PROJECT NARRATIVE

Property Description

The subject parcel of land is known as Lease Area DZ-4 which is a 0.92-acre leased parcel located at the Concord Municipal Airport (MBL 633/Z3). The overall tract (the Airport) is a 550-acre parcel located on the Heights in Concord. The subject parcel is located in the northern quadrant of the Airport and is accessed via a paved drive extending south from Regional Drive. The subject parcel is adjacent to an abandoned runway which is currently utilized as a taxiway. It is also adjacent to two existing private aircraft hangars.

Project Description

The proposed improvements include the construction of a new 11,550-sf aircraft hangar. Related site improvements include limited paved access and parking, extension of private utility services, lighting, and a stormwater drainage system.

Zoning:
The subject parcel is located within the IND (Industrial) Zoning District and the proposed development is subject to the general dimension requirements of the Zoning Ordinance. However, the subject parcel is a leased portion of a larger tract, the typical lot sizing and yard setback requirements do not apply.

Planning Board:
The project will require Planning Board approval of a Major Site Plan Application.

NHDES Permits:
The are no NHDES permits that are required for this project.

FAA Permits:
The project will require approval from the FAA, which is a process coordinated through the NHDOT.

NORTHPOINT ENGINEERING, LLC
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Conditional Use Permit Application
Hampshire Aviation Concord Hangar
Part of MBL 633DZ/4 (Lease Area DZ-4)
Regional Drive, Concord, New Hampshire
February 19, 2025

Proposal Outline:

The subject parcel of land is known as Lease Area DZ-4 which is a 0.92-acre leased parcel located at the Concord Municipal Airport (MBL 633/Z3). The overall tract (the Airport) is a 550-acre parcel located on the Heights in Concord. The subject parcel is located in the northern quadrant of the Airport and is accessed via a cross-access easement agreement with a property located at 18 Chenell Drive. The subject parcel is adjacent to an abandoned runway which is currently utilized as a taxiway. It is also adjacent to two existing private aircraft hangars.

The proposed improvements include construction o f a new 11550-sf 10-bay private aircraft hangar. Related site improvements include limited paved access and parking areas, lighting, and a closed drainage system, including subsurface infiltration basins.

Access will be provided via a paved drive and easement through the adjacent parcel to the east which then connects Chenell Drive. The existing width of the lease area intended for the driveway is only 30 feet wide because of this the proposed paved width of the driveway into the subject site is 18-feet. The reduced driveway width allows for greater flexibility in site grading and proper slopes for drainage while still allowing for two-way traffic. The subject parcel is expected to have very minimal traffic on a regular basis.

The Concord Zoning Ordinance requires a minimum 24-foot width for two-way access drives. However, Section 28-7-11(g) allows the Planning Board to permit, via a conditional use permit, a reduction in the minimum width of driveways where the total traffic will be less than 35 vehicle trip ends on a weekday. Accordingly, this Conditional Use Permit application is requesting that the Planning Board allow a reduction in the minimum required width of the two-way access drive from 24-feet to 18-feet.

Standards of Review for Condition Use Permit – Z.O. Article 28-9-4(b)(4)

In submitting this application for a Conditional Use Permit, the applicant recognizes the need to successfully demonstrate, to the satisfaction of the City of Concord Planning Board, that each of following standards have been or will be fulfilled upon completion of the subject work. Specifically:

a. *The use is specifically authorized in this ordinance as a conditional use;*

Airports are an allowed use within the IND district according to the Table of Principal Uses in the Zoning Ordinance. An aircraft hangar is an integral part of an airport.

b. *If completed as proposed by the applicant, the development in its proposed location will comply with all requirements of this Article, and with the specific conditions or standards established in this ordinance for the particular use;*

The proposed development will be in compliance with all aspects of this Article. There are no other specific conditions or standards established in the ordinance for the particular use. The proposed driveway will meet all requirements of the Ordinance and Site Plan Regulations.

c. *The use will not materially endanger the public health or safety;*

There is no reason to believe that the health or safety of the general public will be adversely affected by the proposed driveway width.

d. *The use will be compatible with the neighborhood and with adjoining or abutting uses in the area in which it is to be located;*

The proposed use, as it relates to the CUP, will have no impact on the neighborhood or adjoining uses in the area.

e. *The use will not have an adverse effect on highway or pedestrian safety;*

The proposed use, as it relates to the CUP, will have no impact on highway or pedestrian safety in the area.

f. *The use will not have an adverse effect on the natural, environmental, and historic resources of the City;*

The proposed use, as it relates to the CUP, will not have any adverse effect on the natural, environmental, and historic resources of the City.

g. *The use will be adequately serviced by necessary public utilities and by community facilities and services of a sufficient capacity to ensure the proper operation of the proposed use, and will not necessitate excessive public expenditures to provide facilities and services with sufficient additional capacity.*

The proposed use will be fully serviced by necessary public utilities and will not necessitate any public expenditures.

FILE: G:_PROJECTS\24063\dwg\24063_EXHIBITS_REV.dwg BY: ian DATE: 18 Feb 2025 - 12:10pm

PHOTO LOG KEY

PREPARED FOR:

HAMPSHIRE AVIATION - CONCORD HANGAR
PART OF 633Z / 3 (LEASE AREA DZ-4)
CONCORD, NH

NORTHPOINT ENGINEERING, LLC
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Fax 603-226-1160
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SCALE: 1"=100'	**DATE: FEB. 2025**
PROJ.: 24063	**SHEET: 1 OF 1**

Picture 1: View of subject parcel looking south from western boundary

Picture 2: View of subject parcel looking east from western boundary

Picture 3: View of subject parcel looking north from western boundary

Picture 4: View of subject parcel looking south from eastern boundary

Picture 5: View of subject parcel looking west from eastern boundary

Picture 6: View of subject parcel looking north from eastern boundary

Picture 7: VIew of access gate looking west from eastern abutting property

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Planning Division

Waiver Request Form – Site Plan Regulations

Instructions:

1. List the section for which the waiver is being requested, along with a brief explanation of the request.
2. Explain how the waiver request complies with each criterion.

Section 36.08 *Waivers: Where the Planning Board finds that extraordinary hardships or practical difficulties may result from strict compliance with these regulations and/or the purposes of these regulations may be served to a greater extent by an alternative proposal, it may approve waivers to these subdivision regulations so that substantial justice may be done and the public interest secured, provided that such waiver shall not have the effect of nullifying the intent and purpose of these regulations…*

Waiver from Section Section 6.03(2)(c) & 11.05 - Determination of Completeness

A waiver to allow the major site plan application to be publicly heard at the same meeting in which the determination of completeness occurs.

and further provided the Planning Board shall not approve waivers unless it shall make findings based upon the evidence presented to it in each specific case that:

(1) The granting of the waiver will not be detrimental to the public safety, health, or welfare or injurious to other property; because this is a project disturbing less than one acre of land in an in an industrial zone with in a parent property that contains the City of Concord Municipal airport.

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planning@concordnh.gov

(2) *The conditions upon which the request for a waiver is based are unique to the property for which the waiver is sought and are not applicable generally to other property;* The subject parcel is a designated developmental parcel within the Concord Airport property. This parcel has been set aside from other property within the airport specifically for development of airport related uses, of witch the proposed project is such.

(3) *Because of the particular physical surroundings, shape, or topographical conditions of the specific property involved, a particular and unnecessary hardship to the owner would result, as distinguished from a mere inconvenience, if the strict letter of these regulations are carried out;* If the letter of the law were to be carried out an unnecessary delay in permitting would result despite this property being contained within a parent parcel set aside for the specific development of airport related uses.

(4) *Specific circumstances relative to the subdivision or conditions of the land in such subdivision indicate that the waiver will property carry out, or not be contrary to, the spirit and intent of the regulations; and* Allowing the waiver is not be contrary to the spirit and intent of the regulation because the the size of the project and isolation of the subject parcel from abutting properties would not need to allow for additional time to conduct a more though investigation into potential unintended consequences of the project.

(5) *The waiver will not in any manner vary the provisions of the Zoning Ordinance, Master Plan Reports, or Official Map.* Allowing this waiver will not distort the provisions of the Zoning Ordinance, Master Plan Reports, or Official Maps as this lease parcel has been set aside for airport associated development and complies with all provisions of the Zoning Ordinance.

Finally, note if the waiver complies with RSA 674:44(III)(e)(1) or (2) below and explain how.

(1) Strict conformity would pose an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations

OR

(2) Specific circumstances relative to the site plan, or conditions of the land in such site plan, indicate that the waiver will properly carry out the spirit and intent of the regulations Allowing the waiver will preserve the spirit and intent of the regulation by ensuring that sufficient information and notice has been provided in order for the public hearing to occur at the same time as the determination of completeness.

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Waiver from Section Section 16.02(15) & 27.03 - Landscape Plans

A waiver to allow a major site plan application to omit a stamped landscape plan showing the location of existing, required, and proposed landscaping, a plant schedule showing all proposed plant material, and landscape construction details.

and further provided the Planning Board shall not approve waivers unless it shall make findings based upon the evidence presented to it in each specific case that:

(1) The granting of the waiver will not be detrimental to the public safety, health, or welfare or injurious to other property; The purpose of the landscape plan as stated in section 27.01 is to "enhance visual quality of Concord's street scape, provide effective buffers, and better integrate the built and natural environment." This project is adjacent to an aircraft taxiway and not a pedestrian thoroughfare. An existing vegetative buffer at the Airport property boundary is well established in the vicinity of the subject parcel to provide a buffer from abutting properties. Neither safety, health, welfare, nor abutting properties will be detrimentally impacted by allowing this waiver.

(2) *The conditions upon which the request for a waiver is based are unique to the property for which the waiver is sought and are not applicable generally to other property;* The subject parcel is contained within the parent property of the Concord Airport. This site is 10% smaller than the adjacent leased parcel containing no landscaping and a similar 10-bay hangar. The subject site also has a greater location challenges than the other developed lease parcels. The subject parcel is located on the far side of the taxiway and oriented along the taxiway rather than perpendicular to the taxiway. These constraints have led to a site design requiring the parcel to fully paved leaving only small strips of unpaved areas available for snow storage near the lease area boundaries.

(3) *Because of the particular physical surroundings, shape, or topographical conditions of the specific property involved, a particular and unnecessary hardship to the owner would result, as distinguished from a mere inconvenience, if the strict letter of these regulations are carried out;* If the letter of the law were to be carried out the required landscaping would hinder the turning movements of the aircraft utilizing the site and would disturb the environmentally sensitive sand barren ecosystem surrounding the subject parcel.

(4) *Specific circumstances relative to the subdivision or conditions of the land in such subdivision indicate that the waiver will property carry out, or not be contrary to, the spirit and intent of the regulations; and* Allowing the waiver is not be contrary to the spirit and intent of the regulation because the parent property contains an existing vegetative buffer to limit noise and provide screening in the vicinity of the leased parcel. The waiver also minimizes potential negative impacts to the sensitive ecosystem system surrounding the subject parcel.

(5) *The waiver will not in any manner vary the provisions of the Zoning Ordinance, Master Plan Reports, or Official Map.* Allowing this waiver will not distort the provisions of the Zoning Ordinance, Master Plan Reports, or Official Maps as this lease parcel has been set aside for airport associated development and complies with all provisions of the Zoning Ordinance.

Finally, note if the waiver complies with RSA 674:44(III)(e)(1) or (2) below and explain how.

(1) Strict conformity would pose an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations

OR

(2) Specific circumstances relative to the site plan, or conditions of the land in such site plan, indicate that the waiver will properly carry out the spirit and intent of the regulations Allowing the waiver will preserve the spirit and intent of the regulation by maintaining the existing vegetative buffer along the airport property line, limiting noise pollution and maximizing visual screening. Allowing the waiver also creates a larger vegetated buffer between paved areas of the subject site and the environmental sensitive ecosystem the parcel is contained within.

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2. Explain how the waiver request complies with each criterion.

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Waiver from Section Section 16.03(9) & 11.01(9)- Colored Renderings

A waiver to allow a major site plan application to omit colored renderings of the proposed building.

and further provided the Planning Board shall not approve waivers unless it shall make findings based upon the evidence presented to it in each specific case that:

(1) The granting of the waiver will not be detrimental to the public safety, health, or welfare or injurious to other property; because the proposed building at the Concord Airport will be across the taxiway from a building of identical dimensions and color photographs of similar structures with the proposed coloration are provided within the revised submittal.

(2) *The conditions upon which the request for a waiver is based are unique to the property for which the waiver is sought and are not applicable generally to other property;* The subject parcel is a designated developmental parcel within the Concord Airport property. A building of similar dimensions is located adjacent to the proposed building on a similarly sized developmental parcel with in the Airport property.

(3) *Because of the particular physical surroundings, shape, or topographical conditions of the specific property involved, a particular and unnecessary hardship to the owner would result, as distinguished from a mere inconvenience, if the strict letter of these regulations are carried out;* If the letter of the law were to be carried out an unnecessary delay in permitting would result despite providing photographs of the exact proposed building in a similar flat open expansive land typically found at the subject parcel and many airports throughout the country.

(4) *Specific circumstances relative to the subdivision or conditions of the land in such subdivision indicate that the waiver will property carry out, or not be contrary to, the spirit and intent of the regulations; and* Allowing the waiver is not be contrary to the spirit and intent of the regulation because the photographs of an existing building matching the proposed color and dimensions have been provided, allowing individulas to envision how the proposed building will incorporate into the surrounding airport property.

(5) *The waiver will not in any manner vary the provisions of the Zoning Ordinance, Master Plan Reports, or Official Map.* Allowing this waiver will not distort the provisions of the Zoning Ordinance, Master Plan Reports, or Official Maps as this lease parcel has been set aside for airport associated development and complies with all provisions of the Zoning Ordinance.

Finally, note if the waiver complies with RSA 674:44(III)(e)(1) or (2) below and explain how.

(1) Strict conformity would pose an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations

OR

(2) Specific circumstances relative to the site plan, or conditions of the land in such site plan, indicate that the waiver will properly carry out the spirit and intent of the regulations
Allowing the waiver will preserve the spirit and intent of the regulation by ensuring that sufficient information has been provided to allow an individual to see how a building with the proposed colors and dimentions will incorporate into the surrounding airport property.

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Waiver from Section Section 18.17 - Tree Plantings

A waiver to eliminate the requirement that one tree be planted for each 1000 square feet of any proposed parking area.

and further provided the Planning Board shall not approve waivers unless it shall make findings based upon the evidence presented to it in each specific case that:

(1) The granting of the waiver will not be detrimental to the public safety, health, or welfare or injurious to other property; This project is adjacent to an aircraft taxiway and is not directly adjacent to any other property. An existing vegetative buffer at the airport boundary is well established in the vicinity of the project. Neither safety, health,welfare, nor abutting properties will be detrimentally impacted by allowing this waiver.

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(2) *The conditions upon which the request for a waiver is based are unique to the property for which the waiver is sought and are not applicable generally to other property;* The subject parcel is contained within the parent property of the Concord Airport. This site is 10% smaller than the adjacent leased parcel containing no landscaping and a similar 10-bay hangar. The subject site also has a greater location challenges than the other developed lease parcels. These constraints have led to a site design requiring the parcel to fully paved leaving only small strips of unpaved areas available for snow storage near the lease area boundaries. There are no landscape areas wider than 5-feet on the parcel and therefore there are not any suitable areas to plant trees.

(3) *Because of the particular physical surroundings, shape, or topographical conditions of the specific property involved, a particular and unnecessary hardship to the owner would result, as distinguished from a mere inconvenience, if the strict letter of these regulations are carried out;* If the letter of the law were to be carried out the required trees would hinder the turning movements of the aircraft utilizing the site and would disturb the environmentally sensitive sand barren ecosystem surrounding the subject parcel.

(4) *Specific circumstances relative to the subdivision or conditions of the land in such subdivision indicate that the waiver will property carry out, or not be contrary to, the spirit and intent of the regulations; and* Allowing the waiver is not be contrary to the spirit and intent of the regulation because the parent property contains an existing vegetative buffer to limit noise and provide screening in the vicinity of the leased parcel. The waiver also minimizes potential negative impacts to the sensitive ecosystem system surrounding the subject parcel.

