

HUGHES ENVIRONMENTAL CONSULTING

44 MERRIMAC STREET, NEWBURYPORT, MA 01950
PHONE 978.465.5400 • FAX 978.465.8100
EMAIL THUGHES@HUGHESENVR.COM

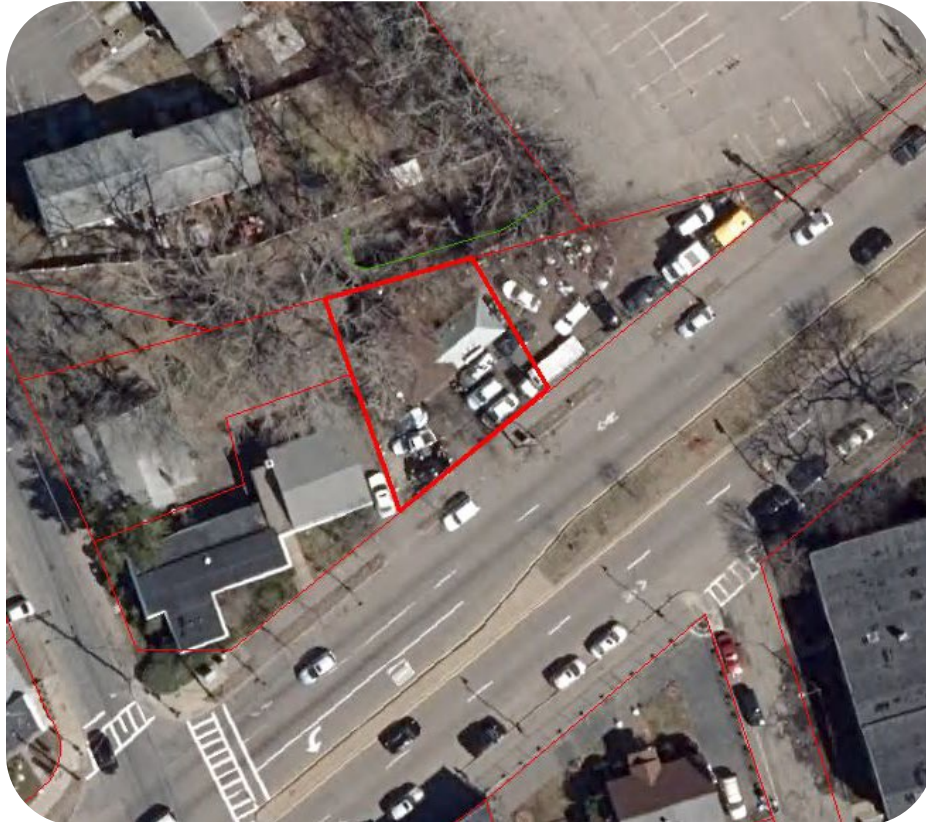
PO BOX 392, CONCORD, MA 01742
PHONE/FAX 978.369.2100

BRP WPA Form 3 – Notice of Intent

(M.G.L. c. 131, §40 and Boston Wetlands Ordinance

City of Boston Code, Ordinances, Chapter 7-1.4

581 American Legion Highway



Submitted to:

Boston Conservation Commission
City Hall Square, Room 709
Boston, MA 02201

Prepared by:

Hughes Environmental Consulting
44 Merrimac Street
Newburyport, MA 01950

On Behalf of:

Adam Burns
Boston Pinnacle Properties, LLC
599 East Broadway
Boston, MA 02127

Copies to:

MassDEP NERO
205B Lowell Street
Wilmington, MA 01187

June 1, 2022

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Application Contents:

- 1. WPA Form 3**
- 2. Boston Ordinance Notice of Intent Form**
- 3. Project Narrative**
- 4. USGS Map**
- 5. 2021 Orthophoto**
- 6. View from the South**
- 7. View from the East**
- 8. Site Photos**
- 9. Abutters List, copy of Abutter Notices (proof of mailing to be provided with affidavit of service)**
- 10. Landscape Clean Up Sketch**
- 11. Stormwater Checklist**
- 12. Stormwater O&M**
- 13. Stormwater Report**
- 14. Architectural Set in Ledger size**
- 15. Plan Set 7 Sheets**



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

Boston

City/Town

Important:

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



Note:
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

581 American Legion Highway
a. Street Address

Roslindale
b. City/Town

02131
c. Zip Code

Latitude and Longitude:
42.286295
d. Latitude

,-71.109548
e. Longitude

1806564000
f. Assessors Map/Plat Number

g. Parcel /Lot Number

2. Applicant:

Adam
a. First Name

Burns
b. Last Name

Boston Pinnacle Properties LLC
c. Organization

599 East Broadway
d. Street Address

Boston
e. City/Town

MA
f. State

02127
g. Zip Code

857-496-7187
h. Phone Number

i. Fax Number

adam@burnsrealtyboston.com
j. Email Address

3. Property owner (required if different from applicant): Check if more than one owner

Rick
a. First Name

Canale
b. Last Name

EF Nominee Trust
c. Organization

57 Barbara Lane
d. Street Address

Milton
e. City/Town

MA
f. State

02186
g. Zip Code

617-981-1259
h. Phone Number

i. Fax Number

rick@exoticflowers.com
j. Email address

4. Representative (if any):

Thomas
a. First Name

Hughes
b. Last Name

Hughes Environmental Consulting
c. Company

44 Merrimac Street, Suite 311
d. Street Address

Newburyport
e. City/Town

MA
f. State

01950
g. Zip Code

978-465-5400
h. Phone Number

978-465-8100
i. Fax Number

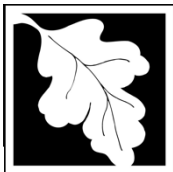
thughes@hughesenvr.com
j. Email address

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

725.00 + Boston Local Fees
a. Total Fee Paid

725.00
b. State Fee Paid

Per local Ordinance
c. City/Town Fee Paid



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WPA Form 3 – Notice of Intent

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

Provided by MassDEP:
MassDEP File Number
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A. General Information (continued)

6. General Project Description:

Redevelop site from existing auto repair shop to 5 unit residential building with atm in riverfront, waterfront resource area (Boston Only Resource) and buffer zone to bank.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- 1. Single Family Home
- 2. Residential Subdivision
- 3. Commercial/Industrial
- 4. Dock/Pier
- 5. Utilities
- 6. Coastal engineering Structure
- 7. Agriculture (e.g., cranberries, forestry)
- 8. Transportation
- 9. Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration 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. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

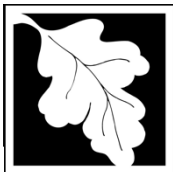
8. Property recorded at the Registry of Deeds for:

Suffolk County	
a. County	b. Certificate # (if registered land)
21871	204
c. Book	d. Page Number

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

- 1. Buffer Zone Only – 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).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



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
Boston
City/Town

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

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input type="checkbox"/> Bank	1. linear feet	2. linear feet
b. <input type="checkbox"/> Bordering Vegetated Wetland	1. square feet	2. square feet
c. <input type="checkbox"/> Land Under Waterbodies and Waterways	1. square feet	2. square feet
	3. cubic yards dredged	

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. <input type="checkbox"/> Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced
f. <input checked="" type="checkbox"/> Riverfront Area	1. Name of Waterway (if available) - specify coastal or inland	

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: 1,124 square feet

4. Proposed alteration of the Riverfront Area:

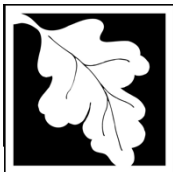
<u>594</u>	<u>594</u>	<u>NA</u>
a. total square feet	b. square feet within 100 ft.	c. square feet between 100 ft. and 200 ft.

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)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.



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

Boston

City/Town

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

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
 Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. <input type="checkbox"/> Land Under the Ocean	_____	
	1. square feet	

	2. cubic yards dredged	
c. <input type="checkbox"/> Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. <input type="checkbox"/> Coastal Beaches	_____	_____
	1. square feet	2. cubic yards beach nourishment
e. <input type="checkbox"/> Coastal Dunes	_____	_____
	1. square feet	2. cubic yards dune nourishment

	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. <input type="checkbox"/> Coastal Banks	_____	
	1. linear feet	
g. <input type="checkbox"/> Rocky Intertidal Shores	_____	
	1. square feet	
h. <input type="checkbox"/> Salt Marshes	_____	_____
	1. square feet	2. sq ft restoration, rehab., creation
i. <input type="checkbox"/> Land Under Salt Ponds	_____	
	1. square feet	

	2. cubic yards dredged	
j. <input type="checkbox"/> Land Containing Shellfish	_____	
	1. square feet	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	

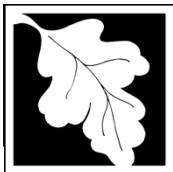
	1. cubic yards dredged	
l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	_____	
	1. square feet	

4. Restoration/Enhancement
 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 enter the additional amount here.

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

5. Project Involves Stream Crossings

_____	_____
a. number of new stream crossings	b. number of replacement stream crossings



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
Boston
City/Town

C. Other Applicable Standards and Requirements

- This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

- 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://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

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**

August 1, 2021
b. Date of map

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

c. Submit Supplemental Information for Endangered Species Review*

- Percentage/acreage of property to be altered:
 - (a) within wetland Resource Area _____ percentage/acreage
 - (b) outside Resource Area _____ percentage/acreage
- Assessor's Map or right-of-way plan of site

- Project plans for entire project site, including wetland resource areas and areas outside of wetlands 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

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <https://www.mass.gov/endangered-species-act-mesa-regulatory-review>).

Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



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

Boston

City/Town

C. Other Applicable Standards and Requirements (cont'd)

- (c) MESA filing fee (fee information available at <https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review>).

Make check payable to “Commonwealth of Massachusetts - NHESP” 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

- (f) 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, <https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat>; 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 # _____ 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.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

- a. Not applicable – project is in inland resource area only b. Yes No

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

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

North Shore - Hull to New Hampshire border:

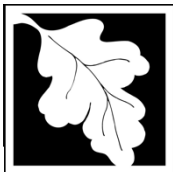
Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: dmf.envreview-south@mass.gov

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: dmf.envreview-north@mass.gov

Also if yes, the project 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.

- c. Is this an aquaculture project? d. Yes No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

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

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Document Transaction Number
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Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

C. Other Applicable Standards and Requirements (cont'd)

4. 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 MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
 b. ACEC
5. 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
6. 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
7. 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. Check why the project is exempt:
 1. Single-family house
 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.

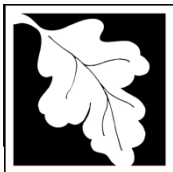
D. Additional Information

- This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

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.

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.



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

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D. Additional Information (cont'd)

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.

Civil Plan Set, 7 Sheets

a. Plan Title

Peter Nolan & Associates and Spruhan Engineering, PC

5/31/2022

d. Final Revision Date

Architectural Plan Set

f. Additional Plan or Document Title

Peter Nolan, PLS and Edmond Spruhan, PE

c. Signed and Stamped by

varies

e. Scale

4/6/2022

g. Date

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.

E. Fees

1. Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

Boston Waives This fee

2. Municipal Check Number

4140

4. State Check Number

Hughes Environmental Consulting

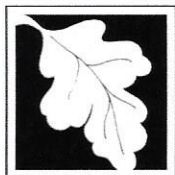
6. Payor name on check: First Name

3. Check date

6-1-2022

5. Check date

7. Payor name on check: Last Name



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

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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 _____
 3. Signature of Property Owner (if different) _____
 5. Signature of Representative (if any) _____

2. Date
5/31/2022
 4. Date
5/31/2022
 6. Date

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.



INSTRUCTIONS FOR COMPLETING APPLICATION NOTICE OF INTENT – BOSTON NOI FORM

The Boston Notice of Intent Form is intended to be a supplement to the WPA Form 3 detailing impacts to locally designated wetland resource areas and buffer zones. Please read these instructions for assistance in completing the Notice of Intent application form. These instructions cover certain items on the Notice of Intent form that are not self-explanatory.

INSTRUCTIONS TO SECTION B: BUFFER ZONE AND RESOURCE AREA IMPACTS

Item 1. Buffer Zone Only. If you check the Buffer Zone Only box in this section you are indicating that the project is entirely in the Buffer Zone to a resource area **under both** the Wetlands Protection Act and Boston Wetlands Ordinance. If so, skip the remainder of Section B and go directly to Section C. Do not check this box if the project is within the Waterfront Area.

Item 2. The **boundaries of coastal resource areas** specific to the Ordinance can be found in Section II of the Boston Wetlands Regulations. You must also include the size of the proposed alterations (and proposed replacement areas) in each resource area.

Item 3. The **boundaries of inland resource areas** specific to the Ordinance can be found in Section II of the Boston Wetlands Regulations. You must also include the size of the proposed alterations (and proposed replacement areas) in each resource area.

INSTRUCTIONS TO SECTION C: OTHER APPLICABLE STANDARDS AND REQUIREMENTS

Item 1. Rare Wetland Wildlife Habitat. Except for Designated Port Areas, no work (including work in the Buffer Zone) may be permitted in any resource area that would have adverse effects on the habitat of rare, "state-listed" vertebrate or invertebrate animal species.

The most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife is published by the Natural Heritage and Endangered Species Program (NHESP). See: http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm or the *Massachusetts Natural Heritage Atlas*.

If any portion of the proposed project is located within Estimated Habitat, the applicant must send the Natural Heritage Program, at the following address, a copy of the Notice of Intent by certified mail or priority mail (or otherwise sent in a manner that guarantees delivery within two days), no later than the date of the filing of the Notice of Intent with the Conservation Commission.

Evidence of mailing to the Natural Heritage Program (such as Certified Mail Receipt or Certificate of Mailing for Priority Mail) must be submitted to the Conservation Commission along with the Notice of Intent.

Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581-3336
508.792.7270



A. GENERAL INFORMATION

1. Project Location

581 American Legion Highway

a. Street Address

Roslindale

b. City/Town

02131

c. Zip Code

f. Assessors Map/Plat Number

1806564000

g. Parcel /Lot Number

2. Applicant

Adam

a. First Name

Burns,

b. Last Name

Boston Pinnacle Properties LLC

c. Company

599 East Broadway

d. Mailing Address

Boston

e. City/Town

MA

f. State

02127

g. Zip Code

857-496-7187

h. Phone Number

i. Fax Number

adam@burnsrealtyboston.com

j. Email address

3. Property Owner

Rick

a. First Name

Canale

b. Last Name

EF Nominee Trust

c. Company

57 Barbara Lane

d. Mailing Address

Milton

e. City/Town

MA

f. State

02186

g. Zip Code

617-981-1259

h. Phone Number

i. Fax Number

rick@exoticflowers.com

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)

Tom

a. First Name

Hughes

b. Last Name

Hughes Environmental Consulting

c. Company

44 Merrimac Street, Suite 311

d. Mailing Address

Newburyport

e. City/Town

MA

f. State

01950

g. Zip Code

978-465-5400

h. Phone Number

978-465-8100

i. Fax Number

thughes@hughesenvr.com

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

The project is the redevelopment of an existing developed property. The project is located in the riverfront area of Canterbury Brook, In the Waterfront Resource Area, and in Buffer Zone to Bank.

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 County

a. County

204

b. Page Number

21871

c. Book

d. Certificate # (if registered land)

9. Total Fee Paid

a. Total Fee Paid

b. State Fee Paid

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



<u>Resource Area</u>	<u>Resource Area Size</u>	<u>Proposed Alteration*</u>	<u>Proposed Mitigation</u>
<input type="checkbox"/> Coastal Flood Resilience Zone	_____ Square feet	_____ Square feet	_____ Square feet
<input type="checkbox"/> 25-foot Waterfront Area	_____ Square feet	_____ Square feet	_____ Square feet
<input type="checkbox"/> 100-foot Salt Marsh Area	_____ Square feet	_____ Square feet	_____ Square feet
<input type="checkbox"/> Riverfront Area	_____ Square feet	_____ Square feet	_____ Square feet

2. Inland Resource Areas

<u>Resource Area</u>	<u>Resource Area Size</u>	<u>Proposed Alteration*</u>	<u>Proposed Mitigation</u>
<input type="checkbox"/> Inland Flood Resilience Zone	_____ Square feet	_____ Square feet	_____ Square feet
<input type="checkbox"/> Isolated Wetlands	_____ Square feet	_____ Square feet	_____ Square feet
<input type="checkbox"/> Vernal Pool	_____ Square feet	_____ Square feet	_____ Square feet
<input type="checkbox"/> Vernal Pool Habitat (vernal pool + 100 ft. upland area)	_____ Square feet	_____ Square feet	_____ Square feet
<input checked="" type="checkbox"/> 25-foot Waterfront Area	1638* _____ Square feet	1638* _____ Square feet	0 _____ Square feet
<input checked="" type="checkbox"/> Riverfront Area	530 _____ Square feet	530 _____ Square feet	+/-750 _____ 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?

- Project is by right for Zoning _____
- BPDA Review - Complete _____
- Building Permit - post Conservation _____
- BWSC - In process _____



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/nhosp/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



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

D. SIGNATURES AND SUBMITTAL REQUIREMENTS

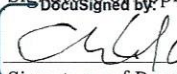
I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the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



Signature of Applicant

5/31/22

Date
5/31/2022



Signature of Property Owner (if different)

Date



Signature of Representative (if any)

5/31/2022

Date

HUGHES ENVIRONMENTAL CONSULTING

44 MERRIMAC STREET, NEWBURYPORT, MA 01950
PHONE 978.465.5400 • FAX 978.465.8100
EMAIL THUGHES@HUGHESENVR.COM

PO BOX 392, CONCORD, MA 01742
PHONE/FAX 978.369.2100

PROJECT NARRATIVE
to Accompany a
NOTICE OF INTENT
For
581 American Legion Highway
Roslindale
June 1, 2022

Overview

Adam Burns of Boston Pinnacle Properties, LLC is seeking approval to demolish the existing automotive repair shop at 581 American Legion Highway and replace it with a by-right zoning mixed-use development located at 581 American Legion. The demolition straddles lots 1 and 2 (lot 2 contains a small edge of the existing building and the bulkhead entrance to the basement). The new development will be constructed on lot 1. Since the demolition includes a small portion of lot 2, it is included in this NOI, however no development is proposed for lot 2 at this time.

Current site conditions

The project site is a 3,791 square foot lot (lot 1), with a small portion of the demolition within a second 3,711 square foot lot (lot 2) located near the corner of Canterbury Street and American Legion Highway. The site is currently fully developed as a automobile repair facility. By definition the site constitutes a Land Use with Higher Potential Pollutant Load (LUHPPL) as defined in the DEP stormwater regulations. The site abuts a Boston Water and Sewer Easement that includes an 80 foot daylighted section of Canterbury Brook, a perennial Stream. The resource area is accessed at the end of a paved driveway off of Canterbury Street. Hughes Environmental Consulting flagged the Bank coincident with Mean High Water as shown on the site plans based on obvious signs of bankfull indicators, such as waterborne debris trapped in vegetation, terrestrial vegetation, and water staining on headwalls.

The project site contains a portion of the 25 foot Riverfront Area associated with the Brook, and an additional Boston Ordinance resource area referred to as the Waterfront Resource area that extends 25 feet from the Riverfront Boundary. Additionally the site is located within the 100 foot buffer zone to inland bank. The site is not within mapped floodplain nor within the preliminary maps as a future floodplain. Additionally the site is not located within NHESP habitat.

Vegetation within the BWSC easement is sparse and dominated by invasive species, including bittersweet and Norway maples. The banks to the brook are littered with windborne litter and surficial debris.

Portions of the Riverfront constitute previously developed and degraded as defined in 310 CMR 10.58(5). ***A previously developed riverfront area contains areas degraded prior to August 7, 1996 by impervious surfaces from existing structures or pavement, absence of topsoil, junkyards, or abandoned dumping grounds.***

The only area not meeting the criteria of being degraded within the property is a small area on the entire site is located in the northwestern corner that has some vegetation and does have topsoil. This area is used for storage of various items related to the auto repair business, including an old school bus. This area is also outside the riverfront, which ends due to the inlet into a pipe greater than 200 feet long. All of the riverfront area within Lot 1 is gravel and within lot 2 is paved, with the exception of a concrete bulkhead to the existing building and a small section of the end of the building.

Within lot 1, 52 square feet of the lot is building (roof) and 477 square feet is gravel. Within lot 2, all 594 square feet of the riverfront is paved.

The Waterfront resource areas on both lots is similarly impaired. Its potential to provide important functions is somewhat limited due to the small section of the brook that daylight in the immediate vicinity. This section is separated significantly from other open areas of the brook. The only area of the waterfront resource area that is even partially vegetated is a small area in the northwest corner of lot 1, which (as noted above) is sparsely vegetated and is used for storage of materials by the auto repair shop. Currently, there is 833 square feet of roof area, 466 square feet of pavement, 79 square feet of gravel, and 260 square feet of vegetation within the waterfront resource area. The remaining buffer zone is paved or building.

Proposed Project

The proposed project removes a LUHPPL and replaces it with a development with clean runoff that is managed in accordance with MassDEP stormwater standards. The development consists of 5 residential units with associated parking and an ATM. In that context, the project is self-mitigating. Additionally, the project incorporates pervious paver parking areas in the parking spots closest to the Brook to increase infiltration. The proposed project will result in:

- 158 square feet of roof area within the RA
- 166 square feet of pervious pavers in the RA
- 205 square feet of vegetation in the RA
- 1263 square feet of roof area in the WRA
- 23 square feet of pervious pavers in the WRA
- 247 square feet of pavement in the WRA
- 105 square feet of vegetated area in the WRA

Note that within the RA and WRA when taken as a whole, we are increasing vegetative cover in area and in quality, and providing that vegetated area closer to the brook.

As additional mitigation, we are proposing to clean up the area within the BWSC easement area immediately adjacent to the project site, remove pavement, invasive species, litter and other surficial debris. This area includes about 600 square feet of RA and 300 square feet of WRA. Once the area is cleaned up, we will plant native species to provide some function to this somewhat isolated resource area. The area would then be planted with native shrubs, trees and herbaceous cover acceptable to BWSC. For example we propose a native grass and forbes mix within the currently paved area that can support equipment. On the far side of the brook, we will plant a mix of native trees, such as black gum and red maples along with dogwoods and other native shrubs. On the side closest to the site, there is a sewer main within the bank. We will plant native shrubs in this area that are resilient to cutting and damage that could occur during sewer line maintenance. Those shrubs include red-osier dogwood, silky dogwood, and gray dogwood. The slopes would be planted with smaller shrubs and tubelings to minimize soil disturbance. Overall, we expect to plant about 50 shrubs, 8 saplings, and 200 tubelings in this area. The plants would be the largest available restoration grade plants from New England Wetland Plants. A final planting list will be compiled after the site is cleared of invasives with a goal of establishing tubelings at 3-4 foot on center, shrubs at 6 feet on center, and saplings at 8

foot on center where appropriate (not over sewer line). The entire area will also be seeded with a native seed mix that does not include shrubs (to prevent unwanted plants near the sewer line).

Additionally, the fence at the back of the property will be replaced and a gate installed for access for regular cleaning up of litter. Semi annual (spring and fall) clean up of the resource area will be included in association documents as an owner responsibility.

Wetlands Protection Act

The project is jurisdictional under the Wetlands Protection Act for work in the Riverfront Area and the buffer zone to Inland Bank.

310 CMR10.58(5) Redevelopment Within Previously Developed Riverfront Areas; Restoration and Mitigation.

Notwithstanding the provisions of 310 CMR 10.58(4)€ and (d), the issuing authority may allow work to redevelop a previously developed riverfront area, provided the proposed work improves existing conditions. Redevelopment means replacement, rehabilitation or expansion of existing structures, improvement of existing roads, or reuse of degraded or previously developed areas. A previously developed riverfront area contains areas degraded prior to August 7, 1996 by impervious surfaces from existing structures or pavement, absence of topsoil, junkyards, or abandoned dumping grounds...

We are proposing to permit the project under this section. As noted on the plans, our impacts to riverfront are all within degraded riverfront, mitigated by restoration of degraded riverfront and generally mitigative in nature by replacing a LUHPPL with cleaner runoff, vegetation, and pervious parking. Additionally, we propose to improve function of approximately 600+/- square feet of riverfront within the BWSC easement. (A total of between 800 and 1100 square feet of restoration is proposed, but some of this is outside the RA and in the Waterfront Resource Area.

Work to redevelop previously developed riverfront areas shall conform to the following criteria:

(a) At a minimum, proposed work shall result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131 § 40. When a lot is previously developed but no portion of the riverfront area is degraded, the requirements of 310 CMR 10.58(4) shall be met.

The work proposed will result in the establishment of stormwater controls on the site and serve to abate ongoing stormwater discharges that occur without controls from a LUHPPL. The project will also result in restoration of areas around a significant portion of the daylighted section of Canterbury Brook. The project increases vegetation on site within the RA from 0 to 205 square feet and proposes 600 square feet of dense natural plantings along the top of the bank. The end result will improve existing conditions and the overall function of the riverfront area. Additionally, the development will establish ongoing clean up of the RA providing long term improvements.

(b) Stormwater management is provided according to standards established by the Department.

The stormwater has been designed to meet the stormwater management regulations for stormwater generated by the development and additionally serves to mitigate off site runoff. The stormwater generated will be cleaner and the infiltration of that stormwater

will help to temper flows and cool water entering the brook, reducing both COD and BOD.

(c) Within 200 foot riverfront areas, proposed work shall not be located closer to the river than existing conditions or 100 feet, whichever is less, or not closer than existing conditions within 25 foot riverfront areas, except in accordance with 310 CMR 10.58(5)(f) or (g).

The project site is currently degraded right up to the property line. Proposed improvements will not occur closer to the river than current conditions.

(d) Proposed work, including expansion of existing structures, shall be located outside the riverfront area or toward the riverfront area boundary and away from the river, except in accordance with 310 CMR 10.58(5)(f) or (g).

The work complies with both section and f and g below.

(e) The area of proposed work shall not exceed the amount of degraded area, provided that the proposed work may alter up to 10% if the degraded area is less than 10% of the riverfront area, except in accordance with 310 CMR 10.58(5)(f) or (g).

The entire on-site riverfront is degraded. The project mitigates for impacts above degraded area through mitigation under subsections (f) and (g).

(f) When an applicant proposes restoration on-site of degraded riverfront area, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), and (e) at a ratio in square feet of at least 1:1 of restored area to area of alteration not conforming to the criteria. Areas immediately along the river shall be selected for restoration. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Restoration shall include:

- 1. removal of all debris, but retaining any trees or other mature vegetation;***
- 2. grading to a topography which reduces runoff and increases infiltration;***
- 3. coverage by topsoil at a depth consistent with natural conditions at the site;***
and
- 4. seeding and planting with an erosion control seed mixture, followed by plantings of herbaceous and woody species appropriate to the site;***

Mitigation is being proposed to restore degraded riverfront in the form of native plantings and fescue lawn in the RA on site.

(g) When an applicant proposes mitigation either on-site or in the riverfront area within the same general area of the river basin, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), or (e) at a ratio in square feet of at least 2:1 of mitigation area to area of alteration not conforming to the criteria or an equivalent level of environmental protection where square footage is not a relevant measure. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Mitigation may include off-site restoration of riverfront areas, conservation restrictions under M.G.L. c. 184, §§ 31 to 33 to preserve undisturbed riverfront areas that could be otherwise altered under 310 CMR 10.00, the purchase of development rights within the riverfront area, the restoration of bordering vegetated wetland, projects to remedy an existing adverse impact on the interests identified in M.G.L. c. 131, § 40 for which the applicant is not legally responsible, or similar activities undertaken voluntarily by the applicant which will support a determination by the issuing authority of no significant adverse impact. Preference shall be given to

potential mitigation projects, if any, identified in a River Basin Plan approved by the Secretary of the Executive Office of Environmental Affairs.

The project meets the standards for mitigation above in subsection f. Additional mitigation is also being offered that qualifies for this section in the BWSC easement area (approximately 600 square feet within the RA).

(h) The issuing authority shall include a continuing condition in the Certificate of Compliance for projects under 310 CMR 10.58(5)(f) or (g) prohibiting further alteration within the restoration or mitigation area, except as may be required to maintain the area in its

restored or mitigated condition. Prior to requesting the issuance of the Certificate of Compliance, the applicant shall demonstrate the restoration or mitigation has been successfully completed for at least two growing seasons.

Such a condition, referring to the restored portions of the 25-foot riverfront area would be expected and appropriate to monitor the mitigation area for a few growing seasons to demonstrate the success of the restoration effort.

100-foot Bank Buffer - The 100-foot Buffer Zone is not a resource area under the Act, although it is considered a resource area under the City of Boston's Wetland Ordinance. This buffer zone is protected in order to prevent alteration of the Bank itself. As the 100-foot Buffer Zone is not a resource area (under the Act), the Regulations only provide general performance standards for work in this area. However, under section 10.53(1) of the Regulations provides a narrative standard which addresses erosion controls, limit of work, slopes, existing conditions, and vegetation. In this case, we have proposed erosion controls and management practices that are designed to avoid any alteration to the Bank. The project does propose mitigative work on the bank that will improve its function within the BWSC easement.

Boston Wetlands Ordinance

The City of Boston enacted an "Ordinance Protecting Local Wetlands and Promoting Climate Change Adaptation in the City of Boston" on December 11, 2019. The current ordinance regulations are incomplete with no specific performance standards. The Ordinance and Ordinance Regulations as currently constituted do not provide a link between the protected resource areas and the specific

values that are presumed to be protected by the individual resource areas. The ordinance does provide for a specific 25-foot waterfront buffer area that is indicated on the plans. This 25-foot buffer extends beyond the edge of the 25-foot riverfront zone. Additionally, the 100-foot buffer zone to Bank is considered a resource area. The ordinance also refers to climate change resilience.

25-foot Waterfront Buffer –

The Commission therefore may require that any person filing an application (hereinafter, the Applicant) restore or maintain a strip of continuous, undisturbed or restored vegetative cover or waterfront public access throughout the Waterfront Area, unless the Commission determines, based on adequate evidence, that the area or part of it may be altered without harm to the values of the resource areas protected by the Ordinance. Such disturbed areas must be minimized to the greatest extent possible.

This section of Canterbury Brook is a small section that is disconnected from the larger open areas located several hundred feet upstream. The current state of the Waterfront Resource Area on site is essentially non-functional. Our proposal improves water quality significantly for the brook and establishes some habitat in the areas closest to the Brook within the BWSC easement area..

100-foot Resource area associated with Bank

Overall, the alteration of the buffer zone to bank (the largest of the jurisdictional areas within which all others are located) on site will result in a site with much cleaner stormwater generation, and provide for infiltration, improving the resource area function. When compared to the current conditions, this represents a significant improvement in the resource area.

Invasive Vegetation Management

The management strategy for each invasive species will vary to utilize the practices best suited for that species. In all cases, the vegetation removal will not require ground disturbance. The above ground portions of the vegetation will be cut and removed, retaining the root system and surrounding soils. The specification for each species found on site or in the general area is summarized below:

- a. Japanese Knotweed: cut stems down between the second and third node (from the ground) and inject or drip 5 ml of herbicide into the stem. Paint the stem with a contrasting color of paint to identify what stems have been treated. Remove cut stems and brush from the site. Note herbicide will be either aquatic safe glyphosate (such as Rodeo) or aquatic safe Imazapyr (such as Habitat). No surfactant is to be used unless approved in advance by Boston Conservation Commission staff.
- b. Multiflora Rose, Honeysuckle, and bittersweet: cut shrubs 2 to 4 inches above finished grade and apply herbicide immediately on the cut stems. Herbicide shall include a colored dye to identify which stems have been treated. Remove cut branches and brush from the site. Note herbicide will be aquatic safe Triclopyr (such as Renovate 3). Note do not pull vines from trees. Prune or let dry out and they will fall out on their own. No surfactant is to be used unless approved in advance by Boston Conservation Commission staff.
- c. Tree of Heaven and Norway Maple: cut trunk 3" above grade and apply herbicide immediately on cut trunk. Remove all brush and wood from tree removal. Note herbicide will be aquatic safe Triclopyr (such as Renovate 3). No surfactant is to be used unless approved in advance by Boston Conservation Commission staff.

All invasive shrub management shall be performed between July 15 and September 15. Note for smaller growth invasive plants (stem size below ½" where the applicator does not believe sufficient herbicide will be absorbed to kill the plant, the plant should be pulled. After pulling, pack ground down and mulch with straw or salt marsh hay as needed.

Trash and Debris Removal- Concrete blocks, wood, and miscellaneous debris will be removed from the areas shown on the plans and disposed of. Erosion control devices will be installed prior to any debris removal that may disturb soil.

Plantings will follow the clean up and first round of invasive treatment. Invasive treatment will be followed up the following year once in the summer and once in the fall.

Climate Change Resilience

Ordinance Protecting Local Wetlands and Promoting Climate Change Adaptation in the City of Boston Climate Change Resilience. - The Applicant shall, to the extent applicable as determined by the Commission, integrate climate change and adaptation planning considerations into their project to promote climate resilience to protect and promote Resource Area Values and functions into the future. These considerations include but are not limited to: sea level rise, increased heat waves, extreme precipitation events, stormwater runoff, changing precipitation patterns and changes in coastal and stormwater flooding.

The project is located inland is significantly above Mean Sea Level. With this, the project is not impacted by anticipated future sea level rise. With climate change, the site is likely to have more water as a result of more frequent and larger rain events. There is no stormwater management currently on site and the project provides for infiltration. The overall effect of infiltrating more water in the Canterbury Brook watershed is to help alleviate flashy conditions during these rain events. The area is not within a mapped (or preliminary) FEMA flood plain. The extent to which this section of the brook can flood is somewhat limited by the capacity of the pipes both up and down stream.

Given all of this the project is resilient to future increased extreme precipitation events and reduces stormwater runoff from the property.

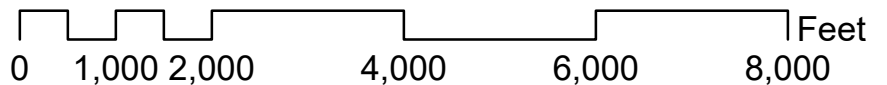
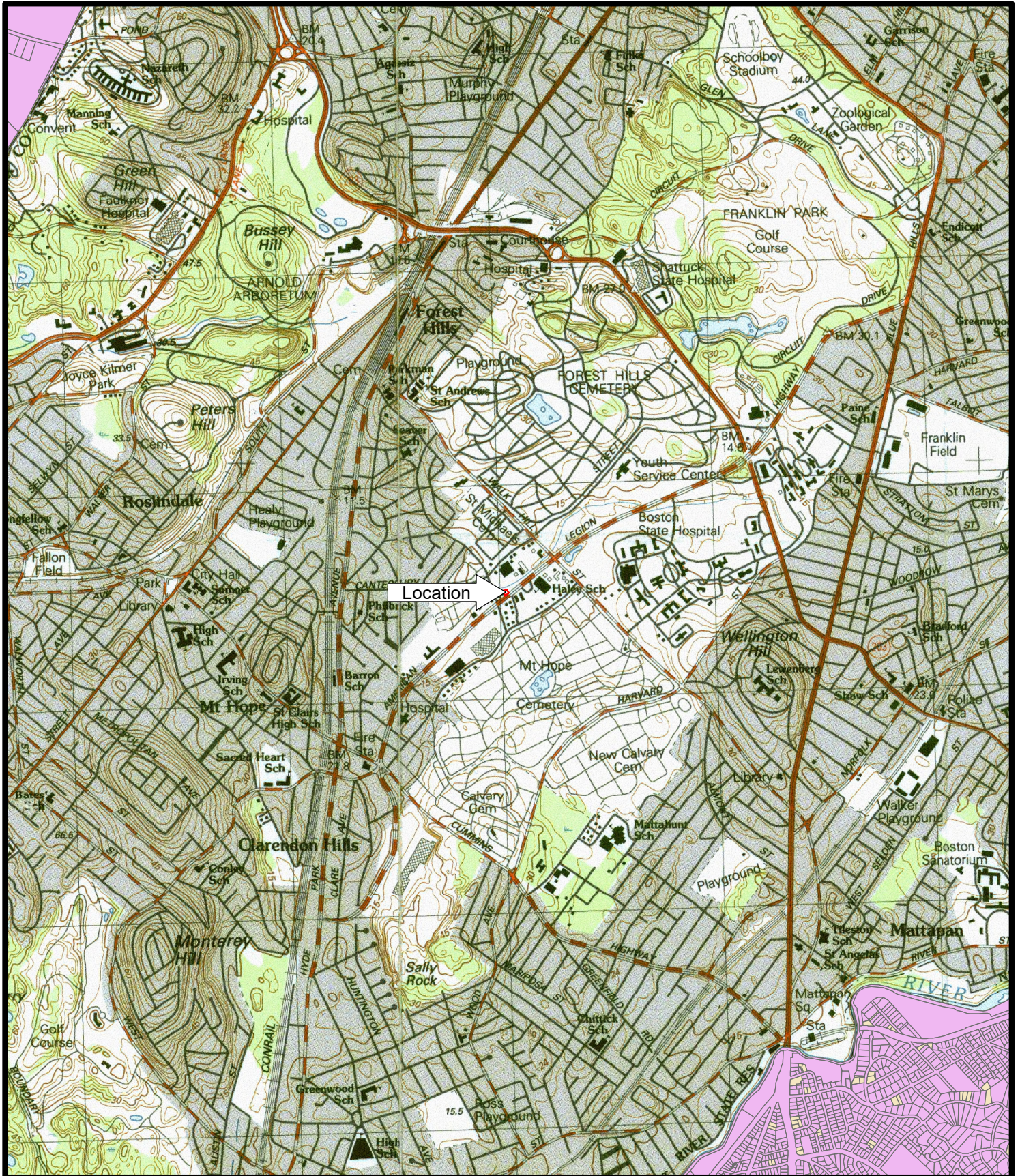
Climate Equity and Environmental Justice

The site is currently fully developed with a business that by definition is a LUHPPL. Cars in need of repair typically generate more polluting emissions, and the parking surfaces and dark roof present create a mini heat island effect and sends warm untreated runoff into the brook. This is a source of both traditional pollutants and thermal pollutants. The result is a stress on the Biological and Chemical Oxygen Demand in the brook. The proposed project will incorporate a light-colored roof and parking on the brook side of the property that is not under the roof will be constructed with pervious pavers. Combined with the stormwater infiltration, the project will improve environmental conditions in the community.

Conclusion

In summary, the project is one that improves water quality and function of the resource areas present, despite the limitations posed by the site geometry and the isolated nature of the resource area. We ask the Commission to approve the project as proposed with any conditions they see fit to protect the interests of the Wetlands Ordinance and the Wetlands Protection Act.

581 American Legion Highway USGS Location Map



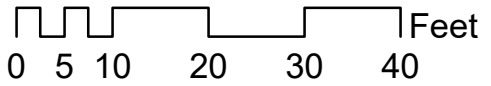
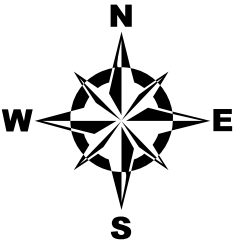
Prepared by Hughes Environmental Consulting, Data Source MassGIS.

581 American Legion Highway 2021 Orthophoto



Legend

- ▲ MHW/Inland Bank
- ▨ Proposed Mitigation Area



581 American Legion Highway - View from the South



© All Pictometry

581 American Legion Highway - View from the East



© All Pictometry

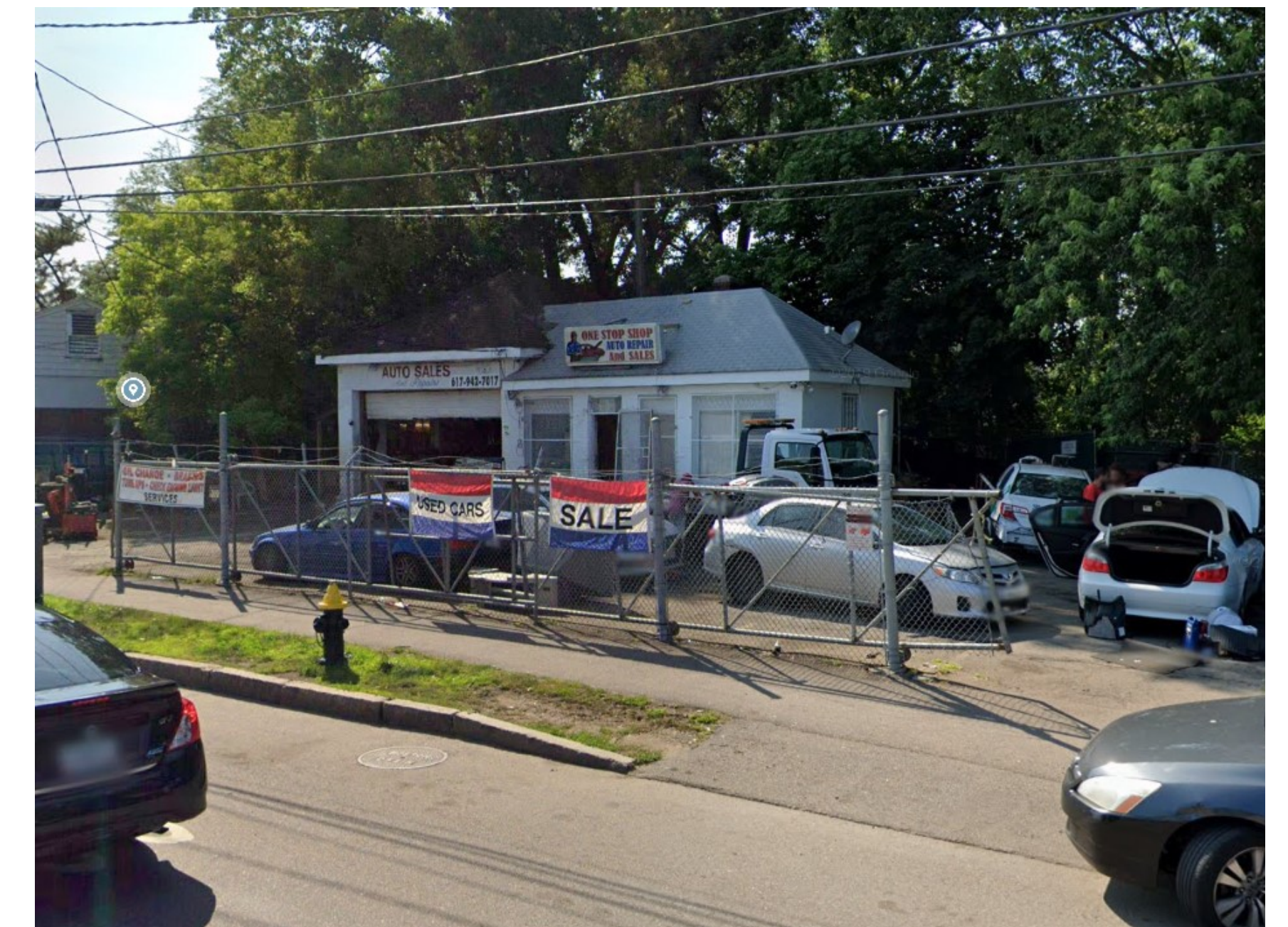
581 American Legion Highway—Site Photos



Brook from East



Brook from West, site on right



Front of Site



Brook in foreground, rear of site visible



“Vegetated” portion of site



View East from Rear Corner

72557	1806596000	1806596062	1806596000	590 AMERICAN LEGION HW 590-1	ROSLINDALE	2131	ERJ CONDOS LLC MASS LLC	C/O EDWARD REID JR	PO BOX 59	ROSLINDALE	MA	2131	33446.1958	747.1961332
32574	1806569000	1806569004	1806569000	630 CANTERBURY ST 630	ROSLINDALE	2131	KIRLEY WALTER TS		55 BRUSH HILL LA	MILTON	MA	2186	49954.15479	939.0440753
72531	1806596000	1806596010	1806596000	596 AMERICAN LEGION HW 596-5	ROSLINDALE	2131	FELDMAN IGOR		596 AMERICAN LEGION HWY #5	ROSLINDALE	MA	2131	33446.1958	747.1961332
72551	1806596000	1806596050	1806596000	592 AMERICAN LEGION HW 592-7	ROSLINDALE	2131	ALVARADO ALEXANDER		60 CAMELOT RIDGE DR	BRANDON	FL	33511	33446.1958	747.1961332
72537	1806596000	1806596022	1806596000	594 AMERICAN LEGION HW 594-5	ROSLINDALE	2131	MOORE EUSTACE E		594 AMERICAN LEGION HWY #5	ROSLINDALE	MA	2131	33446.1958	747.1961332
41024	1806436000	1806436000	1806436000	PETERS ST	ROSLINDALE	2131	ITALIAN CATH CEMTRY ASSN		PETERS	ROSLINDALE	MA	2131	393475.9324	2883.499708
72543	1806596000	1806596034	1806596000	594 AMERICAN LEGION HW 594-11	ROSLINDALE	2131	SANTOS TASHIANI M		594 AMERICAN LEGION HWY #11	ROSLINDALE	MA	2136	33446.1958	747.1961332



**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. _____ 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 _____.

C. The project involves _____.

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 _____ by contacting them at _____ between the hours of _____, _____.

F. In accordance with the Chapter 20 of the Acts of 2021, 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, time, 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. 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: 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.

NOTE: If you plan to attend the public hearing and are in need of interpretation, please notify staff at CC@boston.gov by 12 PM the day before the hearing.



City of Boston
Environment



**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. **Boston Pinnacle Properties 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 **581 Autopista American Legion de Roslindale**.

C. El proyecto consiste en la remodelación de la propiedad con un edificio residencial de 5 unidades y un cajero automático con trabajo del sitio asociado.

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 en **Hughes Environmental Consulting** entre las **0900 y 1700, de lunes a viernes**.

F. De acuerdo con el Decreto Ejecutivo de la 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.

CITY of BOSTON

1 CITY HALL SQUARE BOSTON, MA 02201-2021 | ROOM 709 | 617-635-3850 | ENVIRONMENT@BOSTON.GOV



City of Boston
Mayor Martin J. Walsh

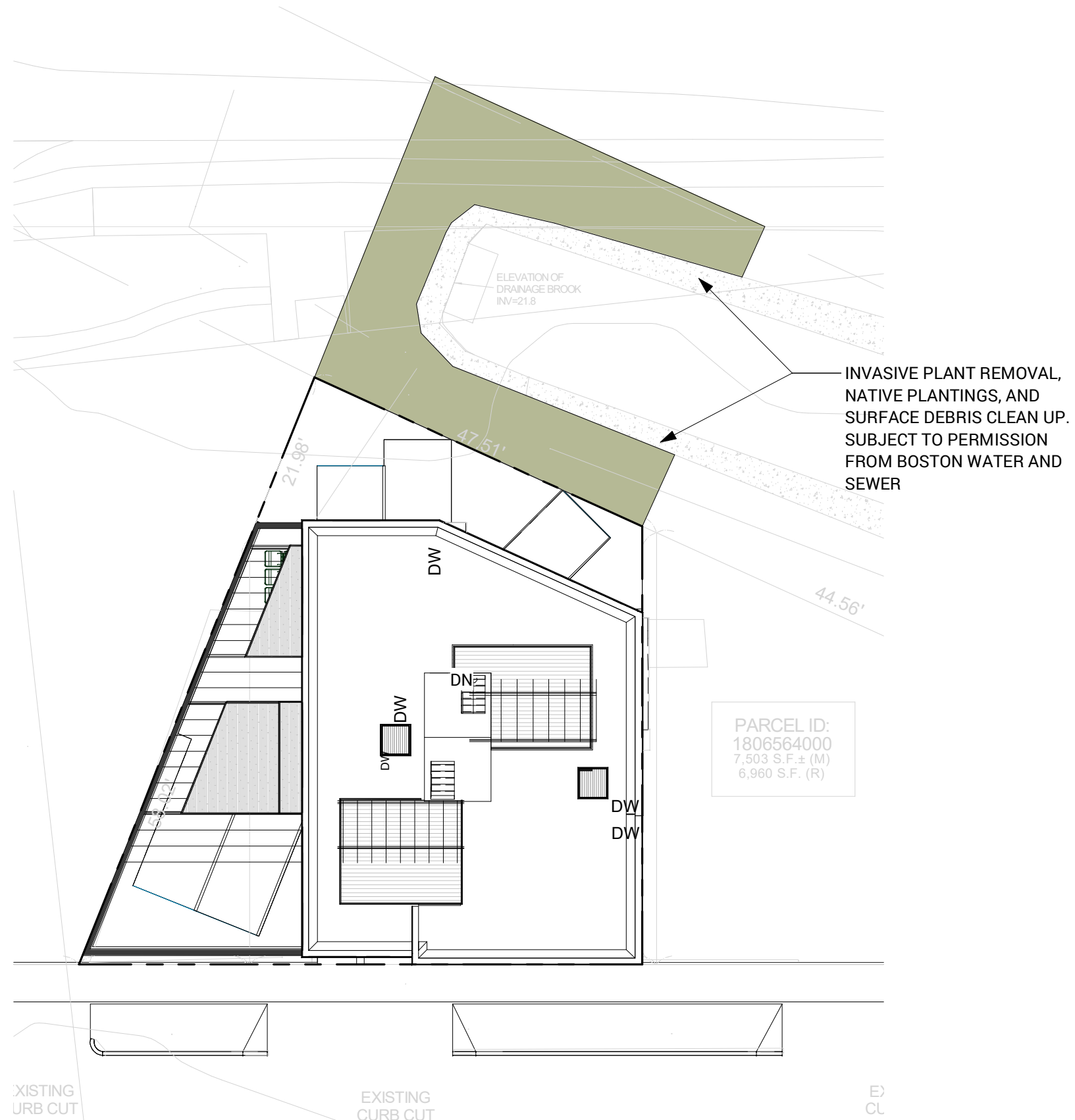


City of Boston
Environment

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.

CITY of BOSTON

1 CITY HALL SQUARE BOSTON, MA 02201-2021 | ROOM 709 | 617-635-3850 | ENVIRONMENT@BOSTON.GOV



1 ARCHITECTURAL SITE PLAN
1/16" = 1'-0"



Checklist for Stormwater Report

A. Introduction

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



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

The Stormwater Report must include:

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

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

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

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

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

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



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.

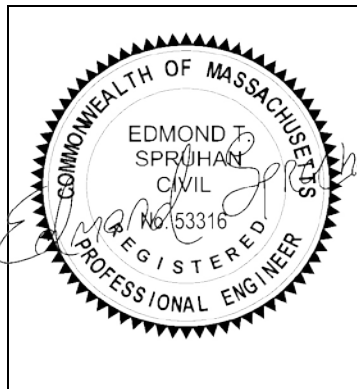
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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



Edmond Spruhan.

6/1/2022

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): Storm-Tech units with crushed stone bed & Oil grease separator.

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

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



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.

**OPERATION AND MAINTENANCE PLAN
581 AMERICAN LEGION HIGHWAY
BOSTON, MASSACHUSETTS**

1 June 2022

Prepared by Spruhan Engineering, P.C.

The proposed project includes stormwater runoff controls associated with the development of a three-story building (5 units) that will require continued maintenance by the proponent and then homeowner(s) upon sale. The major components associated with maintenance needs are the trench drain, manhole, and infiltration system. These will need to be inspected and cleaned periodically as noted below. Cleaning of these structures shall be contracted by the proponent and then homeowner(s) upon sale via a specialty contractor with hydraulic cleaning ability. In addition to the facilities noted below, the homeowners should maintain any roof gutters/drains on a regular basis to prevent clogging and carryover of debris into the drainage systems. The property owner should also provide for the periodic cleaning of the driveway areas to remove large debris and sand particles prior to discharge through the trench drains. The following outlines the major maintenance issues associated with the project:

Maintenance Responsibilities:

The maintenance of the stormwater runoff controls is the responsibility of the proponent until the property is sold; after any sale, the responsibility shifts to the homeowner(s) or successive homeowner(s).

The actual work to inspect and clean the trench drain, manhole sump, and infiltration systems shall be subcontracted to a company that specializes in the cleaning of storm drainage facilities.

Permeable pavers.

Normal Maintenance: All permeable pavers surfaces will require standard structural BMP practices for pavement maintenance regarding sweeping procedures. A dry vacuum type sweeper may be used during dry periods to remove encrusted sediment, leaves, grass clippings, etc. Vacuum and sweeper

settings may require adjustments to prevent uptake of aggregate from the paver voids and joints. Once a year sweeping is normal unless excessive silts and fines are present, which will require additional monitoring of the surface to determine silt build-up and then adjust the sweeping schedule to remove accumulated debris. Additional void materials may be added by mechanically or manually sweeping into joints and void areas if necessary. Refer to specifications for type and grade. It is not recommended to utilize pressure washer on open jointed systems. Adjacent properties, pavements, landscaped areas and grasses should be monitored periodically to ensure that run-off from these sources is not depositing silts and debris on the permeable surface. Construction traffic, agricultural areas (no ground cover), beach area, and areas subject to high winds that will carry these fine particles, will require more frequent sweeping than urban areas. Settlements in pavement surface, access for utility repair, removal of broken or damaged pavers may be performed by an experienced paver installer. Pavers will be removed, setting bed and void materials will be salvaged and kept separate. Base materials are to be removed if access for utilities is required, Settlement repair depending on depth will be restored with additional base materials if settlement exceeds ½". Setting bed will be made level and pavers re-instated with void materials replaced in joints and voids with compaction bringing the pavers to flush condition and ready to use.

Remedial Maintenance: Application of a commercial vacuum sweeper with water jets, sweeper and vacuum bar attachment will cause evacuation of clogged void materials from joint and void openings. This material may be recycled at a wash site or new aggregate materials may be utilized. (Refer to specifications for size and grade) Jointing materials are to be swept into joints and void openings until full, typically the bottom of chamfer is full.

Winter Maintenance: Snow Removal: A four season parking surface, street or plaza may be plowed with truck-mounted blades, power brooms, snow-blowers or manually shoveled. Salt may be used to melt ice, but will affect the quality and pH of water leaving the permeable paver system and could require additional monitoring and analysis. Sand should not be used as this will accelerate rate of clogging in voids and will require an increased frequency of sweeping. Open graded chips may used for traction when ice is present, but more than likely will require sweeping and removal in the spring.

Trench Drains. & Manhole Sumps:

The trench drains and manhole sump shall be inspected after completion of construction to assure that all debris has been removed and construction material will not cause the system to clog. This inspection should also include the drain lines within the system.

The trench drains shall be inspected twice per year and after significant storm events and all debris removed. The manhole sump should be inspected twice per year; if depth of sediment in sumps exceeds 50% capacity, sediment must be removed. The structures should be cleaned with a hydraulic vacuum system at least once per year to remove accumulated solids and debris. At the same time, the drain lines should be inspected and cleaned, if needed. Assuming the structures and drain lines are maintained and cleaning is in accordance with normal standards, the solids removal efficiency should be as required to prevent carry over of large solids to the infiltration systems.

Infiltration System:

The storage/infiltration system should be inspected after completion of construction to assure that all debris has been removed and construction material will not cause the systems to clog.

The storage/infiltration system should be inspected two times over the first year of operation to determine the level of required maintenance. This inspection should be performed by the proponent's/homeowner's engineer. As a preliminary schedule, the system piping should be cleaned once a year to remove any accumulated sediments and sediments in the infiltration chambers should be removed when they reach two inches in depth.

Other Activities:

Pavement Sweeping: The paved areas shall be swept twice per year, once in the spring right after snowmelt, and once in the fall.

Lawn and Landscape Repairs: The lawn and landscaped areas on the site shall be inspected in the spring and fall of each year and the areas shall be restabilized as needed by seeding as lawn or mulching of landscaped areas.

**OPERATION & MAINTENANCE PLAN
LOG SHEET
581 AMERICAN LEGION HIGHWAY
BOSTON, MASSACHUSETTS**

INSPECTION REPORT:

Inspection Firm: _____

Inspector's Name: _____ Date: _____

Components Inspected: _____

Signed: _____

SYSTEM MAINTENANCE:

Maintenance Firm: _____ Date: _____

Trench Drain Cleaned: Yes _____ No _____ Comments: _____

Manhole Sump Cleaned: Yes _____ No _____ Comments: _____

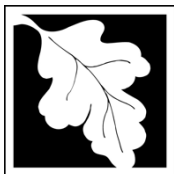
Drain Lines Inspected: Yes _____ No _____ Comments: _____

Infiltration System Cleaned: Yes _____ No _____ Comments: _____

Estimate of Material Removed: _____

Other Comments: _____

Signed: _____



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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



A. Applicant Information

1. Location of Project:

<u>581 American Legion Highway</u>	<u>Roslindale</u>
a. Street Address	b. City/Town
<u>4140</u>	<u>725.00</u>
c. Check number	d. Fee amount

2. Applicant Mailing Address:

<u>Adam</u>	<u>Burns</u>	
a. First Name	b. Last Name	
<u>Boston Pinnacle Properties, LLC</u>		
c. Organization		
<u>599 East Broadway</u>		
d. Mailing Address		
<u>Boston</u>	<u>MA</u>	<u>02127</u>
e. City/Town	f. State	g. Zip Code
<u>857-496-7187</u>	<u>adam@burnsrealty.com</u>	
h. Phone Number	i. Fax Number	j. Email Address

3. Property Owner (if different):

<u>Rick</u>	<u>Canale</u>	
a. First Name	b. Last Name	
<u>EF Nominee Trust</u>		
c. Organization		
<u>57 Barbara Lane</u>		
d. Mailing Address		
<u>Milton</u>	<u>MA</u>	<u>02186</u>
e. City/Town	f. State	g. Zip Code
<u>617-981-1259</u>	<u>rick@exoticflowers.com</u>	
h. Phone Number	i. Fax Number	j. Email Address

B. Fees

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
3 Building with site	1	1050.00	1050.00
Riverfront	50%	525.00	525.00
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Step 5/Total Project Fee:			1575.00
Step 6/Fee Payments:			
Total Project Fee:			1575.00
			a. Total Fee from Step 5
State share of filing Fee:			725.00
			b. 1/2 Total Fee less \$12.50
City/Town share of filing Fee:			750.00
			c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
Box 4062
Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

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PROJECT NARRATIVE
to Accompany a
NOTICE OF INTENT
For
581 American Legion Highway
Roslindale
June 1, 2022
Revised June 21, 2022

Overview

Adam Burns of Boston Pinnacle Properties, LLC is seeking approval to demolish the existing automotive repair shop at 581 American Legion Highway and replace it with a by-right zoning mixed-use development located at 581 American Legion. The demolition straddles lots 1 and 2 (lot 2 contains a small edge of the existing building and the bulkhead entrance to the basement). The new development will be constructed on lot 1. Since the demolition includes a small portion of lot 2, it is included in this NOI, however no development is proposed for lot 2 at this time.

