VIA EMAIL AND CERTIFIED MAIL
TRACKING #7019 1640 0001 1962 6715

Wednesday, January 20, 2021

Michael Parker, Chairman
Boston Conservation Commission
1 City Hall Square, Room 709
Boston, MA 02201

RE: Notice of Intent for proposed project under the jurisdiction of the Massachusetts Wetlands Protection Act and the Boston Wetlands Ordinance
90 Allandale Street, Assessor Parcel ID 2003592000

Dear Chairman Parker and members of the Commission:

On behalf of Stefco Holdings, LLC, enclosed herewith is an application for a Notice of Intent to redevelop the property located at 90 Allandale Street in West Roxbury. The property is described by the Boston Assessors as Parcel ID 2003592000 and is further described in registered title recorded at the Land Court division of the Suffolk Registry of Deeds in Book 674, Page 133 (the "Site").

The following documents are provided:

1. An electronic version of the MassDEP NOI, WPA Form 3, and the Fee Transmittal Form filed today via eDEP;
2. The Notice of Intent Application Form under the Boston Wetlands Ordinance;
3. Stormwater Management Report dated January 21, 2021;
4. Notice of Intent Drawings, consisting of 12 sheets;
5. Check in the amount of $2050.00 to the City of Boston; and
6. An affidavit of service, the abutter notification forms and the abutter's list.

The proposed project involves redeveloping the Site from a large single-family residence to a clustered eight-unit housing project as shown on the Drawings. Full compliance with MassDEP stormwater standards are proposed and the details of the compliance are set forth in the Stormwater Management Report.

The wetland resource areas have been previously established through the filing of an Abbreviated Notice of Resource Area Delineation filed last year. On September 3, 2020, the Commission issued an Order of Resource Area Delineation. The wetland resources shown on the Drawings reflect the Commission's Order.

Stefco Holdings, LLC is currently preparing, or scheduled to prepare, applications for the following permits:

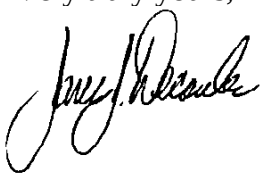
1. Article 80, Small Project Review permit from BPDA;
2. Water connection and sewage discharge permits from BWSC;
3. Sidewalk, driveway and utility permits from Boston Public Works;
4. NPDES permit from EPA for activity disturbing more than one acre;
5. Zoning Board of Appeals variance; and,
6. Building permit from ISD.

We look forward to working with the Commission to review the project and provide suitable controls to mitigate impacts and improve surrounding wetland resource area functions.

Please feel free to contact us if you have any questions or need additional information.

Thank you.

Very truly yours,



James J. Decoulos, PE, LSP
jamesj@decoulos.com

cc: MassDEP Northeast Regional Office
Richard A. Nylen, Jr., Esq., Lynch, DeSimone & Nylen, LLP
John P. Rockwood, Ph.D., PWS, EcoTec, Inc.
Stefanos C. Efstratoudakis, Manager, Stefco Holdings, LLC

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 3 - Notice of Intent
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:
eDEP Transaction #:1252111
City/Town:BOSTON

A.General Information

1. Project Location:

a. Street Address	90 ALLANDALE STREET		
b. City/Town	BOSTON	c. Zip Code	02132
d. Latitude	42.30091N	e. Longitude	71.13284W
f. Map/Plat #	2003592000	g.Parcel/Lot #	LOT B, MLC 12247H

2. Applicant:

☐ Individual ☑ Organization

a. First Name	STEFANOS	b.Last Name	EFSTRATOUDAKIS		
c. Organization	STEFCO HOLDINGS LLC				
d. Mailing Address	128 HIGHLAND STREET				
e. City/Town	NEWTON	f. State	MA	g. Zip Code	02465
h. Phone Number	617-340-6352	i. Fax		j. Email	stefano@stefcobuilders.com

3.Property Owner:

☐ more than one owner

a. First Name	STEFANOS	b. Last Name	EFSTRATOUDAKIS		
c. Organization	STEFCO HOLDINGS LLC				
d. Mailing Address	128 HIGHLAND STREET				
e. City/Town	NEWTON	f.State	MA	g. Zip Code	02465
h. Phone Number	617-340-6352	i. Fax		j.Email	stefano@stefcobuilders.com

4.Representative:

a. First Name	JAMES	b. Last Name	DECOULOS		
c. Organization	DECOULOS & COMPANY LLC				
d. Mailing Address	185 ALEWIFE BROOK PARKWAY				
e. City/Town	CAMBRIDGE	f. State	MA	g. Zip Code	02138
h.Phone Number	617-489-7795	i.Fax		j.Email	jamesj@decoulos.com

5.Total WPA Fee Paid (Automatically inserted from NOI Wetland Fee Transmittal Form):

a.Total Fee Paid	3,150.00	b.State Fee Paid	1,562.50	c.City/Town Fee Paid	1,587.50

6.General Project Description:

REDEVELOPMENT OF SINGLE FAMILY RESIDENCE INTO EIGHT CLUSTERED HOUSING UNITS.

7a.Project Type:

1. ☐ Single Family Home	2. ☑ Residential Subdivision
3. ☐ Limited Project Driveway Crossing	4. ☐ Commercial/Industrial
5. ☐ Dock/Pier	6. ☐ Utilities
7. ☐ Coastal Engineering Structure	8. ☐ Agriculture (eg., cranberries, forestry)
9. ☐ Transportation	10. ☐ Other

7b.Is any portion of the proposed activity eligible to be treated as a limited project subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☑ No If yes, describe which limited project applies to this project:
2. Limited Project

8.Property recorded at the Registry of Deeds for:

a.County:	b.Certificate:	c.Book:	d.Page:
SUFFOLK	135733		

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1.Buffer Zone & Resource Area Impacts (temporary & permanent):

☑ This is a Buffer Zone only project - Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.

2.Inland Resource Areas: (See 310 CMR 10.54 - 10.58, if not applicable, go to Section B.3. Coastal Resource Areas)

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Bank	1. linear feet	2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ☐ Land under Waterbodies and Waterways	1. Square feet	2. square feet
	3. cubic yards dredged	
d. ☐ Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced

f. ☐ Riverfront Area

1. Name of Waterway (if any)

2. Width of Riverfront Area (check one)
☐ 25 ft. - Designated Densely Developed Areas only
☐ 100 ft. - New agricultural projects only
☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project
square feet

4. Proposed Alteration of the Riverfront Area:

a. total square feet	b. square feet within 100 ft.	c. square feet between 100 ft. and 200 ft.

5. Has an alternatives analysis been done and is it attached to this NOI? ☐ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☐ Yes ☐ No

3.Coastal Resource Areas: (See 310 CMR 10.25 - 10.35)

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Designated Port Areas	Indicate size under	Land under the ocean below,
b. ☐ Land Under the Ocean	1. square feet 2. cubic yards dredged	
c. ☐ Barrier Beaches	Indicate size under Coastal Beaches and/or Coatstal Dunes, below	
d. ☐ Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. ☐ Coastal Dunes	1. square feet	2. cubic yards dune nourishment
f. ☐ Coastal Banks	1. linear feet	
g. ☐ Rocky Intertidal Shores	1. square feet	
h. ☐ Salt Marshes	1. square feet	2. sq ft restoration, rehab, crea.
i. ☐ Land Under Salt Ponds	1. square feet	
	2. cubic yards dredged	
j. ☐ Land Containing Shellfish	1. square feet	
k. ☐ Fish Runs	Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	
	1. cubic yards dredged	
l. ☐ Land Subject to Coastal Storm Flowage	1. square feet	

4.Restoration/Enhancement

☐ Restoration/Replacement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please entered the additional amount here.

a. square feet of BVW b. square feet of Salt Marsh

5.Projects Involves Stream Crossings

☐ Project Involves Streams Crossings

If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.

a. number of new stream crossings

b. number of replacement stream crossings

C. Other Applicable Standards and Requirements

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage of Endangered Species program (NHESP)?

a. ☐ Yes ☑ No

If yes, include proof of mailing or hand delivery of NOI to:
Natural Heritage and Endangered Species
Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

b. Date of map:FROM MAP VIEWER

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18)....

c. Submit Supplemental Information for Endangered Species Review * (Check boxes as they apply)

1.☐ Percentage/acreage of property to be altered:

(a) within Wetland Resource Area — percentage/acreage

(b) outside Resource Area — percentage/acreage

2.☐ Assessor's Map or right-of-way plan of site

3.☐ Project plans for entire project site, including wetland resource areas and areas outside of wetland jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

a.☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

b.☐ Photographs representative of the site

c.☐ MESA filing fee (fee information available at: http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/mass-endangered-species-act-mesa/mesa-fee-schedule.html)
Make check payable to "Natural Heritage & Endangered Species Fund" and **mail to NHESP** at above address

*Projects altering **10 or more acres** of land, also submit:*

d.☐ Vegetation cover type map of site

e.☐ Project plans showing Priority & Estimated Habitat boundaries

d. OR Check One of the following

1.☐ Project is exempt from MESA review. Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/eea/agencies/dfg/dfw/laws-regulations/cmr/321-cmr-1000-massachusetts-endangered-species-act.html#10.14; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2.☐ Separate MESA review ongoing.

a. NHESP Tracking Number

b. Date submitted to NHESP

3.☐ Separate MESA review completed.

Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review...

2. For coastal projects only, is any portion of the proposed project located below the mean high waterline or in a fish run?
   a. ☑ Not applicable - project is in inland resource area only
   b. ☐ Yes ☐ No

   If yes, include proof of mailing or hand delivery of NOI to either:

   South Shore - Cohasset to Rhode Island, and the Cape & Islands:

   Division of Marine Fisheries -
   Southeast Marine Fisheries Station
   Attn: Environmental Reviewer
   836 S. Rodney French Blvd
   New Bedford, MA 02744

   North Shore - Hull to New Hampshire:

   Division of Marine Fisheries -
   North Shore Office
   Attn: Environmental Reviewer
   30 Emerson Avenue
   Gloucester, MA 01930

   If yes, it may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional office.

3. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

   a. ☐ Yes ☑ No

   If yes, provide name of ACEC (see instructions to WPA Form 3 or DEP Website for ACEC locations). **Note:** electronic filers click on Website.

   b. ACEC Name

4. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
   a. ☐ Yes ☐ No

5. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L.c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L.c. 130, § 105)?
   a. ☐ Yes ☑ No

6. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
   a. ☑ Yes, Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
      1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol.2, Chapter 3)
      2. ☑ A portion of the site constitutes redevelopment
      3. ☑ Proprietary BMPs are included in the Stormwater Management System
   b. ☐ No, Explain why the project is exempt:
      1. ☐ Single Family Home
      2. ☐ Emergency Road Repair

3. Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department by regular mail delivery.

1. USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
2. Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.
3. Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s). Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.
4. List the titles and dates for all plans and other materials submitted with this NOI.

a. Plan Title:	b. Plan Prepared By:	c. Plan Signed/Stamped By:	c. Revised Final Date:	e. Scale:
NOTICE OF INTENT DRAWINGS	DECOULOS & COMPANY LLC	JAMES J. DECOULOS	January 20, 2021	20 SCALE

5. If there is more than one property owner, please attach a list of these property owners not listed on this form.
6. Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
7. Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
8. Attach NOI Wetland Fee Transmittal Form.
9. Attach Stormwater Report, if needed.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

City/Town

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant — 2. Date: 01/20/2021

3. Signature of Property Owner (if different) — 4. Date

5. Signature of Representative (if any) — 6. Date: 1/20/21

For Conservation Commission:
Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:
One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:
If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

City of Boston Environment

NOTICE OF INTENT APPLICATION FORM
Boston Wetlands Ordinance
City of Boston Code, Ordinances, Chapter 7-1.4

Boston File Number

MassDEP File Number

A. GENERAL INFORMATION

1. Project Location

90 Allandale Street	Jamaica Plain/ Boston	02130
a. Street Address	b. City/Town	c. Zip Code

Parcel ID 2003592000	Lot B / MLC Plan 12247H
f. Assessors Map/Plat Number	g. Parcel /Lot Number

2. Applicant

Stefanos	Efstratoudakis	Stefco Holdings, LLC
a. First Name	b. Last Name	c. Company

128 Highland Street
d. Mailing Address

Newton	MA	02465
e. City/Town	f. State	g. Zip Code

617-340-6352		stefano@stefcobuilders.com
h. Phone Number	i. Fax Number	j. Email address

3. Property Owner

(same)		
a. First Name	b. Last Name	c. Company

d. Mailing Address

e. City/Town	f. State	g. Zip Code

h. Phone Number	i. Fax Number	j. Email address

❑ Check if more than one owner

(If there is more than one property owner, please attach a list of these property owners to this form.)

4. Representative (if any)

James	Decoulos	Decoulos & Company, LLC
a. First Name	b. Last Name	c. Company

185 Alewife Brook Parkway
d. Mailing Address

Cambridge	MA	02138
e. City/Town	f. State	g. Zip Code

617-489-7795		jamesj@decoulos.com
h. Phone Number	i. Fax Number	j. Email address

5. Is any portion of the proposed project jurisdictional under the Massachusetts Wetlands Protection Act M.G.L. c. 131 §40?

☒ Yes ☐ No

If yes, please file the WPA Form 3 - Notice of Intent with this form

6. General Information

Redevelopment of existing single-family house to four duplex buildings containing eight housing units.

7. Project Type Checklist

a. ☐ Single Family Home
b. ☒ Residential Subdivision
c. ☐ Limited Project Driveway Crossing
d. ☐ Commercial/Industrial
e. ☐ Dock/Pier
f. ☐ Utilities
g. ☐ Coastal Engineering Structure
h. ☐ Agriculture – cranberries, forestry
i. ☐ Transportation
j. ☐ Other

8. Property recorded at the Registry of Deeds

Suffolk
a. County

b. Page Number

c. Book

135733
d. Certificate # (if registered land)

9. Total Fee Paid

3,612.50
a. Total Fee Paid

1,562.50
b. State Fee Paid

2,050.00
c. City Fee Paid

B. BUFFER ZONE & RESOURCE AREA IMPACTS

Buffer Zone Only - Is the project located only in the Buffer Zone of a resource area protected by the Boston Wetlands Ordinance?

☐ Yes ☒ No

1. Coastal Resource Areas

Resource Area	**Resource Area Size**	**Proposed Alteration***	**Proposed Migitation**
❑ *Coastal Flood Resilience Zone*	*Square feet*	*Square feet*	*Square feet*
❑ *25-foot Waterfront Area*	*Square feet*	*Square feet*	*Square feet*
❑ *100-foot Salt Marsh Area*	*Square feet*	*Square feet*	*Square feet*
❑ *Riverfront Area*	*Square feet*	*Square feet*	*Square feet*

2. Inland Resource Areas

Resource Area	**Resource Area Size**	**Proposed Alteration***	**Proposed Migitation**
❑ *Inland Flood Resilience Zone*	*Square feet*	*Square feet*	*Square feet*
❑ *Isolated Wetlands*	*Square feet*	*Square feet*	*Square feet*
❑ *Vernal Pool*	*Square feet*	*Square feet*	*Square feet*
❑ *Vernal Pool Habitat (vernal pool + 100 ft. upland area)*	*Square feet*	*Square feet*	*Square feet*
❑ *25-foot Waterfront Area*	15,130 *Square feet*	4,195 *Square feet*	*Square feet*
❑ *Riverfront Area*	14,502 *Square feet*	1,727 *Square feet*	*Square feet*

C. OTHER APPLICABLE STANDARDS & REQUIREMENTS

1. What other permits, variances, or approvals are required for the proposed activity described herein and what is the status of such permits, variances, or approvals?

a) Article 80, Small Project Review permit from BPDA. Preparing application and will be filed by 2/2/21;

b) Variance request and approval from ZBA, after submission of BPDA approval to ISD. Dependent on

BPDA outcome; c) Water/sewer connections with BWSC. Prepare at same time as variance request to ZBA;

d) Sidewalk and road opening permit with Public Works. Prepare immediately after ZBA approval;

e) NPDES permit for site disturbance. File prior to construction; and f) Building permit from ISD.

2. Is any portion of the proposed project located in Estimated Habitat of Rare Wildlife as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the Massachusetts Natural Heritage Atlas or go to http://www.mass.gov/dfwele/dfw/nhesp/nhregmap.htm.

❑ Yes ☒ No

If *yes*, the project is subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18).

A. Submit Supplemental Information for Endangered Species Review

☐ Percentage/acreage of property to be altered:

(1) within wetland Resource Area _____ percentage/acreage

(2) outside Resource Area _____ percentage/acreage

☐ Assessor's Map or right-of-way plan of site

3. Is any portion of the proposed project within an Area of Critical Environmental Concern?

❑ Yes ☒ No

If yes, provide the name of the ACEC: _____

4. Is the proposed project subject to provisions of the Massachusetts Stormwater Management Standards?

☒ *Yes. Attach a copy of the Stormwater Checklist & Stormwater Report as required.*
- ❑ *Applying for a Low Impact Development (LID) site design credits*
- ☒ *A portion of the site constitutes redevelopment*
- ☒ *Proprietary BMPs are included in the Stormwater Management System*

❑ *No. Check below & include a narrative as to why the project is exempt*
- ❑ *Single-family house*
- ❑ *Emergency road repair*
- ❑ *Small Residential Subdivision (less than or equal to 4 single family houses or less than or equal to 4 units in a multifamily housing projects) with no discharge to Critical Areas*

5. Is the proposed project subject to Boston Water and Sewer Commission Review?

☒ Yes ❑ No

D. SIGNATURES AND SUBMITTAL REQUIREMENTS

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the Wetlands Protection Ordinance.

Signature of Applicant — Date: 01/22/2021

Signature of Property Owner (if different) — Date

Signature of Representative (if any) — Date: 1/22/21

VIA EMAIL AND CERTIFIED MAIL
TRACKING #7019 1640 0001 1962 6715

Friday, January 22, 2021

Michael Parker, Chairman
Boston Conservation Commission
1 City Hall Square, Room 709
Boston, MA 02201

RE: Notice of Intent for proposed project under the jurisdiction of the Massachusetts Wetlands Protection Act and the Boston Wetlands Ordinance
90 Allandale Street, Assessor Parcel ID 2003592000

Dear Chairman Parker and members of the Commission:

On behalf of Stefco Holdings, LLC ("Stefco"), enclosed herewith is supplemental information relative to a Notice of Intent to redevelop the property located at 90 Allandale Street in West Roxbury. The property is described by the Boston Assessors as Parcel ID 2003592000 and is further described in registered title recorded at the Land Court division of the Suffolk Registry of Deeds in Book 674, Page 133 as Land Court Certificate Number 135733 (the "Site").

The supplemental information follows email requests from Executive Director Nicholas Moreno immediately after our original Notice of Intent submission on January 20th.

The following documents are provided:

1. The latest Notice of Intent Application Form under the Boston Wetlands Ordinance signed and dated January 22, 2021; and
2. Notice of Intent Drawings, consisting of 12 sheets, with each sheet being stamped.

EXISTING CONDITIONS

The total area of the Site is approximately 86,882 square feet or 2.0 acres of land which is improved by a large single-family residence. Approximately 222.52 feet of the Site fronts along Allandale Street.

Allandale Street is a public way owned by the city of Boston (the "City"). The Site is located in the Jamaica Plain neighborhood, approximately 1500 feet southwest of the signalized intersection of Allandale Street and Centre Street. A few conflicting reports from the City list the Site in the West Roxbury neighborhood.

The existing house was constructed in the early 20th century. Since its construction, the area surrounding the house has been heavily landscaped and groomed. The seeding, manicuring and landscaping has occurred throughout the Site, whether in or outside wetland resource areas.

The Site is served by municipal water from the Boston Water and Sewer Commission (BWSC). Sewage from the residence is discharged into an Environment One grinder pump and discharged to a sewage manhole at the entrance of the driveway near the intersection of Allandale. From the manhole, sewage flows by gravity into BWSC's sewage collection system within the public right-of-way.

The Notice of Intent Drawings dated January 20, 2021 (the "Drawings") show the Site boundaries, existing conditions, single-family residence and wetland resource boundaries on Sheets 1 through 4. The wetland boundaries, wetland resource areas and buffer zones are shown on Sheet 2.

The wetland resources and resource area boundaries were established through the filing of an Abbreviated Notice of Resource Area Delineation filed with the Conservation Commission on May 20, 2020. On September 3, 2020, the Commission issued an Order of Resource Area Delineation. The wetland resources shown on the Drawings reflect the Commission's Order.

PROPOSED PROJECT

The proposed project involves demolishing the large single-family residence and constructing a clustered eight-unit housing project in four separate duplex buildings as shown on the Drawings. Each unit shall have three bedrooms, a two-car garage, and a pervious paver driveway that can accommodate two car guest parking. The total gross interior square footage for the entire project will be approximately 30,000 square feet.

The demolition of the existing residence will also involve the abandonment and off-Site disposal of all previous improvements, whether underground or above-ground, including the demolition of the existing driveway and patios.

Stefco proposes to redevelop the northern portion of the Site, leaving the south side of the intermittent stream undeveloped and restricted as open space. The open space shall protect all existing trees and include a gazebo, patio, and bocce court, for the communal use of the eight residences.

Stefco has developed a solid reputation in the greater Boston area as a developer of high standards and excellent reputation. See www.stefcobuilders.com When they first considered the Site for a project, the property was marketed with the potential for developing up to 19 units. The marketing was based on earlier development efforts of the predecessor in title, Robert B. Fraser.

On August 1, 2020, Stefanos Efstratoudakis from Stefco met with the Friends of Allandale and abutters to the Site to present a conceptual redevelopment proposal. At this meeting, plans were presented for the development of 14 residential units. There was a general consensus from the attendees that the project was too dense and the Friends of Allandale and abutters expressed their opposition to the density and the overall scheme of the project.

After going back to the drawing board, the Friends of Allandale and neighbors met again with Mr. Efstratoudakis on October 9th, who unveiled a plan to construct eight housing units on the northerly portion of the Site. In this revised scheme, the south side of the Site remained open space with communal amenities, while enhancing the surrounding resource areas with native plantings. Foot access to the open space was proposed with existing intermittent stream crossings. The project was warmly received by the stakeholders.

From these meetings and after listening to additional neighborhood concerns, Stefco downscaled the proposed project to the lower impact redevelopment of eight units.

The primary objective of the proposed project is to create a clustered housing community that preserves and enhances existing natural resources to the greatest extent practical. Under the Massachusetts Wetlands Protection Act, G.L. c. 131, § 40 (the "Act") and associated regulations at 310 CMR 10.000, the project is a buffer zone only project.

While there are no alterations of resource areas under the Act, it is widely acknowledged that work within the state protected buffer zone may contribute to resource area alterations if sufficient safeguards are not undertaken. Stefco proposes multiple levels of sediment and erosion control, with additional enhancement of buffer zones and wetland resource areas with an aggressive native species planting plan to supplement the existing grasses and landscaped areas within wetland resource areas.

As set forth in the attached Boston Notice of Intent form, the proposed project proposes to alter 1,727 square feet of Riverfront Area, as that resource is defined under the Boston Wetlands Ordinance. The Riverfront Area is established 25 feet from the boundary of wetland bank and bordering vegetated wetland to the existing intermittent stream. The work within the City protected Riverfront Area involves grading and landscaping only, to allow safe pedestrian access to the southerly open space area.

The Waterfront Area has been established as 25 feet from the boundary of the City established Riverfront Area. See Sheet 2 of the Drawings. The proposed project proposes to alter 4,195 square feet of Waterfront Area. The construction of proposed building unit numbers 5 through 7 encroaches within the City protected Waterfront Area. The grade level patios of each of those units and associated grading will also occur within the Waterfront Area. The proposed patios shall be constructed of pervious pavers or stone.

The proposed mitigation for impact to the City protected Riverfront and Waterfront Areas is the extensive planting and native species re-establishment in other areas of the Site. While it is difficult to quantify, the mitigation should be viewed in the context of the entire project.

Construction equipment expected to be used for the proposed project will include medium excavators, mini excavators, ten-wheel dump trucks, backhoes and skid steers. Materials expected to be used for the project include ¾ and 1 ½ inch crushed stone, loam, precast concrete drainage manholes, high-density polyethylene piping, permeable pavers, bituminous asphalt pavement, concrete and standard building materials to construct the housing units.

At a minimum elevation of 142 feet in the Boston City Base vertical datum, the proposed project is not anticipated to have any impact from projected sea level rise. Projected increased precipitation intensity will be addressed by providing additional stormwater catchment structures in the proposed roadway. The overflow from the stormwater infiltration field has been designed to address not only current precipitation rates, but also increased intensity and flow in the future. The overflow has been located not in the intermittent stream, but near the edge of abutting bordering vegetated wetland resources.

The native species selected have been designed to adapt to future climate changes. The species supplement existing grasses on Site and have a significantly greater absorption capacity than existing conditions.

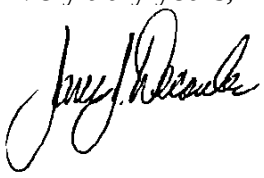
As to additional proposed permitting, Stefco has scheduled a project team meeting with BPDA on February 2nd. The meeting will include representatives from BPDA, the Boston Transportation Department, the Boston Fire Department and Boston Neighborhood Services. The notice of intent is scheduled to be submitted to BPDA by February 9th.

