

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):

1817 River Street (Lots A, B & C)	Boston (Hyde Park)	02136-6036
a. Street Address	b. City/Town	c. Zip Code
Latitude and Longitude:	42.2437	-71.1393
18236	d. Latitude	e. Longitude
f. Assessors Map/Plat Number	12374-000	
	g. Parcel /Lot Number	

2. Applicant:

Tony	Ferrara	
a. First Name	b. Last Name	
1817 River Street LLC		
c. Organization		
394 Washington St., - Unit B		
d. Street Address		
Dedham	MA	02026
e. City/Town	f. State	g. Zip Code
617-438-2171	tony@hubmtg.com	
h. Phone Number	i. Fax Number	j. Email Address

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

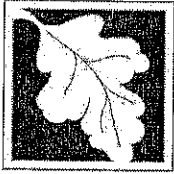
a. First Name	b. Last Name	
c. Organization		
d. Street Address		
e. City/Town	f. State	g. Zip Code
h. Phone Number	i. Fax Number	j. Email address

4. Representative (if any):

Matthew	Smith	
a. First Name	b. Last Name	
Norwood Engineering Co., Inc.		
c. Company		
1410 Route One		
d. Street Address		
Norwood	MA	02062
e. City/Town	f. State	g. Zip Code
781-762-0143	msmith@norwoodengineering.com	
h. Phone Number	i. Fax Number	j. Email address

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

\$2050.00	\$1,012.50	\$0-Boston Con Com does not accept City portion of State Fee
a. Total Fee Paid	b. State Fee Paid	



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A. General Information (continued)

6. General Project Description:

The construction of a 1-family house, a 2-family house, both with associated site features, along with parking improvements at an existing 3-family house at 1817 River Street, Hyde Park, MA.

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 CMR 10.24(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

a. County

67102

c. Book

b. Certificate # (if registered land)

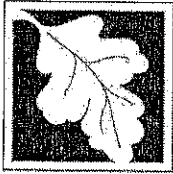
250

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.



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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 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

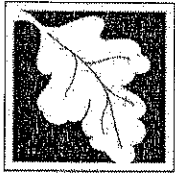
3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:
a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

- 5. Has an alternatives analysis been done and is it attached to this NOI? Yes No
- 6. Was the lot where the activity is proposed created prior to August 1, 1996? Yes No

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

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



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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.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
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 _____

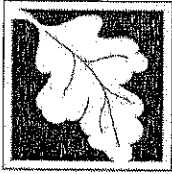
	Size of Proposed Alteration	Proposed Replacement (if any)
f. <input type="checkbox"/> Coastal Banks	1. linear feet _____	
g. <input type="checkbox"/> Rocky Intertidal Shores	1. square feet _____	
h. <input type="checkbox"/> Salt Marshes	1. square feet _____	2. sq ft restoration, rehab., creation _____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

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

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

8/1/2021
 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*

- 1. Percentage/acreage of property to be altered:
 - (a) within wetland Resource Area _____ percentage/acreage
 - (b) outside Resource Area _____ percentage/acreage
- 2. Assessor's Map or right-of-way plan of site
- 2. 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.



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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).



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

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

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.



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Provided by MassDEP:

MassDEP File Number _____

Document Transaction Number _____

Boston
 City/Town

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.

Land Development Plan, 1817 River Street, Boston, Mass. (Hyde Park-02136-6036)

a. Plan Title

Norwood Engineering Co., Inc.

Matthew D. Smith

b. Prepared By

c. Signed and Stamped by

May 26, 2022

1"=10'

d. Final Revision Date

e. Scale

EcoTec, Inc. Wetland Resource Evaluation

October 30, 2021

f. Additional Plan or Document Title

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.