(5) *The waiver will not in any manner vary the provisions of the Zoning Ordinance, Master Plan Reports, or Official Map.* Allowing this waiver will not distort the provisions of the Zoning Ordinance, Master Plan Reports, or Official Maps as this lease parcel has been set aside for airport associated development and complies with all provisions of the Zoning Ordinance.

Finally, note if the waiver complies with RSA 674:44(III)(e)(1) or (2) below and explain how.

(1) Strict conformity would pose an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations

OR

(2) Specific circumstances relative to the site plan, or conditions of the land in such site plan, indicate that the waiver will properly carry out the spirit and intent of the regulations Allowing the waiver will preserve the spirit and intent of the regulation by maintaining the existing vegetative buffer along the airport property line, limiting noise pollution and maximizing visual screening. Allowing the waiver also creates a larger vegetated buffer between paved areas of the subject site and the environmental sensitive ecosystem the parcel is contained within.

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Waiver from Section Section 15.04(28)(a)-(p) - Tabulations

A waiver to allow a major site plan application to omit a tabulation of zoning district dimensional requirements.

and further provided the Planning Board shall not approve waivers unless it shall make findings based upon the evidence presented to it in each specific case that:

(1) The granting of the waiver will not be detrimental to the public safety, health, or welfare or injurious to other property; because this application pertains to a lease area within a much larger parent property. The lease area has been set aside for the explicit purpose of development and does not encroach near any property line of the parent property as to disturb abutting property owners or lease holders as defined by the industrial district dimentional regulations.

(2) *The conditions upon which the request for a waiver is based are unique to the property for which the waiver is sought and are not applicable generally to other property;* The subject parcel is a designated parcel of land for development within the Concord Airport Property

(3) *Because of the particular physical surroundings, shape, or topographical conditions of the specific property involved, a particular and unnecessary hardship to the owner would result, as distinguished from a mere inconvenience, if the strict letter of these regulations are carried out;* If the letter of the law were to be carried out the required survey to verify all dimensional tabulations of the entire Concord Airport property would be at a cost as to make the development of this aircraft hangar not financially viable.

(4) *Specific circumstances relative to the subdivision or conditions of the land in such subdivision indicate that the waiver will property carry out, or not be contrary to, the spirit and intent of the regulations; and* Allowing the waiver is not be contrary to the spirit and intent of the regulation because the parent property is responsible to ensure that all zoning dimensional standards are followed.

(5) *The waiver will not in any manner vary the provisions of the Zoning Ordinance, Master Plan Reports, or Official Map.* Allowing this waiver will not distort the provisions of the Zoning Ordinance, Master Plan Reports, or Official Maps as this lease parcel has been set aside for airport associated development and complies with all provisions of the Zoning Ordinance.

Finally, note if the waiver complies with RSA 674:44(III)(e)(1) or (2) below and explain how.

(1) Strict conformity would pose an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations

OR

(2) Specific circumstances relative to the site plan, or conditions of the land in such site plan, indicate that the waiver will properly carry out the spirit and intent of the regulations
Allowing the waiver will preserve the spirit and intent of the regulation by ensuring that unreasonable survey costs do not burden development of leased areas set aside within the Concord Airport property

Federal Aviation Administration

« OE/AAA

Case Submission Success

Project Hamp-651595884-25 has been submitted successfully to the FAA.

Your filing is assigned Aeronautical Study Number (ASN):
2025-ANE-695-NRA

Please refer to the assigned ASN on all future inquiries regarding this filing.

Please return to the system at a later date for status updates.

To ensure e-mail notifications are delivered to your inbox please add noreply@faa.gov to your address book. Notifications sent from this address are system generated FAA e-mails and replies to this address will NOT be read or forwarded for review. Each system generated e-mail will contain specific FAA contact information in the text of the message.

STORMWATER MANAGEMENT REPORT

Prepared For

HAMPSHIRE AVIATION – CONCORD HANGAR
PART OF MBL 633Z / 3 (LEASE AREA DZ-4)
REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE

February 19, 2025
Revised March 19, 2025

Prepared for:

Hampshire Aviation LLC
584 Currier Road
Hopkinton, NH 03229

Prepared By:

NORTHPOINT ENGINEERING, LLC
Civil Engineering ◢ Land Planning ◢ Construction Services

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Project No. 24063

TABLE OF CONTENTS

I. PROJECT NARRATIVE

Project Description

The subject parcel of land is known as Lease Area DZ-4 which is a 0.92-acre leased parcel located at the Concord Municipal Airport (Map/Lot 633Z/3). The overall tract (the Airport) is a 550-acre parcel located on the Heights in Concord. The subject parcel is located in the northern quadrant of the Airport and will be accessed via a proposed paved drive extending east from Chennel Drive. The subject parcel is adjacent to an abandoned runway which is currently utilized as a taxiway. There is municipal water and sewer available to serve the parcel.

The proposed improvements include construction of a new 11,550-sf 10-unit aircraft hangar. Related site improvements include limited paved access and parking, extension of private utility services, lighting, and a stormwater drainage system.

Methodology

In accordance with the provisions and requirements of the City of Concord Site Plan Regulations the 2, 10, 25 and 100-year, (24-hour) return frequency storms were used in all aspects of analysis and design for stormwater management improvements at the subject site, as further documented in this report.

The methodology of the U.S.D.A–S.C.S publication Urban Hydrology for Small Watersheds – Technical Release No. 55 (TR-55) and Computer Program – Project Formulation Hydrology (TR-20) was selected for use in the design of segments of the drainage system in order to estimate peak stormwater discharge volumes. In implementing the methodology of TR-55 and TR-20 a HYDROCAD (Version 10.00) stormwater modeling, hydrograph generating, and routing computer program was utilized.

Estimates for Time of Concentration, used in the analysis were made using the methodology contained within U.S.D.A–S.C.S publication Urban Hydrology for Small Watersheds – Technical Release No. 55 (TR-55). In implementing the TR-55 Method, a minimum Time of Concentration of 3 minutes was utilized for urbanized areas.

All design and analysis calculations performed using the referenced methodologies are attached to this report. These calculations document the subcatchment area, breakdown of surface type, time of concentration, rainfall intensity, peak discharge volume, peak velocity, and other descriptive design data for each watershed and pipe segment evaluated. In addition, the attached "Drainage Areas Plans" graphically define and illustrate the real extent of each watershed or subcatchment area investigated.

Existing Drainage Conditions

The subject parcel is approximately 39902 square feet (0.92 acres) and is comprised mostly of shrubs and grass on a very flat parcel. The parcel slightly slopes in the easterly direction towards an undeveloped grassland within the airport property. 33-square feet of paved area within the lease boundary does flow onto the parent property and into the closed drainage system for the airport. However, in general, it does not appear that there is any significant stormwater runoff, generated from the existing site that exits the site. Nor does it appear that there is any measurable offsite stormwater run-on that flows onto the site. The adjacent taxiway to the west contains a closed drainage system which appears to capture all runoff

from the taxiway and the aforementioned 33-square feet of the subject site, such that there is not any run-on to the subject site.

For the purpose of the drainage analysis, and in order to compare the existing conditions to the proposed conditions, three separate Points of Comparison (POC's) have been identified. POC #1 (Reach 10R) is the point along the easterly boundary of the site where the majority of stormwater runoff generated by the existing site conditions will discharge from the site. It includes runoff from Subcatchment 10S which represents the majority of the subject site.

POC#2 (Reach 20R) is the point along the southern boundary of the site where any remaining stormwater runoff generated by the existing site conditions will discharge from the site. POC#2 includes runoff from Subcatchment 20S which represents the remaining undeveloped portions of the site.

POC#3 (Reach 30R) is the point along the westerly boundary of the site where any stormwater runoff generated by paved areas of the subject site will discharge from the site onto the airport taxiway. POC#3 includes runoff from Subcatchment 30S which represents the remaining portions of the site.

Post-Development Drainage Conditions

Overview:

The airplane hangar and associated improvements will create 34,923 square feet of new impervious surface. All stormwater runoff generated from the new site improvements will be collected and conveyed to a stormwater management basin (SWMB#1). The basin is designed as subsurface infiltration basin which will retain, and infiltrate collected stormwater runoff.

SWMB#1 is subsurface infiltration basins located to the east of the proposed hangar. It will collect runoff from all the new paved surface areas on the site via a closed drainage system as well as roof runoff from the proposed hangar. Runoff from the majority of the paved surfaces will be captured by five catch basins and will be conveyed to SWMB#1, which is comprised of six rows of StormTech SC-740 chambers in a stone trench. The first row of chambers in this basin will be installed as an isolator row to provide pre-treatment of the collected runoff from the paved surfaces. The combination of the six StormTech rows will provide year-round infiltration ability for the basin and will be adequate to store runoff volumes from all storm events. The basin is designed to fully retain and infiltrate runoff from a 100-year storm event with out any discharge from the site. In the event of larger storm events, the basin will overflow to the east along the path of the historic runoff flows.

Stormwater Treatment & Groundwater Recharge:

The site has been designed to provide permanent stormwater treatment in compliance with Env-Wq 1507.03 and the City of Concord Site Plan Regulations for the runoff generated from the proposed site improvements. As described above, the proposed isolator row within SWMB#1 will provide pre-treatment of the collected runoff from the paved areas of the site. Permanent stormwater treatment is then accomplished through infiltration. Infiltration Treatment is in compliance with Env-Wq 1508.06 for the WQV (water quality volume). Additional storage well above the WQV will allow the infiltration basins to provide stormwater management and treatment for up to the 100-year storm event.

Peak Runoff Control:

The site has been designed to provide peak runoff control requirements in accordance with the City of Concord Site Plan Regulations. The new onsite stormwater management basins have been designed to control the peak discharge rates of runoff leaving the site to ensure that post construction flow rates are not greater than pre-construction flow rates. The site has been designed such that the 2-year, 10-year, 50-year and 100-year 24-hour post-developed peak flow rates do not exceed the flow rates of the existing conditions. See Table 1 in the Summary of Results below for actual values and Table 2 for Runoff volume control Summary.

Summary of Results

Table 1. Peak Runoff Control Summary

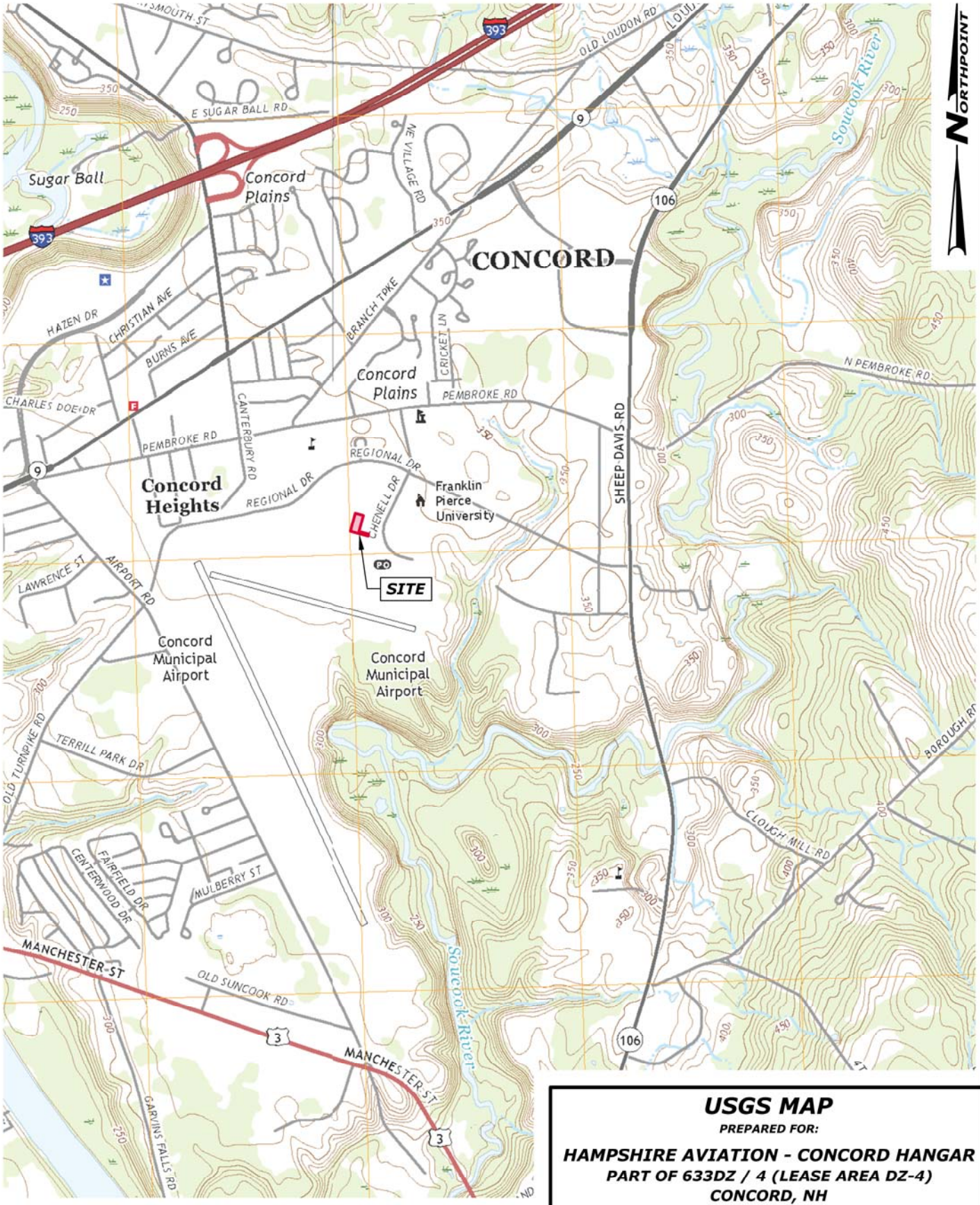
	Peak Rates of Runoff at Study Points							
	(2-Year, 24-Hour)		(10-Year, 24-Hour)		(25-Year, 24-Hour)		(100-Year, 24-Hour)	
Node	Pre	Post	Pre	Post	Pre	Post	Pre	Post
10R (POC #1)	0.00-cfs	0.00-cfs	0.01-cfs	0.00-cfs	0.02-cfs	0.00-cfs	0.08-cfs	0.04-cfs
20R (POC #2)	0.00-cfs	0.00-cfs	0.15-cfs	0.00-cfs	0.02-cfs	0.00-cfs	0.06-cfs	0.02-cfs
30R (POC #3)	0.00-cfs	0.00-cfs	0.00-cfs	0.00-cfs	0.00-cfs	0.00-cfs	0.01-cfs	0.00-cfs

Table 2. Runoff Volume Control Summary

		Runoff Volume at Study Points	
		(10-Year, 24-Hour)	
Study Point	Node	Pre	Post
POC #1	10R	143-CF	14-CF
POC #2	20R	63-CF	7-CF
POC #3	30R	11-CF	0-CF

II. USGS MAP EXHIBIT

FILE: G:_PROJECTS\24063\dwg\24063_EXHIBITS_REV.dwg BY: ian DATE: 18 Feb 2025 - 12:36am



USGS MAP

PREPARED FOR:

HAMPSHIRE AVIATION - CONCORD HANGAR
PART OF 633DZ / 4 (LEASE AREA DZ-4)
CONCORD, NH

NORTHPOINT ENGINEERING, LLC
Civil Engineering ◢ Land Planning ◢ Construction Services

119 Storrs St, Ste 201
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Tel 603-226-1166
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SCALE: 1"=2000'	DATE: FEB. 2025
PROJ.: 24063	SHEET: 1 OF 1

III. Web Soil Survey Map

Hydrologic Soil Group—Merrimack and Belknap Counties, New Hampshire
(HAMPSHIRE AVIATION LLC)

Map Scale: 1:645 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 5 10 20 30

Feet
0 30 60 120 180

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Merrimack and Belknap Counties, New Hampshire
Survey Area Data: Version 30, Sep 3, 2024

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

Date(s) aerial images were photographed: Oct 6, 2022—Oct 22, 2022

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
26A	Windsor loamy sand, 0 to 3 percent slopes	A	0.1	10.4%
300B	Udipsamments, 0 to 6 percent slopes	A	0.8	83.2%
699B	Urban land, 0 to 8 percent slopes		0.1	6.4%
Totals for Area of Interest			**0.9**	**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

IV. Aerial Photograph Exhibits

FILE: G:_PROJECTS\24063\dwg\24063_EXHIBITS_REV.dwg BY: ian DATE: 18 Feb 2025 - 12:39am

AERIAL VIEW

PREPARED FOR:

HAMPSHIRE AVIATION - CONCORD HANGAR
PART OF 633DZ / 4 (LEASE AREA DZ-4)
CONCORD, NH

NORTHPOINT ENGINEERING, LLC
Civil Engineering ◢ Land Planning ◢ Construction Services

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Tel 603-226-1166
Fax 603-226-1160
www.northpointeng.com

SCALE: 1"=400'	DATE: FEB. 2025
PROJ.: 24063	SHEET: 1 OF 1

V. Inspection and Maintenance Manual

STORM WATER MANAGEMENT SYSTEM

INSPECTION & MAINTENANCE MANUAL

For:

HAMPSHIRE AVIATION CONCORD HANGAR
PART OF MAP/LOT 633Z / 3 (LEASE AREA DZ-4)
38 REGIONAL DRIVE
CONCORD, NEW HAMPSHIRE

February 19, 2025
Revised March 19, 2025

Prepared for:

Hampshire Aviation LLC
584 Currier Road
Hopkinton, NH 03229

Prepared By:

NORTHPOINT ENGINEERING, LLC
Civil Engineering ◢ Land Planning ◢ Construction Services

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Fax 603-226-1160
www.northpointeng.com

Project No. 24063

STORM WATER MANAGEMENT SYSTEM
INSPECTION & MAINTENANCE MANUAL

Prepared For

HAMPSHIRE AVIATION LLC
38 Regional Drive
Concord, NH 03301

This document is to ensure that the Storm Water Management System for Hampshire Aviation – Concord Hangar is maintained in perpetuity by the owner or their assigned heirs after construction is completed. A description of the storm water management facilities along with long-term operation and maintenance procedures is presented in this plan. The owner shall designate an operator of the storm water management facilities who shall be responsible to oversee all maintenance procedures identified in this plan.

