Mass det. time= 948.1 min (1,728.1 - 780.0)

Volume	Invert	Avail.Storage	Storage Description
#1	420.00'	118,920 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
420.00	13,010	0	0
425.00	23,930	92,350	92,350
426.00	29,210	26,570	118,920

Device	Routing	Invert	Outlet Devices
#1	Primary	422.00'	3.0" Vert. Orifice/Grate C= 0.600
#2	Primary	424.00'	12.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.30 cfs @ 23.99 hrs HW=423.71' (Free Discharge)

- └─1=Orifice/Grate (Orifice Controls 0.30 cfs @ 6.07 fps)

- └─2=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond P1-7.1: P-1 Pond

Inflow Area = 23.772 ac, 42.90% Impervious, Inflow Depth = 2.53" for 10-Year event
 Inflow = 93.34 cfs @ 11.97 hrs, Volume= 5.005 af
 Outflow = 11.45 cfs @ 12.30 hrs, Volume= 4.020 af, Atten= 88%, Lag= 20.1 min
 Primary = 11.45 cfs @ 12.30 hrs, Volume= 4.020 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 359.12' @ 12.30 hrs Surf.Area= 35,627 sf Storage= 120,894 cf

Plug-Flow detention time= 473.0 min calculated for 4.020 af (80% of inflow)
 Center-of-Mass det. time= 388.9 min (1,172.1 - 783.2)

Volume	Invert	Avail.Storage	Storage Description
#1	355.00'	236,943 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
355.00	23,045	0	0
360.00	38,310	153,388	153,388
362.00	45,245	83,555	236,943

Device	Routing	Invert	Outlet Devices
#1	Primary	356.00'	4.0" Vert. Orifice/Grate C= 0.600
#2	Primary	357.80'	30.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=11.45 cfs @ 12.30 hrs HW=359.12' (Free Discharge)

- └─1=Orifice/Grate (Orifice Controls 0.72 cfs @ 8.28 fps)

- └─2=Orifice/Grate (Orifice Controls 10.72 cfs @ 4.29 fps)

Summary for Pond P5-1.4: P-5 Pond

Inflow Area = 4.736 ac, 30.17% Impervious, Inflow Depth = 2.15" for 10-Year event
 Inflow = 16.05 cfs @ 11.97 hrs, Volume= 0.848 af
 Outflow = 0.00 cfs @ 24.23 hrs, Volume= 0.004 af, Atten= 100%, Lag= 735.9 min
 Primary = 0.00 cfs @ 24.23 hrs, Volume= 0.004 af

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Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 401.03' @ 24.23 hrs Surf.Area= 37,641 sf Storage= 36,948 cf

Plug-Flow detention time= 1,935.3 min calculated for 0.004 af (1% of inflow)
 Center-of-Mass det. time= 1,291.3 min (2,088.0 - 796.7)

Volume	Invert	Avail.Storage	Storage Description
#1	400.00'	266,015 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
400.00	34,160	0	0
405.00	51,070	213,075	213,075
406.00	54,810	52,940	266,015

Device	Routing	Invert	Outlet Devices
#1	Primary	401.00'	3.0" Vert. Orifice/Grate C= 0.600
#2	Primary	403.00'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.00 cfs @ 24.23 hrs HW=401.03' (Free Discharge)

↑ 1=Orifice/Grate (Orifice Controls 0.00 cfs @ 0.58 fps)

└ 2=Orifice/Grate (Controls 0.00 cfs)

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Type II 24-hr 100-Year Rainfall=6.60"

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Summary for Subcatchment 1.1S: Area-1.1

Runoff = 163.28 cfs @ 11.97 hrs, Volume= 8.828 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
10.300	98	Paved parking, HSG C
10.936	74	>75% Grass cover, Good, HSG C
0.000	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
21.236		Weighted Average
10.936	74	51.50% Pervious Area
10.300	98	48.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 1.2S: Area-1.2