By March 2nd, Stefco anticipates submitting plans to ISD for zoning denial. Immediately thereafter, plans shall be submitted to the Boston ZBA and BWSC. It is anticipated that all permits can be achieved by August of 2021.

We look forward to working with the Commission to review the project and provide suitable controls to mitigate impacts and improve surrounding wetland resource area functions.

Please feel free to contact us if you have any questions or need additional information. Thank you.

Very truly yours,



James J. Decoulos, PE, LSP
jamesj@decoulos.com

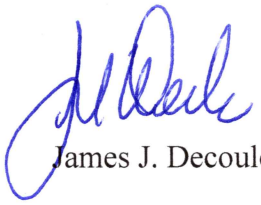
cc: MassDEP Northeast Regional Office *via email*
Richard A. Nylen, Jr., Esq., Lynch, DeSimone & Nylen, LLP *via email*
John P. Rockwood, Ph.D., PWS, EcoTec, Inc. *via email*
Stefanos C. Efstratoudakis, Manager, Stefco Holdings, LLC *via email*

AFFIDAVIT OF SERVICE

My name is James J. Decoulos and I hereby certify that I mailed a completed version of the Notification to Abutters from the Boston Conservation Commission's web site to notify abutters within 300 feet of 90 Allandale Street, otherwise referred to by the Boston Assessors as Parcel ID 2003592000, informing them that Stefco Holdings, LLC has filed a Notice of Intent with the Boston Conservation Commission seeking permission to alter areas subject to protection under the Wetlands Protection Act and the Boston Wetlands Ordinance.

The form of the notification and the list of abutters notified are attached hereto.

Signed under the pains and penalties of perjury this 20th day of January, 2021.



James J. Decoulos

NOTIFICATION TO ABUTTERS
BOSTON CONSERVATION COMMISSION

In accordance with the Massachusetts Wetlands Protection Act, Massachusetts General Laws Chapter 131, Section 40, and the Boston Wetlands Ordinance, you are hereby notified as an abutter to a project filed with the Boston Conservation Commission.

A. **Stefco Holdings, LLC** has filed a Notice of Intent with the Boston Conservation Commission seeking permission to alter an Area Subject to Protection under the Wetlands Protection Act (General Laws Chapter 131, section 40) and Boston Wetlands Ordinance.

B. The address of the lot where the activity is proposed is **90 Allendale Street, Jamaica Plain, Massachusetts.**

C. The project involves **proposed eight unit housing project**.

D. Copies of the Notice of Intent may be obtained by contacting the Boston Conservation Commission at **CC@boston.gov**.

E. Copies of the Notice of Intent may be obtained from **James J. Decoulos, Decoulos & Company, LLC. Telephone: 617-489-7795 Email: jamesj@decoulos.com. Between 8AM to 6PM, Monday through Friday.**

F. In accordance with the Commonwealth of Massachusetts Executive Order Suspending Certain Provisions of the Open Meeting Law, the public hearing will take place **virtually** at https://zoom.us/j/6864582044. If you are unable to access the internet, you can call 1-929-205-6099, enter Meeting ID 686 458 2044 # and use # as your participant ID.

G. Information regarding the date and time of the public hearing may be obtained from the **Boston Conservation Commission** by emailing **CC@boston.gov** or calling **(617) 635-3850** between the hours of **9 AM to 5 PM, Monday through Friday.**

NOTE: Notice of the public hearing, including its date, time, and place, will be published at least five (5) days in advance in the **Boston Herald.**

NOTE: Notice of the public hearing, including its date, tine, and place, will be posted on www.boston.gov/public-notices and in Boston City Hall not less than forty-eight (48) hours in advance.

NOTE: If you would like to provide comments, you may attend the public hearing or send written comments to CC@boston.gov or Boston City Hall, Environment Department, Room 709, 1 City Hall Square, Boston, MA 02201

NOTE: You also may contact the Boston Conservation Commission or the Department of Environmental Protection Northeast Regional Office for more information about this application or the Wetlands Protection Act. To contact DEP, call: the Northeast Region: (978) 694-3200.

BABEL NOTICE

English:

IMPORTANT! This document or application contains **important information** about your rights, responsibilities and/or benefits. It is crucial that you understand the information in this document and/or application, and we will provide the information in your preferred language at no cost to you. If you need them, please contact us at cc@boston.gov or 617-635-3850.

Spanish:

¡IMPORTANTE! Este documento o solicitud contiene **información importante** sobre sus derechos, responsabilidades y/o beneficios. Es fundamental que usted entienda la información contenida en este documento y/o solicitud, y le proporcionaremos la información en su idioma preferido sin costo alguno para usted. Si los necesita, póngase en contacto con nosotros en el correo electrónico cc@boston.gov o llamando al 617-635-3850.

Haitian Creole:

AVI ENPÒTAN! Dokiman oubyen aplikasyon sa genyen **enfòmasyon ki enpòtan** konsènan dwa, responsablite, ak/oswa benefis ou yo. Li enpòtan ke ou konprann enfòmasyon ki nan dokiman ak/oubyen aplikasyon sa, e n ap bay enfòmasyon an nan lang ou prefere a, san ou pa peye anyen. Si w bezwen yo, tanpri kontakte nou nan cc@boston.gov oswa 617-635-3850.

Traditional Chinese:

非常重要！這份文件或是申請表格包含關於您的權利，責任，和／或福利的重要信息。請您務必完全理解這份文件或申請表格的全部信息，這對我們來說十分重要。我們會免費給您提供翻譯服務。如果您有需要請聯系我們的郵箱 cc@boston.gov 電話# 617-635-3850..

Vietnamese:

QUAN TRỌNG! Tài liệu hoặc đơn yêu cầu này chứa **thông tin quan trọng** về các quyền, trách nhiệm và/hoặc lợi ích của bạn. Việc bạn hiểu rõ thông tin trong tài liệu và/hoặc đơn yêu cầu này rất quan trọng, và chúng tôi sẽ cung cấp thông tin bằng ngôn ngữ bạn muốn mà không tính phí. Nếu quý vị cần những dịch vụ này, vui lòng liên lạc với chúng tôi theo địa chỉ cc@boston.gov hoặc số điện thoại 617-635-3850.

Simplified Chinese:

非常重要！这份文件或是申请表格包含关于您的权利，责任，和／或福利的重要信息。请您务必完全理解这份文件或申请表格的全部信息，这对我们来说十分重要。我们会免费给您提供翻译服务。如果您有需要请联系我们的邮箱 cc@boston.gov 电话# 617-635-3850.

CITY of BOSTON

Cape Verdean Creole:

INPURTANTI! Es dukumentu ó aplikason ten **informason inpurtanti** sobri bu direitus, rasponsabilidadis i/ó benefísius. Ê krusial ki bu intendi informason na es dukumentu i/ó aplikason ó nu ta da informason na língua di bu preferênsia sen ninhun kustu pa bó. Si bu prisiza del, kontata-nu na cc@boston.gov ó 617-635-3850.

Arabic:

مهم! يحتوي هذا المستند أو التطبيق على معلومات مهمة حول حقوقك ومسؤولياتك أو فوائدك. من الأهمية أن تفهم المعلومات الواردة في هذا المستند أو التطبيق. سوف نقدم المعلومات بلغتك المفضلة دون أي تكلفة عليك. إذا كنت في حاجة إليها، يرجى الاتصال بنا على cc@boston.gov أو 617-635-3850.

Russian:

ВАЖНО! В этом документе или заявлении содержится **важная информация** о ваших правах, обязанностях и/или льготах. Для нас очень важно, чтобы вы понимали приведенную в этом документе и/или заявлении информацию, и мы готовы бесплатно предоставить вам информацию на предпочитаемом вами языке. Если Вам они нужны, просьба связаться с нами по адресу электронной почты cc@boston.gov, либо по телефону 617-635-3850.

Portuguese:

IMPORTANTE! Este documento ou aplicativo contém **Informações importantes** sobre os seus direitos, responsabilidades e/ou benefícios. É importante que você compreenda as informações contidas neste documento e/ou aplicativo, e nós iremos fornecer as informações em seu idioma de preferência sem nenhum custo para você. Se precisar deles, fale conosco: cc@boston.gov ou 617-635-3850.

French:

IMPORTANT ! Ce document ou cette demande contient des **informations importantes** concernant vos droits, responsabilités et/ou avantages. Il est essentiel que vous compreniez les informations contenues dans ce document et/ou cette demande, que nous pouvons vous communiquer gratuitement dans la langue de votre choix. Si vous en avez besoin, veuillez nous contacter à cc@boston.gov ou au 617-635-3850.

CITY of BOSTON

NOTIFICACIÓN PARA PROPIETARIOS Y/O VECINOS COLINDANTES
COMISIÓN DE CONSERVACIÓN DE BOSTON

De conformidad con la Ley de protección de los humedales de Massachusetts, el Capítulo 131, Sección 40 de las Leyes Generales de Massachusetts y la Ordenanza sobre los humedales de Boston, por la presente queda usted notificado como propietario o vecino colindante de un proyecto presentado ante la Comisión de Conservación de Boston.

A. **Stefco Holdings, LLC** ha presentado una solicitud a la Comisión de Conservación de Boston pidiendo permiso para modificar una zona sujeta a protección en virtud de la Ley de protección de los humedales (Leyes generales, capítulo 131, sección 40) y la Ordenanza sobre los humedales de Boston.

B. La dirección del lote donde se propone la actividad es **90 Allendale Street, Jamaica Plain, Massachusetts.**

C. El proyecto consiste en **proyecto de vivienda propuesto de ocho unidades**.

D. Se pueden obtener copias del Aviso de Intención comunicándose con la Comisión de Conservación de Boston en CC@boston.gov.

E. Las copias de la notificación de intención pueden obtenerse de **James J. Decoulos, Decoulos & Company, LLC. Telefono: 617-489-7795 Correo electronico: jamesj@decoulos.com.** Entre las **8AM y las 6PM, lunes a viernes.**

F. De acuerdo con el Decreto Ejecutivo de le Mancomunidad de Massachusetts que suspende ciertas disposiciones de la Ley de reuniones abiertas, la audiencia pública se llevará a cabo virtualmente en https://zoom.us/j/6864582044. Si no puede acceder a Internet, puede llamar al 1-929-205-6099, ingresar ID de reunión 686 458 2044 # y usar # como su ID de participante.

G. La información relativa a la fecha y hora de la audiencia pública puede solicitarse a la **Comisión de Conservación de Boston** por correo electrónico a **CC@boston.gov** o llamando al **(617) 635-4416** entre las **9 AM y las 5 PM, de lunes a viernes.**

NOTA: La notificación de la audiencia pública, incluida su fecha, hora y lugar, se publicará en el **Boston Herald** con al menos cinco (5) días de antelación.

NOTA: La notificación de la audiencia pública, incluida su fecha, hora y lugar, se publicará en www.boston.gov/public-notices y en el Ayuntamiento de Boston con no menos de cuarenta y ocho (48) horas de antelación. Si desea formular comentarios, puede asistir a la audiencia pública o enviarlos por escrito a CC@boston.gov o al Ayuntamiento de Boston, Departamento de Medio Ambiente, Sala 709, 1 City Hall Square, Boston, MA 02201.

NOTA: También puede comunicarse con la Comisión de Conservación de Boston o con la Oficina Regional del Noreste del Departamento de Protección Ambiental para obtener más información sobre esta solicitud o la Ley de Protección de Humedales. Para comunicarse con el DEP, llame a la Región Noreste: (978) 694-3200.

NOTA: si tiene previsto asistir a la audiencia pública y necesita servicios de interpretación, sírvase informar al personal en CC@boston.gov antes de las 12 PM del día anterior a la audiencia.

ABUTTER'S LIST

PID, OWNER, ADDRESSEE, MLG_ADDRESS, MLG_CITYSTATE, MLG_ZIPCODE, LOC_ADDRESS, LOC_CITY, LOC_ZIPCODE

1902578000, ROMANO CYNTHIA M, ROMANO CYNTHIA M, 44 MALCOLM RD, JAMAICA PLAIN MA, 02130, 44 MALCOLM RD, JAMAICA PLAIN, 02130

1902579000, WHITE FREDERICK D, WHITE FREDERICK D, 40 MALCOLM RD, JAMAICA PLAIN MA, 02130, 40 MALCOLM RD, JAMAICA PLAIN, 02130

1902580000, GURVITCH MARC G, GURVITCH MARC G, 38 MALCOLM RD, JAMAICA PLAIN MA, 02130, 38 MALCOLM RD, JAMAICA PLAIN, 02130

1902581000, THORPE GEORGE W ETAL, THORPE GEORGE W ETAL, 36 MALCOLM RD, JAMAICA PLAIN MA, 02130, 36 MALCOLM RD, JAMAICA PLAIN, 02130

1902583000, CROATTI DOMENIC ETAL, CROATTI DOMENIC ETAL, 32 MALCOLM RD, JAMAICA PLAIN MA, 02130, 32 MALCOLM RD, JAMAICA PLAIN, 02130

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1902586001, FAULKNER HOSPITAL INC, FAULKNER HOSPITAL INC, 1153 CENTRE, JAMAICA PLAIN MA, 02130, MALCOLM RD, JAMAICA PLAIN, 02130

1902602000, FAULKNER HOSPITAL INC, FAULKNER HOSPITAL INC, PO BOX 6240, BOSTON MA, 02114, 91 ALLANDALE ST, JAMAICA PLAIN, 02130

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1902604000, CONTOS B TANYA, CONTOS B TANYA, 99 ALLANDALE ST, JAMAICA PLAIN MA, 02130, 99 ALLANDALE ST, JAMAICA PLAIN, 02130

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2003590500, CITY OF BOSTON, CITY OF BOSTON, ALLANDALE ST, CHESTNUT HILL MA, 02467, ALLANDALE ST, CHESTNUT HILL, 02467

2003590600, NILES CLYDE A, NILES CLYDE A, 100 D ALLANDALE ST, WEST ROXBURY MA, 02132, 100 D ALLANDALE ST, CHESTNUT HILL, 02467

2003590700, KHOURY DAVID C, KHOURY DAVID C, 75 WOODLAND RD, JAMAICA PLAIN MA, 02130, 100 C ALLANDALE ST, CHESTNUT HILL, 02467

2003590800, BELL STEPHEN P, BELL STEPHEN P, 100B ALLANDALE ST, JAMAICA PLAIN MA, 02130, 100 B ALLANDALE ST, CHESTNUT HILL, 02467

2003591000, BETHONEY VIRGINIA A TS, BETHONEY VIRGINIA A TS, 100 ALLANDALE ST, JAMAICA PLAIN MA, 02130, 100 ALLANDALE ST, JAMAICA PLAIN, 02130

2003593000, WONDERGROUP LLC, WONDERGROUP LLC, 201R SAVIN HILL AV, DORCHESTER MA, 02125, 64 ALLANDALE ST, CHESTNUT HILL, 02467

2003594000, SPRINGHOUSE INC, SPRINGHOUSE INC, 44 ALLANDALE ST, JAMAICA PLAIN MA, 02130, ALLANDALE ST, CHESTNUT HILL, 02467

2003598000, CITY OF BOSTON PFD, CITY OF BOSTON PFD, CENTRE, WEST ROXBURY MA, 02132, CENTRE ST, WEST ROXBURY, 02132

STORMWATER MANAGEMENT REPORT

Prepared for:
Stefco Holdings, LLC

Prepared by:
Decoulos & Company, LLC

Date: January 20, 2021

VIA EMAIL AND CERTIFIED MAIL

Wednesday, January 20, 2021

Michael Parker, Chairman
Boston Conservation Commission
1 City Hall Square, Room 709
Boston, MA 02201

RE: 90 Allandale Street, Assessor Parcel ID 2003592000

Dear Chairman Parker and members of the Stormwater Permitting Authority:

On behalf of Stefco Holdings, LLC, Decoulos & Company, LLC is pleased to submit this Stormwater Management Report to support proposed work presented in a Notice of Intent for the above referenced property.

The proposed stormwater management design, controls, operation and maintenance follow the requirements of the Massachusetts Wetlands Protection Act, General Laws Chapter 131, Section 40 and the associated regulations of the Massachusetts Department of Environmental Protection ("DEP") at 310 CMR 10.00; and, the Massachusetts Stormwater Handbook issued from DEP.

Please feel free to contact us if you have any questions or concerns. Thank you.

Very truly yours,

James J. Decoulos, PE, LSP
jamesj@decoulos.com

cc: MassDEP Northeast Regional Office
John P. Rockwood, Ph.D., PWS, EcoTec, Inc.
Richard A. Nylen, Jr., Esq., Lynch, DeSimone & Nylen, LLP
Stefanos C. Efstratoudakis, Manager, Stefco Holdings, LLC

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1.0 PURPOSE AND SCOPE

This Stormwater Management Report has been prepared for property located at 90 Allandale Street in the Jamaica Plain section of Boston and is described by the Boston Assessors as Parcel ID. It is further described in title registered with the Massachusetts Land Court as Certificate Number 135733 (the "Site"). The purpose of the Report is to demonstrate that the proposed development of the Site will mitigate peak runoff rates, water quality discharges and minimize pollutant loading to the groundwater supply, wildlife habitats and downgradient water resource areas.

The design of stormwater management controls require compliance with the Massachusetts Wetlands Protection Act, General Laws Chapter 131, Section 40 and the associated regulations generated by the Massachusetts Department of Environmental Protection ("DEP") at 310 CMR 10.00; the Massachusetts Stormwater Handbook issued from DEP; and, the Boston Wetlands Ordinance.

The activities undertaken to prepare the Report included researching the Site history; reviewing reports from the U.S. Geological Survey (USGS), the Natural Resources Conservation Service (NRCS) and DEP; historic permitting and construction files from the City's records; total station and dual-frequency geographic position system (GPS) surveys; and, the analysis of existing and post-development conditions using the computer modeling program HydroCAD™.

The summary of existing and post-development stormwater flows (in cubic feet per second) are as follows:

SUMMARY OF EXISTING AND PROPOSED STORMWATER FLOWS
Table 1

	2 year		10 year		25 year		100 year	
	Existing	Post-Dev	Existing	Post-Dev	Existing	Post-Dev	Existing	Post-Dev
Off-Site discharge	0.79	0.20	2.32	1.50	3.58	3.08	6.10	6.02

2.0 SITE DESCRIPTION

The Site is currently owned by Stefco Holdings LLC.

The total area of the Site is approximately 86,882 square feet or 2.0 acres of land which is improved by a large single-family residence. Approximately 222.52 feet of the Site fronts along Allandale Street.

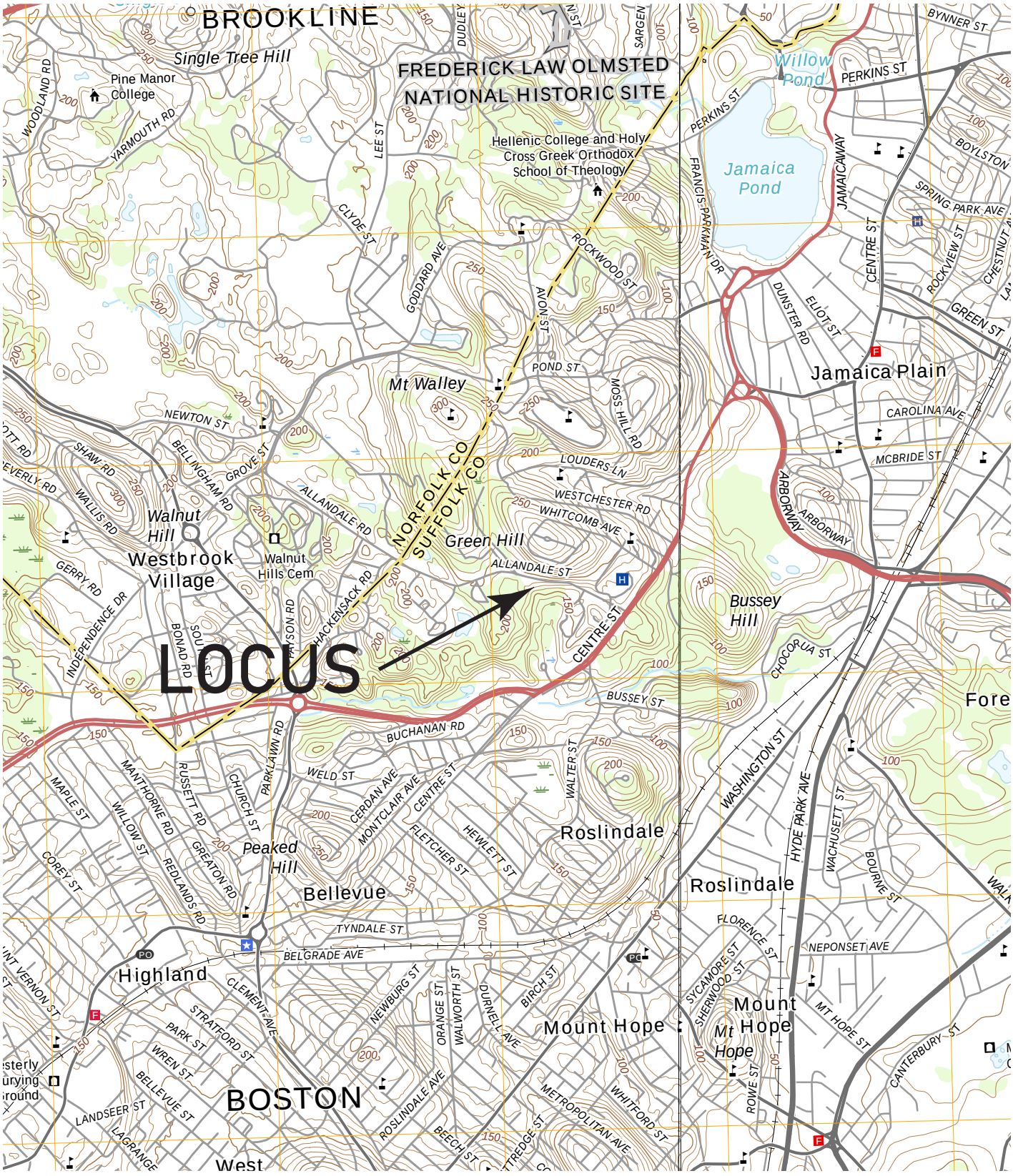
Allandale Street is a public way owned by the city of Boston (the "City"). The Site is located approximately 1500 feet southwest of the signalized intersection of Allandale Street and Centre Street (Route 114).

The horizontal Site coordinates are 4,685,378 meters north and 324,264 meters east in Zone 19 (NAD 83) of the Universal Transverse Mercator (UTM) system; latitude north is 42 degrees 18 minutes 2 seconds and longitude west is 71 degrees 7 minutes 55 seconds.

The USGS map of Boston South and Newton, Massachusetts dated 2018 shows the Site located approximately 150 feet above the North American Vertical Datum of 1988 (NAVD88). See attached Figure 1. A benchmark was established on the Site and a three-hour static dual-frequency global positioning system (GPS) observation was made on May 8, 2020. The GPS data was uploaded to the Online Positioning User Service (OPUS) of the National Geodetic Survey. Elevations established for the plans submitted with the Notice of Intent have been adjusted to the Boston City Base vertical datum.

The Site is served by municipal water from the Boston Water and Sewer Commission (BWSC). BWSC owns and maintains a fire hydrant along Allandale Street as shown on the drawings.

Sewage from the residence is discharged into an Environment One grinder pump and discharged to a sewage manhole at the entrance driveway. From the manhole, sewage flows by gravity into BWSC's sewage collection system within the Allandale right-of-way.



REFERENCE:

USGS QUADRANGLES:
BOSTON SOUTH (2015) AND NEWTON (2018)
SCALE: 1:24,000

DECOULOS & COMPANY LLC

N

LOCUS MAP

FIGURE 1

2.1 Geology

The surficial geology of the Site consists of late glaciofluvial deposits of the Charles River watershed that consist of a varied composition of sands, gravels and silts. Glacial till is likely present beneath the recent ice contact and outwash deposits. Bedrock outcrops are evident in abutting portions of the Site to the south.

Bedrock has been reported in the region at between 10 and 20 feet below grade. One bedrock outcrop or large boulder is evident in the southern portion of the Site. The regional bedrock beneath the Site lies within the Roxbury Conglomerate. The rock consists of conglomerate, sandstone and siltstone and is described as part of the Franklin Park member. The conglomerate contains boulder size clasts and clast assemblages.

2.2 Hydrogeology and Water Resources

Given the varying terrain of the Site, groundwater would be expected to be at shallow depths near or within the intermittent stream area on Site. Due to the pervious glaciofluvial stratum, it would be expected that groundwater flows would mimic surficial topography and flow in an east to southeasterly direction.

Wetland resources extend through the middle of the Site and were previously established as wetland bank and bordering vegetated wetland. Surrounding wetland resource areas are defined by the Massachusetts Department of Environmental Protection ("DEP" or "MassDEP") as WS1 (deciduous wooded swamp); SS (shrub swamp); OW (open water); and, M (Shallow Marsh or Meadow). See Figure 2.

The Flood Insurance Rate Map, Map Number 25025C0067G of the Federal Emergency Management Agency (FEMA) shows the Site in Zone X, an area of minimal flood hazard. There are no nearby or abutting areas that pose a flood hazard to the Site.