OWNER/OPERATOR:

Hampshire Aviation LLC will act as both the owner and operator of the Storm Water Management System for this facility. Hampshire Aviation LLC shall be responsible for the long-term operation and maintenance of the storm water management facilities.

Hampshire Aviation LLC
584 Currier Road
Hopkinton, NH

Contact: Charley Cummings
Charley.Cummings@gmail.com
401-714-4887

Hampshire Aviation LLC shall be legally responsible for long-term operation and maintenance for this Storm Water Management System as outlined in this Inspection & Maintenance Manual. When ownership of the storm water management system changes, the succeeding owner will be presented with this Manual and supporting attachments at or before legal conveyance of ownership. Hampshire Aviation LLC will establish an annual Storm Water Management System Inspection and Maintenance budget to ensure on-going compliance with this Manual.

STORM WATER MANAGEMENT FACILITIES:

The Storm Water Management System for United Therapeutics Corporation is specified on the design plans entitled "Site Improvement Plans prepared for: "Hampshire Aviation – Concord Hangar (Tax map 633Z Lot 3); 38 Regional Drive; Concord, NH" prepared by Northpoint Engineering, LLC. The Storm Water Management System specified on said plans collects storm water runoff from the onsite development. Attached to this I&M

Manual is an *I&M Site Plan Exhibit* that provides an overview of the entire property and each of the stormwater management practices.

Storm Water Conveyance:
Stormwater sheet flows from roof top and pavement areas into catch basins located throughout the subject site. Stormwater then flows though the stormwater drainage system into the subsurface infiltration basin, as depicted on the Site Improvement Plans prepared for the project.

Stormwater Management Basin:

A single stormwater management basin will be constructed to collect, retain, and infiltrate stormwater runoff. SWMB#1 is a subsurface infiltration basin and is located to the east of the hangar. SWMB#1 consists of six rows of StormTech SC-740 chambers in a stone trench. The SWMB is depicted on the on the Site Improvement Plans prepared for the project.

POST CONSTRUCTION OPERATION AND MAINTENANCE:

The following standards will be met after construction is complete:

Compliance Statement:
The Storm Water Management System will be inspected immediately after construction by a professional engineer. A Compliance Statement shall be prepared and certified by the inspecting party that the site has been inspected, is stabilized from erosion, and that the stormwater management system has been constructed as designed and approved. This statement shall identify the party responsible for implementing this Inspection & Maintenance Manual and reconfirm (as stated above) that all future responsible parties will be notified of their continuing legal obligation to carry out this Inspection & Maintenance Manual. A copy of the Compliance Statement shall be submitted to the City of Concord.

Maintenance Contract:
The owner shall contract with a third-party or other qualified professional with knowledge of erosion and storm water control. The contractor will be responsible for the inspection and removal of accumulated sediments, oils, and debris from the entire Storm Water Management System as outlined in this Inspection & Maintenance Manual.

Maintenance Log:
A Maintenance Log will be kept summarizing inspections, maintenance, and any corrective actions taken. The log will include the date on which each inspection or maintenance task was performed, a brief description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. Copies of completed inspection checklists should be attached to the Maintenance Log as well. A maintenance log form is included as part of this Manual. The maintenance log shall be made accessible to the City of Concord.

Snow Storage and Removal
Several areas on the site have been identified as being reserved for snow storage during winter months. The facility owner will provide all snow removal activities on the site. Designated snow storage areas will be utilized to store snow accumulation. Snow will not be stored or piled in any location that will block the flow of stormwater runoff through the onsite stormwater management basins.

Snow will not be stored or piled in an area where snow melt will drain directly stormwater treatment areas where sediment and debris could clog the infiltration basin. Snow melt will be directed into onsite catch basins or sediment forebays that are upstream of treatment areas.

When the storage capacity of any one area onsite is exceeded, the excess snow will be moved to a different designated storage area onsite. When/if the storage capacity of the entire site is exceeded, excess snow will be removed from the site and disposed of properly.

Spring maintenance will include removing debris and accumulated sediment from snow storage areas. Paved areas will be swept to remove accumulated fine sediment.

Deicing Log:
A Deicing Log will be maintained by the owner to track the frequency, amount, and type of deicing materials that are applied to the site. A Deicing Log form is included as part of this Manual. The deicing log shall be made accessible to the City of Concord and a copy provided to them upon request.

Inspection and Maintenance Frequency and Corrective Measures:
The following areas, facilities, and measures will be inspected, and the identified deficiencies will be corrected. Clean-out must include the removal and legal disposal of any accumulated sediments and debris. A Storm Water Management System Inspection & Maintenance Checklist is included as part of this manual that summarizes the following actions:

<u>Catch Basins & Outlet Structures:</u>

Inspect catch basins and outlet structures twice annually (preferably in Spring and Fall) to ensure that the catch basins are working in their intended fashion and that they are free of debris.

- Remove any accumulated debris from grates, inlets, outlets, and weirs.

- Remove any accumulated debris from trash racks and inspect trash racks to ensure they are functioning as designed. Inspect catch basin snouts and remove debris or repair as needed.

- Clean sumps when sediment depths reach 12-inches from invert of outlet.

- Remove any floating debris and hydrocarbons at the time of the inspection.

- Inspect for damaged or missing brick and mortar and repair as necessary.

Subsurface Infiltration Basin:

Inspect the stormwater management basin at least twice annually and following any rainfall event exceeding 2.5 inches in a 24-hour period, with maintenance and/or rehabilitation conducted as warranted by inspection.

- Pretreatment measures should be inspected at least twice annually, and cleaned of accumulated sediment as warranted by inspection, but no less than once annually.

- Removal of trash and debris from inlet and outlet structures, and anywhere else visible in basin.

- Isolator Row should be maintained in accordance with manufacturer recommendations. Refer to attached ADS Isolator Row O&M Manual

- At least once annually, systems should be inspected for drawdown time. If infiltration system does not drain within 72-hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore infiltration function, including but not limited to removal of accumulated sediment from the infiltration practice area or reconstruction of the infiltration practice area.

Parking and Impervious Surfaces:

- Deicing: All deicing activities shall be documented in the Deicing Log. (See Attached)

- A copy of the completed seasonal Deicing Log should be added to the official Maintenance Log.

- All snow storage areas will be located in areas that drain to the site's stormwater management system. Snow will not be stored in stormwater management basins. Stored snow will be removed and properly disposed of off-site if it exceeds the capacity of the snow storage areas.

- Debris and accumulated sediment will be removed from snow storage areas in spring. Paved areas will be swept to remove accumulated fine sediment.

Invasive Species:

- All storm water management areas shall be periodically checked for the presence of any invasive plant species.

- If any invasive species are identified, or potentially identified, contact the NHDES Exotic Species Program for consultation on properly identifying the species and appropriately managing it.

Inspection Checklist:

- A Stormwater Management System Inspection & Maintenance Checklist shall be completed during each inspection and a copy shall be added to official Maintenance Log.

Isolator® Row
O&M Manual

ADS StormTech™

The Isolator® Row

Introduction

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a technique to inexpensively enhance Total Suspended Solids (TSS) and Total Phosphorus (TP) removal with easy access for inspection and maintenance.

The Isolator Row

The Isolator Row is a row of StormTech chambers, either SC-160, SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-7200 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for sediment settling and filtration as stormwater rises in the Isolator Row and passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC- 310-3 and SC-740 models) allow stormwater to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the adjacent stone and chambers storage areas from sediment accumulation.

ADS geotextile fabric is placed between the stone and the Isolator Row chambers. The woven geotextile provides a media for stormwater filtration, a durable surface for maintenance, prevents scour of the underlying stone and remains intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the chamber's sidewall. The non-woven fabric is not required over the SC-160, DC-780, MC-3500 or MC-7200 models as these chambers do not have perforated side walls.

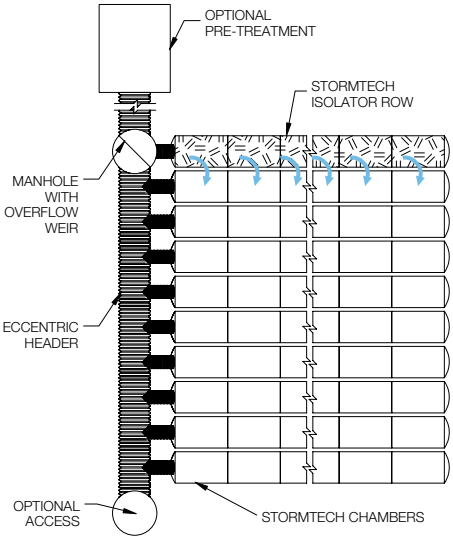
The Isolator Row is designed to capture the "first flush" runoff and offers the versatility to be sized on a volume basis or a flow-rate basis. An upstream manhole provides access to the Isolator Row and includes a high/low concept such that stormwater flow rates or volumes that exceed the capacity of the Isolator Row bypass through a manifold to the other chambers. This is achieved with an elevated bypass manifold or a high-flow weir. This creates a differential between the Isolator Row row of chambers and the manifold to the rest of the system, thus allowing for settlement time in the Isolator Row. After Stormwater flows through the Isolator Row and into the rest of the chamber system it is either exfiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

The Isolator Row may be part of a treatment train system. The treatment train design and pretreatment device selection by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, StormTech recommend using the Isolator Row to minimize maintenance requirements and maintenance costs.

Note: *See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.*

Looking down the Isolator Row from the manhole opening, woven geotextile Fabric is shown between the chamber and stone base.

StormTech Isolator Row with Overflow Spillway (*not to scale*)



Isolator Row Inspection/Maintenance

Inspection

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the **actual frequency of inspection and maintenance practices.**

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

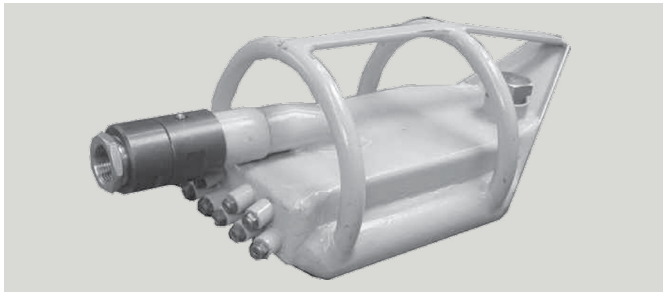
The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

Maintenance

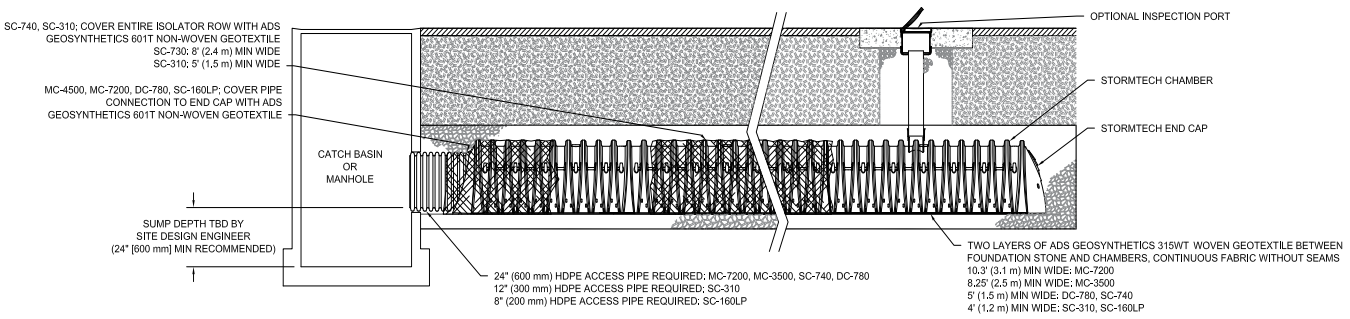
The Isolator Row was designed to reduce the cost of periodic maintenance. By “isolating” sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45” are best. JetVac reels can vary in length. For ease of maintenance, ADS recommends Isolator Row lengths up to 200" (61 m). **The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.**



StormTech Isolator Row (not to scale)

Note: *Non-woven fabric is only required over the inlet pipe connection into the end cap for SC-160LP, DC-780, MC-3500 and MC-7200 chamber models and is not required over the entire Isolator Row.*



Isolator Row Step By Step Maintenance Procedures

Step 1

Inspect Isolator Row for sediment.

A) Inspection ports (if present)
   i. Remove lid from floor box frame
   ii. Remove cap from inspection riser
   iii. Using a flashlight and stadia rod,measure depth of sediment and record results on maintenance log.
   iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.

B) All Isolator Row
   i. Remove cover from manhole at upstream end of Isolator Row
   ii. Using a flashlight, inspect down Isolator Row through outlet pipe
      1. Mirrors on poles or cameras may be used to avoid a confined space entry
      2. Follow OSHA regulations for confined space entry if entering manhole
   iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches), proceed to Step 2. If not, proceed to Step 3.

Step 2

Clean out Isolator Row using the JetVac process.

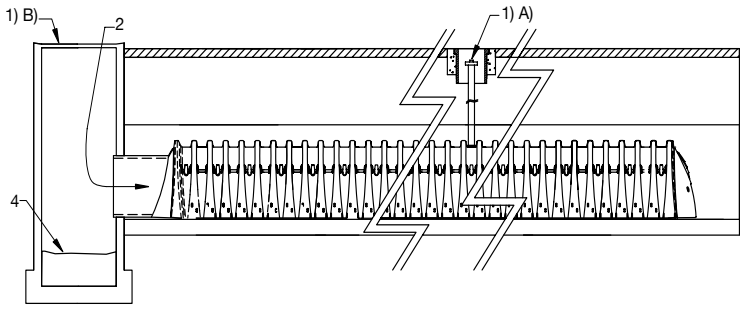
A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
B) Apply multiple passes of JetVac until backflush water is clean
C) Vacuum manhole sump as required

Step 3

Replace all caps, lids and covers, record observations and actions.