Current site conditions

The project site is a 3,791 square foot lot (lot 1), with a small portion of the demolition within a second 3,711 square foot lot (lot 2) located near the corner of Canterbury Street and American Legion Highway. The site is currently fully developed as a automobile repair facility. By definition the site constitutes a Land Use with Higher Potential Pollutant Load (LUHPPL) as defined in the DEP stormwater regulations. The site abuts a Boston Water and Sewer Easement that includes an 80 foot daylighted section of Canterbury Brook, a perennial Stream. The resource area is accessed at the end of a paved driveway off of Canterbury Street. Hughes Environmental Consulting flagged the Bank coincident with Mean High Water as shown on the site plans based on obvious signs of bankfull indicators, such as waterborne debris trapped in vegetation, terrestrial vegetation, and water staining on headwalls.

The project site contains a portion of the 25 foot Riverfront Area associated with the Brook, and an additional Boston Ordinance resource area referred to as the Waterfront Resource area that extends 25 feet from the Riverfront Boundary. Additionally the site is located within the 100 foot buffer zone to inland bank. The site is not within mapped floodplain nor within the preliminary maps as a future floodplain. Additionally the site is not located within NHESP habitat.

Vegetation within the BWSC easement is sparse and dominated by invasive species, including bittersweet and Norway maples. The banks to the brook are littered with windborne litter and surficial debris.

Portions of the Riverfront constitute previously developed and degraded as defined in 310 CMR 10.58(5). ***A previously developed riverfront area contains areas degraded prior to August 7, 1996 by impervious surfaces from existing structures or pavement, absence of topsoil, junkyards, or abandoned dumping grounds.***

The only area not meeting the criteria of being degraded within the property is a small area on the entire site is located in the northwestern corner that has some vegetation and does have topsoil. This area is used for storage of various items related to the auto repair business, including an old school bus. This area is also outside the riverfront, which ends due to the inlet into a pipe greater than 200 feet long. All of the riverfront area within Lot 1 is gravel and within lot 2 is paved, with the exception of a concrete bulkhead to the existing building and a small section of the end of the building.

Within lot 1, 52 square feet of the lot is building (roof) and 477 square feet is gravel. Within lot 2, all 594 square feet of the riverfront is paved.

The Waterfront resource areas on both lots is similarly impaired. Its potential to provide important functions is somewhat limited due to the small section of the brook that daylight in the immediate vicinity. This section is separated significantly from other open areas of the brook. The only area of the waterfront resource area that is even partially vegetated is a small area in the northwest corner of lot 1, which (as noted above) is sparsely vegetated and is used for storage of materials by the auto repair shop. Currently, there is 833 square feet of roof area, 466 square feet of pavement, 79 square feet of gravel, and 260 square feet of vegetation within the waterfront resource area. The remaining buffer zone is paved or building.

Proposed Project

The proposed project removes a LUHPPL and replaces it with a development with clean runoff that is managed in accordance with MassDEP stormwater standards. The development consists of 5 residential units with associated parking and an ATM. In that context, the project is self-mitigating. Additionally, the project incorporates pervious paver parking areas in the parking spots closest to the Brook to increase infiltration. The proposed project will result in:

- 158 square feet of roof area within the RA
- 166 square feet of pervious pavers in the RA
- 205 square feet of vegetation in the RA
- 1263 square feet of roof area in the WRA
- 23 square feet of pervious pavers in the WRA
- 247 square feet of pavement in the WRA
- 105 square feet of vegetated area in the WRA

Note that within the RA and WRA when taken as a whole, we are increasing vegetative cover in area and in quality, and providing that vegetated area closer to the brook. On site we are planting yellow birch and dogwoods along with some native herbaceous plantings and native seed mix to provide increased value in the existing vegetation. We are leaving the tree that currently sits in the northwestern corner. See the attached landscape plans for more detail.

As additional mitigation, we are proposing to clean up the area within the BWSC easement area immediately adjacent to the project site, remove pavement, invasive species, litter and other surficial debris. This area includes about 600 square feet of RA and 300 square feet of WRA. Once the area is cleaned up, we will plant native species to provide some function to this somewhat isolated resource area. The area would then be planted with native shrubs, trees and herbaceous cover acceptable to BWSC. For example we propose a native grass and forbes mix within the currently paved area that can support equipment. On the far side of the brook, we will plant a mix of native trees, such as black gum and red maples along with dogwoods and other native shrubs. On the side closest to the site, there is a sewer main within the bank. We will plant native shrubs in this area that are resilient to cutting and damage that could occur during sewer line maintenance. Those shrubs include red-osier dogwood, silky dogwood, and gray dogwood. The slopes would be planted with smaller shrubs and tubelings to minimize soil disturbance. Overall, we expect to plant about 30 shrubs, 8 saplings, and 200 tubelings in this area. The plants would be the largest available restoration grade plants from New England

Wetland Plants. A final planting list will be compiled after the site is cleared of invasives with a goal of establishing tublings at 3-4 foot on center, shrubs at 6 feet on center, and saplings at 8 foot on center where appropriate (not over sewer line). The entire area will also be seeded with a native seed mix that does not include shrubs (to prevent unwanted plants near the sewer line).

Additionally, the fence at the back of the property will be replaced and a gate installed for access for regular cleaning up of litter. Semi annual (spring and fall) clean up of the resource area will be included in association documents as an owner responsibility.

Invasive Vegetation Management

The management strategy for each invasive species will vary to utilize the practices best suited for that species. In all cases, the vegetation removal will not require ground disturbance. The above ground portions of the vegetation will be cut and removed, retaining the root system and surrounding soils. This work will improve the Riverfront Area, the Waterfront Resource Area, and the Buffer Zone. The specification for each species found on site or in the general area is summarized below:

- a. Japanese Knotweed: cut stems down between the second and third node (from the ground) and inject or drip 5 ml of herbicide into the stem. Paint the stem with a contrasting color of paint to identify what stems have been treated. Remove cut stems and brush from the site. Note herbicide will be either aquatic safe glyphosate (such as Rodeo) or aquatic safe Imazapyr (such as Habitat). No surfactant is to be used unless approved in advance by Boston Conservation Commission staff.
- b. Multiflora Rose, Honeysuckle, and bittersweet: cut shrubs 2 to 4 inches above finished grade and apply herbicide immediately on the cut stems. Herbicide shall include a colored dye to identify which stems have been treated. Remove cut branches and brush from the site. Note herbicide will be aquatic safe Triclopyr (such as Renovate 3). Note do not pull vines from trees. Prune or let dry out and they will fall out on their own. No surfactant is to be used unless approved in advance by Boston Conservation Commission staff.
- c. Tree of Heaven and Norway Maple: cut trunk 3" above grade and apply herbicide immediately on cut trunk. Remove all brush and wood from tree removal. Note herbicide will be aquatic safe Triclopyr (such as Renovate 3). No surfactant is to be used unless approved in advance by Boston Conservation Commission staff.

All invasive shrub management shall be performed between July 15 and September 15. Note for smaller growth invasive plants (stem size below ½" where the applicator does not believe sufficient herbicide will be absorbed to kill the plant, the plant should be pulled. After pulling, pack ground down and mulch with straw or salt marsh hay as needed.

Trash and Debris Removal- Concrete blocks, wood, and miscellaneous debris will be removed from the areas shown on the plans and disposed of. Erosion control devices will be installed prior to any debris removal that may disturb soil.

Plantings will follow the clean up and first round of invasive treatment. Invasive treatment will be followed up the following year once in the summer and once in the fall.

Erosion and Sediment Controls/Sequencing

The Erosion and Sediment controls will be installed around the Site prior to the beginning of construction.

Erosion controls are as follows:

1. Fiber rolls will be maintained along the edge of the site, downgrade from the limit of work, between the construction/demolition area and Canterbury Brook.
2. Additional fiber rolls will be available on site to deploy as needed to prevent erosion and sedimentation.
3. Straw or Salt Marsh Hay will be spread over disturbed soils after seeding.

Project Sequence

- Install Erosion Controls – Install catch basin silt sacks (as needed), install erosion control barriers, maintenance of erosion controls, modify construction fencing and provide point of entry for construction vehicles. During demolition work, controls will be inspected daily and maintained as necessary.
- Prepare for demolition. To prepare for demolition all construction fencing will be put into place with appropriate signage. During the erection of the construction management plan, all pre-demolition erosion control measure will be put into place. This will include properly installed silt sacks at all potentially impacted catch basins, and silt fencing around the perimeter of the site. If vegetation is disturbed during this process, erosion control mix will be applied. Simultaneously, utilities will be disconnected from the existing building and building material samples will be taken from the existing building. These samples taken by a licensed inspector, will be sent to a laboratory for testing. If such hazards are found they will be removed from the building prior to demolition using properly trained and certified personnel in accordance with applicable laws and dispose of accordingly off site.
- Demolish Existing Structures. Demolition will be completed by a licensed MA demolition contractor using hydraulic equipment. An excavator will be the primary equipment used while watering as necessary to keep demolition dust to a minimum. The excavator will be sized and equipped appropriately to complete the demolition process in 5 or less days. All materials to be loaded into dumpsters or directly on to trucks for site removal. Note that if, during the removal of the building and overall development from the site at any phase, any buried materials, underground tanks, or petroleum odors are encountered, a LSP will be called in to evaluate the conditions and any contaminated materials or waste shall be removed from the site and disposed of in accordance with applicable law. (Note the applicant will have an LSP on call during this work).
- Site preparation including rough grading
- Foundation excavation and foundation construction

- Building Structure Construction
- Windows, exterior finishes, interior mechanical, electrical and plumbing
- Install landscaping, trees shrubs, planting beds, loam and seed.
- Concurrent with the above work, invasive treatment and removal in the BWSC easement area will take place. Plantings will be installed as soon as possible after the first round of treatment, with ideal planting occurring in the spring or fall.

Wetlands Protection Act

The project is jurisdictional under the Wetlands Protection Act for work in the Riverfront Area and the buffer zone to Inland Bank.

310 CMR10.58(5) Redevelopment Within Previously Developed Riverfront Areas; Restoration and Mitigation.

Notwithstanding the provisions of 310 CMR 10.58(4)€ and (d), the issuing authority may allow work to redevelop a previously developed riverfront area, provided the proposed work improves existing conditions. Redevelopment means replacement, rehabilitation or expansion of existing structures, improvement of existing roads, or reuse of degraded or previously developed areas. A previously developed riverfront area contains areas degraded prior to August 7, 1996 by impervious surfaces from existing structures or pavement, absence of topsoil, junkyards, or abandoned dumping grounds...

We are proposing to permit the project under this section. As noted on the plans, our impacts to riverfront are all within degraded riverfront, mitigated by restoration of degraded riverfront and generally mitigative in nature by replacing a LUHPPL with cleaner runoff, vegetation, and pervious parking. Additionally, we propose to improve function of approximately 600+/- square feet of riverfront within the BWSC easement. (A total of between 800 and 1100 square feet of restoration is proposed, but some of this is outside the RA and in the Waterfront Resource Area.

Work to redevelop previously developed riverfront areas shall conform to the following criteria:

(a) At a minimum, proposed work shall result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131 § 40. When a lot is previously developed but no portion of the riverfront area is degraded, the requirements of 310 CMR 10.58(4) shall be met.

The work proposed will result in the establishment of stormwater controls on the site and serve to abate ongoing stormwater discharges that occur without controls from a LUHPPL. The project will also result in restoration of areas around a significant portion of the daylighted section of Canterbury Brook. The project increases vegetation on site within the RA from 0 to 205 square feet and proposes 600 square feet of dense natural plantings along the top of the bank. The end result will improve existing conditions

and the overall function of the riverfront area. Additionally, the development will establish ongoing clean up of the RA providing long term improvements.

(b) Stormwater management is provided according to standards established by the Department.

The stormwater has been designed to meet the stormwater management regulations for stormwater generated by the development and additionally serves to mitigate off site runoff. The stormwater generated will be cleaner and the infiltration of that stormwater will help to temper flows and cool water entering the brook, reducing both COD and BOD.

(c) Within 200 foot riverfront areas, proposed work shall not be located closer to the river than existing conditions or 100 feet, whichever is less, or not closer than existing conditions within 25 foot riverfront areas, except in accordance with 310 CMR 10.58(5)(f) or (g).

The project site is currently degraded right up to the property line. Proposed improvements will not occur closer to the river than current conditions.

(d) Proposed work, including expansion of existing structures, shall be located outside the riverfront area or toward the riverfront area boundary and away from the river, except in accordance with 310 CMR 10.58(5)(f) or (g).

The work complies with both section and f and g below.

(e) The area of proposed work shall not exceed the amount of degraded area, provided that the proposed work may alter up to 10% if the degraded area is less than 10% of the riverfront area, except in accordance with 310 CMR 10.58(5)(f) or (g).

The entire on-site riverfront is degraded. The project mitigates for impacts above degraded area through mitigation under subsections (f) and (g).

(f) When an applicant proposes restoration on-site of degraded riverfront area, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), and(e) at a ratio in square feet of at least 1:1 of restored area to area of alteration not conforming to the criteria. Areas immediately along the river shall be selected for restoration. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Restoration shall include:

- 1. removal of all debris, but retaining any trees or other mature vegetation;***
- 2. grading to a topography which reduces runoff and increases infiltration;***
- 3. coverage by topsoil at a depth consistent with natural conditions at the site;***
and
- 4. seeding and planting with an erosion control seed mixture, followed by plantings of herbaceous and woody species appropriate to the site;***

Mitigation is being proposed to restore degraded riverfront in the form of native plantings in the RA on site.

(g) When an applicant proposes mitigation either on-site or in the riverfront area within the same general area of the river basin, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), or (e) at a ratio in square feet of at least 2:1 of mitigation area to area of alteration not conforming to the criteria or an equivalent level of environmental protection where square footage is not a relevant measure. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Mitigation may include off-site restoration of riverfront areas, conservation restrictions under M.G.L. c. 184, §§ 31 to 33 to preserve undisturbed riverfront areas

that could be otherwise altered under 310 CMR 10.00, the purchase of development rights within the riverfront area, the restoration of bordering vegetated wetland, projects to remedy an existing adverse impact on the interests identified in M.G.L. c. 131, § 40 for which the applicant is not legally responsible, or similar activities undertaken voluntarily by the applicant which will support a determination by the issuing authority of no significant adverse impact. Preference shall be given to potential mitigation projects, if any, identified in a River Basin Plan approved by the Secretary of the Executive Office of Environmental Affairs.

The project meets the standards for mitigation above in subsection f. Additional mitigation is also being offered that qualifies for this section in the BWSC easement area (approximately 600 square feet within the RA).

(h) The issuing authority shall include a continuing condition in the Certificate of Compliance for projects under 310 CMR 10.58(5)(f) or (g) prohibiting further alteration within the restoration or mitigation area, except as may be required to maintain the area in its restored or mitigated condition. Prior to requesting the issuance of the Certificate of Compliance, the applicant shall demonstrate the restoration or mitigation has been successfully completed for at least two growing seasons.

Such a condition, referring to the restored portions of the 25-foot riverfront area would be expected and appropriate to monitor the mitigation area for a few growing seasons to demonstrate the success of the restoration effort.

100-foot Bank Buffer - The 100-foot Buffer Zone is not a resource area under the Act, although it is considered a resource area under the City of Boston's Wetland Ordinance. This buffer zone is protected in order to prevent alteration of the Bank itself. As the 100-foot Buffer Zone is not a resource area (under the Act), the Regulations only provide general performance standards for work in this area. However, under section 10.53(1) of the Regulations provides a narrative standard which addresses erosion controls, limit of work, slopes, existing conditions, and vegetation. In this case, we have proposed erosion controls and management practices that are designed to avoid any alteration to the Bank. The project does propose mitigative work on the bank that will improve its function within the BWSC easement.

Boston Wetlands Ordinance

The City of Boston enacted an "Ordinance Protecting Local Wetlands and Promoting Climate Change Adaptation in the City of Boston" on December 11, 2019. The current ordinance regulations are incomplete with no specific performance standards. The Ordinance and Ordinance Regulations as currently constituted do not provide a link between the protected resource areas and the specific

values that are presumed to be protected by the individual resource areas. The ordinance does provide for a specific 25-foot waterfront buffer area that is indicated on the plans. This 25-foot buffer extends beyond the edge of the 25-foot riverfront zone. Additionally, the 100-foot buffer zone to Bank is considered a resource area. The ordinance also refers to climate change resilience.

25-foot Waterfront Buffer –

The Commission therefore may require that any person filing an application (hereinafter, the Applicant) restore or maintain a strip of continuous, undisturbed or restored vegetative cover or waterfront public access throughout the Waterfront Area, unless the Commission determines, based on adequate evidence, that the area or part of it may be altered without harm to the values of the resource areas protected by the Ordinance. Such disturbed areas must be minimized to the greatest extent possible.

This section of Canterbury Brook is a small section that is disconnected from the larger open areas located several hundred feet upstream. The current state of the Waterfront Resource Area on site is essentially non-functional. Our proposal improves water quality significantly for the brook and establishes some habitat in the areas closest to the Brook within the BWSC easement area..

100-foot Resource area associated with Bank

Ordinance 7-1.4(g) vii. In reviewing activities within the Buffer Zone, the Commission shall presume the buffer zone is important to the protection of other resource areas because activities undertaken in close proximity have a reasonable probability of adverse impact, either immediately, as a consequence of construction, or over time, as a consequence of daily operation or existence of the activities. These adverse impacts from construction and use can include, without limitation, erosion, siltation, loss of groundwater recharge, poor water quality, loss of wildlife habitat, degradation of wetland plant habitat, alteration of hydrology, and proliferation of invasive plants. The Commission may establish, in its regulations, design specifications, performance standards, and other measures and safeguards, including setbacks, and other work limits for protection of such lands, including without limitation strips of continuous, undisturbed vegetative cover, unless the Commission determines, based on adequate evidence, that the buffer zone or part of it may be altered without harm to the values protected by the Ordinance.

Overall, the alteration of the buffer zone to bank (the largest of the jurisdictional areas within which all others are located) on site will result in a site with much cleaner stormwater generation, and provide for infiltration, improving the resource area function. When compared to the current conditions, this represents a significant improvement in the resource area. The specific items in this section area addressed below:

These adverse impacts from construction and use can include, without limitation:

Erosion/siltation. The potential for erosion is being controlled through the use of perimeter controls. Additionally the area of significant disturbance is flat, and as can be seen from the site spot grades, the rear of the site which is closest to Canterbury Brook is about half a foot higher in elevation than the road side. In the mitigation area around the brook we are proposing to use restoration grade plantings which will limit the exposed soils and provide a more stable area around the brook than exists today.

Loss of groundwater recharge/ poor water quality. The existing condition is one of a largely impervious site and a LUHPPL. The proposed project infiltrates stormwater and provides

recharge that does not exist in the current condition. As discussed above, the proposed development transitions from a LUHPPL to a much cleaner stormwater generation from a residential development and provides stormwater management, improving both recharge and water quality.

Loss of wildlife habitat. There is currently no wildlife habitat present. We will be providing some benefit through out on and off site mitigative plantings.

Degradation of wetland plant habitat. There is no wetland plant habitat on site and limited wetland plant habitat around the brook. We are proposing to increase native plantings in this area significantly.

Alteration of hydrology. Resource hydrology is largely driven by the larger watershed upstream. The work we are doing will somewhat help in tempering the flashy peak flows the brook experiences after rain events by infiltrating stormwater.

Proliferation of invasive plants. See the section below on invasive plants. We are proposing to remove invasive plants form the area around the brook adjacent to the project site.

Climate Change Resilience

Ordinance Protecting Local Wetlands and Promoting Climate Change Adaptation in the City of Boston Climate Change Resilience. - The Applicant shall, to the extent applicable as determined by the Commission, integrate climate change and adaptation planning considerations into their project to promote climate resilience to protect and promote Resource Area Values and functions into the future. These considerations include but are not limited to: sea level rise, increased heat waves, extreme precipitation events, stormwater runoff, changing precipitation patterns and changes in coastal and stormwater flooding.

The project is located inland is significantly above Mean Sea Level. With this, the project is not impacted by anticipated future sea level rise. With climate change, the site is likely to have more water as a result of more frequent and larger rain events. However, flows in this section of the brook are highly constrained by the piping of the upstream portion of the brook. Without the development, this increased precipitation would lead to potential increased water levels within the daylighted section of the brook due to unmitigated runoff and constraints of the downstream pipe capacity since there is no stormwater management currently on site and runoff to the brook would be unmitigated. The proposed project provides for infiltration. The overall effect of infiltrating more water in the Canterbury Brook watershed is to help alleviate flashy conditions during these rain events. The area is not within a mapped (or preliminary) FEMA flood plain. The extent to which this section of the brook can flood is somewhat limited by the capacity of the pipes both up and down stream.

Given all of this the project is resilient to future increased extreme precipitation events and reduces stormwater runoff from the property.

Climate Equity and Environmental Justice

The site is currently fully developed with a business that by definition is a LUHPPL. Cars in

need of repair typically generate more polluting emissions, and the parking surfaces and dark contribute to the heat island effect from the surrounding urban development, including a large parking lot located west of the site. Overall these paved surfaces and dark roofed buildings send warm untreated runoff into the brook. This is a source of both traditional pollutants and thermal pollutants. The result is a stress on the Biological and Chemical Oxygen Demand in the brook. The proposed project will incorporate a light-colored roof and parking on the brook side of the property that is not under the roof will be constructed with pervious pavers. Combined with the stormwater infiltration, the project will improve environmental conditions in the community.

Our project provides several measures to counter the heat island effect. The first is that it puts the paved parking largely under roof. The roof will be a light color that reflects the sun's energy rather than converting it to heat. Additionally runoff is captured and infiltrated into the ground, cooling the water through soil contact. Lastly, the outdoor parking areas towards the brook are pervious pavers which are lighter in color than pavement and infiltrate water as well. The site will present a substantially reduced albedo effect and reduce the heat generation from the site significantly.

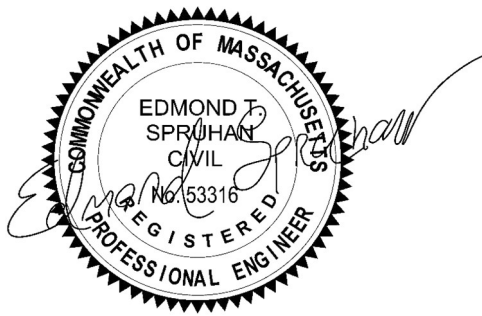
Conclusion

In summary, the project is one that improves water quality and function of the resource areas present, despite the limitations posed by the site geometry and the isolated nature of the resource area. We ask the Commission to approve the project as proposed with any conditions they see fit to protect the interests of the Wetlands Ordinance and the Wetlands Protection Act.

SPRUHAN ENGINEERING, P.C.

STORMWATER REPORT

581 AMERICAN LEGION HIGHWAY, ROSLINDALE, MA



Prepared By: Spruhan Engineering, P.C.

Contents

1.0	Introduction.....	1
2.0	Existing Conditions.....	1
2.1	Existing Topography and Drainage Infrastructure.....	1
3.0	Proposed Conditions.....	2
3.1	Project Description.....	2
3.2	Proposed site improvements.....	2
3.3	Storm Water Management System(Infiltration trench).....	2
3.4	Low Impact Development (LID).....	4
3.5	DEP Stormwater management Summary.....	5
4.0	Soil Information	6
5.0	Total Suspended Solids (TSS) removal calculations.....	7
6.0	Total Phosphorus (TP) removal calculations	8
7.0	Infiltration system draw down time.....	9
	Appendix A – HydroCAD Calculations.....	.
	Appendix B – TSS Calculations.....	.
	Appendix C – Storm Water Operations & Maintenance Plan

1.0 Introduction

Spruhan Engineering, P.C. has prepared this Storm water Report for the proposed development located at 581 American Legion Highway, Roslindale, Massachusetts.

The proposed development consists of a 3-Story residential building, paved driveway/parking and landscaped areas. The purpose of this report is to demonstrate that the proposed conditions do not create any increased flowrate or runoff from the site. This is achieved by proposing an infiltration system.

2.0 Existing Conditions

The existing property is located at 581 American Legion Highway, Roslindale, Massachusetts. The site is bounded by residential dwellings on the rear and the west side and a church on the east side of the lot. The property is located in American legion highway between Canterbury St and Walk hill St. The existing roof area on the lot is 886.8 S.F., the existing paved area is 2,089.1 S.F., the existing gravel areas are 556.1 S.F., and the existing landscaped area on the lot is 259.5 S.F.

2.1 Existing Topography and Drainage Infrastructure.

In general, the property is relatively flat and slopes from North to the South of the lot ranging between approximately 1%. As there is no drainage system currently installed, all storm water scours across the surface at grade.

3.0 Proposed Conditions

3.1 Project Description

The development consists of a 3-Story residential building, paved driveway/parking and landscaped areas. The proposed roof will have an area of 2,316.0 S.F., the proposed paved driveway to be captured by the infiltration system will have an area of 947.9 S.F., the permeable pavers will have an area of 218.9 S.F. and the remaining landscaped portion will have a footprint of 308.7 S.F.

3.2 Proposed site improvements

Proposed site improvements include a storm water recharge system designed to reduce the runoff from the lot and improve groundwater recharge. All impervious areas are being captured by the infiltration trench. The infiltration system was sized to reduce the flowrate and total runoff volume generated from the site post construction.

Also, deep sump catch basin and a “Unistorm” Oil, grease and sediment separator have been proposed before entering the recharge system to comply with the MassDEP water quality standards.

3.3 Storm Water Management System (Infiltration trench – Storm Techs)

The proposed infiltration system consists of 5 “Stormtech” plastic chambers with a 1ft crushed stone bed below.

The HydroCAD calculations demonstrate that the post-development runoff flowrate and volume for all storm events have been reduced compared to the pre-development conditions. These calculations can be seen in Appendix A. The summary of the HydroCAD calculations can be seen in the following table.

Summary of Calculations:

	<u>Summary Table</u>			
	Runoff Flow Rate		Volume of Runoff	
	EXISTING	PROPOSED	EXISTING	PROPOSED
2 Yr Storm (3.35 in/hr)	0.26 cfs	0.01 cfs	879 cf	57 cf
10 Yr Storm (5.26 in/hr)	0.43 cfs	0.03 cfs	1,459 cf	121 cf
25 Yr Storm (6.45 in/hr)	0.54 cfs	0.04 cfs	1,826 cf	165 cf
100 Yr Storm (8.29 in/hr)	0.70 cfs	0.36 cfs	2,396 cf	502 cf

3.4 Low Impact Development (LID)

Low Impact Development (LID) strategies use careful site design and decentralized stormwater management to reduce the environmental footprint of new growth and redevelopment. This approach improves water quality, minimizes the need for expensive pipe and pond stormwater systems, and creates more attractive developments.

The following strategies outline the LID methods that were implemented in this project.

1. Infiltration Trench: These are standard stormwater management structures that store water in the void space between crushed stone or gravel; the water slowly percolates downward into the subsoil.

Management Objectives:

1. Remove suspended solids, heavy metals trash, oil, and grease.
2. Reduce peak discharge rate and total runoff volume.
3. Provide modest infiltration and recharge.
4. Provide snow storage areas.

2. Use of Filter Mitts:

- Erosion control
- Detains sediment, absorbs orders and degrades volatile organic compounds allows water by-pass, and is a food resource for beneficial microorganisms, which remediate by metabolizing wood preservatives, petroleum products, pesticides and both chlorinated and non-chlorinated hydrocarbons in stormwater runoff from reaching water resources, prevents erosion and silting on embankments parallel to creeks, lakes, and rivers, prevents erosion and turf loss on roadsides, hillsides, playing fields, and golf courses.

3. Maintenance of Paved Surfaces:

5. No coal-tar pavement sealants.
6. No sodium de-icers.
7. Street sweeping

4. Low Impact Landscaping:

8. Native, drought tolerant species.
9. Encouraging longer grass length.
10. Planting native plants and trees.

3.5 DEP Stormwater management Summary

Standard 1: No New Untreated Discharges

“No new untreated stormwater conveyances (e.g. outfalls) will discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.”

- No new untreated stormwater will discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.” The project proposes no new untreated stormwater discharges.
- All proposed impervious areas will be captured by a sub-surface infiltration system.
- Deep sump catch basins and an oil grease separator are being proposed to treat the water prior to getting in to the infiltration system.

Standard 2: Peak Attenuation

“Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.”

- All the proposed impervious areas will be captured by the infiltration trench. The infiltration system was designed to reduce the flowrate and total runoff volume generated from the site post construction.
Further information can be found on the Appendix A “HydroCAD calculations” and a summary of these calculations can be find in page 3 of this report.

Standard 3: Recharge

“Loss of annual recharge to groundwaters shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive 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 condition is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.”

- Proposed site improvements include a storm water recharge system designed to reduce the runoff from the lot and improve groundwater recharge.
The proposed infiltration system consists of 5 “Stormtech” plastic chambers with a 1ft crushed stone bed below.

Standard 4: Water Quality

“Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This Standard is met when: (a) Suitable practices for source control and pollution prevention are identified in long-term pollution prevention plan, and thereafter implemented and maintained; (b) Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and (c) Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.

- Stormwater system has been design remove 80% TSS with 44% TSS pre-treatment provided prior to entering the infiltration trench.
- The 80% credit was achieved in this project through the use of the following strategies:
 - o Pre-treatment: Deep Hooded Sump Catch Basin + “Unistorm” Oil , grease and sediment separator.
 - o Total Pre-treatment TSS = 64%
 - o Treatment: Infiltration trench (structural control): 80% TSS removal rate.
- Total TSS Removal achieve is 93%. The breakdown of these calculations can be seen in Appendix C.

Standard 5: Land Uses with Higher Potential Pollutant Loads

“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. If through source control and/or pollution prevention all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMP’s determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook..”

- The project does not propose Land Uses with Higher potential Pollutant Loads – N/A.

Standard 6: Critical Areas

“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 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 project is not located in a critical area – N/A

Standard 7: Redevelopment

“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.”

A “redevelopment” project is defined in Massachusetts Stormwater Handbook as “Development, rehabilitation, expansion, and phased projects on previously developed sites, provided the redevelopment results in no increase in impervious area.”

- Proposed construction of residential building and paved driveway
- The project is not considered as Redevelopment – N/A

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

“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.”

- Erosion and sedimentation controls will be installed before construction and maintained during the project.
Further information can be found in the erosion control plan (Sheet 002) of the civil plans and in the appendix C of this report.

Standard 9: Long Term Operation and Maintenance Plan

“A long-term operation and maintenance plan shall be delivered and implemented to ensure that stormwater management systems function as designed.”

- Operations and Maintenance Plan will be the responsibility of the owner. The details of this plan can be found in the attached appendix C.

Standard 10: Prohibition of Illicit Discharges

“All illicit discharges to the stormwater management system are prohibited.”

- There are currently no known illicit discharges within the project limits.
- The project does not propose any illicit discharges.

4.0 Soil Information

The NRCS Web Soil Survey shows one Map Unit inside our area of interest. This is listed next and the percentages of Area of Interest in the Map unit Legend Table:

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
655	Udorthents, wet substratum	0.3	100.0%
Totals for Area of Interest		0.3	100.0%

- Map unit 655 refers to human transported fill with gravelly sand, which has Hydrological soil group “A” properties and these properties were applied to the HydroCAD software calcs.

Further detailed information is described in Appendix B.

5.0 Total Suspended Solids (TSS) removal calculations

At a minimum all projects subject to a Major Stormwater Management Permit shall comply with the performance standards of the most recent version of Massachusetts Stormwater Standards and accompanying Stormwater Management Handbook (Handbook), and the Town of Dedham Drainage and Stormwater Design Standards. The following design standard considering TSS removal must be addressed:

- Stormwater management systems shall be designed to remove 80% of the average annual post-construction impervious area load of Total Suspended Solids (TSS). This Standard is met when:
 - a. Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;
 - b. Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and
 - c. Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.

The 80% credit was achieved in this project through the use of the following strategies:

- Pre-treatment: Deep Hooded Sump Catch Basin + “Unistorm” Oil , grease and sediment separator.
 - Total Pre-treatment TSS = 64%

- Treatment: Infiltration trench (structural control): 80% TSS removal rate.

Based on documentation for the “Unistorm” device selected for pre-treatment, the actual TSS removal rate will vary depending on the intensity of the storm. Documentation states that this removal rate can range between 52-77%. In order to remain conservative in the design, 52% was selected in the calculations.

Total TSS Removal achieve is 93%. The breakdown of these calculations can be seen in Appendix C.

6.0 Total Phosphorus (TP) removal calculations

The following calculations are based on Attachment 3 to Appendix E “Methods to Calculate Phosphorus Load Reductions for Structural Stormwater Best Management Practices in the Watershed” for MA MS4 General Permit.

Phosphorus load reduction target (P_{target}) = 60%

Contributing impervious drainages area (IA) = 0.07 acres

In the following Table 6.1 the average annual distinct phosphorus load (P Load) by land category are shown. To keep calculations on the conservative side a consideration of the D soil group will be taken as 100% of the area given that it’s the previous soil before filling and it has a higher P load Export rate.

Table 6.1. Average annual distinct phosphorus load (P Load) export rates for use in estimating phosphorus load reduction credits the MA MS4 Permit

Phosphorous Category by Land Use	Land Surface Cover	P Load Export Rate, lbs/acre/year	P Load Export Rate, kg/ha/yr
Commercial (Com)	Directly connected impervious	1.78	2.0
Developed Land Pervious (DevPERV)- Hydrologic Soil Group D	Pervious	0.37	0.41

$$\text{BMP Load} = (IA_{\text{LDR}} \times \text{PLER}_{\text{LDR}}) + (IA_{\text{DevPERVD}} \times \text{PLER}_{\text{DevPERVD}})$$

$$\text{BMP Load} = (0.07 \text{ acres} \times 1.78 \text{ lbs/acre/year}) + (.01 \text{ acres} \times 0.37 \text{ lbs/acre/year})$$

$$\text{BMP Load} = (0.12 \text{ lbs/year}) + (.004 \text{ lbs/year})$$

$$\text{BMP Load} = .12 \text{ lbs/year}$$

The performance curve for infiltration trench, Figure 3-1 IR=0.17 in/hr is used to determine the design storage volume of the BMP (BMP Volume $IA_{\text{-in}}$) needed to treat runoff from the contributing IA and achieve a $P_{\text{target}}=60\%$. The curve for an infiltration rate of 0.17 in/hr is chosen for being the most conservative. From the Figure 3-1 BMP Volume $IA_{\text{-in}}$ for a $P_{\text{target}} = 60\%$ is 0.43 in.

The BMP Volume is converted to cubic feet (BMP Volume $IA\text{-ft}^3$) using the next equation:

$$\text{BMP Volume } IA\text{-ft}^3 = IA \text{ (acre)} \times \text{BMP Volume } IA\text{-ft}^3 \times 3,630 \text{ ft}^3/\text{acre-in}$$

$$\text{BMP Volume } IA\text{-ft}^3 = 0.12 \text{ acre} \times 0.43 \text{ in} \times 3,630 \text{ ft}^3/\text{acre-in}$$

$$\text{BMP Volume } IA\text{-ft}^3 = \mathbf{187.3 \text{ ft}^3}.$$

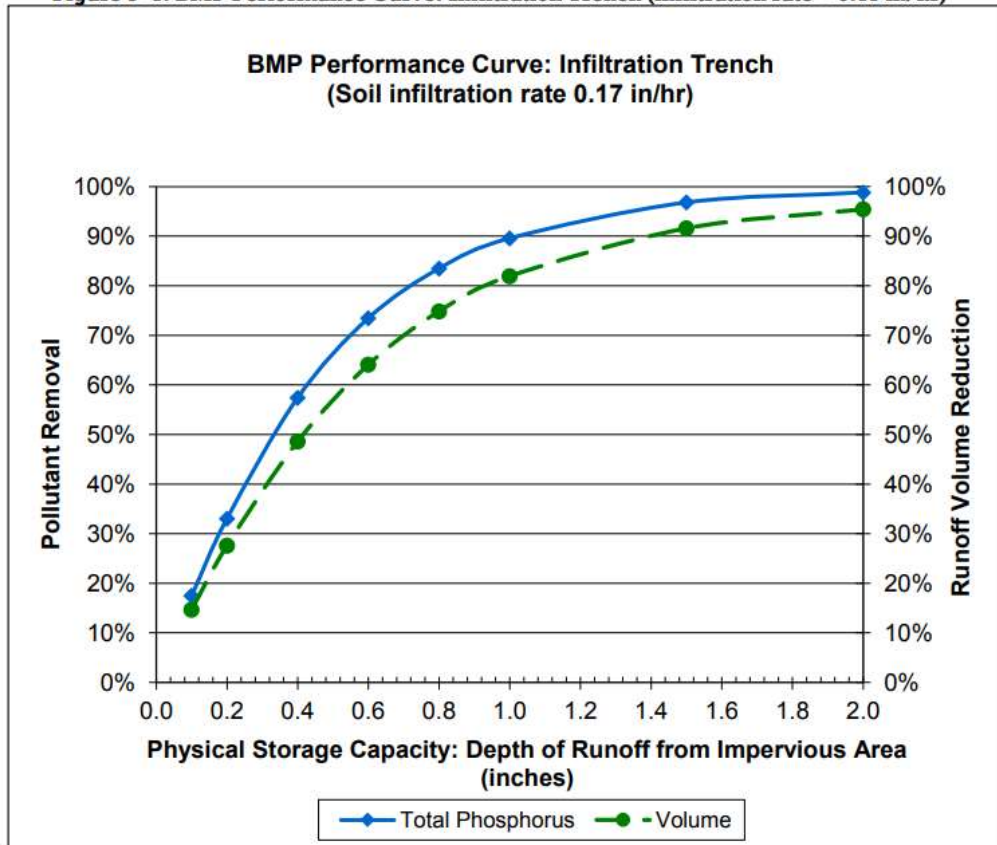
$$\text{BMP-Reduction } lbs\text{-P} = \text{BMP Load} \times (P_{\text{target}} / 100)$$

$$\text{BMP-Reduction } lbs\text{-P} = 0.12 \text{ lbs/year} \times (60/100)$$

$$\text{BMP-Reduction } lbs\text{-P} = \mathbf{0.072 \text{ lbs/yr}}$$

The volume of the proposed infiltration practice, 678 ft^3 , exceeds the BMP Volume $IA\text{-ft}^3$ needed, 187.3 ft^3 and is sufficient to achieve the P target of 60%.

Figure 3- 1: BMP Performance Curve: Infiltration Trench (infiltration rate = 0.17 in/hr)

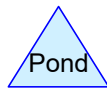
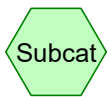
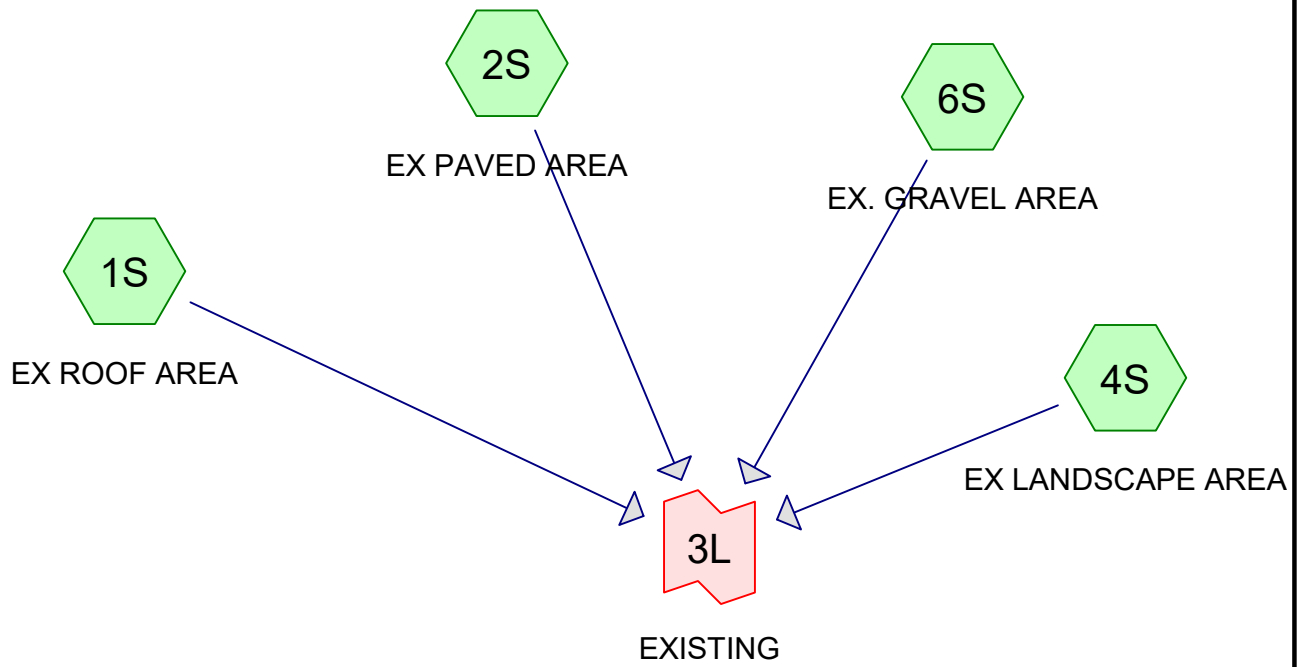


7.0 Draw down time (Time to empty) Calculations.

$$Time = \frac{rv}{(k)(Bottom\ Area)}$$

$$Time = \frac{678\ cf}{(2.41\ in/hr)(\frac{1ft}{12in})(3855f)} = 8.77\ Hr.$$

Appendix A
HydroCAD Calculations



Routing Diagram for EXISTING
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Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
259	69	50-75% Grass cover, Fair, HSG B (4S)
556	85	Gravel roads, HSG B (6S)
2,089	98	Paved parking, HSG B (2S)
887	98	Roofs, HSG B (1S)
3,791	94	TOTAL AREA

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Page 3

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
3,791	HSG B	1S, 2S, 4S, 6S
0	HSG C	
0	HSG D	
0	Other	
3,791		TOTAL AREA

EXISTING

Type III 24-hr 2-Year Rainfall=3.35"

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Page 4

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 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 1S: EX ROOF AREA Runoff Area=887 sf 100.00% Impervious Runoff Depth=3.12"
Tc=5.0 min CN=98 Runoff=0.07 cfs 230 cf

Subcatchment 2S: EX PAVED AREA Runoff Area=2,089 sf 100.00% Impervious Runoff Depth=3.12"
Tc=5.0 min CN=98 Runoff=0.16 cfs 543 cf

Subcatchment 4S: EX LANDSCAPE AREA Runoff Area=259 sf 0.00% Impervious Runoff Depth=0.87"
Tc=5.0 min CN=69 Runoff=0.01 cfs 19 cf

Subcatchment 6S: EX. GRAVEL AREA Runoff Area=556 sf 0.00% Impervious Runoff Depth=1.89"
Tc=5.0 min CN=85 Runoff=0.03 cfs 87 cf

Link 3L: EXISTING Inflow=0.26 cfs 879 cf
Primary=0.26 cfs 879 cf

Total Runoff Area = 3,791 sf Runoff Volume = 879 cf Average Runoff Depth = 2.78"
21.50% Pervious = 815 sf 78.50% Impervious = 2,976 sf

EXISTING

Prepared by SPRUHAN ENGINEERING P.E.

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Type III 24-hr 2-Year Rainfall=3.35"

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Page 5

Summary for Subcatchment 1S: EX ROOF AREA

Runoff = 0.07 cfs @ 12.07 hrs, Volume= 230 cf, Depth= 3.12"

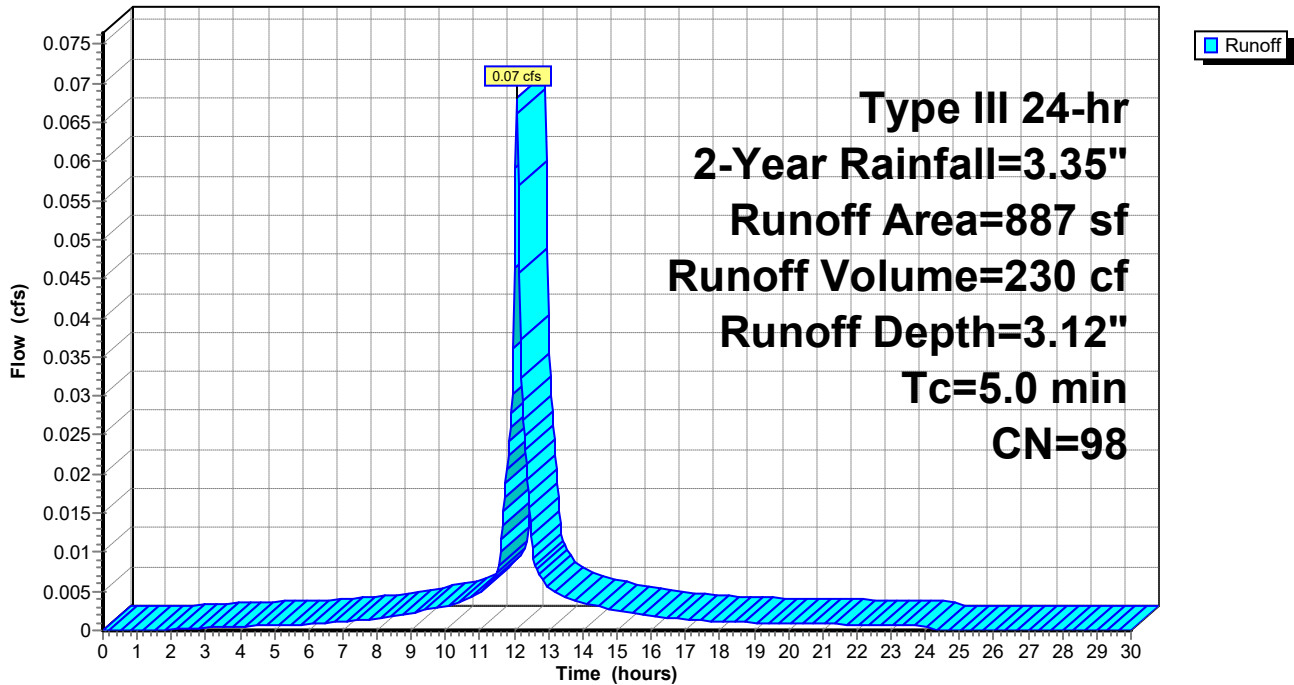
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.35"

Area (sf)	CN	Description
887	98	Roofs, HSG B
887		100.00% Impervious Area

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

Subcatchment 1S: EX ROOF AREA

Hydrograph



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Type III 24-hr 2-Year Rainfall=3.35"

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Page 6

Summary for Subcatchment 2S: EX PAVED AREA

Runoff = 0.16 cfs @ 12.07 hrs, Volume= 543 cf, Depth= 3.12"

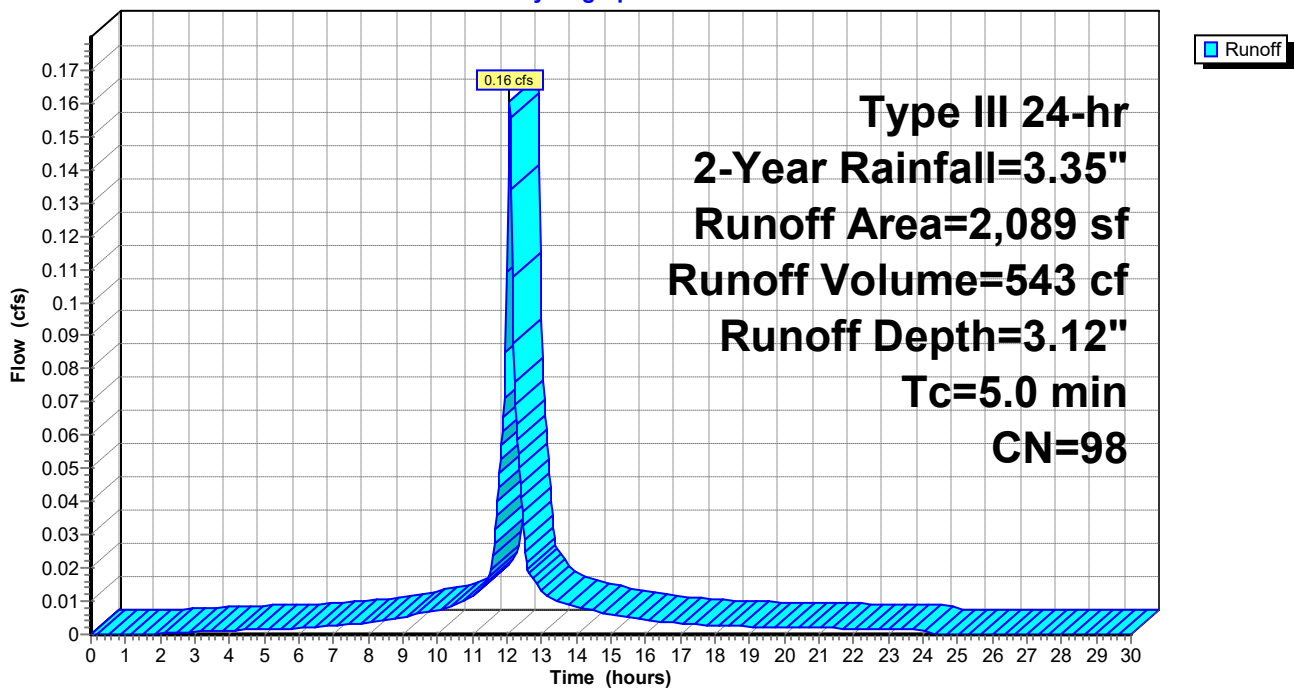
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.35"

Area (sf)	CN	Description
2,089	98	Paved parking, HSG B
2,089		100.00% Impervious Area

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

Subcatchment 2S: EX PAVED AREA

Hydrograph



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Type III 24-hr 2-Year Rainfall=3.35"

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Page 7

Summary for Subcatchment 4S: EX LANDSCAPE AREA

Runoff = 0.01 cfs @ 12.09 hrs, Volume= 19 cf, Depth= 0.87"

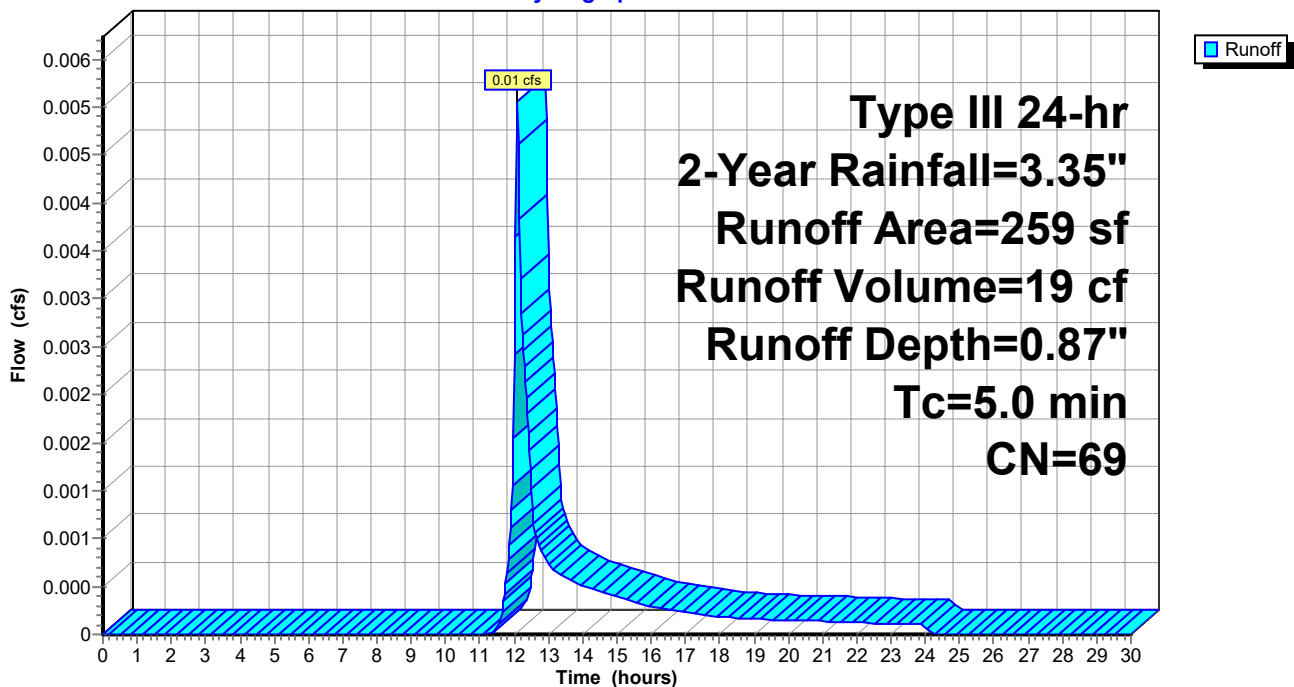
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.35"

Area (sf)	CN	Description
259	69	50-75% Grass cover, Fair, HSG B
259		100.00% Pervious Area

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

Subcatchment 4S: EX LANDSCAPE AREA

Hydrograph



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Type III 24-hr 2-Year Rainfall=3.35"

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Page 8

Summary for Subcatchment 6S: EX. GRAVEL AREA

Runoff = 0.03 cfs @ 12.08 hrs, Volume= 87 cf, Depth= 1.89"

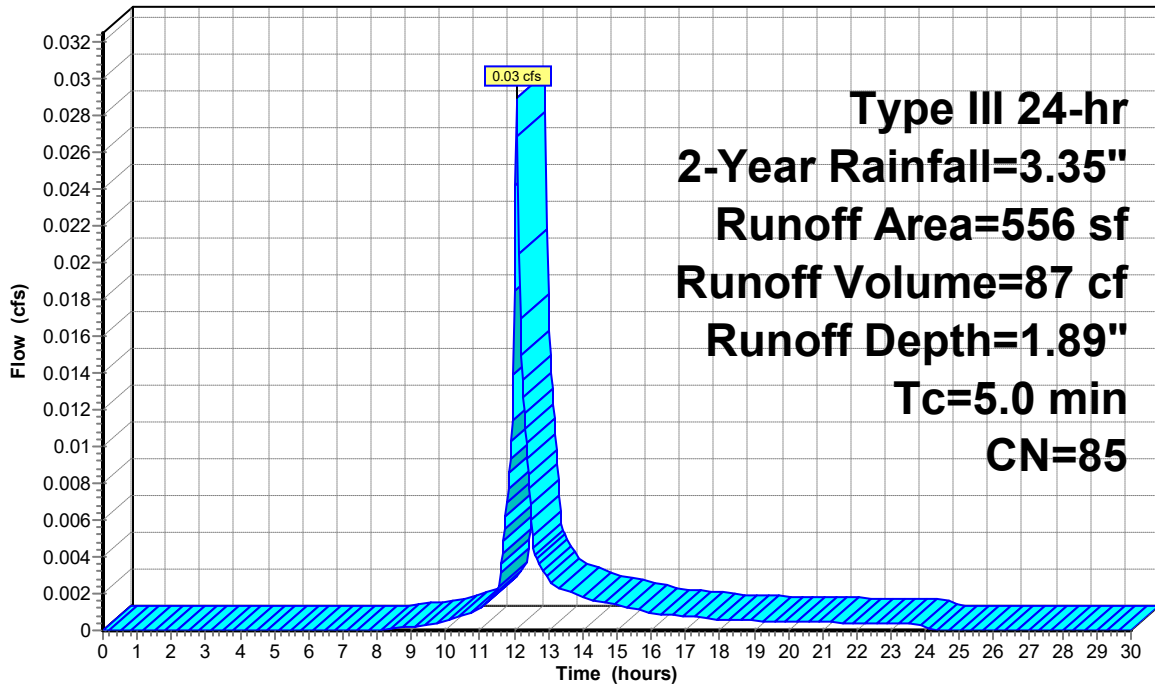
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.35"

Area (sf)	CN	Description
556	85	Gravel roads, HSG B
556		100.00% Pervious Area

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

Subcatchment 6S: EX. GRAVEL AREA

Hydrograph



Runoff

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Type III 24-hr 2-Year Rainfall=3.35"

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Page 9

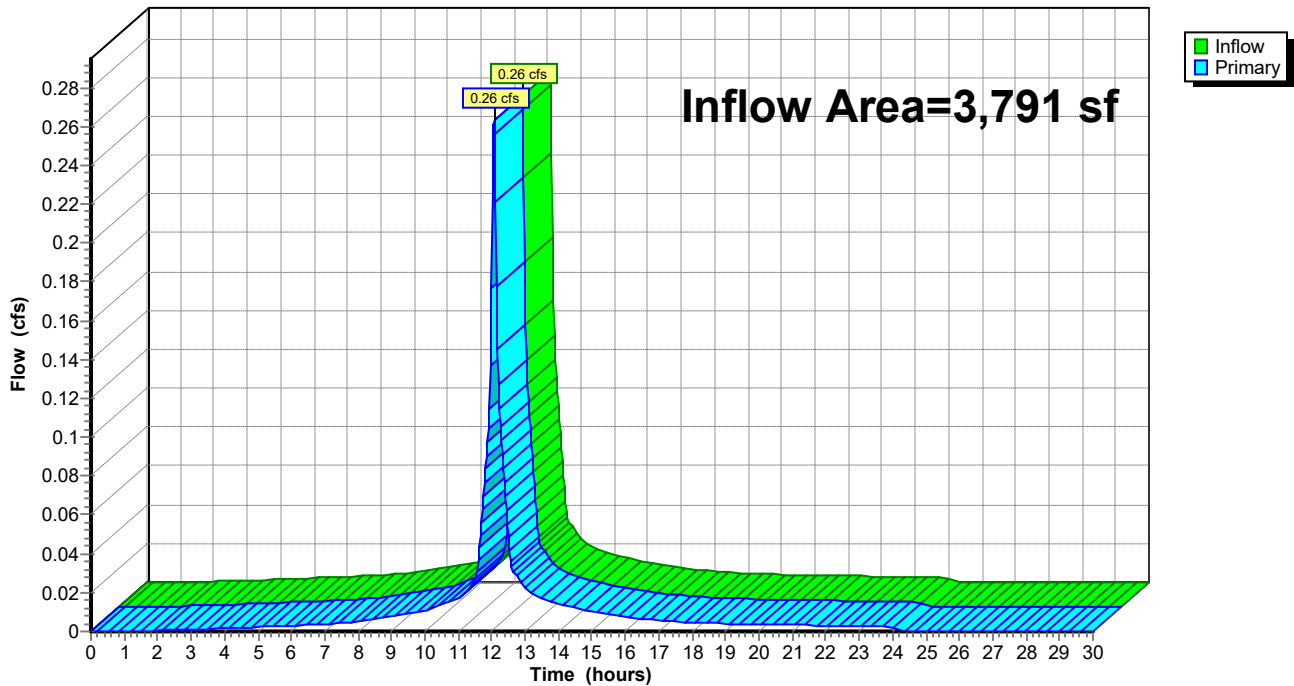
Summary for Link 3L: EXISTING

Inflow Area = 3,791 sf, 78.50% Impervious, Inflow Depth = 2.78" for 2-Year event
Inflow = 0.26 cfs @ 12.07 hrs, Volume= 879 cf
Primary = 0.26 cfs @ 12.07 hrs, Volume= 879 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs

Link 3L: EXISTING

Hydrograph



EXISTING

Type III 24-hr 10-Year Rainfall=5.26"

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Page 10

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 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 1S: EX ROOF AREA Runoff Area=887 sf 100.00% Impervious Runoff Depth=5.02"
Tc=5.0 min CN=98 Runoff=0.11 cfs 371 cf

Subcatchment 2S: EX PAVED AREA Runoff Area=2,089 sf 100.00% Impervious Runoff Depth=5.02"
Tc=5.0 min CN=98 Runoff=0.25 cfs 874 cf

Subcatchment 4S: EX LANDSCAPE AREA Runoff Area=259 sf 0.00% Impervious Runoff Depth=2.15"
Tc=5.0 min CN=69 Runoff=0.02 cfs 46 cf

Subcatchment 6S: EX. GRAVEL AREA Runoff Area=556 sf 0.00% Impervious Runoff Depth=3.61"
Tc=5.0 min CN=85 Runoff=0.05 cfs 167 cf

Link 3L: EXISTING Inflow=0.43 cfs 1,459 cf
Primary=0.43 cfs 1,459 cf

Total Runoff Area = 3,791 sf Runoff Volume = 1,459 cf Average Runoff Depth = 4.62"
21.50% Pervious = 815 sf 78.50% Impervious = 2,976 sf

EXISTING

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Type III 24-hr 10-Year Rainfall=5.26"

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Page 11

Summary for Subcatchment 1S: EX ROOF AREA

Runoff = 0.11 cfs @ 12.07 hrs, Volume= 371 cf, Depth= 5.02"

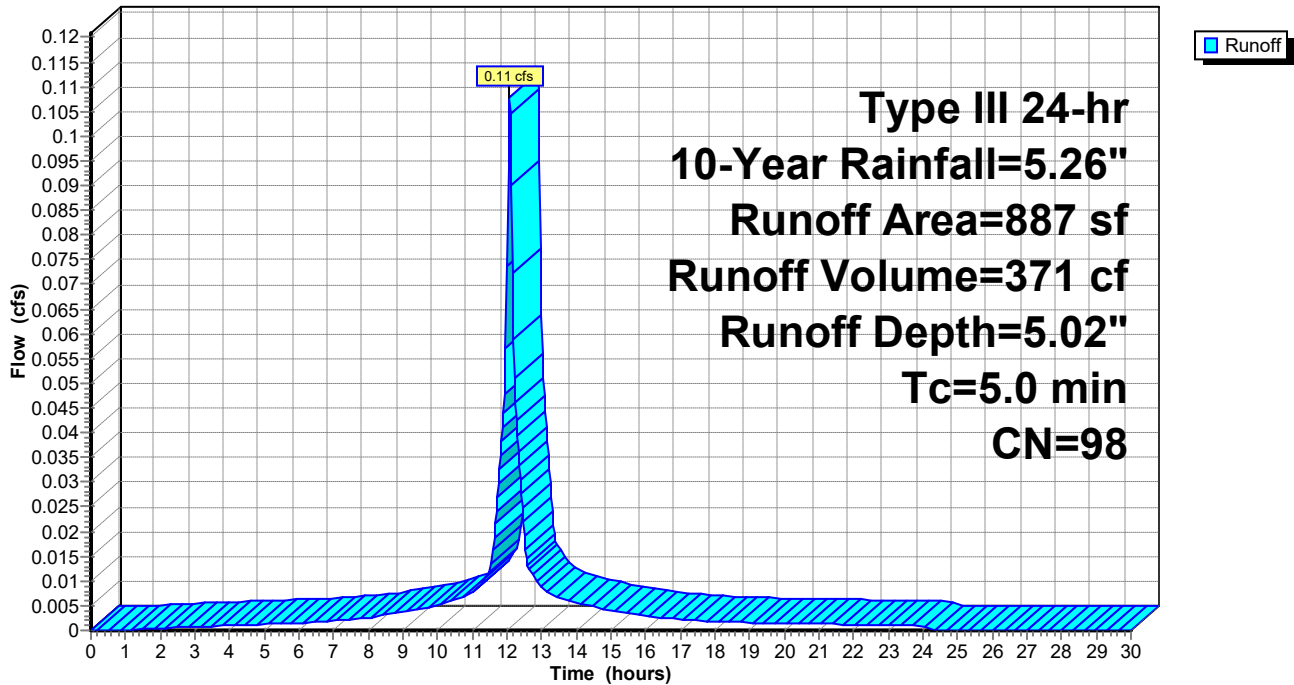
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=5.26"

Area (sf)	CN	Description
887	98	Roofs, HSG B
887		100.00% Impervious Area

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

Subcatchment 1S: EX ROOF AREA

Hydrograph



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Type III 24-hr 10-Year Rainfall=5.26"

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Page 12

Summary for Subcatchment 2S: EX PAVED AREA

Runoff = 0.25 cfs @ 12.07 hrs, Volume= 874 cf, Depth= 5.02"

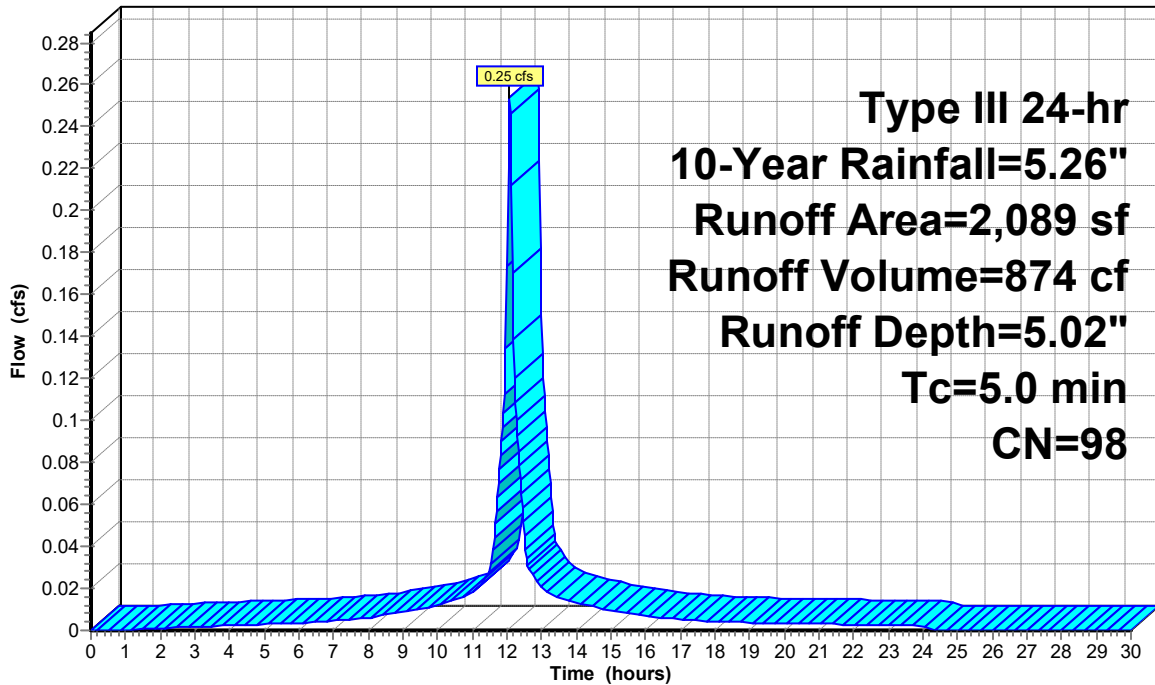
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=5.26"

Area (sf)	CN	Description
2,089	98	Paved parking, HSG B
2,089		100.00% Impervious Area

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

Subcatchment 2S: EX PAVED AREA

Hydrograph



Runoff

**Type III 24-hr
10-Year Rainfall=5.26"
Runoff Area=2,089 sf
Runoff Volume=874 cf
Runoff Depth=5.02"
Tc=5.0 min
CN=98**

EXISTING

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Type III 24-hr 10-Year Rainfall=5.26"

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Page 13

Summary for Subcatchment 4S: EX LANDSCAPE AREA

Runoff = 0.02 cfs @ 12.08 hrs, Volume= 46 cf, Depth= 2.15"

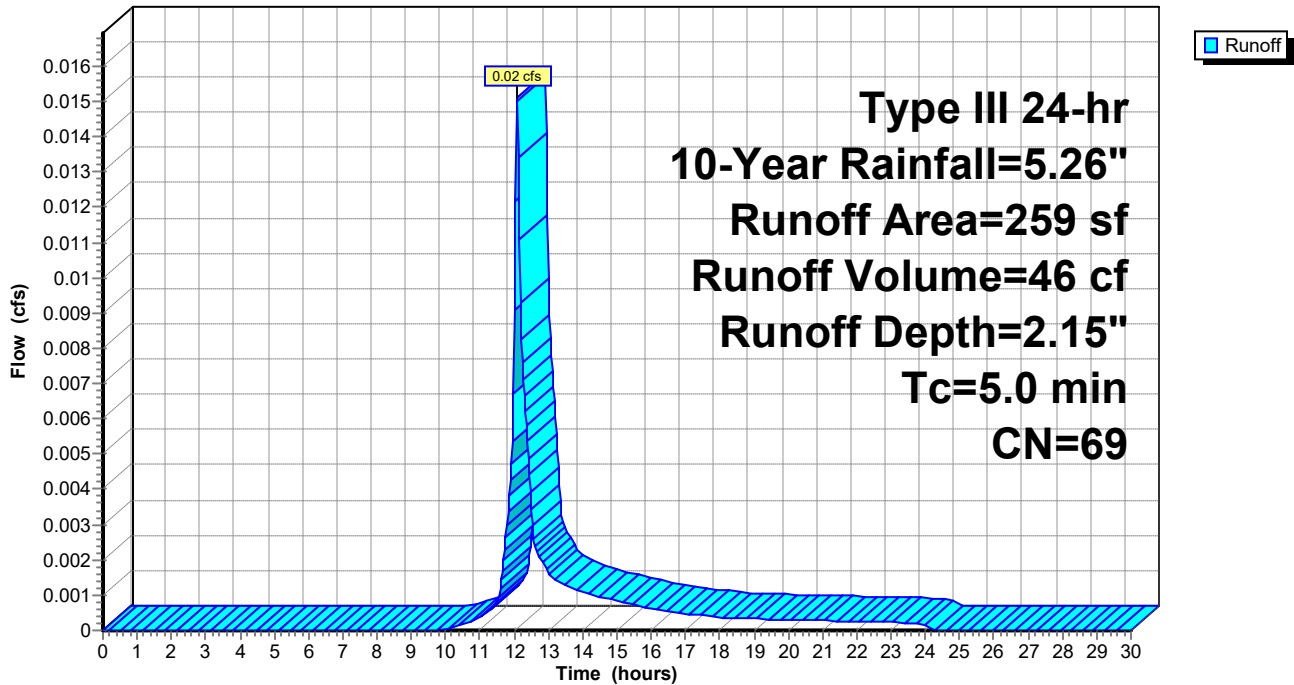
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=5.26"

Area (sf)	CN	Description
259	69	50-75% Grass cover, Fair, HSG B
259		100.00% Pervious Area

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

Subcatchment 4S: EX LANDSCAPE AREA

Hydrograph



EXISTING

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Type III 24-hr 10-Year Rainfall=5.26"

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Page 14

Summary for Subcatchment 6S: EX. GRAVEL AREA

Runoff = 0.05 cfs @ 12.07 hrs, Volume= 167 cf, Depth= 3.61"

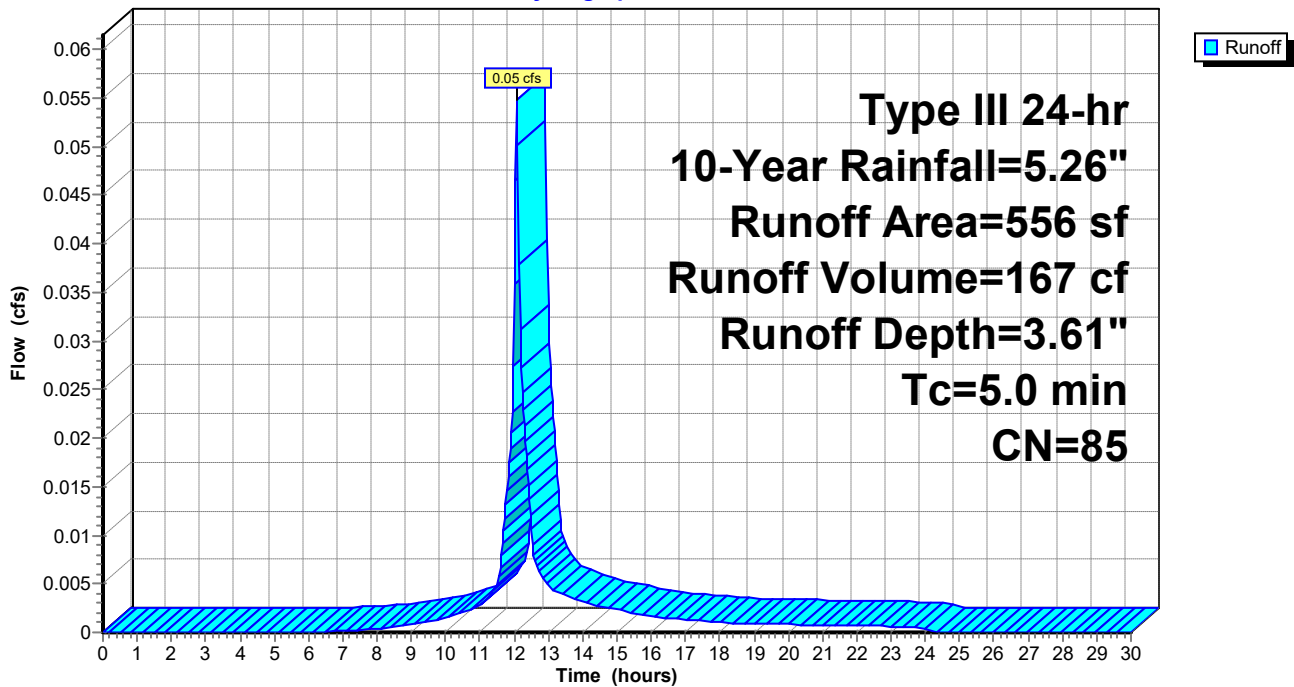
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=5.26"

Area (sf)	CN	Description
556	85	Gravel roads, HSG B
556		100.00% Pervious Area

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

Subcatchment 6S: EX. GRAVEL AREA

Hydrograph



EXISTING

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Type III 24-hr 10-Year Rainfall=5.26"

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Page 15

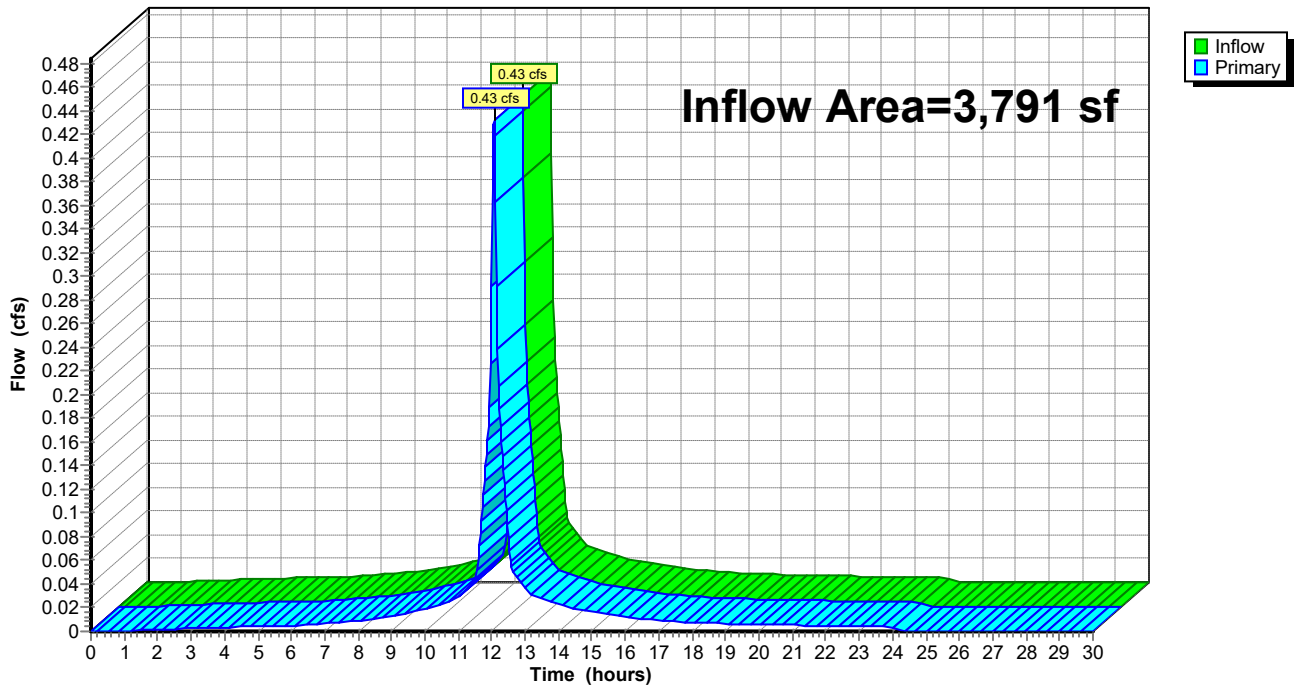
Summary for Link 3L: EXISTING

Inflow Area = 3,791 sf, 78.50% Impervious, Inflow Depth = 4.62" for 10-Year event
Inflow = 0.43 cfs @ 12.07 hrs, Volume= 1,459 cf
Primary = 0.43 cfs @ 12.07 hrs, Volume= 1,459 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs

Link 3L: EXISTING

Hydrograph



EXISTING

Type III 24-hr 25-Year Rainfall=6.45"

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Page 16

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 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 1S: EX ROOF AREA Runoff Area=887 sf 100.00% Impervious Runoff Depth=6.21"
Tc=5.0 min CN=98 Runoff=0.13 cfs 459 cf

Subcatchment 2S: EX PAVED AREA Runoff Area=2,089 sf 100.00% Impervious Runoff Depth=6.21"
Tc=5.0 min CN=98 Runoff=0.31 cfs 1,081 cf

Subcatchment 4S: EX LANDSCAPE AREA Runoff Area=259 sf 0.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=69 Runoff=0.02 cfs 66 cf

Subcatchment 6S: EX. GRAVEL AREA Runoff Area=556 sf 0.00% Impervious Runoff Depth=4.73"
Tc=5.0 min CN=85 Runoff=0.07 cfs 219 cf

Link 3L: EXISTING Inflow=0.54 cfs 1,826 cf
Primary=0.54 cfs 1,826 cf

Total Runoff Area = 3,791 sf Runoff Volume = 1,826 cf Average Runoff Depth = 5.78"
21.50% Pervious = 815 sf 78.50% Impervious = 2,976 sf

EXISTING

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Type III 24-hr 25-Year Rainfall=6.45"

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Page 17

Summary for Subcatchment 1S: EX ROOF AREA

Runoff = 0.13 cfs @ 12.07 hrs, Volume= 459 cf, Depth= 6.21"

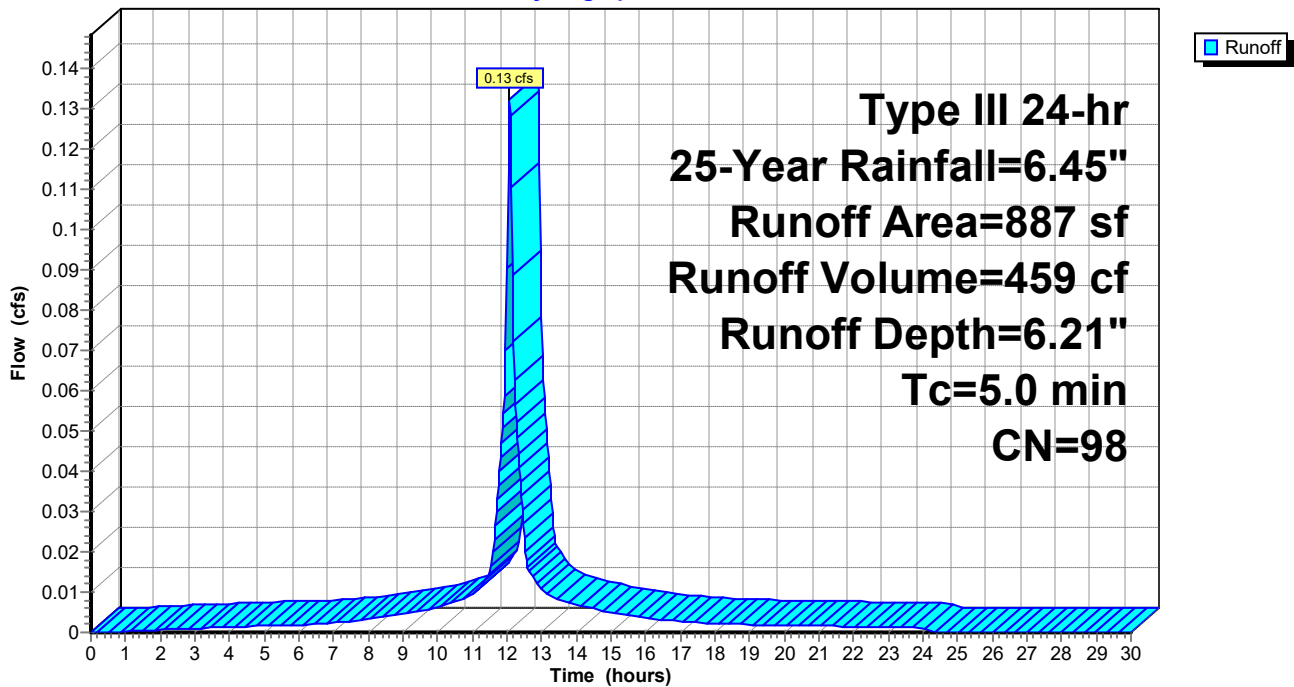
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.45"

Area (sf)	CN	Description
887	98	Roofs, HSG B
887		100.00% Impervious Area

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

Subcatchment 1S: EX ROOF AREA

Hydrograph



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Type III 24-hr 25-Year Rainfall=6.45"

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Page 18

Summary for Subcatchment 2S: EX PAVED AREA

Runoff = 0.31 cfs @ 12.07 hrs, Volume= 1,081 cf, Depth= 6.21"

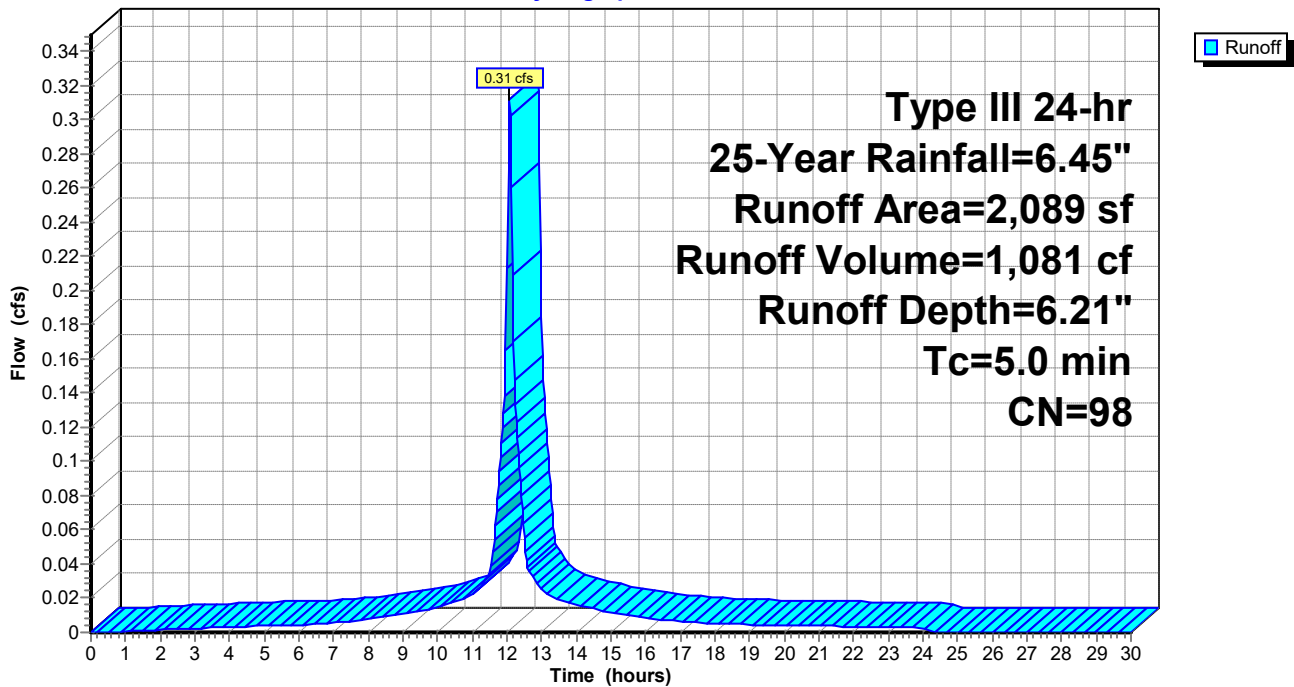
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.45"

Area (sf)	CN	Description
2,089	98	Paved parking, HSG B
2,089		100.00% Impervious Area

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

Subcatchment 2S: EX PAVED AREA

Hydrograph



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Type III 24-hr 25-Year Rainfall=6.45"

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Page 19

Summary for Subcatchment 4S: EX LANDSCAPE AREA

Runoff = 0.02 cfs @ 12.08 hrs, Volume= 66 cf, Depth= 3.07"

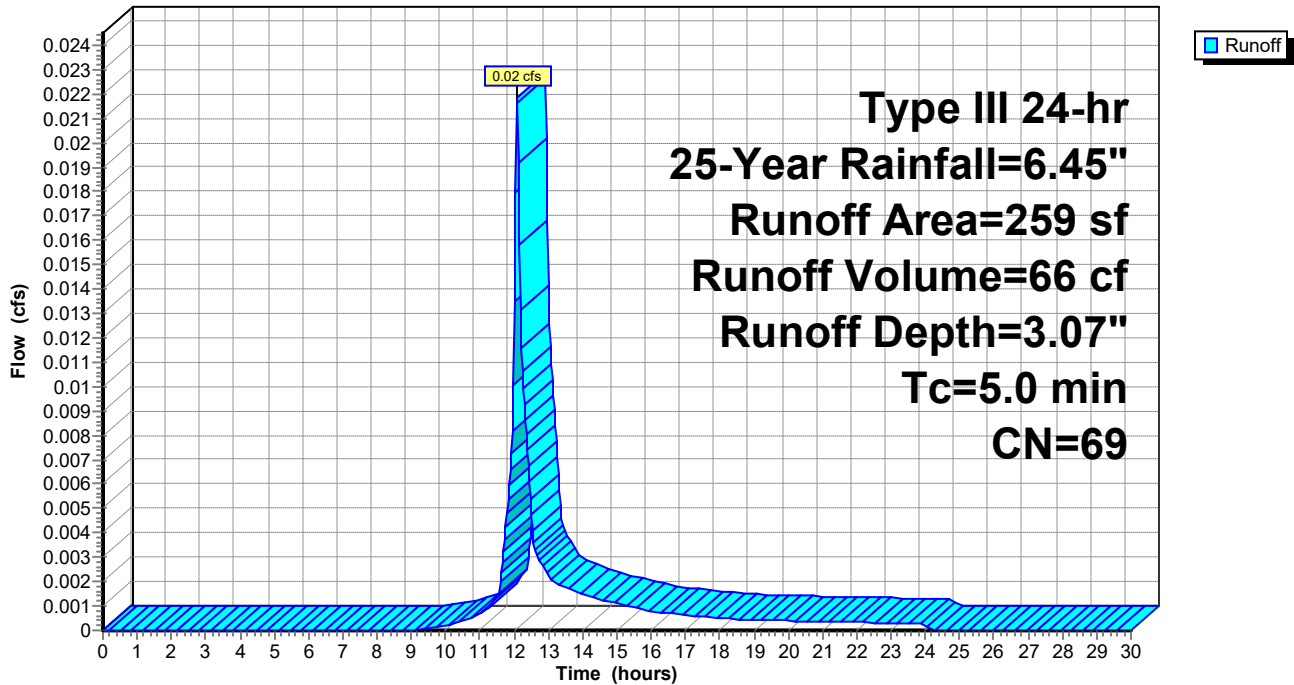
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.45"

Area (sf)	CN	Description
259	69	50-75% Grass cover, Fair, HSG B
259		100.00% Pervious Area

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

Subcatchment 4S: EX LANDSCAPE AREA

Hydrograph



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Type III 24-hr 25-Year Rainfall=6.45"

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Page 20

Summary for Subcatchment 6S: EX. GRAVEL AREA

Runoff = 0.07 cfs @ 12.07 hrs, Volume= 219 cf, Depth= 4.73"

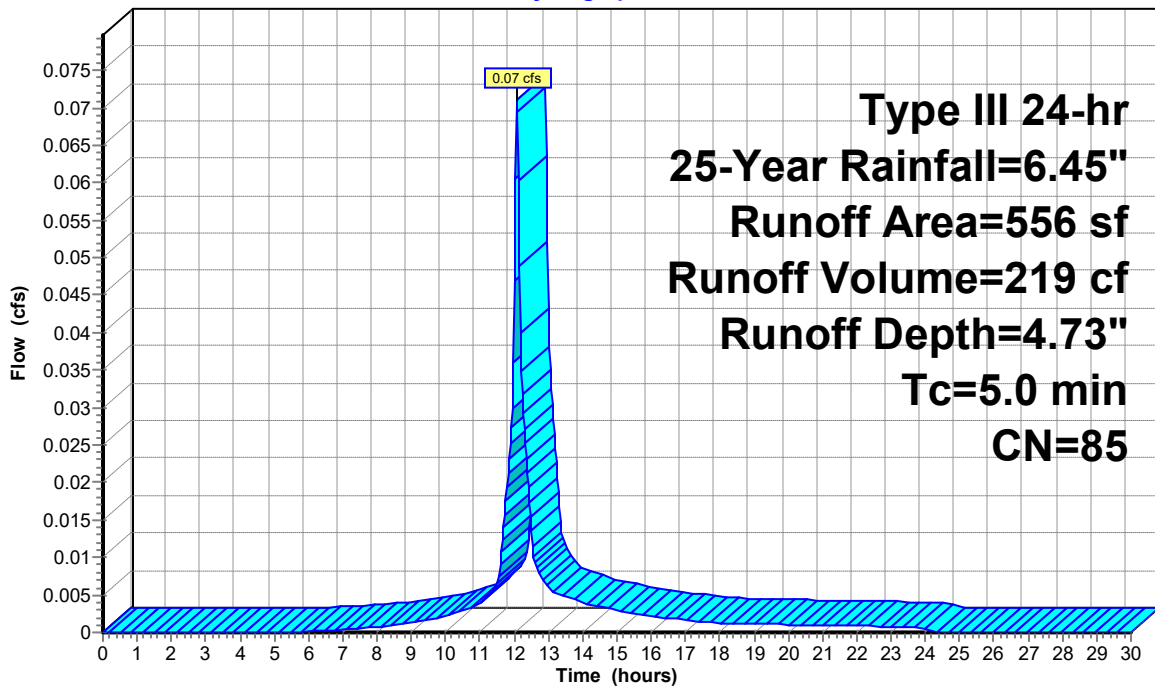
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.45"

Area (sf)	CN	Description
556	85	Gravel roads, HSG B
556		100.00% Pervious Area

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

Subcatchment 6S: EX. GRAVEL AREA

Hydrograph



Runoff

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Type III 24-hr 25-Year Rainfall=6.45"

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Page 21

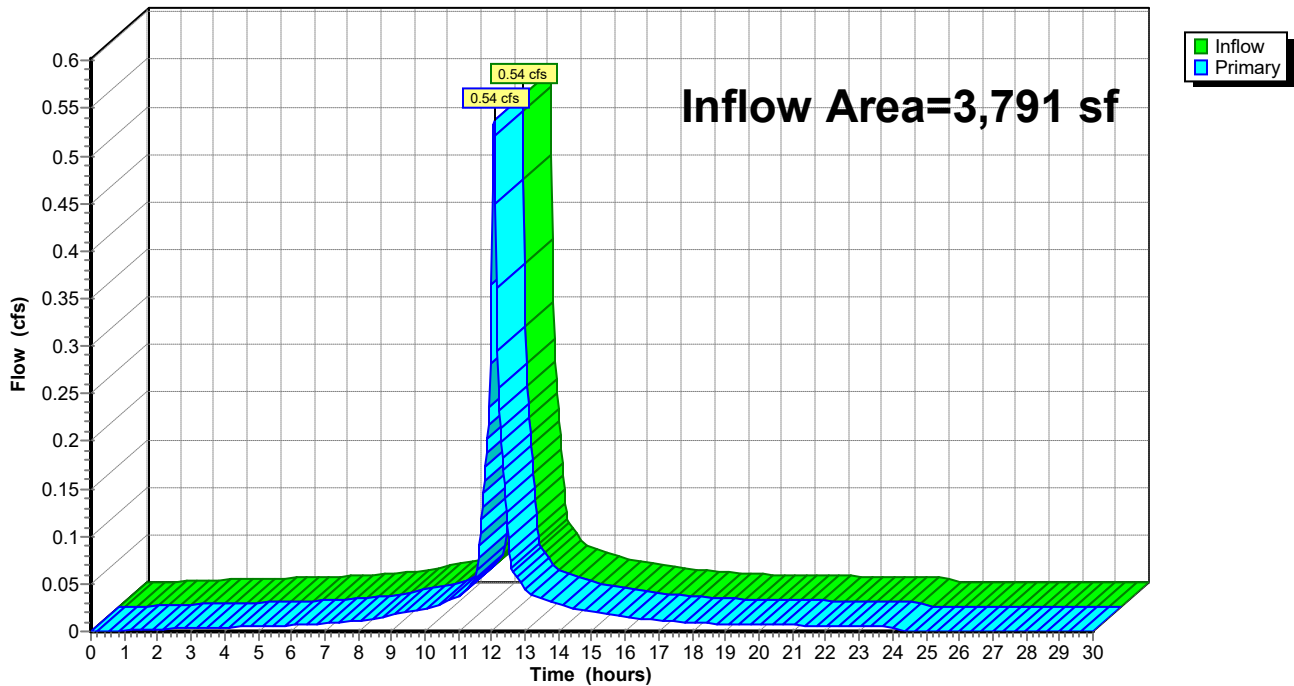
Summary for Link 3L: EXISTING

Inflow Area = 3,791 sf, 78.50% Impervious, Inflow Depth = 5.78" for 25-Year event
Inflow = 0.54 cfs @ 12.07 hrs, Volume= 1,826 cf
Primary = 0.54 cfs @ 12.07 hrs, Volume= 1,826 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs

Link 3L: EXISTING

Hydrograph



EXISTING

Type III 24-hr 100-Year Rainfall=8.29"

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Page 22

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 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 1S: EX ROOF AREA Runoff Area=887 sf 100.00% Impervious Runoff Depth=8.05"
Tc=5.0 min CN=98 Runoff=0.17 cfs 595 cf

Subcatchment 2S: EX PAVED AREA Runoff Area=2,089 sf 100.00% Impervious Runoff Depth=8.05"
Tc=5.0 min CN=98 Runoff=0.40 cfs 1,401 cf

Subcatchment 4S: EX LANDSCAPE AREA Runoff Area=259 sf 0.00% Impervious Runoff Depth=4.60"
Tc=5.0 min CN=69 Runoff=0.03 cfs 99 cf

Subcatchment 6S: EX. GRAVEL AREA Runoff Area=556 sf 0.00% Impervious Runoff Depth=6.49"
Tc=5.0 min CN=85 Runoff=0.10 cfs 301 cf

Link 3L: EXISTING Inflow=0.70 cfs 2,396 cf
Primary=0.70 cfs 2,396 cf

Total Runoff Area = 3,791 sf Runoff Volume = 2,396 cf Average Runoff Depth = 7.59"
21.50% Pervious = 815 sf 78.50% Impervious = 2,976 sf

EXISTING

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Type III 24-hr 100-Year Rainfall=8.29"

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Page 23

Summary for Subcatchment 1S: EX ROOF AREA

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 595 cf, Depth= 8.05"

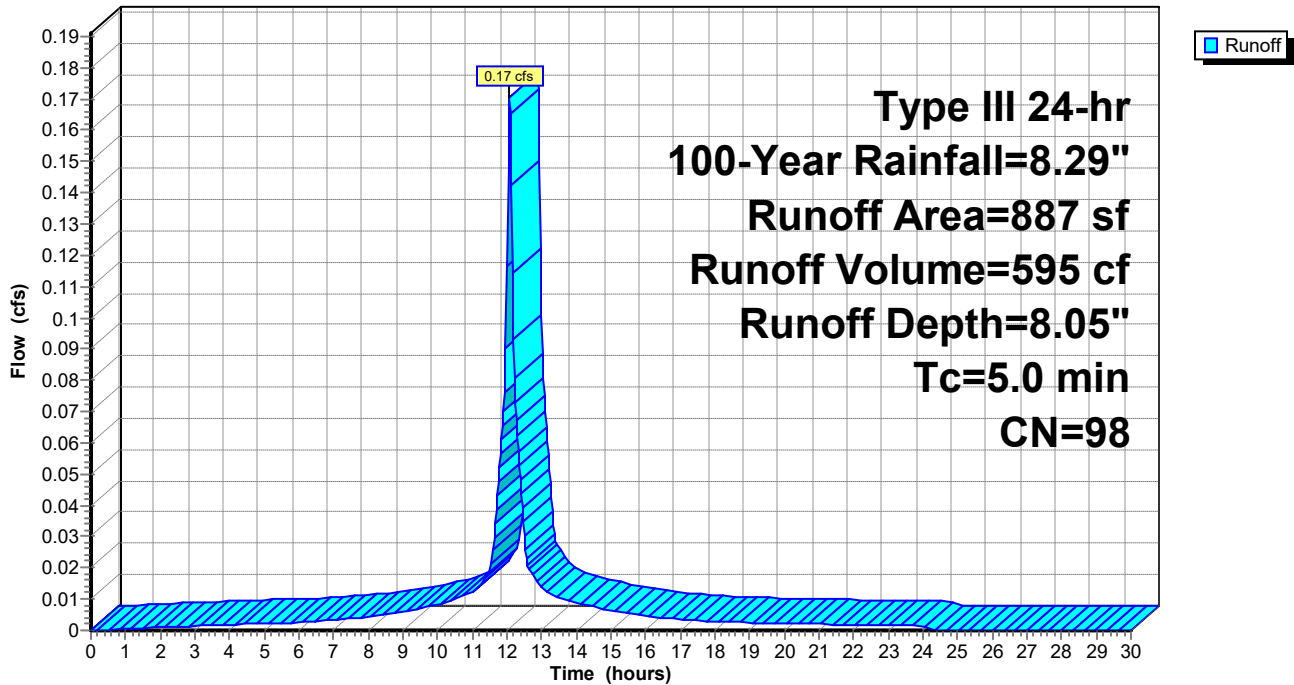
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.29"

Area (sf)	CN	Description
887	98	Roofs, HSG B
887		100.00% Impervious Area

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

Subcatchment 1S: EX ROOF AREA

Hydrograph



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Type III 24-hr 100-Year Rainfall=8.29"

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Page 24

Summary for Subcatchment 2S: EX PAVED AREA

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 1,401 cf, Depth= 8.05"

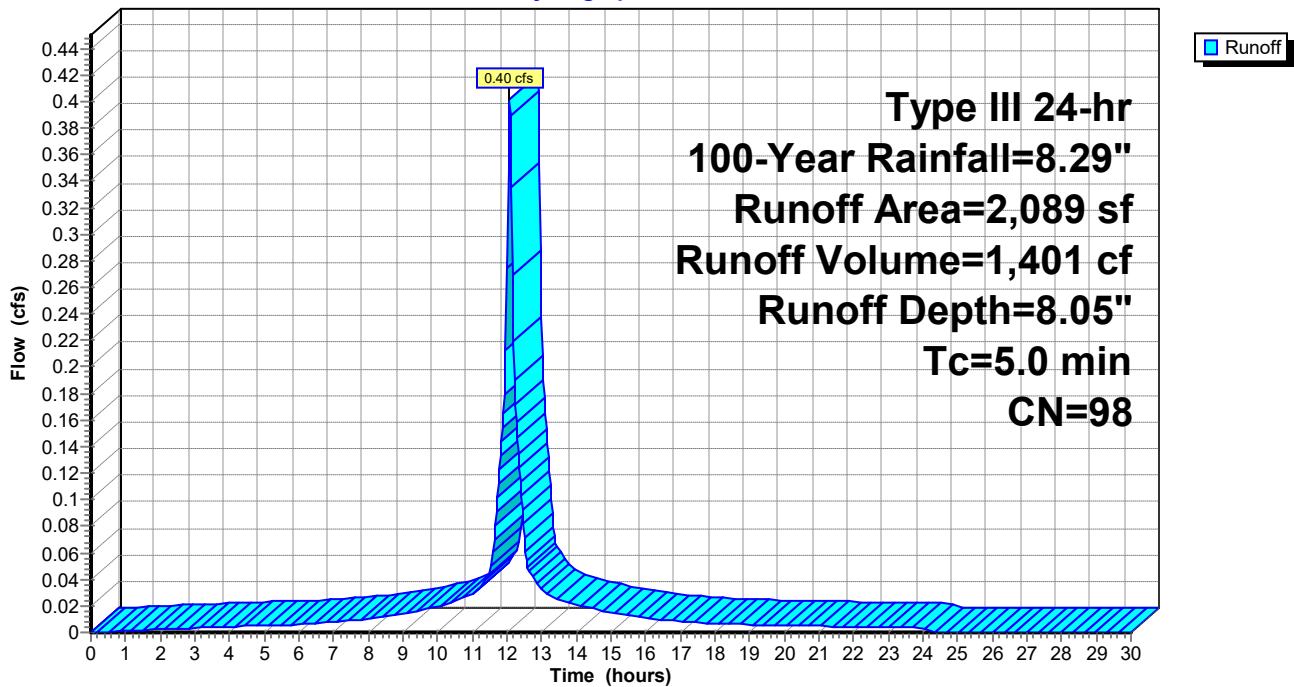
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.29"

Area (sf)	CN	Description
2,089	98	Paved parking, HSG B
2,089		100.00% Impervious Area

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

Subcatchment 2S: EX PAVED AREA

Hydrograph



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Type III 24-hr 100-Year Rainfall=8.29"

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Page 25

Summary for Subcatchment 4S: EX LANDSCAPE AREA

Runoff = 0.03 cfs @ 12.08 hrs, Volume= 99 cf, Depth= 4.60"

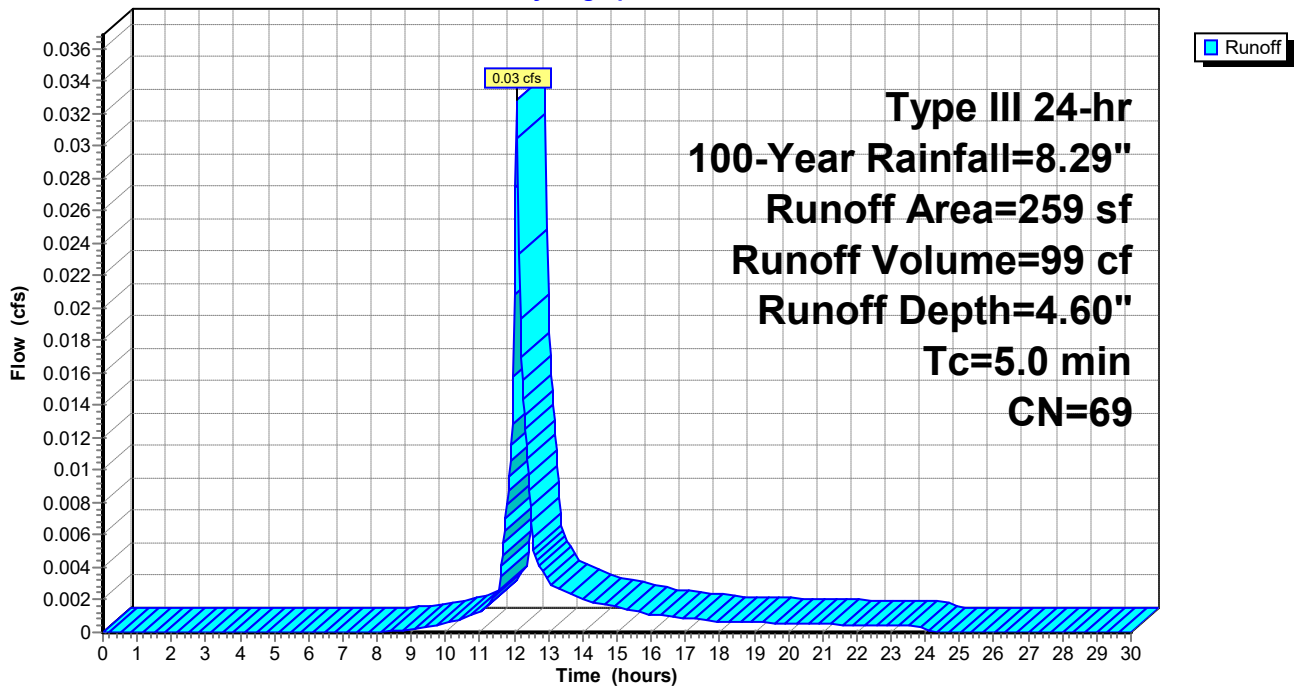
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.29"

Area (sf)	CN	Description
259	69	50-75% Grass cover, Fair, HSG B
259		100.00% Pervious Area

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

Subcatchment 4S: EX LANDSCAPE AREA

Hydrograph



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Type III 24-hr 100-Year Rainfall=8.29"

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Page 26

Summary for Subcatchment 6S: EX. GRAVEL AREA

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 301 cf, Depth= 6.49"

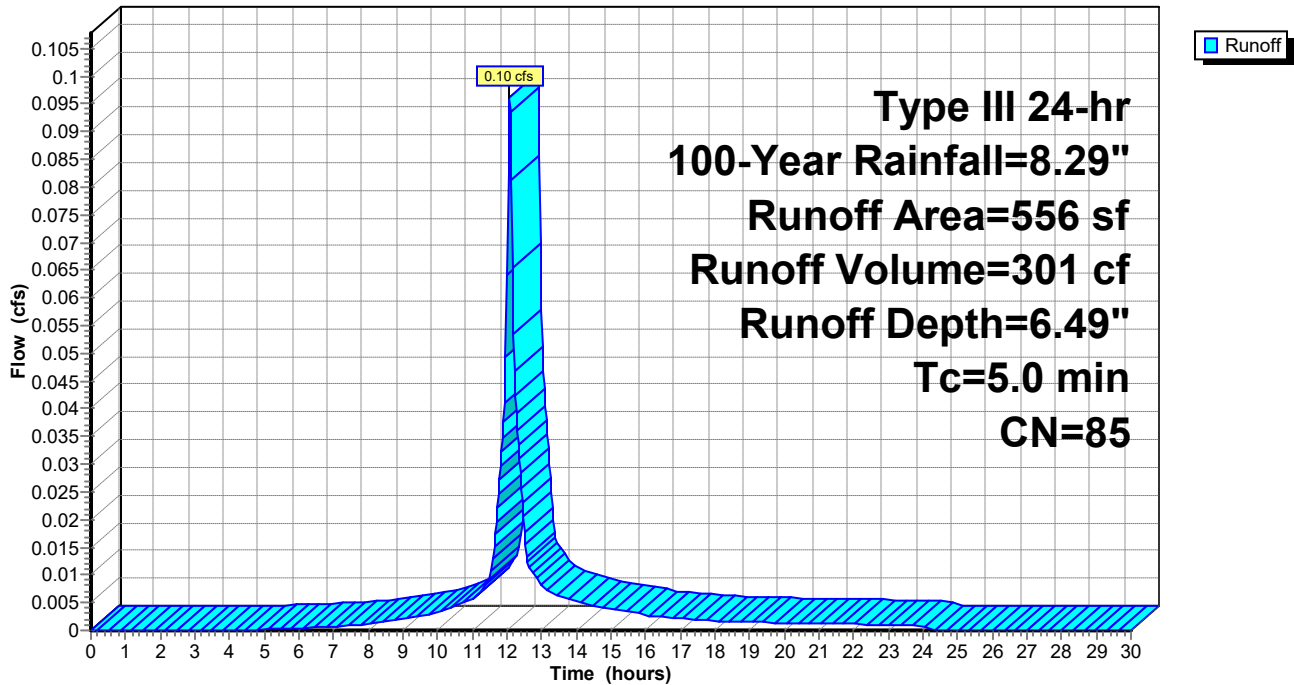
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.29"

Area (sf)	CN	Description
556	85	Gravel roads, HSG B
556		100.00% Pervious Area

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

Subcatchment 6S: EX. GRAVEL AREA

Hydrograph



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Type III 24-hr 100-Year Rainfall=8.29"

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Page 27

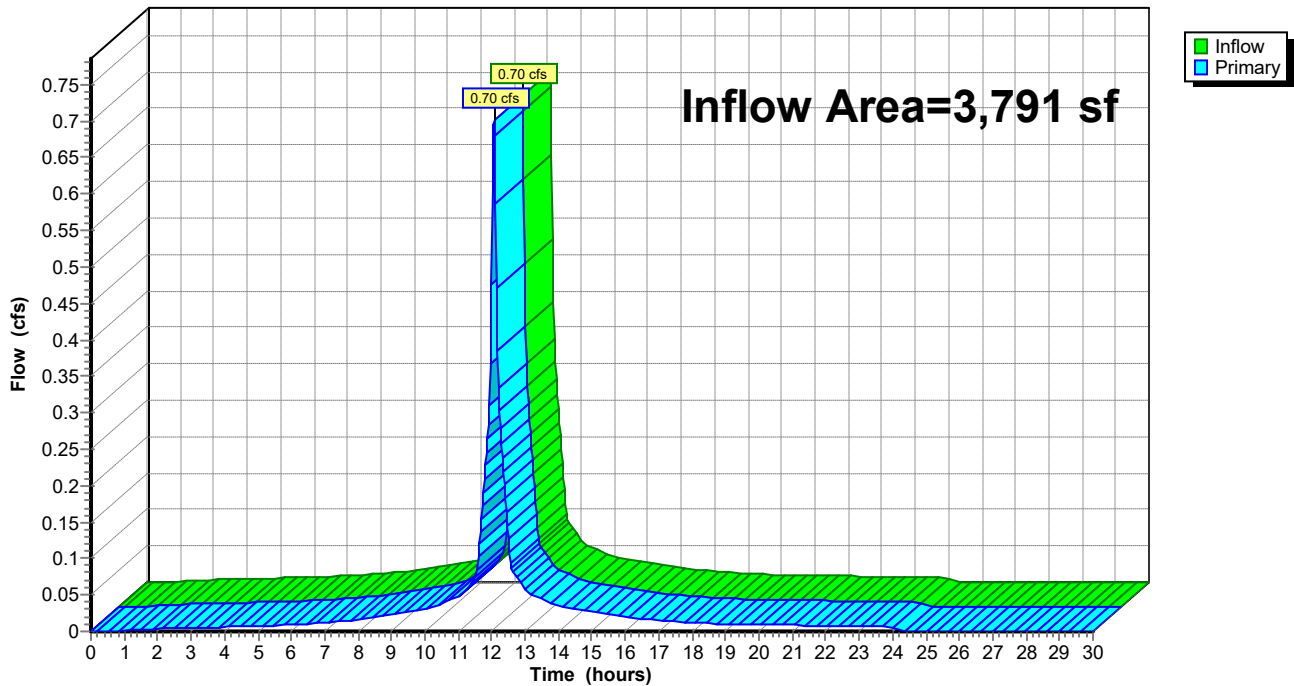
Summary for Link 3L: EXISTING

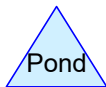
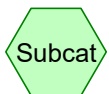
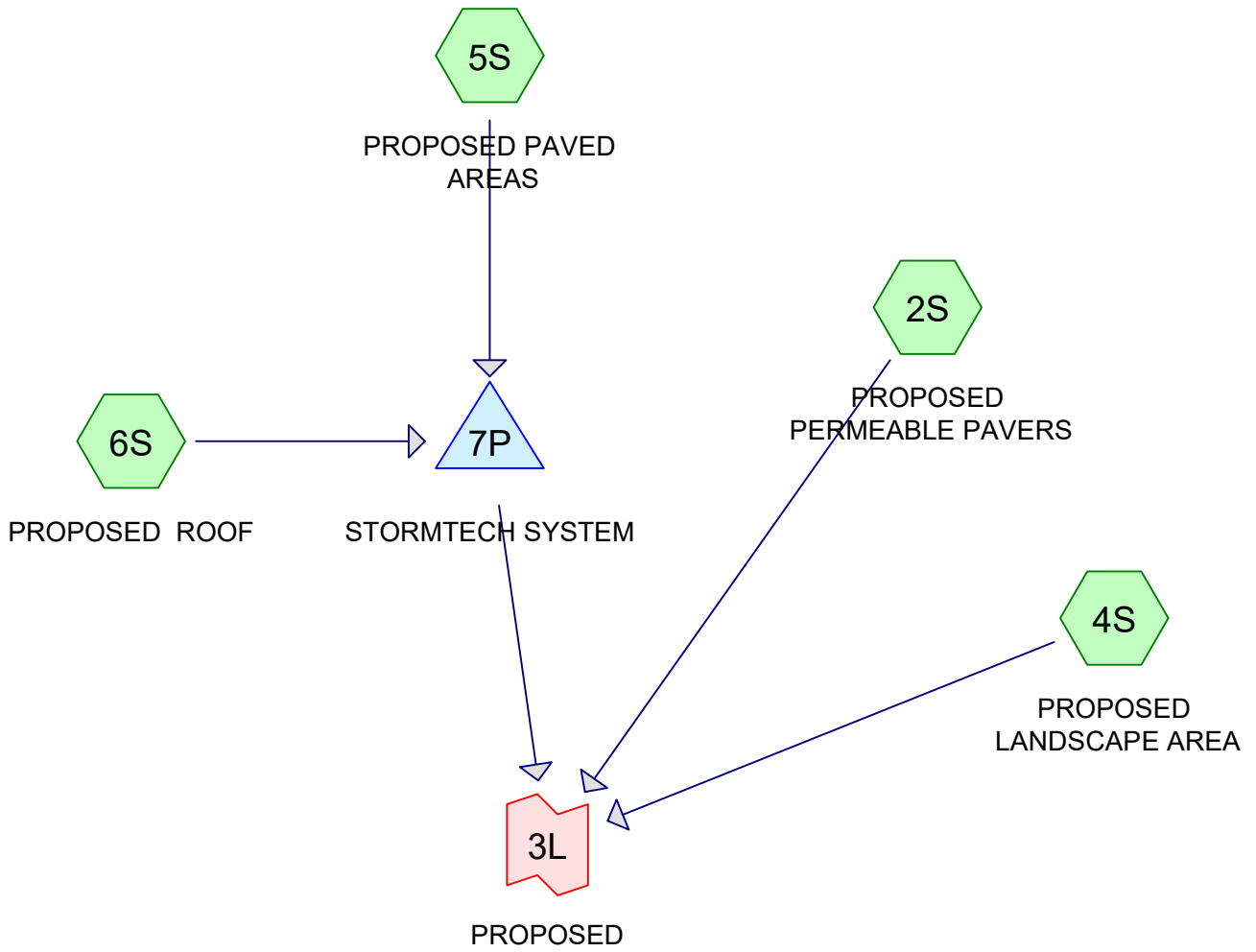
Inflow Area = 3,791 sf, 78.50% Impervious, Inflow Depth = 7.59" for 100-Year event
Inflow = 0.70 cfs @ 12.07 hrs, Volume= 2,396 cf
Primary = 0.70 cfs @ 12.07 hrs, Volume= 2,396 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs

Link 3L: EXISTING

Hydrograph





Routing Diagram for PROPOSED
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PROPOSED

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
309	69	50-75% Grass cover, Fair, HSG B (4S)
948	98	Paved parking, HSG B (5S)
219	85	Permeable Pavers (2S)
2,316	98	Roofs, HSG B (6S)
3,792	95	TOTAL AREA

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Page 3

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
3,573	HSG B	4S, 5S, 6S
0	HSG C	
0	HSG D	
219	Other	2S
3,792		TOTAL AREA

PROPOSED

Type III 24-hr 2-Year Rainfall=3.35"

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Page 4

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 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 2S: PROPOSED PERMEABLE Runoff Area=219 sf 0.00% Impervious Runoff Depth=1.89"
Tc=15.0 min CN=85 Runoff=0.01 cfs 34 cf

Subcatchment 4S: PROPOSED LANDSCAPE Runoff Area=309 sf 0.00% Impervious Runoff Depth=0.87"
Tc=5.0 min CN=69 Runoff=0.01 cfs 22 cf