MassDOT Roads Street Names

DEP Wetlands Change
- Photo Year 2001 and 2003
- Photo Year 2005
- Photo Year 2008 and 2009
- Wetland Change ID
- Photo Year 2011 and 2012
- Wetland Change ID

DEP Wetlands Arcs
- SHORELINE
- HYDROLOGIC CONNECTION
- MEAN WATER LINE
- APPARENT WETLAND LIMIT
- CLOSURE LINE
- EDGE OF INTERPRETED AREA

DEP Wetlands

FEMA National Flood Hazard Layer Polygons
- A: 1% Annual Chance of Flooding, no BFE
- AE: 1% Annual Chance of Flooding, with BFE
- AE: Regulatory Floodway
- AH: 1% Annual Chance of 1-3ft Ponding, with BFE
- AO: 1% Annual Chance of 1-3ft Sheet Flow Flooding, with Depth
- VE: High Risk Coastal Area
- D: Possible But Undetermined Hazard
- X: 0.2% Annual Chance of Flooding
- X: 1% Drainage Area < 1 Sq. Mi.
- X: Reduced Flood Risk due to Levee
- Area Not Included
- Area with no DFIRM - Paper FIRMs in Effect

Q3 Flood Zones (from Paper FIRMs, where NFHL Unavailable)
- A
- AE
- AE Floodway
- AH
- AO
- D
- VE
- Area Not Included
- X500

Contours 3m Lines
- 15M INTERVAL

Contours 3m Labels Feet

Major Watersheds

Subbasins Outlines

Orthos 2019
2019 Color Orthos (USGS)

MASSGIS WETLAND RESOURCE MAP FIGURE 2

3.0 STORMWATER MANAGEMENT PLAN

Stefco Holdings, LLC proposes to redevelop the Site into eight residential units contained within four detached buildings as shown on the drawing. A new roadway will be necessary to serve the units and is approximately 250 feet long. There are no sidewalks or curbing proposed.

3.1 Existing Hydrologic Analysis

Existing surface hydrology catchment areas were delineated based on current surface topography. See Figure 3.

The analysis and stormwater modeling of existing conditions were completed using the computer modeling program HydroCAD™. The existing stormwater model analysis is provided in Appendix B.

3.2 Proposed Stormwater Management Controls

Stormwater will flow into catch basins with deep sumps as shown on Sheet 7 of the drawings. Once runoff is collected from the main drive, the concentrated flows will be reduced and treated by a water quality hydrodynamic separator shown as drainage manhole #3. Flows will then be discharged into a set of Stormtech infiltration chambers as shown on Sheet 7.

In the event of significant precipitation events, stormwater is designed to outlet to the existing stormwater channel on Site before flowing southeasterly into abutting bordering vegetated wetland resource areas.

3.3 Proposed Hydrologic Analysis

The proposed drive shall be a 20 foot wide bituminous asphalt surface. All driveways and walks off the asphalt surface shall be permeable pavers.

Summaries of each catchment area with respect to Curve Number and Time of Concentration calculations can be found in the modeled results presented in Appendix C. The delineations of proposed catchment areas are shown in Figure 4.

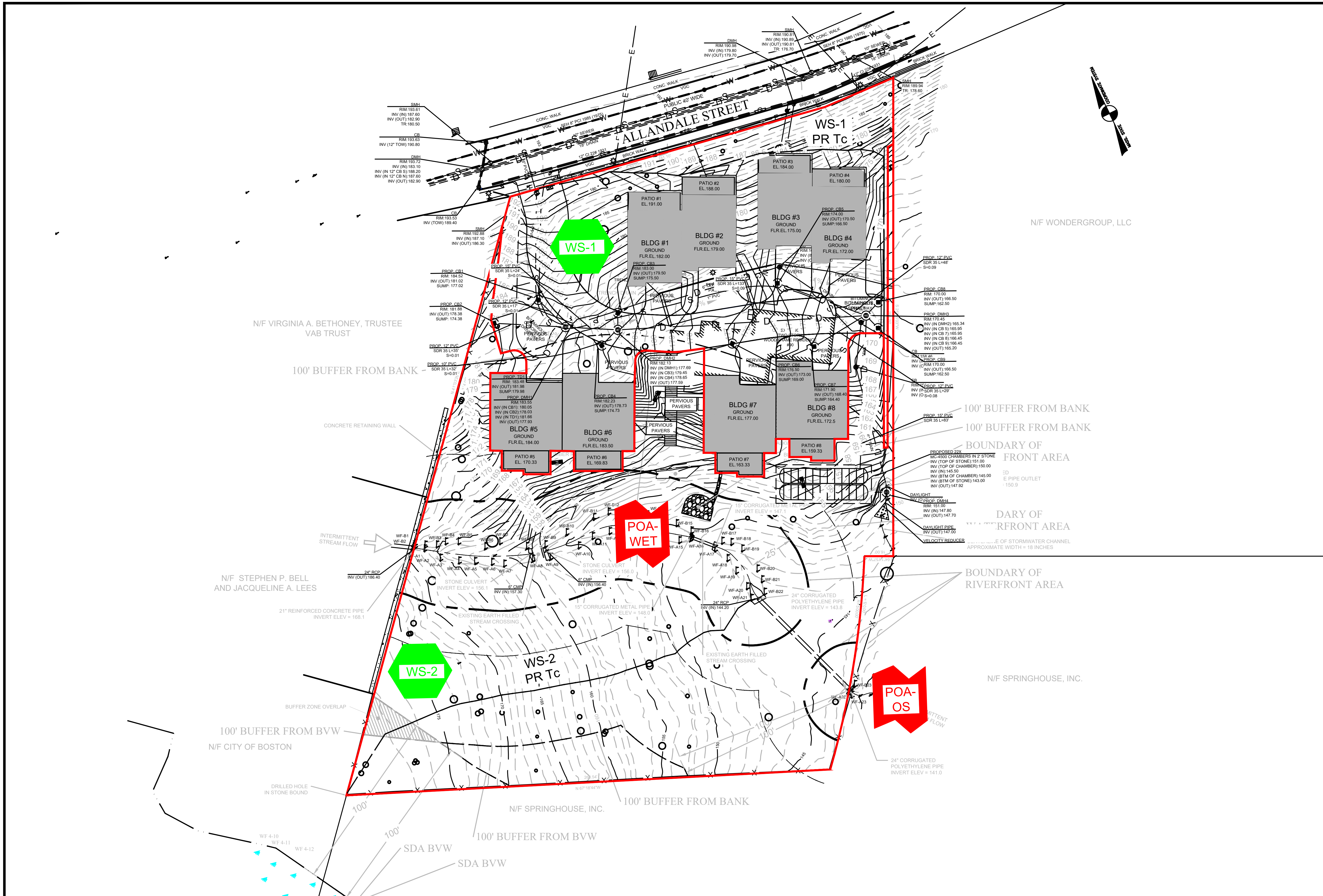
DECOULOS & COMPANY LLC
185 ALEWIFE BROOK PARKWAY
CAMBRIDGE, MA 02138
DECOULOS.COM
617.489.7795

EXISTING WATERSHED PLAN
90 ALLANDALE STREET
BOSTON, MASSACHUSETTS

DATE
1-20-21
SCALE
1"=50'

DRWN TCG
DES TCG
CHKD JDD
APRVD JDD

FIGURE
3



DECOULOS & COMPANY LLC

185 ALEWIFE BROOK PARKWAY
CAMBRIDGE, MA 02138
DECOULOS.COM
617.489.7795

PROPOSED WATERSHED PLAN
90 ALLANDALE STREET
BOSTON, MASSACHUSETTS

DATE
1-20-21

SCALE
1"=50'

DRWN TCG
DES TCG
CHKD JDD
APRVD JDD

FIGURE
4

3.4 Compliance with DEP Stormwater Management Standards

The proposed stormwater management system was designed in compliance with the ten Stormwater Management Standards adopted by DEP. The following summary provides key information related to the proposed stormwater management system, its design elements, and mitigation measures for potential impacts.

1. *No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*

   There will be no direct discharge of untreated stormwater to nearby wetlands or waters of the Commonwealth. Runoff from all impervious areas of the Site shall be conveyed to stormwater management controls for water quality treatment, and runoff rate attenuation prior to overflow onto the ground surface to the southeast.

2. *Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.*

   The stormwater management design will control post-development peak discharge rates for the 2, 10, 25 and 100 year, 24-hour storm events so as to reduce existing peak discharge rates. A summary of the peak runoff rates is presented in Section 2.0.

3. *Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.*

   All stormwater flows shall be recharged to the groundwater supply through infiltration to the subsurface with a set of Stormtech MC-4500 chambers as shown in the drawings.

   .

4. *Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS).*

   The proposed project will meet the water quality requirements of Standard 4 using standard BMPs designed for water quality treatment to achieve 86% TSS removal. See Appendix D. All proposed storm water management BMPs will be operated and maintained to ensure continued water quality treatment of runoff.

5. *For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable.*

   There are no proposed uses that will introduce higher potential pollutant loads to downgradient resource areas.

6. *Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook.*

   The Site does not lie within a Zone II or Interim Wellhead Protection Area.

7. *A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.*

   The Stormwater Management Standards are being fully met.

8. *A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.*

   Construction related impacts are described in the next section, the Erosion and Sediment (E&S) Control Plan.
   .

9. *A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed.*

   Long term operation and maintenance of the stormwater controls are described in Section 5.0, the Operation and Maintenance Plan.

10. *All illicit discharges to the stormwater management system are prohibited.*

    There shall be no illicit discharges to the proposed stormwater management system associated with the proposed project.

4.0 EROSION AND SEDIMENT CONTROL PLAN

4.1 Natural Buffers or Equivalent Sediment Controls

The major disturbance to the Site will be buffered by the construction of Units 5 through 8. Extensive sediment control and native plantings are proposed south of the Units to further mitigate potential erosion threats.

4.2 Perimeter Controls

Perimeter controls shall be either coconut rolls, wattles or a silt sock/silt fence combination. A detail of a silt sock/silt fence erosion control barrier is shown on Sheet 9 of the drawings. The location of the perimeter controls are shown on Sheet 5.

The design guidelines for perimeter control of erosion and sedimentation are as follows:

- The controls shall not be used for slopes longer than 30 feet and steeper than 15 percent;
- On slopes, the controls shall be install on an equivalent contour, with ends turned upslope slightly to deter bypasses;
- If installing on bare soil, prepare a smooth, rounded trench with a depth of ¼ the roll diameter;
- Perimeter controls must be staked down. When staking, ensure good soil contact for the full length of the control; and
- Use stakes that are 10 inches longer than the fiber roll diameter. Space stakes no more than 3 to 4 feet apart; shorten stake spacing on steeper slopes.

4.3 Sediment Track-Out

Sediment track-out from vehicles exiting the Site shall be established with a crushed stone spread over geotextile fabric at the Allandale Street entrance. If sediment track-out occurs, deposited sediment on Allandale Street shall be removed by the end of the same work day.

4.4 Stockpiled Sediment or Soil

All stockpiled soil, stone and debris shall be protected at the toe of the pile from stormwater run-on and runoff with adequate perimeter controls.

4.5 Minimize Dust

Dust control shall be implemented as needed once site grading has begun and during windy conditions (forecasted or actual wind conditions of 20 mph or greater) while site grading is occurring. Spraying of potable water at a rate of 300 gallons per acre or less shall be performed by a mobile pressure-type distributor truck no more than three times a day during the months of May–September and once per day during the months of October–April or whenever the dryness of the soil warrants it.

4.6 Minimize Steep Slope Disturbances

Steep slopes are not expected to be disturbed during the proposed project. If disturbance is unavoidable, geotextiles and erosion control blankets shall be set to stabilize the slopes.

4.7 Topsoil

Topsoil shall be preserved and stockpiled during clearing, grading and excavation, unless infeasible. The topsoil shall be stabilized to protect it from erosion. Following final grading, the topsoil shall be spread over the areas to be permanently landscaped.

4.8 Soil Compaction

Minimizing soil compaction is not required at the Site because compacted soil is integral to the functionality of the site.

4.9 Sediment Basins

The proposed extended dry detention basin shall be used for sediment control by establishing stormwater conveyance channels to the basin. If during routine inspections, evidence of significant scour or erosion is discovered, additional BMPs shall be installed as needed.

4.10 Dewatering Practices

Groundwater depths in the area of the proposed project are expected to be four to eight feet below grade. With work expected to start as soon as the stormwater management permit allows, the current drought conditions and groundwater depths are not expected to encumber construction work.

No dewatering is anticipated for this project.

4.11 Site Stabilization

Once work has temporarily or permanently stopped, stabilization of surfaces shall be immediately undertaken. Final site stabilization shall conform to the design specifications in the construction documents and as generally shown on the Subdivision Plans.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 Operation and Maintenance Compliance Statement

The Site is currently owned by Stefco Holdings, LLC, their successors, tenants or assigns shall maintain ownership of the on-Site stormwater management system as well as the responsibility for operation and maintenance during the post-development stages of the project. The Site has been inspected for erosion and appropriate measures have been taken to permanently stabilize any eroded areas.

All aspects of the permanent BMPs have been inspected for damage, wear and malfunction, and appropriate steps have been taken to repair or replace the system or portions of the system so that the stormwater at the Site may be managed in accordance with Stormwater Management Standards from DEP and the City. Future responsible parties shall be notified of their continuing legal responsibility to operate and maintain the BMPs.

_____ _____

Responsible Party Signature Date

5.2 Record Keeping

The Site Owner shall maintain a rolling log in which all inspections and maintenance activities for the past three years shall be recorded. The Operation and Maintenance Log includes information pertaining to inspections, repairs, and disposal relevant to the project's stormwater management system. The Log is provided in Appendix E.

The Operation and Maintenance Log shall be made available to the Middleton Conservation Commission ("MCC") and DEP upon request. The MCC and DEP shall be allowed to enter and inspect the premises to evaluate and ensure that the responsible party complies with the maintenance requirements for each BMP.

5.3 Training

Employees involved in grounds maintenance and emergency response shall be educated on the general concepts of stormwater management and groundwater protection. The Operation and Maintenance Plan shall be reviewed with the maintenance staff and contractors responsible for maintaining the Site grounds. The staff and contractors shall be trained on the proper course of action for specific events expected to be incurred during routine maintenance or emergency situations.

5.4 Storage of Supplies and Solid Waste

The Site shall be kept clear of trash and debris at all times. Certain materials and waste products shall be stored inside the building or outside upon an impervious surface and covered, as required by local and state regulations.

5.5 Spill Prevention and Response

A contingency plan shall be implemented to address the spill or release of petroleum or hazardous materials and shall include the following measures:

1. Equipment necessary to quickly attend to inadvertent spills or leaks shall be stored on-Site in a secure but accessible location. Such equipment shall include but not be limited to the following: safety goggles, chemically resistant gloves and overshoe boots, water and chemical fire extinguishers, sand and shovels, suitable absorbent materials, storage containers and first aid equipment.

2. Spills or leaks shall be treated properly according to material type, the quantity of spill and the location of spill. Mitigation shall include preventing further spills, containing the spilled material in the smallest practical area, removing spilled material in a safe and environmentally-friendly manner, and remediation of any damage to the environment.

3. For spills that exceed a quantity of 5 gallons, the DEP Bureau of Waste Site Cleanup Emergency Response Program shall be notified immediately at 888-304-1133 and an emergency response contractor shall be consulted.

4. In the event of a spill, care shall be taken to immediately protect all catch basins and the stormwater basin from receiving petroleum or hazardous materials.

5.6 Maintenance of Landscaped Areas

Landscaped areas shall be maintained regularly by the Site owner or Stefco Holdings, LLC. Vegetated and landscaped BMPs shall be maintained as outlined in Section 4.0. The following maintenance tasks shall be completed:

- Leaf litter shall be removed from the Site in the fall and spring each year, at a minimum;
- Special care should be taken to ensure that all vegetation is maintained in accordance with the design specifications for each BMP;

- Where possible, native and drought-resistant vegetation shall be planted. Vegetation shall be irrigated regularly during the establishment phase and if necessary, during excessively dry periods for long-term maintenance;
- Weedy and dead vegetation shall be removed regularly to prevent clogging of BMPs and to encourage the growth of desired vegetation; and
- The application of fertilizers, herbicides and pesticides shall not exceed local, state or federal specifications.

5.7 Storage and Use of Fertilizers, Herbicides and Pesticides

There shall be no fertilizers, herbicides or pesticides stored on-Site. The application of fertilizers, herbicides and pesticides shall not exceed local, state or federal specifications.

5.8 Snow and Deicing Chemical Management

Snow removal and the use of deicing chemicals on Site shall comply with the following requirements:

- Plowed snow shall be placed in areas outside of wetland resource areas and BMPs. The following measures shall be undertaken for snow disposal:
    - Debris shall be cleared from an area prior to using it for snow disposal; and
    - Debris and accumulated sediments shall be cleared from the Site and properly disposed of at the end of the snow season and no later than May 15.
- In accordance with Massachusetts General Laws, Chapter 85, Section 7A, salt and other deicing chemicals shall be stored indoors. Salt and other deicing chemicals shall be stored in accordance with all local, state and federal laws.
- Sand piles shall be contained and stabilized to prevent the discharge of sand to BMPs, wetland resource areas or water bodies, and where feasible, covered.
- Salt or other deicing chemicals shall not be allowed to be stored in piles on Site.
- The application of salt on the parking areas, walkways and access drives shall at no time exceed local, state or federal requirements.

5.9 Inspection and Maintenance Schedules

5.9.1 Catch Basin Sumps

The catch basin sumps shall be inspected and cleaned at least once per year. All catch basins on Site shall contain 30 inch sumps and standard MassDOT specified outlet hoods to prevent sediment and free product petroleum hydrocarbons from entering the stormwater collection systems.

5.9.2 Subsurface Infiltration Chambers

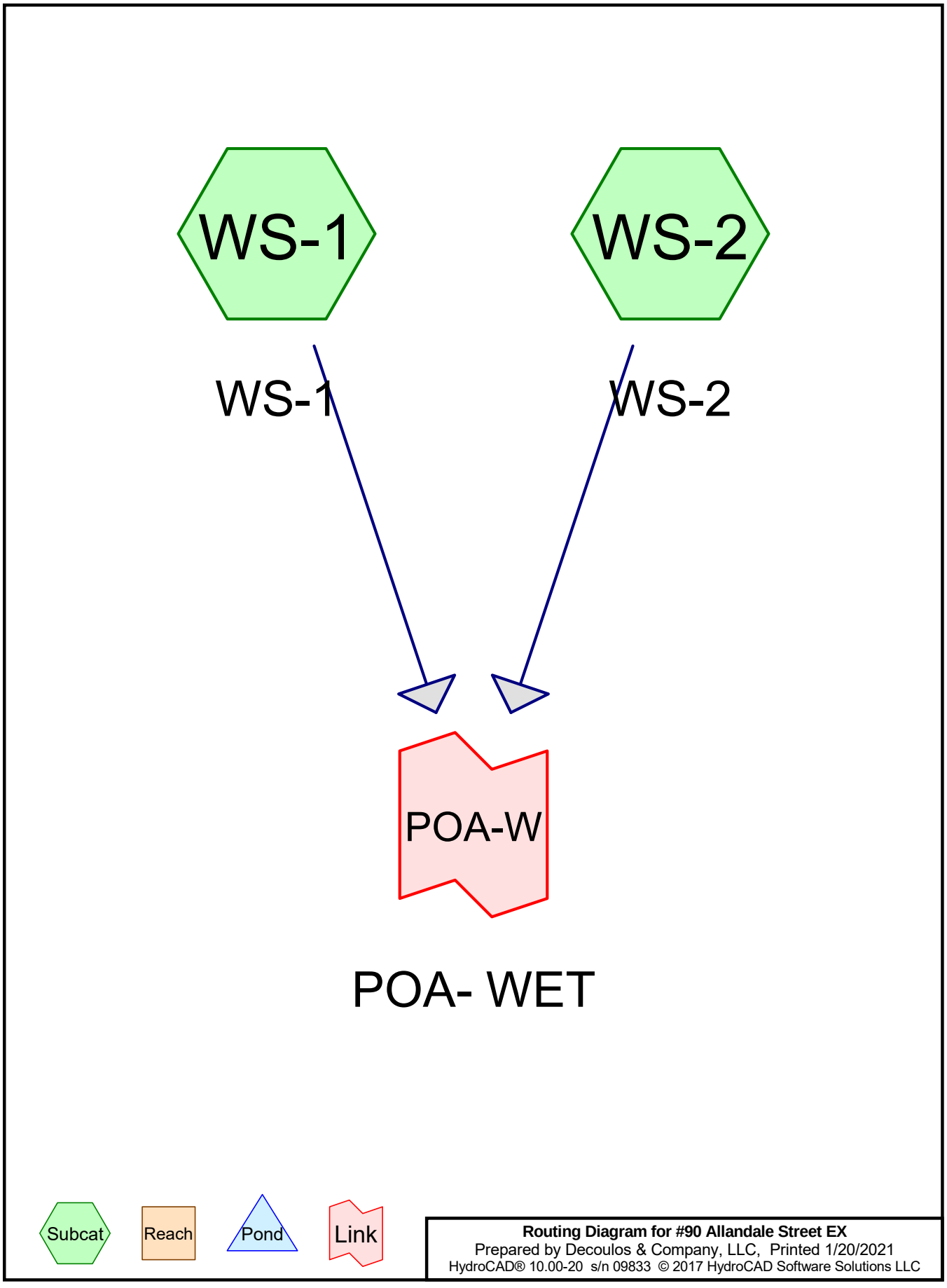
The infiltration chambers shall be inspected once per year. If sediment depths in the basin exceed six inches, the sediment shall be collected and disposed off-Site at an approved facility.

5.9.3 Stormwater Outfall

Flared end sections and associated riprap spillways into and out of the stormwater infiltration chambers shall be inspected at least once per year and after major storm events (rainfall totals greater than 2.5 inches in 24 hours) to ensure that the stability of the outlet area is maintained. The outfall shall be kept clear of debris such as trash, branches, and sediment. Repairs shall be made immediately if riprap displacement or downstream channel scour is observed.