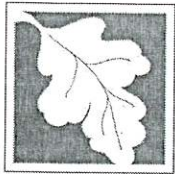
Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

Municipal Portion of State Fees Not Accepted

2. Municipal Check Number 12440 3. Check date -

4. State Check Number HVB Development LLC 5. Check date 6-9-22

6. Payor name on check: First Name HVB Development LLC 7. Payor name on check: Last Name



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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.

	7-15-22
1. Signature of Applicant	2. Date
3. Signature of Property Owner (if different)	4. Date
	7/15/22
5. Signature of Representative (if any)	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.



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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:

1817 River Street (Lots A, B & C)

a. Street Address

12 440

c. Check number

Boston (Hyde Park)

b. City/Town

\$1,012.50

d. Fee amount

2. Applicant Mailing Address:

Tony

a. First Name

Ferrara

b. Last Name

1817 River Street LLC

c. Organization

394 Washington St. - Unit B

d. Mailing Address

Dedham

e. City/Town

MA

f. State

02026

g. Zip Code

617-438-2171

h. Phone Number

i. Fax Number

tony@hubmtg.com

j. Email Address

3. Property Owner (if different):

a. First Name

b. Last Name

c. Organization

d. Mailing Address

e. City/Town

f. State

g. Zip Code

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).



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B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
2a. Construction of a single family house	1	\$500.00	\$500.00
2b. Parking lot	1	\$500.00	\$500.00
3b. Each building (for development) including site	1	\$1,050.00	\$1,050.00

Step 5/Total Project Fee: \$2,050.00

Step 6/Fee Payments:

Total Project Fee:	\$2,050.00
State share of filing Fee:	a. Total Fee from Step 5 \$1,012.50
City/Town share of filling Fee:	b. 1/2 Total Fee less \$12.50 \$0-Boston Con Com does not accept

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.)



A. GENERAL INFORMATION

1. Project Location

18

a. Street Address Boston (Hyde Park) 02136-6036

18236 b. City/Town c. Zip Code

f. Assessors Map/Plat Number 12374-000 g. Parcel /Lot Number

2. Applicant

a. First Name b. Last Name c. Company

d. Mailing Address

MA 02026

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

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

3. Property Owner

a. First Name b. Last Name c. Company

d. Mailing Address

MA 02026

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

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

Check if more than one owner

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

4. Representative (if any)

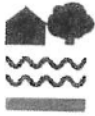
a. First Name b. Last Name c. Company

d. Mailing Address

MA 02062

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

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



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

- Yes No

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

6. General Information

The construction of a 1-family house, a 2-family house, both with associated site features along with parking improvements at an existing 3-family house at 1817 River Street, Hyde Park, MA

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

250

a. County

b. Page Number

67102

c. Book

d. Certificate # (if registered land)

9. Total Fee Paid

3,662.50

1,012.50

1,150.00

a. Total Fee Paid

b. State Fee Paid

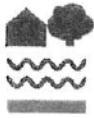
c. City Fee Paid

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

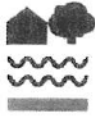
2. Inland Resource Areas

<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	105 Square feet	0 Square feet	0 Square feet
<input type="checkbox"/> Riverfront Area	_____ Square feet	_____ Square feet	_____ Square feet

C. OTHER APPLICABLE STANDARDS & REQUIREMENTS

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

ALT1161211 (Subdivision application number that went to board of appeals to subdivide land into 2 parcels), BOA-1202082 (This is the board of appeals application number that was for the subdivision application listed above. This was approved by the board on 6/29/21 and went back to ISD with a date of entry of 8/20/21). This approval was not contested and became official 20 days after the entry date. ERT 1161578 is the application for the two family to be built on lot B. This application has been reviewed and approved to be an as of right project subject only to approvals from Parks and Conservation. This application will also require public works street opening permits for new utility connections, and Boston Water and Sewer approvals for new utility connections. ERT 1161583 is the permit number for the single family to be built on Lot C. This application has been reviewed and approved to be an as of right project subject only to approvals from Parks and Conservation. This application will also require public works street opening permits for new utility connections, and Boston Water and Sewer approvals for new utility connections.