Subcatchment 5S: PROPOSED PAVED Runoff Area=948 sf 100.00% Impervious Runoff Depth=3.12"
Tc=5.0 min CN=98 Runoff=0.07 cfs 246 cf

Subcatchment 6S: PROPOSED ROOF Runoff Area=2,316 sf 100.00% Impervious Runoff Depth=3.12"
Tc=5.0 min CN=98 Runoff=0.18 cfs 602 cf

Pond 7P: STORMTECH SYSTEM Peak Elev=38.14' Storage=279 cf Inflow=0.25 cfs 848 cf
Discarded=0.03 cfs 848 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 848 cf

Link 3L: PROPOSED Inflow=0.01 cfs 57 cf
Primary=0.01 cfs 57 cf

Total Runoff Area = 3,792 sf Runoff Volume = 905 cf Average Runoff Depth = 2.86"
13.92% Pervious = 528 sf 86.08% Impervious = 3,264 sf

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Type III 24-hr 2-Year Rainfall=3.35"

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Page 5

Summary for Subcatchment 2S: PROPOSED PERMEABLE PAVERS

Runoff = 0.01 cfs @ 12.21 hrs, Volume= 34 cf, Depth= 1.89"

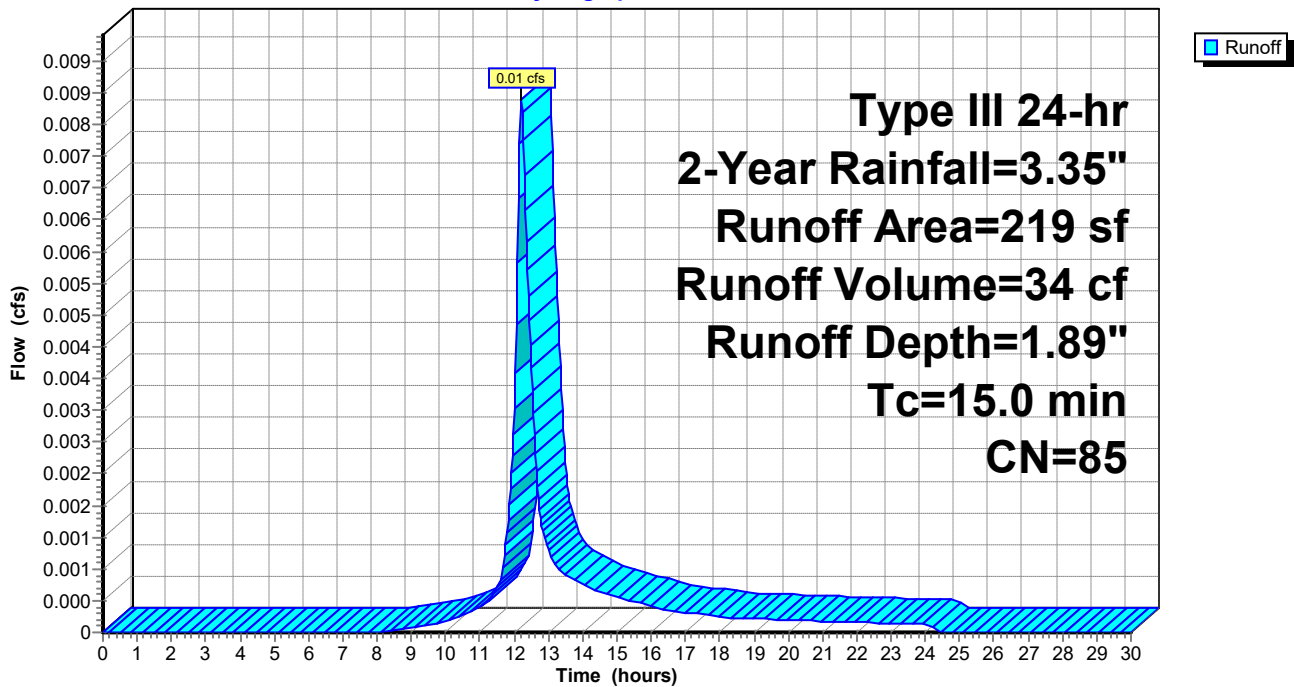
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.35"

Area (sf)	CN	Description
* 219	85	Permeable Pavers
219		100.00% Pervious Area

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

Subcatchment 2S: PROPOSED PERMEABLE PAVERS

Hydrograph



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Type III 24-hr 2-Year Rainfall=3.35"

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Page 6

Summary for Subcatchment 4S: PROPOSED LANDSCAPE AREA

Runoff = 0.01 cfs @ 12.09 hrs, Volume= 22 cf, Depth= 0.87"

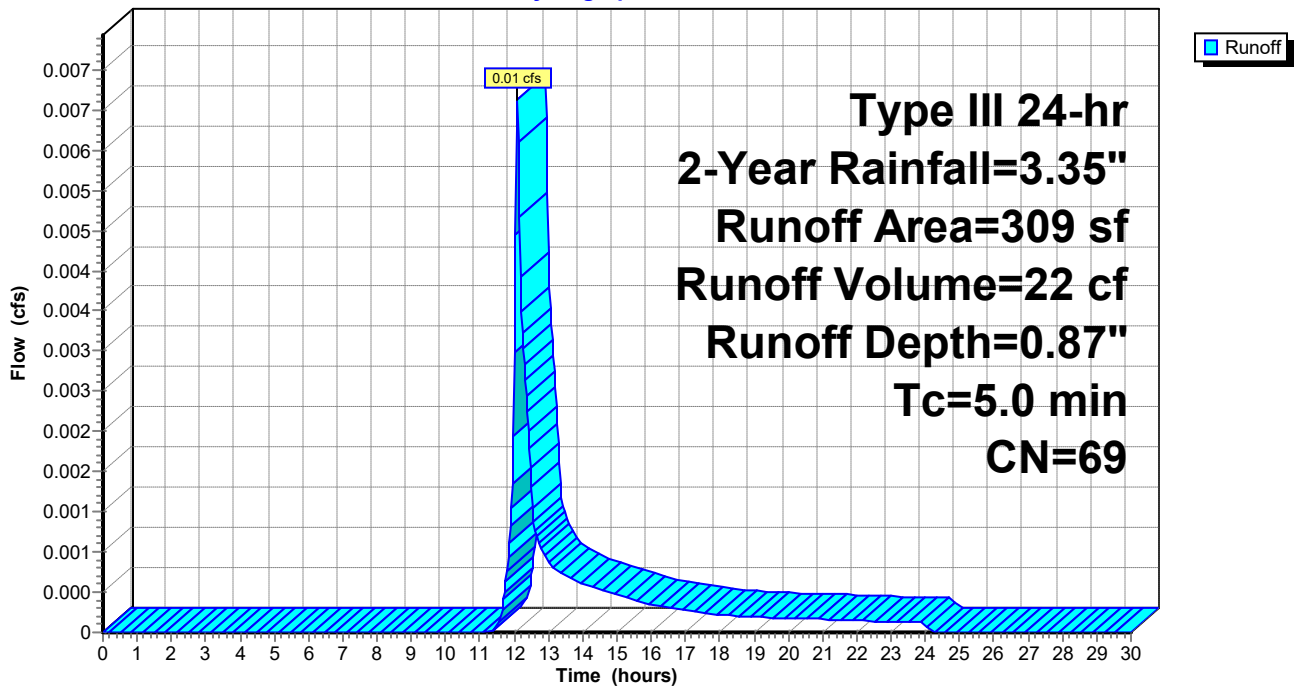
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.35"

Area (sf)	CN	Description
309	69	50-75% Grass cover, Fair, HSG B
309		100.00% Pervious Area

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

Subcatchment 4S: PROPOSED LANDSCAPE AREA

Hydrograph



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Type III 24-hr 2-Year Rainfall=3.35"

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Page 7

Summary for Subcatchment 5S: PROPOSED PAVED AREAS

Runoff = 0.07 cfs @ 12.07 hrs, Volume= 246 cf, Depth= 3.12"

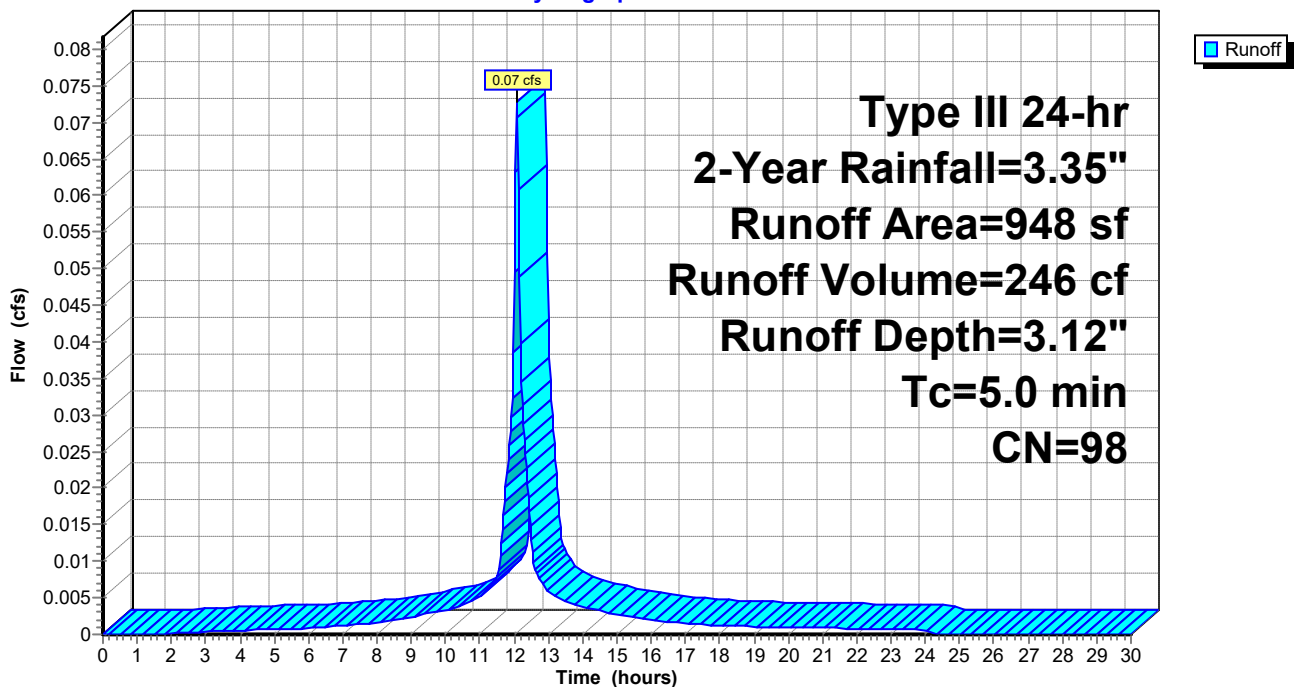
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.35"

Area (sf)	CN	Description
948	98	Paved parking, HSG B
948		100.00% Impervious Area

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

Subcatchment 5S: PROPOSED PAVED AREAS

Hydrograph



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Type III 24-hr 2-Year Rainfall=3.35"

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Page 8

Summary for Subcatchment 6S: PROPOSED ROOF

Runoff = 0.18 cfs @ 12.07 hrs, Volume= 602 cf, Depth= 3.12"

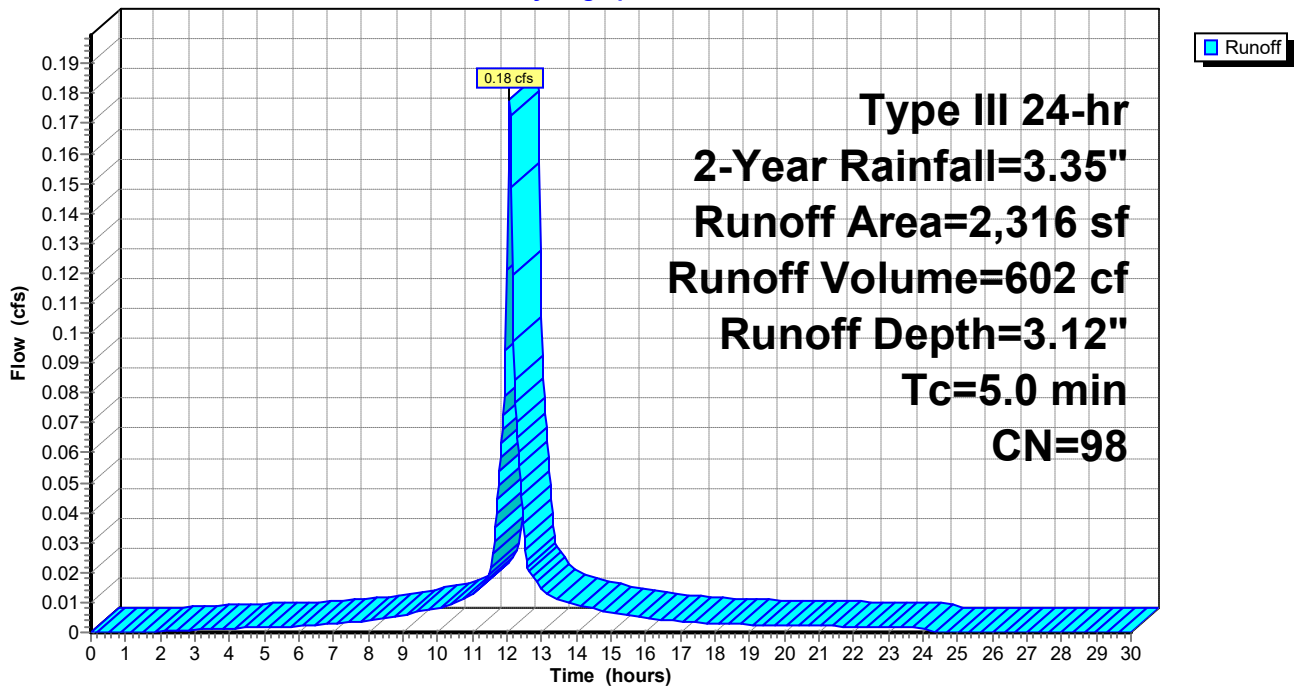
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.35"

Area (sf)	CN	Description
2,316	98	Roofs, HSG B
2,316		100.00% Impervious Area

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

Subcatchment 6S: PROPOSED ROOF

Hydrograph



PROPOSED

Type III 24-hr 2-Year Rainfall=3.35"

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Page 9

Summary for Pond 7P: STORMTECH SYSTEM

Inflow Area = 3,264 sf, 100.00% Impervious, Inflow Depth = 3.12" for 2-Year event
 Inflow = 0.25 cfs @ 12.07 hrs, Volume= 848 cf
 Outflow = 0.03 cfs @ 12.61 hrs, Volume= 848 cf, Atten= 88%, Lag= 32.7 min
 Discarded = 0.03 cfs @ 12.61 hrs, Volume= 848 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs / 3
 Peak Elev= 38.14' @ 12.61 hrs Surf.Area= 388 sf Storage= 279 cf

Plug-Flow detention time= 66.2 min calculated for 848 cf (100% of inflow)
 Center-of-Mass det. time= 66.1 min (820.7 - 754.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	36.50'	458 cf	35.08'W x 11.06'L x 4.00'H Field A 1,552 cf Overall - 244 cf Embedded = 1,308 cf x 35.0% Voids
#2A	37.50'	244 cf	ADS_StormTech SC-740 x 5 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 5 rows
#3	40.50'	15 cf	Ponding Listed below -Impervious
		717 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Cum.Store (cubic-feet)
40.50	0
42.00	10
42.20	15

Device	Routing	Invert	Outlet Devices
#1	Discarded	36.50'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	40.40'	6.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 12.61 hrs HW=38.14' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=36.50' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

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Type III 24-hr 2-Year Rainfall=3.35"

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Page 10

Pond 7P: STORMTECH SYSTEM - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 (ADS StormTech® SC-740 without end caps)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

Row Length Adjustment= +0.44' x 6.45 sf x 5 rows

51.0" Wide + 24.0" Spacing = 75.0" C-C Row Spacing

1 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 7.56' Row Length +21.0" End Stone x 2 = 11.06' Base Length

5 Rows x 51.0" Wide + 24.0" Spacing x 4 + 35.0" Side Stone x 2 = 35.08' Base Width

12.0" Base + 30.0" Chamber Height + 6.0" Cover = 4.00' Field Height

5 Chambers x 45.9 cf +0.44' Row Adjustment x 6.45 sf x 5 Rows = 243.8 cf Chamber Storage

1,551.9 cf Field - 243.8 cf Chambers = 1,308.0 cf Stone x 35.0% Voids = 457.8 cf Stone Storage

Chamber Storage + Stone Storage = 701.6 cf = 0.016 af

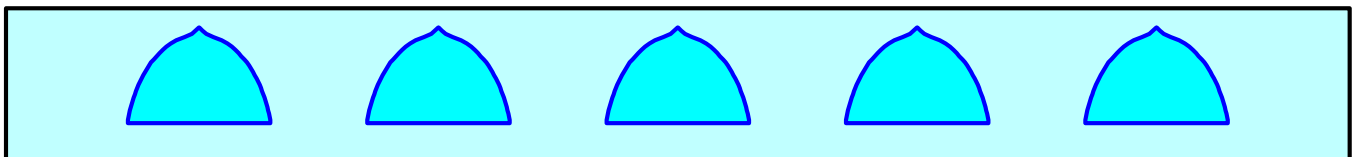
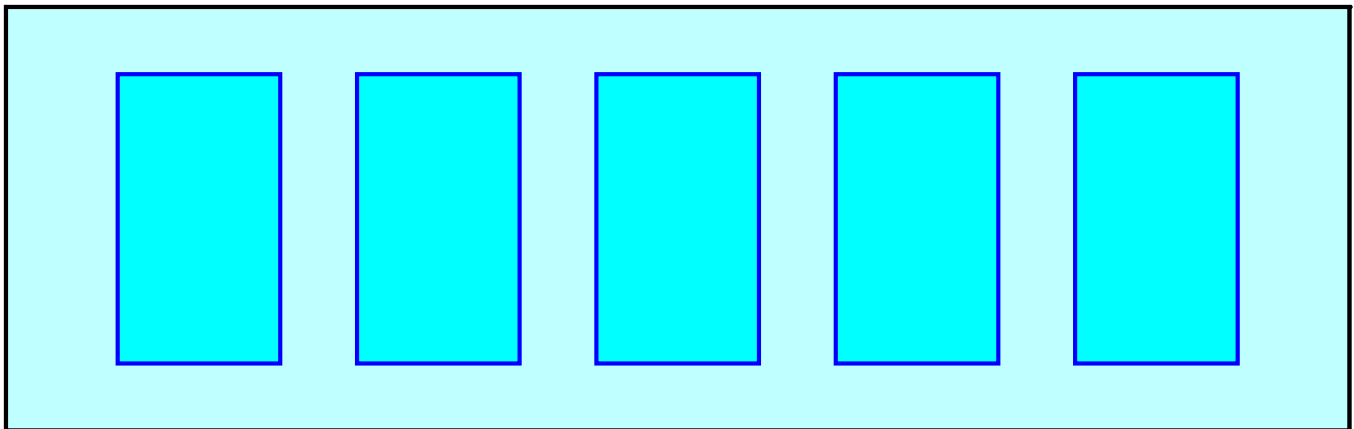
Overall Storage Efficiency = 45.2%

Overall System Size = 11.06' x 35.08' x 4.00'

5 Chambers

57.5 cy Field

48.4 cy Stone



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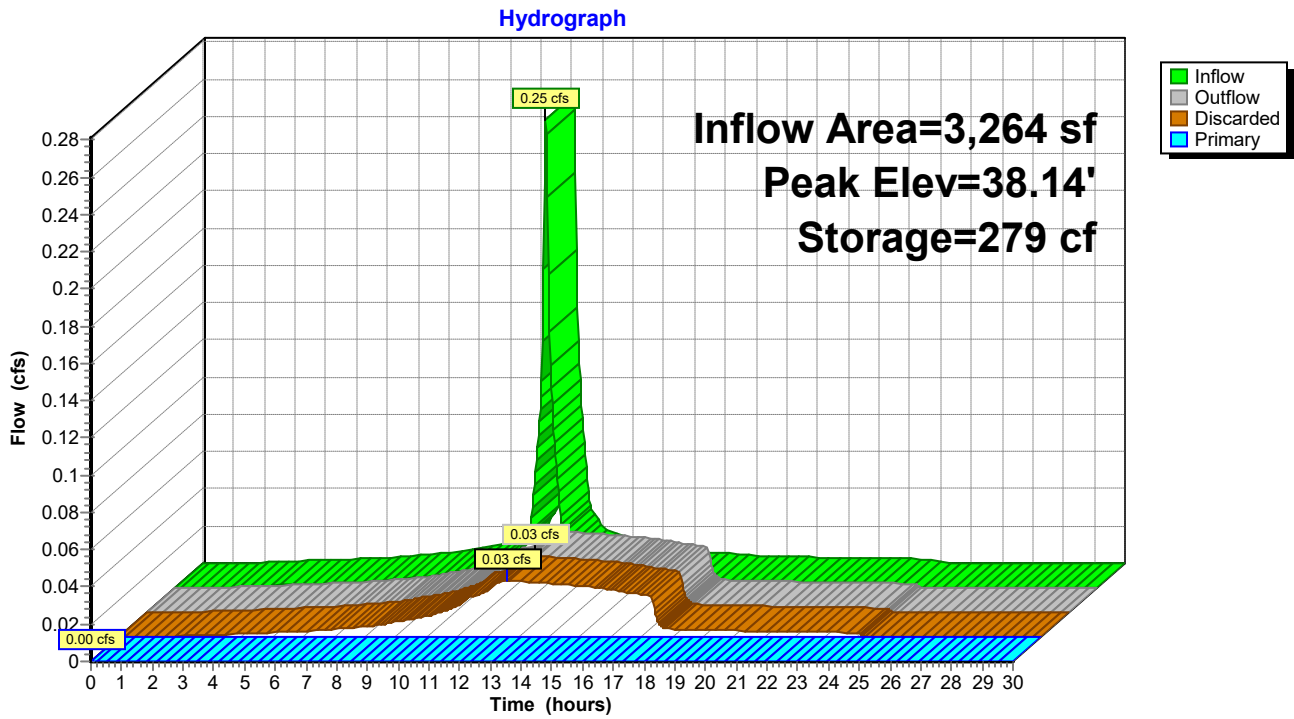
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Type III 24-hr 2-Year Rainfall=3.35"

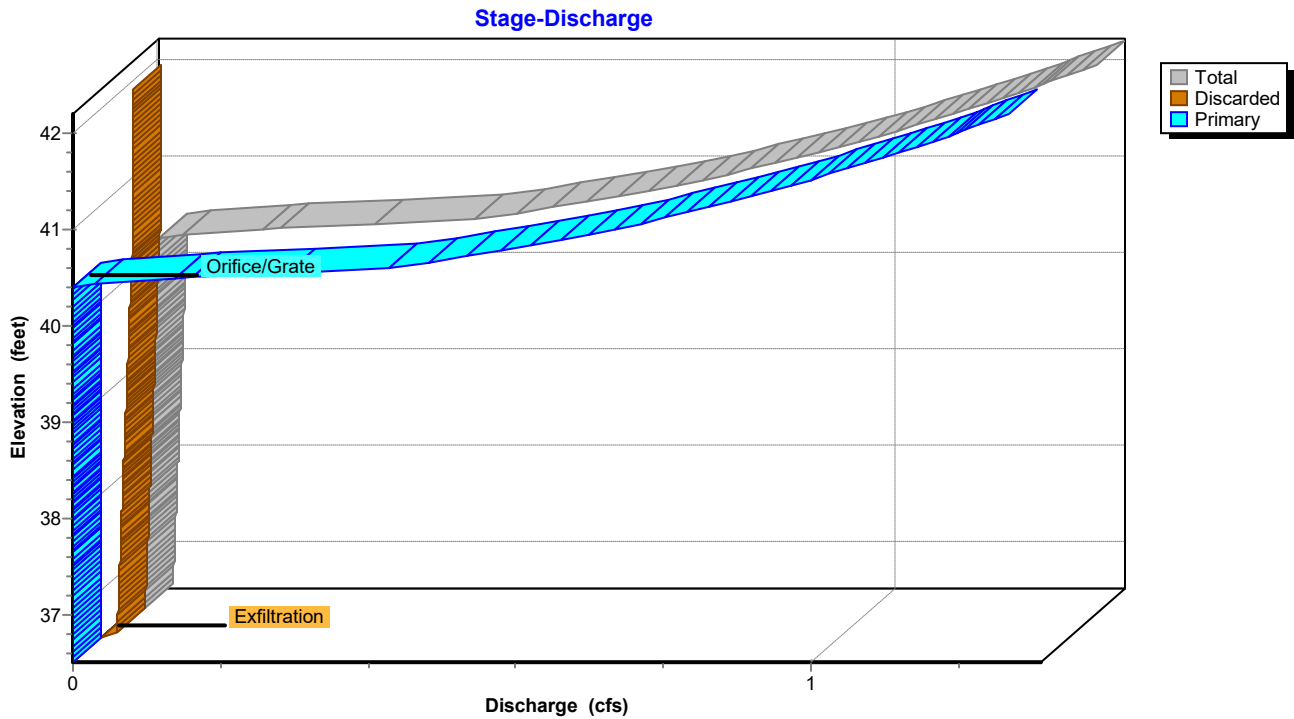
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Page 11

Pond 7P: STORMTECH SYSTEM



Pond 7P: STORMTECH SYSTEM



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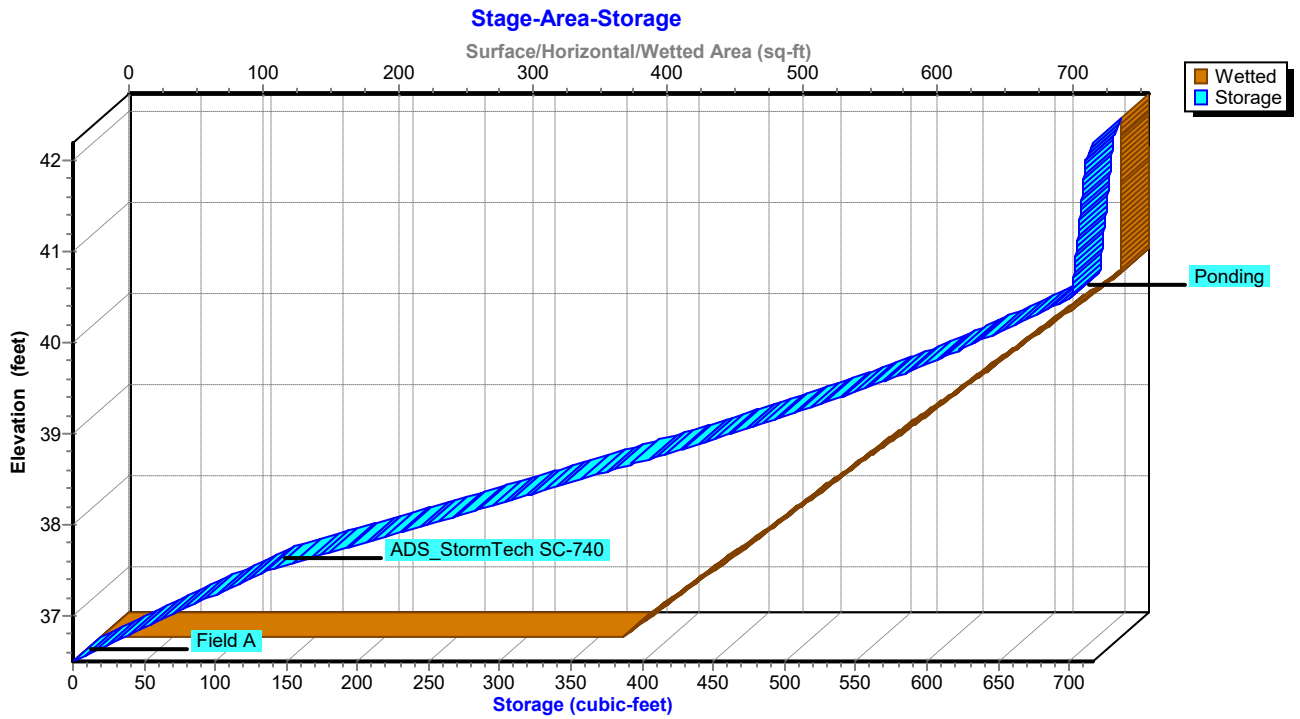
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Type III 24-hr 2-Year Rainfall=3.35"

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Page 12

Pond 7P: STORMTECH SYSTEM



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Type III 24-hr 2-Year Rainfall=3.35"

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Page 13

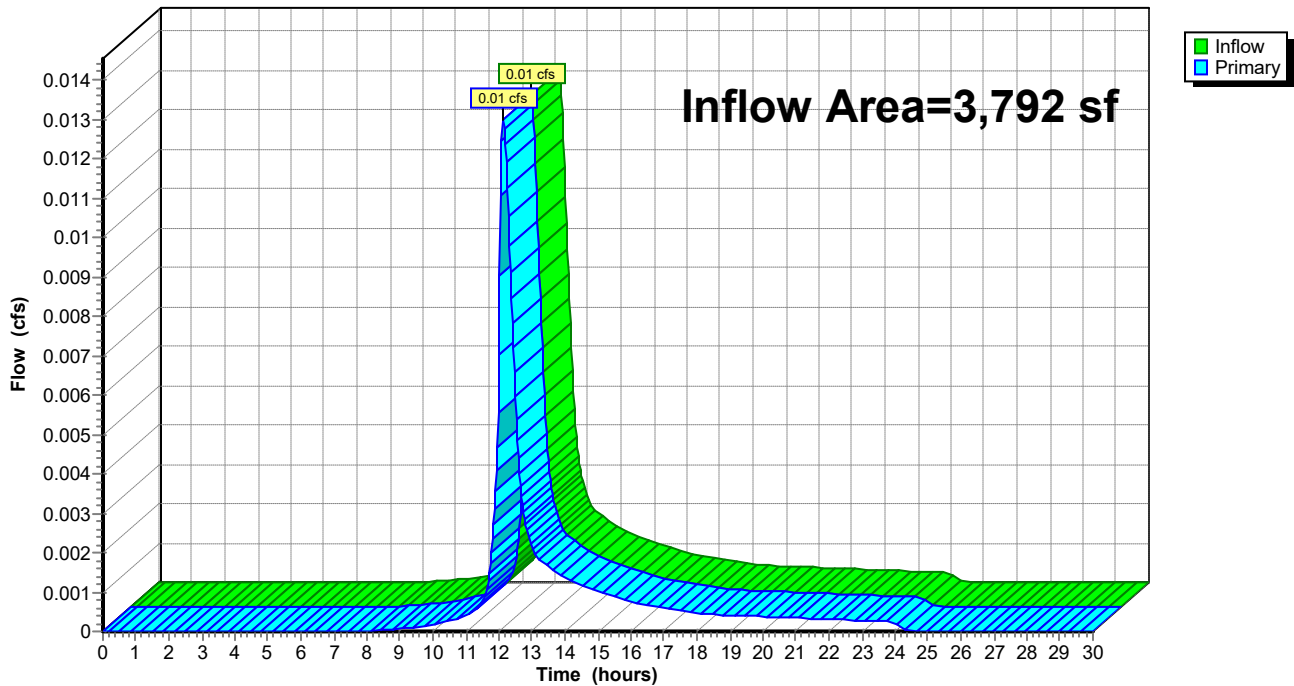
Summary for Link 3L: PROPOSED

Inflow Area = 3,792 sf, 86.08% Impervious, Inflow Depth = 0.18" for 2-Year event
Inflow = 0.01 cfs @ 12.13 hrs, Volume= 57 cf
Primary = 0.01 cfs @ 12.13 hrs, Volume= 57 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs

Link 3L: PROPOSED

Hydrograph



PROPOSED

Type III 24-hr 10-Year Rainfall=5.26"

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Page 14

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 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 2S: PROPOSED PERMEABLE Runoff Area=219 sf 0.00% Impervious Runoff Depth=3.61"
Tc=15.0 min CN=85 Runoff=0.02 cfs 66 cf

Subcatchment 4S: PROPOSED LANDSCAPE Runoff Area=309 sf 0.00% Impervious Runoff Depth=2.15"
Tc=5.0 min CN=69 Runoff=0.02 cfs 55 cf

Subcatchment 5S: PROPOSED PAVED Runoff Area=948 sf 100.00% Impervious Runoff Depth=5.02"
Tc=5.0 min CN=98 Runoff=0.12 cfs 397 cf

Subcatchment 6S: PROPOSED ROOF Runoff Area=2,316 sf 100.00% Impervious Runoff Depth=5.02"
Tc=5.0 min CN=98 Runoff=0.28 cfs 969 cf

Pond 7P: STORMTECH SYSTEM Peak Elev=39.28' Storage=515 cf Inflow=0.40 cfs 1,366 cf
Discarded=0.04 cfs 1,366 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 1,366 cf

Link 3L: PROPOSED Inflow=0.03 cfs 121 cf
Primary=0.03 cfs 121 cf

Total Runoff Area = 3,792 sf Runoff Volume = 1,487 cf Average Runoff Depth = 4.71"
13.92% Pervious = 528 sf 86.08% Impervious = 3,264 sf

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Type III 24-hr 10-Year Rainfall=5.26"

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Page 15

Summary for Subcatchment 2S: PROPOSED PERMEABLE PAVERS

Runoff = 0.02 cfs @ 12.20 hrs, Volume= 66 cf, Depth= 3.61"

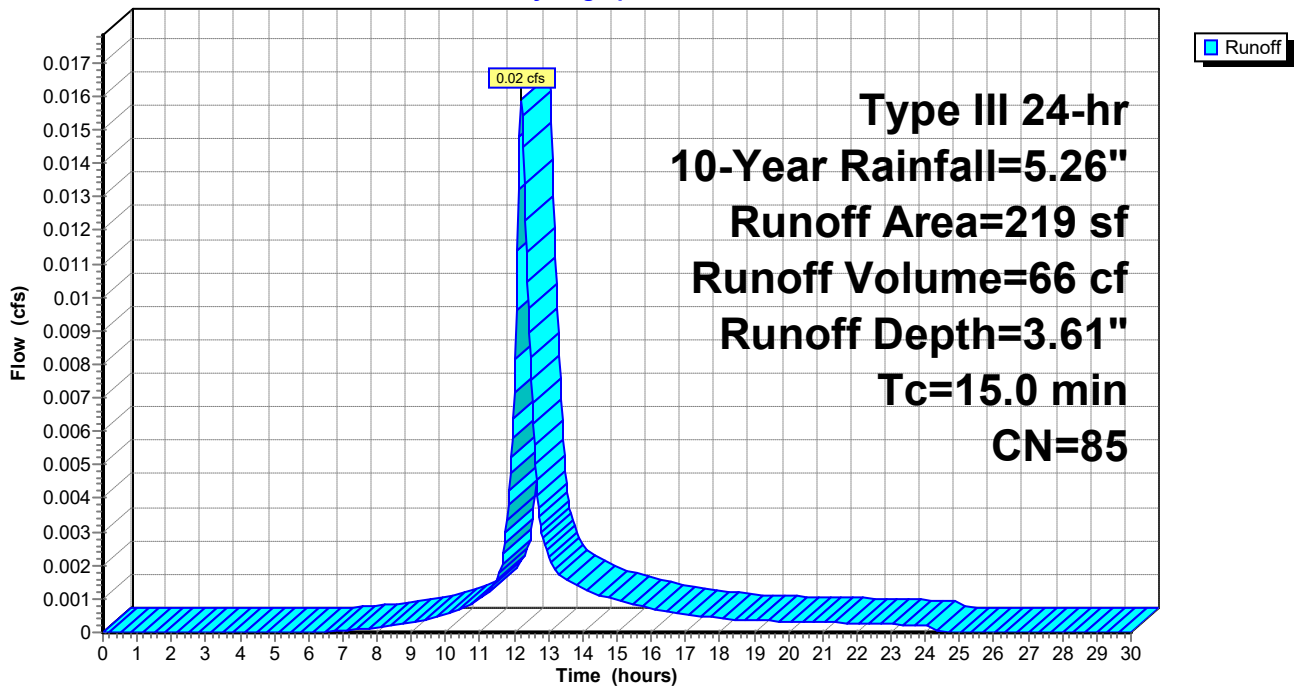
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=5.26"

Area (sf)	CN	Description
* 219	85	Permeable Pavers
219		100.00% Pervious Area

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

Subcatchment 2S: PROPOSED PERMEABLE PAVERS

Hydrograph



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Type III 24-hr 10-Year Rainfall=5.26"

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Page 16

Summary for Subcatchment 4S: PROPOSED LANDSCAPE AREA

Runoff = 0.02 cfs @ 12.08 hrs, Volume= 55 cf, Depth= 2.15"

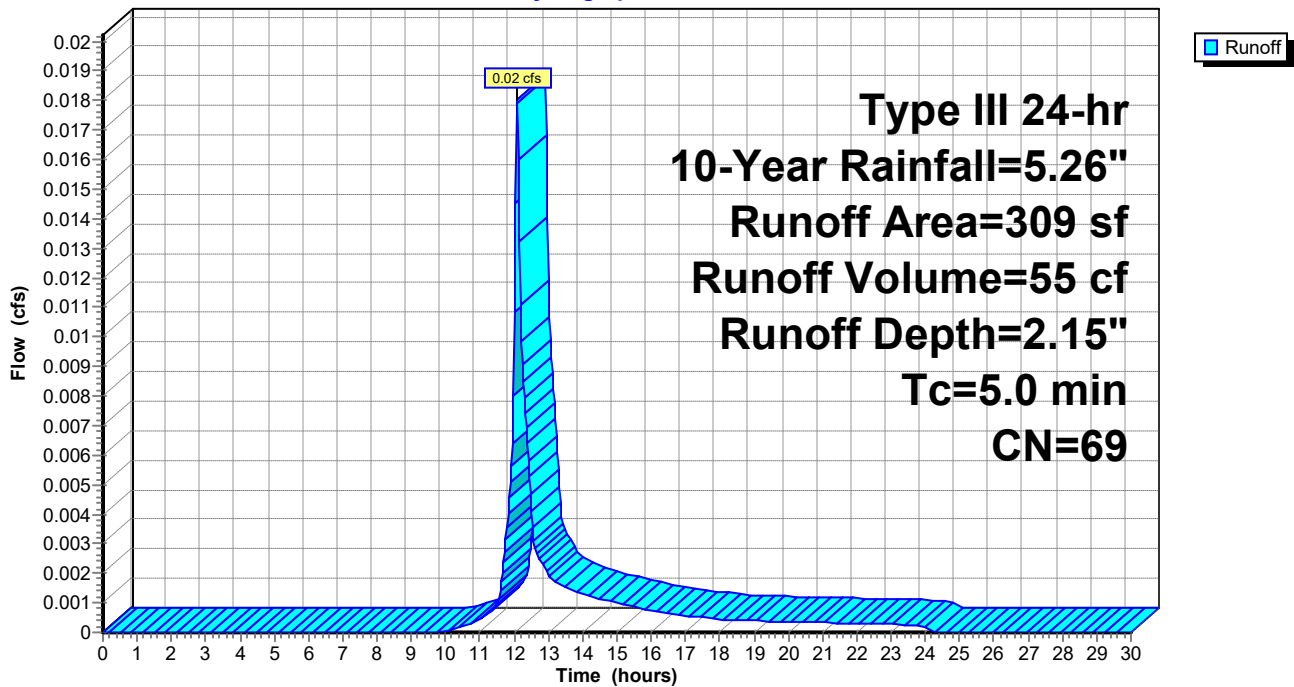
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=5.26"

Area (sf)	CN	Description
309	69	50-75% Grass cover, Fair, HSG B
309		100.00% Pervious Area

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

Subcatchment 4S: PROPOSED LANDSCAPE AREA

Hydrograph



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Type III 24-hr 10-Year Rainfall=5.26"

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Page 17

Summary for Subcatchment 5S: PROPOSED PAVED AREAS

Runoff = 0.12 cfs @ 12.07 hrs, Volume= 397 cf, Depth= 5.02"

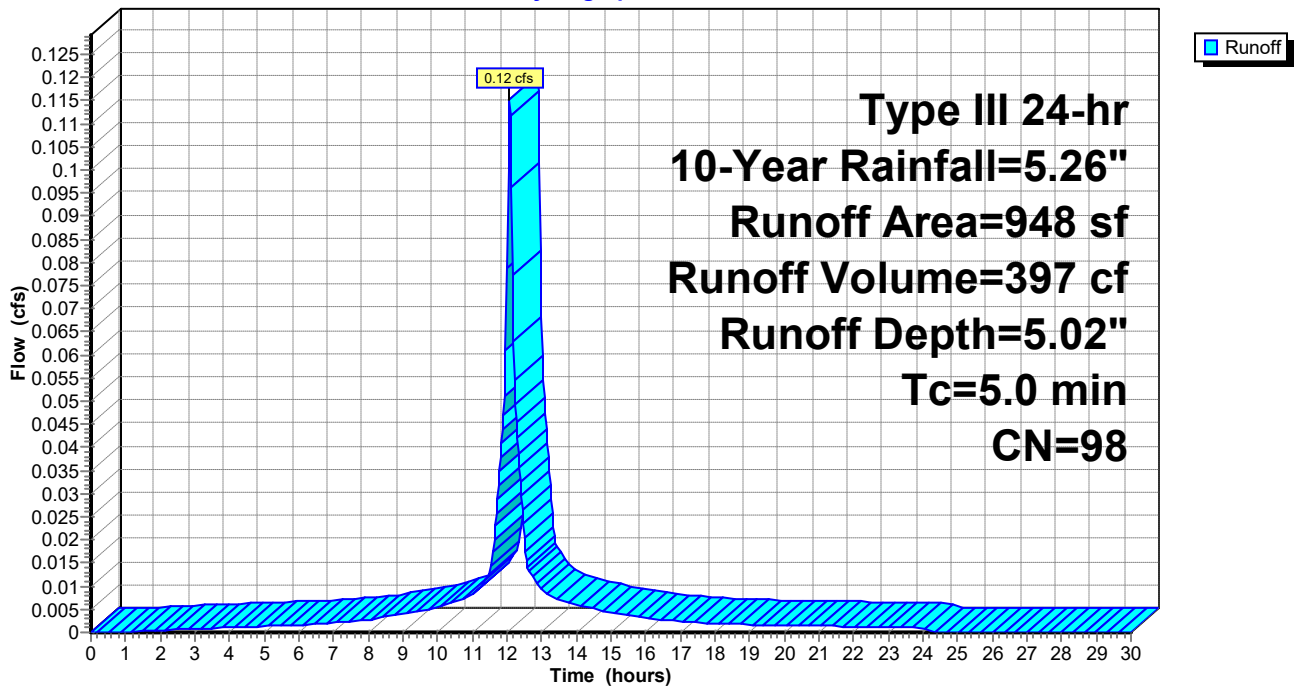
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=5.26"

Area (sf)	CN	Description
948	98	Paved parking, HSG B
948		100.00% Impervious Area

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

Subcatchment 5S: PROPOSED PAVED AREAS

Hydrograph



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Type III 24-hr 10-Year Rainfall=5.26"

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Page 18

Summary for Subcatchment 6S: PROPOSED ROOF

Runoff = 0.28 cfs @ 12.07 hrs, Volume= 969 cf, Depth= 5.02"

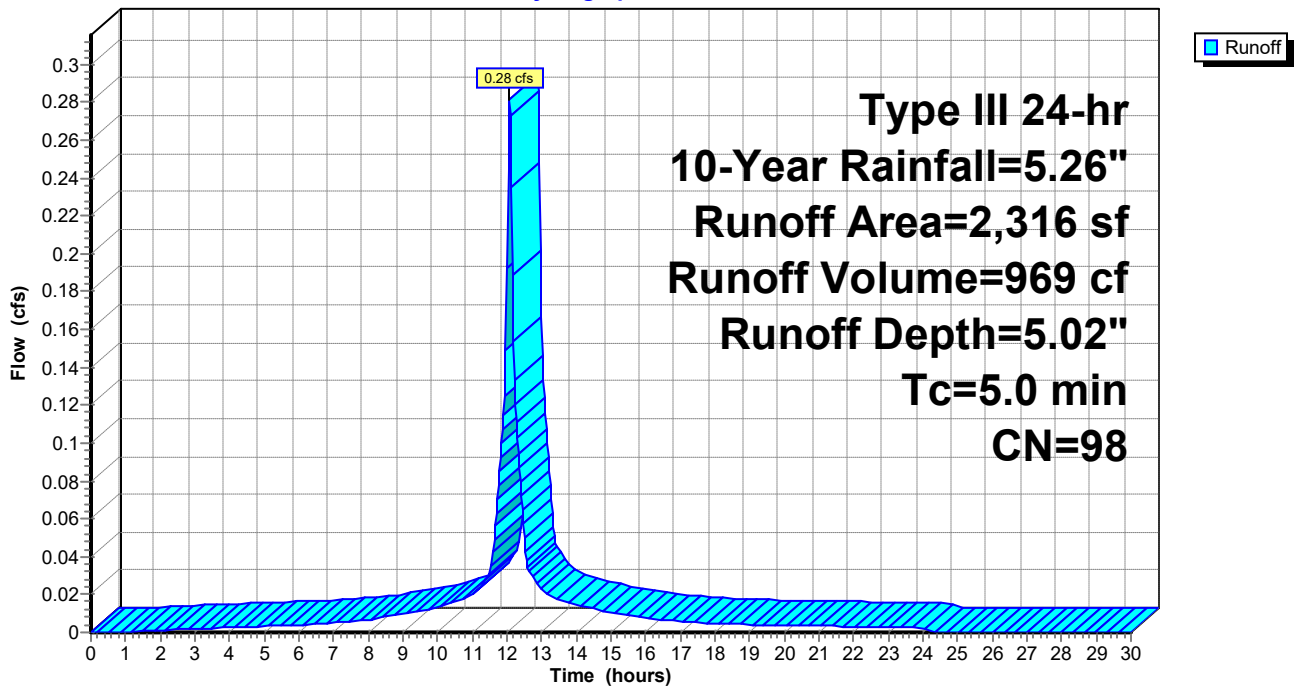
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-Year Rainfall=5.26"

Area (sf)	CN	Description
2,316	98	Roofs, HSG B
2,316		100.00% Impervious Area

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

Subcatchment 6S: PROPOSED ROOF

Hydrograph



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Type III 24-hr 10-Year Rainfall=5.26"

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Page 19

Summary for Pond 7P: STORMTECH SYSTEM

Inflow Area = 3,264 sf, 100.00% Impervious, Inflow Depth = 5.02" for 10-Year event
 Inflow = 0.40 cfs @ 12.07 hrs, Volume= 1,366 cf
 Outflow = 0.04 cfs @ 12.89 hrs, Volume= 1,366 cf, Atten= 91%, Lag= 48.9 min
 Discarded = 0.04 cfs @ 12.89 hrs, Volume= 1,366 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs / 3
 Peak Elev= 39.28' @ 12.89 hrs Surf.Area= 388 sf Storage= 515 cf

Plug-Flow detention time= 117.0 min calculated for 1,366 cf (100% of inflow)
 Center-of-Mass det. time= 116.9 min (863.2 - 746.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	36.50'	458 cf	35.08'W x 11.06'L x 4.00'H Field A 1,552 cf Overall - 244 cf Embedded = 1,308 cf x 35.0% Voids
#2A	37.50'	244 cf	ADS_StormTech SC-740 x 5 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 5 rows
#3	40.50'	15 cf	Ponding Listed below -Impervious
		717 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Cum.Store (cubic-feet)
40.50	0
42.00	10
42.20	15

Device	Routing	Invert	Outlet Devices
#1	Discarded	36.50'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	40.40'	6.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.04 cfs @ 12.89 hrs HW=39.28' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=36.50' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

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Type III 24-hr 10-Year Rainfall=5.26"

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Page 20

Pond 7P: STORMTECH SYSTEM - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 (ADS StormTech® SC-740 without end caps)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

Row Length Adjustment= +0.44' x 6.45 sf x 5 rows

51.0" Wide + 24.0" Spacing = 75.0" C-C Row Spacing

1 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 7.56' Row Length +21.0" End Stone x 2 = 11.06' Base Length

5 Rows x 51.0" Wide + 24.0" Spacing x 4 + 35.0" Side Stone x 2 = 35.08' Base Width

12.0" Base + 30.0" Chamber Height + 6.0" Cover = 4.00' Field Height

5 Chambers x 45.9 cf +0.44' Row Adjustment x 6.45 sf x 5 Rows = 243.8 cf Chamber Storage

1,551.9 cf Field - 243.8 cf Chambers = 1,308.0 cf Stone x 35.0% Voids = 457.8 cf Stone Storage

Chamber Storage + Stone Storage = 701.6 cf = 0.016 af

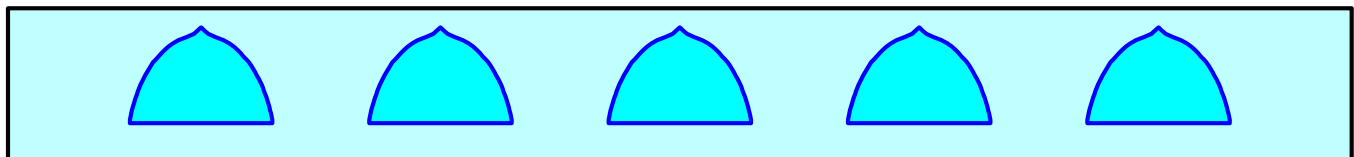
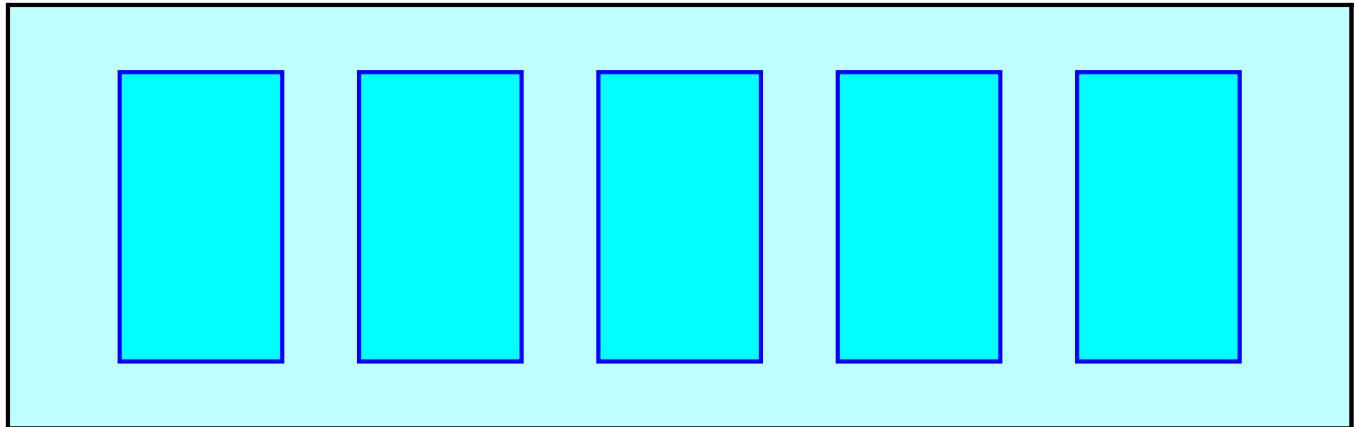
Overall Storage Efficiency = 45.2%

Overall System Size = 11.06' x 35.08' x 4.00'

5 Chambers

57.5 cy Field

48.4 cy Stone



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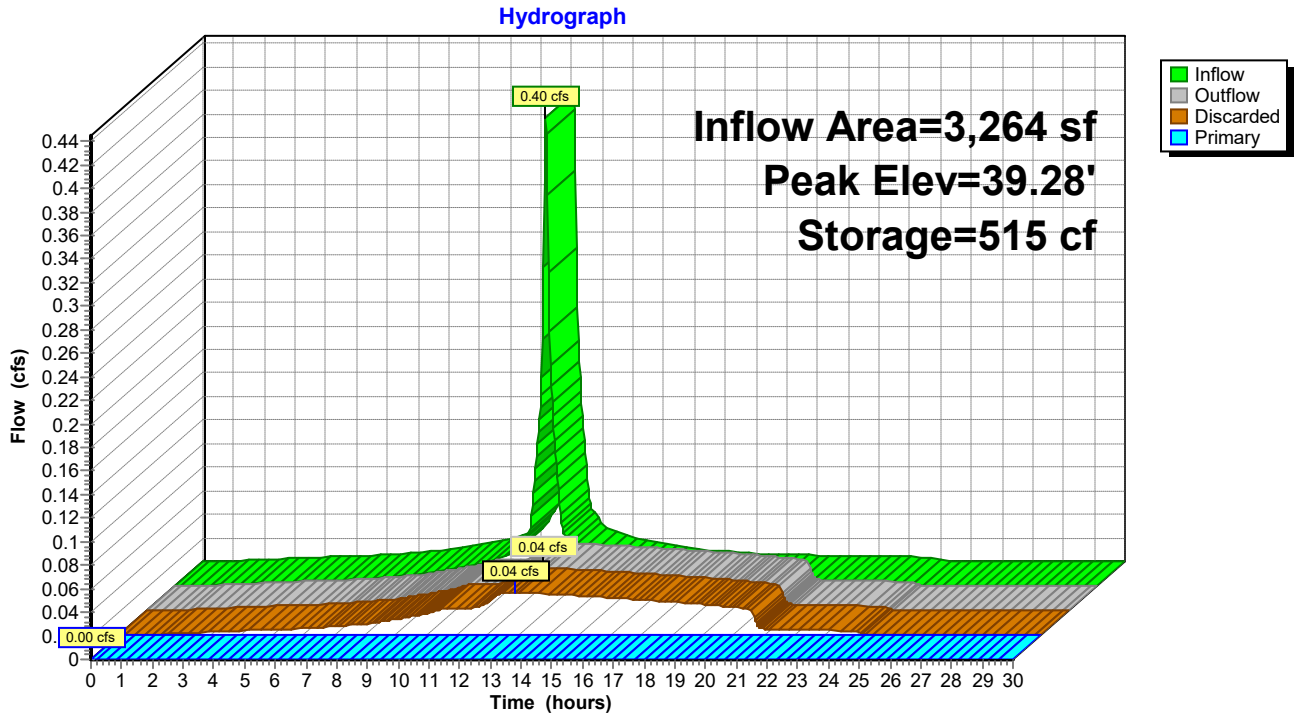
HydroCAD® 10.00-25 s/n 09067 © 2019 HydroCAD Software Solutions LLC

Type III 24-hr 10-Year Rainfall=5.26"

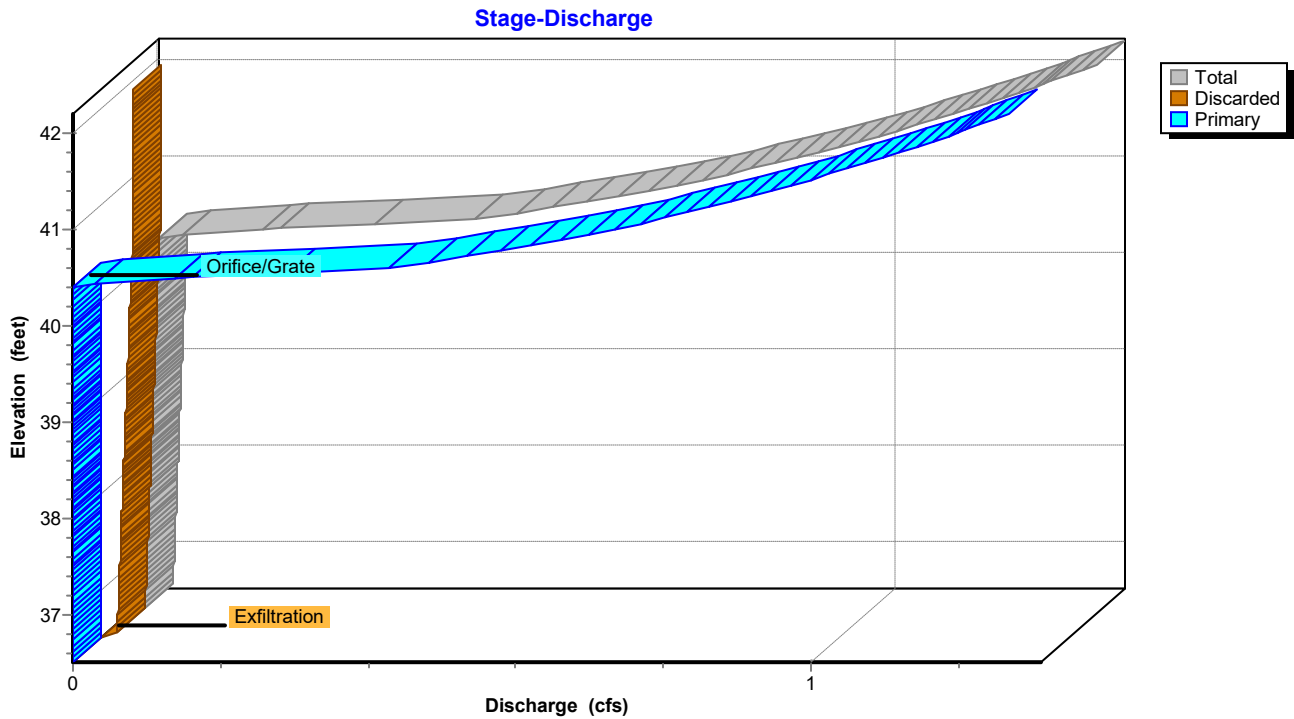
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Page 21