APPENDIX A
SOIL LOGS

APPENDIX B
EXISTING HYDROLOGIC ANALYSIS



Routing Diagram for #90 Allandale Street EX
Prepared by Decoulos & Company, LLC, Printed 1/20/2021

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
171	98	Brick Patio (WS-2)
776	98	Conc Deck (WS-1, WS-2)
6,825	98	Drive (WS-1, WS-2)
96	98	Ledge (WS-2)
15	98	M&S (WS-1)
46	98	M&S Bldg (WS-1)
2,566	98	Roofs, HSG B (WS-2)
231	98	Walk Rear (WS-2)
81	98	Walk Side (WS-2)
38	98	Wall (WS-2)
76,038	58	Woods/grass comb., Good, HSG B (WS-1, WS-2)
86,883	**63**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
78,604	HSG B	WS-1, WS-2
0	HSG C	
0	HSG D	
8,279	Other	WS-1, WS-2
86,883		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover
0	0	0	0	171	171	Brick Patio
0	0	0	0	776	776	Conc Deck
0	0	0	0	6,825	6,825	Drive
0	0	0	0	96	96	Ledge
0	0	0	0	15	15	M&S
0	0	0	0	46	46	M&S Bldg
0	2,566	0	0	0	2,566	Roofs
0	0	0	0	231	231	Walk Rear
0	0	0	0	81	81	Walk Side
0	0	0	0	38	38	Wall
0	76,038	0	0	0	76,038	Woods/grass comb., Good
0	**78,604**	**0**	**0**	**8,279**	**86,883**	**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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment WS-1: WS-1 Runoff Area=46,462 sf 14.20% Impervious Runoff Depth=0.56"
Flow Length=304' Tc=8.8 min CN=64 Runoff=0.47 cfs 2,165 cf

Subcatchment WS-2: WS-2 Runoff Area=40,421 sf 10.51% Impervious Runoff Depth=0.48"
Flow Length=258' Tc=8.5 min CN=62 Runoff=0.32 cfs 1,620 cf

Link POA-W: POA- WET Inflow=0.79 cfs 3,785 cf
Primary=0.79 cfs 3,785 cf

Total Runoff Area = 86,883 sf Runoff Volume = 3,785 cf Average Runoff Depth = 0.52"
87.52% Pervious = 76,038 sf 12.48% Impervious = 10,845 sf

Summary for Subcatchment WS-1: WS-1

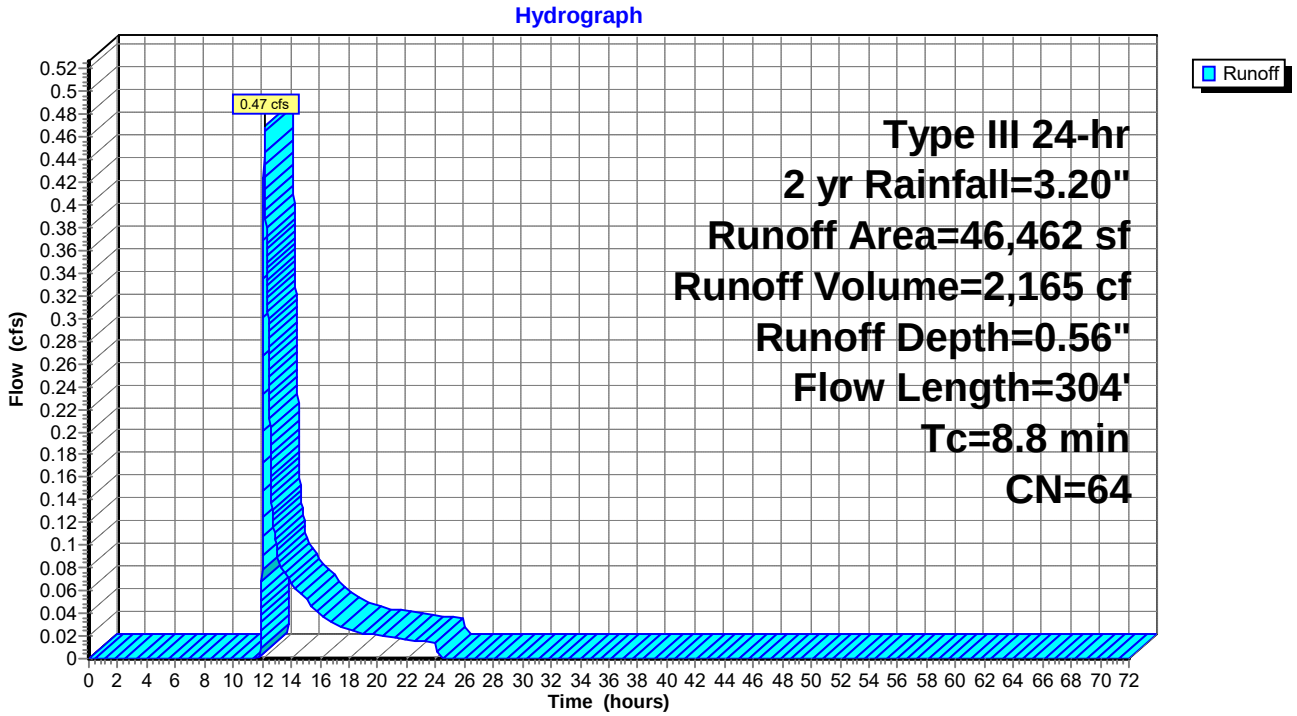
Runoff = 0.47 cfs @ 12.15 hrs, Volume= 2,165 cf, Depth= 0.56"

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 yr Rainfall=3.20"

	Area (sf)	CN	Description
*	6,148	98	Drive
*	388	98	Conc Deck
*	15	98	M&S
*	46	98	M&S Bldg
	39,865	58	Woods/grass comb., Good, HSG B
	46,462	64	Weighted Average
	39,865		85.80% Pervious Area
	6,597		14.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	178	0.1629	6.05		**Shallow Concentrated Flow, Shallow Flow** Grassed Waterway Kv= 15.0 fps
0.4	76	0.0526	3.44		**Shallow Concentrated Flow, Shallow Flow** Grassed Waterway Kv= 15.0 fps
8.8	304	Total			

Subcatchment WS-1: WS-1



Summary for Subcatchment WS-2: WS-2

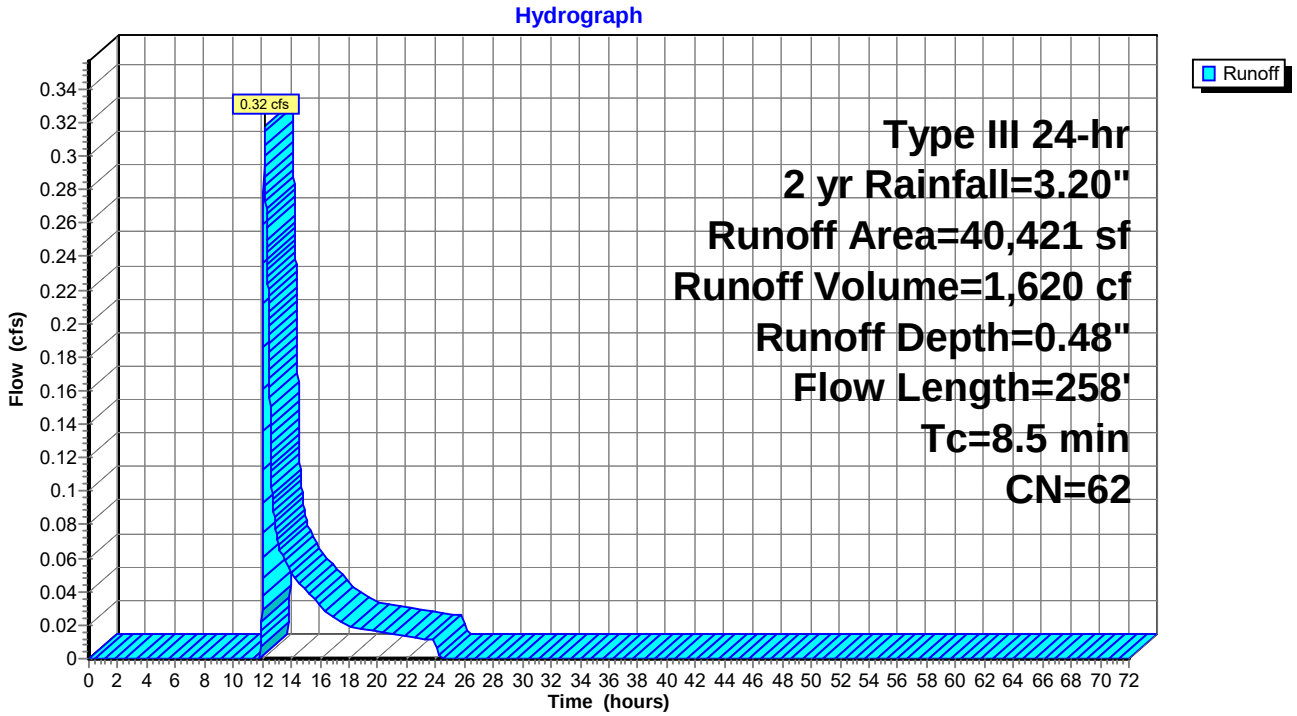
Runoff = 0.32 cfs @ 12.16 hrs, Volume= 1,620 cf, Depth= 0.48"

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 yr Rainfall=3.20"

	Area (sf)	CN	Description
	2,566	98	Roofs, HSG B
*	677	98	Drive
*	388	98	Conc Deck
*	81	98	Walk Side
*	231	98	Walk Rear
*	171	98	Brick Patio
*	38	98	Wall
*	96	98	Ledge
	36,173	58	Woods/grass comb., Good, HSG B
	40,421	62	Weighted Average
	36,173		89.49% Pervious Area
	4,248		10.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
0.6	208	0.1544	5.89		**Shallow Concentrated Flow, Shallow Flow** Grassed Waterway Kv= 15.0 fps
8.5	258	Total			

Subcatchment WS-2: WS-2

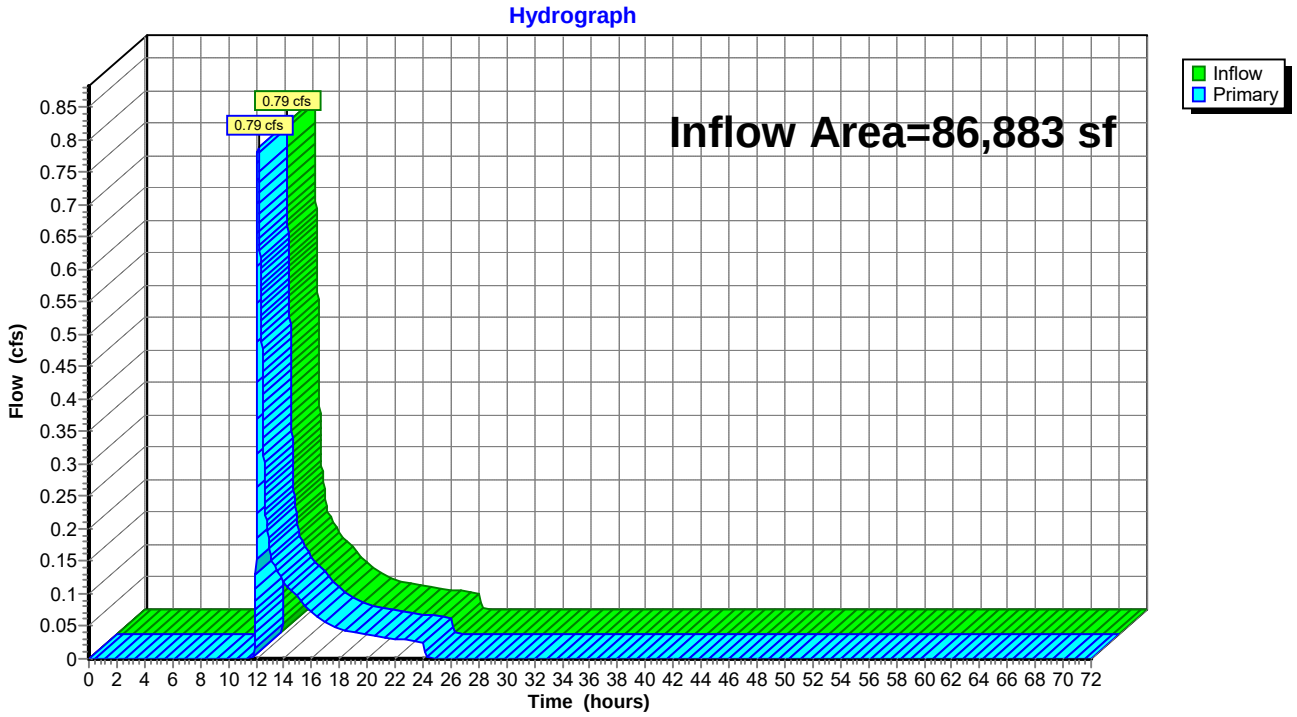


Summary for Link POA-W: POA- WET

Inflow Area = 86,883 sf, 12.48% Impervious, Inflow Depth = 0.52" for 2 yr event
Inflow = 0.79 cfs @ 12.15 hrs, Volume= 3,785 cf
Primary = 0.79 cfs @ 12.15 hrs, Volume= 3,785 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POA-W: POA- WET



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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment WS-1: WS-1 Runoff Area=46,462 sf 14.20% Impervious Runoff Depth=1.27"
Flow Length=304' Tc=8.8 min CN=64 Runoff=1.31 cfs 4,900 cf

Subcatchment WS-2: WS-2 Runoff Area=40,421 sf 10.51% Impervious Runoff Depth=1.14"
Flow Length=258' Tc=8.5 min CN=62 Runoff=1.01 cfs 3,840 cf

Link POA-W: POA- WET Inflow=2.32 cfs 8,741 cf
Primary=2.32 cfs 8,741 cf

Total Runoff Area = 86,883 sf Runoff Volume = 8,741 cf Average Runoff Depth = 1.21"
87.52% Pervious = 76,038 sf 12.48% Impervious = 10,845 sf

Summary for Subcatchment WS-1: WS-1

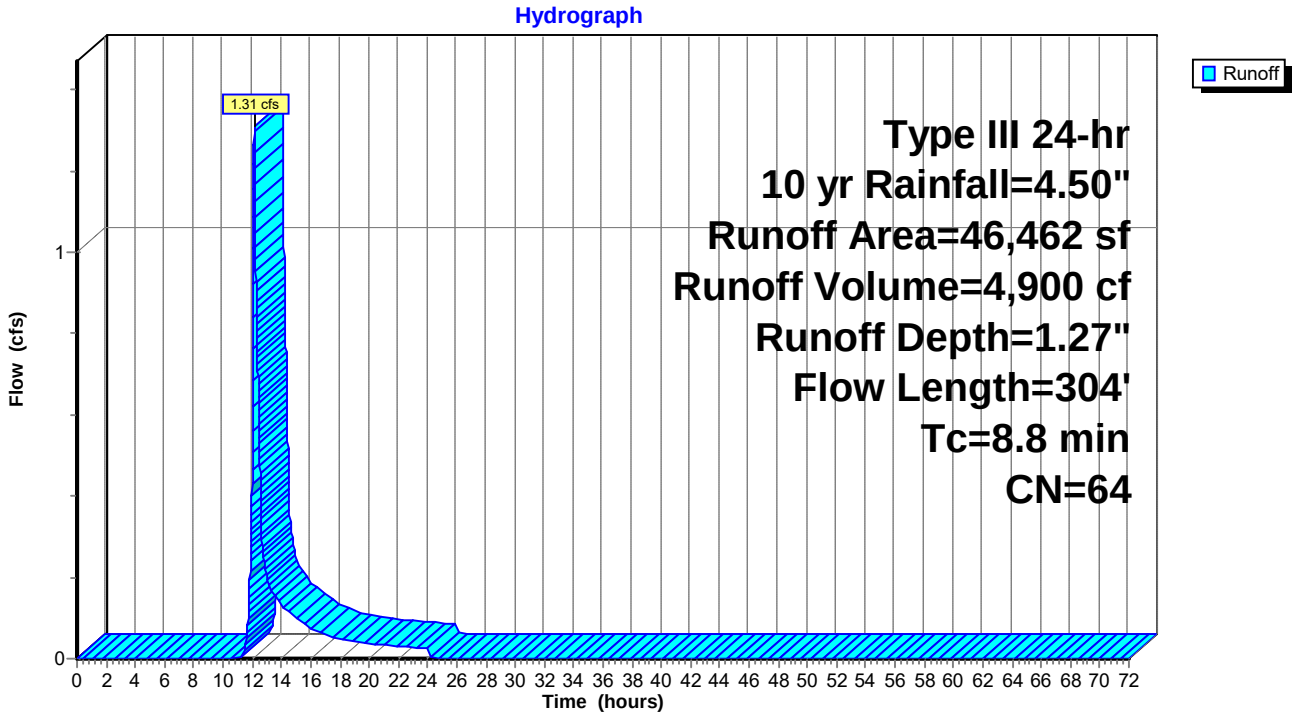
Runoff = 1.31 cfs @ 12.14 hrs, Volume= 4,900 cf, Depth= 1.27"

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 yr Rainfall=4.50"

	Area (sf)	CN	Description
*	6,148	98	Drive
*	388	98	Conc Deck
*	15	98	M&S
*	46	98	M&S Bldg
	39,865	58	Woods/grass comb., Good, HSG B
	46,462	64	Weighted Average
	39,865		85.80% Pervious Area
	6,597		14.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	178	0.1629	6.05		**Shallow Concentrated Flow, Shallow Flow** Grassed Waterway Kv= 15.0 fps
0.4	76	0.0526	3.44		**Shallow Concentrated Flow, Shallow Flow** Grassed Waterway Kv= 15.0 fps
8.8	304	Total			

Subcatchment WS-1: WS-1



Summary for Subcatchment WS-2: WS-2

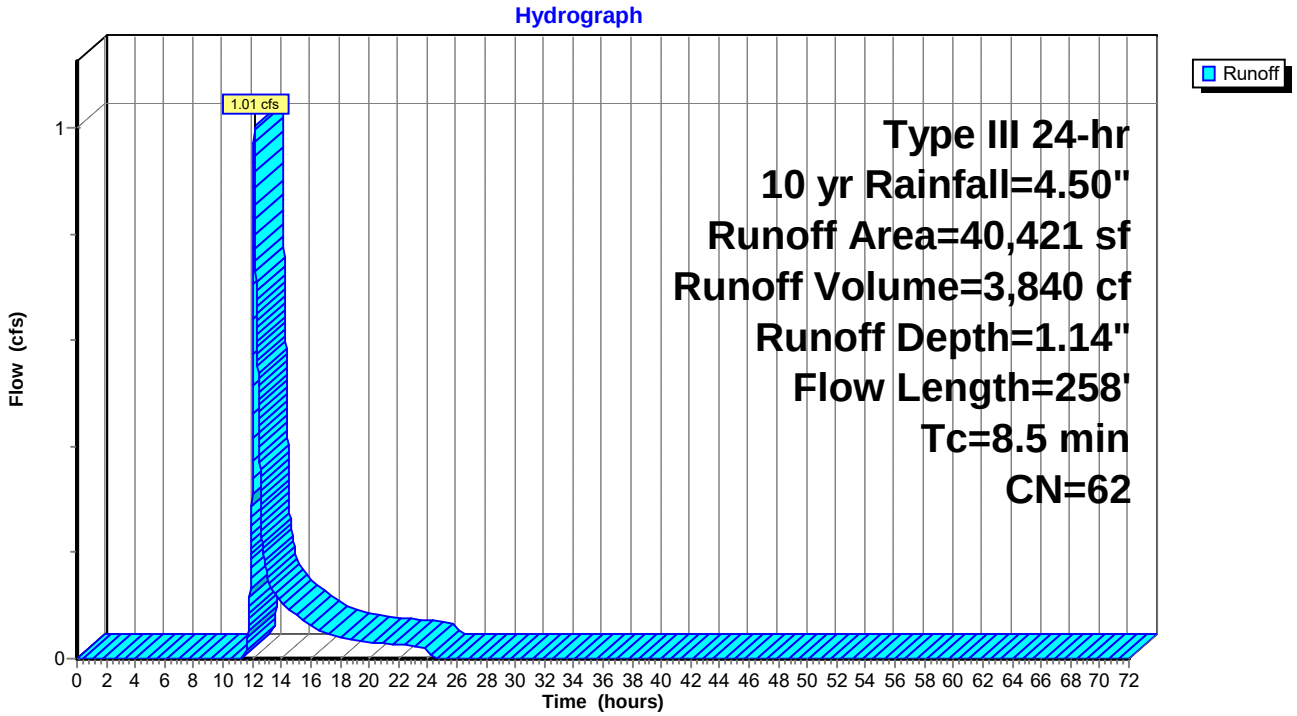
Runoff = 1.01 cfs @ 12.14 hrs, Volume= 3,840 cf, Depth= 1.14"

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 yr Rainfall=4.50"

	Area (sf)	CN	Description
	2,566	98	Roofs, HSG B
*	677	98	Drive
*	388	98	Conc Deck
*	81	98	Walk Side
*	231	98	Walk Rear
*	171	98	Brick Patio
*	38	98	Wall
*	96	98	Ledge
	36,173	58	Woods/grass comb., Good, HSG B
	40,421	62	Weighted Average
	36,173		89.49% Pervious Area
	4,248		10.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
0.6	208	0.1544	5.89		**Shallow Concentrated Flow, Shallow Flow** Grassed Waterway Kv= 15.0 fps
8.5	258	Total			

Subcatchment WS-2: WS-2

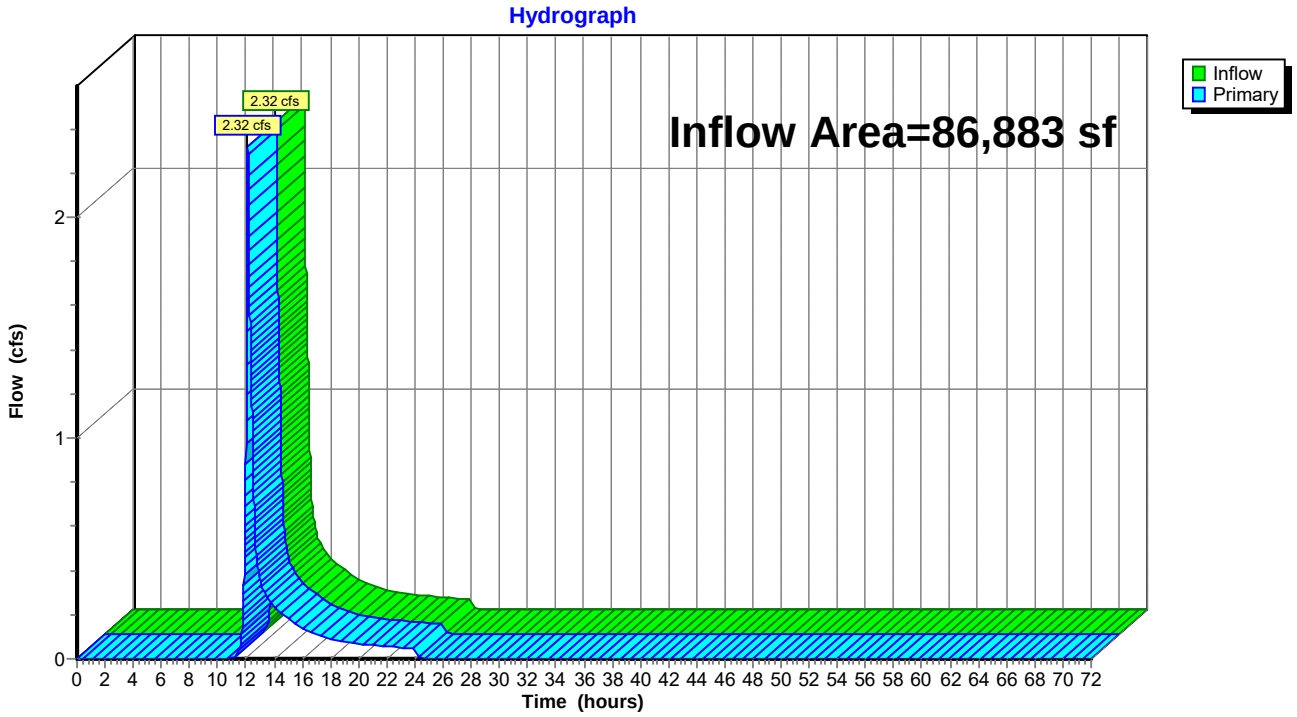


Summary for Link POA-W: POA- WET

Inflow Area = 86,883 sf, 12.48% Impervious, Inflow Depth = 1.21" for 10 yr event
Inflow = 2.32 cfs @ 12.14 hrs, Volume= 8,741 cf
Primary = 2.32 cfs @ 12.14 hrs, Volume= 8,741 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POA-W: POA- WET



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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment WS-1: WS-1 Runoff Area=46,462 sf 14.20% Impervious Runoff Depth=1.85"
Flow Length=304' Tc=8.8 min CN=64 Runoff=2.00 cfs 7,147 cf

Subcatchment WS-2: WS-2 Runoff Area=40,421 sf 10.51% Impervious Runoff Depth=1.69"
Flow Length=258' Tc=8.5 min CN=62 Runoff=1.58 cfs 5,696 cf

Link POA-W: POA- WET Inflow=3.58 cfs 12,844 cf
Primary=3.58 cfs 12,844 cf

Total Runoff Area = 86,883 sf Runoff Volume = 12,844 cf Average Runoff Depth = 1.77"
87.52% Pervious = 76,038 sf 12.48% Impervious = 10,845 sf

Summary for Subcatchment WS-1: WS-1

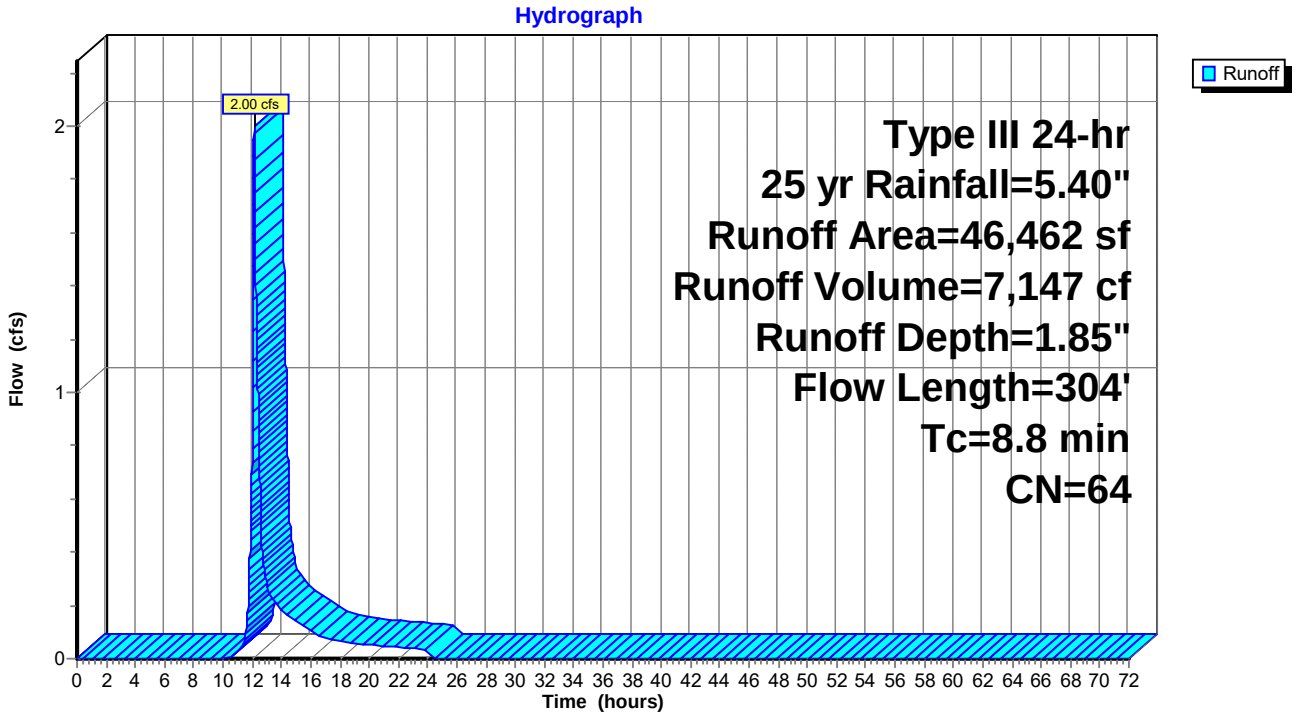
Runoff = 2.00 cfs @ 12.13 hrs, Volume= 7,147 cf, Depth= 1.85"