Step 4

Inspect & clean catch basins and manholes upstream of the StormTech system.



Sample Maintenance Log

Date	Stadia Rod Readings		Sedi-ment Depth (1)–(2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/11	6.3 ft	none		New installation. Fixed point is CI frame at grade	DJM
9/24/11		6.2	0.1 ft	Some grit felt	SM
6/20/13		5.8	0.5 ft	Mucky feel, debris visible in manhole and in Isolator Row, maintenance due	NV
7/7/13	6.3 ft		0	System jetted and vacuumed	DJM

adspipe.com
800-821-6710

Stormwater Management Inspection Checklist
For
Hampshire Aviation LLC – Concord Hangar
Concord, New Hampshire

Inspector's Name (& Company): _____ Date of Inspection:_____

An inspection checklist shall be filled out during each inspection of the stormwater management system. A copy of the completed checklist shall be submitted to the Operator for inclusion within the official Maintenance Log.

Catch Basins & Outlet Structures	**Y**	**N**	**Notes**
Remove debris from grates, inlets, outlets, and weirs:…..			
Check Depth of Sediment in Sumps (Remove):…….			
Removal of floating debris:……			
Inspect bricks & mortar:…….			

Subsurface Infiltration Basin	**Y**	**N**	**Notes**
Inspect Isolator Row per StormTech Procedures Remove any accumulated sediment if warraned…..			
Outlet Structures: Remove debris from grates, inlets, outlets, and weirs (including floating debris & hydrocarbons)….....			
Basin infiltrating through basin bottom media …….			

Invasive Species	**Y**	**N**	**Notes**
Check for any apparent invasive species and document actions taken…….			

Other Observations and/or Actions taken:

Deicing Log	**Y**	**N**	**Notes**
All deicing activities shall be documented in the Deicing Log……..			
A copy of the completed seasonal Deicing Log was added to the official Maintenance Log…….……			

Maintenance Log	**Y**	**N**	**Notes**
A copy of this completed Inspection Checklist has been added to the Official Maintenance Log……..…			

DEICING LOG

Hampshire Aviation LLC - Concord Hangar, Concord , New Hampshire

Sheet ___ of ___

Date	Amount and Type of Deicing Materials applied to the site

STORMWATER MANAGEMENT MAINTENANCE LOG
Hampshire Aviation - Concord Hangar, Concord NH

Sheet ___ of ___

Date	Name of Inspector and/or Maintenance Personnel	Brief Description of Inspection, Maintenance and/or Corrective Actions taken	Checklist Completed (Y or N)

VI. Drainage Analysis

- Extreme Precipitation Tables

- HydroCAD Output Data – Pre-Developed
    - Drainage Diagram
    - Area Listing and Soil Listing
    - Full Summary: 2-year, 10-year, 25-year, 100-year

- HydroCAD Output Data – Post-Developed
    - Drainage Diagram
    - Area Listing and Soil Listing
    - Full Summary: 2-year, 10-year, 25-year, 100-year

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point	
Smoothing	Yes
State	New Hampshire
Location	New Hampshire, United States
Latitude	43.210 degrees North
Longitude	71.498 degrees West
Elevation	100 feet
Date/Time	Wed Jan 15 2025 12:28:28 GMT-0500 (Eastern Standard Time)

Extreme Precipitation Estimates

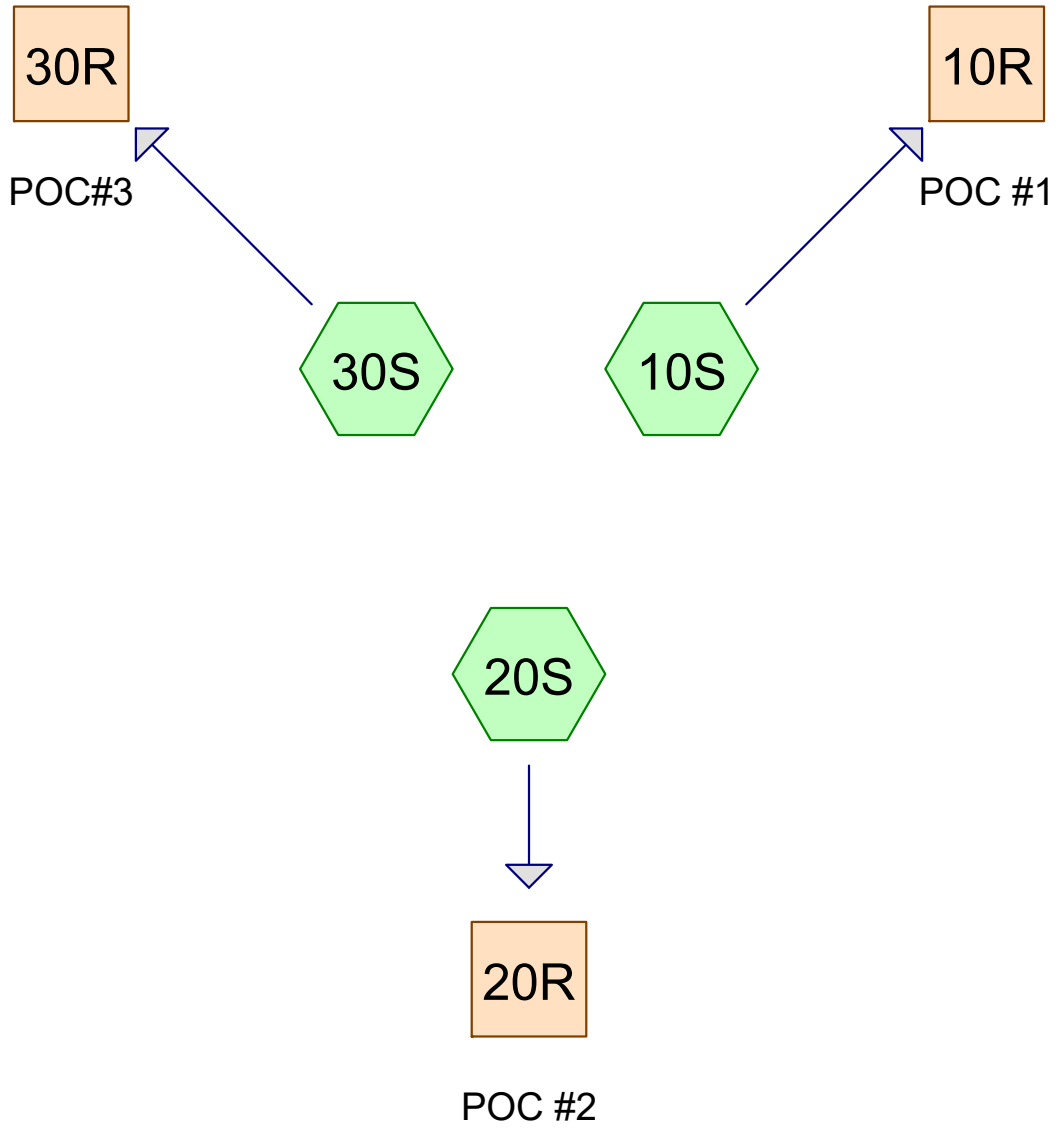
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.25	0.39	0.48	0.64	0.79	1.00	**1yr**	0.68	0.98	1.16	1.46	1.86	2.36	2.58	**1yr**	2.09	2.48	2.90	3.59	4.13	**1yr**
2yr	0.31	0.48	0.60	0.79	1.00	1.25	**2yr**	0.86	1.15	1.45	1.81	2.26	2.82	3.15	**2yr**	2.50	3.03	3.51	4.20	4.79	**2yr**
5yr	0.37	0.58	0.73	0.98	1.25	1.58	**5yr**	1.08	1.45	1.83	2.29	2.84	3.52	4.00	**5yr**	3.11	3.84	4.44	5.22	5.91	**5yr**
10yr	0.42	0.66	0.84	1.14	1.48	1.89	**10yr**	1.28	1.71	2.19	2.74	3.38	4.16	4.79	**10yr**	3.68	4.60	5.31	6.15	6.93	**10yr**
25yr	0.50	0.79	1.01	1.39	1.85	2.38	**25yr**	1.59	2.15	2.77	3.45	4.26	5.20	6.08	**25yr**	4.61	5.85	6.72	7.66	8.57	**25yr**
50yr	0.57	0.91	1.17	1.63	2.19	2.84	**50yr**	1.89	2.56	3.31	4.13	5.08	6.17	7.29	**50yr**	5.46	7.01	8.04	9.04	10.05	**50yr**
100yr	0.64	1.04	1.34	1.91	2.60	3.39	**100yr**	2.24	3.04	3.96	4.94	6.04	7.31	8.74	**100yr**	6.47	8.41	9.62	10.69	11.80	**100yr**
200yr	0.74	1.21	1.56	2.24	3.08	4.04	**200yr**	2.66	3.61	4.73	5.89	7.19	8.67	10.49	**200yr**	7.67	10.09	11.52	12.63	13.86	**200yr**
500yr	0.89	1.46	1.91	2.76	3.87	5.10	**500yr**	3.34	4.55	5.98	7.44	9.06	10.88	13.36	**500yr**	9.63	12.85	14.62	15.76	17.16	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.20	0.32	0.39	0.52	0.64	0.88	**1yr**	0.55	0.86	1.05	1.37	1.58	2.03	2.43	**1yr**	1.80	2.34	2.66	3.29	3.87	**1yr**
2yr	0.30	0.47	0.58	0.78	0.96	1.15	**2yr**	0.83	1.12	1.31	1.72	2.19	2.75	3.06	**2yr**	2.43	2.94	3.42	4.09	4.67	**2yr**
5yr	0.35	0.53	0.66	0.91	1.16	1.38	**5yr**	1.00	1.35	1.54	2.01	2.57	3.30	3.71	**5yr**	2.92	3.57	4.15	4.90	5.57	**5yr**
10yr	0.38	0.59	0.73	1.02	1.32	1.56	**10yr**	1.14	1.52	1.76	2.26	2.88	3.79	4.31	**10yr**	3.35	4.15	4.79	5.60	6.38	**10yr**
25yr	0.44	0.67	0.84	1.19	1.57	1.83	**25yr**	1.36	1.79	2.08	2.63	3.36	4.54	5.24	**25yr**	4.02	5.04	5.76	6.71	7.62	**25yr**
50yr	0.49	0.74	0.92	1.33	1.79	2.06	**50yr**	1.54	2.01	2.37	2.96	3.78	5.21	6.07	**50yr**	4.61	5.83	6.62	7.68	8.74	**50yr**
100yr	0.55	0.83	1.04	1.50	2.06	2.34	**100yr**	1.78	2.28	2.71	3.33	4.26	5.98	7.04	**100yr**	5.30	6.77	7.62	8.80	10.02	**100yr**
200yr	0.61	0.92	1.16	1.68	2.35	2.62	**200yr**	2.03	2.57	3.09	3.75	4.80	6.87	8.14	**200yr**	6.08	7.83	8.74	10.10	11.47	**200yr**
500yr	0.71	1.06	1.36	1.98	2.81	3.08	**500yr**	2.43	3.01	3.69	4.39	5.63	8.24	9.88	**500yr**	7.30	9.50	10.42	12.13	13.78	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.29	0.44	0.54	0.73	0.89	1.07	**1yr**	0.77	1.05	1.19	1.58	1.99	2.49	2.75	**1yr**	2.21	2.64	3.14	3.81	4.34	**1yr**
2yr	0.33	0.50	0.62	0.84	1.03	1.24	**2yr**	0.89	1.21	1.39	1.83	2.33	2.90	3.25	**2yr**	2.57	3.12	3.63	4.32	4.93	**2yr**
5yr	0.40	0.62	0.77	1.06	1.35	1.57	**5yr**	1.17	1.54	1.78	2.29	2.92	3.74	4.29	**5yr**	3.31	4.13	4.74	5.53	6.27	**5yr**
10yr	0.48	0.74	0.92	1.28	1.66	1.91	**10yr**	1.43	1.86	2.16	2.73	3.48	4.55	5.30	**10yr**	4.02	5.10	5.85	6.68	7.56	**10yr**
25yr	0.62	0.94	1.17	1.67	2.19	2.48	**25yr**	1.89	2.42	2.77	3.43	4.38	5.88	7.02	**25yr**	5.21	6.75	7.70	8.58	9.64	**25yr**
50yr	0.73	1.12	1.39	2.00	2.69	3.03	**50yr**	2.32	2.96	3.34	4.10	5.22	7.16	8.68	**50yr**	6.34	8.35	9.49	10.39	11.60	**50yr**
100yr	0.89	1.34	1.68	2.43	3.33	3.69	**100yr**	2.87	3.61	4.05	4.88	6.22	8.73	10.76	**100yr**	7.73	10.35	11.73	12.58	13.96	**100yr**
200yr	1.06	1.60	2.03	2.93	4.09	4.51	**200yr**	3.53	4.41	4.89	5.82	7.43	10.64	13.32	**200yr**	9.41	12.81	14.51	15.23	16.79	**200yr**
500yr	1.37	2.03	2.61	3.80	5.40	5.90	**500yr**	4.66	5.77	6.29	7.36	9.40	13.83	17.71	**500yr**	12.24	17.03	19.25	19.64	21.44	**500yr**



Subcat Reach Pond Link

Routing Diagram for 24063_PRE-DEVELOPED
Prepared by Northpoint Engineering, LLC, Printed 3/19/2025

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
39,867	39	>75% Grass cover, Good, HSG A (10S, 20S)
33	98	Paved parking, HSG A (30S)
39,900	**39**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
39,900	HSG A	10S, 20S, 30S
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
39,900		**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: Runoff Area=28,038 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=675' Tc=42.2 min CN=39 Runoff=0.00 cfs 0 cf

Subcatchment 20S: Runoff Area=11,829 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=81' Slope=0.2470 '/' Tc=5.0 min CN=39 Runoff=0.00 cfs 0 cf

Subcatchment 30S: Runoff Area=33 sf 100.00% Impervious Runoff Depth>2.59"
Tc=3.0 min CN=98 Runoff=0.00 cfs 7 cf

Reach 10R: POC #1 Inflow=0.00 cfs 0 cf
Outflow=0.00 cfs 0 cf

Reach 20R: POC #2 Inflow=0.00 cfs 0 cf
Outflow=0.00 cfs 0 cf

Reach 30R: POC#3 Inflow=0.00 cfs 7 cf
Outflow=0.00 cfs 7 cf

Total Runoff Area = 39,900 sf Runoff Volume = 7 cf Average Runoff Depth = 0.00"
99.92% Pervious = 39,867 sf 0.08% Impervious = 33 sf

Summary for Subcatchment 10S:

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

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=2.82"

Area (sf)	CN	Description
28,038	39	>75% Grass cover, Good, HSG A
28,038		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0120	0.14		**Sheet Flow,** Range n= 0.130 P2= 2.75"
30.6	575	0.0020	0.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
42.2	675	Total			

Summary for Subcatchment 20S:

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

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=2.82"

Area (sf)	CN	Description
11,829	39	>75% Grass cover, Good, HSG A
11,829		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	81	0.2470	0.46		**Sheet Flow,** Range n= 0.130 P2= 2.75"
2.1					**Direct Entry,**
5.0	81	Total			

Summary for Subcatchment 30S:

Runoff = 0.00 cfs @ 12.04 hrs, Volume= 7 cf, Depth> 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=2.82"

Area (sf)	CN	Description
33	98	Paved parking, HSG A
33		100.00% Impervious Area

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

Summary for Reach 10R: POC #1

Inflow Area = 28,038 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2 year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach 20R: POC #2

Inflow Area = 11,829 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2 year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach 30R: POC#3

Inflow Area = 33 sf,100.00% Impervious, Inflow Depth > 2.59" for 2 year event
Inflow = 0.00 cfs @ 12.04 hrs, Volume= 7 cf
Outflow = 0.00 cfs @ 12.04 hrs, Volume= 7 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: Runoff Area=28,038 sf 0.00% Impervious Runoff Depth>0.06"
Flow Length=675' Tc=42.2 min CN=39 Runoff=0.01 cfs 143 cf