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

- Yes No

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

A. Submit Supplemental Information for Endangered Species Review

Percentage/acreage of property to be altered:

(1) within wetland Resource Area

percentage/acreage

(2) outside Resource Area

percentage/acreage

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

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

- Yes No

If yes, provide the name of the ACEC: _____

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

Yes. Attach a copy of the Stormwater Checklist & Stormwater Report as required.

Applying for a Low Impact Development (LID) site design credits

A portion of the site constitutes redevelopment

Proprietary BMPs are included in the Stormwater Management System

No. Check below & include a narrative as to why the project is exempt

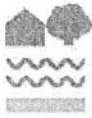
Single-family house

Emergency road repair

Small Residential Subdivision (less than or equal to 4 single family houses or less than or equal to 4 units in a multifamily housing projects) with no discharge to Critical Areas

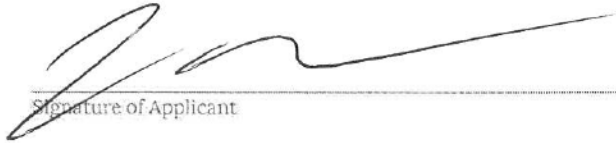
5. Is the proposed project subject to Boston Water and Sewer Commission Review?

- Yes No



D. SIGNATURES AND SUBMITTAL REQUIREMENTS

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



Signature of Applicant

7-15-22

Date

Signature of Property Owner (if different)

Date


Signature of Representative (if any)

7/15/22

Date

PROJECT NARRATIVE:

Notice of Intent
1817 River Street (Lots A, B & C)
Hyde Park, Massachusetts
June 1, 2022, REV July 15, 2022

This Notice of Intent is filed under the Massachusetts Wetlands Protection Act (M.G.L. Ch. 131, § 40; the "Act") and its implementing regulations (310 CMR 10.00 *et seq.*; the "Regulations") and the City of Boston Wetlands Protection and Climate Adaptation Ordinance (Chapter VII, Section 7-1.4; the "Ordinance") and Boston Wetlands Regulations (the "Ordinance Regulations"). The Applicant, 1817 River Street LLC, seeks an Order of Conditions for the construction of a 1-family house, a 2-family house, both with associated site features, along with parking improvements at the existing 3-family house at 1817 River Street (Lots A, B & C), Hyde Park, Massachusetts. The work on the lots is proposed within or partially within the 100' Buffer Zone to Bordering Vegetated Wetlands under the Act and Ordinance. Based upon the Land Development Plan, no work on the subject lots is proposed within any other wetland resource area under the Act or Ordinance.

Existing Conditions and Wetland Resource Areas:

The existing conditions of the site and the wetland resources on or near the subject lot are described in the Wetland Resource Evaluation, prepared by EcoTec, Inc., dated October 30, 2021, a copy of which is included as part of the Notice of Intent. As shown on the Land Development Plan and in the above-referenced Wetland Resource Evaluation, the jurisdictional areas that occur on the subject lots are:

(1) 25' Waterfront Area under the Ordinance only; and (2) 100' Buffer Zone to Bordering Vegetated Wetlands under the Act and Ordinance. The Waterfront Area associated with the Riverfront Area to Mother Brook occurs only in the extreme northwestern corner of the Lot A, 1817 River Street property. Riverfront Area and Waterfront Area under the Ordinance are part of the 100-foot Buffer Zone under the Ordinance and do not have a 100-foot Buffer Zone under the Ordinance. The 100' Buffer Zone is not a wetland resource area under the Act but is considered a wetland resource area under the Ordinance. Land Under Water, Bank, Bordering Vegetated Wetlands, Land Subject to Flooding, and Riverfront Area under the Act do not occur on the lot; Land Under Water, Bank, Land Subject to Flooding and Riverfront Area under the Ordinance do not occur on the subject lot. Lastly, the area is not mapped as Priority Habitat or Estimated Habitat by the Massachusetts Natural Heritage and Endangered Species Program; Certified or Potential Vernal Pools are not mapped on the lot covered by the filing.