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 yr Rainfall=5.40"

	Area (sf)	CN	Description
*	6,148	98	Drive
*	388	98	Conc Deck
*	15	98	M&S
*	46	98	M&S Bldg
	39,865	58	Woods/grass comb., Good, HSG B
	46,462	64	Weighted Average
	39,865		85.80% Pervious Area
	6,597		14.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	178	0.1629	6.05		**Shallow Concentrated Flow, Shallow Flow** Grassed Waterway Kv= 15.0 fps
0.4	76	0.0526	3.44		**Shallow Concentrated Flow, Shallow Flow** Grassed Waterway Kv= 15.0 fps
8.8	304	Total			

Subcatchment WS-1: WS-1



Summary for Subcatchment WS-2: WS-2

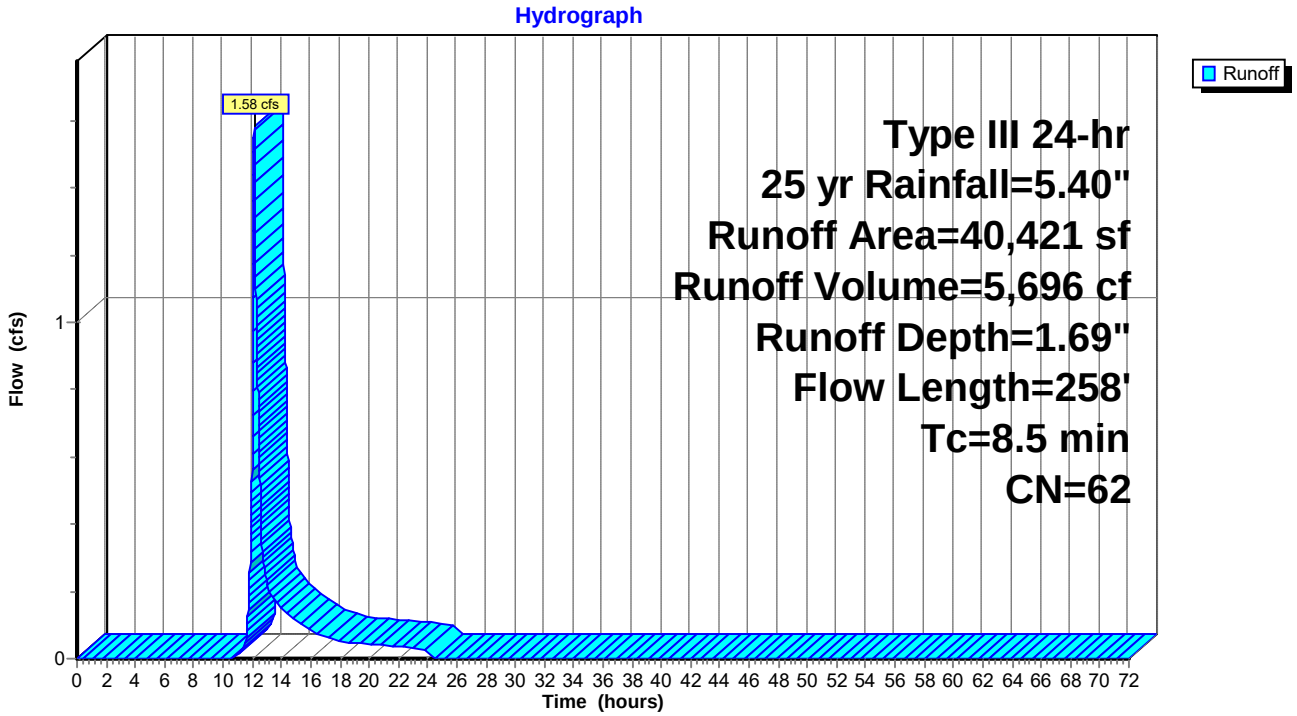
Runoff = 1.58 cfs @ 12.13 hrs, Volume= 5,696 cf, Depth= 1.69"

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 yr Rainfall=5.40"

	Area (sf)	CN	Description
	2,566	98	Roofs, HSG B
*	677	98	Drive
*	388	98	Conc Deck
*	81	98	Walk Side
*	231	98	Walk Rear
*	171	98	Brick Patio
*	38	98	Wall
*	96	98	Ledge
	36,173	58	Woods/grass comb., Good, HSG B
	40,421	62	Weighted Average
	36,173		89.49% Pervious Area
	4,248		10.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
0.6	208	0.1544	5.89		**Shallow Concentrated Flow, Shallow Flow** Grassed Waterway Kv= 15.0 fps
8.5	258	Total			

Subcatchment WS-2: WS-2

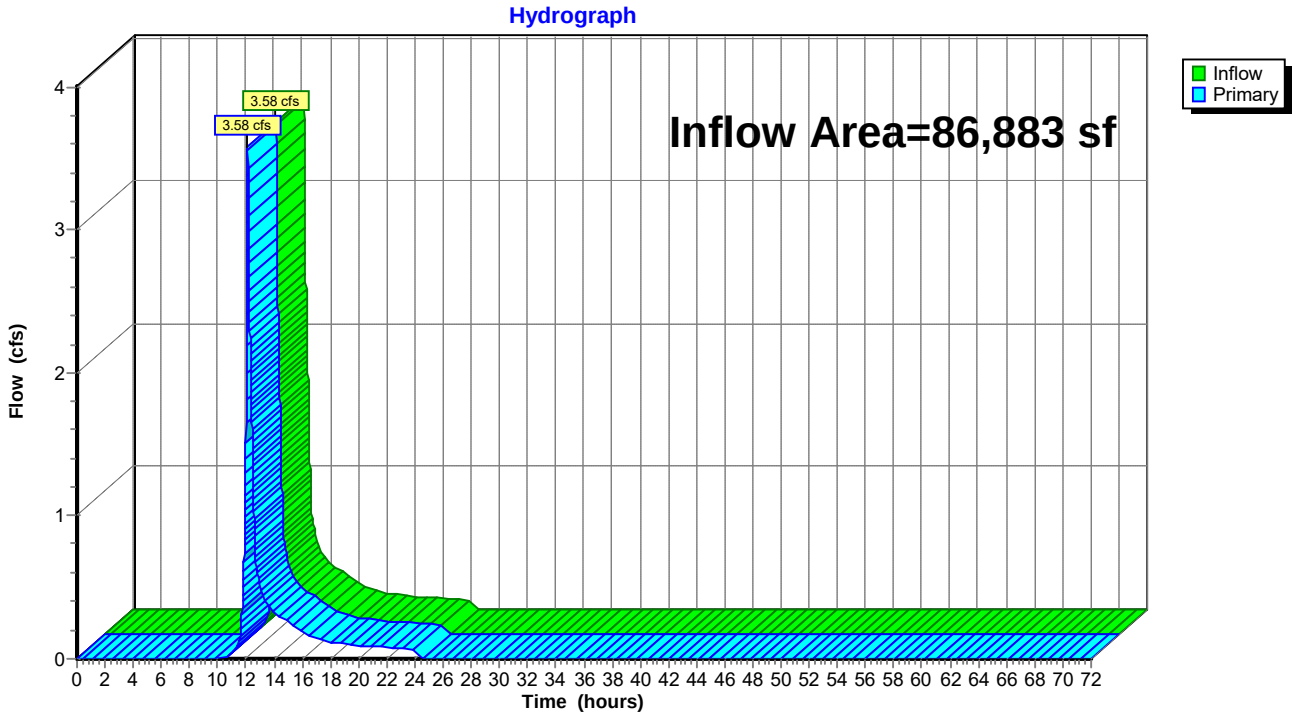


Summary for Link POA-W: POA- WET

Inflow Area = 86,883 sf, 12.48% Impervious, Inflow Depth = 1.77" for 25 yr event
Inflow = 3.58 cfs @ 12.13 hrs, Volume= 12,844 cf
Primary = 3.58 cfs @ 12.13 hrs, Volume= 12,844 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POA-W: POA- WET



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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment WS-1: WS-1 Runoff Area=46,462 sf 14.20% Impervious Runoff Depth=3.00"
Flow Length=304' Tc=8.8 min CN=64 Runoff=3.36 cfs 11,621 cf

Subcatchment WS-2: WS-2 Runoff Area=40,421 sf 10.51% Impervious Runoff Depth=2.80"
Flow Length=258' Tc=8.5 min CN=62 Runoff=2.73 cfs 9,435 cf

Link POA-W: POA- WET Inflow=6.10 cfs 21,056 cf
Primary=6.10 cfs 21,056 cf

Total Runoff Area = 86,883 sf Runoff Volume = 21,056 cf Average Runoff Depth = 2.91"
87.52% Pervious = 76,038 sf 12.48% Impervious = 10,845 sf

Summary for Subcatchment WS-1: WS-1

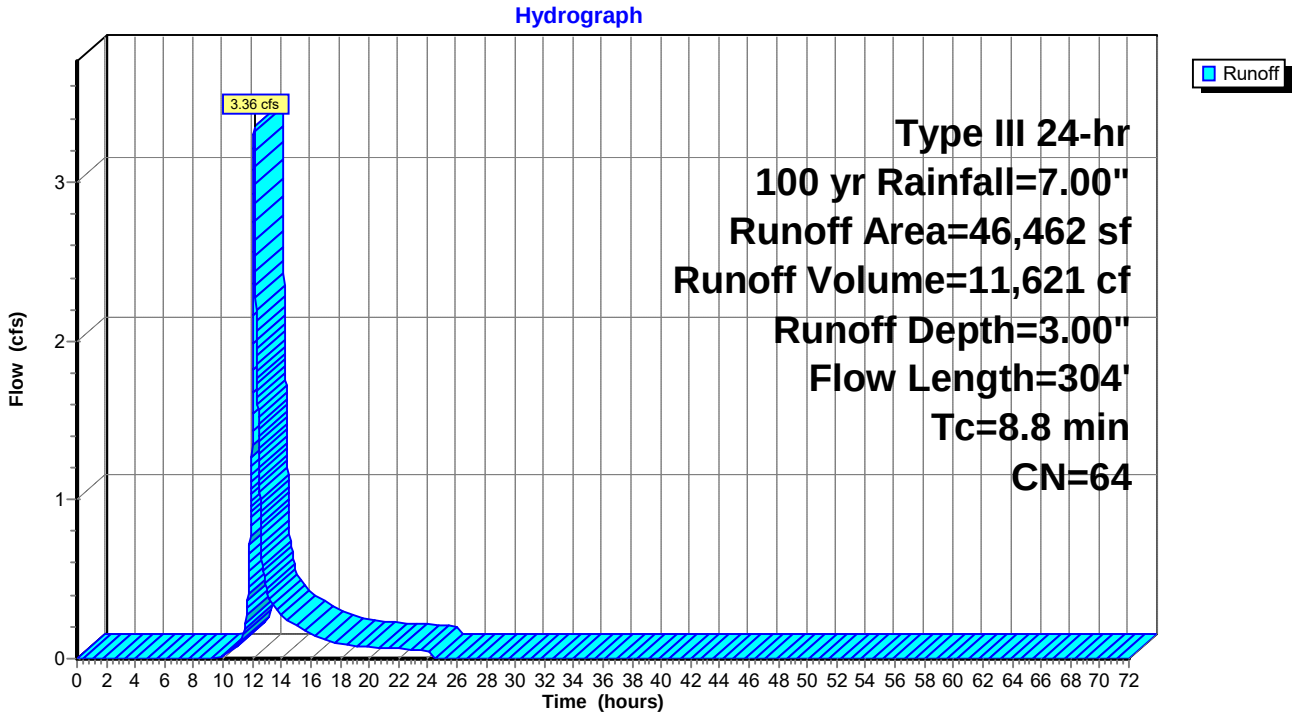
Runoff = 3.36 cfs @ 12.13 hrs, Volume= 11,621 cf, Depth= 3.00"

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 100 yr Rainfall=7.00"

	Area (sf)	CN	Description
*	6,148	98	Drive
*	388	98	Conc Deck
*	15	98	M&S
*	46	98	M&S Bldg
	39,865	58	Woods/grass comb., Good, HSG B
	46,462	64	Weighted Average
	39,865		85.80% Pervious Area
	6,597		14.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	178	0.1629	6.05		**Shallow Concentrated Flow, Shallow Flow** Grassed Waterway Kv= 15.0 fps
0.4	76	0.0526	3.44		**Shallow Concentrated Flow, Shallow Flow** Grassed Waterway Kv= 15.0 fps
8.8	304	Total			

Subcatchment WS-1: WS-1



Summary for Subcatchment WS-2: WS-2

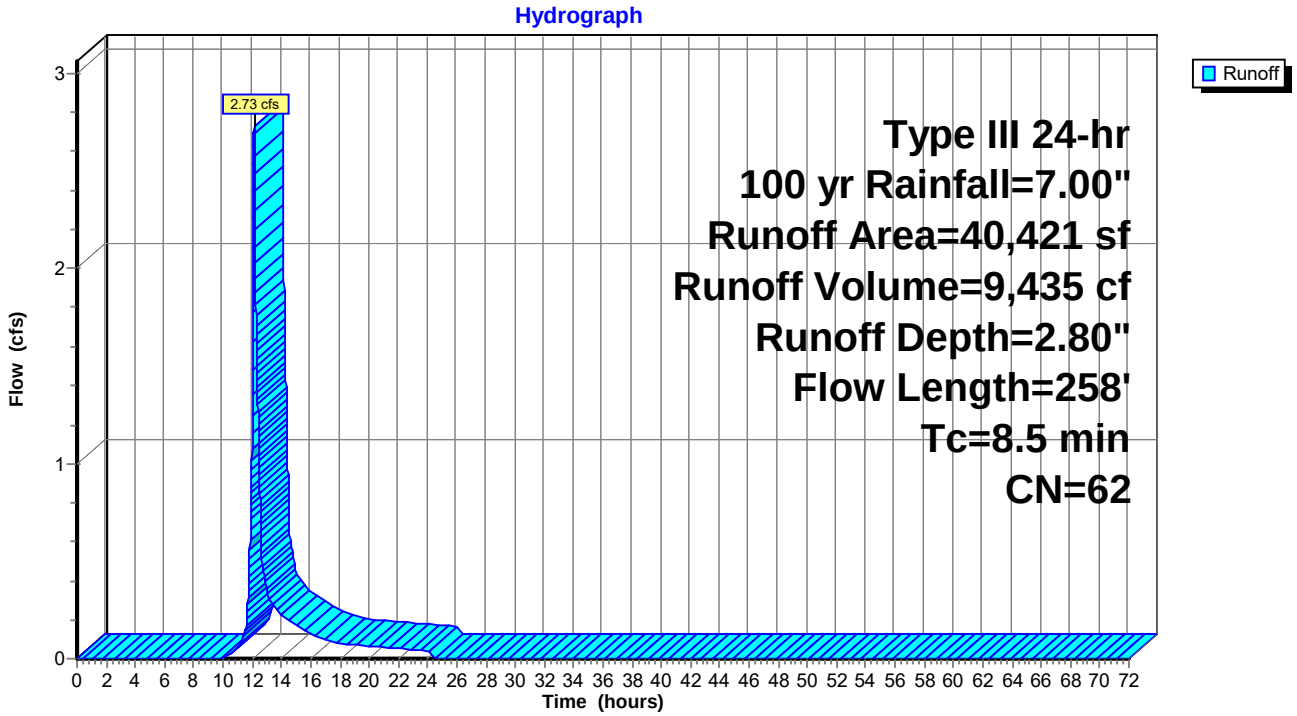
Runoff = 2.73 cfs @ 12.13 hrs, Volume= 9,435 cf, Depth= 2.80"

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 yr Rainfall=7.00"

	Area (sf)	CN	Description
	2,566	98	Roofs, HSG B
*	677	98	Drive
*	388	98	Conc Deck
*	81	98	Walk Side
*	231	98	Walk Rear
*	171	98	Brick Patio
*	38	98	Wall
*	96	98	Ledge
	36,173	58	Woods/grass comb., Good, HSG B
	40,421	62	Weighted Average
	36,173		89.49% Pervious Area
	4,248		10.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
0.6	208	0.1544	5.89		**Shallow Concentrated Flow, Shallow Flow** Grassed Waterway Kv= 15.0 fps
8.5	258	Total			

Subcatchment WS-2: WS-2

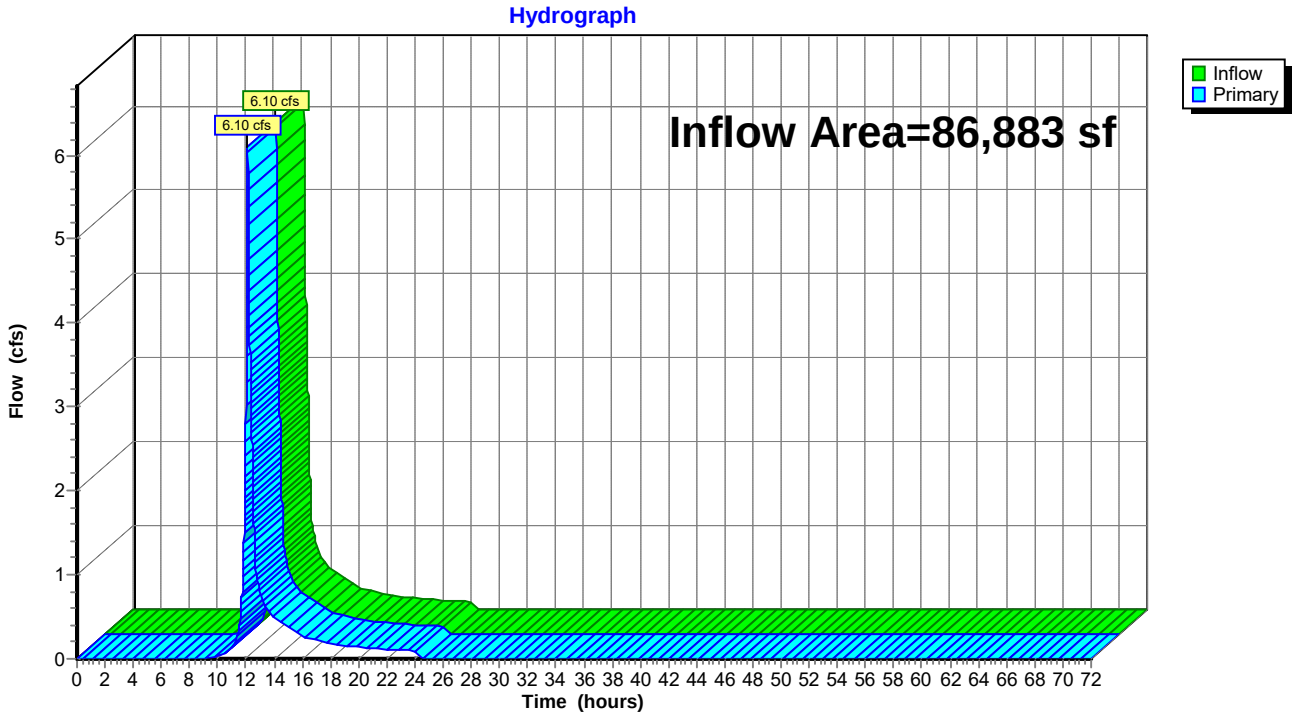


Summary for Link POA-W: POA- WET

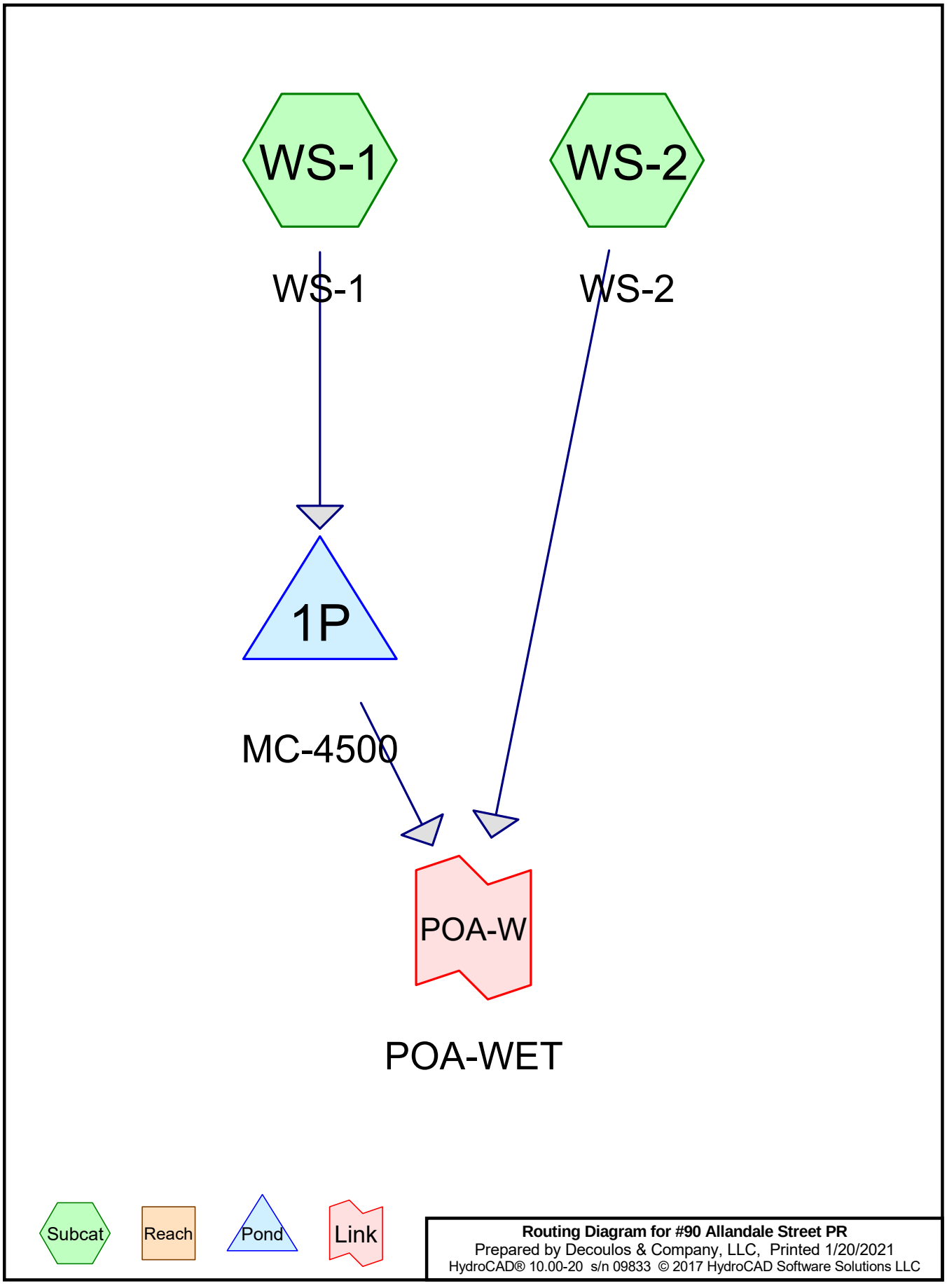
Inflow Area = 86,883 sf, 12.48% Impervious, Inflow Depth = 2.91" for 100 yr event
Inflow = 6.10 cfs @ 12.13 hrs, Volume= 21,056 cf
Primary = 6.10 cfs @ 12.13 hrs, Volume= 21,056 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POA-W: POA- WET



APPENDIX C
PROPOSED HYDROLOGIC ANALYSIS



Routing Diagram for #90 Allandale Street PR
Prepared by Decoulos & Company, LLC, Printed 1/20/2021

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
11,365	98	Buildings (WS-1)
5,056	98	Drive (WS-1)
96	98	Ledge (WS-2)
2,238	80	Pervious Paver Patios (WS-1)
153	80	Pervious Paver Stairs (WS-1)
4,636	80	Pervious Pavers Driveways (WS-1)
670	98	Walls (WS-1)
10,360	65	Woods/grass comb., Fair, HSG B (WS-1)
52,309	58	Woods/grass comb., Good, HSG B (WS-2)
86,883	**69**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
62,669	HSG B	WS-1, WS-2
0	HSG C	
0	HSG D	
24,214	Other	WS-1, WS-2
86,883		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover
0	0	0	0	11,365	11,365	Buildings
0	0	0	0	5,056	5,056	Drive
0	0	0	0	96	96	Ledge
0	0	0	0	2,238	2,238	Pervious Paver Patios
0	0	0	0	153	153	Pervious Paver Stairs
0	0	0	0	4,636	4,636	Pervious Pavers Driveways
0	0	0	0	670	670	Walls
0	10,360	0	0	0	10,360	Woods/grass comb., Fair
0	52,309	0	0	0	52,309	Woods/grass comb., Good
0	**62,669**	**0**	**0**	**24,214**	**86,883**	**TOTAL AREA**

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1P	147.92	147.00	31.0	0.0297	0.009	10.0	0.0	0.0

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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment WS-1: WS-1 Runoff Area=34,478 sf 49.57% Impervious Runoff Depth=1.68"
Flow Length=319' Tc=7.2 min CN=84 Runoff=1.50 cfs 4,834 cf