Subcatchment 20S: Runoff Area=11,829 sf 0.00% Impervious Runoff Depth>0.06"
Flow Length=81' Slope=0.2470 '/' Tc=5.0 min CN=39 Runoff=0.00 cfs 63 cf

Subcatchment 30S: Runoff Area=33 sf 100.00% Impervious Runoff Depth>3.92"
Tc=3.0 min CN=98 Runoff=0.00 cfs 11 cf

Reach 10R: POC #1 Inflow=0.01 cfs 143 cf
Outflow=0.01 cfs 143 cf

Reach 20R: POC #2 Inflow=0.00 cfs 63 cf
Outflow=0.00 cfs 63 cf

Reach 30R: POC#3 Inflow=0.00 cfs 11 cf
Outflow=0.00 cfs 11 cf

Total Runoff Area = 39,900 sf Runoff Volume = 216 cf Average Runoff Depth = 0.06"
99.92% Pervious = 39,867 sf 0.08% Impervious = 33 sf

Summary for Subcatchment 10S:

Runoff = 0.01 cfs @ 15.80 hrs, Volume= 143 cf, Depth> 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.16"

Area (sf)	CN	Description
28,038	39	>75% Grass cover, Good, HSG A
28,038		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0120	0.14		**Sheet Flow,** Range n= 0.130 P2= 2.75"
30.6	575	0.0020	0.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
42.2	675	Total			

Summary for Subcatchment 20S:

Runoff = 0.00 cfs @ 15.23 hrs, Volume= 63 cf, Depth> 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.16"

Area (sf)	CN	Description
11,829	39	>75% Grass cover, Good, HSG A
11,829		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	81	0.2470	0.46		**Sheet Flow,** Range n= 0.130 P2= 2.75"
2.1					**Direct Entry,**
5.0	81	Total			

Summary for Subcatchment 30S:

Runoff = 0.00 cfs @ 12.04 hrs, Volume= 11 cf, Depth> 3.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.16"

Area (sf)	CN	Description
33	98	Paved parking, HSG A
33		100.00% Impervious Area

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

Summary for Reach 10R: POC #1

Inflow Area = 28,038 sf, 0.00% Impervious, Inflow Depth > 0.06" for 10 year event
Inflow = 0.01 cfs @ 15.80 hrs, Volume= 143 cf
Outflow = 0.01 cfs @ 15.80 hrs, Volume= 143 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach 20R: POC #2

Inflow Area = 11,829 sf, 0.00% Impervious, Inflow Depth > 0.06" for 10 year event
Inflow = 0.00 cfs @ 15.23 hrs, Volume= 63 cf
Outflow = 0.00 cfs @ 15.23 hrs, Volume= 63 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach 30R: POC#3

Inflow Area = 33 sf,100.00% Impervious, Inflow Depth > 3.92" for 10 year event
Inflow = 0.00 cfs @ 12.04 hrs, Volume= 11 cf
Outflow = 0.00 cfs @ 12.04 hrs, Volume= 11 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: Runoff Area=28,038 sf 0.00% Impervious Runoff Depth>0.24"
Flow Length=675' Tc=42.2 min CN=39 Runoff=0.02 cfs 551 cf

Subcatchment 20S: Runoff Area=11,829 sf 0.00% Impervious Runoff Depth>0.24"
Flow Length=81' Slope=0.2470 '/' Tc=5.0 min CN=39 Runoff=0.02 cfs 238 cf

Subcatchment 30S: Runoff Area=33 sf 100.00% Impervious Runoff Depth>4.96"
Tc=3.0 min CN=98 Runoff=0.00 cfs 14 cf

Reach 10R: POC #1 Inflow=0.02 cfs 551 cf
Outflow=0.02 cfs 551 cf

Reach 20R: POC #2 Inflow=0.02 cfs 238 cf
Outflow=0.02 cfs 238 cf

Reach 30R: POC#3 Inflow=0.00 cfs 14 cf
Outflow=0.00 cfs 14 cf

Total Runoff Area = 39,900 sf Runoff Volume = 803 cf Average Runoff Depth = 0.24"
99.92% Pervious = 39,867 sf 0.08% Impervious = 33 sf

Summary for Subcatchment 10S:

Runoff = 0.02 cfs @ 13.18 hrs, Volume= 551 cf, Depth> 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.20"

Area (sf)	CN	Description
28,038	39	>75% Grass cover, Good, HSG A
28,038		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0120	0.14		**Sheet Flow,** Range n= 0.130 P2= 2.75"
30.6	575	0.0020	0.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
42.2	675	Total			

Summary for Subcatchment 20S:

Runoff = 0.02 cfs @ 12.43 hrs, Volume= 238 cf, Depth> 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.20"

Area (sf)	CN	Description
11,829	39	>75% Grass cover, Good, HSG A
11,829		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	81	0.2470	0.46		**Sheet Flow,** Range n= 0.130 P2= 2.75"
2.1					**Direct Entry,**
5.0	81	Total			

Summary for Subcatchment 30S:

Runoff = 0.00 cfs @ 12.04 hrs, Volume= 14 cf, Depth> 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.20"

Area (sf)	CN	Description
33	98	Paved parking, HSG A
33		100.00% Impervious Area

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

Summary for Reach 10R: POC #1

Inflow Area = 28,038 sf, 0.00% Impervious, Inflow Depth > 0.24" for 25 year event
Inflow = 0.02 cfs @ 13.18 hrs, Volume= 551 cf
Outflow = 0.02 cfs @ 13.18 hrs, Volume= 551 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach 20R: POC #2

Inflow Area = 11,829 sf, 0.00% Impervious, Inflow Depth > 0.24" for 25 year event
Inflow = 0.02 cfs @ 12.43 hrs, Volume= 238 cf
Outflow = 0.02 cfs @ 12.43 hrs, Volume= 238 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach 30R: POC#3

Inflow Area = 33 sf,100.00% Impervious, Inflow Depth > 4.96" for 25 year event
Inflow = 0.00 cfs @ 12.04 hrs, Volume= 14 cf
Outflow = 0.00 cfs @ 12.04 hrs, Volume= 14 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: Runoff Area=28,038 sf 0.00% Impervious Runoff Depth>0.87"
Flow Length=675' Tc=42.2 min CN=39 Runoff=0.20 cfs 2,024 cf

Subcatchment 20S: Runoff Area=11,829 sf 0.00% Impervious Runoff Depth>0.88"
Flow Length=81' Slope=0.2470 '/' Tc=5.0 min CN=39 Runoff=0.16 cfs 868 cf

Subcatchment 30S: Runoff Area=33 sf 100.00% Impervious Runoff Depth>7.07"
Tc=3.0 min CN=98 Runoff=0.01 cfs 19 cf

Reach 10R: POC #1 Inflow=0.20 cfs 2,024 cf
Outflow=0.20 cfs 2,024 cf

Reach 20R: POC #2 Inflow=0.16 cfs 868 cf
Outflow=0.16 cfs 868 cf

Reach 30R: POC#3 Inflow=0.01 cfs 19 cf
Outflow=0.01 cfs 19 cf

Total Runoff Area = 39,900 sf Runoff Volume = 2,911 cf Average Runoff Depth = 0.88"
99.92% Pervious = 39,867 sf 0.08% Impervious = 33 sf

Summary for Subcatchment 10S:

Runoff = 0.20 cfs @ 12.79 hrs, Volume= 2,024 cf, Depth> 0.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=7.31"

Area (sf)	CN	Description
28,038	39	>75% Grass cover, Good, HSG A
28,038		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0120	0.14		**Sheet Flow,** Range n= 0.130 P2= 2.75"
30.6	575	0.0020	0.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
42.2	675	Total			

Summary for Subcatchment 20S:

Runoff = 0.16 cfs @ 12.12 hrs, Volume= 868 cf, Depth> 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=7.31"

Area (sf)	CN	Description
11,829	39	>75% Grass cover, Good, HSG A
11,829		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	81	0.2470	0.46		**Sheet Flow,** Range n= 0.130 P2= 2.75"
2.1					**Direct Entry,**
5.0	81	Total			

Summary for Subcatchment 30S:

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 19 cf, Depth> 7.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=7.31"

Area (sf)	CN	Description
33	98	Paved parking, HSG A
33		100.00% Impervious Area

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

Summary for Reach 10R: POC #1

Inflow Area = 28,038 sf, 0.00% Impervious, Inflow Depth > 0.87" for 100 year event
Inflow = 0.20 cfs @ 12.79 hrs, Volume= 2,024 cf
Outflow = 0.20 cfs @ 12.79 hrs, Volume= 2,024 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach 20R: POC #2

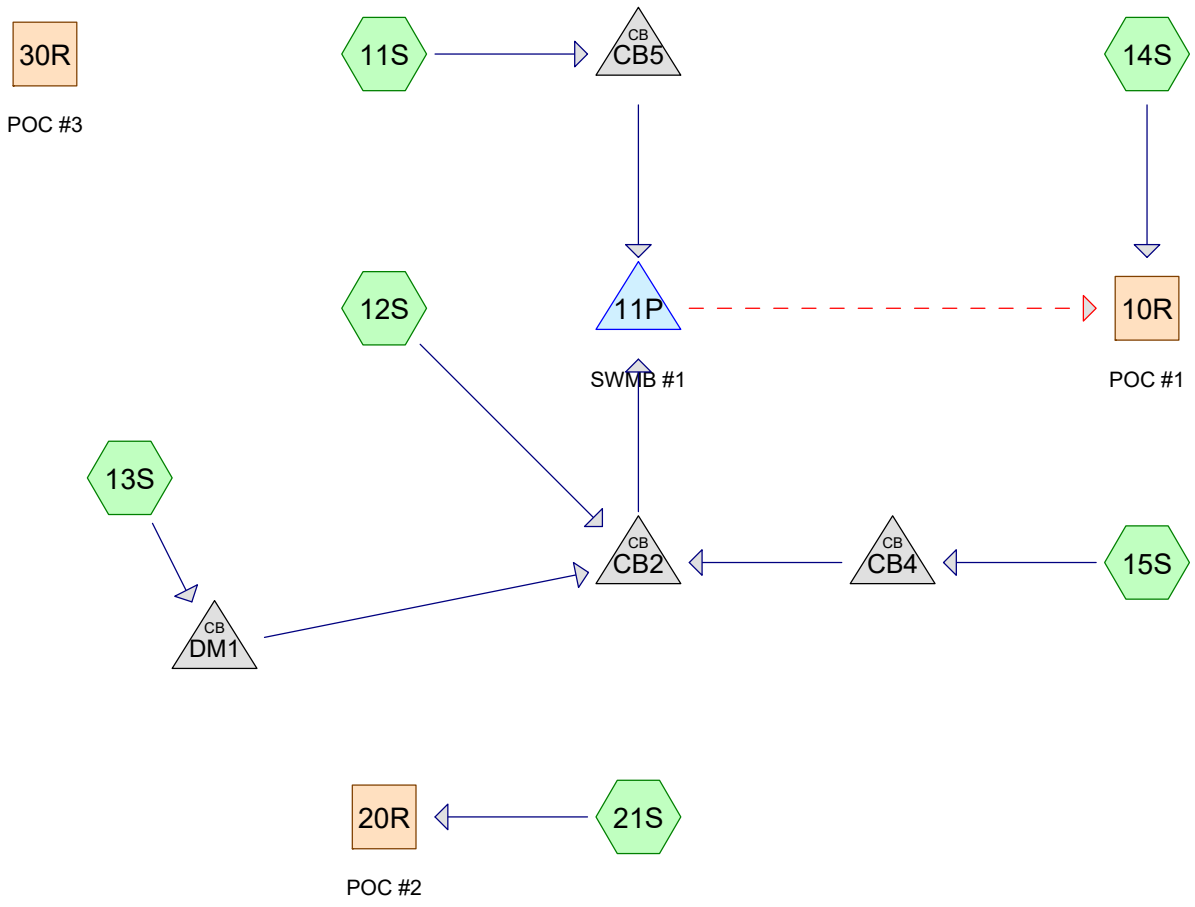
Inflow Area = 11,829 sf, 0.00% Impervious, Inflow Depth > 0.88" for 100 year event
Inflow = 0.16 cfs @ 12.12 hrs, Volume= 868 cf
Outflow = 0.16 cfs @ 12.12 hrs, Volume= 868 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach 30R: POC#3

Inflow Area = 33 sf,100.00% Impervious, Inflow Depth > 7.07" for 100 year event
Inflow = 0.01 cfs @ 12.04 hrs, Volume= 19 cf
Outflow = 0.01 cfs @ 12.04 hrs, Volume= 19 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs



Subcat Reach Pond Link

Routing Diagram for 24063_POST-DEVELOPED
Prepared by Northpoint Engineering, LLC, Printed 3/19/2025

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
4,944	39	>75% Grass cover, Good, HSG A (14S, 15S, 21S)
23,406	98	Paved parking, HSG A (11S, 12S, 13S, 15S)
11,550	98	Roofs, HSG A (11S, 12S)
39,900	**91**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
39,900	HSG A	11S, 12S, 13S, 14S, 15S, 21S
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
39,900		**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 11S: Runoff Area=13,847 sf 100.00% Impervious Runoff Depth=2.59"
Tc=3.0 min CN=98 Runoff=0.97 cfs 2,988 cf

Subcatchment 12S: Runoff Area=13,405 sf 100.00% Impervious Runoff Depth=2.59"
Tc=3.0 min CN=98 Runoff=0.93 cfs 2,892 cf

Subcatchment 13S: Runoff Area=5,075 sf 100.00% Impervious Runoff Depth=2.59"
Tc=3.0 min CN=98 Runoff=0.35 cfs 1,095 cf

Subcatchment 14S: Runoff Area=2,585 sf 0.00% Impervious Runoff Depth=0.00"
Tc=3.0 min CN=39 Runoff=0.00 cfs 0 cf

Subcatchment 15S: Runoff Area=3,723 sf 70.62% Impervious Runoff Depth=1.18"
Tc=3.0 min CN=81 Runoff=0.13 cfs 365 cf

Subcatchment 21S: Runoff Area=1,265 sf 0.00% Impervious Runoff Depth=0.00"
Tc=3.0 min CN=39 Runoff=0.00 cfs 0 cf

Reach 10R: POC #1 Inflow=0.00 cfs 0 cf
Outflow=0.00 cfs 0 cf

Reach 20R: POC #2 Inflow=0.00 cfs 0 cf
Outflow=0.00 cfs 0 cf

Reach 30R: POC #3
Outflow=0.00 cfs 0 cf

Pond 11P: SWMB #1 Peak Elev=335.06' Storage=2,077 cf Inflow=2.38 cfs 7,340 cf
Discarded=0.33 cfs 7,342 cf Secondary=0.00 cfs 0 cf Outflow=0.33 cfs 7,342 cf

Pond CB2: Peak Elev=336.75' Inflow=1.42 cfs 4,352 cf
15.0" Round Culvert n=0.012 L=12.0' S=0.0050 '/' Outflow=1.42 cfs 4,352 cf

Pond CB4: Peak Elev=336.76' Inflow=0.13 cfs 365 cf
15.0" Round Culvert n=0.012 L=39.0' S=0.0051 '/' Outflow=0.13 cfs 365 cf

Pond CB5: Peak Elev=337.66' Inflow=0.97 cfs 2,988 cf
15.0" Round Culvert n=0.012 L=12.0' S=0.1000 '/' Outflow=0.97 cfs 2,988 cf

Pond DM1: Peak Elev=338.28' Inflow=0.35 cfs 1,095 cf
15.0" Round Culvert n=0.012 L=85.0' S=0.0051 '/' Outflow=0.35 cfs 1,095 cf

Total Runoff Area = 39,900 sf Runoff Volume = 7,340 cf Average Runoff Depth = 2.21"
12.39% Pervious = 4,944 sf 87.61% Impervious = 34,956 sf

Summary for Subcatchment 11S:

Runoff = 0.97 cfs @ 12.04 hrs, Volume= 2,988 cf, Depth= 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=2.82"

Area (sf)	CN	Description
7,254	98	Paved parking, HSG A
6,593	98	Roofs, HSG A
13,847	98	Weighted Average
13,847		100.00% Impervious Area

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

Summary for Subcatchment 12S:

Runoff = 0.93 cfs @ 12.04 hrs, Volume= 2,892 cf, Depth= 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=2.82"

Area (sf)	CN	Description
8,448	98	Paved parking, HSG A
4,957	98	Roofs, HSG A
13,405	98	Weighted Average
13,405		100.00% Impervious Area

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

Summary for Subcatchment 13S:

Runoff = 0.35 cfs @ 12.04 hrs, Volume= 1,095 cf, Depth= 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=2.82"

Area (sf)	CN	Description
5,075	98	Paved parking, HSG A
5,075		100.00% Impervious Area

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

Summary for Subcatchment 14S:

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

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=2.82"

Area (sf)	CN	Description
2,585	39	>75% Grass cover, Good, HSG A
2,585		100.00% Pervious Area

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

Summary for Subcatchment 15S:

Runoff = 0.13 cfs @ 12.05 hrs, Volume= 365 cf, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=2.82"

Area (sf)	CN	Description
2,629	98	Paved parking, HSG A
1,094	39	>75% Grass cover, Good, HSG A
3,723	81	Weighted Average
1,094		29.38% Pervious Area
2,629		70.62% Impervious Area

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

Summary for Subcatchment 21S:

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

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 year Rainfall=2.82"

Area (sf)	CN	Description
1,265	39	>75% Grass cover, Good, HSG A
1,265		100.00% Pervious Area

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

Summary for Reach 10R: POC #1

Inflow Area = 2,585 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2 year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach 20R: POC #2

Inflow Area = 1,265 sf, 0.00% Impervious, Inflow Depth = 0.00" for 2 year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach 30R: POC #3

Summary for Pond 11P: SWMB #1

Inflow Area = 36,050 sf, 96.97% Impervious, Inflow Depth = 2.44" for 2 year event
Inflow = 2.38 cfs @ 12.04 hrs, Volume= 7,340 cf
Outflow = 0.33 cfs @ 12.51 hrs, Volume= 7,342 cf, Atten= 86%, Lag= 28.2 min
Discarded = 0.33 cfs @ 12.51 hrs, Volume= 7,342 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 335.06' @ 12.51 hrs Surf.Area= 3,930 sf Storage= 2,077 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 37.3 min (798.0 - 760.7)

Volume	Invert	Avail.Storage	Storage Description
#1	334.14'	3,756 cf	**Stone Trench (Prismatic)** Listed below (Recalc) 13,755 cf Overall - 4,364 cf Embedded = 9,391 cf x 40.0% Voids
#2	334.64'	4,364 cf	**ADS_StormTech SC-740 +Cap** x 95 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 95 Chambers in 6 Rows
#3	337.00'	352 cf	**4.00'D x 4.00'H Vertical Cone/Cylinder** x 7 -Impervious
#4	338.27'	91 cf	**15.0" Round Pipe Storage**-Impervious L= 74.0' S= 0.0050 '/'
#5	338.07'	48 cf	**15.0" Round Pipe Storage**-Impervious L= 39.0' S= 0.0051 '/'
#6	337.54'	104 cf	**15.0" Round Pipe Storage**-Impervious L= 85.0' S= 0.0050 '/'
#7	336.15'	48 cf	**15.0" Round Pipe Storage**-Impervious L= 39.0' S= 0.0050 '/'
#8	334.74'	25 cf	**24.0" Round Pipe Storage**-Impervious L= 8.0'
#9	335.99'	15 cf	**15.0" Round Pipe Storage**-Impervious L= 12.0' S= 0.0050 '/'
#10	335.99'	15 cf	**15.0" Round Pipe Storage**-Impervious L= 12.0' S= 0.1000 '/'
#11	334.99'	28 cf	**12.0" Round Pipe Storage**-Impervious L= 36.0'
#12	341.59'	919 cf	**Surface Storage at CB#4 (Prismatic)** Listed below (Recalc)
		9,765 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
334.14	3,930	0	0
337.64	3,930	13,755	13,755

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
341.59	4	0	0
343.00	1,300	919	919

Device	Routing	Invert	Outlet Devices
#1	Discarded	334.14'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 330.00'
#2	Secondary	342.50'	**10.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.33 cfs @ 12.51 hrs HW=335.06' (Free Discharge)
1=Exfiltration (Controls 0.33 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=334.14' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond CB2:

Inflow Area = 22,203 sf, 95.07% Impervious, Inflow Depth = 2.35" for 2 year event
Inflow = 1.42 cfs @ 12.04 hrs, Volume= 4,352 cf
Outflow = 1.42 cfs @ 12.04 hrs, Volume= 4,352 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.42 cfs @ 12.04 hrs, Volume= 4,352 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 336.75' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	336.05'	**15.0" Round Culvert** L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 336.05' / 335.99' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.41 cfs @ 12.04 hrs HW=336.75' TW=334.72' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.41 cfs @ 2.91 fps)

Summary for Pond CB4:

Inflow Area = 3,723 sf, 70.62% Impervious, Inflow Depth = 1.18" for 2 year event
Inflow = 0.13 cfs @ 12.05 hrs, Volume= 365 cf
Outflow = 0.13 cfs @ 12.05 hrs, Volume= 365 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.13 cfs @ 12.05 hrs, Volume= 365 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 336.76' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	336.34'	**15.0" Round Culvert** L= 39.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 336.34' / 336.14' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.13 cfs @ 12.05 hrs HW=336.76' TW=336.75' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.13 cfs @ 0.55 fps)

Summary for Pond CB5:

Inflow Area = 13,847 sf,100.00% Impervious, Inflow Depth = 2.59" for 2 year event
Inflow = 0.97 cfs @ 12.04 hrs, Volume= 2,988 cf
Outflow = 0.97 cfs @ 12.04 hrs, Volume= 2,988 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.97 cfs @ 12.04 hrs, Volume= 2,988 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 337.66' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	337.19'	**15.0" Round Culvert** L= 12.0' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 337.19' / 335.99' S= 0.1000 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.96 cfs @ 12.04 hrs HW=337.65' TW=334.72' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.96 cfs @ 2.32 fps)

Summary for Pond DM1:

Inflow Area = 5,075 sf,100.00% Impervious, Inflow Depth = 2.59" for 2 year event
Inflow = 0.35 cfs @ 12.04 hrs, Volume= 1,095 cf
Outflow = 0.35 cfs @ 12.04 hrs, Volume= 1,095 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.04 hrs, Volume= 1,095 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 338.28' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	337.97'	**15.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 337.97' / 337.54' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.35 cfs @ 12.04 hrs HW=338.28' TW=336.75' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 0.35 cfs @ 2.26 fps)

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 11S: Runoff Area=13,847 sf 100.00% Impervious Runoff Depth=3.92"
Tc=3.0 min CN=98 Runoff=1.44 cfs 4,529 cf

Subcatchment 12S: Runoff Area=13,405 sf 100.00% Impervious Runoff Depth=3.92"
Tc=3.0 min CN=98 Runoff=1.39 cfs 4,384 cf

Subcatchment 13S: Runoff Area=5,075 sf 100.00% Impervious Runoff Depth=3.92"
Tc=3.0 min CN=98 Runoff=0.53 cfs 1,660 cf

Subcatchment 14S: Runoff Area=2,585 sf 0.00% Impervious Runoff Depth=0.06"
Tc=3.0 min CN=39 Runoff=0.00 cfs 14 cf

Subcatchment 15S: Runoff Area=3,723 sf 70.62% Impervious Runoff Depth=2.26"
Tc=3.0 min CN=81 Runoff=0.25 cfs 700 cf

Subcatchment 21S: Runoff Area=1,265 sf 0.00% Impervious Runoff Depth=0.06"
Tc=3.0 min CN=39 Runoff=0.00 cfs 7 cf

Reach 10R: POC #1 Inflow=0.00 cfs 14 cf
Outflow=0.00 cfs 14 cf

Reach 20R: POC #2 Inflow=0.00 cfs 7 cf
Outflow=0.00 cfs 7 cf

Reach 30R: POC #3
Outflow=0.00 cfs 0 cf

Pond 11P: SWMB #1 Peak Elev=335.61' Storage=3,710 cf Inflow=3.61 cfs 11,273 cf
Discarded=0.37 cfs 11,274 cf Secondary=0.00 cfs 0 cf Outflow=0.37 cfs 11,274 cf

Pond CB2: Peak Elev=336.94' Inflow=2.17 cfs 6,744 cf
15.0" Round Culvert n=0.012 L=12.0' S=0.0050 '/' Outflow=2.17 cfs 6,744 cf

Pond CB4: Peak Elev=336.96' Inflow=0.25 cfs 700 cf
15.0" Round Culvert n=0.012 L=39.0' S=0.0051 '/' Outflow=0.25 cfs 700 cf

Pond CB5: Peak Elev=337.77' Inflow=1.44 cfs 4,529 cf
15.0" Round Culvert n=0.012 L=12.0' S=0.1000 '/' Outflow=1.44 cfs 4,529 cf

Pond DM1: Peak Elev=338.35' Inflow=0.53 cfs 1,660 cf
15.0" Round Culvert n=0.012 L=85.0' S=0.0051 '/' Outflow=0.53 cfs 1,660 cf

Total Runoff Area = 39,900 sf Runoff Volume = 11,294 cf Average Runoff Depth = 3.40"
12.39% Pervious = 4,944 sf 87.61% Impervious = 34,956 sf

Summary for Subcatchment 11S:

Runoff = 1.44 cfs @ 12.04 hrs, Volume= 4,529 cf, Depth= 3.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.16"

Area (sf)	CN	Description
7,254	98	Paved parking, HSG A
6,593	98	Roofs, HSG A
13,847	98	Weighted Average
13,847		100.00% Impervious Area

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

Summary for Subcatchment 12S:

Runoff = 1.39 cfs @ 12.04 hrs, Volume= 4,384 cf, Depth= 3.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.16"

Area (sf)	CN	Description
8,448	98	Paved parking, HSG A
4,957	98	Roofs, HSG A
13,405	98	Weighted Average
13,405		100.00% Impervious Area

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

Summary for Subcatchment 13S:

Runoff = 0.53 cfs @ 12.04 hrs, Volume= 1,660 cf, Depth= 3.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.16"

Area (sf)	CN	Description
5,075	98	Paved parking, HSG A
5,075		100.00% Impervious Area

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

Summary for Subcatchment 14S:

Runoff = 0.00 cfs @ 15.18 hrs, Volume= 14 cf, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.16"

Area (sf)	CN	Description
2,585	39	>75% Grass cover, Good, HSG A
2,585		100.00% Pervious Area

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

Summary for Subcatchment 15S:

Runoff = 0.25 cfs @ 12.05 hrs, Volume= 700 cf, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.16"

Area (sf)	CN	Description
2,629	98	Paved parking, HSG A
1,094	39	>75% Grass cover, Good, HSG A
3,723	81	Weighted Average
1,094		29.38% Pervious Area
2,629		70.62% Impervious Area

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

Summary for Subcatchment 21S:

Runoff = 0.00 cfs @ 15.18 hrs, Volume= 7 cf, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 year Rainfall=4.16"

Area (sf)	CN	Description
1,265	39	>75% Grass cover, Good, HSG A
1,265		100.00% Pervious Area

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

Summary for Reach 10R: POC #1

Inflow Area = 2,585 sf, 0.00% Impervious, Inflow Depth = 0.06" for 10 year event
Inflow = 0.00 cfs @ 15.18 hrs, Volume= 14 cf
Outflow = 0.00 cfs @ 15.18 hrs, Volume= 14 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach 20R: POC #2

Inflow Area = 1,265 sf, 0.00% Impervious, Inflow Depth = 0.06" for 10 year event
Inflow = 0.00 cfs @ 15.18 hrs, Volume= 7 cf
Outflow = 0.00 cfs @ 15.18 hrs, Volume= 7 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach 30R: POC #3

Summary for Pond 11P: SWMB #1

Inflow Area = 36,050 sf, 96.97% Impervious, Inflow Depth = 3.75" for 10 year event
Inflow = 3.61 cfs @ 12.04 hrs, Volume= 11,273 cf
Outflow = 0.37 cfs @ 12.65 hrs, Volume= 11,274 cf, Atten= 90%, Lag= 36.4 min
Discarded = 0.37 cfs @ 12.65 hrs, Volume= 11,274 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 335.61' @ 12.65 hrs Surf.Area= 3,930 sf Storage= 3,710 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 70.3 min (823.5 - 753.2)

Volume	Invert	Avail.Storage	Storage Description
#1	334.14'	3,756 cf	**Stone Trench (Prismatic)** Listed below (Recalc) 13,755 cf Overall - 4,364 cf Embedded = 9,391 cf x 40.0% Voids
#2	334.64'	4,364 cf	**ADS_StormTech SC-740 +Cap** x 95 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 95 Chambers in 6 Rows
#3	337.00'	352 cf	**4.00'D x 4.00'H Vertical Cone/Cylinder** x 7 -Impervious
#4	338.27'	91 cf	**15.0" Round Pipe Storage**-Impervious L= 74.0' S= 0.0050 '/'
#5	338.07'	48 cf	**15.0" Round Pipe Storage**-Impervious L= 39.0' S= 0.0051 '/'
#6	337.54'	104 cf	**15.0" Round Pipe Storage**-Impervious L= 85.0' S= 0.0050 '/'
#7	336.15'	48 cf	**15.0" Round Pipe Storage**-Impervious L= 39.0' S= 0.0050 '/'
#8	334.74'	25 cf	**24.0" Round Pipe Storage**-Impervious L= 8.0'
#9	335.99'	15 cf	**15.0" Round Pipe Storage**-Impervious L= 12.0' S= 0.0050 '/'
#10	335.99'	15 cf	**15.0" Round Pipe Storage**-Impervious L= 12.0' S= 0.1000 '/'
#11	334.99'	28 cf	**12.0" Round Pipe Storage**-Impervious L= 36.0'
#12	341.59'	919 cf	**Surface Storage at CB#4 (Prismatic)** Listed below (Recalc)
		9,765 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
334.14	3,930	0	0
337.64	3,930	13,755	13,755

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
341.59	4	0	0
343.00	1,300	919	919

Device	Routing	Invert	Outlet Devices
#1	Discarded	334.14'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 330.00'
#2	Secondary	342.50'	**10.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.37 cfs @ 12.65 hrs HW=335.61' (Free Discharge)
1=Exfiltration (Controls 0.37 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=334.14' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond CB2:

Inflow Area = 22,203 sf, 95.07% Impervious, Inflow Depth = 3.65" for 10 year event
Inflow = 2.17 cfs @ 12.04 hrs, Volume= 6,744 cf
Outflow = 2.17 cfs @ 12.04 hrs, Volume= 6,744 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.17 cfs @ 12.04 hrs, Volume= 6,744 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 336.94' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	336.05'	**15.0" Round Culvert** L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 336.05' / 335.99' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.16 cfs @ 12.04 hrs HW=336.94' TW=335.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 2.16 cfs @ 3.25 fps)

Summary for Pond CB4:

Inflow Area = 3,723 sf, 70.62% Impervious, Inflow Depth = 2.26" for 10 year event
Inflow = 0.25 cfs @ 12.05 hrs, Volume= 700 cf
Outflow = 0.25 cfs @ 12.05 hrs, Volume= 700 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.25 cfs @ 12.05 hrs, Volume= 700 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 336.96' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	336.34'	**15.0" Round Culvert** L= 39.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 336.34' / 336.14' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.23 cfs @ 12.05 hrs HW=336.95' TW=336.94' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.23 cfs @ 0.57 fps)

Summary for Pond CB5:

Inflow Area = 13,847 sf,100.00% Impervious, Inflow Depth = 3.92" for 10 year event
Inflow = 1.44 cfs @ 12.04 hrs, Volume= 4,529 cf
Outflow = 1.44 cfs @ 12.04 hrs, Volume= 4,529 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.44 cfs @ 12.04 hrs, Volume= 4,529 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 337.77' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	337.19'	**15.0" Round Culvert** L= 12.0' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 337.19' / 335.99' S= 0.1000 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.43 cfs @ 12.04 hrs HW=337.77' TW=335.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.43 cfs @ 2.59 fps)

Summary for Pond DM1:

Inflow Area = 5,075 sf,100.00% Impervious, Inflow Depth = 3.92" for 10 year event
Inflow = 0.53 cfs @ 12.04 hrs, Volume= 1,660 cf
Outflow = 0.53 cfs @ 12.04 hrs, Volume= 1,660 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.53 cfs @ 12.04 hrs, Volume= 1,660 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 338.35' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	337.97'	**15.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 337.97' / 337.54' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.53 cfs @ 12.04 hrs HW=338.35' TW=336.94' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.53 cfs @ 2.51 fps)

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 11S: Runoff Area=13,847 sf 100.00% Impervious Runoff Depth=4.96"
Tc=3.0 min CN=98 Runoff=1.80 cfs 5,727 cf

Subcatchment 12S: Runoff Area=13,405 sf 100.00% Impervious Runoff Depth=4.96"
Tc=3.0 min CN=98 Runoff=1.74 cfs 5,544 cf

Subcatchment 13S: Runoff Area=5,075 sf 100.00% Impervious Runoff Depth=4.96"
Tc=3.0 min CN=98 Runoff=0.66 cfs 2,099 cf

Subcatchment 14S: Runoff Area=2,585 sf 0.00% Impervious Runoff Depth=0.24"
Tc=3.0 min CN=39 Runoff=0.00 cfs 52 cf

Subcatchment 15S: Runoff Area=3,723 sf 70.62% Impervious Runoff Depth=3.16"
Tc=3.0 min CN=81 Runoff=0.35 cfs 981 cf

Subcatchment 21S: Runoff Area=1,265 sf 0.00% Impervious Runoff Depth=0.24"
Tc=3.0 min CN=39 Runoff=0.00 cfs 26 cf

Reach 10R: POC #1 Inflow=0.00 cfs 52 cf
Outflow=0.00 cfs 52 cf

Reach 20R: POC #2 Inflow=0.00 cfs 26 cf
Outflow=0.00 cfs 26 cf

Reach 30R: POC #3
Outflow=0.00 cfs 0 cf

Pond 11P: SWMB #1 Peak Elev=336.10' Storage=5,101 cf Inflow=4.56 cfs 14,351 cf
Discarded=0.40 cfs 14,354 cf Secondary=0.00 cfs 0 cf Outflow=0.40 cfs 14,354 cf

Pond CB2: Peak Elev=337.08' Inflow=2.76 cfs 8,624 cf
15.0" Round Culvert n=0.012 L=12.0' S=0.0050 '/' Outflow=2.76 cfs 8,624 cf

Pond CB4: Peak Elev=337.09' Inflow=0.35 cfs 981 cf
15.0" Round Culvert n=0.012 L=39.0' S=0.0051 '/' Outflow=0.35 cfs 981 cf

Pond CB5: Peak Elev=337.85' Inflow=1.80 cfs 5,727 cf
15.0" Round Culvert n=0.012 L=12.0' S=0.1000 '/' Outflow=1.80 cfs 5,727 cf

Pond DM1: Peak Elev=338.40' Inflow=0.66 cfs 2,099 cf
15.0" Round Culvert n=0.012 L=85.0' S=0.0051 '/' Outflow=0.66 cfs 2,099 cf

Total Runoff Area = 39,900 sf Runoff Volume = 14,429 cf Average Runoff Depth = 4.34"
12.39% Pervious = 4,944 sf 87.61% Impervious = 34,956 sf

Summary for Subcatchment 11S:

Runoff = 1.80 cfs @ 12.04 hrs, Volume= 5,727 cf, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.20"

Area (sf)	CN	Description
7,254	98	Paved parking, HSG A
6,593	98	Roofs, HSG A
13,847	98	Weighted Average
13,847		100.00% Impervious Area

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

Summary for Subcatchment 12S:

Runoff = 1.74 cfs @ 12.04 hrs, Volume= 5,544 cf, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.20"

Area (sf)	CN	Description
8,448	98	Paved parking, HSG A
4,957	98	Roofs, HSG A
13,405	98	Weighted Average
13,405		100.00% Impervious Area

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

Summary for Subcatchment 13S:

Runoff = 0.66 cfs @ 12.04 hrs, Volume= 2,099 cf, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.20"

Area (sf)	CN	Description
5,075	98	Paved parking, HSG A
5,075		100.00% Impervious Area

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

Summary for Subcatchment 14S:

Runoff = 0.00 cfs @ 12.39 hrs, Volume= 52 cf, Depth= 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.20"

Area (sf)	CN	Description
2,585	39	>75% Grass cover, Good, HSG A
2,585		100.00% Pervious Area

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

Summary for Subcatchment 15S:

Runoff = 0.35 cfs @ 12.05 hrs, Volume= 981 cf, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.20"

Area (sf)	CN	Description
2,629	98	Paved parking, HSG A
1,094	39	>75% Grass cover, Good, HSG A
3,723	81	Weighted Average
1,094		29.38% Pervious Area
2,629		70.62% Impervious Area

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

Summary for Subcatchment 21S:

Runoff = 0.00 cfs @ 12.39 hrs, Volume= 26 cf, Depth= 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 year Rainfall=5.20"

Area (sf)	CN	Description
1,265	39	>75% Grass cover, Good, HSG A
1,265		100.00% Pervious Area

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

Summary for Reach 10R: POC #1

Inflow Area = 2,585 sf, 0.00% Impervious, Inflow Depth = 0.24" for 25 year event
Inflow = 0.00 cfs @ 12.39 hrs, Volume= 52 cf
Outflow = 0.00 cfs @ 12.39 hrs, Volume= 52 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach 20R: POC #2

Inflow Area = 1,265 sf, 0.00% Impervious, Inflow Depth = 0.24" for 25 year event
Inflow = 0.00 cfs @ 12.39 hrs, Volume= 26 cf
Outflow = 0.00 cfs @ 12.39 hrs, Volume= 26 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach 30R: POC #3

Summary for Pond 11P: SWMB #1

Inflow Area = 36,050 sf, 96.97% Impervious, Inflow Depth = 4.78" for 25 year event
Inflow = 4.56 cfs @ 12.04 hrs, Volume= 14,351 cf
Outflow = 0.40 cfs @ 12.81 hrs, Volume= 14,354 cf, Atten= 91%, Lag= 46.1 min
Discarded = 0.40 cfs @ 12.81 hrs, Volume= 14,354 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 336.10' @ 12.81 hrs Surf.Area= 3,930 sf Storage= 5,101 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 96.4 min (845.8 - 749.4)

Volume	Invert	Avail.Storage	Storage Description
#1	334.14'	3,756 cf	**Stone Trench (Prismatic)**Listed below (Recalc) 13,755 cf Overall - 4,364 cf Embedded = 9,391 cf x 40.0% Voids
#2	334.64'	4,364 cf	**ADS_StormTech SC-740 +Cap** x 95 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 95 Chambers in 6 Rows
#3	337.00'	352 cf	**4.00'D x 4.00'H Vertical Cone/Cylinder** x 7 -Impervious
#4	338.27'	91 cf	**15.0" Round Pipe Storage**-Impervious L= 74.0' S= 0.0050 '/'
#5	338.07'	48 cf	**15.0" Round Pipe Storage**-Impervious L= 39.0' S= 0.0051 '/'
#6	337.54'	104 cf	**15.0" Round Pipe Storage**-Impervious L= 85.0' S= 0.0050 '/'
#7	336.15'	48 cf	**15.0" Round Pipe Storage**-Impervious L= 39.0' S= 0.0050 '/'
#8	334.74'	25 cf	**24.0" Round Pipe Storage**-Impervious L= 8.0'
#9	335.99'	15 cf	**15.0" Round Pipe Storage**-Impervious L= 12.0' S= 0.0050 '/'
#10	335.99'	15 cf	**15.0" Round Pipe Storage**-Impervious L= 12.0' S= 0.1000 '/'
#11	334.99'	28 cf	**12.0" Round Pipe Storage**-Impervious L= 36.0'
#12	341.59'	919 cf	**Surface Storage at CB#4 (Prismatic)**Listed below (Recalc)
		9,765 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
334.14	3,930	0	0
337.64	3,930	13,755	13,755

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
341.59	4	0	0
343.00	1,300	919	919

Device	Routing	Invert	Outlet Devices
#1	Discarded	334.14'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 330.00'
#2	Secondary	342.50'	**10.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.40 cfs @ 12.81 hrs HW=336.10' (Free Discharge)
1=Exfiltration (Controls 0.40 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=334.14' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond CB2:

Inflow Area = 22,203 sf, 95.07% Impervious, Inflow Depth = 4.66" for 25 year event
Inflow = 2.76 cfs @ 12.04 hrs, Volume= 8,624 cf
Outflow = 2.76 cfs @ 12.04 hrs, Volume= 8,624 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.76 cfs @ 12.04 hrs, Volume= 8,624 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 337.08' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	336.05'	**15.0" Round Culvert** L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 336.05' / 335.99' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.75 cfs @ 12.04 hrs HW=337.08' TW=335.24' (Dynamic Tailwater)
1=Culvert (Barrel Controls 2.75 cfs @ 3.46 fps)

Summary for Pond CB4:

Inflow Area = 3,723 sf, 70.62% Impervious, Inflow Depth = 3.16" for 25 year event
Inflow = 0.35 cfs @ 12.05 hrs, Volume= 981 cf
Outflow = 0.35 cfs @ 12.05 hrs, Volume= 981 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 12.05 hrs, Volume= 981 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 337.09' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	336.34'	**15.0" Round Culvert** L= 39.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 336.34' / 336.14' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.30 cfs @ 12.05 hrs HW=337.09' TW=337.08' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.30 cfs @ 0.56 fps)

Summary for Pond CB5:

Inflow Area = 13,847 sf,100.00% Impervious, Inflow Depth = 4.96" for 25 year event
Inflow = 1.80 cfs @ 12.04 hrs, Volume= 5,727 cf
Outflow = 1.80 cfs @ 12.04 hrs, Volume= 5,727 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.80 cfs @ 12.04 hrs, Volume= 5,727 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 337.85' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	337.19'	**15.0" Round Culvert** L= 12.0' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 337.19' / 335.99' S= 0.1000 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.80 cfs @ 12.04 hrs HW=337.85' TW=335.24' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 1.80 cfs @ 2.76 fps)

Summary for Pond DM1:

Inflow Area = 5,075 sf,100.00% Impervious, Inflow Depth = 4.96" for 25 year event
Inflow = 0.66 cfs @ 12.04 hrs, Volume= 2,099 cf
Outflow = 0.66 cfs @ 12.04 hrs, Volume= 2,099 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.66 cfs @ 12.04 hrs, Volume= 2,099 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 338.40' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	337.97'	**15.0" Round Culvert**
			L= 85.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 337.97' / 337.54' S= 0.0051 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.66 cfs @ 12.04 hrs HW=338.40' TW=337.08' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 0.66 cfs @ 2.67 fps)

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment11S: Runoff Area=13,847 sf 100.00% Impervious Runoff Depth=7.07"
Tc=3.0 min CN=98 Runoff=2.54 cfs 8,159 cf

Subcatchment12S: Runoff Area=13,405 sf 100.00% Impervious Runoff Depth=7.07"
Tc=3.0 min CN=98 Runoff=2.46 cfs 7,899 cf

Subcatchment13S: Runoff Area=5,075 sf 100.00% Impervious Runoff Depth=7.07"
Tc=3.0 min CN=98 Runoff=0.93 cfs 2,990 cf

Subcatchment14S: Runoff Area=2,585 sf 0.00% Impervious Runoff Depth=0.88"
Tc=3.0 min CN=39 Runoff=0.04 cfs 190 cf

Subcatchment15S: Runoff Area=3,723 sf 70.62% Impervious Runoff Depth=5.09"
Tc=3.0 min CN=81 Runoff=0.56 cfs 1,580 cf

Subcatchment21S: Runoff Area=1,265 sf 0.00% Impervious Runoff Depth=0.88"
Tc=3.0 min CN=39 Runoff=0.02 cfs 93 cf

Reach 10R: POC #1 Inflow=0.04 cfs 190 cf
Outflow=0.04 cfs 190 cf

Reach 20R: POC #2 Inflow=0.02 cfs 93 cf
Outflow=0.02 cfs 93 cf

Reach 30R: POC #3
Outflow=0.00 cfs 0 cf

Pond 11P: SWMB #1 Peak Elev=337.55' Storage=8,156 cf Inflow=6.49 cfs 20,628 cf
Discarded=0.50 cfs 20,630 cf Secondary=0.00 cfs 0 cf Outflow=0.50 cfs 20,630 cf

Pond CB2: Peak Elev=337.55' Inflow=3.95 cfs 12,469 cf
15.0" Round Culvert n=0.012 L=12.0' S=0.0050 '/' Outflow=3.95 cfs 12,469 cf

Pond CB4: Peak Elev=337.55' Inflow=0.56 cfs 1,580 cf
15.0" Round Culvert n=0.012 L=39.0' S=0.0051 '/' Outflow=0.56 cfs 1,580 cf

Pond CB5: Peak Elev=337.99' Inflow=2.54 cfs 8,159 cf
15.0" Round Culvert n=0.012 L=12.0' S=0.1000 '/' Outflow=2.54 cfs 8,159 cf

Pond DM1: Peak Elev=338.48' Inflow=0.93 cfs 2,990 cf
15.0" Round Culvert n=0.012 L=85.0' S=0.0051 '/' Outflow=0.93 cfs 2,990 cf

Total Runoff Area = 39,900 sf Runoff Volume = 20,911 cf Average Runoff Depth = 6.29"
12.39% Pervious = 4,944 sf 87.61% Impervious = 34,956 sf

Summary for Subcatchment 11S:

Runoff = 2.54 cfs @ 12.04 hrs, Volume= 8,159 cf, Depth= 7.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=7.31"

Area (sf)	CN	Description
7,254	98	Paved parking, HSG A
6,593	98	Roofs, HSG A
13,847	98	Weighted Average
13,847		100.00% Impervious Area

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

Summary for Subcatchment 12S:

Runoff = 2.46 cfs @ 12.04 hrs, Volume= 7,899 cf, Depth= 7.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=7.31"

Area (sf)	CN	Description
8,448	98	Paved parking, HSG A
4,957	98	Roofs, HSG A
13,405	98	Weighted Average
13,405		100.00% Impervious Area

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

Summary for Subcatchment 13S:

Runoff = 0.93 cfs @ 12.04 hrs, Volume= 2,990 cf, Depth= 7.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=7.31"

Area (sf)	CN	Description
5,075	98	Paved parking, HSG A
5,075		100.00% Impervious Area

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

Summary for Subcatchment 14S:

Runoff = 0.04 cfs @ 12.09 hrs, Volume= 190 cf, Depth= 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=7.31"

Area (sf)	CN	Description
2,585	39	>75% Grass cover, Good, HSG A
2,585		100.00% Pervious Area

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

Summary for Subcatchment 15S:

Runoff = 0.56 cfs @ 12.04 hrs, Volume= 1,580 cf, Depth= 5.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=7.31"

Area (sf)	CN	Description
2,629	98	Paved parking, HSG A
1,094	39	>75% Grass cover, Good, HSG A
3,723	81	Weighted Average
1,094		29.38% Pervious Area
2,629		70.62% Impervious Area

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

Summary for Subcatchment 21S:

Runoff = 0.02 cfs @ 12.09 hrs, Volume= 93 cf, Depth= 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 year Rainfall=7.31"

Area (sf)	CN	Description
1,265	39	>75% Grass cover, Good, HSG A
1,265		100.00% Pervious Area