The following is a summary of the proposed project for each of the three proposed lots (Lot A, Lot B, and Lot C).

Lot A

The existing 3-family dwelling will remain and will be located on proposed Lot A. A portion of the existing pavement will be removed and new pavement will be added to create three new parking spaces. A portion of Lot A is within the 25' Waterfront Area under the Ordinance, but no work is proposed within the 25' Waterfront Area. No landscaping work is being proposed in the waterfront area. A portion of Lot A is within the 100' Wetland Buffer.

The proposed work on Lot A includes installation of an erosion control barrier comprising entrenched siltation fence fronted by a compost sock, site preparation, paved parking improvements, infiltration systems to address runoff from impervious surfaces, and associated grading, lawn, and landscaping. As detailed on the Land Development Plan, 3,794± square feet or 47.4% of the 8,000 square foot subject lot is considered impervious, with the balance (i.e., 52.6%) considered pervious or vegetated. Proposed Buffer Zone fill is 27 cubic yards. Proposed Buffer Zone disturbance is 2,865 square feet. As shown on the Landscape Plan, the existing trees near the rear of the lot are proposed to be retained; this will serve to protect and shade the adjacent Bordering Vegetated Wetland. Lastly, as shown on the Landscape Plan, significant tree, sapling, shrub, and herbaceous plantings are proposed on the lot. The retention of existing trees and the proposed landscaping combined with the reduced pavement associated with the one-car garage will serve to reduce the heat island effect associated with the development of the subject lot.

Lot B

The Applicant proposes a 2-family dwelling on Lot B. A driveway approximately 21' wide is proposed and this driveway will be centered on the Lot B/Lot C lot line. Two parking spaces for Unit B1 and two parking spaces for Unit B2 are proposed for Lot B. A portion of Lot B is within the 100' Wetland Buffer.

The proposed work on Lot B includes installation of an erosion control barrier comprising entrenched siltation fence fronted by a compost sock, site preparation, construction of a 2-family house with full basement, front porches, paved driveway, front walkways, wood or composite rear decks with stairs, rear walkways, infiltration systems to address runoff from impervious surfaces, and associated grading, lawn, and landscaping. As detailed on the Land Development Plan, 3,875± square feet or 47.5% of the 8,156 square foot subject lot is considered impervious, with the balance (i.e., 52.5%) considered pervious or vegetated. Proposed Buffer Zone fill is 387 cubic yards. Proposed Buffer Zone disturbance is 4,758 square feet. The rear retaining wall will provide for a more level rear yard, will reduce the the slope toward Wetland A, and promote additional infiltration within the more level lawn areas on the site. The area between the rear retaining wall and the proposed erosion control barrier is necessary for the safe and proper construction of the retaining wall; as this area is within a drainage easement, it is proposed to be graded, loamed, and seeded as lawn. As shown on the Landscape Plan, the existing trees near the rear of the lot are proposed to be retained; this will serve to protect and shade the adjacent Bordering Vegetated Wetland. Lastly, as shown on the Landscape Plan, significant tree, sapling, shrub, and herbaceous plantings are proposed on the lot. The retention of existing trees and the proposed landscaping combined with the reduced pavement associated with the one-car garage will serve to reduce the heat island effect associated with the development of the subject lot.

Lot C

The Applicant proposes to build a single family dwelling on Lot C. The driveway, also described above in the Lot B narrative, is proposed to be approximately 21' wide and will be centered on the Lot B/Lot C lot line. Two parking spaces for the single family Unit C are proposed for Lot C. A portion of Lot C is within the 100' Wetland Buffer.