Subcatchment WS-2: WS-2 Runoff Area=52,405 sf 0.18% Impervious Runoff Depth=0.34"
Flow Length=258' Tc=8.5 min CN=58 Runoff=0.20 cfs 1,490 cf

Pond 1P: MC-4500 Peak Elev=148.05' Storage=3,076 cf Inflow=1.50 cfs 4,834 cf
Discarded=0.03 cfs 4,339 cf Primary=0.05 cfs 495 cf Outflow=0.08 cfs 4,834 cf

Link POA-W: POA-WET Inflow=0.20 cfs 1,985 cf
Primary=0.20 cfs 1,985 cf

Total Runoff Area = 86,883 sf Runoff Volume = 6,324 cf Average Runoff Depth = 0.87"
80.22% Pervious = 69,696 sf 19.78% Impervious = 17,187 sf

Summary for Subcatchment WS-1: WS-1

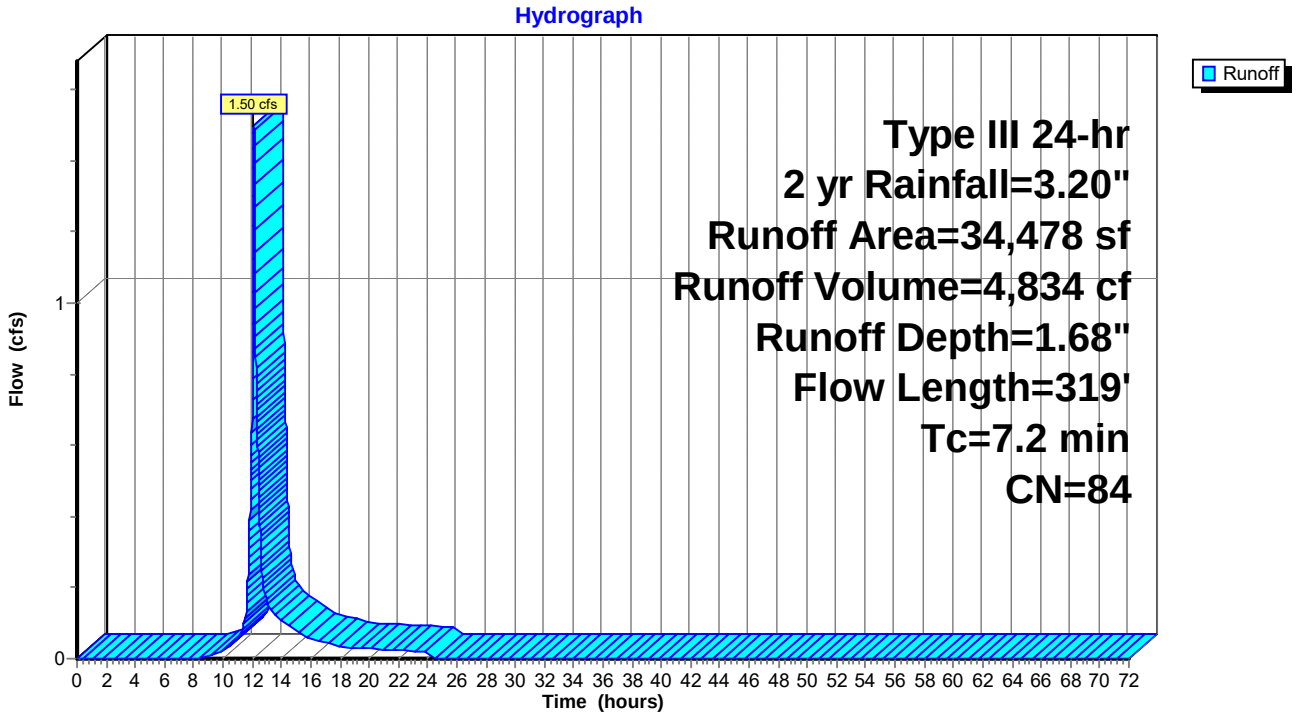
Runoff = 1.50 cfs @ 12.10 hrs, Volume= 4,834 cf, Depth= 1.68"

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 yr Rainfall=3.20"

	Area (sf)	CN	Description
*	5,056	98	Drive
*	670	98	Walls
*	11,365	98	Buildings
*	4,636	80	Pervious Pavers Driveways
*	2,238	80	Pervious Paver Patios
*	153	80	Pervious Paver Stairs
	10,360	65	Woods/grass comb., Fair, HSG B
	34,478	84	Weighted Average
	17,387		50.43% Pervious Area
	17,091		49.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.90		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.20"
5.7	38	0.0800	0.11		**Sheet Flow, Sheet Flow 2** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	144	0.1125	5.03		**Shallow Concentrated Flow, Shallow Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.8	125	0.0300	2.60		**Shallow Concentrated Flow, Shallow Concentrated Flow 2** Grassed Waterway Kv= 15.0 fps
7.2	319	Total			

Subcatchment WS-1: WS-1



Summary for Subcatchment WS-2: WS-2

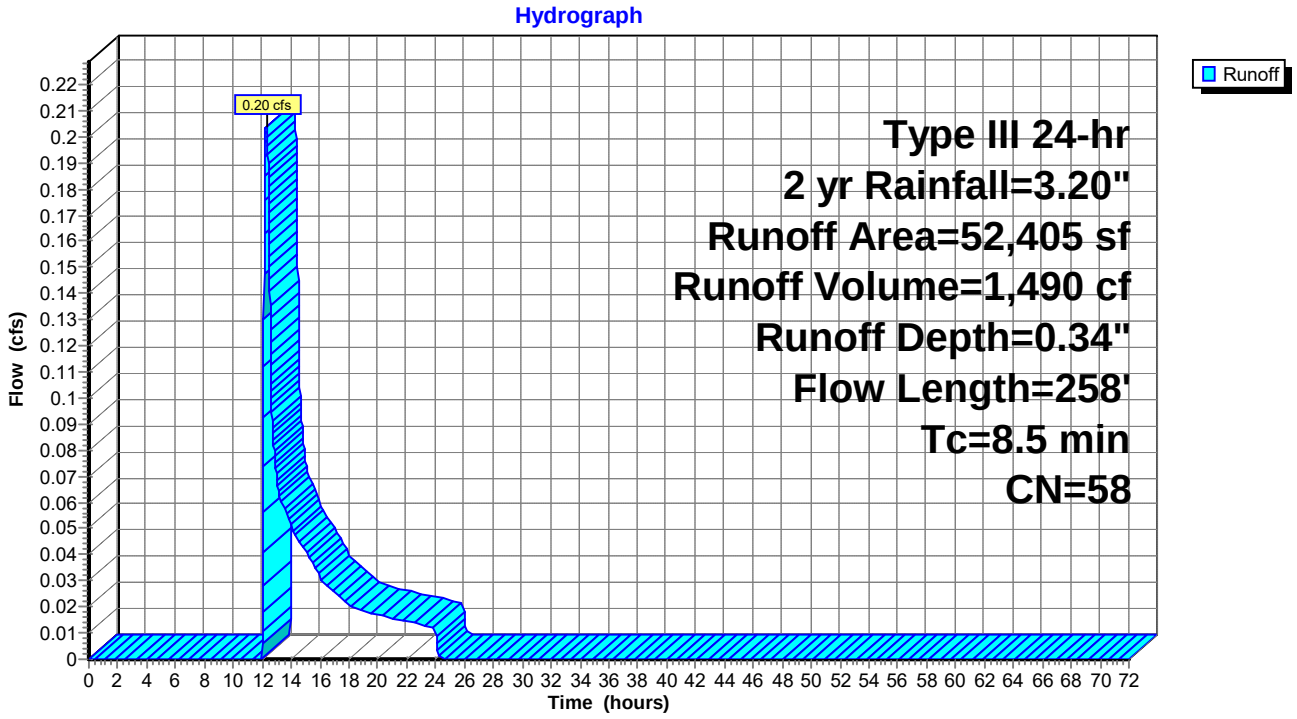
Runoff = 0.20 cfs @ 12.27 hrs, Volume= 1,490 cf, Depth= 0.34"

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 yr Rainfall=3.20"

	Area (sf)	CN	Description
	52,309	58	Woods/grass comb., Good, HSG B
*	96	98	Ledge
	52,405	58	Weighted Average
	52,309		99.82% Pervious Area
	96		0.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
0.6	208	0.1544	5.89		**Shallow Concentrated Flow, Shallow Flow** Grassed Waterway Kv= 15.0 fps
8.5	258	Total			

Subcatchment WS-2: WS-2



Summary for Pond 1P: MC-4500

Inflow Area = 34,478 sf, 49.57% Impervious, Inflow Depth = 1.68" for 2 yr event
Inflow = 1.50 cfs @ 12.10 hrs, Volume= 4,834 cf
Outflow = 0.08 cfs @ 14.95 hrs, Volume= 4,834 cf, Atten= 95%, Lag= 170.7 min
Discarded = 0.03 cfs @ 10.44 hrs, Volume= 4,339 cf
Primary = 0.05 cfs @ 14.95 hrs, Volume= 495 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 6
Peak Elev= 148.05' @ 14.95 hrs Surf.Area= 1,143 sf Storage= 3,076 cf

Plug-Flow detention time= 991.4 min calculated for 4,834 cf (100% of inflow)
Center-of-Mass det. time= 991.4 min (1,822.1 - 830.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	143.00'	1,999 cf	**21.42'W x 53.39'L x 8.00'H Field A** 9,148 cf Overall - 2,486 cf Embedded = 6,662 cf x 30.0% Voids
#2A	145.00'	2,486 cf	**ADS_StormTech MC-4500 +Cap** x 22 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 2 Rows of 11 Chambers Cap Storage= +35.7 cf x 2 x 2 rows = 142.8 cf
		4,484 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	143.00'	**1.020 in/hr Exfiltration over Surface area**
#2	Primary	147.92'	**10.0" Round Culvert** L= 31.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 147.92' / 147.00' S= 0.0297 '/' Cc= 0.900 n= 0.009 PVC, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.03 cfs @ 10.44 hrs HW=143.08' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.05 cfs @ 14.95 hrs HW=148.05' (Free Discharge)
↑—**2=Culvert** (Inlet Controls 0.05 cfs @ 0.97 fps)

Pond 1P: MC-4500 - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= +35.7 cf x 2 x 2 rows = 142.8 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

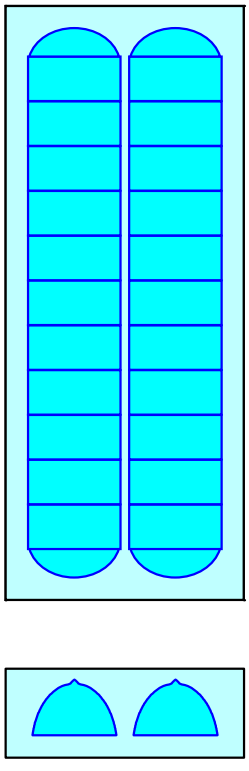
11 Chambers/Row x 4.02' Long +2.56' Cap Length x 2 = 49.39' Row Length +24.0" End Stone x 2 = 53.39' Base Length
2 Rows x 100.0" Wide + 9.0" Spacing x 1 + 24.0" Side Stone x 2 = 21.42' Base Width
24.0" Base + 60.0" Chamber Height + 12.0" Cover = 8.00' Field Height

22 Chambers x 106.5 cf + 35.7 cf Cap Volume x 2 x 2 Rows = 2,485.6 cf Chamber Storage

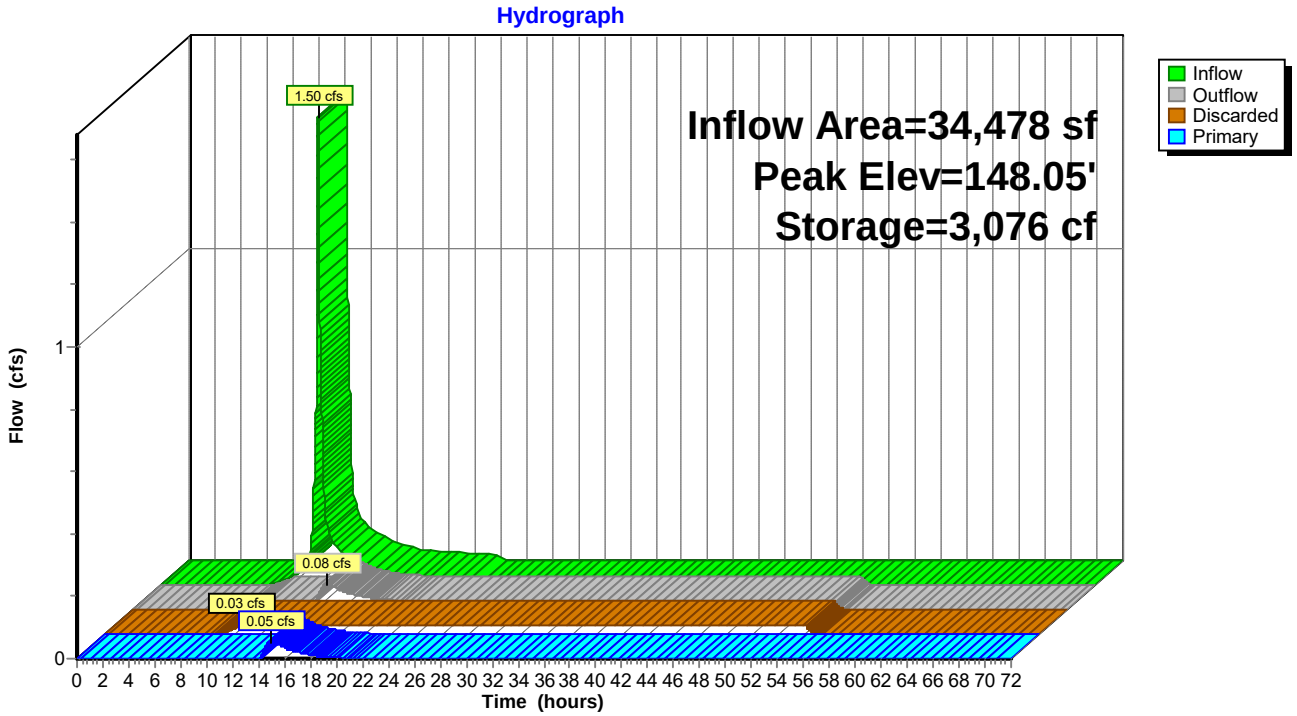
9,147.8 cf Field - 2,485.6 cf Chambers = 6,662.2 cf Stone x 30.0% Voids = 1,998.7 cf Stone Storage

Chamber Storage + Stone Storage = 4,484.2 cf = 0.103 af
Overall Storage Efficiency = 49.0%
Overall System Size = 53.39' x 21.42' x 8.00'

22 Chambers
338.8 cy Field
246.7 cy Stone



Pond 1P: MC-4500

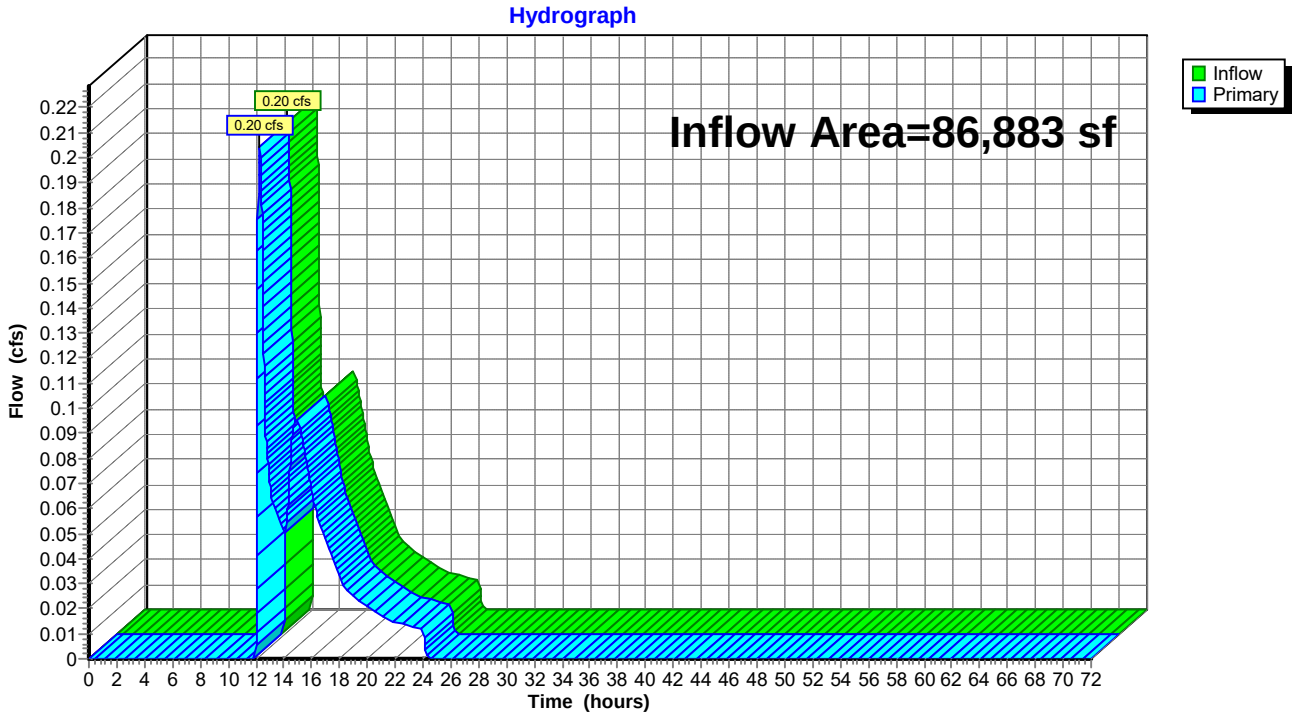


Summary for Link POA-W: POA-WET

Inflow Area = 86,883 sf, 19.78% Impervious, Inflow Depth = 0.27" for 2 yr event
Inflow = 0.20 cfs @ 12.27 hrs, Volume= 1,985 cf
Primary = 0.20 cfs @ 12.27 hrs, Volume= 1,985 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POA-W: POA-WET



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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment WS-1: WS-1 Runoff Area=34,478 sf 49.57% Impervious Runoff Depth=2.82"
Flow Length=319' Tc=7.2 min CN=84 Runoff=2.50 cfs 8,093 cf

Subcatchment WS-2: WS-2 Runoff Area=52,405 sf 0.18% Impervious Runoff Depth=0.90"
Flow Length=258' Tc=8.5 min CN=58 Runoff=0.94 cfs 3,951 cf

Pond 1P: MC-4500 Peak Elev=148.54' Storage=3,404 cf Inflow=2.50 cfs 8,093 cf
Discarded=0.03 cfs 4,537 cf Primary=0.92 cfs 3,556 cf Outflow=0.95 cfs 8,093 cf

Link POA-W: POA-WET Inflow=1.50 cfs 7,507 cf
Primary=1.50 cfs 7,507 cf

Total Runoff Area = 86,883 sf Runoff Volume = 12,044 cf Average Runoff Depth = 1.66"
80.22% Pervious = 69,696 sf 19.78% Impervious = 17,187 sf

Summary for Subcatchment WS-1: WS-1

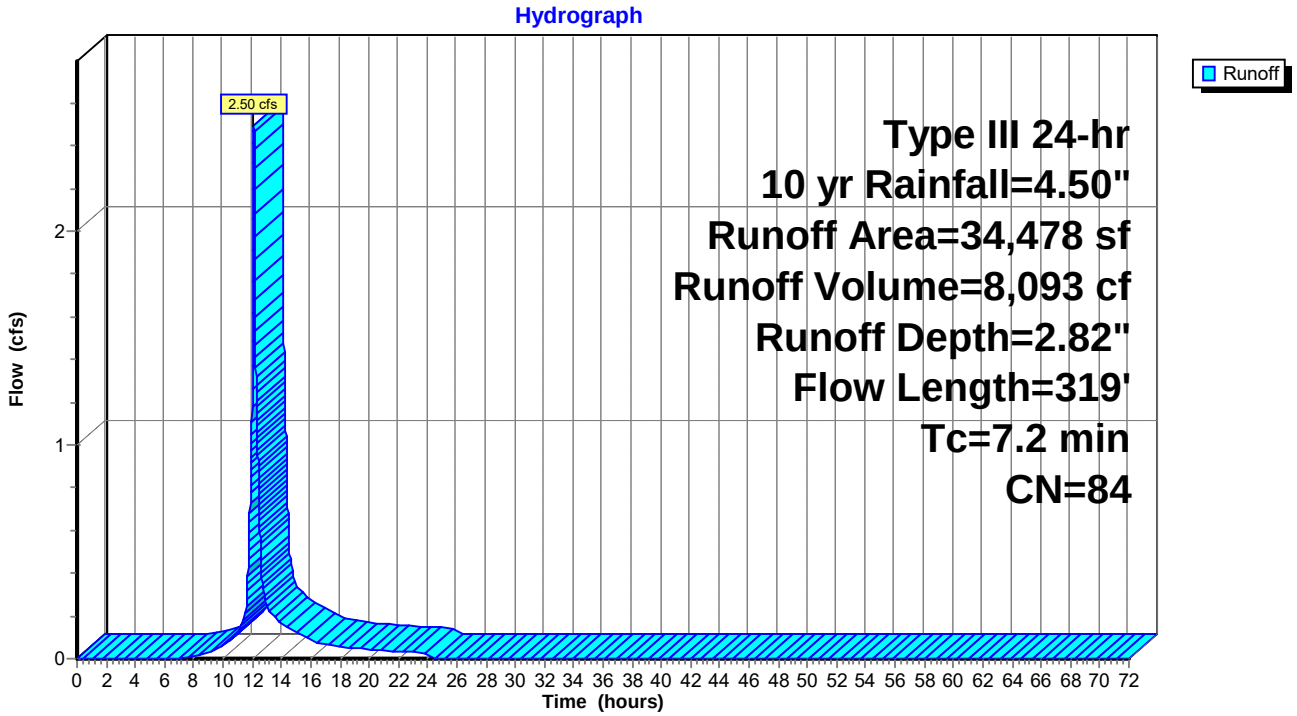
Runoff = 2.50 cfs @ 12.10 hrs, Volume= 8,093 cf, Depth= 2.82"

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 yr Rainfall=4.50"

	Area (sf)	CN	Description
*	5,056	98	Drive
*	670	98	Walls
*	11,365	98	Buildings
*	4,636	80	Pervious Pavers Driveways
*	2,238	80	Pervious Paver Patios
*	153	80	Pervious Paver Stairs
	10,360	65	Woods/grass comb., Fair, HSG B
	34,478	84	Weighted Average
	17,387		50.43% Pervious Area
	17,091		49.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.90		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.20"
5.7	38	0.0800	0.11		**Sheet Flow, Sheet Flow 2** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	144	0.1125	5.03		**Shallow Concentrated Flow, Shallow Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.8	125	0.0300	2.60		**Shallow Concentrated Flow, Shallow Concentrated Flow 2** Grassed Waterway Kv= 15.0 fps
7.2	319	Total			

Subcatchment WS-1: WS-1



Summary for Subcatchment WS-2: WS-2

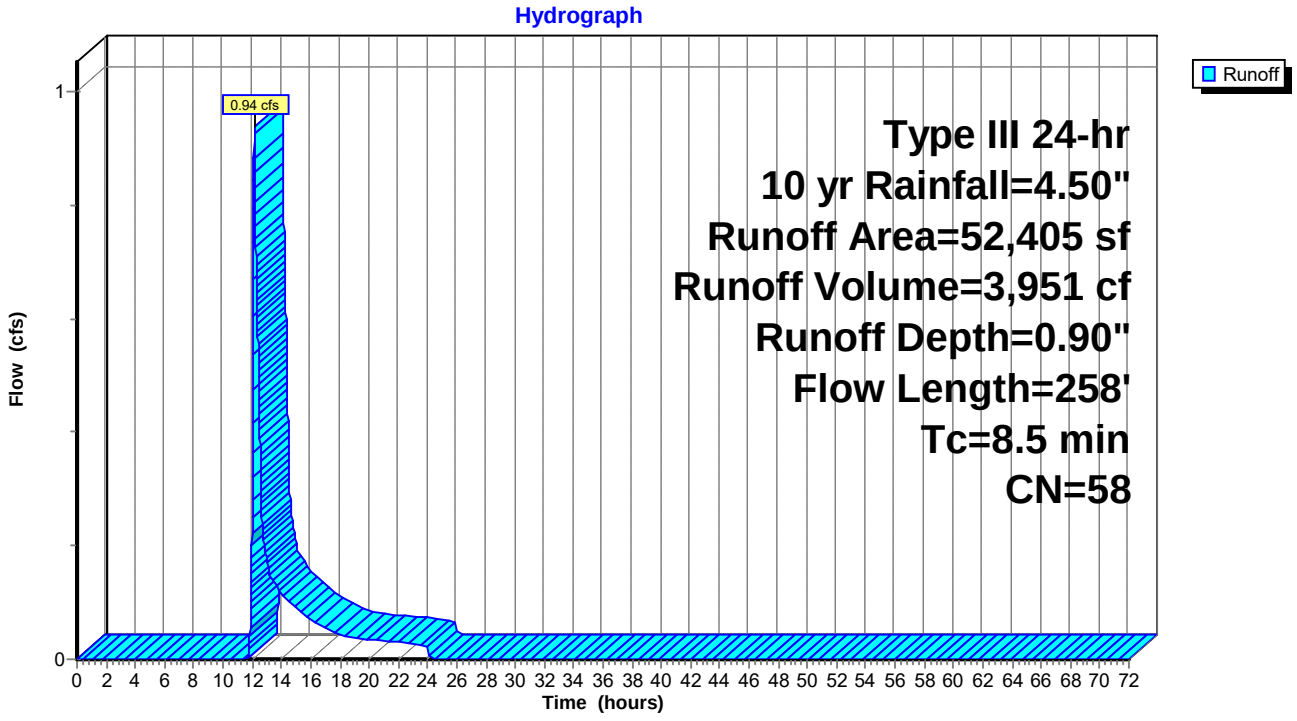
Runoff = 0.94 cfs @ 12.14 hrs, Volume= 3,951 cf, Depth= 0.90"