Runoff = 37.06 cfs @ 11.97 hrs, Volume= 1.875 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.832	98	Paved parking, HSG C
3.705	74	>75% Grass cover, Good, HSG C
1.068	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
5.605		Weighted Average
4.773	73	85.16% Pervious Area
0.832	98	14.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 1.3S: Area-1.3

Runoff = 16.42 cfs @ 11.97 hrs, Volume= 0.795 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

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Type II 24-hr 100-Year Rainfall=6.60"

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Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
2.900	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
2.900		Weighted Average
2.900	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 1.4S: Area-1.4

Runoff = 32.76 cfs @ 11.97 hrs, Volume= 1.715 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
1.429	98	Paved parking, HSG C
1.512	74	>75% Grass cover, Good, HSG C
1.795	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
4.736		Weighted Average
3.307	72	69.83% Pervious Area
1.429	98	30.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 1.5S: Area-1.5

Runoff = 46.74 cfs @ 12.57 hrs, Volume= 7.061 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
2.144	98	Paved parking, HSG C
3.107	74	>75% Grass cover, Good, HSG C
18.126	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
23.377		Weighted Average
21.233	71	90.83% Pervious Area
2.144	98	9.17% Impervious Area

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Type II 24-hr 100-Year Rainfall=6.60"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
55.4	3,265	0.0330	0.98		Lag/CN Method,

Summary for Subcatchment 1.6S: Area-1.6

Runoff = 108.53 cfs @ 12.42 hrs, Volume= 13.673 af, Depth= 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
1.011	98	Paved parking, HSG C
15.164	74	>75% Grass cover, Good, HSG C
30.895	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
47.070		Weighted Average
46.059	71	97.85% Pervious Area
1.011	98	2.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.9	2,219	0.0300	0.84		Lag/CN Method,

Summary for Subcatchment 2.1S: Area-2.1

Runoff = 14.75 cfs @ 12.13 hrs, Volume= 1.120 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
4.088	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
4.088		Weighted Average
4.088	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.2	1,024	0.0460	0.85		Lag/CN Method,

Summary for Subcatchment 3.1S: Area-3.1

Runoff = 60.99 cfs @ 11.97 hrs, Volume= 3.287 af, Depth= 4.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

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Type II 24-hr 100-Year Rainfall=6.60"

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Area (ac)	CN	Description
3.718	98	Paved parking, HSG C
4.273	74	>75% Grass cover, Good, HSG C
0.000	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
7.991		Weighted Average
4.273	74	53.47% Pervious Area
3.718	98	46.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 3.2S: Area-3.2

Runoff = 32.71 cfs @ 12.31 hrs, Volume= 3.534 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
12.894	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
12.894		Weighted Average
12.894	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.3	1,579	0.0300	0.75		Lag/CN Method,

Summary for Subcatchment 4.1S: Area-4.1

Runoff = 25.17 cfs @ 11.97 hrs, Volume= 1.365 af, Depth= 5.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
1.641	98	Paved parking, HSG C
1.609	74	>75% Grass cover, Good, HSG C
0.000	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
3.250		Weighted Average
1.609	74	49.51% Pervious Area
1.641	98	50.49% Impervious Area

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Type II 24-hr 100-Year Rainfall=6.60"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 4.2S: Area-4.2

Runoff = 59.25 cfs @ 12.70 hrs, Volume= 9.922 af, Depth= 3.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.257	98	Paved parking, HSG C
0.891	74	>75% Grass cover, Good, HSG C
34.707	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
35.855		Weighted Average
35.598	70	99.28% Pervious Area
0.257	98	0.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
64.9	2,943	0.0240	0.76		Lag/CN Method,

Summary for Subcatchment 5.1S: Area-5.1

Runoff = 23.13 cfs @ 11.97 hrs, Volume= 1.252 af, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
1.476	98	Paved parking, HSG C
1.524	74	>75% Grass cover, Good, HSG C
0.000	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
3.000		Weighted Average
1.524	74	50.80% Pervious Area
1.476	98	49.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

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Type II 24-hr 100-Year Rainfall=6.60"