Pond 7P: STORMTECH SYSTEM



Pond 7P: STORMTECH SYSTEM



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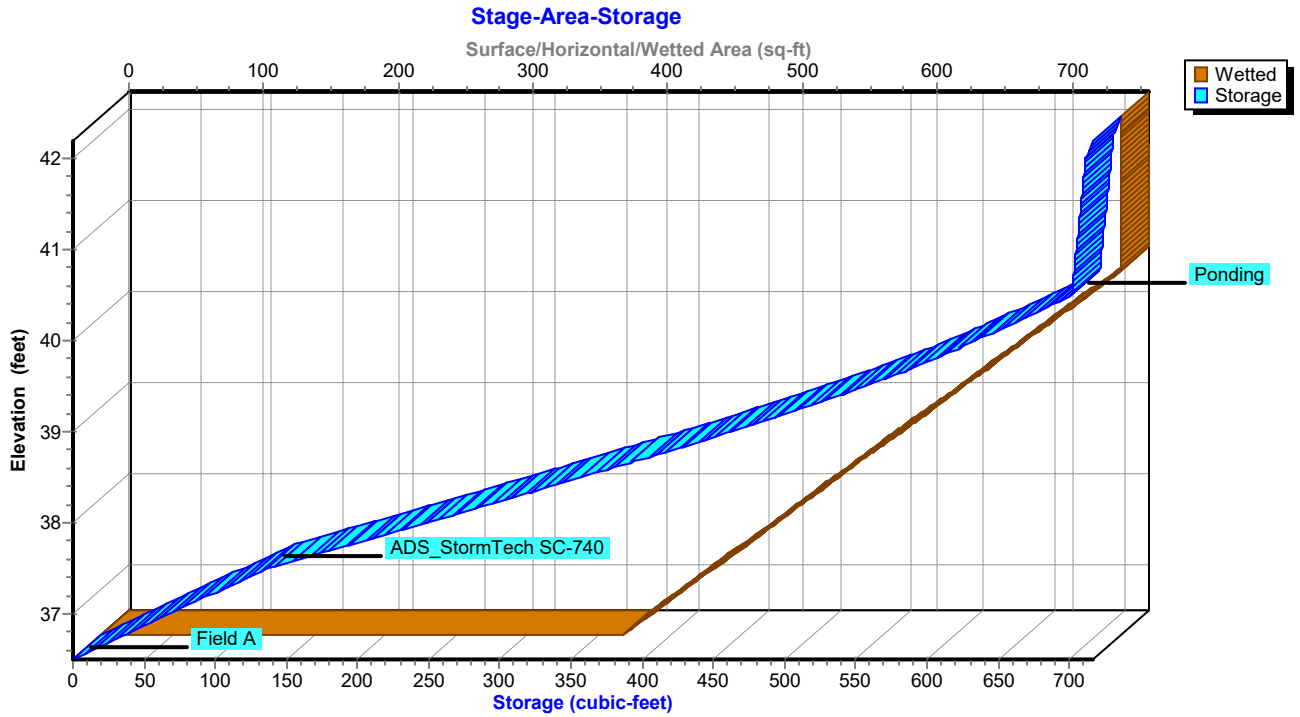
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Type III 24-hr 10-Year Rainfall=5.26"

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Page 22

Pond 7P: STORMTECH SYSTEM



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Type III 24-hr 10-Year Rainfall=5.26"

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Page 23

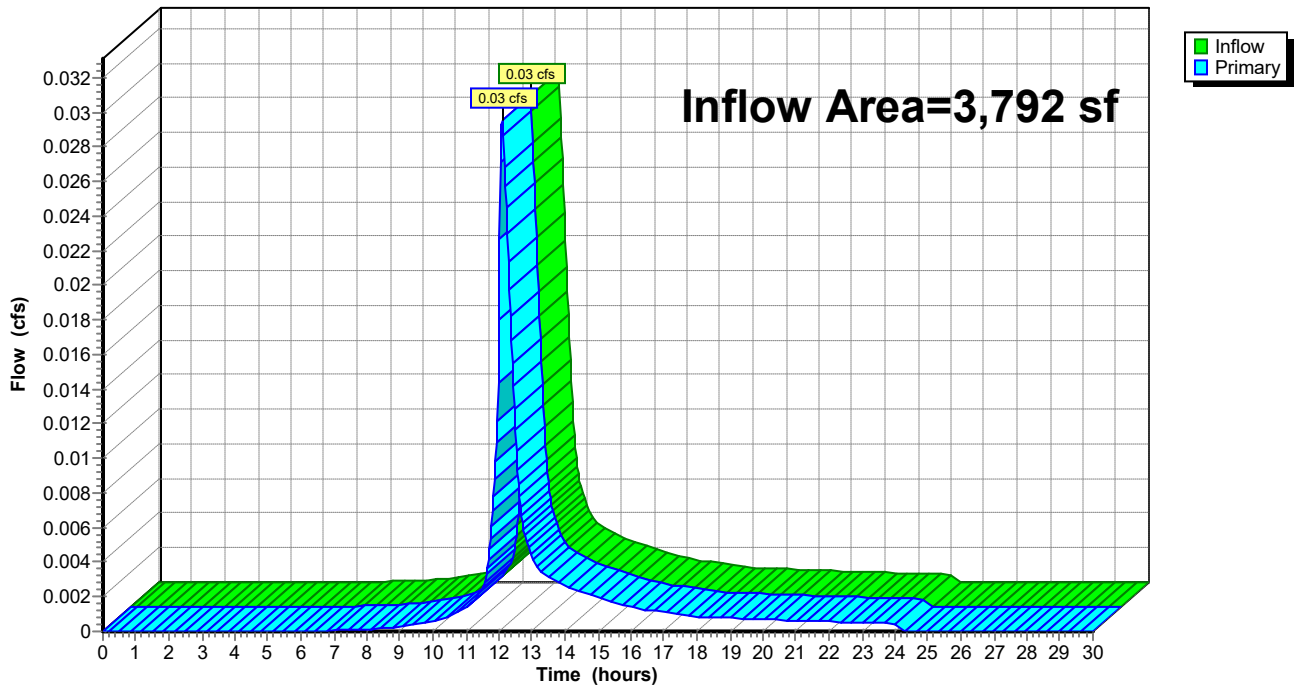
Summary for Link 3L: PROPOSED

Inflow Area = 3,792 sf, 86.08% Impervious, Inflow Depth = 0.38" for 10-Year event
Inflow = 0.03 cfs @ 12.10 hrs, Volume= 121 cf
Primary = 0.03 cfs @ 12.10 hrs, Volume= 121 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs

Link 3L: PROPOSED

Hydrograph



PROPOSED

Type III 24-hr 25-Year Rainfall=6.45"

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Page 24

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 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 2S: PROPOSED PERMEABLE Runoff Area=219 sf 0.00% Impervious Runoff Depth=4.73"
Tc=15.0 min CN=85 Runoff=0.02 cfs 86 cf

Subcatchment 4S: PROPOSED LANDSCAPE Runoff Area=309 sf 0.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=69 Runoff=0.03 cfs 79 cf

Subcatchment 5S: PROPOSED PAVED Runoff Area=948 sf 100.00% Impervious Runoff Depth=6.21"
Tc=5.0 min CN=98 Runoff=0.14 cfs 491 cf

Subcatchment 6S: PROPOSED ROOF Runoff Area=2,316 sf 100.00% Impervious Runoff Depth=6.21"
Tc=5.0 min CN=98 Runoff=0.35 cfs 1,199 cf

Pond 7P: STORMTECH SYSTEM Peak Elev=40.29' Storage=674 cf Inflow=0.49 cfs 1,690 cf
Discarded=0.04 cfs 1,690 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 1,690 cf

Link 3L: PROPOSED Inflow=0.04 cfs 165 cf
Primary=0.04 cfs 165 cf

Total Runoff Area = 3,792 sf Runoff Volume = 1,855 cf Average Runoff Depth = 5.87"
13.92% Pervious = 528 sf 86.08% Impervious = 3,264 sf

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Type III 24-hr 25-Year Rainfall=6.45"

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Page 25

Summary for Subcatchment 2S: PROPOSED PERMEABLE PAVERS

Runoff = 0.02 cfs @ 12.20 hrs, Volume= 86 cf, Depth= 4.73"

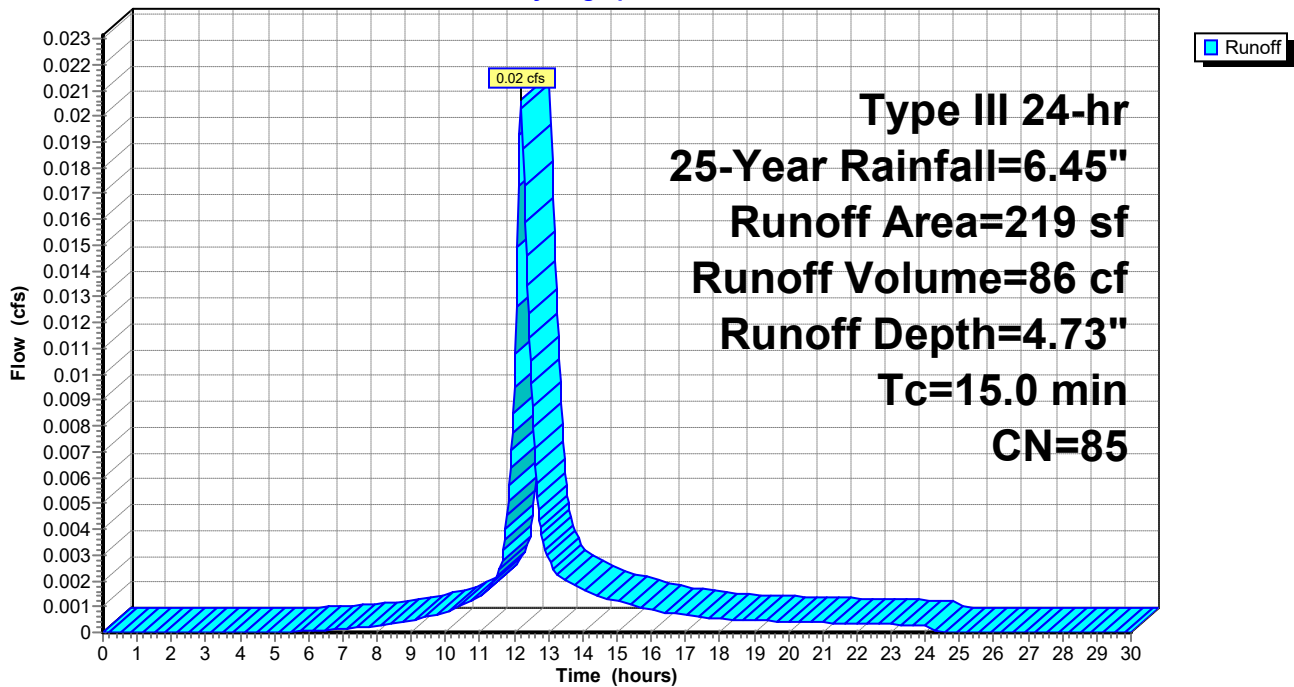
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.45"

Area (sf)	CN	Description
* 219	85	Permeable Pavers
219		100.00% Pervious Area

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

Subcatchment 2S: PROPOSED PERMEABLE PAVERS

Hydrograph



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Type III 24-hr 25-Year Rainfall=6.45"

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Page 26

Summary for Subcatchment 4S: PROPOSED LANDSCAPE AREA

Runoff = 0.03 cfs @ 12.08 hrs, Volume= 79 cf, Depth= 3.07"

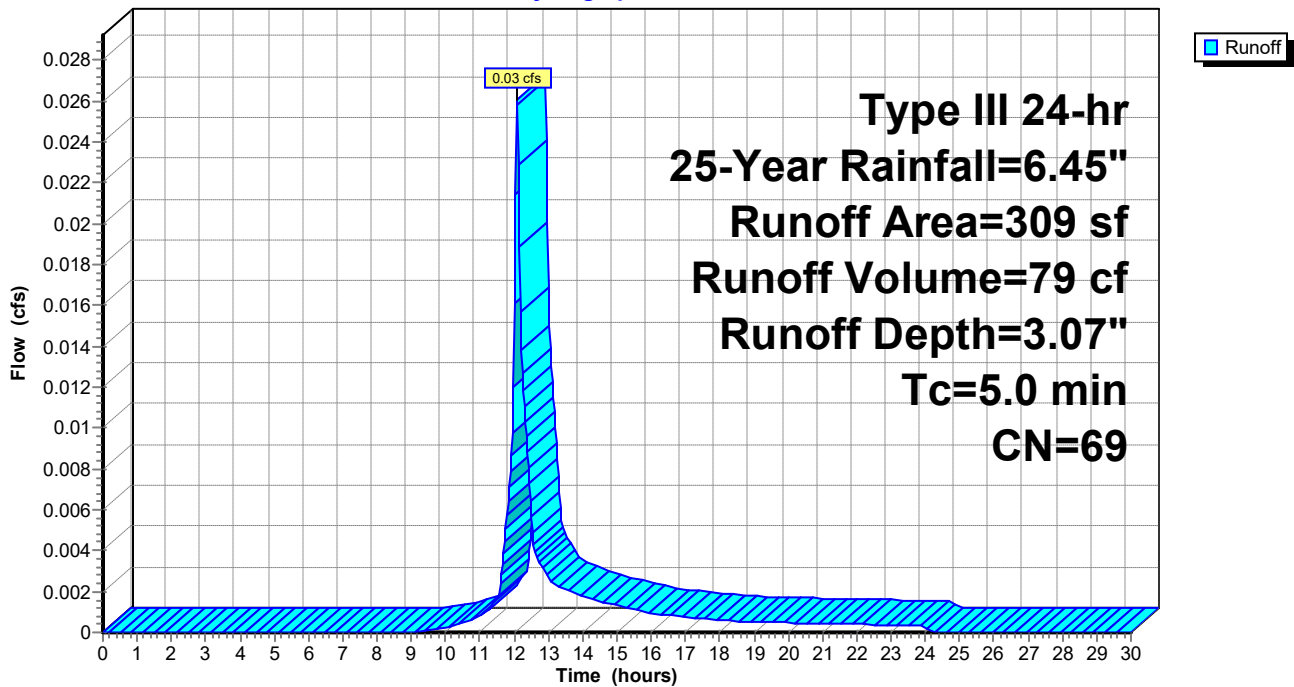
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.45"

Area (sf)	CN	Description
309	69	50-75% Grass cover, Fair, HSG B
309		100.00% Pervious Area

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

Subcatchment 4S: PROPOSED LANDSCAPE AREA

Hydrograph



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Type III 24-hr 25-Year Rainfall=6.45"

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Page 27

Summary for Subcatchment 5S: PROPOSED PAVED AREAS

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 491 cf, Depth= 6.21"

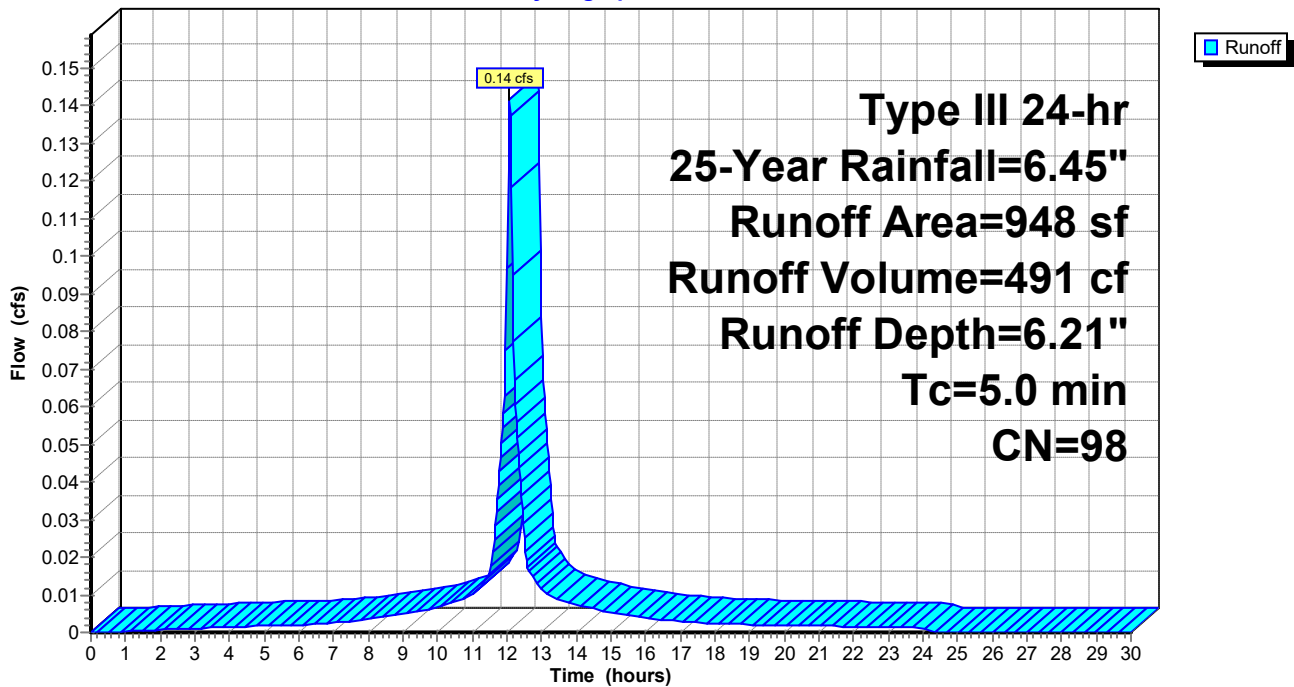
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.45"

Area (sf)	CN	Description
948	98	Paved parking, HSG B
948		100.00% Impervious Area

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

Subcatchment 5S: PROPOSED PAVED AREAS

Hydrograph



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Type III 24-hr 25-Year Rainfall=6.45"

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Page 28

Summary for Subcatchment 6S: PROPOSED ROOF

Runoff = 0.35 cfs @ 12.07 hrs, Volume= 1,199 cf, Depth= 6.21"

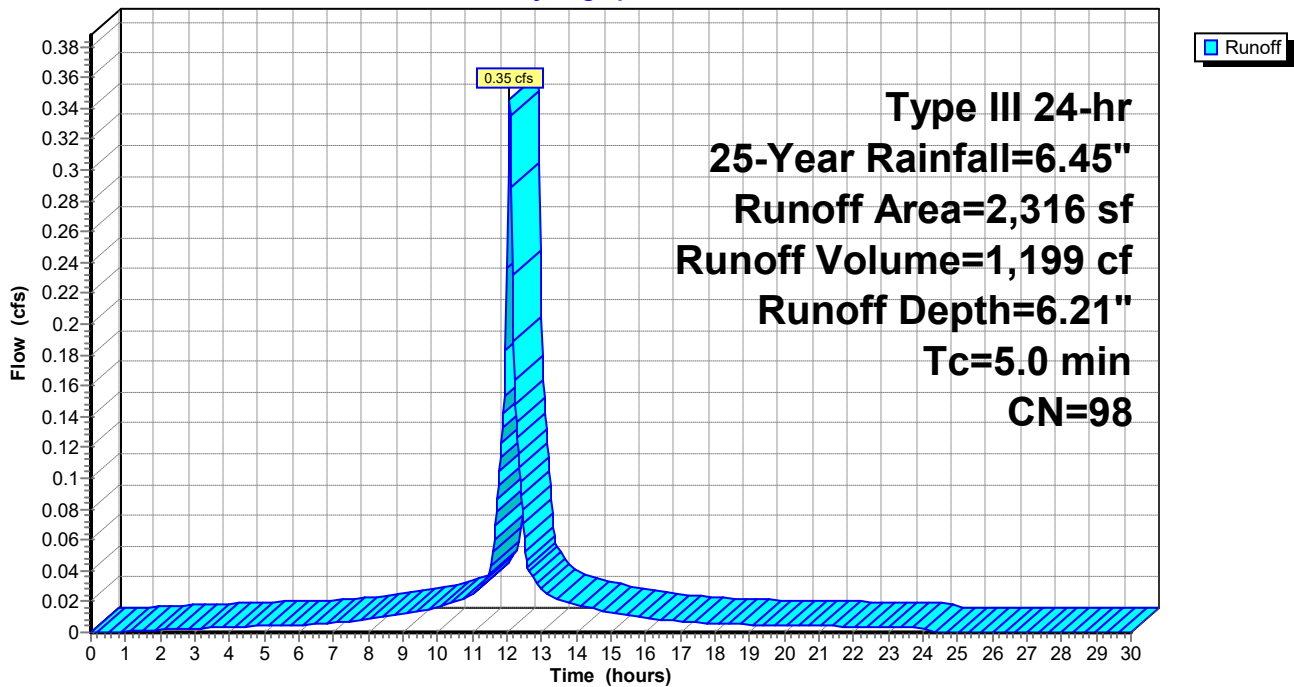
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-Year Rainfall=6.45"

Area (sf)	CN	Description
2,316	98	Roofs, HSG B
2,316		100.00% Impervious Area

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

Subcatchment 6S: PROPOSED ROOF

Hydrograph



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Type III 24-hr 25-Year Rainfall=6.45"

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Page 29

Summary for Pond 7P: STORMTECH SYSTEM

Inflow Area = 3,264 sf, 100.00% Impervious, Inflow Depth = 6.21" for 25-Year event
 Inflow = 0.49 cfs @ 12.07 hrs, Volume= 1,690 cf
 Outflow = 0.04 cfs @ 12.95 hrs, Volume= 1,690 cf, Atten= 92%, Lag= 52.8 min
 Discarded = 0.04 cfs @ 12.95 hrs, Volume= 1,690 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs / 3
 Peak Elev= 40.29' @ 12.95 hrs Surf.Area= 388 sf Storage= 674 cf

Plug-Flow detention time= 145.4 min calculated for 1,688 cf (100% of inflow)
 Center-of-Mass det. time= 145.2 min (888.4 - 743.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	36.50'	458 cf	35.08'W x 11.06'L x 4.00'H Field A 1,552 cf Overall - 244 cf Embedded = 1,308 cf x 35.0% Voids
#2A	37.50'	244 cf	ADS_StormTech SC-740 x 5 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 5 rows
#3	40.50'	15 cf	Ponding Listed below -Impervious
		717 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Cum.Store (cubic-feet)
40.50	0
42.00	10
42.20	15

Device	Routing	Invert	Outlet Devices
#1	Discarded	36.50'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	40.40'	6.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.04 cfs @ 12.95 hrs HW=40.29' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=36.50' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

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Type III 24-hr 25-Year Rainfall=6.45"

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Page 30

Pond 7P: STORMTECH SYSTEM - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 (ADS StormTech® SC-740 without end caps)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

Row Length Adjustment= +0.44' x 6.45 sf x 5 rows

51.0" Wide + 24.0" Spacing = 75.0" C-C Row Spacing

1 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 7.56' Row Length +21.0" End Stone x 2 = 11.06' Base Length

5 Rows x 51.0" Wide + 24.0" Spacing x 4 + 35.0" Side Stone x 2 = 35.08' Base Width

12.0" Base + 30.0" Chamber Height + 6.0" Cover = 4.00' Field Height

5 Chambers x 45.9 cf +0.44' Row Adjustment x 6.45 sf x 5 Rows = 243.8 cf Chamber Storage

1,551.9 cf Field - 243.8 cf Chambers = 1,308.0 cf Stone x 35.0% Voids = 457.8 cf Stone Storage

Chamber Storage + Stone Storage = 701.6 cf = 0.016 af

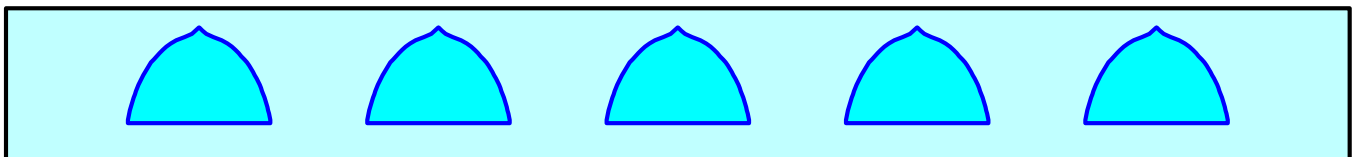
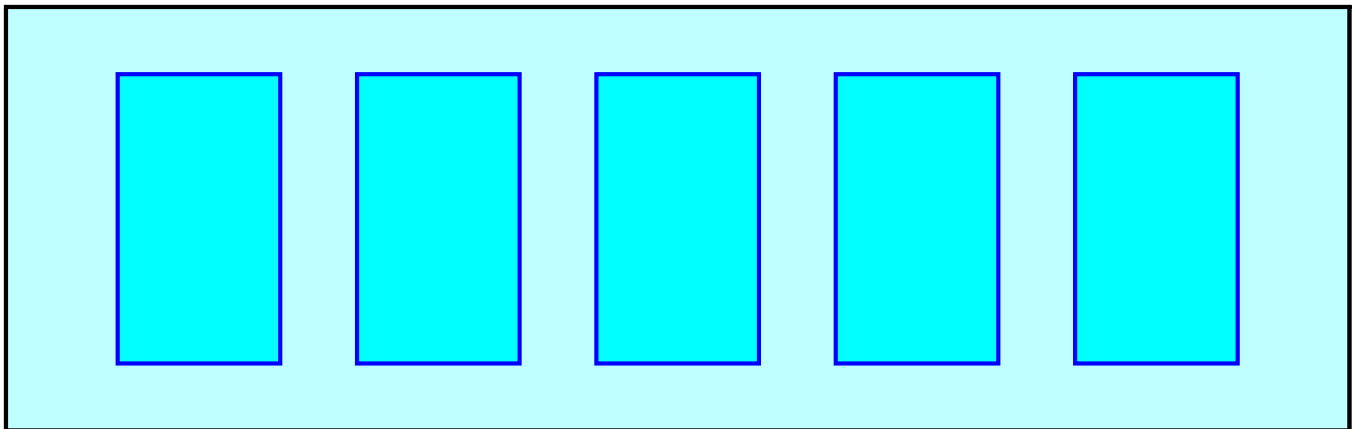
Overall Storage Efficiency = 45.2%

Overall System Size = 11.06' x 35.08' x 4.00'

5 Chambers

57.5 cy Field

48.4 cy Stone



PROPOSED

Prepared by SPRUHAN ENGINEERING P.E.

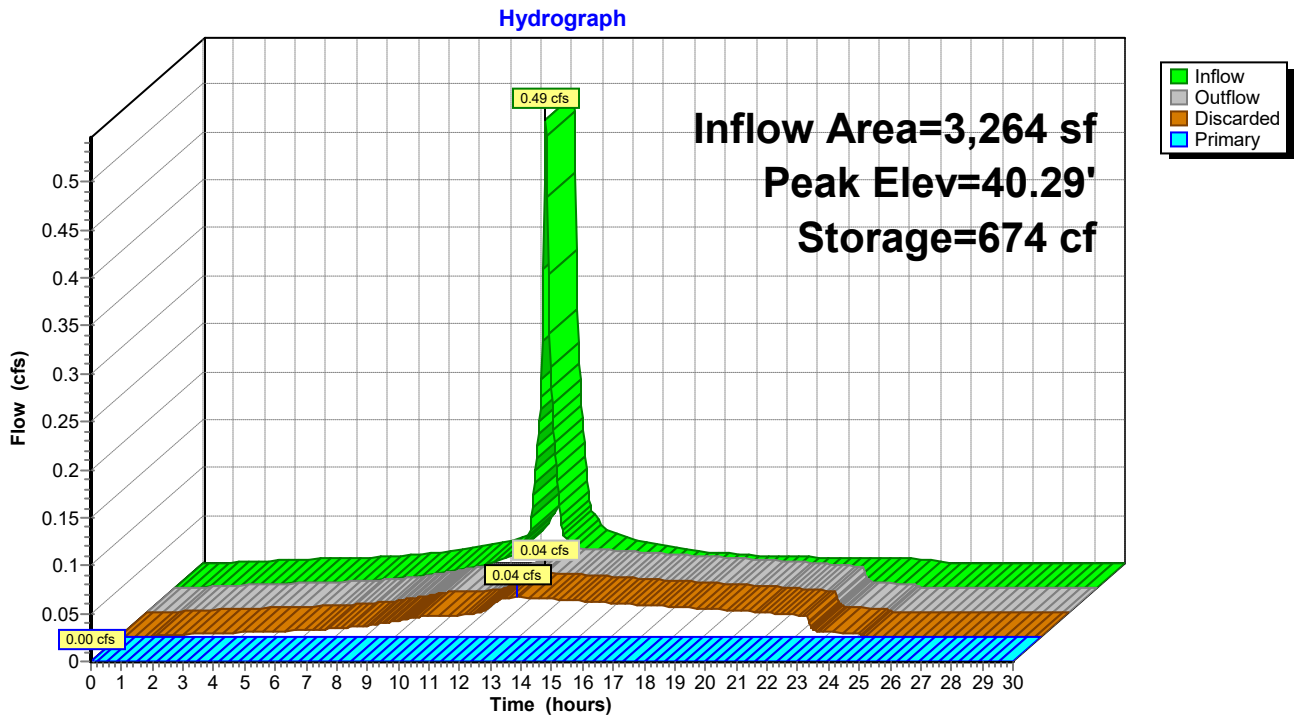
HydroCAD® 10.00-25 s/n 09067 © 2019 HydroCAD Software Solutions LLC

Type III 24-hr 25-Year Rainfall=6.45"

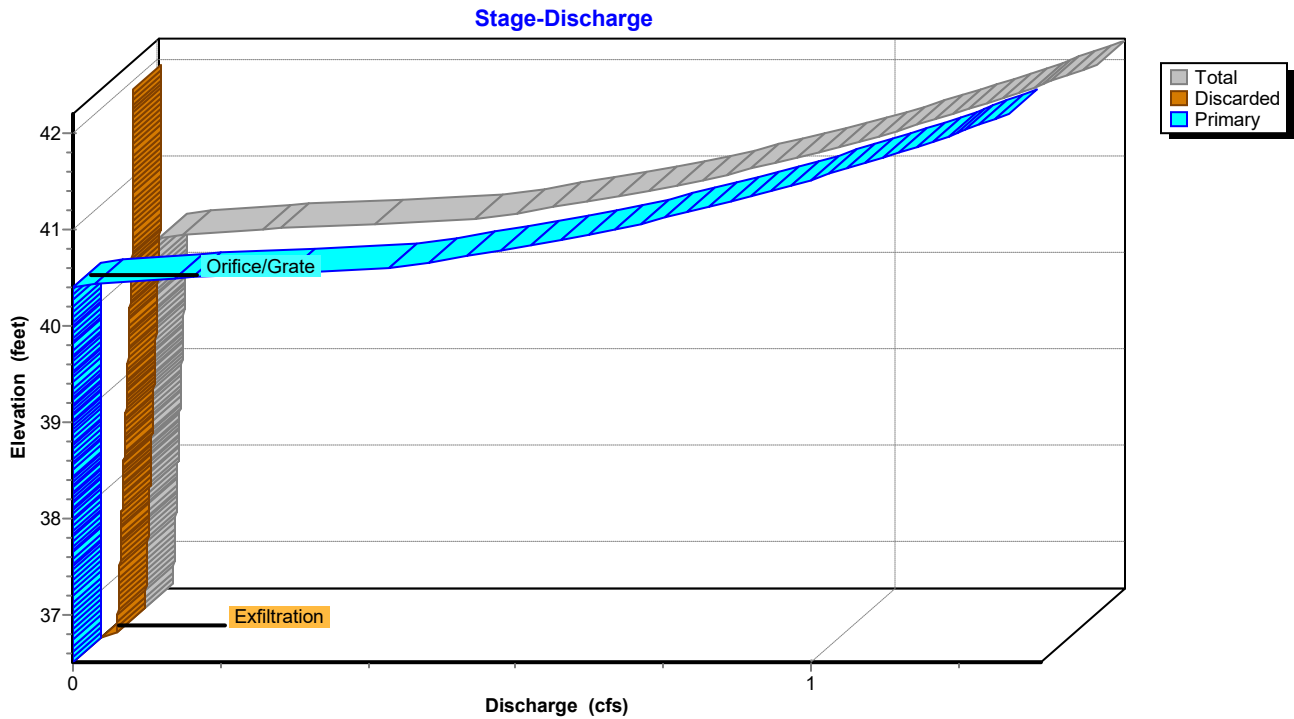
Printed 6/13/2022

Page 31

Pond 7P: STORMTECH SYSTEM



Pond 7P: STORMTECH SYSTEM



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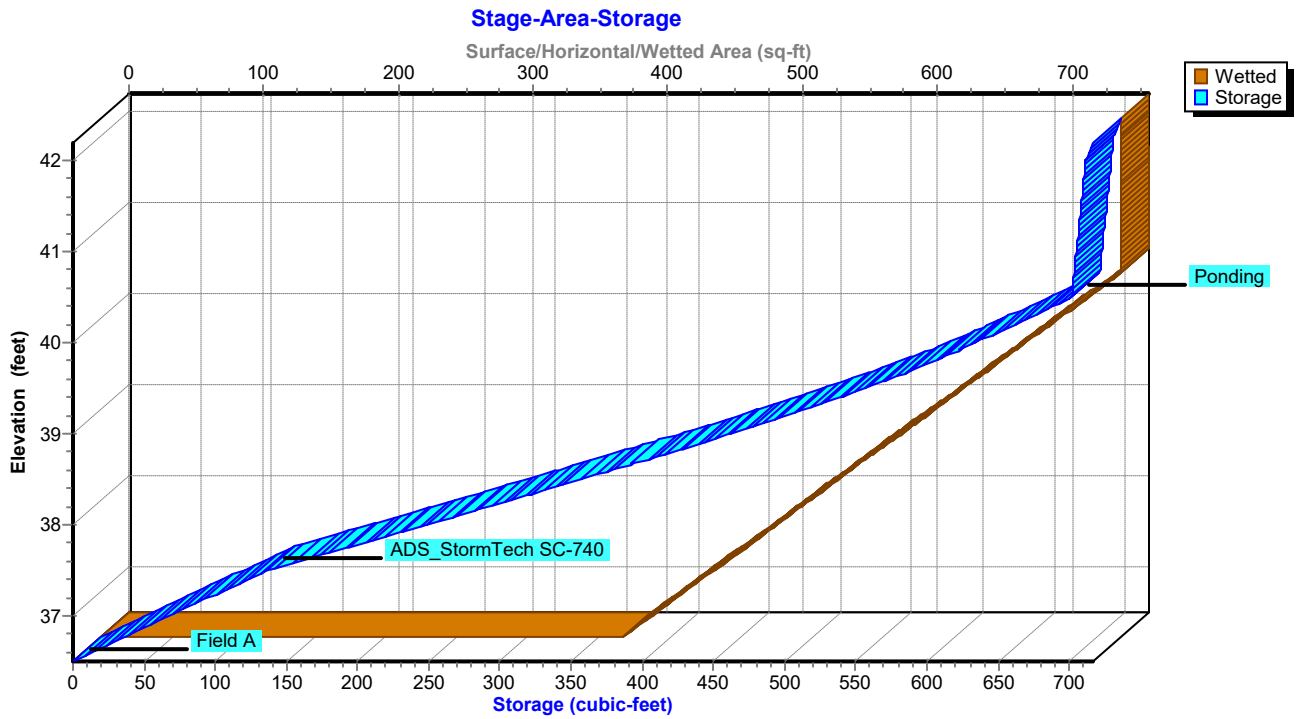
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Type III 24-hr 25-Year Rainfall=6.45"

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Page 32

Pond 7P: STORMTECH SYSTEM



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Type III 24-hr 25-Year Rainfall=6.45"

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Page 33

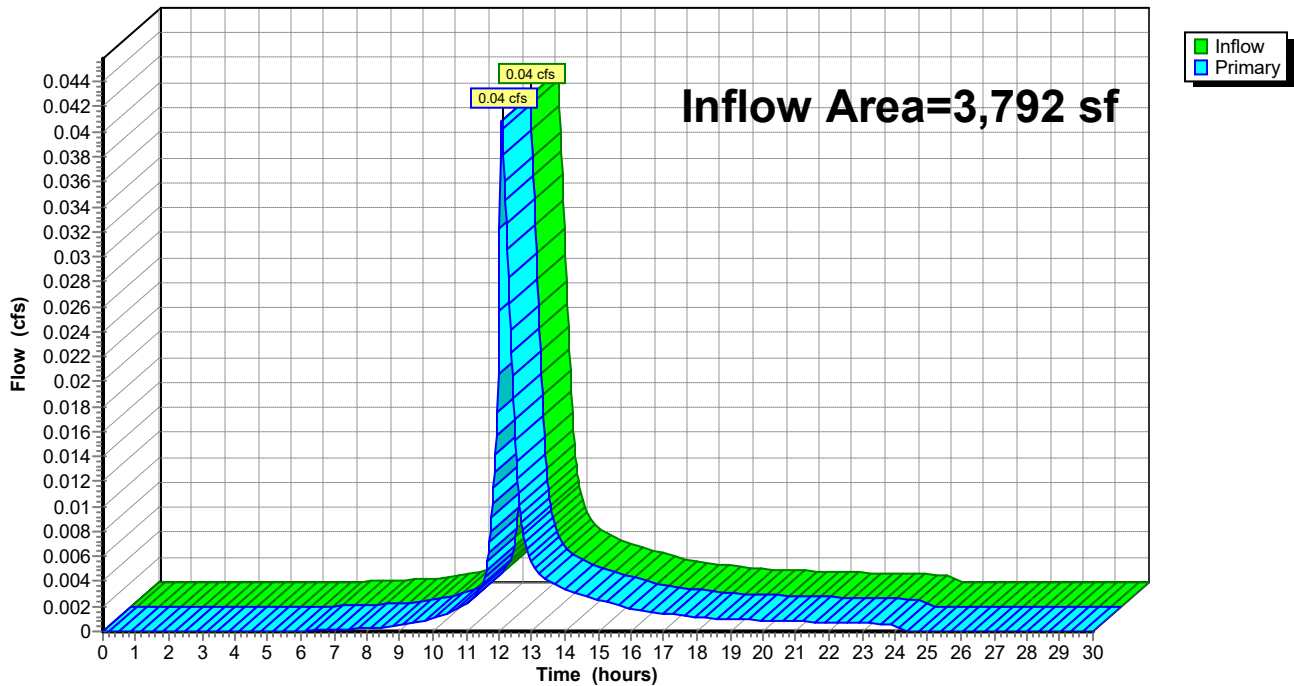
Summary for Link 3L: PROPOSED

Inflow Area = 3,792 sf, 86.08% Impervious, Inflow Depth = 0.52" for 25-Year event
Inflow = 0.04 cfs @ 12.10 hrs, Volume= 165 cf
Primary = 0.04 cfs @ 12.10 hrs, Volume= 165 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs

Link 3L: PROPOSED

Hydrograph



PROPOSED

Type III 24-hr 100-Year Rainfall=8.29"

Prepared by SPRUHAN ENGINEERING P.E.

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Page 34

Time span=0.00-30.00 hrs, dt=0.03 hrs, 1001 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 2S: PROPOSED PERMEABLE Runoff Area=219 sf 0.00% Impervious Runoff Depth=6.49"
Tc=15.0 min CN=85 Runoff=0.03 cfs 118 cf

Subcatchment 4S: PROPOSED LANDSCAPE Runoff Area=309 sf 0.00% Impervious Runoff Depth=4.60"
Tc=5.0 min CN=69 Runoff=0.04 cfs 118 cf

Subcatchment 5S: PROPOSED PAVED Runoff Area=948 sf 100.00% Impervious Runoff Depth=8.05"
Tc=5.0 min CN=98 Runoff=0.18 cfs 636 cf

Subcatchment 6S: PROPOSED ROOF Runoff Area=2,316 sf 100.00% Impervious Runoff Depth=8.05"
Tc=5.0 min CN=98 Runoff=0.45 cfs 1,554 cf

Pond 7P: STORMTECH SYSTEM Peak Elev=40.56' Storage=702 cf Inflow=0.63 cfs 2,190 cf
Discarded=0.04 cfs 1,926 cf Primary=0.31 cfs 265 cf Outflow=0.35 cfs 2,191 cf

Link 3L: PROPOSED Inflow=0.36 cfs 502 cf
Primary=0.36 cfs 502 cf

Total Runoff Area = 3,792 sf Runoff Volume = 2,426 cf Average Runoff Depth = 7.68"
13.92% Pervious = 528 sf 86.08% Impervious = 3,264 sf

PROPOSED

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Type III 24-hr 100-Year Rainfall=8.29"

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Page 35

Summary for Subcatchment 2S: PROPOSED PERMEABLE PAVERS

Runoff = 0.03 cfs @ 12.20 hrs, Volume= 119 cf, Depth= 6.49"

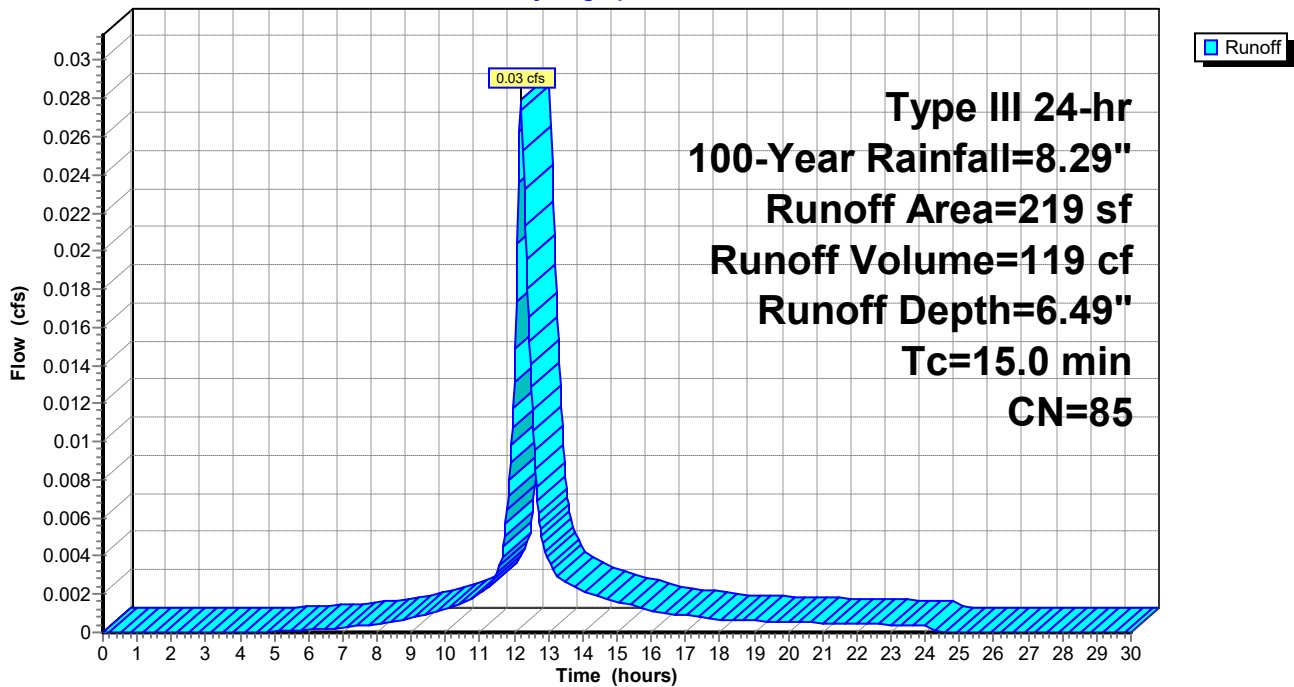
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.29"

Area (sf)	CN	Description
* 219	85	Permeable Pavers
219		100.00% Pervious Area

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

Subcatchment 2S: PROPOSED PERMEABLE PAVERS

Hydrograph



PROPOSED

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Type III 24-hr 100-Year Rainfall=8.29"

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Page 36

Summary for Subcatchment 4S: PROPOSED LANDSCAPE AREA

Runoff = 0.04 cfs @ 12.08 hrs, Volume= 118 cf, Depth= 4.60"

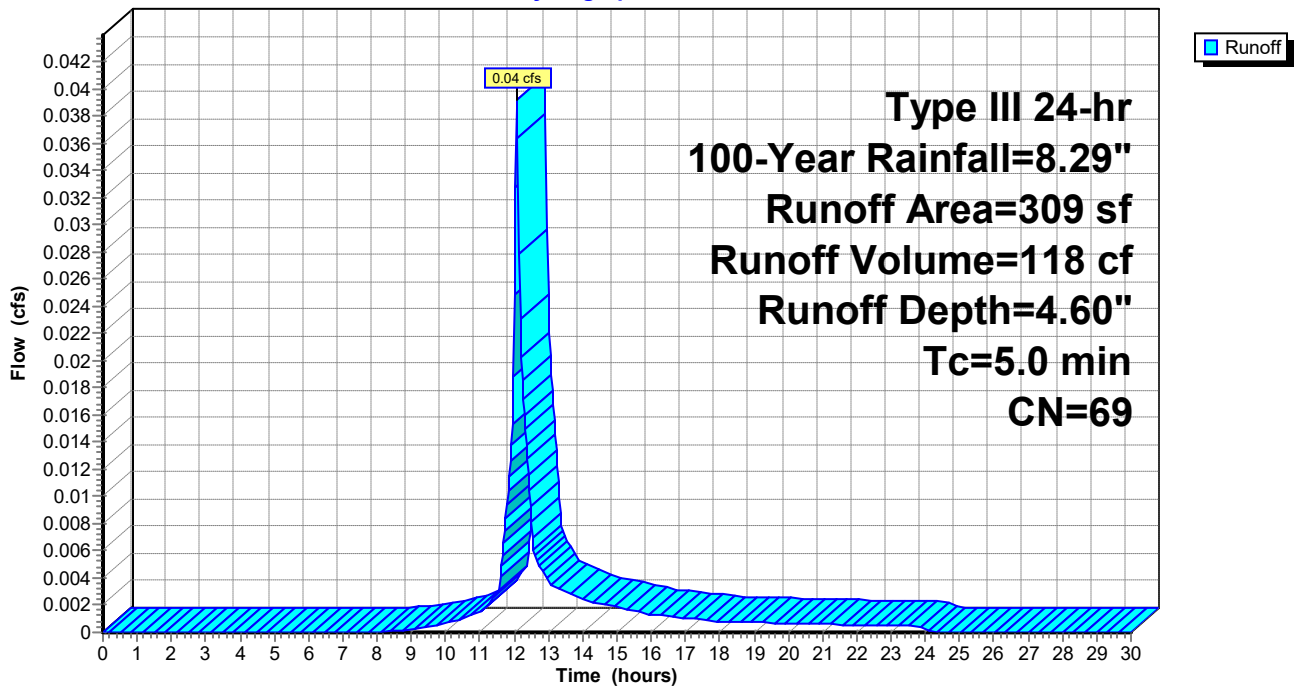
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.29"

Area (sf)	CN	Description
309	69	50-75% Grass cover, Fair, HSG B
309		100.00% Pervious Area

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

Subcatchment 4S: PROPOSED LANDSCAPE AREA

Hydrograph



PROPOSED

Prepared by SPRUHAN ENGINEERING P.E.

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Type III 24-hr 100-Year Rainfall=8.29"

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Page 37

Summary for Subcatchment 5S: PROPOSED PAVED AREAS

Runoff = 0.18 cfs @ 12.07 hrs, Volume= 636 cf, Depth= 8.05"

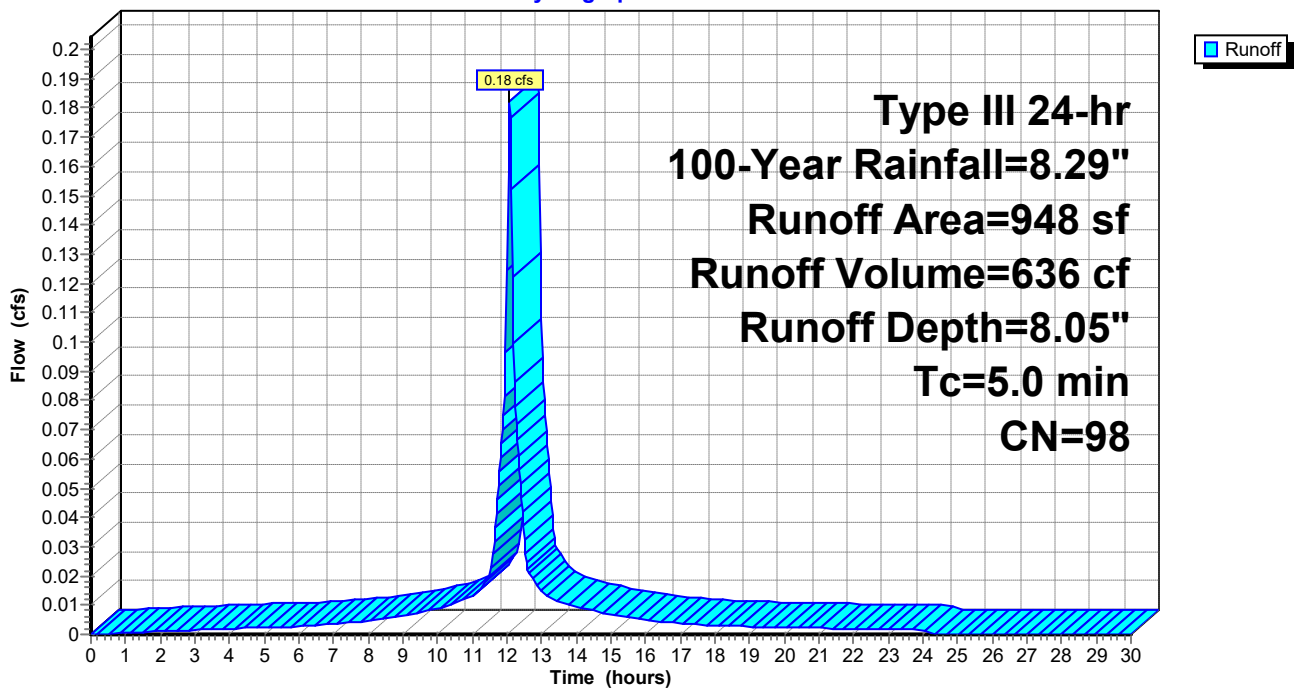
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.29"

Area (sf)	CN	Description
948	98	Paved parking, HSG B
948		100.00% Impervious Area

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

Subcatchment 5S: PROPOSED PAVED AREAS

Hydrograph



PROPOSED

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Type III 24-hr 100-Year Rainfall=8.29"

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Page 38

Summary for Subcatchment 6S: PROPOSED ROOF

Runoff = 0.45 cfs @ 12.07 hrs, Volume= 1,554 cf, Depth= 8.05"

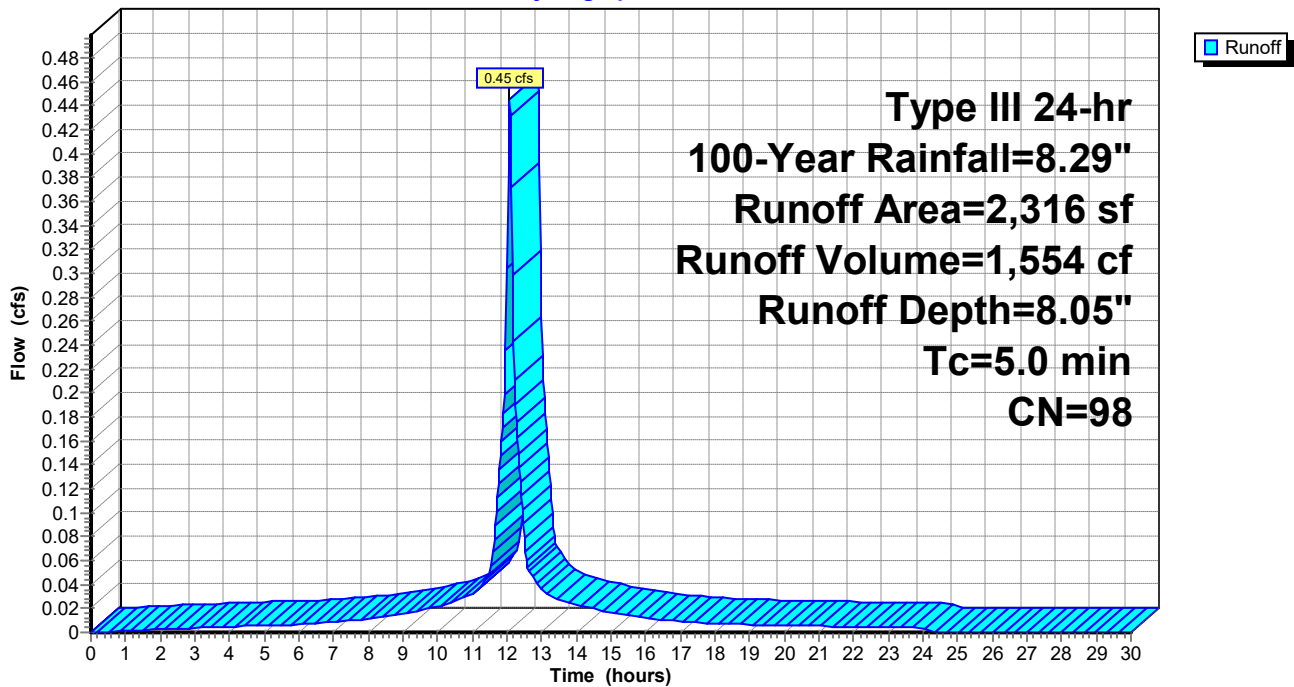
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.29"

Area (sf)	CN	Description
2,316	98	Roofs, HSG B
2,316		100.00% Impervious Area

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

Subcatchment 6S: PROPOSED ROOF

Hydrograph



PROPOSED

Type III 24-hr 100-Year Rainfall=8.29"

Prepared by SPRUHAN ENGINEERING P.E.

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Page 39

Summary for Pond 7P: STORMTECH SYSTEM

Inflow Area = 3,264 sf, 100.00% Impervious, Inflow Depth = 8.05" for 100-Year event
 Inflow = 0.63 cfs @ 12.07 hrs, Volume= 2,190 cf
 Outflow = 0.35 cfs @ 12.21 hrs, Volume= 2,191 cf, Atten= 43%, Lag= 8.5 min
 Discarded = 0.04 cfs @ 12.21 hrs, Volume= 1,926 cf
 Primary = 0.31 cfs @ 12.21 hrs, Volume= 265 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs / 3
 Peak Elev= 40.56' @ 12.21 hrs Surf.Area= 388 sf Storage= 702 cf

Plug-Flow detention time= 134.2 min calculated for 2,189 cf (100% of inflow)
 Center-of-Mass det. time= 134.6 min (874.4 - 739.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	36.50'	458 cf	35.08'W x 11.06'L x 4.00'H Field A 1,552 cf Overall - 244 cf Embedded = 1,308 cf x 35.0% Voids
#2A	37.50'	244 cf	ADS_StormTech SC-740 x 5 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 5 rows
#3	40.50'	15 cf	Ponding Listed below -Impervious
		717 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Cum.Store (cubic-feet)
40.50	0
42.00	10
42.20	15

Device	Routing	Invert	Outlet Devices
#1	Discarded	36.50'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	40.40'	6.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.04 cfs @ 12.21 hrs HW=40.56' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.31 cfs @ 12.21 hrs HW=40.55' (Free Discharge)
 ↑2=Orifice/Grate (Weir Controls 0.31 cfs @ 1.28 fps)

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Type III 24-hr 100-Year Rainfall=8.29"

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Page 40

Pond 7P: STORMTECH SYSTEM - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 (ADS StormTech® SC-740 without end caps)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

Row Length Adjustment= +0.44' x 6.45 sf x 5 rows

51.0" Wide + 24.0" Spacing = 75.0" C-C Row Spacing

1 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 7.56' Row Length +21.0" End Stone x 2 = 11.06' Base Length

5 Rows x 51.0" Wide + 24.0" Spacing x 4 + 35.0" Side Stone x 2 = 35.08' Base Width

12.0" Base + 30.0" Chamber Height + 6.0" Cover = 4.00' Field Height

5 Chambers x 45.9 cf +0.44' Row Adjustment x 6.45 sf x 5 Rows = 243.8 cf Chamber Storage

1,551.9 cf Field - 243.8 cf Chambers = 1,308.0 cf Stone x 35.0% Voids = 457.8 cf Stone Storage

Chamber Storage + Stone Storage = 701.6 cf = 0.016 af

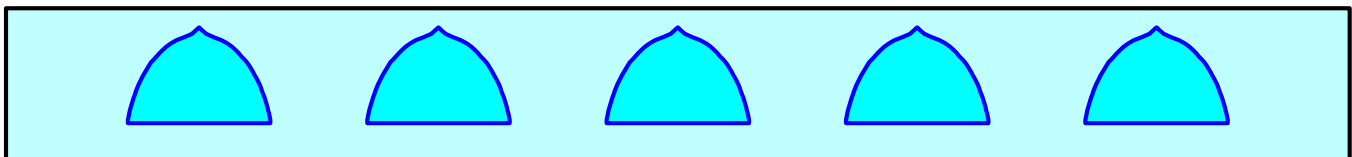
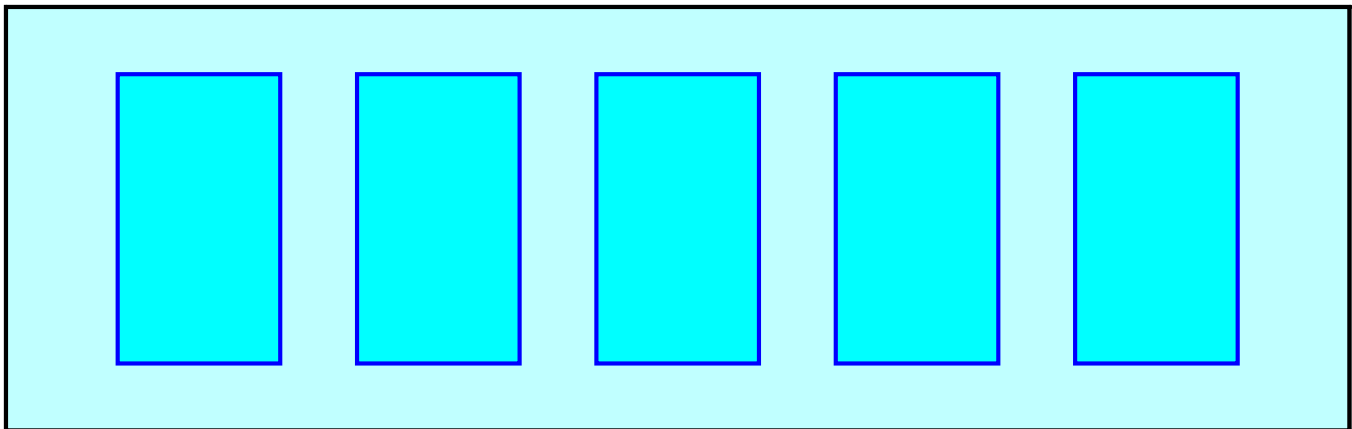
Overall Storage Efficiency = 45.2%

Overall System Size = 11.06' x 35.08' x 4.00'

5 Chambers

57.5 cy Field

48.4 cy Stone



PROPOSED

Prepared by SPRUHAN ENGINEERING P.E.