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 yr Rainfall=4.50"

	Area (sf)	CN	Description
	52,309	58	Woods/grass comb., Good, HSG B
*	96	98	Ledge
	52,405	58	Weighted Average
	52,309		99.82% Pervious Area
	96		0.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
0.6	208	0.1544	5.89		**Shallow Concentrated Flow, Shallow Flow** Grassed Waterway Kv= 15.0 fps
8.5	258	Total			

Subcatchment WS-2: WS-2



Summary for Pond 1P: MC-4500

Inflow Area = 34,478 sf, 49.57% Impervious, Inflow Depth = 2.82" for 10 yr event
Inflow = 2.50 cfs @ 12.10 hrs, Volume= 8,093 cf
Outflow = 0.95 cfs @ 12.38 hrs, Volume= 8,093 cf, Atten= 62%, Lag= 16.8 min
Discarded = 0.03 cfs @ 9.18 hrs, Volume= 4,537 cf
Primary = 0.92 cfs @ 12.38 hrs, Volume= 3,556 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 6
Peak Elev= 148.54' @ 12.38 hrs Surf.Area= 1,143 sf Storage= 3,404 cf

Plug-Flow detention time= 625.8 min calculated for 8,091 cf (100% of inflow)
Center-of-Mass det. time= 626.0 min (1,441.9 - 815.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	143.00'	1,999 cf	**21.42'W x 53.39'L x 8.00'H Field A** 9,148 cf Overall - 2,486 cf Embedded = 6,662 cf x 30.0% Voids
#2A	145.00'	2,486 cf	**ADS_StormTech MC-4500 +Cap** x 22 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 2 Rows of 11 Chambers Cap Storage= +35.7 cf x 2 x 2 rows = 142.8 cf
		4,484 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	143.00'	**1.020 in/hr Exfiltration over Surface area**
#2	Primary	147.92'	**10.0" Round Culvert** L= 31.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 147.92' / 147.00' S= 0.0297 '/' Cc= 0.900 n= 0.009 PVC, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.03 cfs @ 9.18 hrs HW=143.08' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.92 cfs @ 12.38 hrs HW=148.54' (Free Discharge)
↑—**2=Culvert** (Inlet Controls 0.92 cfs @ 2.11 fps)

Pond 1P: MC-4500 - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= +35.7 cf x 2 x 2 rows = 142.8 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

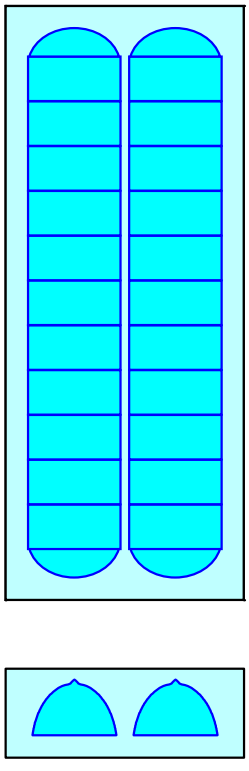
11 Chambers/Row x 4.02' Long +2.56' Cap Length x 2 = 49.39' Row Length +24.0" End Stone x 2 = 53.39' Base Length
2 Rows x 100.0" Wide + 9.0" Spacing x 1 + 24.0" Side Stone x 2 = 21.42' Base Width
24.0" Base + 60.0" Chamber Height + 12.0" Cover = 8.00' Field Height

22 Chambers x 106.5 cf + 35.7 cf Cap Volume x 2 x 2 Rows = 2,485.6 cf Chamber Storage

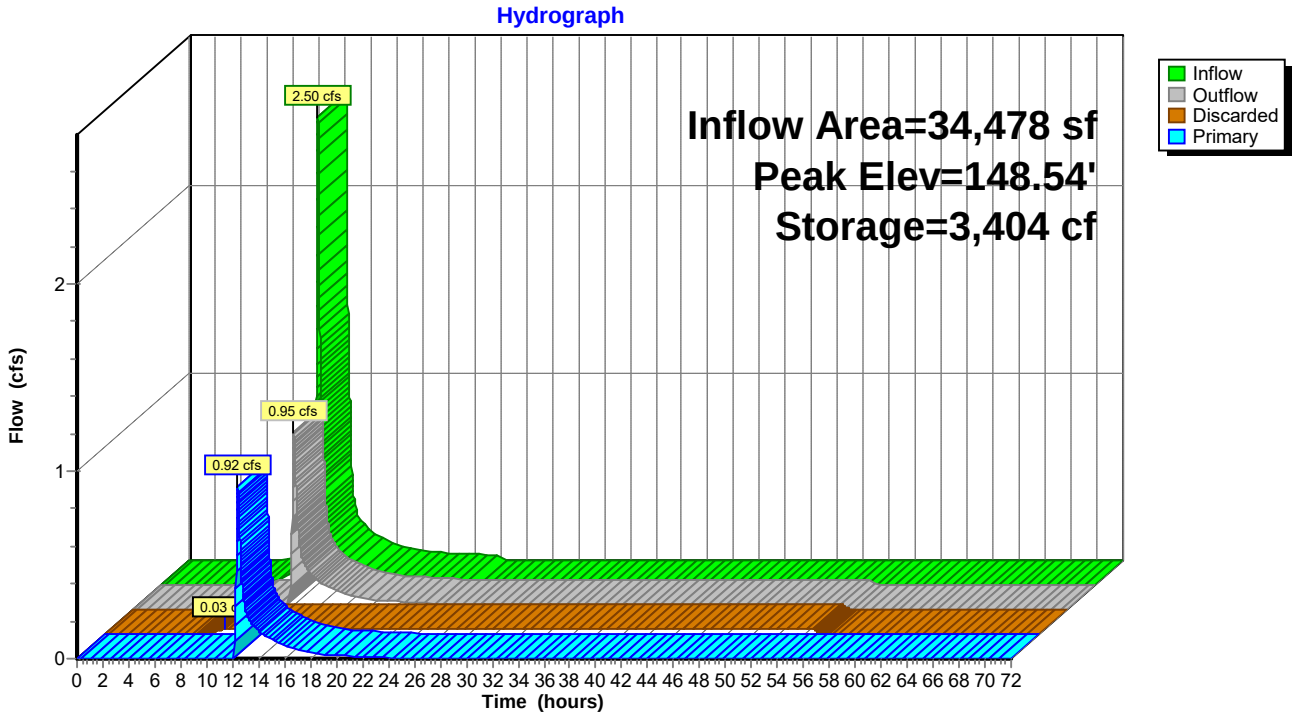
9,147.8 cf Field - 2,485.6 cf Chambers = 6,662.2 cf Stone x 30.0% Voids = 1,998.7 cf Stone Storage

Chamber Storage + Stone Storage = 4,484.2 cf = 0.103 af
Overall Storage Efficiency = 49.0%
Overall System Size = 53.39' x 21.42' x 8.00'

22 Chambers
338.8 cy Field
246.7 cy Stone



Pond 1P: MC-4500

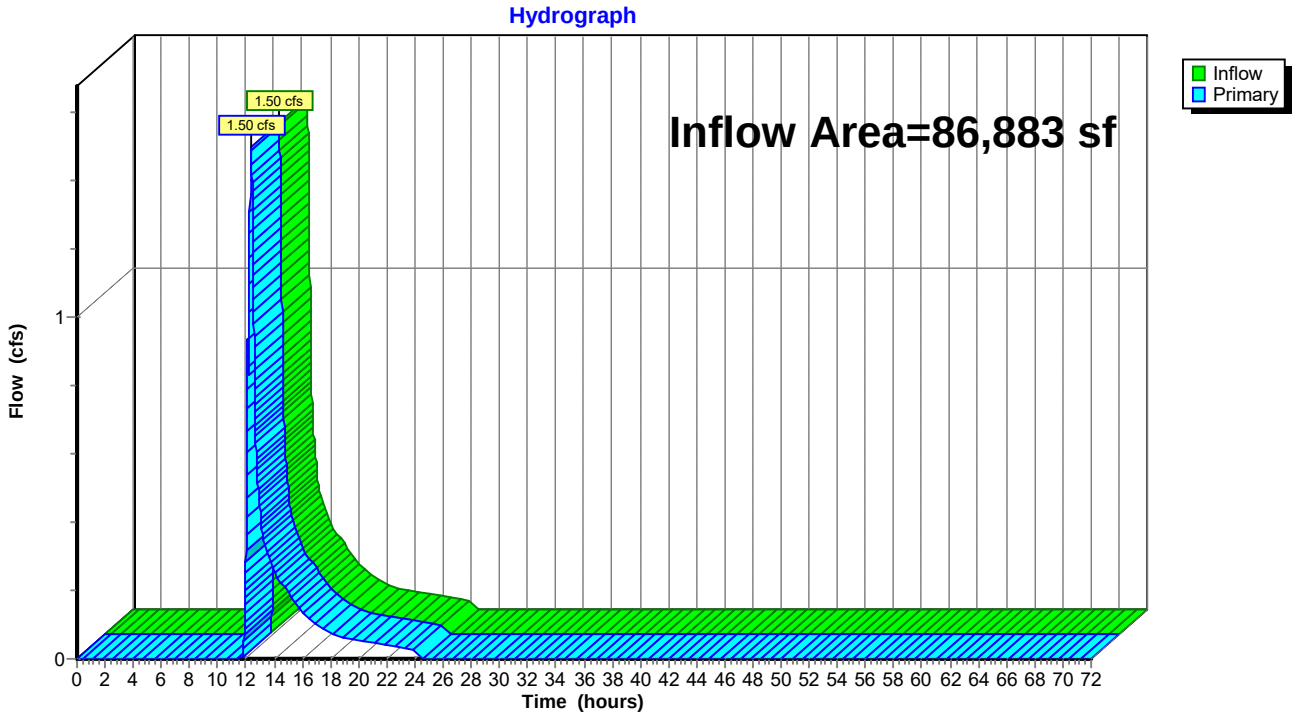


Summary for Link POA-W: POA-WET

Inflow Area = 86,883 sf, 19.78% Impervious, Inflow Depth = 1.04" for 10 yr event
Inflow = 1.50 cfs @ 12.36 hrs, Volume= 7,507 cf
Primary = 1.50 cfs @ 12.36 hrs, Volume= 7,507 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POA-W: POA-WET



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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment WS-1: WS-1 Runoff Area=34,478 sf 49.57% Impervious Runoff Depth=3.64"
Flow Length=319' Tc=7.2 min CN=84 Runoff=3.21 cfs 10,453 cf

Subcatchment WS-2: WS-2 Runoff Area=52,405 sf 0.18% Impervious Runoff Depth=1.40"
Flow Length=258' Tc=8.5 min CN=58 Runoff=1.61 cfs 6,093 cf

Pond 1P: MC-4500 Peak Elev=149.06' Storage=3,720 cf Inflow=3.21 cfs 10,453 cf
Discarded=0.03 cfs 4,621 cf Primary=1.76 cfs 5,832 cf Outflow=1.79 cfs 10,453 cf

Link POA-W: POA-WET Inflow=3.08 cfs 11,925 cf
Primary=3.08 cfs 11,925 cf

Total Runoff Area = 86,883 sf Runoff Volume = 16,546 cf Average Runoff Depth = 2.29"
80.22% Pervious = 69,696 sf 19.78% Impervious = 17,187 sf

Summary for Subcatchment WS-1: WS-1

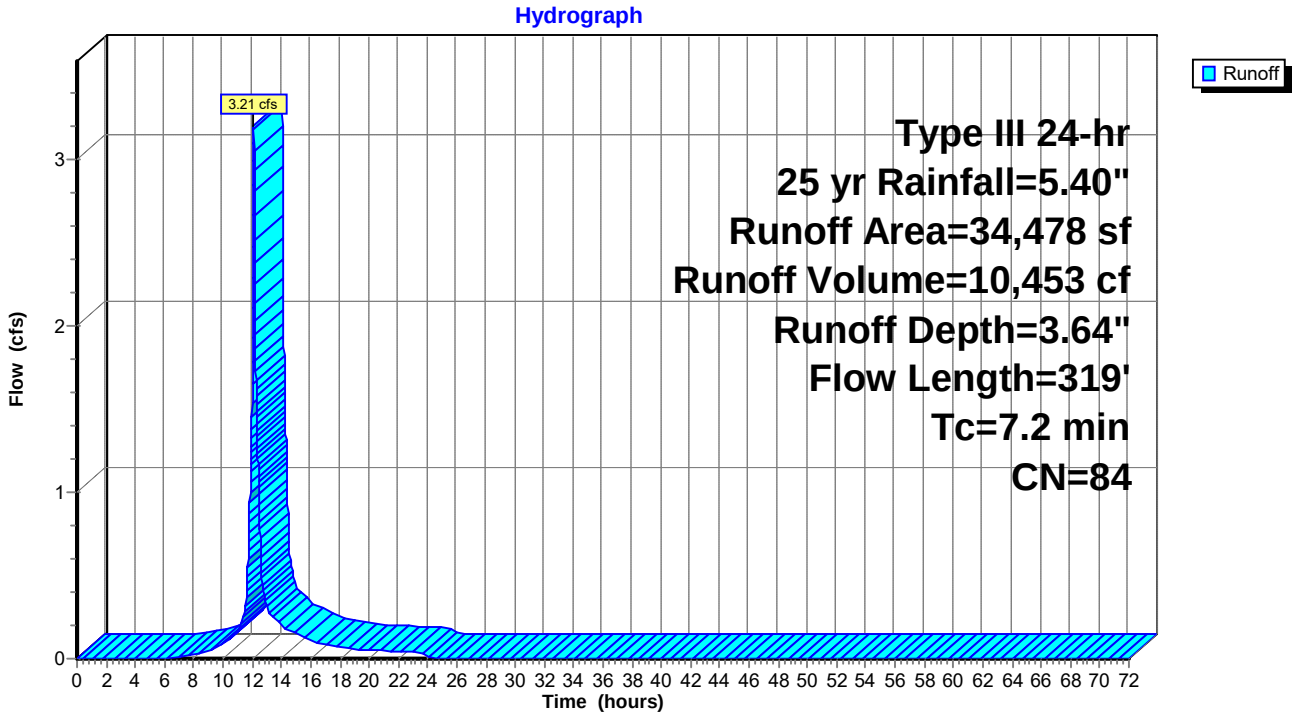
Runoff = 3.21 cfs @ 12.10 hrs, Volume= 10,453 cf, Depth= 3.64"

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 yr Rainfall=5.40"

	Area (sf)	CN	Description
*	5,056	98	Drive
*	670	98	Walls
*	11,365	98	Buildings
*	4,636	80	Pervious Pavers Driveways
*	2,238	80	Pervious Paver Patios
*	153	80	Pervious Paver Stairs
	10,360	65	Woods/grass comb., Fair, HSG B
	34,478	84	Weighted Average
	17,387		50.43% Pervious Area
	17,091		49.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.90		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.20"
5.7	38	0.0800	0.11		**Sheet Flow, Sheet Flow 2** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	144	0.1125	5.03		**Shallow Concentrated Flow, Shallow Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.8	125	0.0300	2.60		**Shallow Concentrated Flow, Shallow Concentrated Flow 2** Grassed Waterway Kv= 15.0 fps
7.2	319	Total			

Subcatchment WS-1: WS-1



Summary for Subcatchment WS-2: WS-2

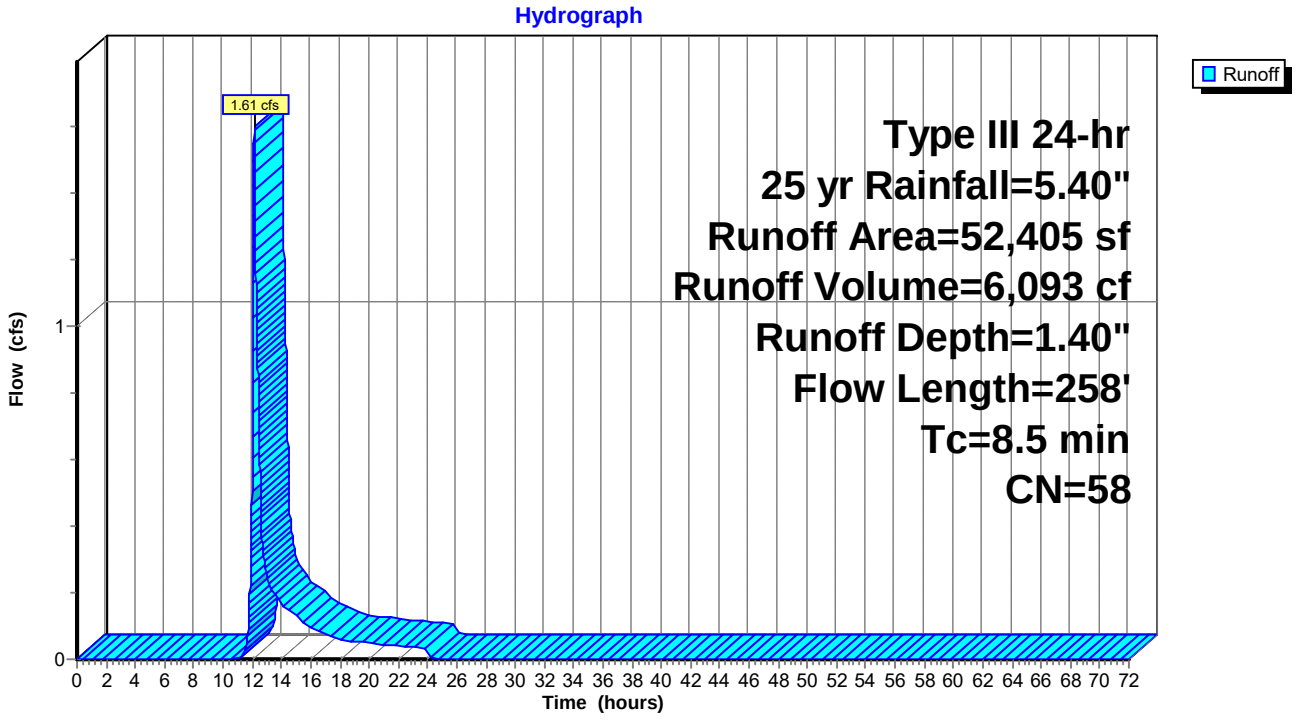
Runoff = 1.61 cfs @ 12.13 hrs, Volume= 6,093 cf, Depth= 1.40"

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 yr Rainfall=5.40"

	Area (sf)	CN	Description
	52,309	58	Woods/grass comb., Good, HSG B
*	96	98	Ledge
	52,405	58	Weighted Average
	52,309		99.82% Pervious Area
	96		0.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
0.6	208	0.1544	5.89		**Shallow Concentrated Flow, Shallow Flow** Grassed Waterway Kv= 15.0 fps
8.5	258	Total			

Subcatchment WS-2: WS-2



Summary for Pond 1P: MC-4500

Inflow Area = 34,478 sf, 49.57% Impervious, Inflow Depth = 3.64" for 25 yr event
Inflow = 3.21 cfs @ 12.10 hrs, Volume= 10,453 cf
Outflow = 1.79 cfs @ 12.24 hrs, Volume= 10,453 cf, Atten= 44%, Lag= 8.3 min
Discarded = 0.03 cfs @ 8.53 hrs, Volume= 4,621 cf
Primary = 1.76 cfs @ 12.24 hrs, Volume= 5,832 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 6
Peak Elev= 149.06' @ 12.24 hrs Surf.Area= 1,143 sf Storage= 3,720 cf

Plug-Flow detention time= 492.9 min calculated for 10,452 cf (100% of inflow)
Center-of-Mass det. time= 493.1 min (1,301.7 - 808.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	143.00'	1,999 cf	**21.42'W x 53.39'L x 8.00'H Field A** 9,148 cf Overall - 2,486 cf Embedded = 6,662 cf x 30.0% Voids
#2A	145.00'	2,486 cf	**ADS_StormTech MC-4500 +Cap** x 22 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 2 Rows of 11 Chambers Cap Storage= +35.7 cf x 2 x 2 rows = 142.8 cf
		4,484 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	143.00'	**1.020 in/hr Exfiltration over Surface area**
#2	Primary	147.92'	**10.0" Round Culvert** L= 31.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 147.92' / 147.00' S= 0.0297 '/' Cc= 0.900 n= 0.009 PVC, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.03 cfs @ 8.53 hrs HW=143.08' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=1.76 cfs @ 12.24 hrs HW=149.06' (Free Discharge)
↑—**2=Culvert** (Inlet Controls 1.76 cfs @ 3.23 fps)

Pond 1P: MC-4500 - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= +35.7 cf x 2 x 2 rows = 142.8 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

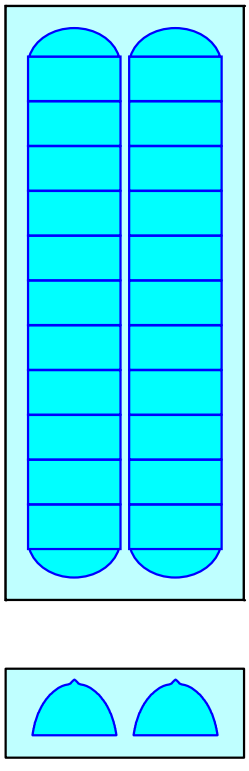
11 Chambers/Row x 4.02' Long +2.56' Cap Length x 2 = 49.39' Row Length +24.0" End Stone x 2 = 53.39' Base Length
2 Rows x 100.0" Wide + 9.0" Spacing x 1 + 24.0" Side Stone x 2 = 21.42' Base Width
24.0" Base + 60.0" Chamber Height + 12.0" Cover = 8.00' Field Height

22 Chambers x 106.5 cf + 35.7 cf Cap Volume x 2 x 2 Rows = 2,485.6 cf Chamber Storage

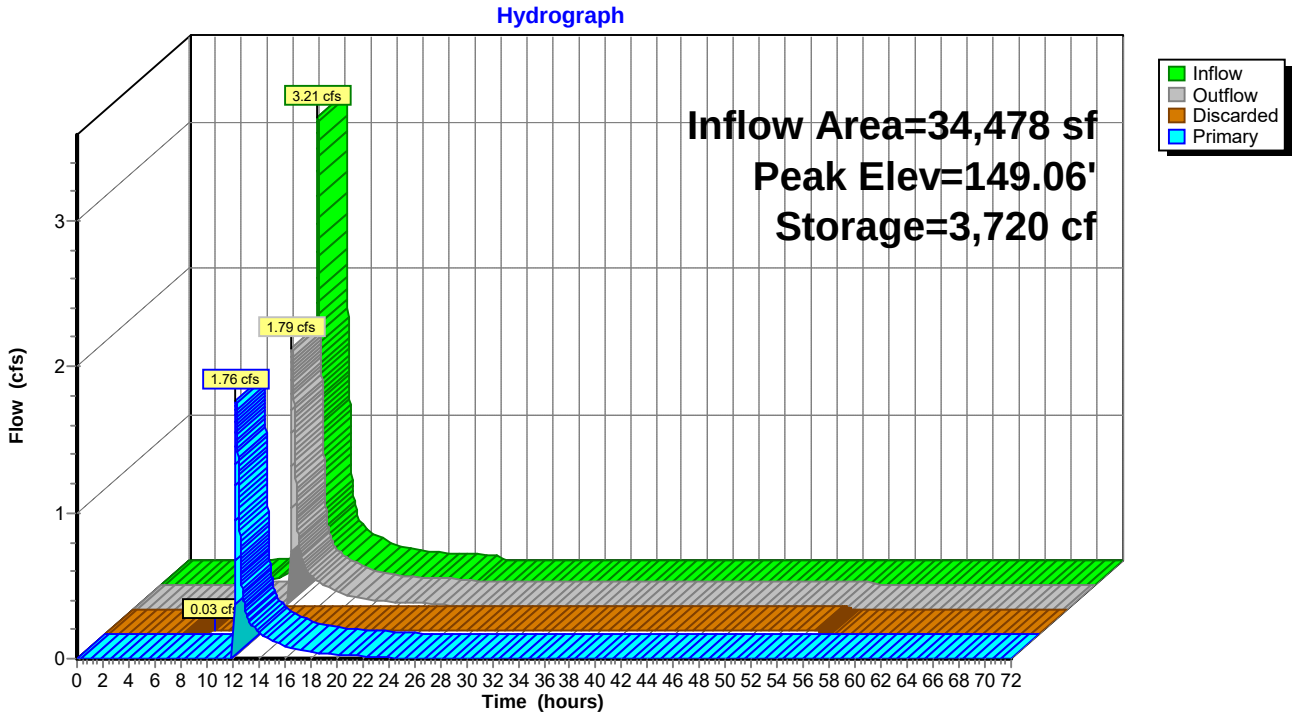
9,147.8 cf Field - 2,485.6 cf Chambers = 6,662.2 cf Stone x 30.0% Voids = 1,998.7 cf Stone Storage