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Summary for Subcatchment 6.1S: Area-6.1

Runoff = 40.33 cfs @ 12.10 hrs, Volume= 2.795 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.021	98	Paved parking, HSG C
0.438	74	>75% Grass cover, Good, HSG C
9.666	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
10.125		Weighted Average
10.104	70	99.79% Pervious Area
0.021	98	0.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	1,170	0.0790	1.14		Lag/CN Method,

Summary for Subcatchment 7.1S: Area-7.1

Runoff = 179.00 cfs @ 11.97 hrs, Volume= 9.586 af, Depth= 4.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
10.197	98	Paved parking, HSG C
13.575	74	>75% Grass cover, Good, HSG C
0.000	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
23.772		Weighted Average
13.575	74	57.10% Pervious Area
10.197	98	42.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 7.2S: Area-7.2

Runoff = 10.54 cfs @ 12.34 hrs, Volume= 1.187 af, Depth= 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

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Area (ac)	CN	Description
0.127	98	Paved parking, HSG C
0.102	74	>75% Grass cover, Good, HSG C
3.972	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
4.201		Weighted Average
4.074	70	96.98% Pervious Area
0.127	98	3.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.2	2,188	0.0430	0.98		Lag/CN Method,

Summary for Subcatchment 7.3S: Area-7.3

Runoff = 16.04 cfs @ 12.17 hrs, Volume= 1.331 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
4.856	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
4.856		Weighted Average
4.856	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.5	1,188	0.0430	0.84		Lag/CN Method,

Summary for Subcatchment 8.1S: Area-8.1

Runoff = 14.46 cfs @ 11.89 hrs, Volume= 0.589 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG C
0.000	74	>75% Grass cover, Good, HSG C
2.148	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
2.148		Weighted Average
2.148	70	100.00% Pervious Area

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Type II 24-hr 100-Year Rainfall=6.60"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					Direct Entry, TR-55 6 min. minimum

Summary for Subcatchment 8.2S: Area-8.2

Runoff = 94.54 cfs @ 12.26 hrs, Volume= 9.459 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
2.242	98	Paved parking, HSG C
5.480	74	>75% Grass cover, Good, HSG C
24.022	70	Woods, Good, HSG C
0.000	71	Meadow, non-grazed, HSG C
31.744		Weighted Average
29.502	71	92.94% Pervious Area
2.242	98	7.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.9	2,517	0.0700	1.36		Lag/CN Method,

Summary for Reach DP-1: Design Point-1Inflow Area = 104.924 ac, 14.98% Impervious, Inflow Depth > 3.65" for 100-Year event
Inflow = 191.46 cfs @ 12.44 hrs, Volume= 31.915 af
Outflow = 191.46 cfs @ 12.44 hrs, Volume= 31.915 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Design Point-2Inflow Area = 4.088 ac, 0.00% Impervious, Inflow Depth = 3.29" for 100-Year event
Inflow = 14.75 cfs @ 12.13 hrs, Volume= 1.120 af
Outflow = 14.75 cfs @ 12.13 hrs, Volume= 1.120 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-3: Design Point-3Inflow Area = 20.885 ac, 17.80% Impervious, Inflow Depth > 3.27" for 100-Year event
Inflow = 35.65 cfs @ 12.32 hrs, Volume= 5.699 af
Outflow = 35.65 cfs @ 12.32 hrs, Volume= 5.699 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-4: Design Point-4

Inflow Area = 39.105 ac, 4.85% Impervious, Inflow Depth > 3.46" for 100-Year event
Inflow = 62.82 cfs @ 12.67 hrs, Volume= 11.280 af
Outflow = 62.82 cfs @ 12.67 hrs, Volume= 11.280 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-5: Design Point-5

Inflow Area = 3.000 ac, 49.20% Impervious, Inflow Depth > 4.99" for 100-Year event
Inflow = 5.26 cfs @ 12.13 hrs, Volume= 1.248 af
Outflow = 5.26 cfs @ 12.13 hrs, Volume= 1.248 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-6: Design Point-6