The proposed work on Lot C includes installation of an erosion control barrier comprising entrenched siltation fence fronted by a compost sock, site preparation, construction of a 1-family house with full basement, a front porch, paved driveway, front walkway, wood or composite rear porch with stairs and landing, rear walkway, infiltration systems to address runoff from impervious surfaces, and associated grading, lawn, and landscaping. As detailed on the Land Development Plan, 2,774± square feet or 53.6% of the 5,172 square foot subject lot is considered impervious, with the balance (i.e., 46.4%) considered pervious or vegetated. Proposed Buffer Zone fill is 270 cubic yards. Proposed Buffer Zone disturbance is 3,144 square feet. The rear retaining wall will provide for a more level rear yard, will reduce the slope toward Wetland A, and promote additional infiltration within the more level lawn areas on the site. The area between the rear retaining wall and the proposed erosion control barrier is necessary for the safe and proper construction of the retaining wall; as this area is within a drainage easement, it is proposed to be graded, loamed, and seeded as lawn. As shown on the Landscape Plan, the existing trees near the rear of the lot are proposed to be retained; this will serve to protect and shade the adjacent Bordering Vegetated Wetland. Lastly, as shown on the Landscape Plan, significant tree, sapling, shrub, and herbaceous plantings are proposed on the lot. The retention of existing trees and the proposed landscaping combined with the reduced pavement associated with the one-car garage will serve to reduce the heat island effect associated with the development of the subject lot.

Chart Showing Impervious and Pervious Areas for Proposed Construction For Each Lot:

	<u>LOT A</u>	<u>LOT B</u>	<u>LOT C</u>	<u>TOTAL SITE</u>
IMPERVIOUS AREA	3,794 sf 47.40%	3,875 sf 47.50%	2,774 sf 53.60%	10,443 sf
PERVIOUS/ VEGETATED AREA	4,206 sf 52.60%	4,281 sf 52.50%	2,398 sf 46.40%	10,885 sf
TOTAL LAND AREA	8,000 sf	8,156 sf	5,172 sf	21,328 sf
BUFFER ZONE FILL	27 cy	387 cy	270 cy	684 cy
BUFFER ZONE DISTURBANCE	2,865 sf	4,758 sf	3,144 sf	10,767 sf

Chart Showing Impervious and Pervious Areas for the Existing Conditions For Each Lot:

	<u>LOT A</u>	<u>LOT B</u>	<u>LOT C</u>	<u>TOTAL SITE</u>
IMPERVIOUS AREA	2,876 sf 36.00%	719 sf 8.80%	0 sf 0%	3,595 sf
PERVIOUS/ VEGETATED AREA	5,124 sf 64.00%	7,437 sf 91.20%	5,172 sf 100.00%	17,733 sf
TOTAL LAND AREA	8,000 sf	8,156 sf	5,172 sf	21,328 sf

Protection of Wetland Resources and Project Impact Mitigation:

The following describes resource protection and project impact mitigation for the entire site. Site work for all three lots will occur concurrently and protection of resources and project impact mitigation is described below.

The means and measures to protect the adjacent wetland resources and to mitigate project impacts include the installation of an erosion control barrier comprising entrenched silt fence fronted by compost sock at the limit of work as shown on the Land Development Plan and the installation of drain inlet protection (e.g., silt sacks) in all catch basins proximate to the subject lot. The erosion control barrier will serve as the limit of work; no work will occur on the resource area side of the erosion control barrier. The erosion control measures will be installed prior to any other work on the site, will be maintained throughout construction, and will be removed at the end of the proposed work after the site is stable and with the authorization of the issuing authority.

To mitigate project impacts post-construction for the project, a stormwater infiltration system is proposed to be installed on the Lots B and C that will recharge one inch of rainfall over all impervious surfaces on the site, including the house, driveway, and walkway, into the ground. Driveway and walkway runoff on Lot A will be collected via a stone filter trench drain that discharges to a Grass Infiltration Basin as detailed on the Site Plan; roof runoff on Lots B & C will be collected in gutters and directed to the Infiltration System on Lot B via downspouts and drainage lines. The proposed infiltration systems have inspection ports and will be subject to an operations and maintenance plan. Upon the completion of the proposed project, the lot will be fully stabilized by structure, pavement, lawn, and landscaping. Again, the rear retaining wall will provide for a more level rear yard, will reduce the slope toward Wetland A, and promote additional infiltration within the more level lawn areas on the site.