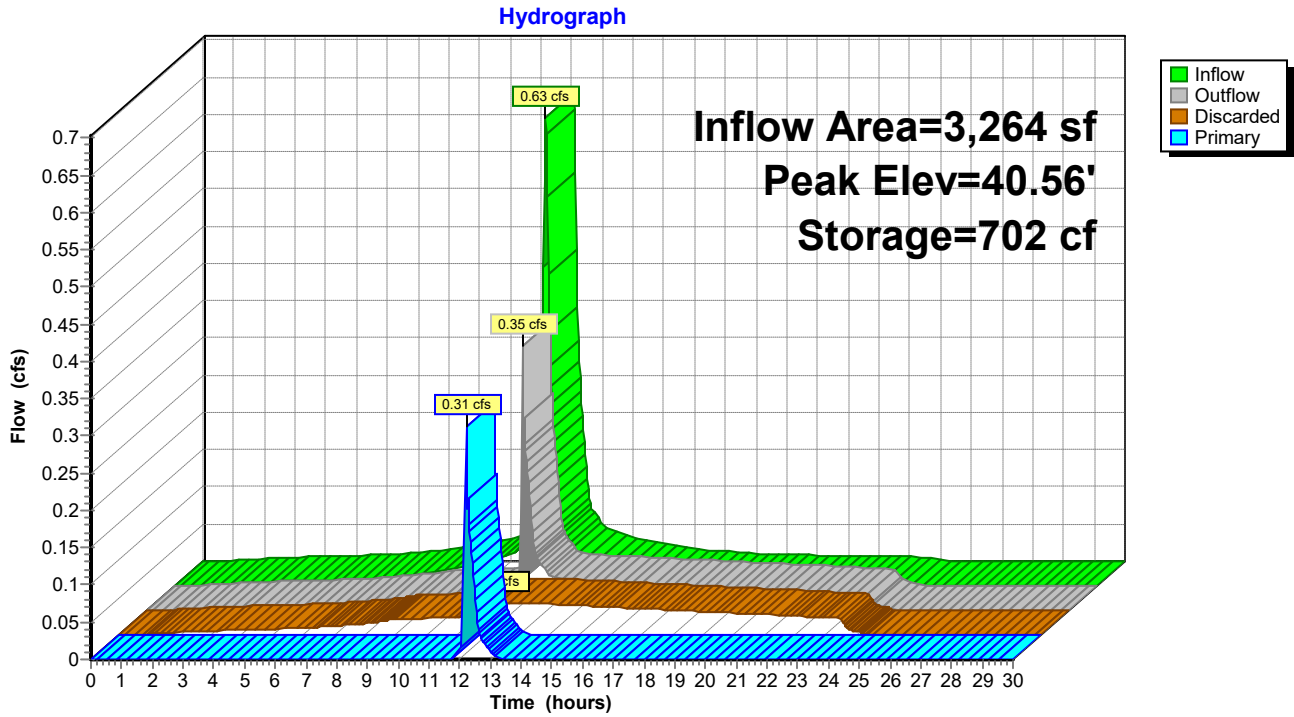
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Type III 24-hr 100-Year Rainfall=8.29"

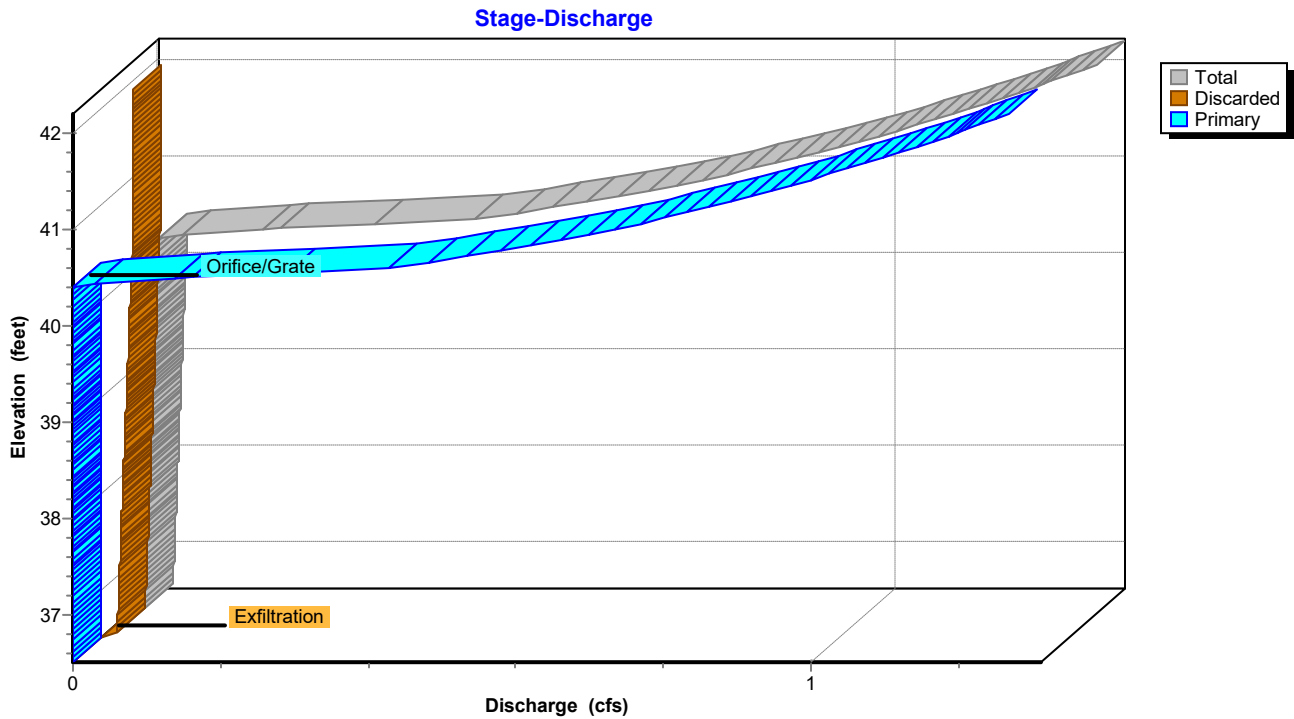
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Page 41

Pond 7P: STORMTECH SYSTEM



Pond 7P: STORMTECH SYSTEM



PROPOSED

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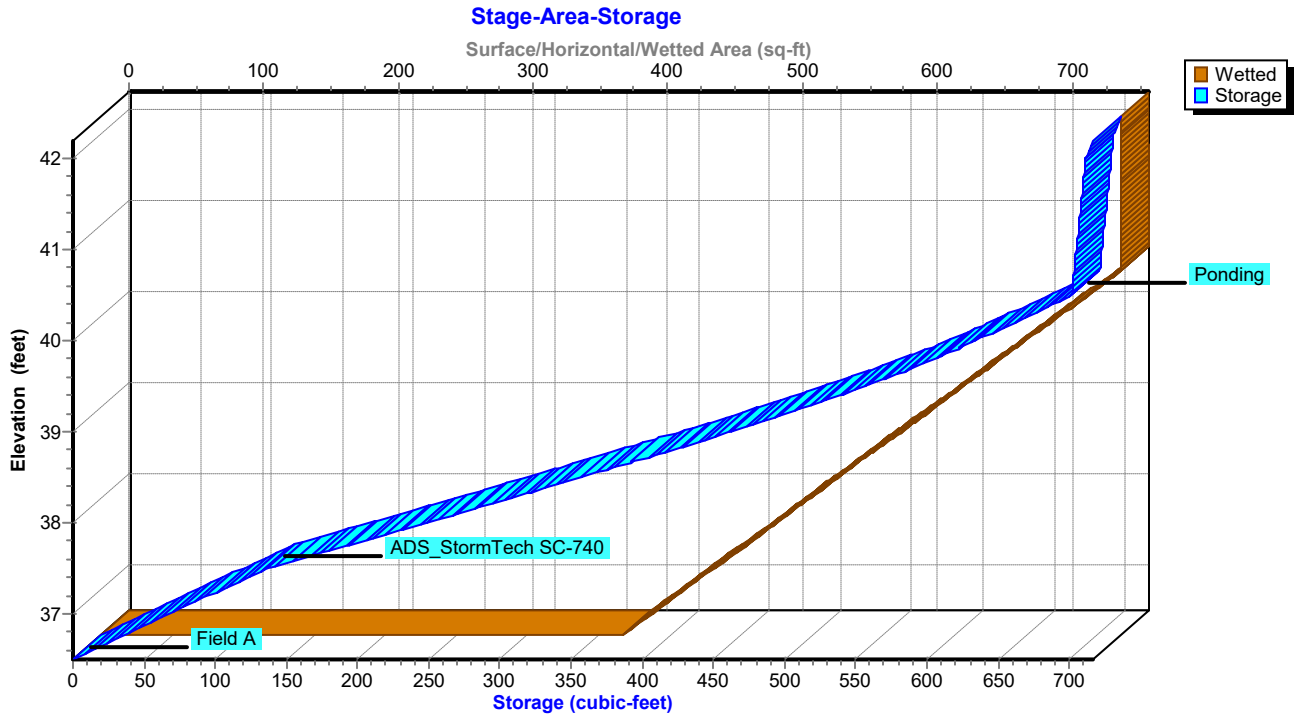
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Type III 24-hr 100-Year Rainfall=8.29"

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Page 42

Pond 7P: STORMTECH SYSTEM



PROPOSED

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Type III 24-hr 100-Year Rainfall=8.29"

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Page 43

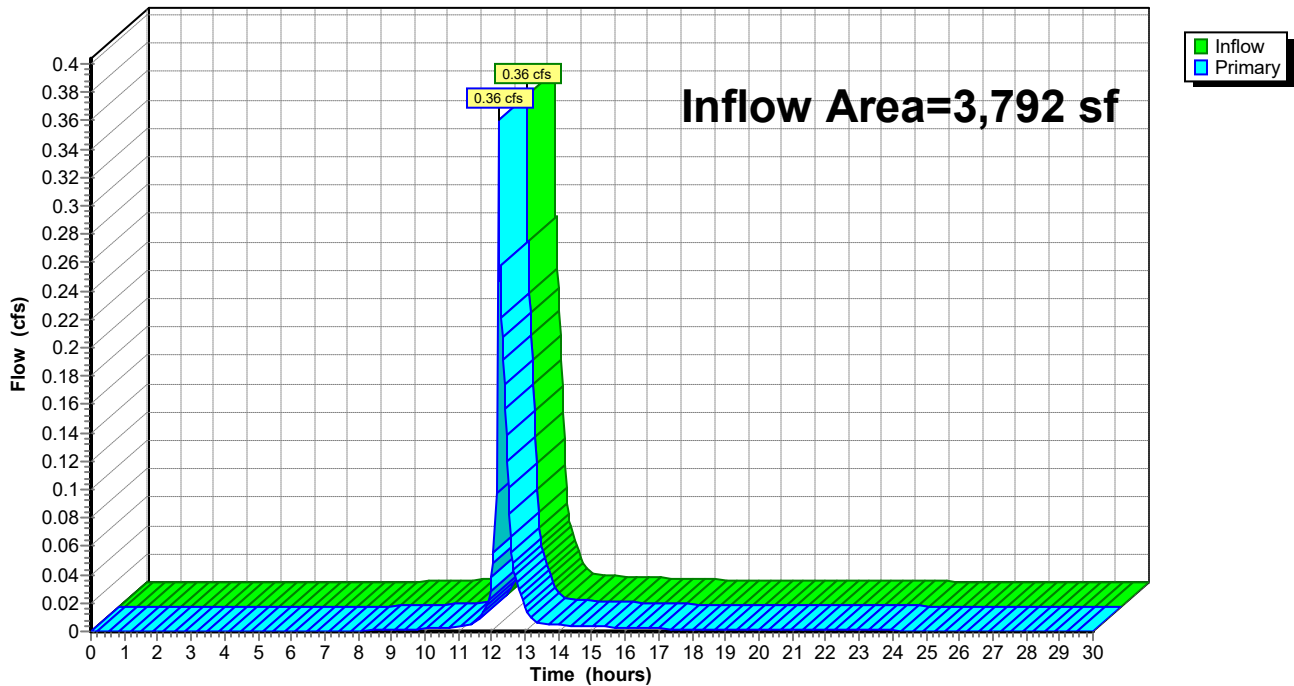
Summary for Link 3L: PROPOSED

Inflow Area = 3,792 sf, 86.08% Impervious, Inflow Depth = 1.59" for 100-Year event
Inflow = 0.36 cfs @ 12.21 hrs, Volume= 502 cf
Primary = 0.36 cfs @ 12.21 hrs, Volume= 502 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.03 hrs

Link 3L: PROPOSED

Hydrograph

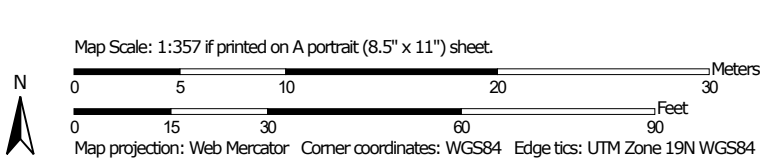


Appendix B
Soils information

Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)


Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit


 Clay Spot


 Closed Depression

 Gravel Pit

 Gravelly Spot


 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water


 Perennial Water

 Rock Outcrop


 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole


 Slide or Slip


 Sodic Spot


 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals


Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
 Survey Area Data: Version 17, Sep 3, 2021

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

Date(s) aerial images were photographed: Sep 25, 2020—Oct 4, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
655	Udorthents, wet substratum	0.3	100.0%
Totals for Area of Interest		0.3	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Custom Soil Resource Report

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Norfolk and Suffolk Counties, Massachusetts

655—Udorthents, wet substratum

Map Unit Setting

National map unit symbol: vkyd
Elevation: -30 to 310 feet
Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Landform position (two-dimensional): Shoulder, footslope
Landform position (three-dimensional): Riser, tread
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Excavated and filled sandy and gravelly human transported material over highly-decomposed herbaceous organic material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Minor Components

Urban land

Percent of map unit: 3 percent
Hydric soil rating: Unranked

Ipswich

Percent of map unit: 2 percent
Landform: Marshes
Hydric soil rating: Yes

Appendix C
TSS Calculations

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: PRE-TREATMENT

	B	C	D	E	F
	BMP ¹	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (C*D)	Remaining Load (D-E)
TSS Removal Calculation Worksheet	Deep Sump and Hooded Catch Basin	0.25	1.00	0.25	0.75
	Proprietary Treatment Practice	0.52	0.75	0.39	0.36
		0.00	0.36	0.00	0.36
		0.00	0.36	0.00	0.36
		0.00	0.36	0.00	0.36

Total TSS Removal =

64%

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

Project: 581 AMERICAN LEGION HIGHWAY
 Prepared By: GP
 Date: 6/3/2022

*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

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:

TSS Removal Calculation Worksheet

B	C	D	E	F
BMP ¹	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (C*D)	Remaining Load (D-E)
Infiltration Basin	0.80	1.00	0.80	0.20
	0.00	0.20	0.00	0.20
	0.00	0.20	0.00	0.20
	0.00	0.20	0.00	0.20
	0.00	0.20	0.00	0.20

Total TSS Removal =

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

Project:
 Prepared By:
 Date:

*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

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:

	B	C	D	E	F
	BMP ¹	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (C*D)	Remaining Load (D-E)
TSS Removal Calculation Worksheet	Deep Sump and Hooded Catch Basin	0.25	1.00	0.25	0.75
	Proprietary Treatment Practice	0.52	0.75	0.39	0.36
	Infiltration Trench	0.80	0.36	0.29	0.07
		0.00	0.07	0.00	0.07
		0.00	0.07	0.00	0.07

Total TSS Removal =

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

Project:
 Prepared By:
 Date:

*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



Checklist for Stormwater Report

A. Introduction

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



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

The Stormwater Report must include:

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

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

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

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

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

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



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.

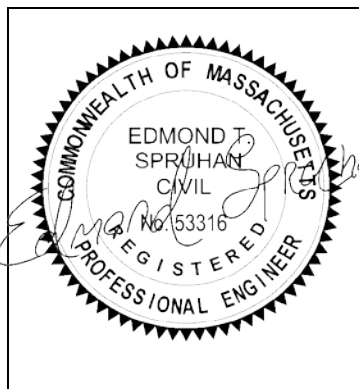
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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



Edmond Spruhan.

6/1/2022

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): Storm-Tech units with crushed stone bed & Oil grease separator.

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

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



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.

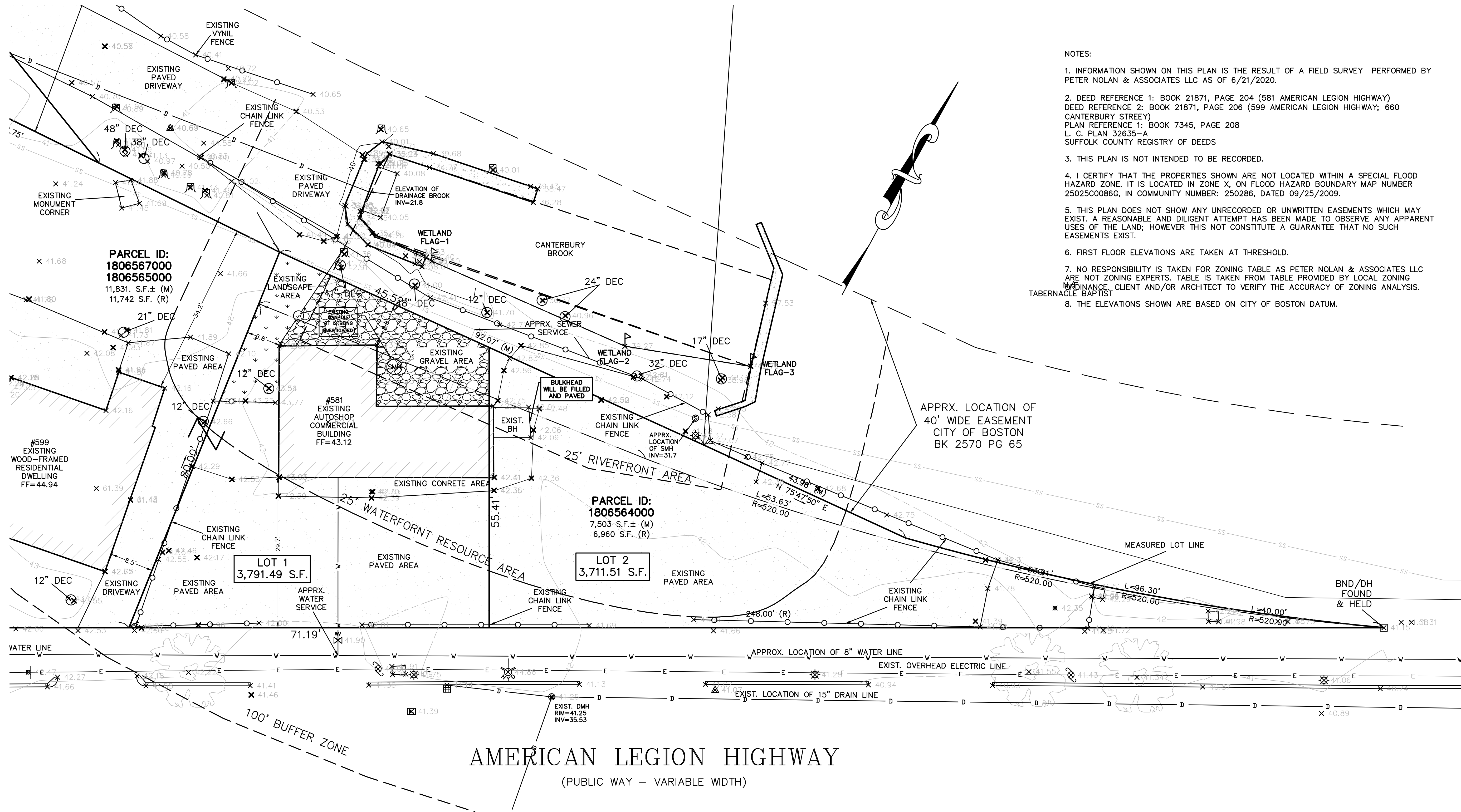
Standard 9: Operation and Maintenance Plan

- 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.

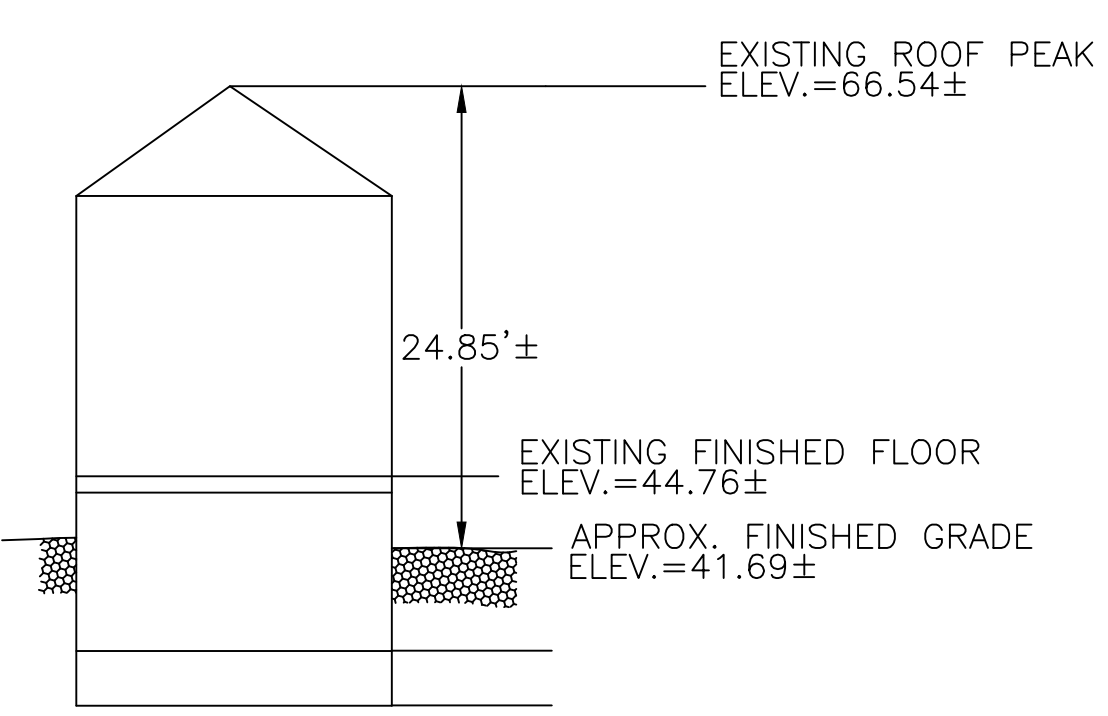
Standard 10: Prohibition of Illicit Discharges

- 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.

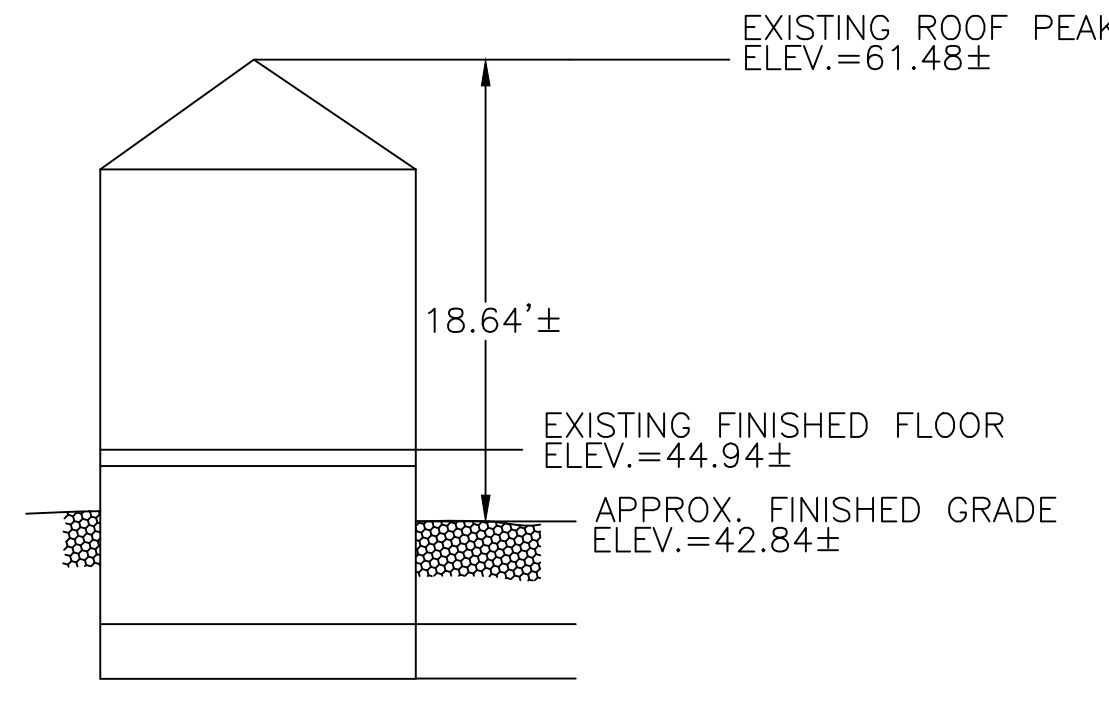
LEGEND	
[Symbol]	BOUND
[Symbol]	IRON PIN/PIPE
[Symbol]	STONE POST
[Symbol]	TREE
[Symbol]	TREE STUMP
[Symbol]	SHRUBS/FLOWERS
[Symbol]	SIGN
[Symbol]	BOLLARD
[Symbol]	SEWER MANHOLE
[Symbol]	DRAIN MANHOLE
[Symbol]	CATCH BASIN
[Symbol]	WATER MANHOLE
[Symbol]	WATER VALVE
[Symbol]	HYDRANT
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[Symbol]	UTILITY POLE
[Symbol]	LIGHT POLE
[Symbol]	MANHOLE
[Symbol]	SPOT GRADE
[Symbol]	TOP OF WALL
[Symbol]	BOTTOM OF WALL
[Symbol]	EXISTING BUILDING
[Symbol]	RETAINING WALL
[Symbol]	STONE WALL
[Symbol]	FENCE
[Symbol]	TREE LINE
[Symbol]	SEWER LINE
[Symbol]	DRAIN LINE
[Symbol]	WATER LINE
[Symbol]	GAS LINE
[Symbol]	UNDERGROUND ELECTRIC LINE
[Symbol]	OVERHEAD WIRES
[Symbol]	CONTOUR LINE (MJR)
[Symbol]	CONTOUR LINE (MNR)



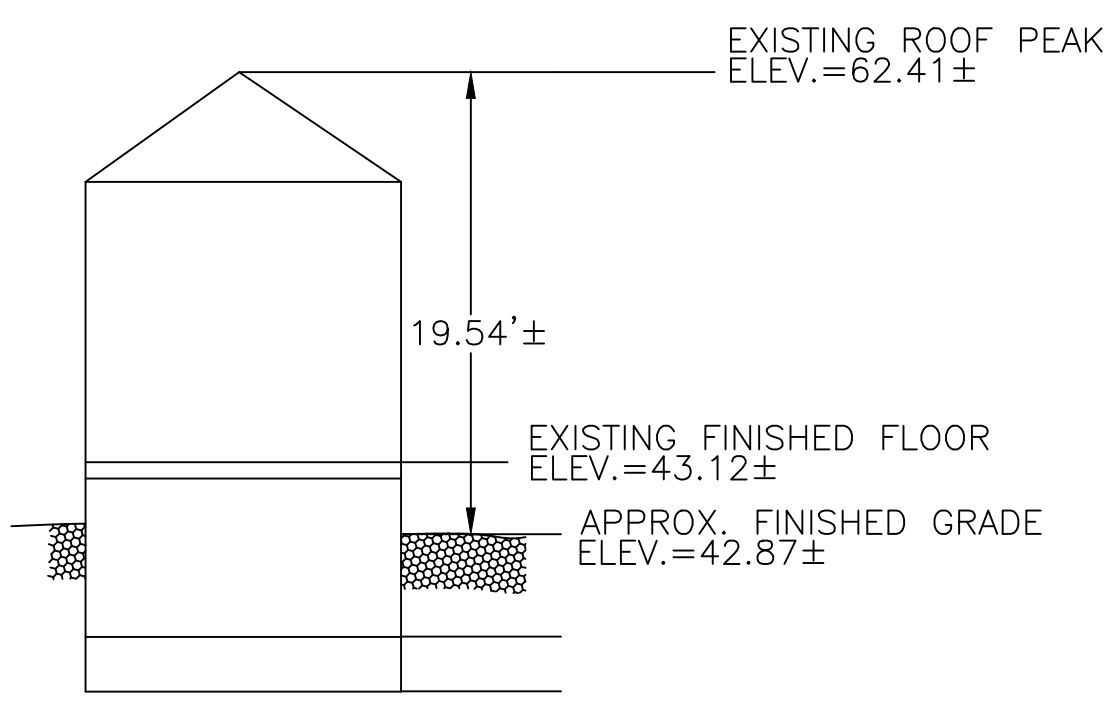
- NOTES:
- INFORMATION SHOWN ON THIS PLAN IS THE RESULT OF A FIELD SURVEY PERFORMED BY PETER NOLAN & ASSOCIATES LLC AS OF 6/21/2020.
 - DEED REFERENCE 1: BOOK 21871, PAGE 204 (581 AMERICAN LEGION HIGHWAY) DEED REFERENCE 2: BOOK 21871, PAGE 206 (599 AMERICAN LEGION HIGHWAY; 660 CANTERBURY STREET) PLAN REFERENCE 1: BOOK 7345, PAGE 208 L. C. PLAN 32635-A SUFFOLK COUNTY REGISTRY OF DEEDS
 - THIS PLAN IS NOT INTENDED TO BE RECORDED.
 - I CERTIFY THAT THE PROPERTIES SHOWN ARE NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD ZONE. IT IS LOCATED IN ZONE X, ON FLOOD HAZARD BOUNDARY MAP NUMBER 25025C0086G, IN COMMUNITY NUMBER: 250286, DATED 09/25/2009.
 - THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT USES OF THE LAND; HOWEVER THIS NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.
 - FIRST FLOOR ELEVATIONS ARE TAKEN AT THRESHOLD.
 - NO RESPONSIBILITY IS TAKEN FOR ZONING TABLE AS PETER NOLAN & ASSOCIATES LLC ARE NOT ZONING EXPERTS. TABLE IS TAKEN FROM TABLE PROVIDED BY LOCAL ZONING DEPARTMENT. CLIENT AND/OR ARCHITECT TO VERIFY THE ACCURACY OF ZONING ANALYSIS. TABERNAACLE BAPTIST
 - THE ELEVATIONS SHOWN ARE BASED ON CITY OF BOSTON DATUM.



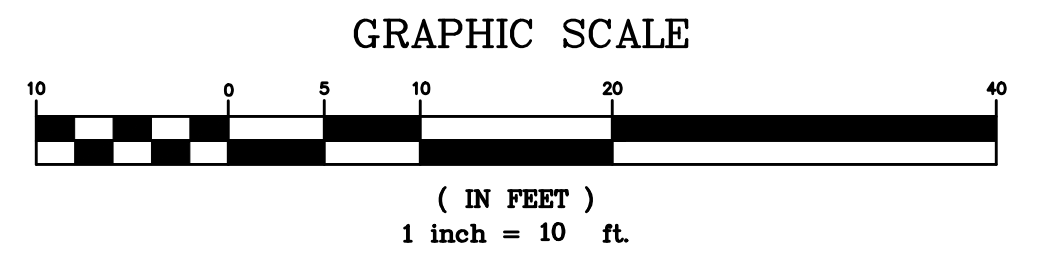
EXISTING PROFILE #660
NOT TO SCALE



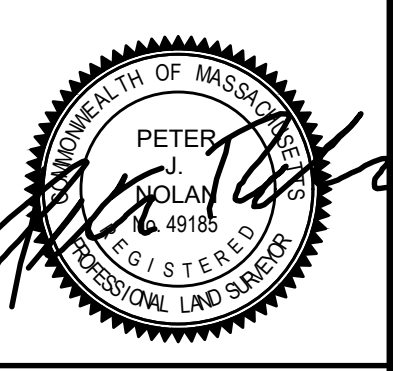
EXISTING PROFILE #599
NOT TO SCALE



EXISTING PROFILE 581
NOT TO SCALE



SCALE	1"=10'
DATE	1/26/22
REV	7/21/2020
SHEET	1
PLAN NO.	1 OF 1
CLIENT:	581, 599 AMERICAN LEGION HIGHWAY 660 CANTERBURY STREET ROSLINDALE MASSACHUSETTS
DRAWN BY	DK
CHKD BY	PJN
APPD BY	PJN
REVISION	WETLAND FLAGS ADDED
BY	DK
SHEET NO.	001
EXISTING CONDITIONS	
PETER NOLAN & ASSOCIATES LLC LAND SURVEYORS/CIVIL ENGINEERING CONSULTANTS 80 JEWETT STREET, SUITE 2 NEWTON, MA 02458 PHONE: 857 891 7478/617 782 1533 FAX: 617 202 5691 EMAIL: pnolan@pnasurveyors.com	



EROSION CONTROL NOTES

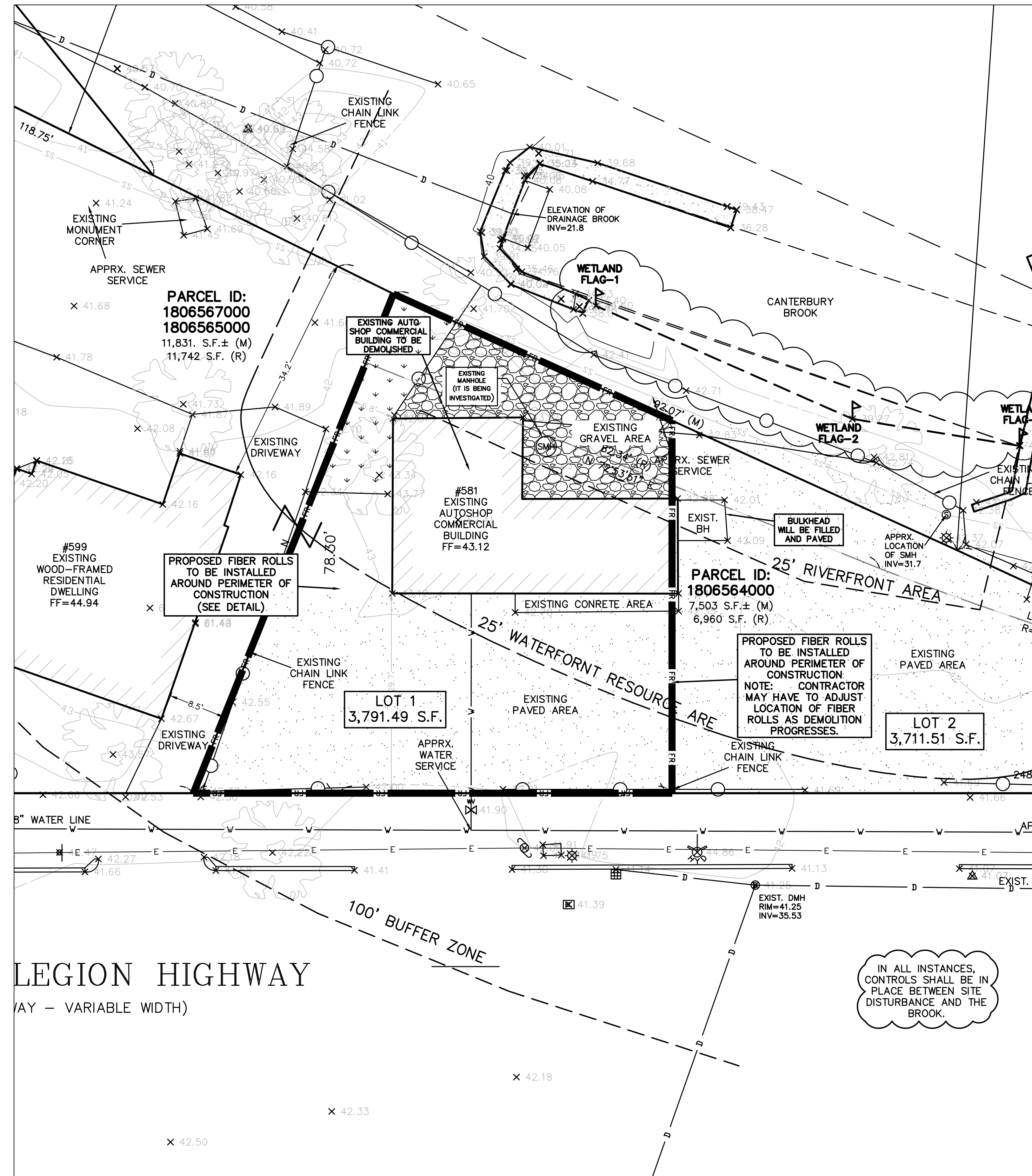
- THE EROSION CONTROL PLANS IN THIS SET SHALL BE REVIEWED AND IMPLEMENTED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR SHALL WORK WITH THE PROJECT'S ENGINEER THROUGHOUT CONSTRUCTION TO ENSURE THE SITE IS PROPERLY PROTECTED FROM POSSIBLE POLLUTANTS. THE ENGINEER HAS AUTHORIZATION TO ADD OR REMOVE BMP MEASURES THROUGHOUT CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING SITE EROSION CONTROL AT ALL TIMES.
- IT SHALL BE THE RESPONSIBILITY OF THE OWNER AND THE PERMITTEE TO ENSURE THAT EROSION DOES NOT OCCUR FROM ANY ACTIVITY DURING OR AFTER PROJECT CONSTRUCTION. ADDITIONAL MEASURES, BEYOND THOSE SPECIFIED, MAY BE REQUIRED BY THE PLANNING DIRECTOR AS DEEMED NECESSARY TO CONTROL ACCELERATED EROSION.
- AT THE END OF EACH WORKDAY, AT THE END OF EACH WORKWEEK, THE CONTRACTOR SHALL IMPLEMENT ALL TEMPORARY MEASURES NECESSARY TO PREVENT EROSION AND SILTATION, UNTIL THE PROJECT HAS BEEN FINALIZED. THESE MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, DIRECT SEEDING OF THE AFFECTED AREAS, STRAW MULCHING, AND/OR INSTALLATION OF STRAW BALES DAMS/SILT FENCES.
- DURING CONSTRUCTION, NO TURBID WATER SHALL BE PERMITTED TO LEAVE THE SITE. USE OF SILT AND GREASE TRAPS, FILTER BERMS, HAY BALES OR SILT FENCES SHALL BE USED TO PREVENT SUCH DISCHARGE.
- ALL AREAS ON- AND OFF-SITE EXPOSED DURING CONSTRUCTION ACTIVITIES, IF NOT PERMANENTLY LANDSCAPED PER PLAN, SHALL BE PROTECTED BY MULCHING AND/OR SEEDING.
- ALL EXCAVATED MATERIAL SHALL BE REMOVED TO AN APPROVED DISPOSAL SITE OR DISPOSED OF ON-SITE IN A MANNER THAT WILL NOT CAUSE EROSION.
- ANY MATERIAL STOCKPILED, FOR LONGER THAN 14 DAYS, DURING CONSTRUCTION SHALL BE COVERED WITH PLASTIC.
- UPON COMPLETION OF CONSTRUCTION, ALL REMAINING EXPOSED SOILS SHALL BE PERMANENTLY REVEGETATED.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ADDITIONAL MEASURES NECESSARY TO CONTROL SITE EROSION AND PREVENT SEDIMENT TRANSPORT OFF-SITE ARE IMPLEMENTED.
- ALL SPILLS AND/OR LEAKS SHALL BE IMMEDIATELY CLEANED UP AND MITIGATED.
- IN ALL INSTANCES, CONTROLS SHALL BE IN PLACE BETWEEN SITE DISTURBANCE AND THE BROOK.

CONSTRUCTION MATERIALS

- ALL LOOSE STOCKPILED CONSTRUCTION MATERIALS THAT ARE NOT ACTIVELY BEING USED (I.E. SOIL, SPOILS, AGGREGATE, FLY-ASH, STUCCO, HYDRATED LIME, ETC.) SHALL BE COVERED AND BERMED.
- ALL CHEMICALS SHALL BE STORED IN WATERTIGHT CONTAINERS (WITH APPROPRIATE SECONDARY CONTAINMENT TO PREVENT ANY SPILLAGE OR LEAKAGE) OR IN A STORAGE SHED (COMPLETELY ENCLOSED).
- EXPOSURE OF CONSTRUCTION MATERIALS TO PRECIPITATION SHALL BE MINIMIZED. THIS DOES NOT INCLUDE MATERIALS AND EQUIPMENT THAT ARE DESIGNED TO BE OUTDOORS AND EXPOSED TO ENVIRONMENTAL CONDITIONS (I.E. POLES, EQUIPMENT PADS, CABINETS, CONDUCTORS, INSULATORS, BRICKS, ETC.).
- BEST MANAGEMENT PRACTICES TO PREVENT THE OFF-SITE TRACKING OF LOOSE CONSTRUCTION AND LANDSCAPE MATERIALS SHALL BE IMPLEMENTED.

WASTE MANAGEMENT

- DISPOSAL OF ANY RINSE OR WASH WATERS OR MATERIALS ON IMPERVIOUS OR PEROUSIVE SITE SURFACES OR INTO THE STORM DRAIN SYSTEM SHALL BE PREVENTED.
 - SANITATION FACILITIES SHALL BE CONTAINED (E.G. PORTABLE TOILETS) TO PREVENT DISCHARGES OF POLLUTANTS TO THE STORM WATER DRAINAGE SYSTEM OR RECEIVING WATER, AND SHALL BE LOCATED A MINIMUM 20 FEET AWAY FROM AN INLET, STREET OR DRIVEWAY, STREAM, RIPARIAN AREA OR OTHER DRAINAGE FACILITY.
 - SANITATION FACILITIES SHALL BE INSPECTED REGULARLY FOR LEAKS AND SPILLS AND CLEANED OR REPLACED AS NECESSARY.
 - COVER WASTE DISPOSAL CONTAINERS AT THE END OF EVERY BUSINESS DAY AND DURING A RAIN EVENT.
 - DISCHARGES FROM WASTE DISPOSAL CONTAINERS TO THE STORM WATER DRAINAGE SYSTEM OR RECEIVING WATER SHALL BE PREVENTED.
 - STOCKPILED WASTE MATERIAL SHALL BE CONTAINED AND SECURELY PROTECTED FROM WIND AND RAIN AT ALL TIMES UNLESS ACTIVELY BEING USED.
- PROCEDURES THAT EFFECTIVELY ADDRESS HAZARDOUS AND NON-HAZARDOUS SPILLS SHALL BE IMPLEMENTED. EQUIPMENT AND MATERIALS FOR CLEANUP OF SPILLS SHALL BE AVAILABLE ON SITE AND THAT SPILLS AND LEAKS SHALL BE CLEANED UP IMMEDIATELY AND DISPOSED OF PROPERLY; AND
- CONCRETE WASHOUT AREAS AND OTHER WASHOUT AREAS THAT MAY CONTAIN ADDITIONAL POLLUTANTS SHALL BE CONTAINED SO THERE IS NO DISCHARGE INTO THE UNDERLYING SOIL AND ONTO THE SURROUNDING AREAS.



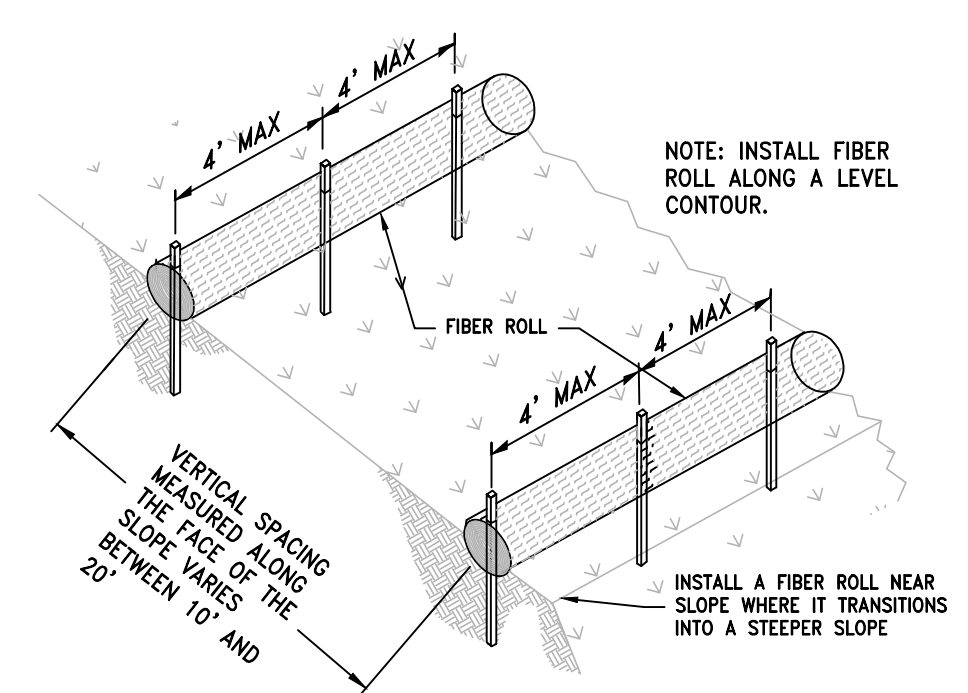
VEHICLE STORAGE AND MAINTENANCE

- MEASURES SHALL BE TAKEN TO PREVENT OIL, GREASE, OR FUEL TO LEAK IN TO THE GROUND, STORM DRAINS OR SURFACE WATERS.
- ALL EQUIPMENT OR VEHICLES, WHICH ARE TO BE FUELED, MAINTAINED AND STORED ON-SITE SHALL BE IN A DESIGNATED AREA FITTED WITH APPROPRIATE BMPs.
- LEAKS SHALL BE IMMEDIATELY CLEANED AND LEAKED MATERIALS SHALL BE DISPOSED OF PROPERLY.

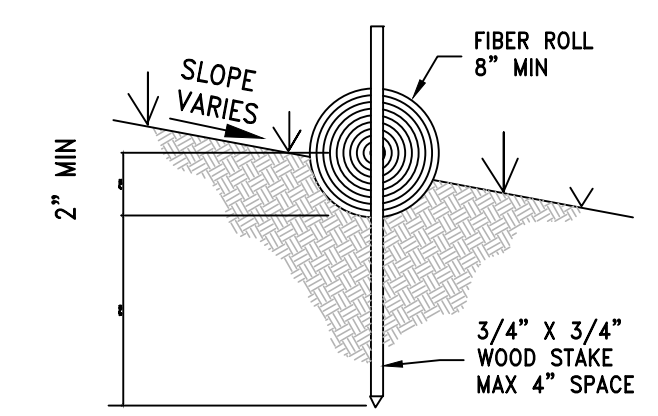
LANDSCAPE MATERIALS

- CONTAIN STOCKPILED MATERIALS SUCH AS MULCHES AND TOPSOIL WHEN THEY ARE NOT ACTIVELY BEING USED.
- CONTAIN FERTILIZERS AND OTHER LANDSCAPE MATERIALS WHEN THEY ARE NOT ACTIVELY BEING USED.
- DISCONTINUE THE APPLICATION OF ANY ERODIBLE LANDSCAPE MATERIAL WITHIN 2 DAYS BEFORE A FORECASTED RAIN EVENT OR DURING PERIODS OF PRECIPITATION.
- APPLY ERODIBLE LANDSCAPE MATERIAL AT QUANTITIES AND APPLICATION RATES ACCORDING TO MANUFACTURE RECOMMENDATIONS OR BASED ON WRITTEN SPECIFICATIONS BY KNOWLEDGEABLE AND EXPERIENCED FIELD PERSONNEL.
- STACK ERODIBLE LANDSCAPE MATERIAL ON PALLETS AND COVERING OR STORING SUCH MATERIALS WHEN NOT BEING USED OR APPLIED.

IN ALL INSTANCES, CONTROLS SHALL BE IN PLACE BETWEEN SITE DISTURBANCE AND THE BROOK.

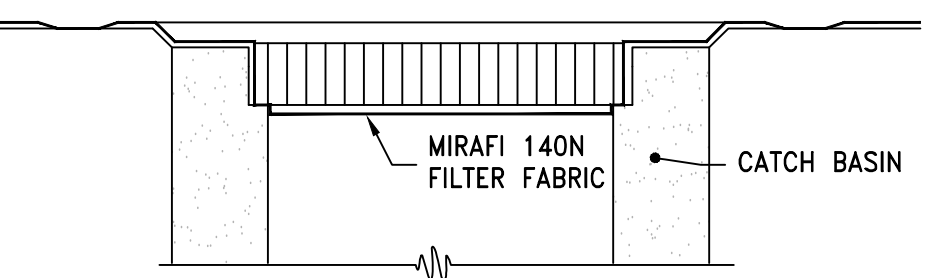


TYPICAL INSTALLATION



ENTRENCHMENT DETAIL

FIBER ROLLS



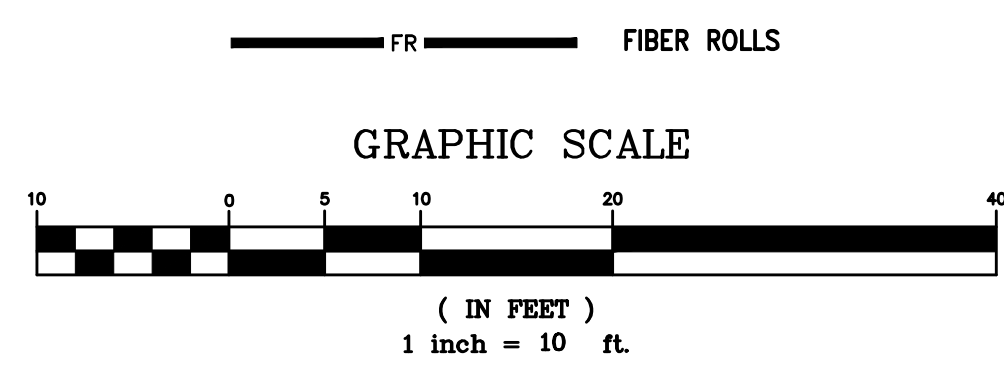
CATCH BASIN PROTECTION

FIBER ROLL CONSTRUCTION SPECIFICATIONS

- PREPARE SLOPE BEFORE THE WATTING PROCEDURE IS STARTED. SHALLOW GULLIES SHOULD BE SMOOTHED AS WORK PROGRESSES.
- DIG SMALL TRENCHES ACROSS SLOPE ON CONTOUR, TO PLACE WATTLES IN. THE TRENCH SHOULD BE DEEP ENOUGH TO ACCOMMODATE HALF THE THICKNESS OF THE WATTLE. WHEN THE SOIL IS LOOSE AND UNCOMPACTED, THE TRENCH SHOULD BE DEEP ENOUGH TO BURY THE WATTLE 2/3 OF ITS THICKNESS BECAUSE THE GROUND WILL SETTLE. IT IS CRITICAL THAT WATTLES ARE INSTALLED PERPENDICULAR TO WATER MOVEMENT, PARALLEL TO THE SLOPE CONTOUR.
- START BUILDING TRENCHES AND INSTALL WATTLES FROM THE BOTTOM OF THE SLOPE AND WORK UP.
- CONSTRUCT TRENCHES AT CONTOUR INTERVALS OF THREE TO EIGHT FEET APART DEPENDING ON STEEPNESS OF SLOPE. THE STEEPER THE SLOPE, THE CLOSER TOGETHER THE TRENCHES.
- LAY THE WATTLE ALONG THE TRENCHES FITTING IT SNUGLY AGAINST THE SOIL. MAKE SURE NO GAPS EXIST BETWEEN THE SOIL AND THE STRAW WATTLE. USE A STRAIGHT BAR TO DRIVE HOLES THROUGH THE WATTLE AND INTO THE SOIL FOR THE WOODEN STAKES.
- DRIVE THE STAKE THROUGH THE PREPARED HOLE INTO THE SOIL. LEAVE ONLY ONE OR TWO INCHES OF STAKE EXPOSED ABOVE WATTLE. IF USING WILLOW STAKES REFER TO USDA SOIL CONSERVATION SERVICE TECHNICAL GUIDE, BIOENGINEERING, FOR GUIDELINES TO PREPARING LIVE WILLOW MATERIAL.
- INSTALL STAKES AT LEAST EVERY FOUR FEET APART THROUGH WATTLE. ADDITIONAL STAKES MAY BE DRIVEN ON THE DOWNSLOPE SIDE OF THE TRENCHES ON HIGHLY ERODIVE OR VERY STEEP SLOPES.

FIBER ROLL INSTALLATION AND MAINTENANCE

- INSPECT THE STRAW WATTLE AND THE SLOPES AFTER SIGNIFICANT STORMS. MAKE SURE THE WATTLES ARE IN CONTACT WITH THE SOIL.
- REPAIR ANY RILLS OR GULLIES PROMPTLY.
- RESEED OR REPLANT VEGETATION IF NECESSARY UNTIL THE SLOPE IS STABILIZED.



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PETER NOLAN
49185
REGISTERED PROFESSIONAL LAND SURVEYOR

EDMOND SPRUHAN
49185
REGISTERED PROFESSIONAL ENGINEER

581 AMERICAN LEGION HIGHWAY, BOSTON, MA

REVISION BLOCK

DESCRIPTION	DATE

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EROSION CONTROL & DEMOLITION PLAN

PLAN:	1 OF 2
SCALE:	1" = 10'
DATE:	5/31/2022
DRAWN BY:	LP
CHECKED BY:	PN
APPROVED BY:	ES

SHEET: **002**

EROSION CONTROL NOTES

1. THE EROSION CONTROL PLANS IN THIS SET SHALL BE REVIEWED AND IMPLEMENTED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR SHALL WORK WITH THE PROJECT'S ENGINEER THROUGHOUT CONSTRUCTION TO ENSURE THE SITE IS PROPERLY PROTECTED FROM POSSIBLE POLLUTANTS. THE ENGINEER HAS AUTHORIZATION TO ADD OR REMOVE BMP MEASURES THROUGHOUT CONSTRUCTION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING SITE EROSION CONTROL AT ALL TIMES.
3. IT SHALL BE THE RESPONSIBILITY OF THE OWNER AND THE PERMITTEE TO ENSURE THAT EROSION DOES NOT OCCUR FROM ANY ACTIVITY DURING OR AFTER PROJECT CONSTRUCTION. ADDITIONAL MEASURES, BEYOND THOSE SPECIFIED, MAY BE REQUIRED BY THE PLANNING DIRECTOR AS DEEMED NECESSARY TO CONTROL ACCELERATED EROSION.
4. AT THE END OF EACH WORKDAY, AT THE END OF EACH WORKWEEK, THE CONTRACTOR SHALL IMPLEMENT ALL TEMPORARY MEASURES NECESSARY TO PREVENT EROSION AND SILTATION, UNTIL THE PROJECT HAS BEEN FINALIZED. THESE MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, DIRECT SEEDING OF THE AFFECTED AREAS, STRAW MULCHING, AND/OR INSTALLATION OF STRAW BALES DAMS/SILT FENCES.
5. DURING CONSTRUCTION, NO TURBID WATER SHALL BE PERMITTED TO LEAVE THE SITE. USE OF SILT AND GREASE TRAPS, FILTER BERMS, HAY BALES OR SILT FENCES SHALL BE USED TO PREVENT SUCH DISCHARGE.
6. ALL AREAS ON- AND OFF-SITE EXPOSED DURING CONSTRUCTION ACTIVITIES, IF NOT PERMANENTLY LANDSCAPED PER PLAN, SHALL BE PROTECTED BY MULCHING AND/OR SEEDING.
7. ALL EXCAVATED MATERIAL SHALL BE REMOVED TO AN APPROVED DISPOSAL SITE OR DISPOSED OF ON-SITE IN A MANNER THAT WILL NOT CAUSE EROSION.
8. ANY MATERIAL STOCKPILED, FOR LONGER THAN 14 DAYS, DURING CONSTRUCTION SHALL BE COVERED WITH PLASTIC.
9. UPON COMPLETION OF CONSTRUCTION, ALL REMAINING EXPOSED SOILS SHALL BE PERMANENTLY REVEGETATED.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ADDITIONAL MEASURES NECESSARY TO CONTROL SITE EROSION AND PREVENT SEDIMENT TRANSPORT OFF-SITE ARE IMPLEMENTED.
11. ALL SPILLS AND/OR LEAKS SHALL BE IMMEDIATELY CLEANED UP AND MITIGATED.
12. IN ALL INSTANCES, CONTROLS SHALL BE IN PLACE BETWEEN SITE DISTURBANCE AND THE BROOK.

CONSTRUCTION MATERIALS

- ALL LOOSE STOCKPILED CONSTRUCTION MATERIALS THAT ARE NOT ACTIVELY BEING USED (I.E. SOIL, SPOILS, AGGREGATE, FLY-ASH, STUCCO, HYDRATED LIME, ETC.) SHALL BE COVERED AND BERMED.
- ALL CHEMICALS SHALL BE STORED IN WATERTIGHT CONTAINERS (WITH APPROPRIATE SECONDARY CONTAINMENT TO PREVENT ANY SPILLAGE OR LEAKAGE) OR IN A STORAGE SHED (COMPLETELY ENCLOSED).
- EXPOSURE OF CONSTRUCTION MATERIALS TO PRECIPITATION SHALL BE MINIMIZED. THIS DOES NOT INCLUDE MATERIALS AND EQUIPMENT THAT ARE DESIGNED TO BE OUTDOORS AND EXPOSED TO ENVIRONMENTAL CONDITIONS (I.E. POLES, EQUIPMENT PADS, CABINETS, CONDUCTORS, INSULATORS, BRICKS, ETC.).
- BEST MANAGEMENT PRACTICES TO PREVENT THE OFF-SITE TRACKING OF LOOSE CONSTRUCTION AND LANDSCAPE MATERIALS SHALL BE IMPLEMENTED.