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

Summary for Reach 10R: POC #1

Inflow Area = 2,585 sf, 0.00% Impervious, Inflow Depth = 0.88" for 100 year event
Inflow = 0.04 cfs @ 12.09 hrs, Volume= 190 cf
Outflow = 0.04 cfs @ 12.09 hrs, Volume= 190 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach 20R: POC #2

Inflow Area = 1,265 sf, 0.00% Impervious, Inflow Depth = 0.88" for 100 year event
Inflow = 0.02 cfs @ 12.09 hrs, Volume= 93 cf
Outflow = 0.02 cfs @ 12.09 hrs, Volume= 93 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach 30R: POC #3

Summary for Pond 11P: SWMB #1

Inflow Area = 36,050 sf, 96.97% Impervious, Inflow Depth = 6.87" for 100 year event
Inflow = 6.49 cfs @ 12.04 hrs, Volume= 20,628 cf
Outflow = 0.50 cfs @ 12.94 hrs, Volume= 20,630 cf, Atten= 92%, Lag= 54.0 min
Discarded = 0.50 cfs @ 12.94 hrs, Volume= 20,630 cf
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 337.55' @ 12.94 hrs Surf.Area= 3,930 sf Storage= 8,156 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 144.6 min (888.9 - 744.3)

Volume	Invert	Avail.Storage	Storage Description
#1	334.14'	3,756 cf	**Stone Trench (Prismatic)**Listed below (Recalc) 13,755 cf Overall - 4,364 cf Embedded = 9,391 cf x 40.0% Voids
#2	334.64'	4,364 cf	**ADS_StormTech SC-740 +Cap** x 95 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 95 Chambers in 6 Rows
#3	337.00'	352 cf	**4.00'D x 4.00'H Vertical Cone/Cylinder** x 7 -Impervious
#4	338.27'	91 cf	**15.0" Round Pipe Storage**-Impervious L= 74.0' S= 0.0050 '/'
#5	338.07'	48 cf	**15.0" Round Pipe Storage**-Impervious L= 39.0' S= 0.0051 '/'
#6	337.54'	104 cf	**15.0" Round Pipe Storage**-Impervious L= 85.0' S= 0.0050 '/'
#7	336.15'	48 cf	**15.0" Round Pipe Storage**-Impervious L= 39.0' S= 0.0050 '/'
#8	334.74'	25 cf	**24.0" Round Pipe Storage**-Impervious L= 8.0'
#9	335.99'	15 cf	**15.0" Round Pipe Storage**-Impervious L= 12.0' S= 0.0050 '/'
#10	335.99'	15 cf	**15.0" Round Pipe Storage**-Impervious L= 12.0' S= 0.1000 '/'
#11	334.99'	28 cf	**12.0" Round Pipe Storage**-Impervious L= 36.0'
#12	341.59'	919 cf	**Surface Storage at CB#4 (Prismatic)**Listed below (Recalc)
		9,765 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
334.14	3,930	0	0
337.64	3,930	13,755	13,755

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
341.59	4	0	0
343.00	1,300	919	919

Device	Routing	Invert	Outlet Devices
#1	Discarded	334.14'	**3.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 330.00'
#2	Secondary	342.50'	**10.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Discarded OutFlow Max=0.50 cfs @ 12.94 hrs HW=337.55' (Free Discharge)
1=Exfiltration (Controls 0.50 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=334.14' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond CB2:

Inflow Area = 22,203 sf, 95.07% Impervious, Inflow Depth = 6.74" for 100 year event
Inflow = 3.95 cfs @ 12.04 hrs, Volume= 12,469 cf
Outflow = 3.95 cfs @ 12.04 hrs, Volume= 12,469 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.95 cfs @ 12.04 hrs, Volume= 12,469 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 337.55' @ 12.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	336.05'	**15.0" Round Culvert** L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 336.05' / 335.99' S= 0.0050 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.94 cfs @ 12.04 hrs HW=337.35' TW=335.84' (Dynamic Tailwater)
1=Culvert (Barrel Controls 3.94 cfs @ 3.84 fps)

Summary for Pond CB4:

Inflow Area = 3,723 sf, 70.62% Impervious, Inflow Depth = 5.09" for 100 year event
Inflow = 0.56 cfs @ 12.04 hrs, Volume= 1,580 cf
Outflow = 0.56 cfs @ 12.04 hrs, Volume= 1,580 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.56 cfs @ 12.04 hrs, Volume= 1,580 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 337.55' @ 12.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	336.34'	**15.0" Round Culvert** L= 39.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 336.34' / 336.14' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.38 cfs @ 12.04 hrs HW=337.36' TW=337.35' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.38 cfs @ 0.49 fps)

Summary for Pond CB5:

Inflow Area = 13,847 sf,100.00% Impervious, Inflow Depth = 7.07" for 100 year event
Inflow = 2.54 cfs @ 12.04 hrs, Volume= 8,159 cf
Outflow = 2.54 cfs @ 12.04 hrs, Volume= 8,159 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.54 cfs @ 12.04 hrs, Volume= 8,159 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 337.99' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	337.19'	**15.0" Round Culvert** L= 12.0' CPP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 337.19' / 335.99' S= 0.1000 '/' Cc= 0.900
n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.53 cfs @ 12.04 hrs HW=337.99' TW=335.84' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 2.53 cfs @ 3.05 fps)

Summary for Pond DM1:

Inflow Area = 5,075 sf,100.00% Impervious, Inflow Depth = 7.07" for 100 year event
Inflow = 0.93 cfs @ 12.04 hrs, Volume= 2,990 cf
Outflow = 0.93 cfs @ 12.04 hrs, Volume= 2,990 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.93 cfs @ 12.04 hrs, Volume= 2,990 cf

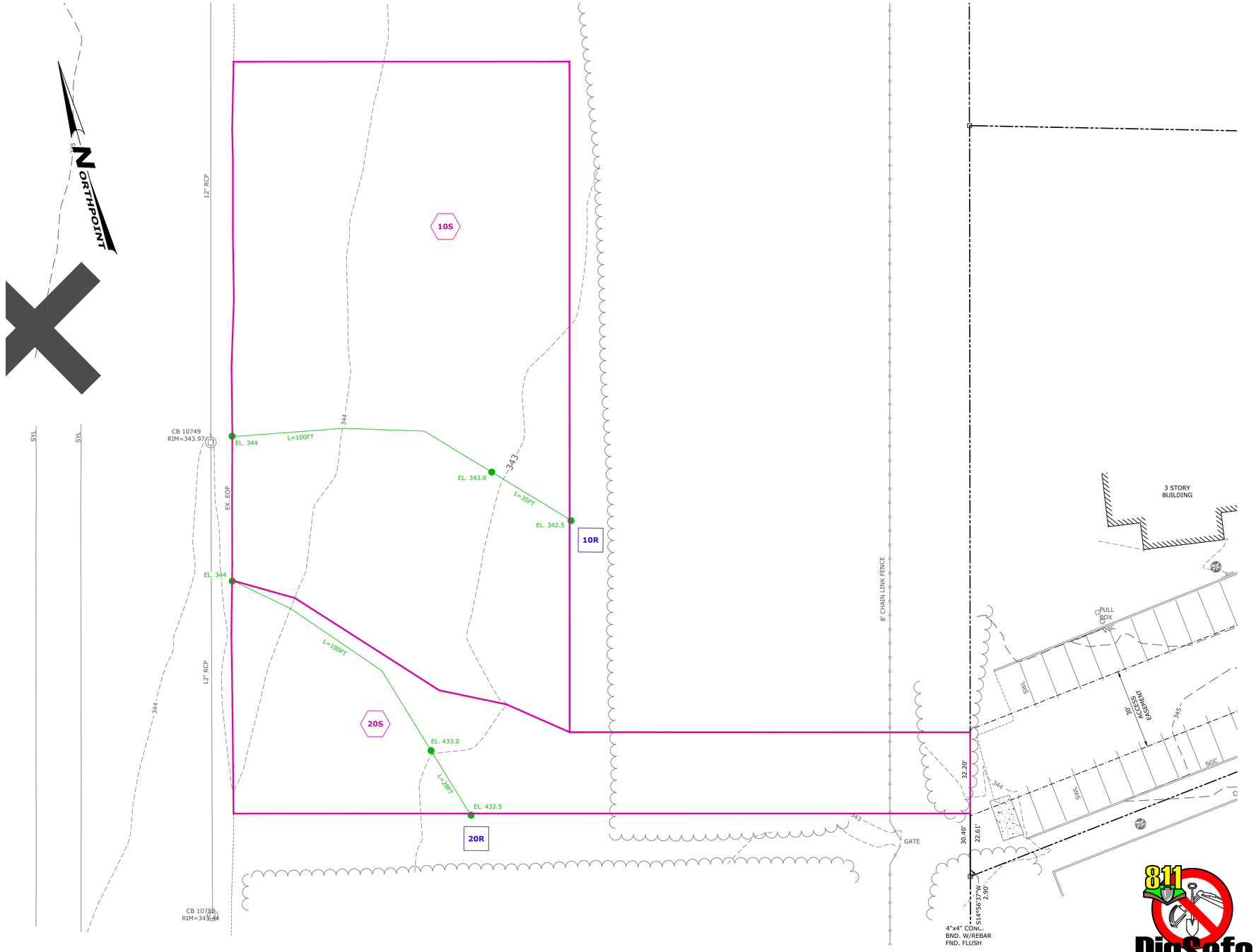
Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 338.48' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	337.97'	**15.0" Round Culvert**
			L= 85.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 337.97' / 337.54' S= 0.0051 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.93 cfs @ 12.04 hrs HW=338.48' TW=337.35' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 0.93 cfs @ 2.91 fps)

VII. Drainage Area Plans

- Pre-Developed Drainage Area Plan
- Post-Developed Drainage Area Plan



PRE-DRAINAGE LEGEND:

THIS LEGEND REFLECTS THE HYDROCAD MODEL USED FOR DRAINAGE CALCULATIONS.

- 1S — MODELED AS EXISTING SUBCATCHMENT
- SUBCATCHMENT BOUNDARIES
- EL. R1 R=XX' EL. — REACH PATH
- EL. L=XX' EL. — TIME OF CONCENTRATION
- 1R — REACH
- 1P — POND

GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)
1 inch = 20 ft.

811 DigSafe MA . ME . NH . RI . VT

PRE-DEVELOPMENT DRAINAGE AREA PLAN

PREPARED FOR:

HAMPSHIRE AVIATION - CONCORD HANGAR

PART OF 633DZ / 4 (LEASE AREA DZ-4)
CONCORD, NH

APPLICANT	OWNER
HAMPSHIRE AVIATION, LLC. 584 CURRIER ROAD HOPKINTON, NH 03229	CITY OF CONCORD - AIRPORT 41 GREEN STREET CONCORD, NH 03301-4255

REVISIONS:

NO.	DATE	DESCRIPTION

NORTHPOINT ENGINEERING, LLC
Civil Engineering ◢ Land Planning ◢ Construction Services
119 Storrs St, Ste 201
Concord, NH 03301
Tel 603-226-1166
Fax 603-226-1160
www.northpointeng.com

DATE: FEB. 2025
PROJ.: 24063
SCALE: 1"=20'
SHEET: 1 OF 1

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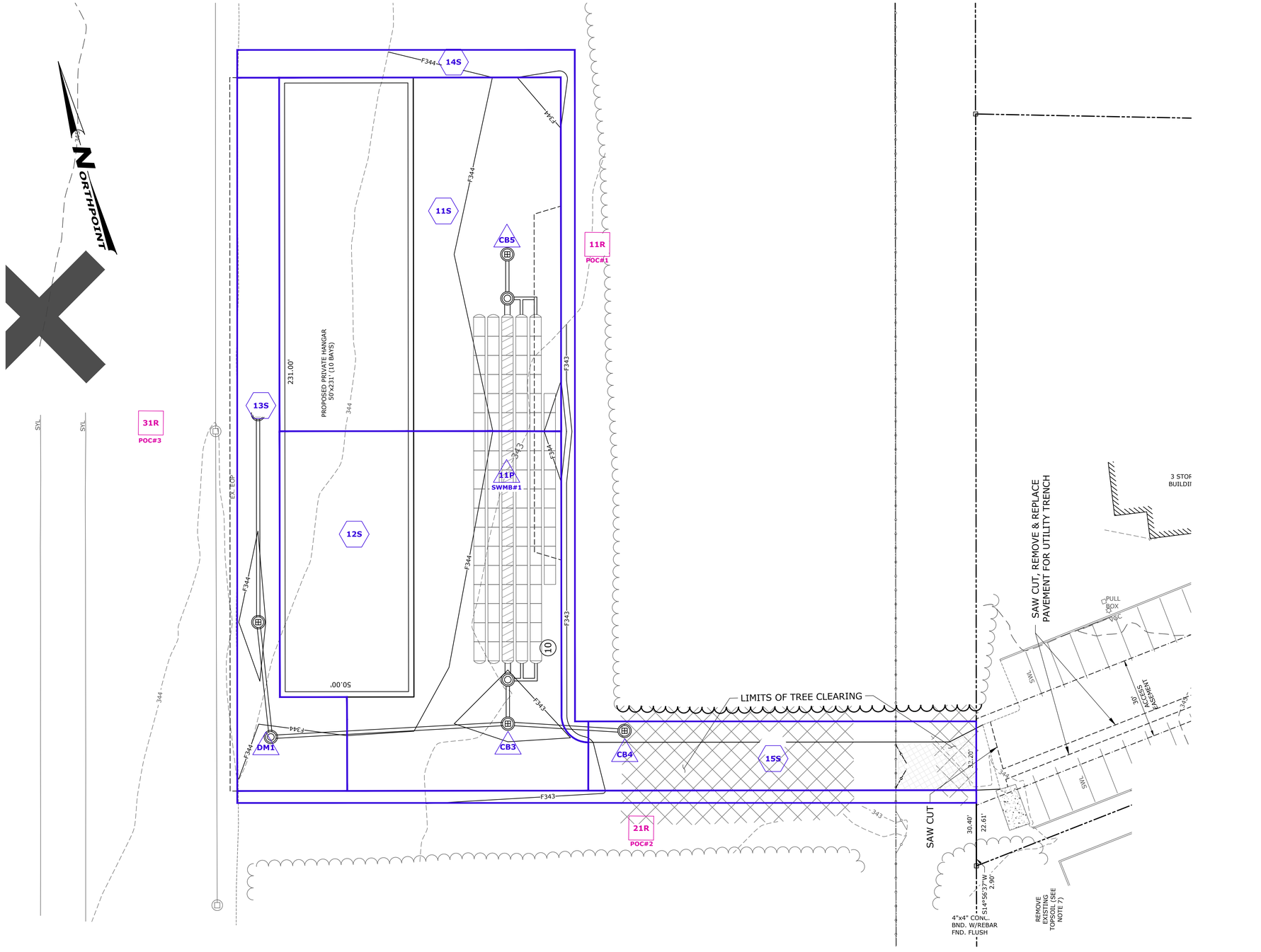

POST-DRAINAGE LEGEND:

THIS LEGEND REFLECTS THE HYDROCAD MODEL USED FOR DRAINAGE CALCULATIONS.

- 1S — MODELED AS PROPOSED SUBCATCHMENT
- SUBCATCHMENT BOUNDARIES
- EL. — R1 R=XX' — EL. — REACH PATH
- EL. — L=XX' — EL. — TIME OF CONCENTRATION
- 1R — REACH
- 1P — POND

GRAPHIC SCALE

20 0 10 20 40 60

(IN FEET)

1 inch = 20 ft.

POST-DEVELOPMENT DRAINAGE AREA PLAN

PREPARED FOR:

HAMPSHIRE AVIATION - CONCORD HANGAR

PART OF 633Z / 3 (LEASE AREA DZ-4)
38 REGIONAL DRIVE, CONCORD, NH

APPLICANT	OWNER
HAMPSHIRE AVIATION, LLC. 584 CURRIER ROAD HOPKINTON, NH 03229	CITY OF CONCORD - AIRPORT 41 GREEN STREET CONCORD, NH 03301-4255

REVISIONS:

NO.	DATE	DESCRIPTION
1	03/19/25	REVISED PER CITY COMMENTS

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