Means and Measures to be used by the Contractor

Although the means and measures to be used will be finalized and implemented by the contractor, certain generalizations regarding the proposed work may be made. The construction equipment and materials involved will be typical of house construction and all equipment and materials access will be directly from River Street. The generalized construction sequence for the proposed project, subject to modification, is as follows:

1. Install erosion control barrier as shown on the Land Development Plan; install silt sacks in nearby catch basins; maintain extra supply of erosion control materials (i.e., silt fence, stakes; compost sock, silt sacks, etc.) on site;
2. Clear and grub work areas; rough grade the work areas;
3. Excavate for house footings and foundations; install footings and pour foundations; backfill foundations; remove excess soil from the work areas;
4. Grade for proposed rear retaining wall; install rear retaining wall; backfill to the wall;
5. Install stormwater infiltration systems with associated drainage lines;
6. Install subsurface utilities;
7. Grade sites; rough-out proposed driveways;
8. Install driveway base; install stone filter trench drain adjacent to driveway;
9. Install proposed decks, steps, and landings;
10. Install framing, windows and doors, exterior siding and trim, roof shingles, and gutters and downspouts, connecting to drainage systems;
11. Complete driveway paving;
12. Complete final site grading/loam; seed or hydroseed; install landscaping per the Landscape Plan;
13. Complete interior finishes;
14. Once sites are stable, request permission to remove the erosion control barrier.

Compliance Evaluation:

The proposed work on Lots B and C are best characterized as the development of a 1-family house on Lot C and a 2-family house on Lot B with work proposed within the 100' Buffer Zone to Bordering Vegetated Wetlands under the Act and Ordinance and parking improvements on Lot A within proximity of the 25' Waterfront Area under the Ordinance only. Based upon the Land Development Plan, no work is proposed within any other resource area under the Act or Ordinance.

Presently, the Ordinance does not list any performance standards specific to work only within the 100' Buffer Zone and the Ordinance lacks regulations that include specific performance standards for activities within the 100' Buffer Zone. The Ordinance at Section c) which discusses jurisdiction states that "...Buffer Zone is presumed important to the protection of the resource area because activities undertaken in close proximity to resource areas have a reasonable probability of adverse impact upon the wetland or other resource, 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, degraded water quality, loss of wildlife habitat, degradation of wetland plant habitat, alteration of hydrology, soil contamination, and proliferation of invasive plants." The discussion provided below relative to the narrative standard under the Act is also applicable to compliance with the intent of the Ordinance.

Under the Act, the 100' Buffer Zone is not a wetland resource area; that said, Section 10.53(1) of the Regulations provides a narrative standard for work in the 100' Buffer Zone. Specifically:

"...If the issuing authority determines that a resource area is significant to an interest identified in M.G.L. c. 131, § 40 for which no presumption is stated in the Preamble to the applicable section, the issuing authority shall impose such conditions as are necessary to contribute to the protection of such interests. For work in the buffer zone subject to review under 310 CMR 10.02(2)(b)3., the issuing authority shall impose conditions to protect the interests of the Act identified for the

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adjacent resource area. The potential for adverse impacts to resource areas from work in the buffer zone may increase with the extent of the work and the proximity to the resource area. The issuing authority may consider the characteristics of the buffer zone, such as the presence of steep slopes, that may increase the potential for adverse impacts on resource areas. Conditions may include limitations on the scope and location of work in the buffer zone as necessary to avoid alteration of resource areas. The issuing authority may require erosion and sedimentation controls during construction, a clear limit of work, and the preservation of natural vegetation adjacent to the resource area and/or other measures commensurate with the scope and location of the work within the buffer zone to protect the interests of the Act. Where a buffer zone has already been developed, the issuing authority may consider the extent of existing development in its review of subsequent proposed work and, where prior development is extensive, may consider measures such as the restoration of natural vegetation adjacent to a resource area to protect the interest of the Act. The purpose of preconstruction review of work in the buffer zone is to ensure that adjacent resource areas are not adversely affected during or after completion of the work."