Inflow Area = 10.125 ac, 0.21% Impervious, Inflow Depth = 3.31" for 100-Year event
Inflow = 40.33 cfs @ 12.10 hrs, Volume= 2.795 af
Outflow = 40.33 cfs @ 12.10 hrs, Volume= 2.795 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-7: Design Point-7

Inflow Area = 32.829 ac, 31.45% Impervious, Inflow Depth > 4.06" for 100-Year event
Inflow = 48.02 cfs @ 12.22 hrs, Volume= 11.096 af
Outflow = 48.02 cfs @ 12.22 hrs, Volume= 11.096 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-8: Design Point-8

Inflow Area = 33.892 ac, 6.62% Impervious, Inflow Depth = 3.56" for 100-Year event
Inflow = 96.01 cfs @ 12.26 hrs, Volume= 10.048 af
Outflow = 96.01 cfs @ 12.26 hrs, Volume= 10.048 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 4P: P-5 Pond

Inflow Area = 3.250 ac, 50.49% Impervious, Inflow Depth = 5.04" for 100-Year event
Inflow = 25.17 cfs @ 11.97 hrs, Volume= 1.365 af
Outflow = 9.16 cfs @ 12.10 hrs, Volume= 1.358 af, Atten= 64%, Lag= 7.8 min
Primary = 9.16 cfs @ 12.10 hrs, Volume= 1.358 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

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Peak Elev= 393.35' @ 12.10 hrs Surf.Area= 10,407 sf Storage= 26,129 cf

Plug-Flow detention time= 291.0 min calculated for 1.356 af (99% of inflow)

Center-of-Mass det. time= 288.4 min (1,057.7 - 769.3)

Volume	Invert	Avail.Storage	Storage Description
#1	390.00'	45,438 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
390.00	5,200	0	0
395.00	12,975	45,438	45,438

Device	Routing	Invert	Outlet Devices
#1	Primary	390.00'	3.0" Vert. Orifice/Grate C= 0.600
#2	Primary	392.00'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=9.14 cfs @ 12.10 hrs HW=393.34' (Free Discharge)

└─1=Orifice/Grate (Orifice Controls 0.42 cfs @ 8.64 fps)

└─2=Orifice/Grate (Orifice Controls 8.71 cfs @ 4.36 fps)

Summary for Pond 5P: P-5 Pond

Inflow Area = 3.000 ac, 49.20% Impervious, Inflow Depth = 5.01" for 100-Year event

Inflow = 23.13 cfs @ 11.97 hrs, Volume= 1.252 af

Outflow = 5.26 cfs @ 12.13 hrs, Volume= 1.248 af, Atten= 77%, Lag= 10.1 min

Primary = 5.26 cfs @ 12.13 hrs, Volume= 1.248 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 393.53' @ 12.13 hrs Surf.Area= 10,346 sf Storage= 25,289 cf

Plug-Flow detention time= 267.5 min calculated for 1.247 af (100% of inflow)

Center-of-Mass det. time= 266.6 min (1,036.8 - 770.3)

Volume	Invert	Avail.Storage	Storage Description
#1	390.00'	42,500 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
390.00	4,000	0	0
395.00	13,000	42,500	42,500

Device	Routing	Invert	Outlet Devices
#1	Primary	390.00'	3.0" Vert. Orifice/Grate C= 0.600
#2	Primary	392.00'	12.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=5.25 cfs @ 12.13 hrs HW=393.52' (Free Discharge)

└─1=Orifice/Grate (Orifice Controls 0.44 cfs @ 8.87 fps)

└─2=Orifice/Grate (Orifice Controls 4.82 cfs @ 4.82 fps)