WASTE MANAGEMENT

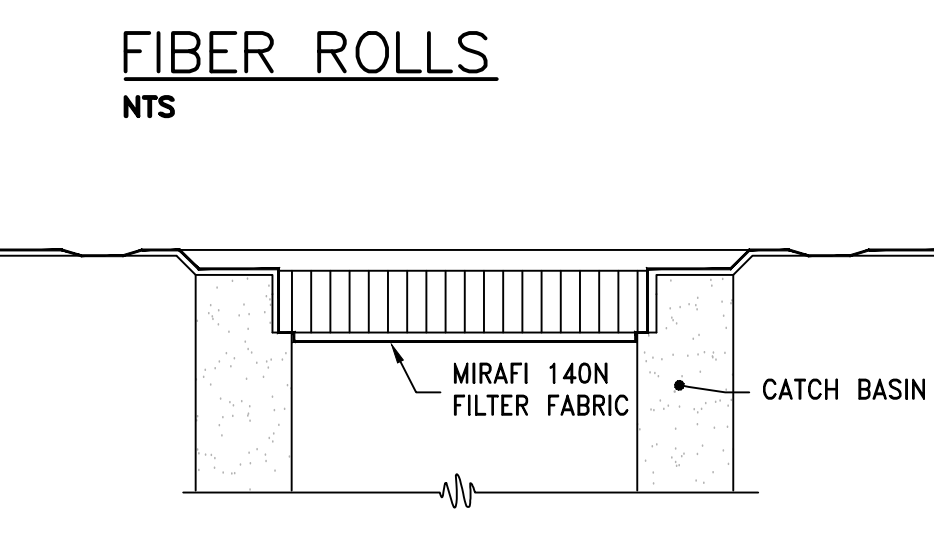
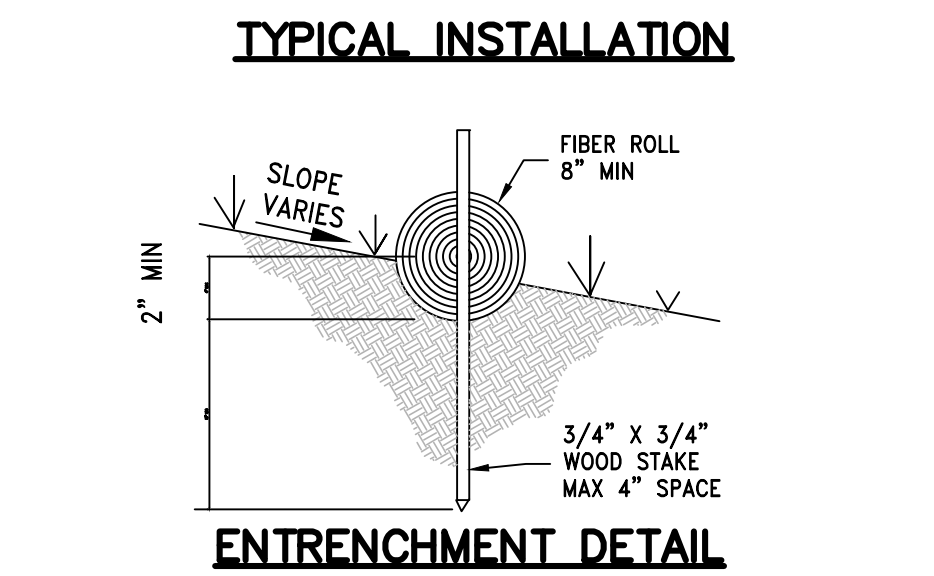
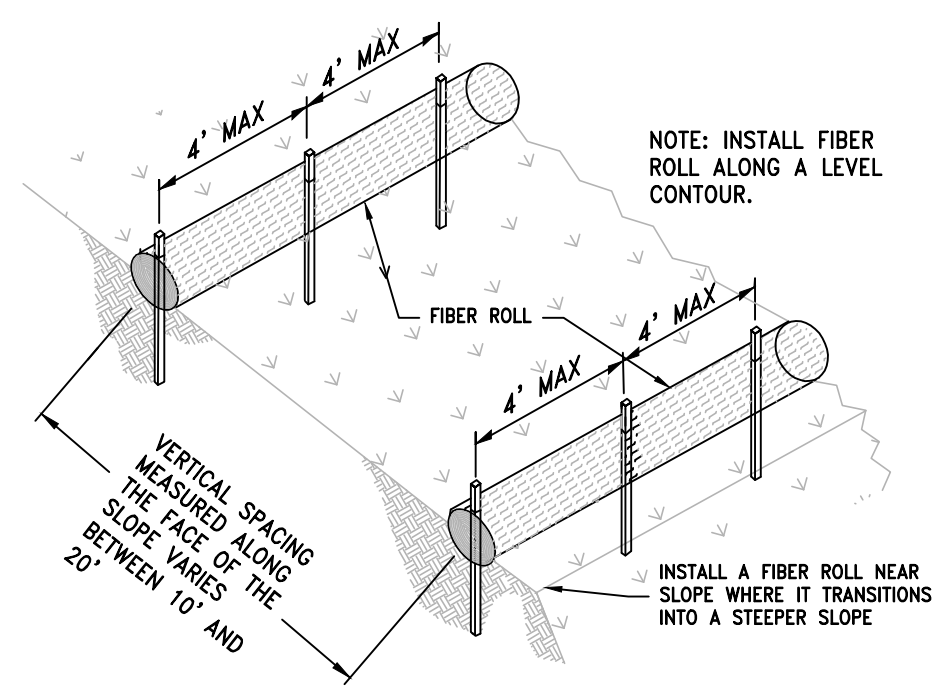
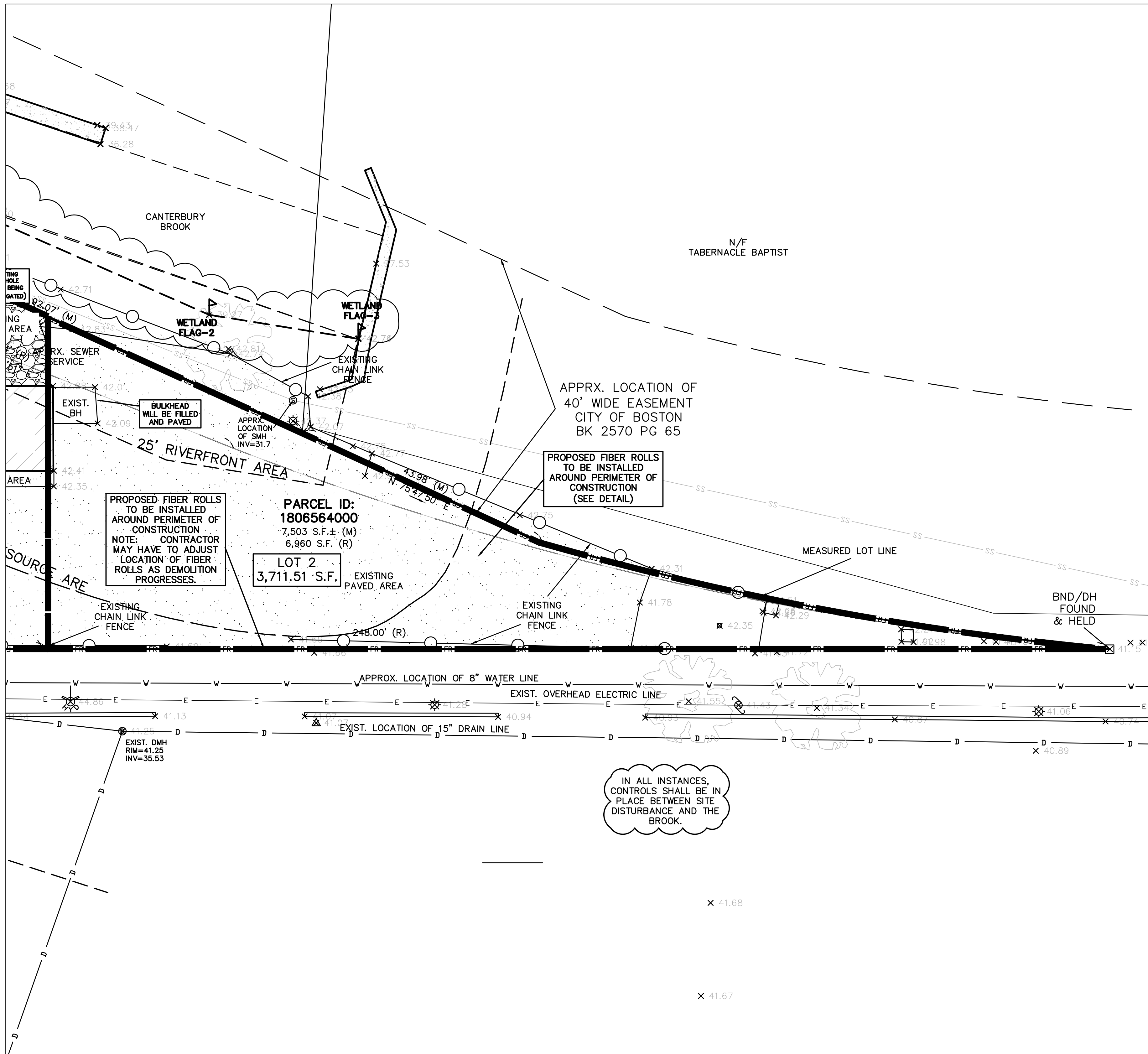
- DISPOSAL OF ANY RINSE OR WASH WATERS OR MATERIALS ON IMPERVIOUS OR PERVIOUS SITE SURFACES OR INTO THE STORM DRAIN SYSTEM SHALL BE PREVENTED.
 - SANITATION FACILITIES SHALL BE CONTAINED (E.G. PORTABLE TOILETS) TO PREVENT DISCHARGES OF POLLUTANTS TO THE STORM WATER DRAINAGE SYSTEM OR RECEIVING WATER, AND SHALL BE LOCATED A MINIMUM 20 FEET AWAY FROM AN INLET, STREET OR DRIVEWAY, STREAM, RIPARIAN AREA OR OTHER DRAINAGE FACILITY.
 - SANITATION FACILITIES SHALL BE INSPECTED REGULARLY FOR LEAKS AND SPILLS AND CLEANED OR REPLACED AS NECESSARY.
 - COVER WASTE DISPOSAL CONTAINERS AT THE END OF EVERY BUSINESS DAY AND DURING A RAIN EVENT.
 - DISCHARGES FROM WASTE DISPOSAL CONTAINERS TO THE STORM WATER DRAINAGE SYSTEM OR RECEIVING WATER SHALL BE PREVENTED.
 - STOCKPILED WASTE MATERIAL SHALL BE CONTAINED AND SECURELY PROTECTED FROM WIND AND RAIN AT ALL TIMES UNLESS ACTIVELY BEING USED.
- PROCEDURES THAT EFFECTIVELY ADDRESS HAZARDOUS AND NON-HAZARDOUS SPILLS SHALL BE IMPLEMENTED. EQUIPMENT AND MATERIALS FOR CLEANUP OF SPILLS SHALL BE AVAILABLE ON SITE AND THAT SPILLS AND LEAKS SHALL BE CLEANED UP IMMEDIATELY AND DISPOSED OF PROPERLY; AND
- CONCRETE WASHOUT AREAS AND OTHER WASHOUT AREAS THAT MAY CONTAIN ADDITIONAL POLLUTANTS SHALL BE CONTAINED SO THERE IS NO DISCHARGE INTO THE UNDERLYING SOIL AND ONTO THE SURROUNDING AREAS.

VEHICLE STORAGE AND MAINTENANCE

- MEASURES SHALL BE TAKEN TO PREVENT OIL, GREASE, OR FUEL TO LEAK INTO THE GROUND, STORM DRAINS OR SURFACE WATERS.
- ALL EQUIPMENT OR VEHICLES, WHICH ARE TO BE FUELED, MAINTAINED AND STORED ON SITE SHALL BE IN A DESIGNATED AREA FITTED WITH APPROPRIATE BMPs.
- LEAKS SHALL BE IMMEDIATELY CLEANED AND LEAKED MATERIALS SHALL BE DISPOSED OF PROPERLY.

LANDSCAPE MATERIALS

- CONTAIN STOCKPILED MATERIALS SUCH AS MULCHES AND TOPSOIL WHEN THEY ARE NOT ACTIVELY BEING USED
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- STACK ERODIBLE LANDSCAPE MATERIAL ON PALLETS AND COVERING OR STORING SUCH MATERIALS WHEN NOT BEING USED OR APPLIED.



- INSPECTION AND MAINTENANCE:**
1. FILTER FABRIC BARRIERS SHALL BE INSPECTED WEEKLY AFTER EACH SIGNIFICANT STORM - 1 INCH RAINFALL (25.4 MM) IN 24 HOUR PERIOD. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
 2. SEDIMENT SHOULD BE REMOVED WHEN IT REACHES 0.5" MAXIMUM HEIGHT. AT THAT TIME INSPECT THE FILTER MATERIAL FOR TEARS AND CLEAN OR REPLACE AS REQUIRED.
 3. THE REMOVED SEDIMENT SHALL BE DISTRIBUTED EVENLY ACROSS AREAS ON-SITE, CONFORM WITH THE EXISTING GRADE AND BE REVEGETATED OR OTHERWISE STABILIZED PER EROSION CONTROL NOTES.

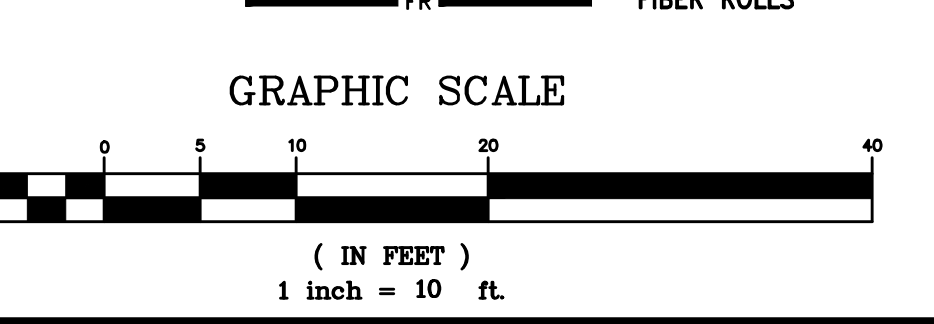
CATCH BASIN PROTECTION

FIBER ROLL CONSTRUCTION SPECIFICATIONS

1. PREPARE SLOPE BEFORE THE WATTLING PROCEDURE IS STARTED. SHALLOW GULLIES SHOULD BE SMOOTHED AS WORK PROGRESSES.
2. DIG SMALL TRENCHES ACROSS SLOPE ON CONTOUR, TO PLACE WATTLES IN. THE TRENCH SHOULD BE DEEP ENOUGH TO ACCOMMODATE HALF THE THICKNESS OF THE WATTLE. WHEN THE SOIL IS LOOSE AND UNCOMPACTED, THE TRENCH SHOULD BE DEEP ENOUGH TO BURY THE WATTLE 2/3 OF ITS THICKNESS BECAUSE THE GROUND WILL SETTLE. IT IS CRITICAL THAT WATTLES ARE INSTALLED PERPENDICULAR TO WATER MOVEMENT, PARALLEL TO THE SLOPE CONTOUR.
3. START BUILDING TRENCHES AND INSTALL WATTLES FROM THE BOTTOM OF THE SLOPE AND WORK UP.
4. CONSTRUCT TRENCHES AT CONTOUR INTERVALS OF THREE TO EIGHT FEET APART DEPENDING ON STEEPNESS OF SLOPE. THE STEEPER THE SLOPE, THE CLOSER TOGETHER THE TRENCHES.
5. LAY THE WATTLE ALONG THE TRENCHES FITTING IT SNUGLY AGAINST THE SOIL. MAKE SURE NO GAPS EXIST BETWEEN THE SOIL AND THE STRAW WATTLE. USE A STRAIGHT BAR TO DRIVE HOLES THROUGH THE WATTLE AND INTO THE SOIL FOR THE WOODEN STAKES.
6. DRIVE THE STAKE THROUGH THE PREPARED HOLE INTO THE SOIL. LEAVE ONLY ONE OR TWO INCHES OF STAKE EXPOSED ABOVE WATTLE. IF USING WILLOW STAKES REFER TO USDA SOIL CONSERVATION SERVICE TECHNICAL GUIDE, BIOENGINEERING, FOR GUIDELINES TO PREPARING LIVE WILLOW MATERIAL.
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FIBER ROLL INSTALLATION AND MAINTENANCE

8. INSPECT THE STRAW WATTLE AND THE SLOPES AFTER SIGNIFICANT STORMS. MAKE SURE THE WATTLES ARE IN CONTACT WITH THE SOIL.
9. REPAIR ANY RILLS OR GULLIES PROMPTLY.
10. RESEED OR REPLANT VEGETATION IF NECESSARY UNTIL THE SLOPE IS STABILIZED.



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581 AMERICAN LEGION HIGHWAY, BOSTON, MA

REVISION BLOCK	
DESCRIPTION	DATE

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EROSION CONTROL & DEMOLITION PLAN

PLAN:	1 OF 2
SCALE:	1" = 10'
DATE:	5/31/2022
DRAWN BY:	LP
CHECKED BY:	PN
APPROVED BY:	ES

SHEET: **002 A**

CONSTRUCTION NOTES

- THE CONTRACTOR SHALL REPORT TO THE OWNER AND ENGINEER OF ANY SIGNIFICANT VARIATIONS IN EXISTING SITE CONDITIONS FROM THOSE SHOWN ON THESE PLANS. ANY PROPOSED REVISIONS TO THE WORK, IF REQUIRED BY THESE SITE CONDITIONS, SHALL NOT BE UNDERTAKEN UNTIL REVIEWED AND APPROVED BY THE OWNER AND THE ENGINEER.
- IN ORDER TO PROTECT THE PUBLIC SAFETY DURING CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING AT ALL TIMES ALL NECESSARY SAFETY DEVICES AND PERSONNEL, WARNING LIGHTS, BARRICADES, AND POLICE OFFICERS.
- ALL WORK SHALL CONFORM TO CITY OF BOSTON GENERAL CONSTRUCTION STANDARDS.
- THE CONTRACTOR SHALL REGULARLY INSPECT THE PERIMETER OF THE PROPERTY TO CLEAN UP AND REMOVE LOOSE CONSTRUCTION DEBRIS BEFORE IT LEAVES THE SITE. ALL DEMOLITION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE SITE TO A LEGAL DUMP SITE. ALL TRUCKS LEAVING THE SITE SHALL BE COVERED.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTITUTE EROSION CONTROL MEASURES ON AN AS NECESSARY BASIS, SUCH THAT EXCESSIVE SOIL EROSION DOES NOT OCCUR.
- THE LOCATION OF UNDERGROUND UTILITIES AS REPRESENTED ON THESE PLANS IS BASED UPON PLANS AND INFORMATION PROVIDED BY THE RESPECTIVE UTILITY COMPANIES OR MUNICIPAL DEPARTMENTS SUPPLEMENTED BY FIELD IDENTIFICATION WHEREVER POSSIBLE. NO WARRANTY IS MADE AS TO THE ACCURACY OF THESE LOCATIONS OR THAT ALL UNDERGROUND UTILITIES ARE SHOWN. THE CONTRACTOR SHALL CONTRACT DIG SAFE AT LEAST 72 HOURS PRIOR TO THE START OF CONSTRUCTION. DIG SAFE TELEPHONE NUMBER IS 1-800-322-4844.
- THE CONTRACTOR SHALL VERIFY THE LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES PRIOR TO TAPPING INTO, CROSSING OR EXTENDING THEM. IF THE NEW WORK POSES A CONFLICT WITH EXISTING UTILITIES, THE ENGINEER SHALL BE NOTIFIED PRIOR TO THE CONTRACTOR CONTINUING.
- NO LEDGE, BOULDERS, OR OTHER UNYIELDING MATERIALS ARE TO BE LEFT WITHIN 6" OF THE WATER IN THE TRENCH, NOR ARE THEY TO BE USED FOR BACKFILL FOR THE FIRST 12" ABOVE THE PIPES.
- PAVEMENT AREA SHALL BE PAVED TO A THICKNESS AS SHOWN ON THE PLANS MEASURED AFTER COMPACTION, WITH A BINDER COURSE AND TOP COURSE OF CLASS I BITUMINOUS CONCRETE PAVEMENT, TYPE I-1.
- BASE MATERIAL SHALL BE CLEAN BANK RUN GRAVEL, CONFORMING TO M.D.P.W. M1.03.1, WITH NO STONES LARGER THAN THREE (3) INCHES IN DIAMETER AND SHALL BE PLACED AND ROLLED WITH AT LEAST A TEN TON ROLLER. THE SURFACES SHALL BE WET DURING ROLLING TO BIND THE MATERIAL. ALL STONES OF 4" DIAMETER OR LARGER SHALL BE REMOVED FROM THE SUB-BASE PRIOR TO PLACING BASE MATERIAL.
- ALL EXISTING PAVING TO BE DISTURBED SHALL BE CUT ALONG A STRAIGHT LINE THROUGH ITS ENTIRE THICKNESS. BUTT THE NEW PAVING INTO THE EXISTING PAVEMENT TO REMAIN.
- ANY PAVEMENT REMOVED FOR UTILITY TRENCH EXCAVATION OR OTHERWISE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED WITH A PAVEMENT SECTION CONSISTING OF 1 1/2" WEAR COURSE OVERLYING A 1/2" BINDER COURSE OVERLYING A 12" COMPACTED GRAVEL BASE COURSE.
- THE CONTRACTOR SHALL APPLY FOR A STREET OPENING AND UTILITY CONNECTION PERMITS AND SIDEWALK CROSSING PERMIT WITH THE CITY OF BOSTON DPW.
- A PREREQUISITE FOR FILING A GENERAL SERVICE APPLICATION WITH THE BOSTON WATER AND SEWER COMMISSION FOR NEW CONSTRUCTION IS THE ROUGH CONSTRUCTION SIGN-OFF DOCUMENT FROM THE CITY OF BOSTON'S INSPECTIONAL SERVICES DEPARTMENT.
- THE OWNER IS RESPONSIBLE TO MAINTAIN THE DRAINAGE SYSTEM FOR PROPER OPERATION INCLUDING KEEPING THE DRAIN FREE FROM DEBRIS AND ICE BLOCKAGE.

NOTES:

- INFORMATION SHOWN ON THIS PLAN IS THE RESULT OF A FIELD SURVEY PERFORMED BY PETER NOLAN & ASSOCIATES LLC AS OF 6/21/2020.
- DEED REFERENCE 1: BOOK 21871, PAGE 204 (581 AMERICAN LEGION HIGHWAY); DEED REFERENCE 2: BOOK 21871, PAGE 206 (599 AMERICAN LEGION HIGHWAY); 660 CANTERBURY STREET) PLAN REFERENCE 1: BOOK 7345, PAGE 208 L. C. PLAN 32635-A SUFFOLK COUNTY REGISTRY OF DEEDS
- THIS PLAN IS NOT INTENDED TO BE RECORDED.
- I CERTIFY THAT THE PROPERTIES SHOWN ARE NOT LOCATED WITHIN A SPECIAL FLOOD HAZARD ZONE. IT IS LOCATED IN ZONE X, ON FLOOD HAZARD BOUNDARY MAP NUMBER 25025C0086G, IN COMMUNITY NUMBER: 250286, DATED 09/25/2009.
- THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT USES OF THE LAND; HOWEVER THIS NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.
- FIRST FLOOR ELEVATIONS ARE TAKEN AT THRESHOLD.
- NO RESPONSIBILITY IS TAKEN FOR ZONING TABLE AS PETER NOLAN & ASSOCIATES LLC ARE NOT ZONING EXPERTS. TABLE IS TAKEN FROM LOCAL ZONING ORDINANCE. CLIENT AND/OR ARCHITECT TO VERIFY THE ACCURACY OF ZONING ANALYSIS.
- THE ELEVATIONS SHOWN ARE BASED ON CITY OF BOSTON DATUM.

OWNERS INFORMATION:
CRESTWAY ROAD DEVELOPMENT
 599 E BROADWAY
 BOSTON, MA, 02127
 ADAM BURNS
 617-564-1167
 PARCEL ID=1806564000
 ASSESSORS PLAN WARD: 01
 LAND USE CODE:R4 (5 UNITS)
 WATER ACCOUNT NUMBER:1582392
 COBUCS #: 1648743109025
SITE PLAN #: 21069

* PER TITLE V, SEWER FLOW RESIDENTIAL
 770 G.P.D. (7 BEDROOMS x 110 G.P.D.)
 =770 G.P.D. (TOTAL SEWER FLOW)

DRAINAGE AREA SUMMARY

LOT SIZE= 3,791.49

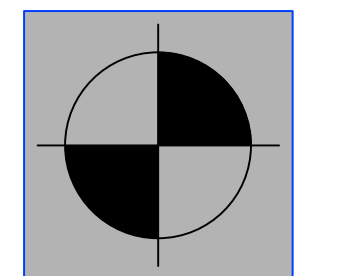
EXISTING ROOF AREA = 886.77 S.F.
 EXISTING PAVED AREA= 2,089.14 S.F.
 EXISTING GRAVEL AREA= 556.10 S.F.
 EXISTING LANDSCAPE AREA = 259.48 S.F.

PROPOSED ROOF AREA = 2,315.97 S.F.
 PROPOSED PAVED AREA = 947.92 S.F.
 PROPOSED PAVERS AREA = 218.92 S.F.
 PROPOSED LANDSCAPE AREA = 308.68 S.F.


TOTAL EXISTING IMPERVIOUS AREA = 3,532.01 S.F.
 TOTAL PROPOSED IMPERVIOUS AREA = 3,263.89 S.F.
 TOTAL DECREASE IMPERVIOUS AREA = 268.12 S.F.

EXISTING LEGEND

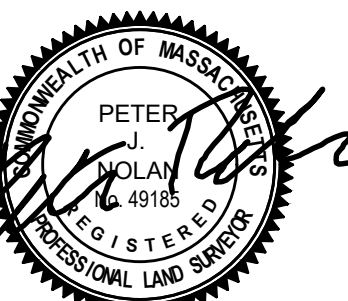

SS	SEWER LINE
⊗	SEWER MANHOLE
W	WATER LINE
G	GAS LINE
↕	UTILITY POLE
⊕	GAS VALVE
E	OVERHEAD ELECTRIC SERVICE
⊕	WATER VALVE
□	CATCH BASIN
○	FENCE
-205-	CONTOUR LINE (MJR)
-195-	CONTOUR LINE (MNR)
X	SPOT GRADE
⊕	DRAIN MANHOLE
⊕	HYDRANT
⊕	TREE



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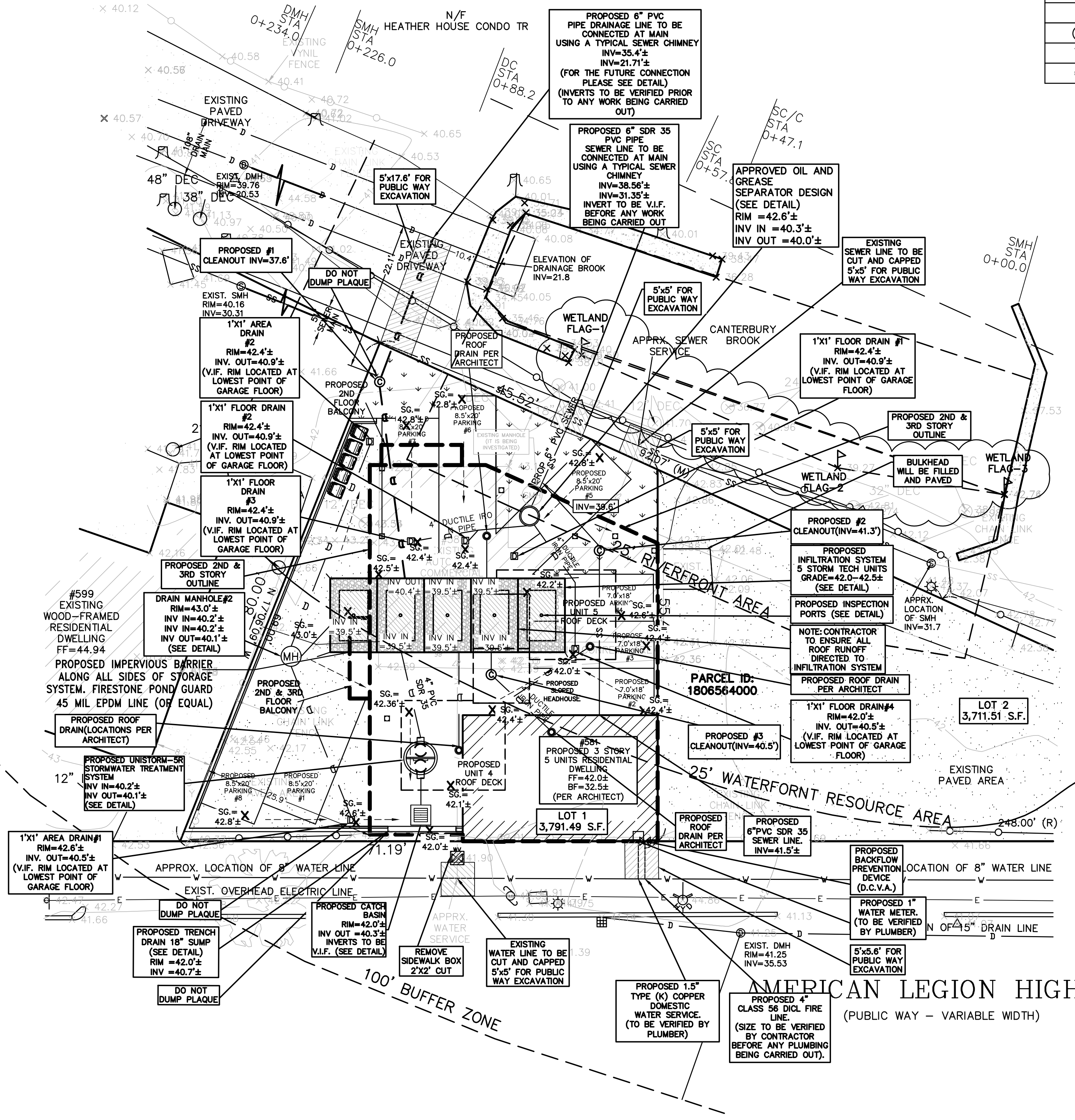
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ENVIRONMENTAL PLAN

PLAN:	1 OF 2
SCALE:	1" = 10'
DATE:	6-13-22
DRAWN BY:	LP
CHECKED BY:	PN
APPROVED BY:	ES

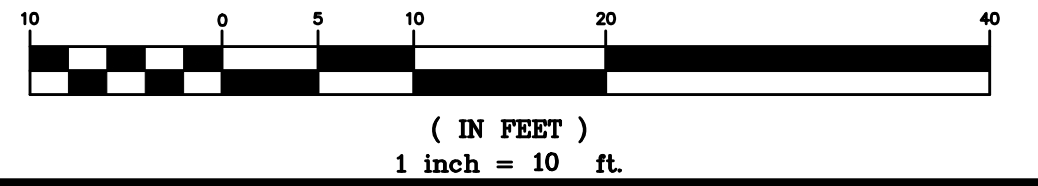
003

100' BUFFER ZONE FROM THE EDGE OF BROOK



SNOW MUST BE REMOVED FROM SITE IF SNOW STORAGE AREAS EXCEED CAPACITY. SNOW IS NOT TO BE DUMPED IN OR NEAR THE BROOK

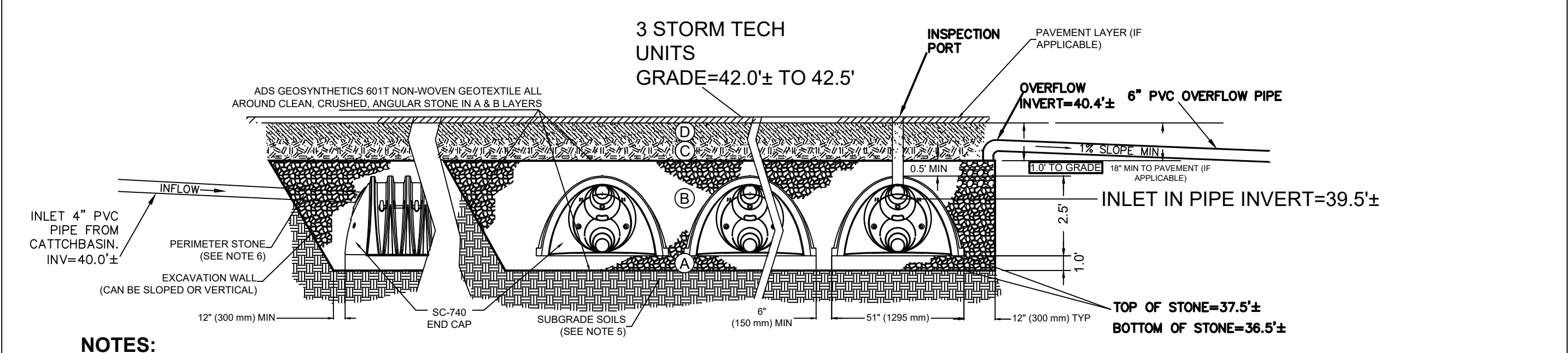
GRAPHIC SCALE



WC/C STA 0+42.3 | WC STA 0+15.3 | FC STA 0+14.3 | DMH STA 0+00.0

ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

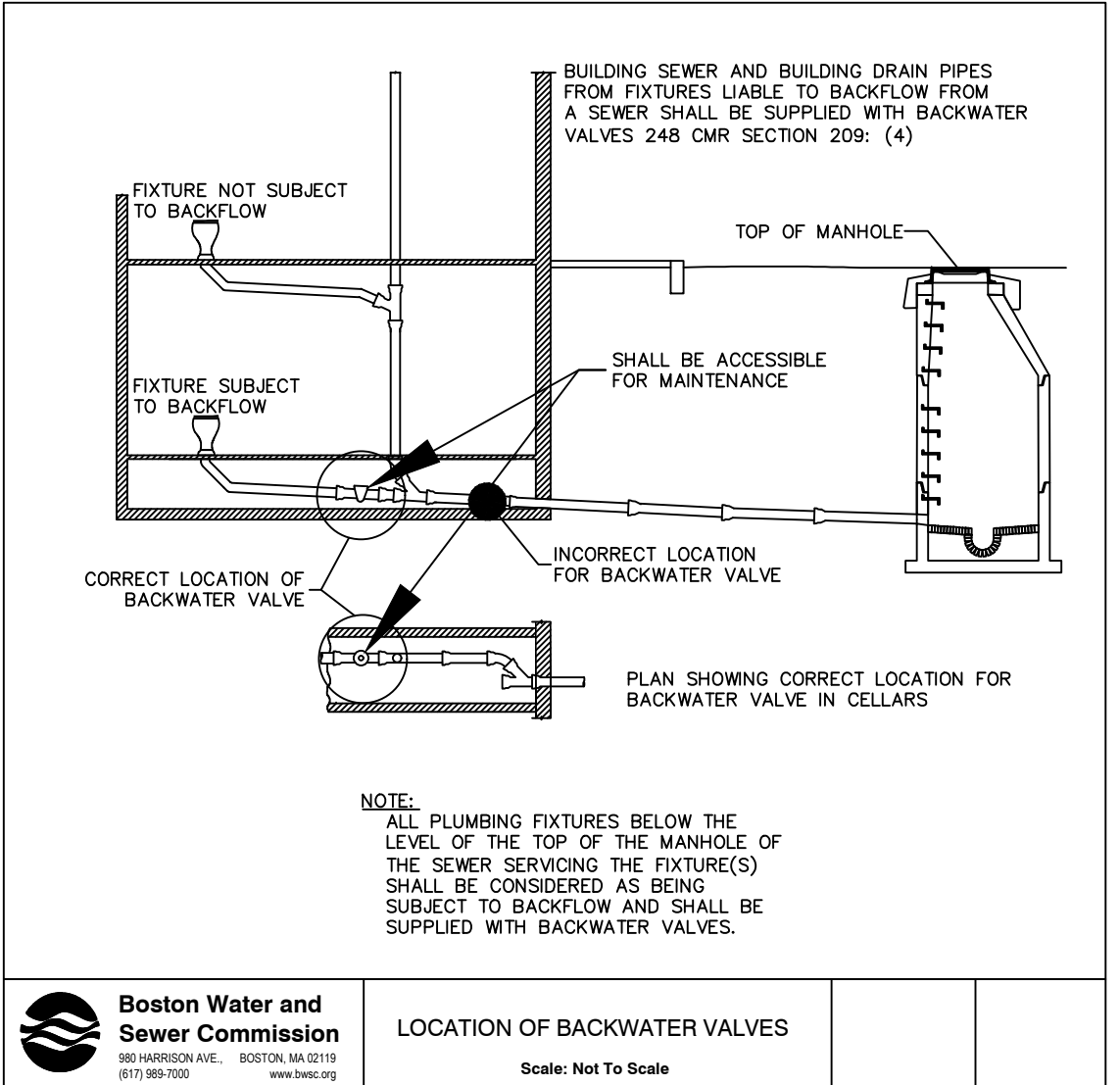
MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE (B LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145 ¹ A-1, A-2.4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 90% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 90% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A LAYER) TO THE 'C' LAYER ABOVE.	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. **



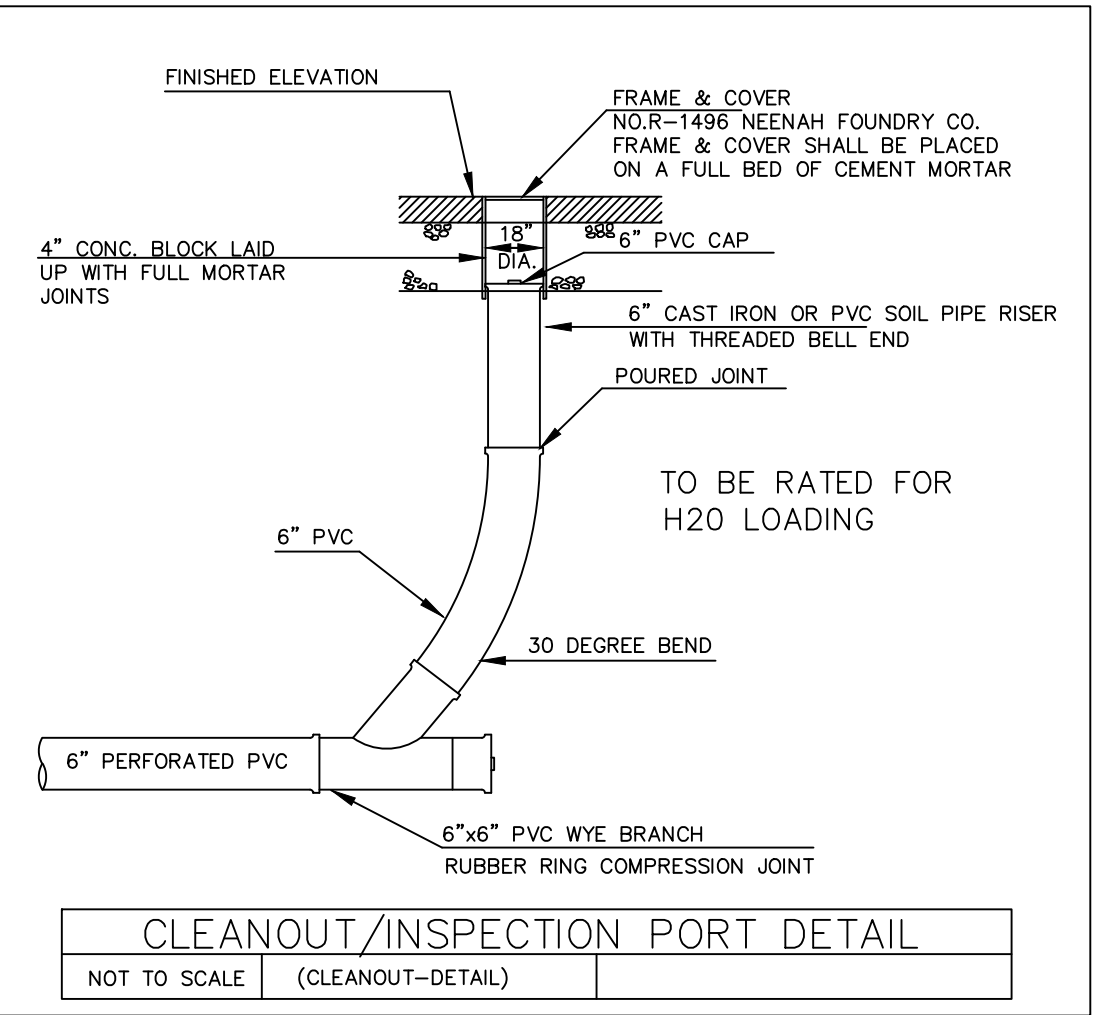
- NOTES:**
- SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
 - SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
 - "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FINAL MATERIALS.
 - THE "SITE DESIGN ENGINEER" REFERS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE STORMTECH CHAMBERS FOR THIS PROJECT.
 - THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
 - PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
 - ONCE LAYER 'C' IS PLACED, ANY SOIL MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

STORMTECH GENERAL NOTES

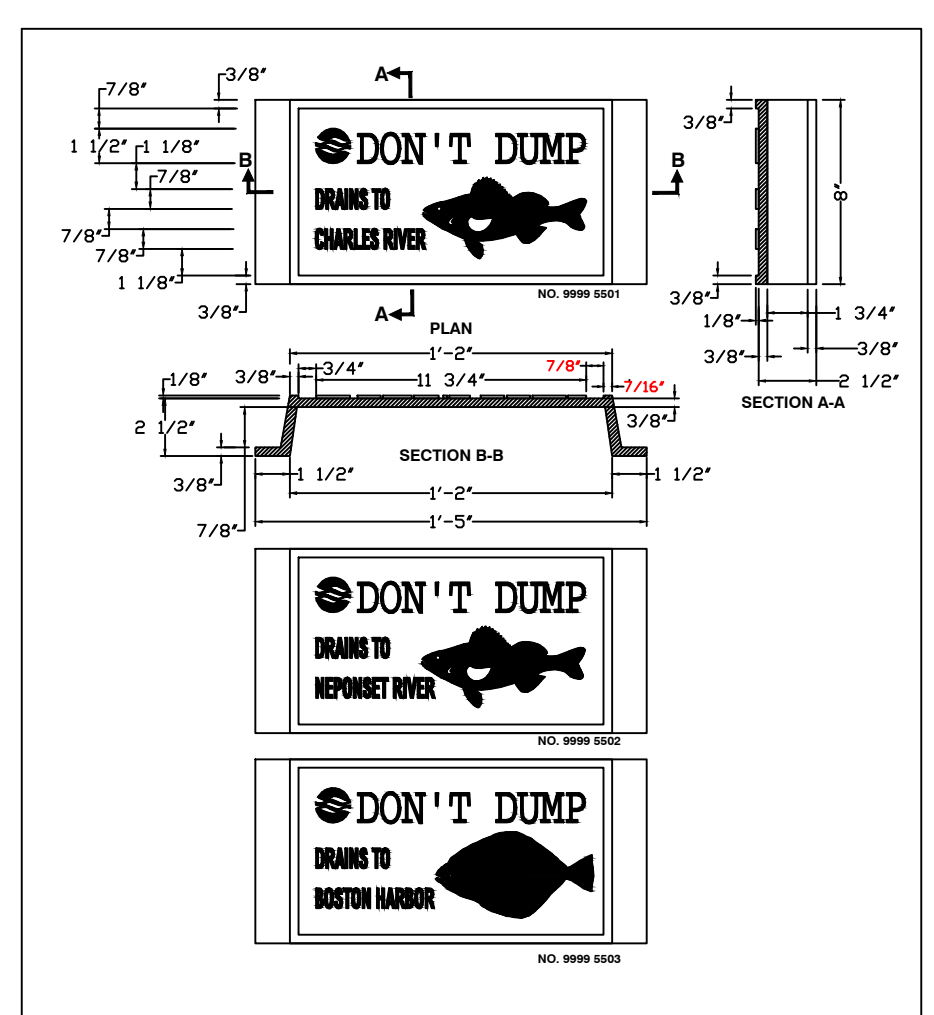
- STORMTECH LLC ("STORMTECH") REQUIRES INSTALLING CONTRACTORS TO USE AND UNDERSTAND STORMTECH'S LATEST INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION.
- STORMTECH'S REQUIREMENTS FOR SYSTEMS WITH PAVEMENT DESIGN (ASPHALT, CONCRETE PAVERS, ETC.): MINIMUM COVER IS 18 INCHES NOT INCLUDING PAVEMENT; MAXIMUM COVER IS 96 INCHES INCLUDING PAVEMENT. FOR INSTALLATIONS THAT DO NOT INCLUDE PAVEMENT, WHERE RUTTING FROM VEHICLES MAY OCCUR, MINIMUM REQUIRED COVER IS 24 INCHES. MAXIMUM COVER IS 96 INCHES. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE DESIGN ENGINEER.
- AASHTO M288 CLASS 2 NON-WOVEN GEOTEXTILE (FILTER FABRIC) MUST BE USED AS INDICATED IN THE PROJECT PLANS.
- STONE PLACEMENT BETWEEN CHAMBERS ROWS AND AROUND PERIMETER MUST FOLLOW INSTRUCTIONS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
- BACKFILLING OVER THE CHAMBERS MUST FOLLOW REQUIREMENTS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
- THE CONTRACTOR MUST REFER TO STORMTECH'S INSTALLATION INSTRUCTIONS FOR A TABLE OF ACCEPTABLE VEHICLE LOADS AT VARIOUS DEPTHS OF COVER. THIS INFORMATION IS ALSO AVAILABLE AT STORMTECH'S WEBSITE. CONTRACTOR IS RESPONSIBLE FOR PREVENTING VEHICLES THAT EXCEED STORMTECH'S REQUIREMENTS FROM TRAVELING ACROSS OR PARKING OVER THE STORMWATER SYSTEM. TEMPORARY FENCING, WARNING TAPE AND APPROPRIATELY LOCATED SIGNS ARE COMMONLY USED TO PREVENT UNAUTHORIZED VEHICLES FROM ENTERING SENSITIVE CONSTRUCTION AREAS.
- THE CONTRACTOR MUST APPLY EROSION AND SEDIMENT CONTROL MEASURES TO PROTECT THE STORMWATER SYSTEM DURING ALL PHASES OF SITE CONSTRUCTION PER LOCAL CODES AND DESIGN ENGINEER'S SPECIFICATIONS.



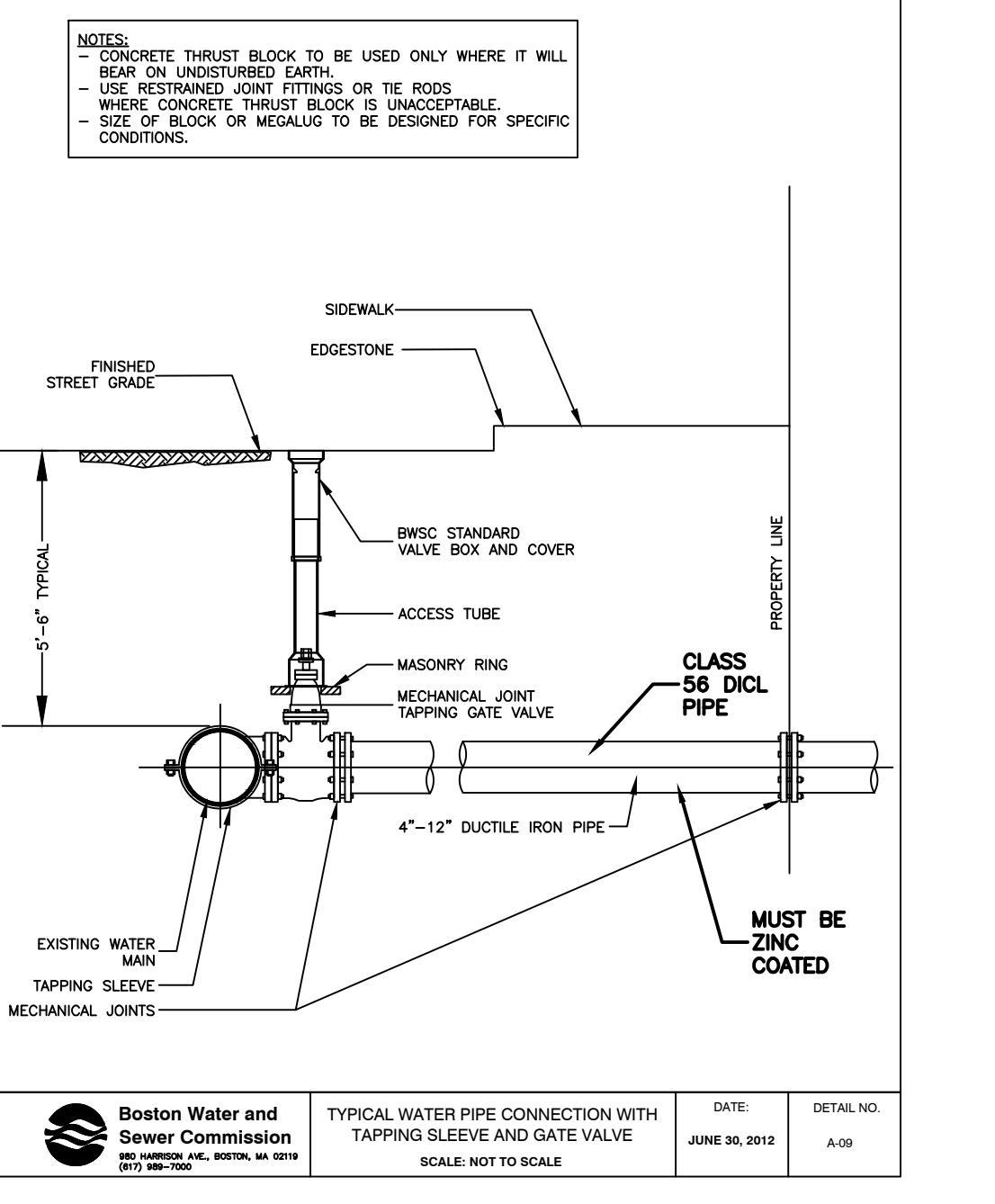
LOCATION OF BACKWATER VALVES
Scale: Not To Scale



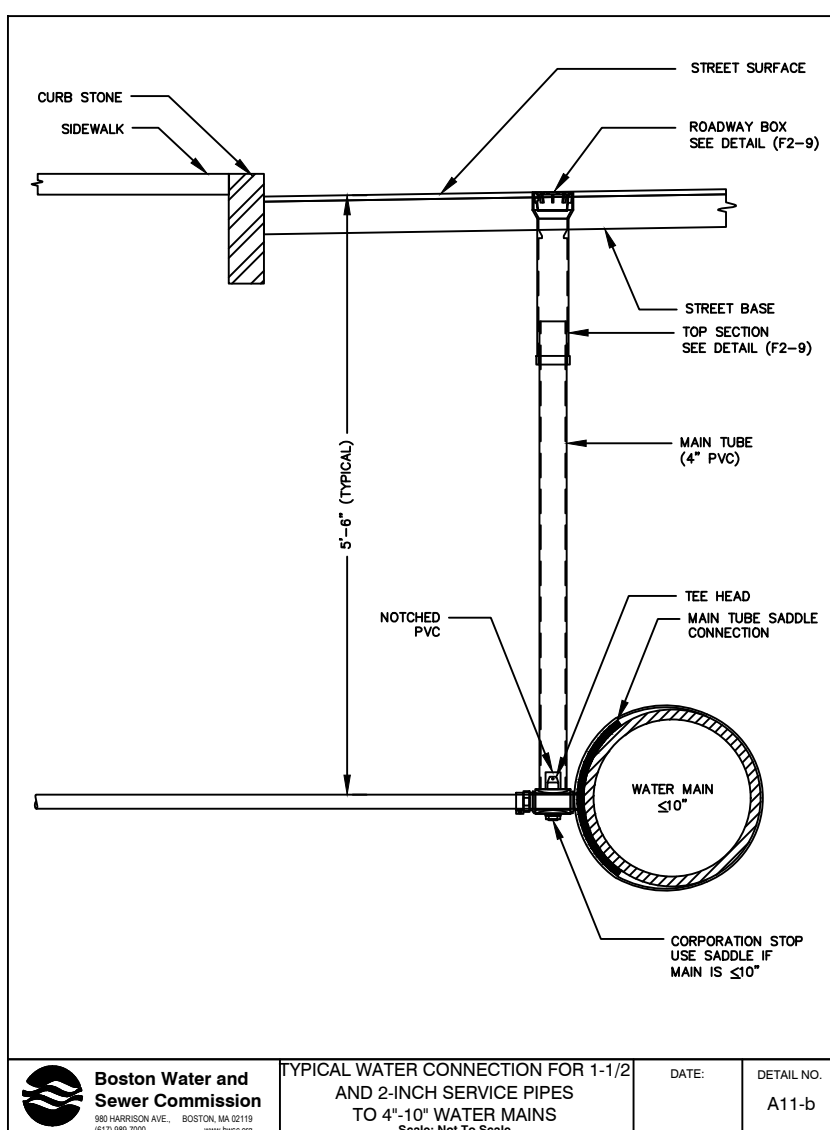
CLEANOUT/INSPECTION PORT DETAIL
NOT TO SCALE (CLEANOUT-DETAIL)



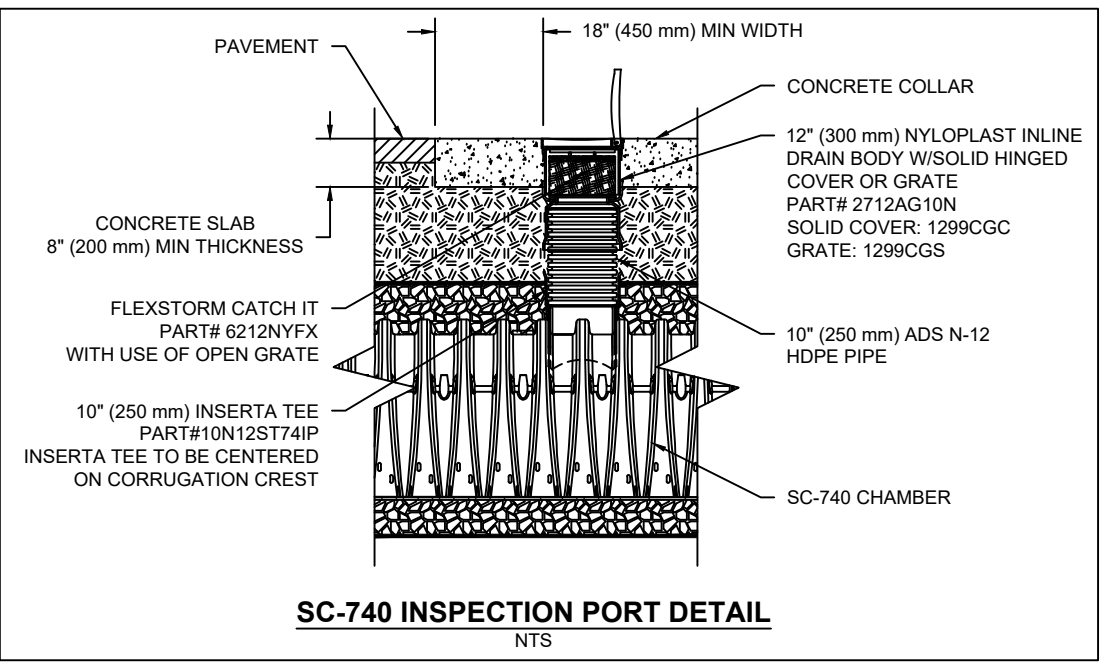
8' x 14' CATCH BASIN SIGN
SCALE: NOT TO SCALE
DATE: Jan 3, 2006
DETAIL NO: Model



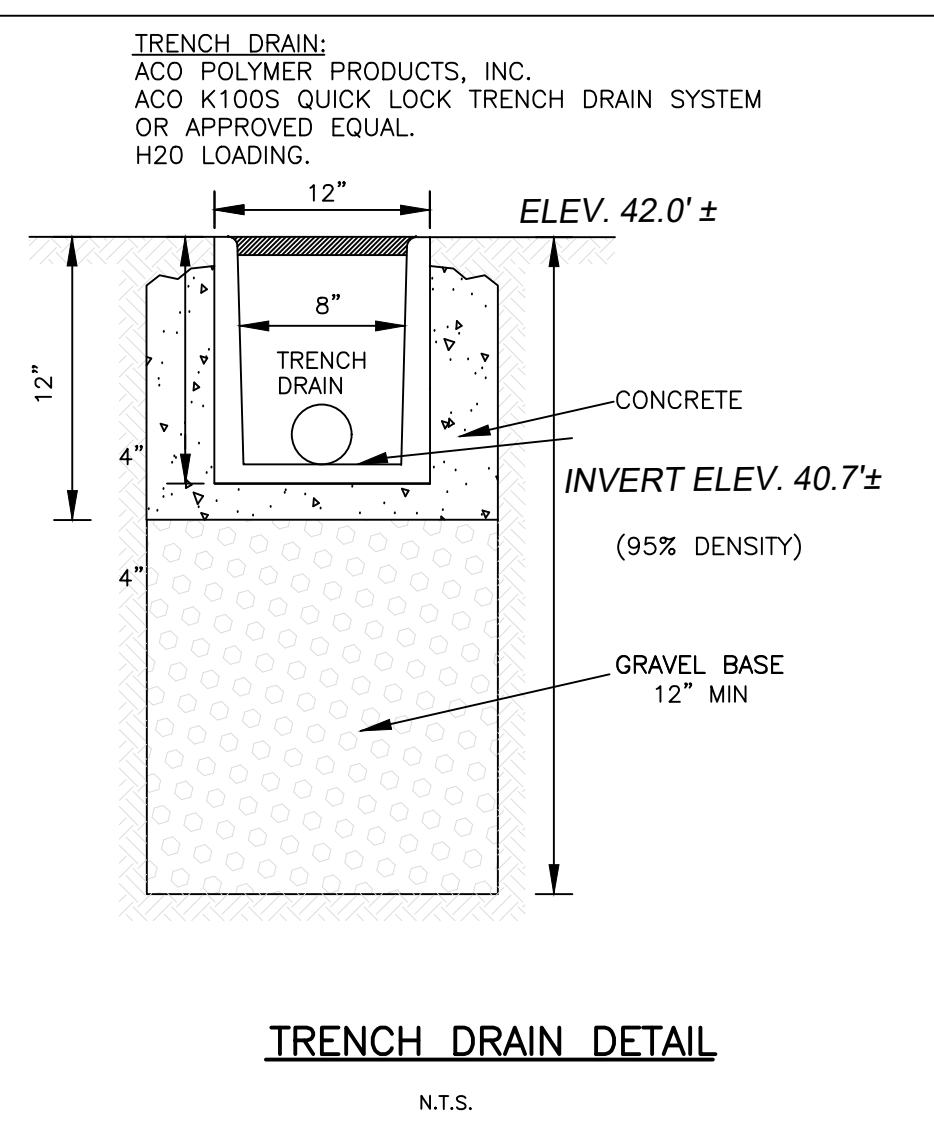
TYPICAL WATER PIPE CONNECTION WITH TAPPING SLEEVE AND GATE VALVE
SCALE: NOT TO SCALE
DATE: JUNE 26, 2012
DETAIL NO: A-03



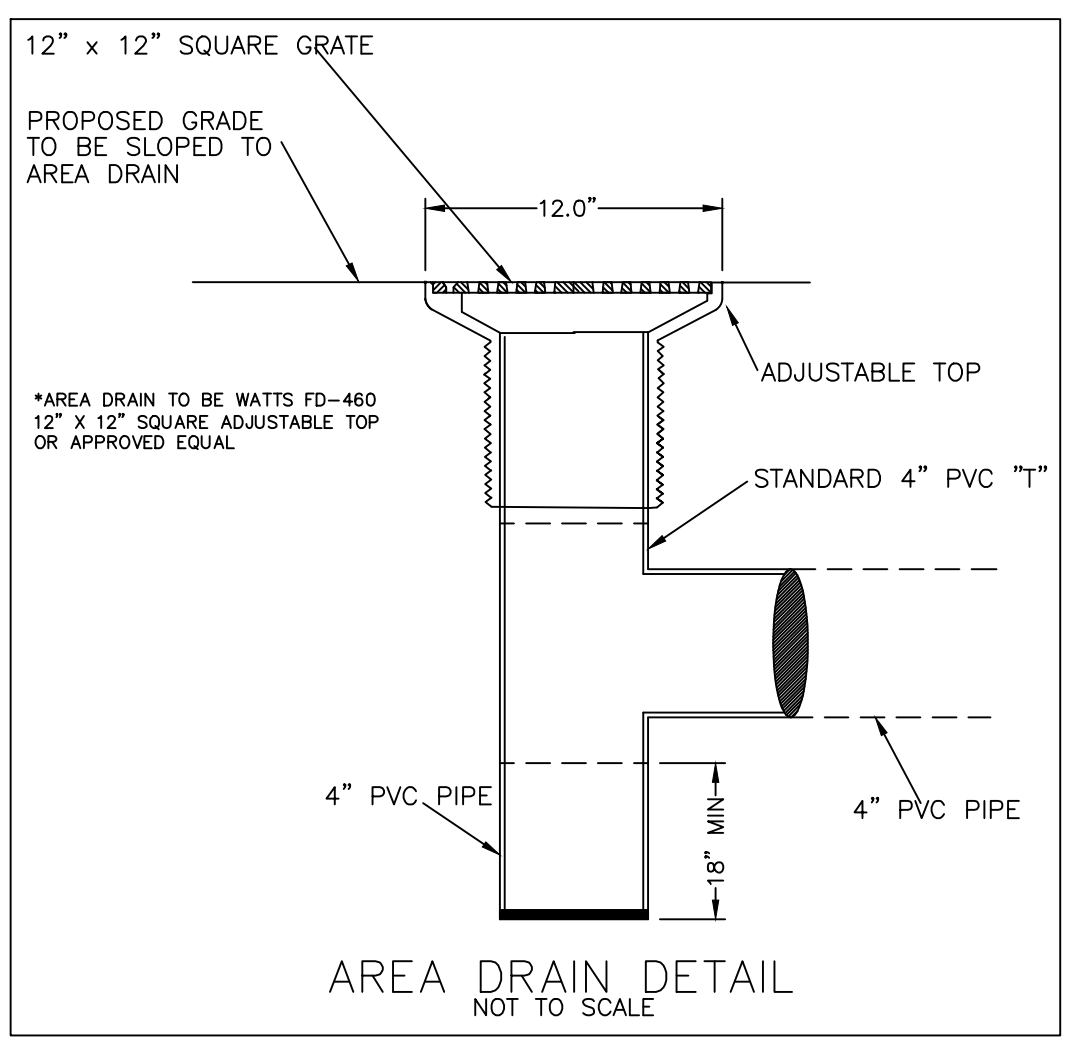
TYPICAL WATER CONNECTION FOR 1-1/2" AND 2" SERVICE PIPES TO 4"-10" WATER MAINS
SCALE: NOT TO SCALE
DATE: A11-0



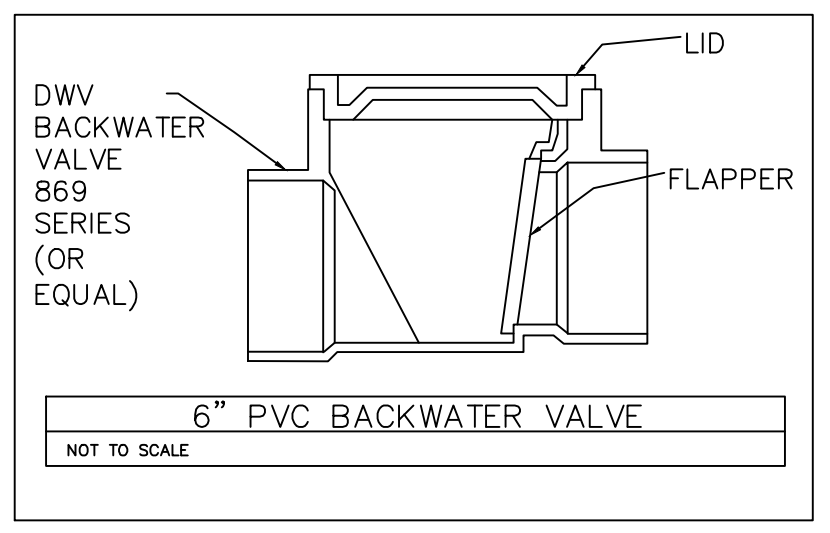
SC-740 INSPECTION PORT DETAIL
N.T.S.