Prior to the start of earth moving activities, an erosion control barrier consisting of entrenched siltation fence fronted by compost sock, which will also serve as the Limit of Work, will be located as shown on the Land Development Plan. This erosion control barrier will be maintained until the sites are stabilized by building, pavement, or vegetation. Approval of the issuing authority will be received prior to the removal of the erosion control barrier. The proposed retaining wall near the northeastern limit of work will serve to limit steep slopes; the proposed retaining wall will generally decrease the slope to the northeast across the lot. This retaining wall also serves as a true physical demarcation to limit potential future creep. The existing trees in the northeastern portion of the site will be retained which will serve to protect the wooded nature of the adjacent Bordering Vegetated Wetland. The retention of the existing trees and the proposed landscaping as shown on the Landscape Plan, which includes, trees, saplings, shrubs, and herbaceous materials, will serve to reduce runoff from the site toward the adjacent wetland and will reduce the heat island effect associated with the development on this lot. The proposed project results in increased impervious surfaces within the 100' Buffer Zone. However, the lot includes infiltration systems to exceed the required one inch of runoff over the proposed impervious surfaces on the lot and actually provides a volume equivalent to 1.67 inches over the proposed impervious areas. Upon the completion of work on the lots, the work areas will be stabilized by structure, pavement, lawn, and landscaping.

Climate Resilience and Adaptation:

The proposed project consists of the construction of a 1-family house, a 2-family house and associated site features on Lots C & B, along with parking improvements on Lot A. The proposed project has been designed with a one-car garage and minimal pavement to provide on-site parking for two cars; the project will be retaining existing mature trees in the northeastern portion of the site near the wetland and proposes significant landscaping including trees, saplings, shrubs, and herbaceous materials to contribute to a reduction of the heat island effect associated with development of this lot. Again, as detailed on the Land Development Plan, 2,774 square feet or 53.6% of the 5,172 square foot Lot C is considered impervious, with the balance (i.e., 46.4%) considered pervious or vegetated; 3,875 square feet or 47.5% of the 8,156 square foot Lot B is considered impervious, with the balance (i.e., 52.5%) considered pervious or vegetated and 3,794 square feet or 47.4% of the 8,000 square foot Lot A is considered impervious, with the balance (i.e., 52.6%) considered pervious or vegetated. The proposed project is not located in proximity to the coast or to a mapped floodplain. As such, the proposed project is not anticipated to be affected by sea level rise or by flooding from a nearby floodplain. As changes in

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storm intensity and frequency have been projected into the future, the project has been designed such that the basement floor is located at least four feet above the elevation of the adjacent wetlands. The proposed erosion control barrier will serve to protect the adjacent resources during construction and the proposed infiltration systems will promote groundwater recharge under the developed condition. These features will serve to protect and promote resource area interests and values in the future.

Conclusion:

The work proposed for this project would occur within the 100' Buffer Zone to Bordering Vegetated Wetlands under the Act and Ordinance and work outside the 25' Waterfront Area under the Ordinance only. As shown on the Land Development Plan, no work is proposed within any other wetland resource area under the Act or Ordinance. The Ordinance and its regulations lack performance standards for the 100' Buffer Zone resource area. The 100' Buffer Zone is not a resource area under the Act; the Regulations provide only a narrative standard for work proposed within the 100' Buffer Zone. The intention of these standards is to protect the ability of the adjacent resource area to provide for and protect the statutory interests. Given the above, it is the opinion of Norwood Engineering Co., Inc. that the project is consistent with the provisions of the Act and Ordinance and will serve to protect the applicable statutory and Ordinance interests and values.