Summary for Pond P1-1.1: P-1 Pond

Inflow Area = 21.236 ac, 48.50% Impervious, Inflow Depth = 4.99" for 100-Year event
 Inflow = 163.28 cfs @ 11.97 hrs, Volume= 8.828 af
 Outflow = 36.87 cfs @ 12.14 hrs, Volume= 8.015 af, Atten= 77%, Lag= 10.2 min
 Primary = 36.87 cfs @ 12.14 hrs, Volume= 8.015 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 395.56' @ 12.14 hrs Surf.Area= 25,629 sf Storage= 196,211 cf

Plug-Flow detention time= 321.7 min calculated for 8.015 af (91% of inflow)
 Center-of-Mass det. time= 272.4 min (1,043.2 - 770.8)

Volume	Invert	Avail.Storage	Storage Description
#1	385.00'	207,666 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
385.00	9,708	0	0
390.00	19,081	71,973	71,973
396.00	26,150	135,693	207,666

Device	Routing	Invert	Outlet Devices
#1	Primary	387.00'	4.0" Vert. Orifice/Grate C= 0.600
#2	Primary	390.50'	22.0" W x 12.0" H Vert. Orifice/Grate C= 0.600
#3	Primary	392.00'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=36.83 cfs @ 12.14 hrs HW=395.55' (Free Discharge)
 1=Orifice/Grate (Orifice Controls 1.22 cfs @ 13.94 fps)
 2=Orifice/Grate (Orifice Controls 18.82 cfs @ 10.26 fps)
 3=Orifice/Grate (Orifice Controls 16.80 cfs @ 8.40 fps)

Summary for Pond P1-3.1: P-1 Pond

Inflow Area = 7.991 ac, 46.53% Impervious, Inflow Depth = 4.94" for 100-Year event
 Inflow = 60.99 cfs @ 11.97 hrs, Volume= 3.287 af
 Outflow = 3.47 cfs @ 12.86 hrs, Volume= 2.166 af, Atten= 94%, Lag= 53.5 min
 Primary = 3.47 cfs @ 12.86 hrs, Volume= 2.166 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 424.97' @ 12.86 hrs Surf.Area= 23,866 sf Storage= 91,652 cf

Plug-Flow detention time= 604.4 min calculated for 2.163 af (66% of inflow)
 Center-of-Mass det. time= 499.5 min (1,271.9 - 772.3)

Volume	Invert	Avail.Storage	Storage Description
#1	420.00'	118,920 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
420.00	13,010	0	0
425.00	23,930	92,350	92,350
426.00	29,210	26,570	118,920

Device	Routing	Invert	Outlet Devices
#1	Primary	422.00'	3.0" Vert. Orifice/Grate C= 0.600
#2	Primary	424.00'	12.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=3.47 cfs @ 12.86 hrs HW=424.97' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.40 cfs @ 8.12 fps)

2=Orifice/Grate (Orifice Controls 3.07 cfs @ 3.16 fps)

Summary for Pond P1-7.1: P-1 Pond

Inflow Area = 23.772 ac, 42.90% Impervious, Inflow Depth = 4.84" for 100-Year event
 Inflow = 179.00 cfs @ 11.97 hrs, Volume= 9.586 af
 Outflow = 23.29 cfs @ 12.25 hrs, Volume= 8.578 af, Atten= 87%, Lag= 17.3 min
 Primary = 23.29 cfs @ 12.25 hrs, Volume= 8.578 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 361.74' @ 12.25 hrs Surf.Area= 44,332 sf Storage= 225,152 cf

Plug-Flow detention time= 301.3 min calculated for 8.578 af (89% of inflow)
 Center-of-Mass det. time= 246.8 min (1,022.1 - 775.3)

Volume	Invert	Avail.Storage	Storage Description
#1	355.00'	236,943 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
355.00	23,045	0	0
360.00	38,310	153,388	153,388
362.00	45,245	83,555	236,943

Device	Routing	Invert	Outlet Devices
#1	Primary	356.00'	4.0" Vert. Orifice/Grate C= 0.600
#2	Primary	357.80'	30.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=23.29 cfs @ 12.25 hrs HW=361.74' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.99 cfs @ 11.36 fps)

2=Orifice/Grate (Orifice Controls 22.29 cfs @ 8.92 fps)