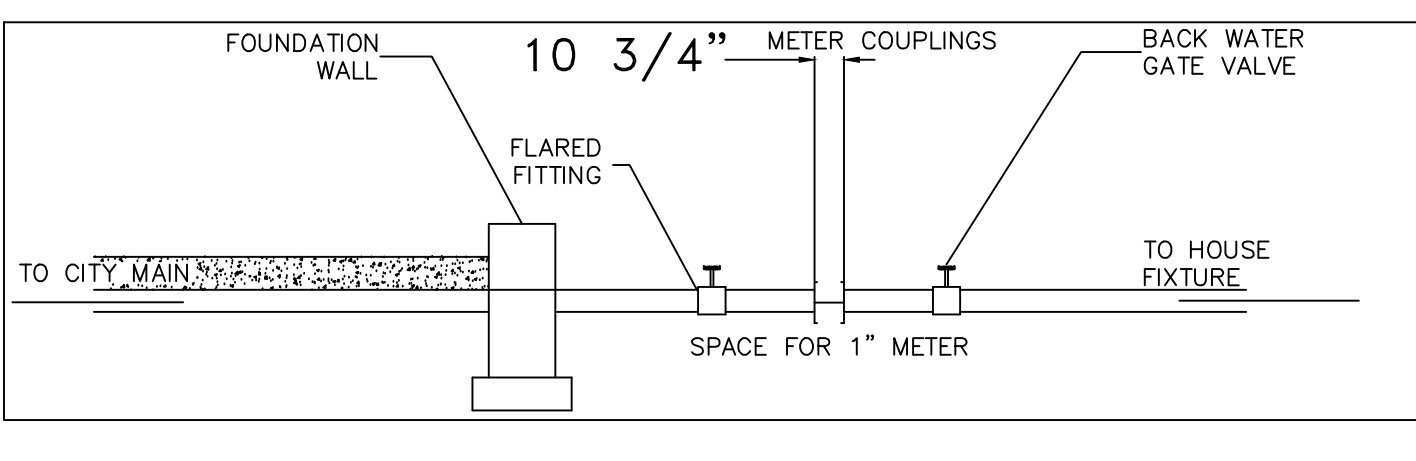
TRENCH DRAIN DETAIL
N.T.S.



AREA DRAIN DETAIL
NOT TO SCALE



6" PVC BACKWATER VALVE
NOT TO SCALE



BACK WATER GATE VALVE

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617-782-1533
Fax: 617-2025691

SPRUHAN ENGINEERING, P.C.
80 JEWETT ST. (SUITE 11)
NEWTON, MA 02458
Tel: 617-816-0722
Email: edmond@spruhaneng.com

**581 AMERICAN LEGION HIGHWAY,
BOSTON, MA**

REVISION BLOCK	
DESCRIPTION	DATE

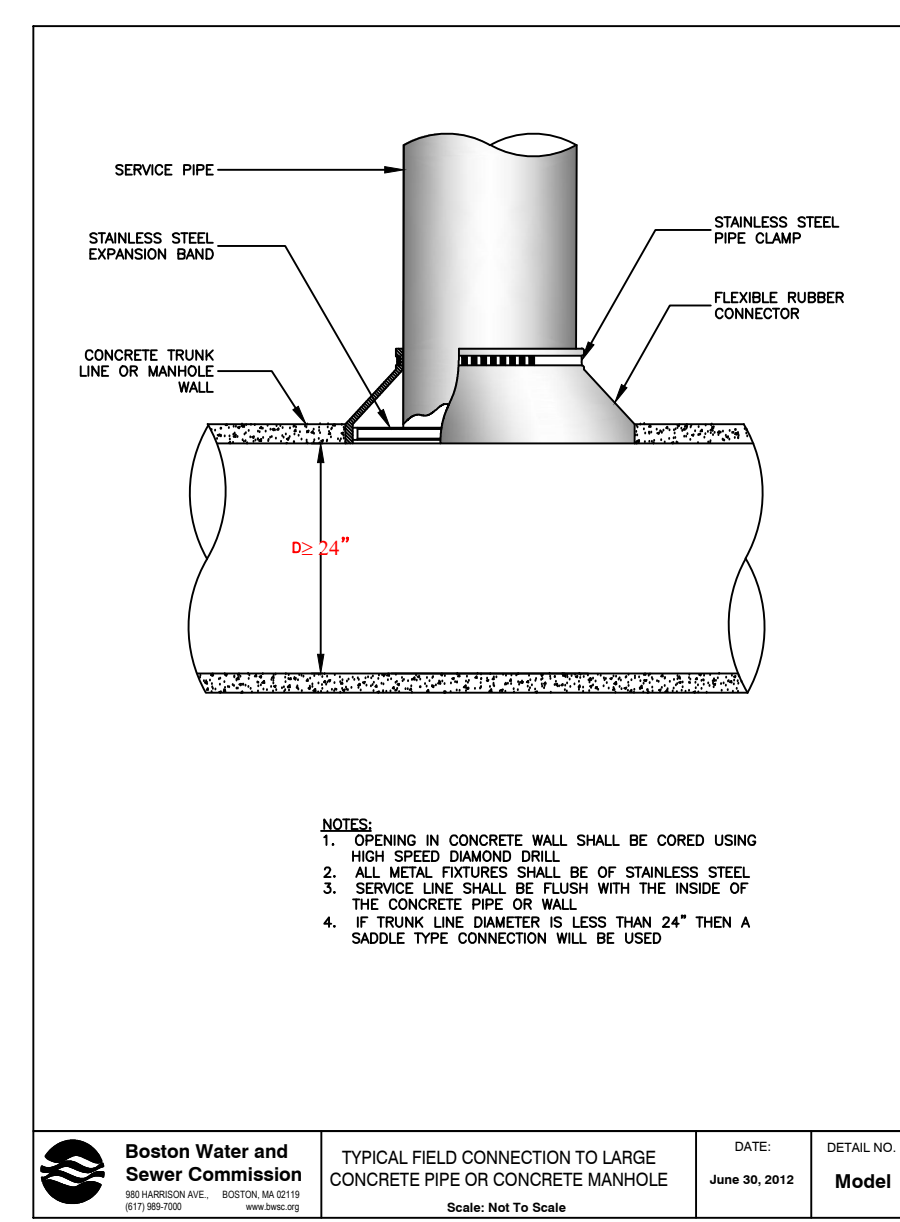
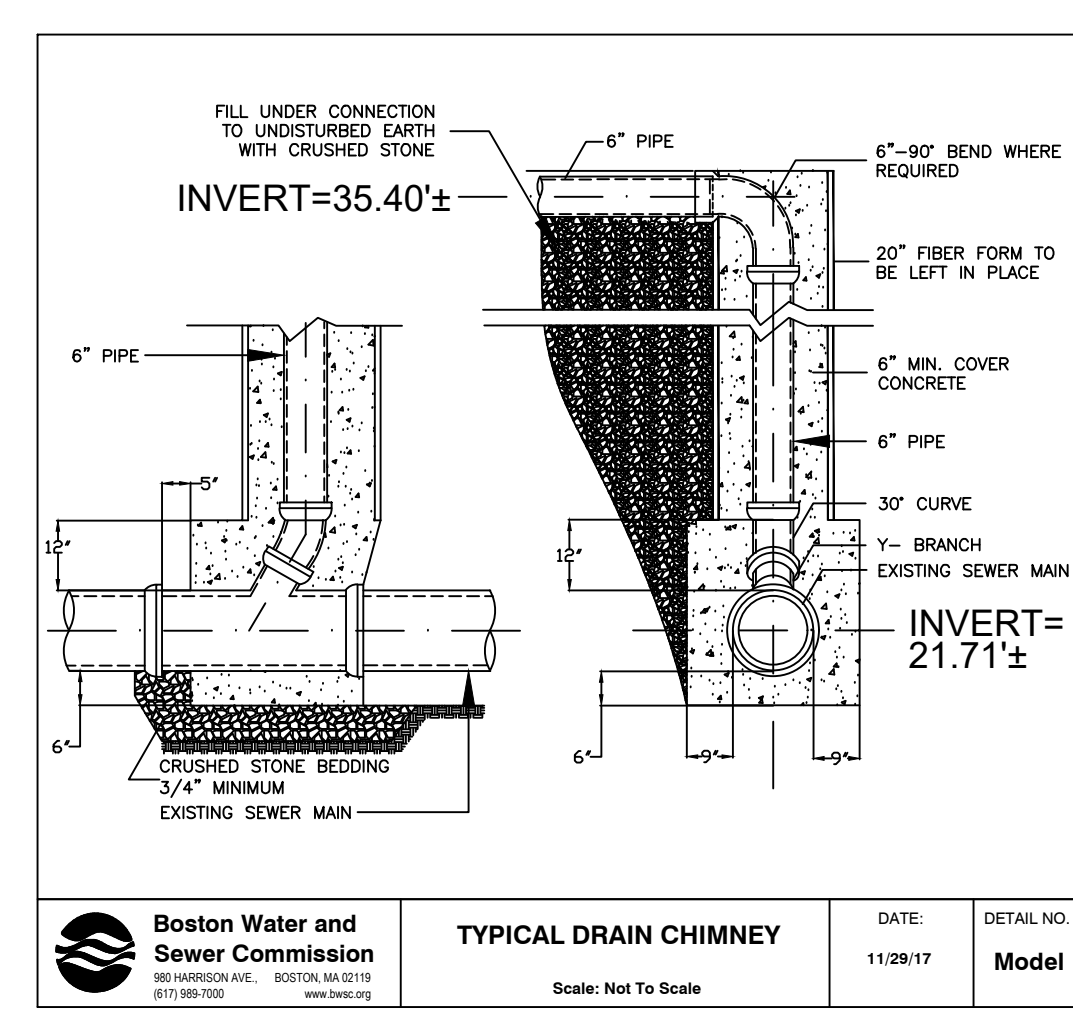
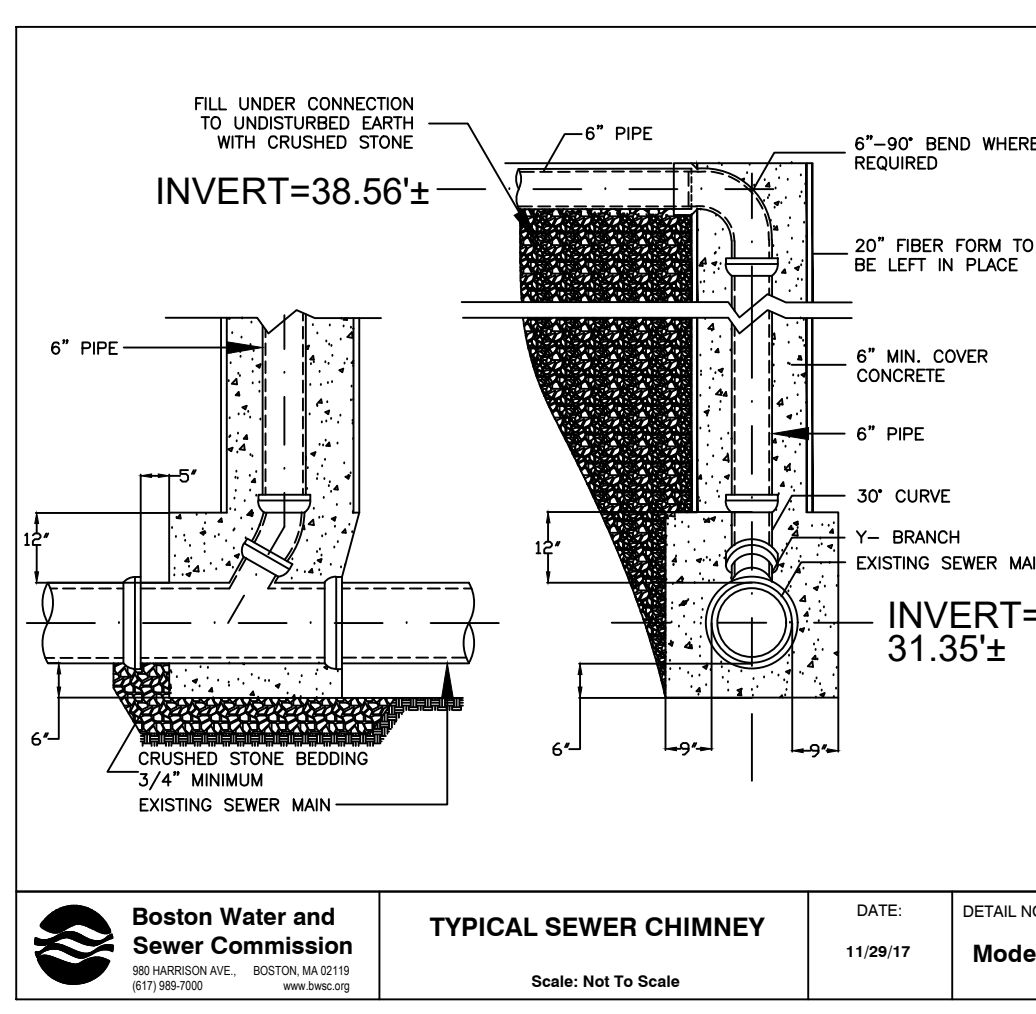
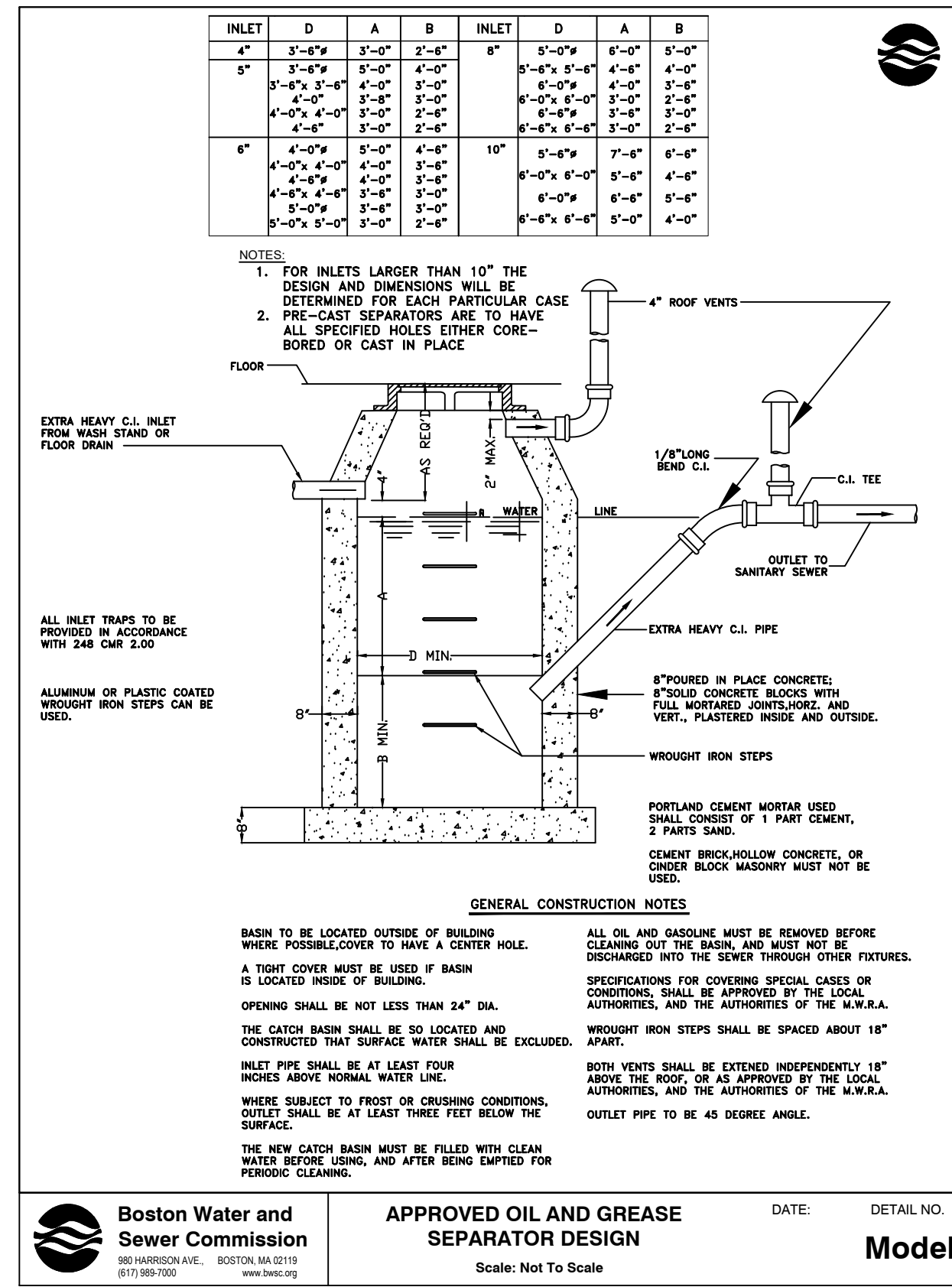
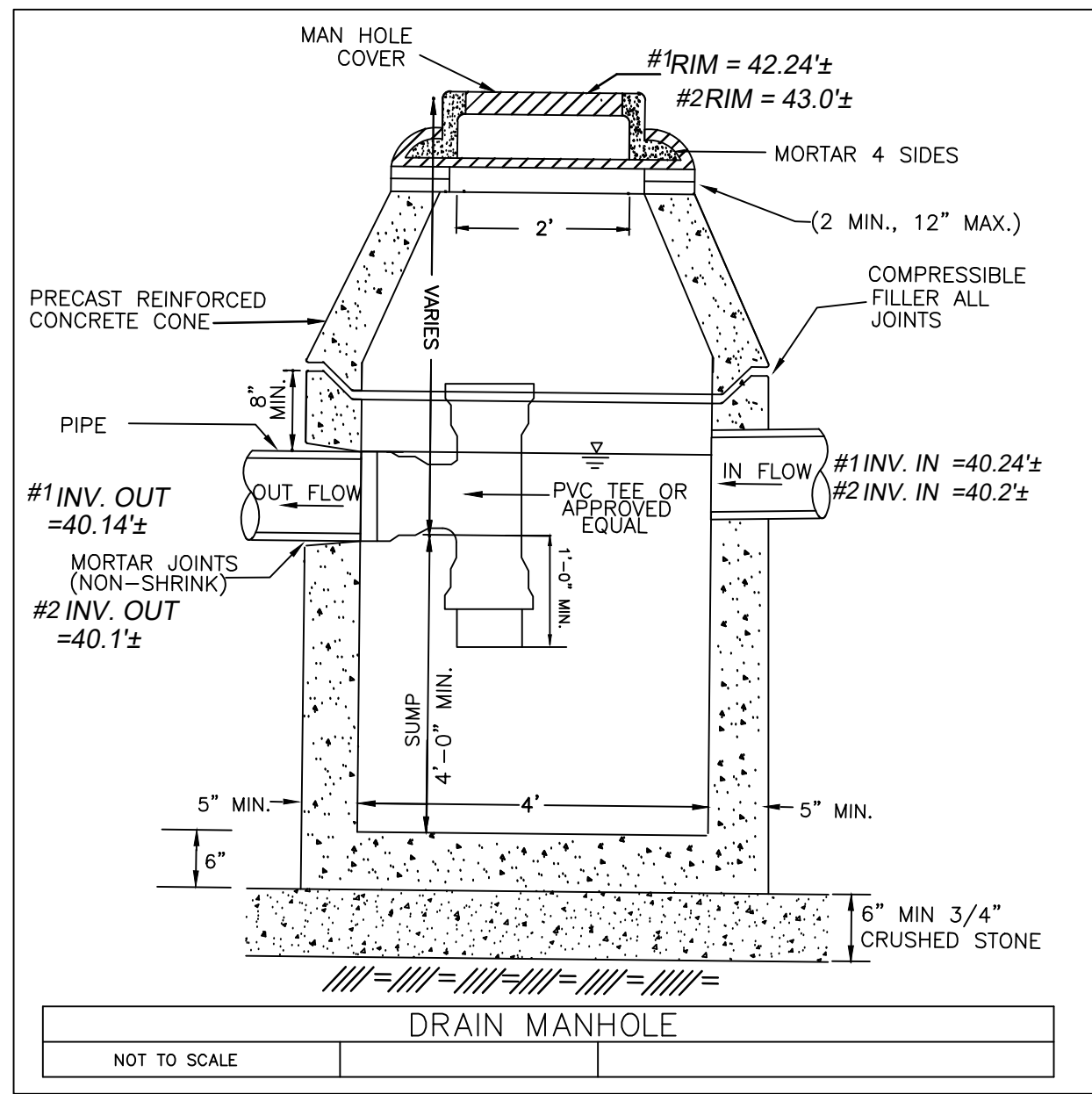
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DETAILS

PLAN:	2 OF 2
SCALE:	1" = 10'
DATE:	06-13-22
DRAWN BY:	LP
CHECKED BY:	PN
APPROVED BY:	ES

SHEET:

004



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 800-696-7432 (SHEA)
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 BILLING ADDRESS: 87 HAVERTHILL RD, AMESBURY MA 01913

UNISTORM ONLINE SYSTEM

UNISTORM MODEL #	D (ft.)	S (ft.)	MAX IMPERVIOUS AREA (acres)	INLET PIPE (in.)	TREATMENT FLOW (cfs)	PEAK FLOW (cfs)
5R	5	5.04	0-3	12-15	0-2	7
6R	6	5.34	0-4	18	2-3	9
7R	7	5.64	4-6	21	3-5	9
8R	8	6.04	6-10	24	5-7	16
10R	10	6.64	10-12	30	7-10	25
12R	12	7.34	12-15	36	10-13	35

GENERAL NOTES:
 MANHOLE DESIGN SPECIFICATIONS CONFORM TO LATEST ASTM C478 SPEC. FOR PRECAST REINFORCED CONCRETE MANHOLES SECTIONS:
 DESIGN LOADING: AASHTO HS-20

DESIGN NOTES:
 1) RAINFALL INTENSITY USED FOR TREATMENT FLOW = 0.80-1.0 IN/HR
 MANUFACTURING NOTES:
 1) DESIGN OF INTERNAL BAFFLE WALL PROVIDED TO LICENSED MANUFACTURER BY ENVIRONMENT 21, LLC
 2) LOCATION AND SIZE OF MANHOLE OPENINGS MAY BE ADJUSTED BY LICENSED MANUFACTURER
 3) G.C. TO GROUT INLET AND OUTLET PIPES.

GENERAL DESIGN GUIDELINES FOR UNISTORM TREATMENT CHAMBER:
 1) FLOW DISTRIBUTOR USED TO DISTRIBUTE INLET FLOW STRONG POWER. THIS ELIMINATES THE NEED TO BYPASS HIGH FLOW EVENTS.
 2) TYPICAL INTERNAL HEAD LOSS FOR DESIGN STORM IS 0.28 FT.
 3) DESIGN OF FLOW CONTROL BAFFLE WALL AND FLOW DISTRIBUTOR BASED ON ENVIRONMENT 21 ANALYSIS OF SITE-SPECIFIC STORM SEWER HYDRAULICS.
 4) SITE-SPECIFIC AUTOCAD DRAWING DETAIL PREPARED BY ENVIRONMENT 21 AVAILABLE.

INSTALLATION DETAIL:
 RIM ELEV. 20' MIN.
 CATCH BASIN COVER
 ANTI-SIPHON DEVICE
 SNOUT OIL AND DEBRIS SEPARATOR
 OUTLET PIPE
 SOLIDS SETTLE DOWN ON BOTTOM
 45" MIN. SUMP
 MORTAR JOINTS (NON-SHRINK)

CONFIGURATION DETAIL:
 1" PVC ANTI-SIPHON PIPE ADAPTER
 REMOVABLE WATER TIGHT ACCESS PORT 6"-10" OPENING
 MOUNTING FLANGE
 FRONT VIEW (HIDDEN) SIDE VIEW
 SNOUT OIL-WATER-DEBRIS SEPARATOR

NOTES:
 1. ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED RESIN COMPOSITE WITH ISO GEL COAT EXTERIOR FINISH WITH A MINIMUM 0.125" LAMINATE THICKNESS.
 2. ALL HOODS SHALL BE EQUIPPED WITH A WATER TIGHT ACCESS PORT. A MOUNTING FLANGE, AND AN ANTI-SIPHON VENT AS DRAWN. (SEE CONFIGURATION DETAIL.)
 3. THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY OUTLET PIPE SIZE AS PER MANUFACTURER'S RECOMMENDATION.
 4. THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A DISTANCE EQUAL TO 1/3 THE OUTLET PIPE DIAMETER WITH A MINIMUM DISTANCE OF 6" FOR PIPES < 12" I.D.
 5. THE ANTI-SIPHON VENT SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF 24" ACCORDING TO STRUCTURE CONFIGURATION.
 6. THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF LOOSE MATERIAL.
 7. THE HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WALL WITH 3/8" STAINLESS STEEL BOLTS AND OIL-RESISTANT GASKET AS SUPPLIED BY MANUFACTURER (SEE INSTALLATION DETAIL).
 8. INSTALLATION INSTRUCTIONS SHALL BE FURNISHED WITH MANUFACTURER SUPPLIED INSTALLATION KIT.
 INSTALLATION SHALL INCLUDE:
 A. INSTALLATION INSTRUCTIONS
 B. PVC ANTI-SIPHON VENT PIPE AND ADAPTER
 C. OIL-RESISTANT CRUSHED CELL FOAM GASKET WITH PSA BACKING
 D. 3/8" STAINLESS STEEL BOLTS
 E. ANCHOR SHIELDS

INSTALLATION NOTE:
 POSITION HOOD SUCH THAT BOTTOM FLANGE IS A DISTANCE OF 1/3 OUTLET PIPE DIAMETER (MIN.) BELOW THE PIPE INVERT.
 MINIMUM DISTANCE FOR PIPES BETWEEN HOOD AND STRUCTURE IS 6" (SEE DETAIL A)
 DETAIL A
 DETAIL B

OIL-DEBRIS HOOD SPECIFICATION AND INSTALLATION (TYPICAL)

FLOW CONTROL BAFFLE WALL:
 GASKET NOTE: GASKET PROVIDED IF TOP OF FLOW CONTROL WALL MUST EXTEND TO CEILING
 OPTIONAL GASKET
 SECTION A-A
 SECTION B-B
 SIZE, SHAPE AND LOCATION OF FLOW CONTROL OPENINGS BY ENVIRONMENT 21, LLC

PROPRIETARY INFORMATION: PATENTS PENDING - ALL RIGHTS TO ENVIRONMENT 21, LLC.
 SHEA PRODUCT BY: UNISTORM PREPARED FOR: ENV21Unistorm.dwg
 WEIGHT (LBS): DRAWN BY: ARO DATE: 06/01/18 PAGE: H5.1
 773 Salem Street-Wilmington, MA | 153 Cranberry Hwy-Rochester, MA | 87 Havert Hill Road-Amesbury, MA | 160 Old Turnpike Rd-Nottingham, NH
 Specifications subject to change without notice

DEEP SUMP CATCH BASIN WITH DEBRIS COLLECTOR DETAIL
 N.T.S.

NOTES:
 1. ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED RESIN COMPOSITE WITH ISO GEL COAT EXTERIOR FINISH WITH A MINIMUM 0.125" LAMINATE THICKNESS.
 2. ALL HOODS SHALL BE EQUIPPED WITH A WATER TIGHT ACCESS PORT. A MOUNTING FLANGE, AND AN ANTI-SIPHON VENT AS DRAWN. (SEE CONFIGURATION DETAIL.)
 3. THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY OUTLET PIPE SIZE AS PER MANUFACTURER'S RECOMMENDATION.
 4. THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A DISTANCE EQUAL TO 1/3 THE OUTLET PIPE DIAMETER WITH A MINIMUM DISTANCE OF 6" FOR PIPES < 12" I.D.
 5. THE ANTI-SIPHON VENT SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF 24" ACCORDING TO STRUCTURE CONFIGURATION.
 6. THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF LOOSE MATERIAL.
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INSTALLATION NOTE:
 POSITION HOOD SUCH THAT BOTTOM FLANGE IS A DISTANCE OF 1/3 OUTLET PIPE DIAMETER (MIN.) BELOW THE PIPE INVERT.
 MINIMUM DISTANCE FOR PIPES BETWEEN HOOD AND STRUCTURE IS 6" (SEE DETAIL A)
 DETAIL A
 DETAIL B

OIL-DEBRIS HOOD SPECIFICATION AND INSTALLATION (TYPICAL)

FOAM BASKET W/ PSA BACKING (TRIM TO LENGTH) MOUNTING FLANGE

ANCHOR W/ BOLT (SEE DETAIL A)

DRILLED ANCHOR HOLE (SHIELD EXPANSION CONE BOLT (NARROW END OUT))

GASKET COMPRESSES 1/2" I.D. IS 6" STRUCTURE (SEE DETAIL B)

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PETER NOLAN & ASSOCIATES, LLC
 PROFESSIONAL LAND SURVEYORS

EDMOND SPRUHAN
 PROFESSIONAL ENGINEER

581 AMERICAN LEGION HIGHWAY, BOSTON, MA

REVISION BLOCK

DESCRIPTION	DATE

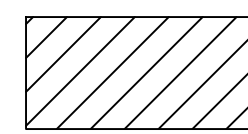
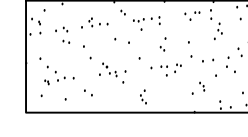
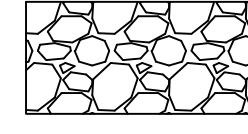
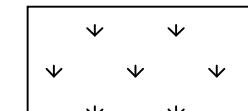
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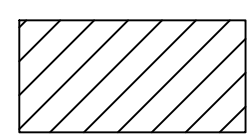

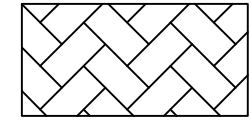
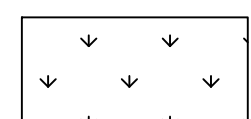
DETAILS

PLAN: 2 OF 2
 SCALE: 1" = 10'
 DATE: 6-13-22
 DRAWN BY: LP
 CHECKED BY: PN
 APPROVED BY: ES

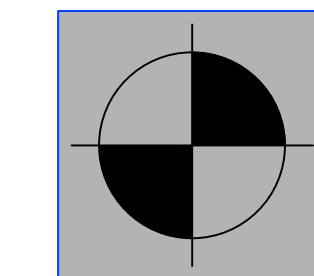
SHEET: 005

LOT SIZE = 3791.49 S.F

-  EXISTING ROOF AREA = 886.77 S.F
-  EXISTING PAVED AREA = 2,089.14 S.F
-  EXISTING GRAVEL AREA = 556.10 S.F
-  EXISTING LANDSCAPE AREA = 259.48 S.F

-  PROPOSED ROOF AREA = 2,315.97 S.F
-  PROPOSED PAVED AREA = 947.92 S.F
-  PROPOSED PERVIOUS PAVERS AREA = 218.92 S.F
-  PROPOSED LANDSCAPE AREA = 308.68 S.F

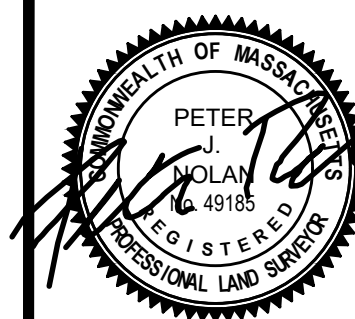
TOTAL EXISTING IMPERVIOUS AREA = 3,532.01 S.F
 TOTAL PROPOSED IMPERVIOUS AREA = 3,263.89 S.F
 TOTAL DECREASE IMPERVIOUS AREA = 268.12 S.F



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 Tel: 617-816-0722
 Email: edmond@spruhaneng.com



EXISTING



PROPOSED



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REVISION BLOCK

DESCRIPTION	DATE

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AREA BREAKDOWN

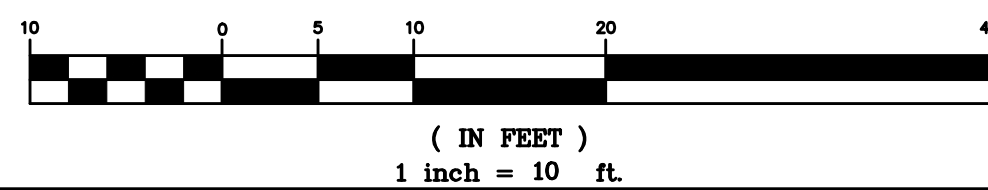
PLAN:	1 OF 2
SCALE:	1" = 10'
DATE:	6/13/2022
DRAWN BY:	LP
CHECKED BY:	PN
APPROVED BY:	ES

SHEET:

006

OWNERS INFORMATION:
 CRESTWAY ROAD DEVELOPMENT
 599 E BROADWAY
 BOSTON, MA, 02127
 ADAM BURNS
 617-564-1167
 PARCEL ID=1806564000
 ASSESSORS PLAN WARD: 01

GRAPHIC SCALE



DECIDUOUS TREE SCHEDULE						
Callout	Quantity	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING	COMMENTS
BA	2	<i>Betula alleghaniensis</i>	Yellow birch	10'-12' Ht. Min	AS SHOWN	
CF	5	<i>Comus florida</i> 'Appalachian Spring'	Appalachian Spring Dogwood	8' Ht. Min	AS SHOWN	

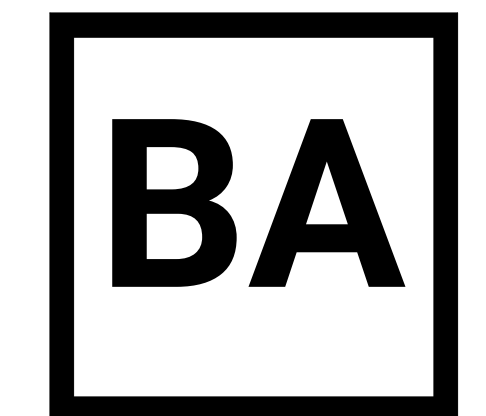
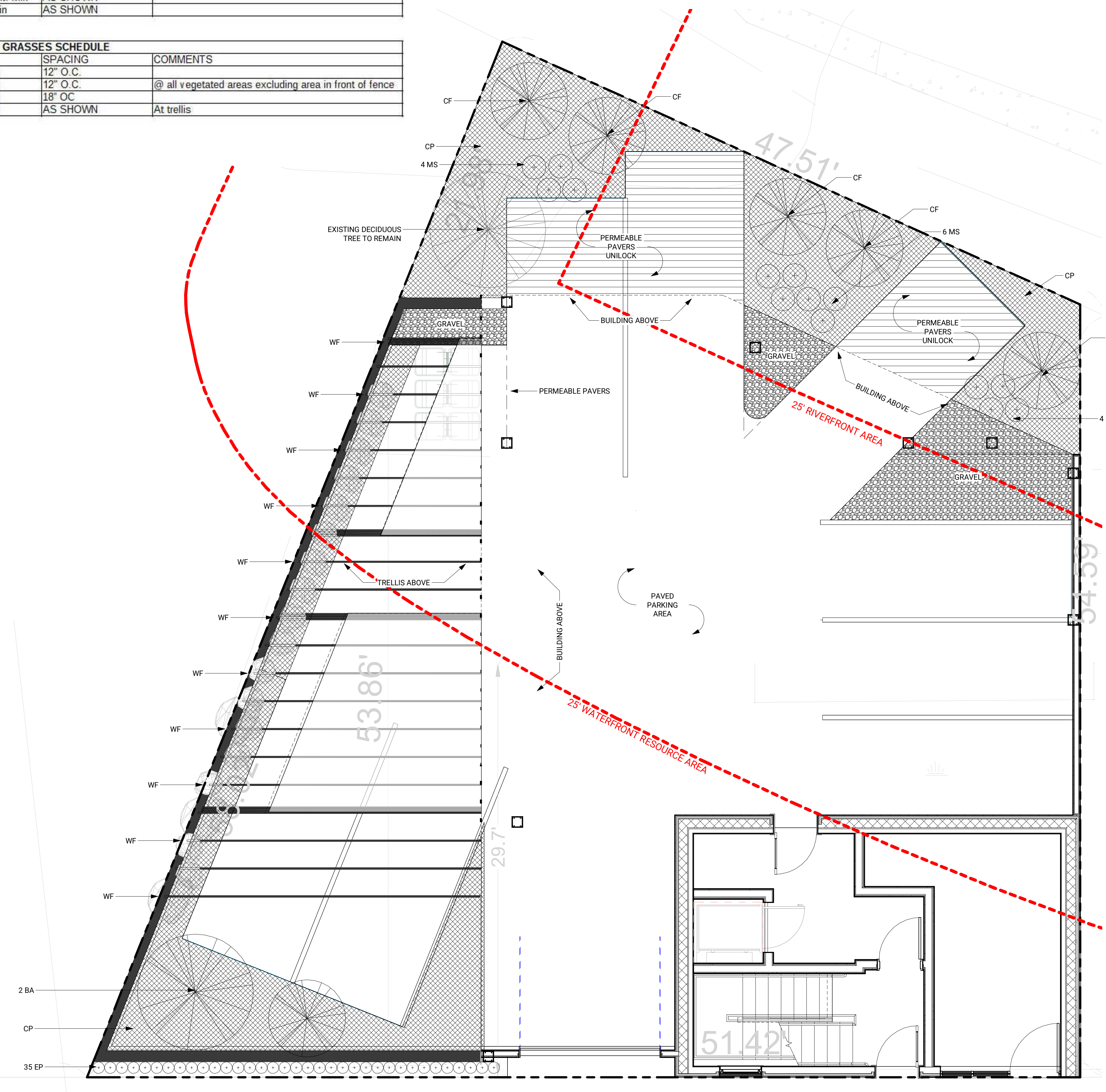
PERENNIALS, GROUNDCOVER & ORNAMENTAL GRASSES SCHEDULE						
Callout	Quantity	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING	COMMENTS
EP	35	<i>Echinacea purpurea</i>	Eastern Purple Coneflower	#1 Cont	12" O.C.	
CP	See Comments	<i>Carex pensylvanica</i>	Sedge Grass	#1 Cont	12" O.C.	@ all vegetated areas excluding area in front of fence
MS	14	<i>Matteuccia struthiopteris</i>	Ostrich Fern	#1 Cont	18" OC	
WF	11	<i>Wisteria frutescens</i>	American wisteria	#1 Cont	AS SHOWN	At trellis

NOTE: PLANTING SCHEDULE ONLY FOR PLANTS WITHIN PROPERTY BOUNDARY, SEE DRAWING FOR WETLAND AREAS

- PLANTING NOTES:**
- DURING CONSTRUCTION, PROTECT ALL EXISTING SITE FEATURES, STRUCTURES AND UTILITIES.
 - PLANTS SHALL BE TRUE TO SPECIES AND VARIETY SPECIFIED AND NURSERY GROWN IN ACCORDANCE WITH THE AMERICAN STANDARD FOR NURSERY STOCK UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT. SUBSTITUTIONS WILL BE PERMITTED ONLY IF APPROVED BY THE LANDSCAPE ARCHITECT.
 - LANDSCAPE ARCHITECT APPROVAL IS REQUIRED BEFORE PLANT MATERIAL IS PURCHASED. LANDSCAPE ARCHITECT RESERVES THE RIGHT TO SEE ALL MATERIAL IN PERSON AT THE NURSERY. IF TRAVEL OUTSIDE OF MA IS REQUIRED, LANDSCAPE ARCHITECT'S TRAVEL COSTS SHALL BE PAID FOR BY THE CONTRACTOR.
 - ALL EXPOSED BURLAP, WIRE BASKETS AND OTHER MATERIALS ATTACHED TO PLANTS SHALL BE REMOVED PRIOR TO PLANTING. CARE SHALL BE TAKEN NOT TO DISTURB THE ROOT BALL OF PLANTS.
 - THOROUGHLY WATER ALL PLANTS IMMEDIATELY AFTER PLANTING.
 - WHERE DISCREPANCIES IN QUANTITIES OCCUR, DRAWINGS SUPERCEDE PLANT NOTES AND SCHEDULE.
 - TRANSPLANTING SHALL BE DONE IN ACCORDANCE WITH THE AMERICAN STANDARD FOR NURSERY STOCK.
 - LOAM USED IN PLANT BEDS SHALL BE UNIFORM IN COMPOSITION, FREE FROM SUBSOIL, STONES LARGER THAN 1", NOXIOUS SEEDS AND SUITABLE FOR THE SUPPORT OF VEGETATIVE GROWTH. THE PH VALUE SHALL BE BETWEEN 5.5 AND 6.5.
 - MULCH IN TREE AND SHRUB BEDS SHALL BE NATURAL, NATIVE HEMLOCK MULCH FREE OF GROWTH OR GERMINATION INHIBITING INGREDIENTS. SUBMIT SAMPLES FOR APPROVAL.
 - LOCATIONS FOR PLANTS AND/OR OUTLINE OF AREAS TO BE STAKED OUT AT THE SITE FOR APPROVAL BY THE LANDSCAPE ARCHITECT.
 - SOIL DEPTHS: a) SHRUBS AND PERENNIAL BEDS: 18" MIN.; b) GROUNDCOVER: 6" MIN.; c) TREES: SEE DETAIL; d) SOD/SEED: 6" MIN.
 - PROVIDE A SUBSURFACE ROOTBALL ANCHOR BY PLATIPUS EARTH ANCHORS, SIZE FOR CALIPER

- IRRIGATION DIAGRAM NOTES:**
- IRRIGATION SHALL BE PROVIDED AS A DESIGN-BUILD INSTALLATION. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR FINAL LAYOUT OF IRRIGATION SHOWING LOCATIONS AND SIZES OF MAIN LINES AND LATERAL LINES, ZONES, RAIN AND SOIL SENSORS, AND CUT SHEETS FOR CONTROLLER SYSTEM AND COMPONENTS. INCLUDE ANY NECESSARY SLEEVING BELOW PAVING.
 - IRRIGATION CONTRACTOR SHALL VERIFY PSI/GPM REQUIREMENTS AT THE SITE BEFORE STARTING CONSTRUCTION.
 - TREES SHOULD BE ON A SEPARATE ZONE.
 - PROVIDE A REMOTE RAIN SENSOR ON A ROOF AREA THAT IS NOT OBSTRUCTED FROM THE OPEN SKY.
 - COORDINATE WITH OWNER FOR POINT OF CONNECTION LOCATION.
 - COORDINATE WITH OWNER FOR IRRIGATION CONTROLLER LOCATION.
 - INSTALL DRIP TUBING, 6GPH, 12" CENTERS, STAKED EVERY TURN OR EVERY 4'
 - COORDINATE WITH OWNER FOR BACKFLOW PREVENTION LOCATION.
 - INSTALLER SHALL INSTALL LIGHTNING AND SURGE PROTECTION DEVICES THROUGHOUT SYSTEM AS PER MANUFACTURER'S HIGHEST SPECIFICATION LEVELS.
 - INSTALLER SHALL ADHERE TO ALL MANUFACTURER'S SPECIFICATIONS RELATED TO CONTROL SYSTEM INSTALLATION.
 - INSTALLER SHALL INSTALL MOISTURE SENSORS. CONTRACTOR SHALL INSTALL PER MANUFACTURER'S SPECIFICATIONS AND SHALL BE RESPONSIBLE TO PROGRAM RELATED HYDROZONES TO RESPECTIVE SOIL MOISTURE SENSORS. PROVIDE ONE FOR EACH IRRIGATION ZONE WITH AUTOMATIC SHUT-OFF ONCE MOISTURE REQUIREMENTS ARE MET.
 - PRIOR TO BID, CONTRACTOR TO VERIFY THAT ALL MATERIALS, INSTALLATION PARAMETERS, AND OPERATIONS CONFORM TO ALL APPLICABLE CODES AND ORDINANCES. NO LATER THAN FIVE DAYS BEFORE BID SUBMITTALS CONTRACTOR SHALL NOTIFY DESIGNER AND OWNER OF ANY CHANGES REQUIRED DUE TO CURRENT CODE OR ORDINANCE DISCREPANCIES.

EXISTING CONDITIONS PLAN		PROPOSED PLAN	
25' RIVERFRONT AREA			
ROOF AREA	55.79 SF	ROOF AREA	135.44 SF
GRAVEL AREA	-	GRAVEL AREA	69.25 SF
25' WATERFRONT RESOURCE AREA			
ROOF AREA	886.77 SF	ROOF AREA	2315.97 SF
PAVED AREA	2089.14 SF	PAVED AREA	947.92 SF
GRAVEL AREA	556.10 SF	GRAVEL AREA	218.98 SF
LANDSCAPE	259.48 SF	LANDSCAPE	308.68 SF
100' BUFFER ZONE			
PAVED AREA	2089.14 SF	PAVED AREA	3051.77



BALANCE ARCHITECTS
617.991.0269 | www.balance-architects.com
197 8th Street, Suite 2000, Boston, MA 02129

PROJECT NAME:
581 AMERICAN LEGION

CLIENT:
BURNS REALTY & INVESTMENTS

PROJECT ADDRESS:
581 AMERICAN LEGION HIGHWAY, BOSTON, MA 02131

CIVIL
SPRUHAN ENGINEERING
80 JEWETT ST, SUITE ONE
NEWTON, MA 02458
617-816-0722
EDMOND@SPRUHANENG.COM

STRUCTURAL
WEBB STRUCTURAL SERVICES, INC.
670 MAIN STREET
READING, MA 01867
(781-779-1330)

M&P/FP/EA
ZADE ASSOCIATES CONSULTING ENGINEERS LLC
140 BEACH STREET, BOSTON, MA 02111
617-338-4406
ZADE@ZADEENGINEERING.COM

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No.	Description	Date



STAMP:

PERMIT SET

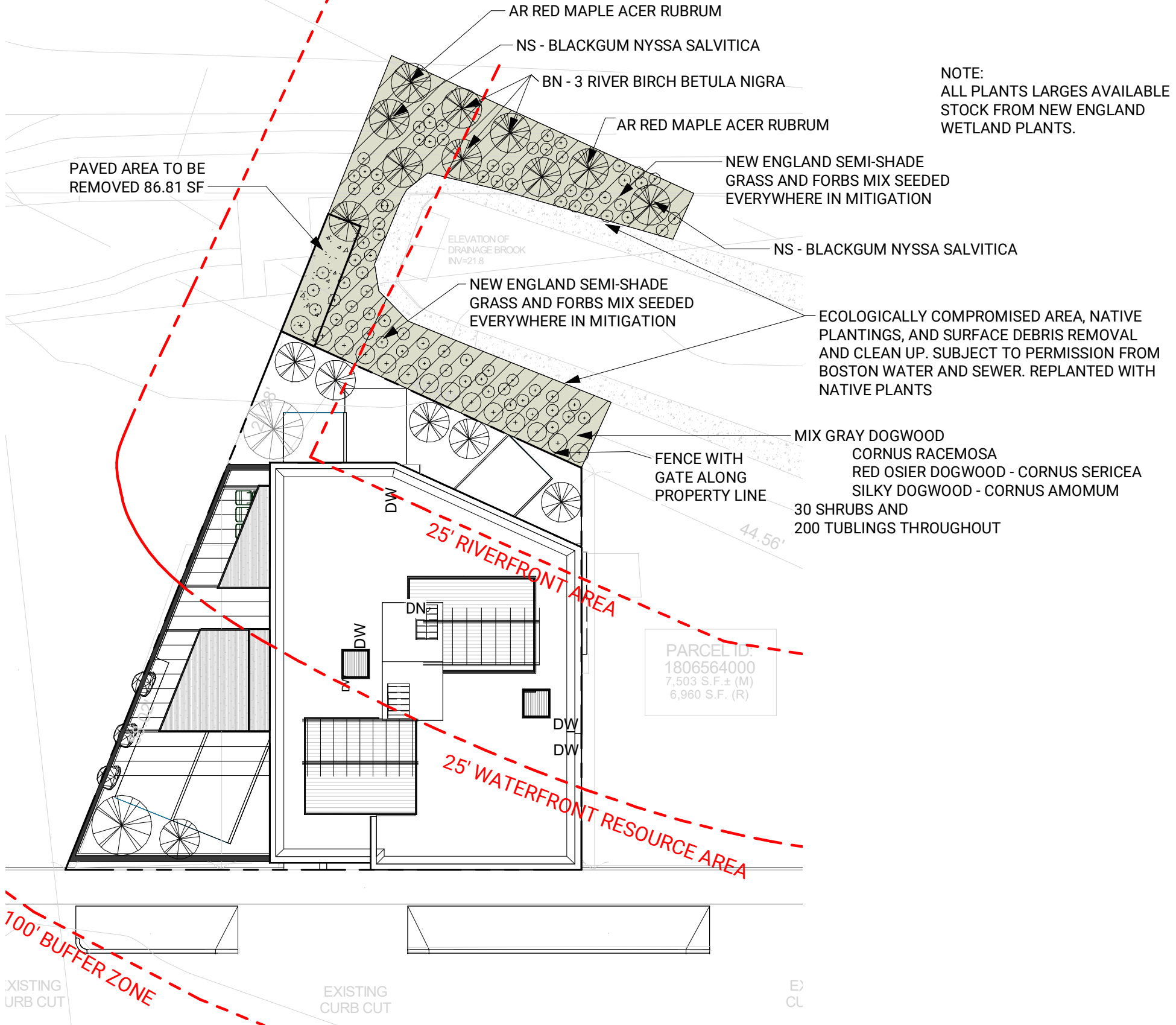
Project number 20.033
Date 1/25/2022
Drawn by PS
Checked by PS
Scale 1/4" = 1'-0"

LANDSCAPE PLAN

A-0.5

1 LANDSCAPE PLAN
1/4" = 1'-0"

EXISTING CONDITIONS PLAN		PROPOSED PLAN	
25' RIVERFRONT AREA		25' RIVERFRONT AREA	
PAVED AREA	-	PAVED AREA	-
ECOLOGICALLY COMPROMISED LANDSCAPE	617.85 SF	NATIVE HABITAT RESTORATION	617.85 SF
25' WATERFRONT RESOURCE AREA		25' WATERFRONT RESOURCE AREA	
PAVED AREA	86.81 SF	PAVED AREA	-
ECOLOGICALLY COMPROMISED LANDSCAPE	364.59 SF	NATIVE HABITAT RESTORATION	451.40 SF



NOTE:
ALL PLANTS LARGES AVAILABLE STOCK FROM NEW ENGLAND WETLAND PLANTS.

1 ARCHITECTURAL SITE PLAN
1/16" = 1'-0"



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.

Cape Verdean Creole:

INPURTANTI! Es dukumentu ó aplikason ten **informason inpur tanti** sobri bu direitus, rasponsabilidadi i/ó benefisius. 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.





**AFFIDAVIT OF SERVICE
FOR ABUTTER NOTIFICATION**

**Under the Massachusetts Wetlands Protection Act
and Boston Wetlands Ordinance**

I, Thomas Hughes, hereby certify under pains and penalties of perjury that that at least one week prior to the public hearing, I gave notice to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, section 40, and the DEP Guide to Abutter Notification dated April 8, 1994, in connection with the following matter:

A Notice of Intent was filed under the Massachusetts Wetlands Protection Act and/or the Boston Wetlands Ordinance by Boston Pinnacle Properties, LLC for redevelopment with a mixed use residential development located at 581 American Legion Highway.

The Abutter Notification For, the list of abutters to whom it was given, and their addresses are attached to this Affidavit of Service.

Thomas G. Hughes
Digitally signed by Thomas G. Hughes
Date: 2022.06.03 11:19:23 -0400

6/3/2022

Name 

Date

Spanish Translation Certification

I hereby certify the Notification to Abutters for the Boston Conservation Commission was correctly translated to Spanish based upon my training and experience. My credentials include a Bachelor of Arts Degree in Spanish Language and Literature from the University of Rhode Island. Additionally, as part of the schools International Engineering Program I participated in a yearlong immersion program in Santander Spain, attending the Universidad de Cantabria along with an internship at the University as part of a research team working coastal resiliency research.



Arianna Sawyer

Summary Table of Areas Altered

581 American Legion Highway

Area	Alteration
Lot 1	
25' Riverfront	529
25' Waterfront Resource Area	1637
100' Buffer Zone	3791
Lot 2 (portion of existing building on lot 2)	
25' Riverfront	86
25' Waterfront Resource Area	30
100' Buffer Zone	116
Note Lot 2 areas doubled to account for potential overdigging during demo	
Easement Area	
25' Riverfront	618
25' Waterfront Resource Area	451
100' Buffer Zone	1069
Total All Areas	
25' Riverfront	1233
25' Waterfront Resource Area	2118
100' Buffer Zone	4976