Chamber Storage + Stone Storage = 4,484.2 cf = 0.103 af
Overall Storage Efficiency = 49.0%
Overall System Size = 53.39' x 21.42' x 8.00'

22 Chambers
338.8 cy Field
246.7 cy Stone



Pond 1P: MC-4500

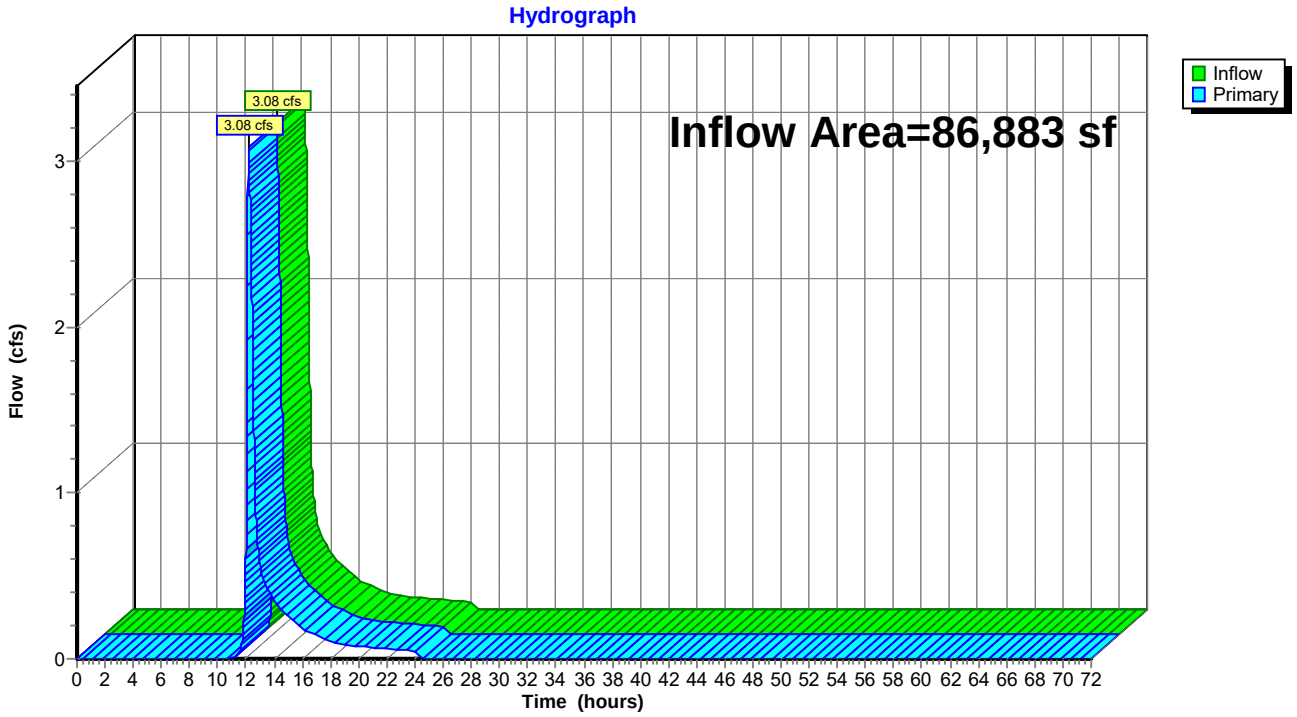


Summary for Link POA-W: POA-WET

Inflow Area = 86,883 sf, 19.78% Impervious, Inflow Depth = 1.65" for 25 yr event
Inflow = 3.08 cfs @ 12.19 hrs, Volume= 11,925 cf
Primary = 3.08 cfs @ 12.19 hrs, Volume= 11,925 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POA-W: POA-WET



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 Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment WS-1: WS-1 Runoff Area=34,478 sf 49.57% Impervious Runoff Depth=5.14"
Flow Length=319' Tc=7.2 min CN=84 Runoff=4.47 cfs 14,768 cf

Subcatchment WS-2: WS-2 Runoff Area=52,405 sf 0.18% Impervious Runoff Depth=2.41"
Flow Length=258' Tc=8.5 min CN=58 Runoff=2.98 cfs 10,521 cf

Pond 1P: MC-4500 Peak Elev=150.72' Storage=4,388 cf Inflow=4.47 cfs 14,768 cf
Discarded=0.03 cfs 4,743 cf Primary=3.20 cfs 10,025 cf Outflow=3.23 cfs 14,768 cf

Link POA-W: POA-WET Inflow=6.02 cfs 20,546 cf
Primary=6.02 cfs 20,546 cf

Total Runoff Area = 86,883 sf Runoff Volume = 25,289 cf Average Runoff Depth = 3.49"
80.22% Pervious = 69,696 sf 19.78% Impervious = 17,187 sf

Summary for Subcatchment WS-1: WS-1

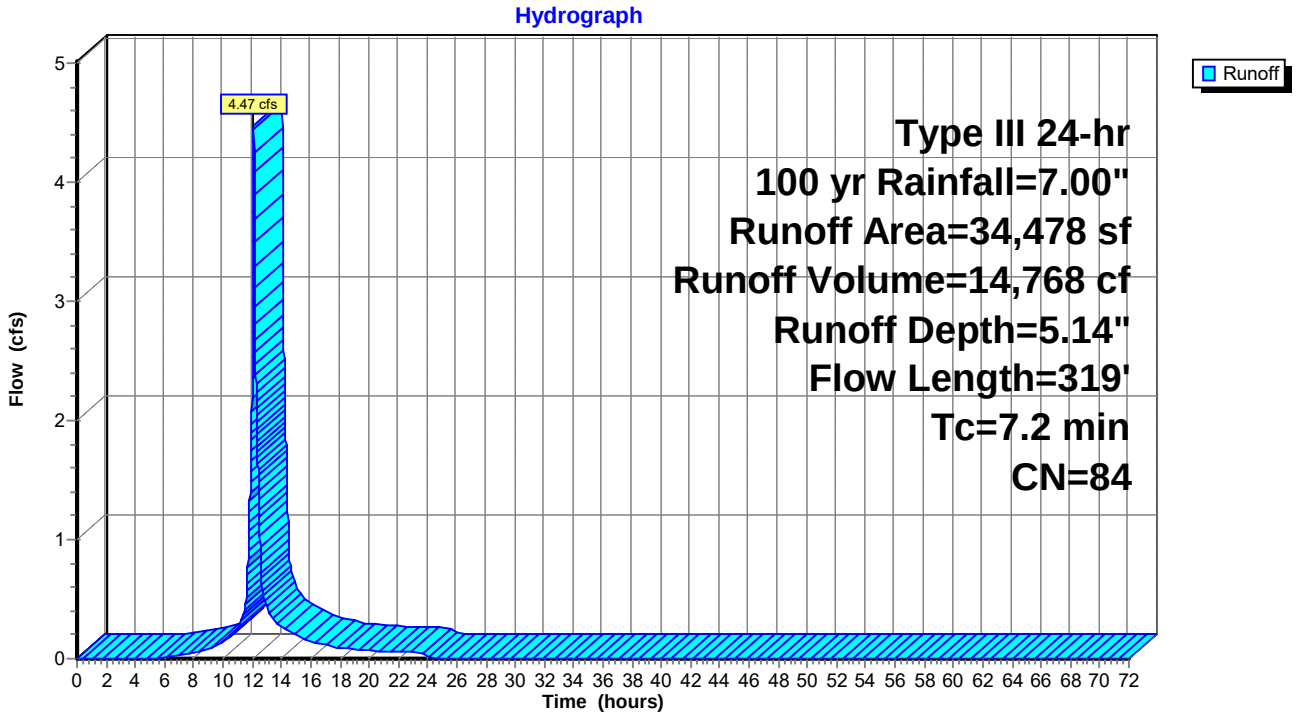
Runoff = 4.47 cfs @ 12.10 hrs, Volume= 14,768 cf, Depth= 5.14"

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 yr Rainfall=7.00"

	Area (sf)	CN	Description
*	5,056	98	Drive
*	670	98	Walls
*	11,365	98	Buildings
*	4,636	80	Pervious Pavers Driveways
*	2,238	80	Pervious Paver Patios
*	153	80	Pervious Paver Stairs
	10,360	65	Woods/grass comb., Fair, HSG B
	34,478	84	Weighted Average
	17,387		50.43% Pervious Area
	17,091		49.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.90		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 3.20"
5.7	38	0.0800	0.11		**Sheet Flow, Sheet Flow 2** Woods: Light underbrush n= 0.400 P2= 3.20"
0.5	144	0.1125	5.03		**Shallow Concentrated Flow, Shallow Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.8	125	0.0300	2.60		**Shallow Concentrated Flow, Shallow Concentrated Flow 2** Grassed Waterway Kv= 15.0 fps
7.2	319	Total			

Subcatchment WS-1: WS-1



Summary for Subcatchment WS-2: WS-2

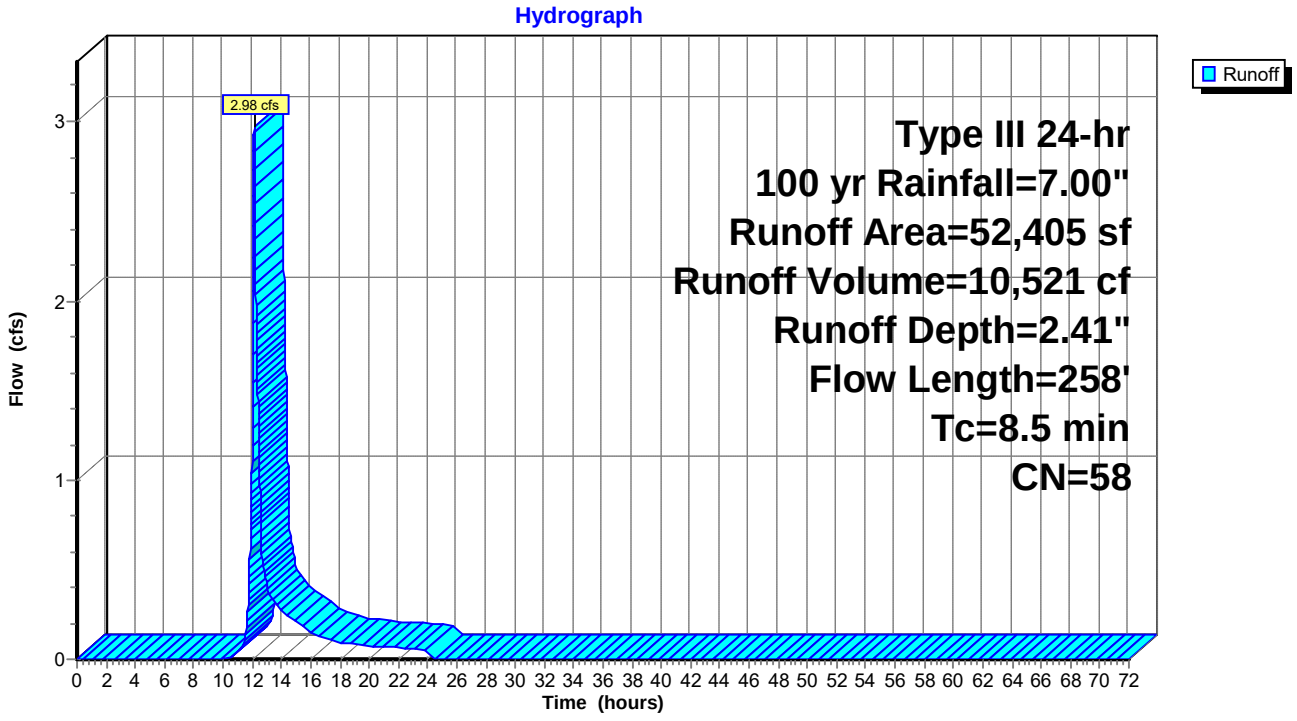
Runoff = 2.98 cfs @ 12.13 hrs, Volume= 10,521 cf, Depth= 2.41"

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 yr Rainfall=7.00"

	Area (sf)	CN	Description
	52,309	58	Woods/grass comb., Good, HSG B
*	96	98	Ledge
	52,405	58	Weighted Average
	52,309		99.82% Pervious Area
	96		0.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
0.6	208	0.1544	5.89		**Shallow Concentrated Flow, Shallow Flow** Grassed Waterway Kv= 15.0 fps
8.5	258	Total			

Subcatchment WS-2: WS-2



Summary for Pond 1P: MC-4500

Inflow Area = 34,478 sf, 49.57% Impervious, Inflow Depth = 5.14" for 100 yr event
Inflow = 4.47 cfs @ 12.10 hrs, Volume= 14,768 cf
Outflow = 3.23 cfs @ 12.18 hrs, Volume= 14,768 cf, Atten= 28%, Lag= 5.0 min
Discarded = 0.03 cfs @ 7.45 hrs, Volume= 4,743 cf
Primary = 3.20 cfs @ 12.18 hrs, Volume= 10,025 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 6
Peak Elev= 150.72' @ 12.18 hrs Surf.Area= 1,143 sf Storage= 4,388 cf

Plug-Flow detention time= 359.6 min calculated for 14,768 cf (100% of inflow)
Center-of-Mass det. time= 359.6 min (1,158.5 - 798.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	143.00'	1,999 cf	**21.42'W x 53.39'L x 8.00'H Field A** 9,148 cf Overall - 2,486 cf Embedded = 6,662 cf x 30.0% Voids
#2A	145.00'	2,486 cf	**ADS_StormTech MC-4500 +Cap** x 22 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 2 Rows of 11 Chambers Cap Storage= +35.7 cf x 2 x 2 rows = 142.8 cf
		4,484 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	143.00'	**1.020 in/hr Exfiltration over Surface area**
#2	Primary	147.92'	**10.0" Round Culvert** L= 31.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 147.92' / 147.00' S= 0.0297 '/' Cc= 0.900 n= 0.009 PVC, smooth interior, Flow Area= 0.55 sf

Discarded OutFlow Max=0.03 cfs @ 7.45 hrs HW=143.08' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=3.20 cfs @ 12.18 hrs HW=150.72' (Free Discharge)
↑—**2=Culvert** (Inlet Controls 3.20 cfs @ 5.87 fps)

Pond 1P: MC-4500 - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= +35.7 cf x 2 x 2 rows = 142.8 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

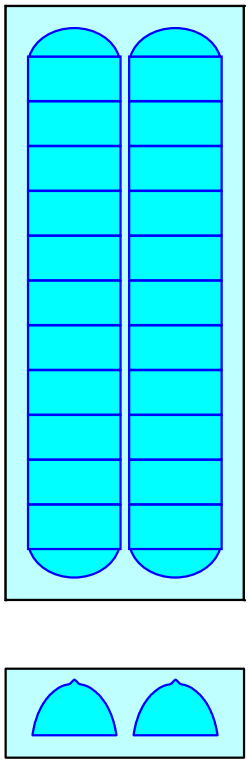
11 Chambers/Row x 4.02' Long +2.56' Cap Length x 2 = 49.39' Row Length +24.0" End Stone x 2 = 53.39' Base Length
2 Rows x 100.0" Wide + 9.0" Spacing x 1 + 24.0" Side Stone x 2 = 21.42' Base Width
24.0" Base + 60.0" Chamber Height + 12.0" Cover = 8.00' Field Height

22 Chambers x 106.5 cf + 35.7 cf Cap Volume x 2 x 2 Rows = 2,485.6 cf Chamber Storage

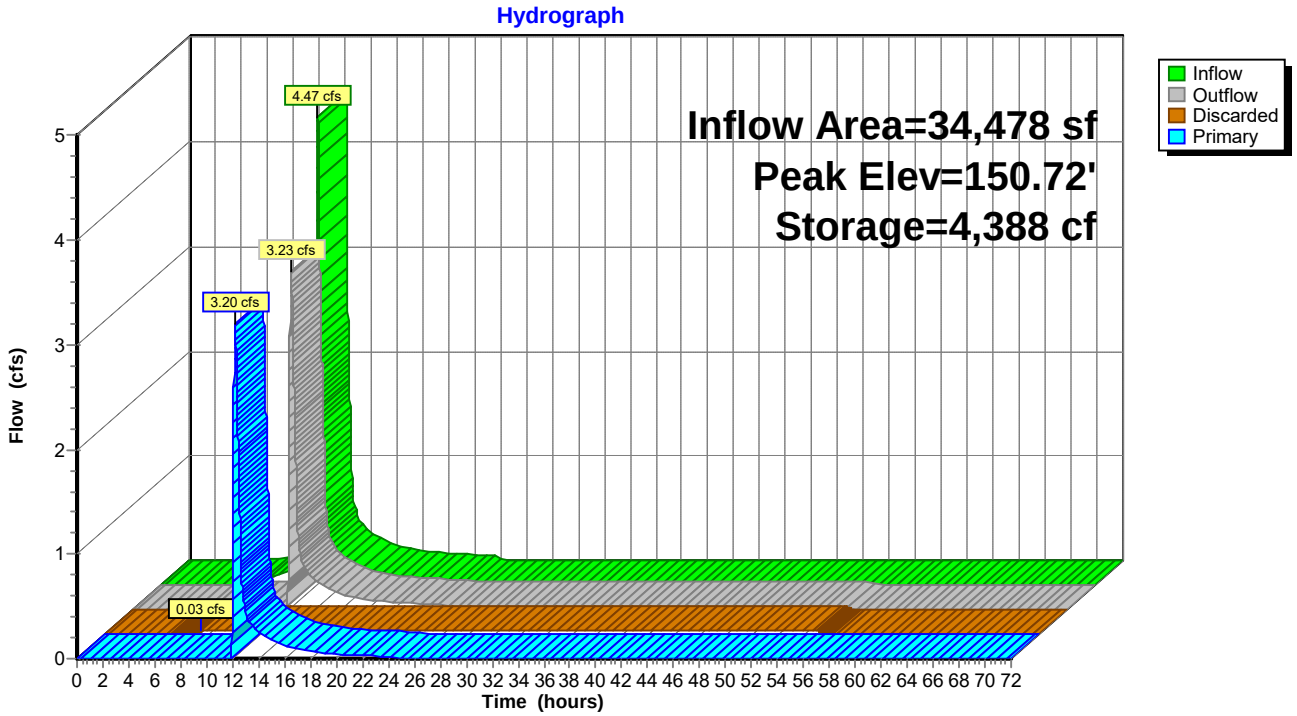
9,147.8 cf Field - 2,485.6 cf Chambers = 6,662.2 cf Stone x 30.0% Voids = 1,998.7 cf Stone Storage

Chamber Storage + Stone Storage = 4,484.2 cf = 0.103 af
Overall Storage Efficiency = 49.0%
Overall System Size = 53.39' x 21.42' x 8.00'

22 Chambers
338.8 cy Field
246.7 cy Stone



Pond 1P: MC-4500

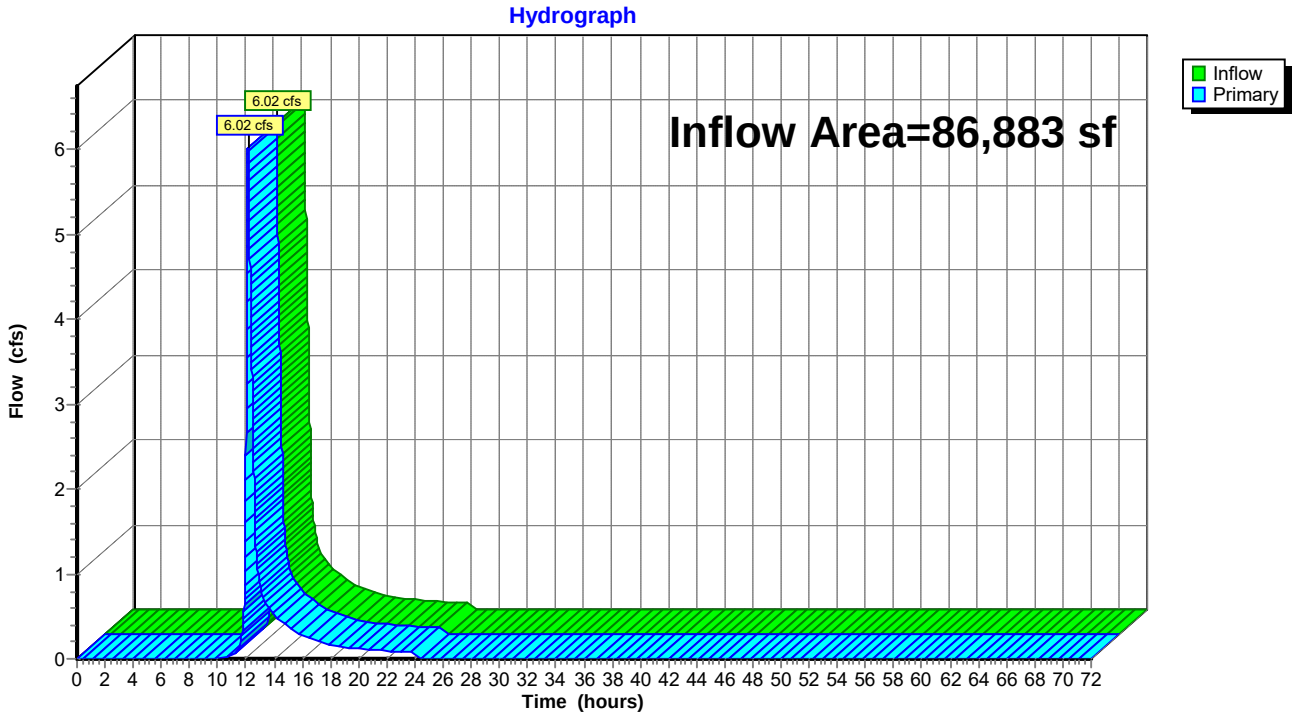


Summary for Link POA-W: POA-WET

Inflow Area = 86,883 sf, 19.78% Impervious, Inflow Depth = 2.84" for 100 yr event
Inflow = 6.02 cfs @ 12.15 hrs, Volume= 20,546 cf
Primary = 6.02 cfs @ 12.15 hrs, Volume= 20,546 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POA-W: POA-WET



APPENDIX D
MASSDEP TSS REMOVAL WORKSHEET

INSTRUCTIONS:
1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Version 1, Automated: Mar. 4, 2008

Location: 90 Allandale Street, Jamaica Plain

TSS Removal Calculation Worksheet

B BMP[1]	C TSS Removal Rate[1]	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
Street Sweeping - 5%	0.05	1.00	0.05	0.95
Deep Sump and Hooded Catch Basin	0.25	0.95	0.24	0.71
Infiltration Basin	0.80	0.71	0.57	0.14
	0.00	0.14	0.00	0.14
	0.00	0.14	0.00	0.14

Total TSS Removal = 86%

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

Project: 90 Allandale
Prepared By: Decoulos & Company
Date: 20-Jan-21

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

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

APPENDIX E
MASSDEP STORMWATER CHECKLIST

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

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

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

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

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

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

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

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

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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

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

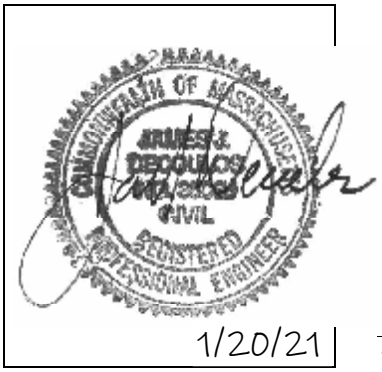
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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

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

Registered Professional Engineer's Certification

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

Registered Professional Engineer Block and Signature



Signature and Date

Checklist

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

☐ New development

☑ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

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

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

Standard 1: No New Untreated Discharges

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

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☑ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☑ Soil Analysis provided.

☑ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☑ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☑ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☑ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☑ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☑ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

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

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☑ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

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

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☐ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☑ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☑ The BMP is sized (and calculations provided) based on:

- ☑ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

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

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

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

☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☐ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

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

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

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☑ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

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

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☑ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☑ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☑ Name of the stormwater management system owners;
- ☑ Party responsible for operation and maintenance;
- ☑ Schedule for implementation of routine and non-routine maintenance tasks;
- ☑ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☑ Description and delineation of public safety features;
- ☑ Estimated operation and maintenance budget; and
- ☑ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☑ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☑ An Illicit Discharge Compliance Statement is attached;

☐ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

APPENDIX F
OPERATION AND MAINTENANCE LOG

STORMWATER SYSTEM
OPERATION AND MAINTENANCE LOG

90 ALLANDALE STREET
BOSTON, MASSACHUSETTS

This log sheet is intended to comply with the operation and maintenance requirements of the MassDEP Stormwater Management Handbook. This log should be completed for all inspections related to stormwater system maintenance and kept on file for three years from inspection date.

Name of Inspector:

Date of Inspection:

Weather Conditions (current and recent precipitation events):

Stormwater BMP	Observations	Actions