Summary for Pond P5-1.4: P-5 Pond

Inflow Area = 4.736 ac, 30.17% Impervious, Inflow Depth = 4.35" for 100-Year event
 Inflow = 32.76 cfs @ 11.97 hrs, Volume= 1.715 af
 Outflow = 0.20 cfs @ 24.07 hrs, Volume= 0.497 af, Atten= 99%, Lag= 726.2 min
 Primary = 0.20 cfs @ 24.07 hrs, Volume= 0.497 af

17013_Proposed

Type II 24-hr 100-Year Rainfall=6.60"

Prepared by {enter your company name here}

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Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 401.81' @ 24.07 hrs Surf.Area= 40,274 sf Storage= 67,286 cf

Plug-Flow detention time= 1,151.8 min calculated for 0.496 af (29% of inflow)
Center-of-Mass det. time= 987.3 min (1,775.2 - 787.9)

Volume	Invert	Avail.Storage	Storage Description
#1	400.00'	266,015 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
400.00	34,160	0	0
405.00	51,070	213,075	213,075
406.00	54,810	52,940	266,015

Device	Routing	Invert	Outlet Devices
#1	Primary	401.00'	3.0" Vert. Orifice/Grate C= 0.600
#2	Primary	403.00'	24.0" W x 12.0" H Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=0.20 cfs @ 24.07 hrs HW=401.81' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.20 cfs @ 3.98 fps)
- 2=Orifice/Grate (Controls 0.00 cfs)

EXHIBIT D

NYSDEC STORMWATER CALCULATIONS

Project Summary

Total Watershed Summary	Existing Conditions	Proposed Conditions	
Total Watershed Area =	248.761	248.848	ac
Total Impervious Area =	5.238	35.395	ac

Total Project Areas - Proposed Conditions	HSG				Total	
	A	B	C	D		
New Impervious Area	0.000	0.000	30.140	0.000	30.140	ac
Existing/Disturbed Impervious Area	0.000	0.000	5.255	0.000	5.255	ac
Pervious Area	0.000	0.000	213.453	0.000	213.453	ac
Total	0.000	0.000	248.848	0.000	248.848	ac
	0	0	1	0		

NYSDEC Design Criteria Required

WQv = [(P)(Rv)(A)]/12			RRv _{MIN} = [(P)(Rv*)(A _i)]/12		
P =	1.15	in	P =	1.15	in
Impervious Area =	30.140	ac	Rv* =	0.950	
Total Area =	248.848	ac	A _i =	8.851	ac
Imperviousness =	12.1	%	S _{RRv} =	0.294	
Rv =	0.16		A _{ic} =	30.14	ac
WQv Required =	166,225	cf	Min RRv Required =	35,109	cf
	3.816	ac-ft		0.806	ac-ft

NYSDEC Design Criteria Summary

	Required	
Total WQv =	3.816	ac-ft
Total Min. RRv =	0.806	ac-ft

Green Infrastructure Summary

	Impervious Reduced	Total Area Reduced	Impervious Remaining	Total Area Remaining	WQv Remaining	RRv Provided
	ac	ac	ac	ac-ft	ac-ft	ac-ft
Total Area of Conservation	1.837	121.100	28.303	127.748	3.061	0.755
Disconnection of Rooftop Runoff	1.011	1.011	27.292	126.737	2.915	0.146
Infiltration Basin						

RRv Provided = 0.901 ac-ft

Stormwater Management Practices Summary

WQv Provided in Ponds = 4.152 ac-ft

	Required	Provided	
Total WQv =	3.816	4.152	ac-ft
Total Min. RRv =	0.806		ac-ft
Total RRv =		0.901	ac-ft
Total WQv + RRv =		5.053	ac-ft
Total CPv =	2.822	2.822	ac-ft
1-Year Peak Rate (CPv) =	N/A	N/A	cfs
10-Year Peak Rate (Qp) =	219.74	193.92	cfs
100-Year Peak Rate (Qf) =	560.35	494.30	cfs