Cordially,

NORWOOD ENGINEERING CO., INC.



Matthew Smith, PLS, P.E.
President

EcoTec, Inc.
ENVIRONMENTAL CONSULTING SERVICES
102 Grove Street
Worcester, MA 01605-2629
508-752-9666 – Fax: 508-752-9494

October 30, 2021

Mr. Anthony Ferrara
Hub Development LLC
394 Washington Street
Dedham, MA 02026

RE: Wetland Resource Evaluation, 1799 to 1817 River Street, Boston (Hyde Park),
Massachusetts

Dear Mr. Ferrara:

On October 7, 2021, EcoTec, Inc. inspected the above-referenced property for the presence of wetland resources as defined by: (1) the Massachusetts Wetlands Protection Act (M.G.L. Ch. 131, § 40; the “Act”) and its implementing regulations (310 CMR 10.00 *et seq.*; the “Regulations”); (2) the City of Boston Wetlands Protection and Climate Adaptation Ordinance (the “Ordinance”) and associated regulations (the “Ordinance Regulations”); and (3) the U.S. Clean Water Act. John P. Rockwood, Ph.D., SPWS conducted the inspection.

The subject site consists of two parcels totaling 0.59± acres: 1799 River Street is developed with a residential structure with a rear deck and stairs, detached garage, paved driveway, and associated lawn and landscaping; 1817 River Street is developed with a residential structure with front porch and side deck, paved and gravel driveway, fencing, and associated lawn with scattered trees and landscaping. Plant species observed within uplands within the tree line to the north of the site include northern red oak (*Quercus rubra*), black cherry (*Prunus serotina*), American plum (*Prunus americana*), red maple (*Acer rubrum*), Norway maple (*Acer platanoides*), silver maple (*Acer saccharinum*), black locust (*Robinia psuedoacacia*), American basswood (*Tilia americana*), and big-tooth aspen (*Populus grandidentata*) trees, saplings, and/or shrubs; poison ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quinquefolia*), oriental bitter-sweet (*Celastrus orbiculata*), and grape (*Vitis sp.*) climbing woody vines and/or ground cover; multiflora rose (*Rosa multiflora*), common buckthorn (*Rhamnus cathartica*), tartarian honeysuckle (*Lonicera tatarica*), and Japanese barberry (*Berberis thunbergii*) shrubs; and Japanese knotweed (*Polygonum cuspidatum*) ground cover. The wetland resources on and near the subject site are described below.

Methodology

The subject site was inspected, and areas suspected to qualify as wetland resources were identified. The boundary of Bordering Vegetated Wetlands was delineated in the field per the definitions set forth in the regulations at 310 CMR 10.55(2)(c). Section 10.55(2)(c) states that “The

boundary of Bordering Vegetated Wetlands is the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist.” The method used to delineate Bordering Vegetated Wetlands is further described in: (1) the BVW Policy “BVW: Bordering Vegetated Wetlands Delineation Criteria and Methodology,” issued March 1, 1995; and (2) “Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act: A Handbook,” produced by the Massachusetts Department of Environmental Protection, dated March 1995. The plant taxonomy used in this report is based on the *National List of Plant Species that Occur in Wetlands: Massachusetts* (Fish and Wildlife Service, U.S. Department of the Interior, 1988). Ordinance and federal wetlands were presumed to have boundaries conterminous with the delineated Bordering Vegetated Wetlands. One set of DEP Bordering Vegetated Wetland Delineation Field Data Forms completed for observation plots located in the wetlands and uplands near flag A7 is attached. The table below provides the Flag Numbers, Flag Type, and Wetland Types and Locations for the delineated wetland resources.

Flag Numbers	Flag Type	Wetland Types and Locations
Start A1 (=R2) to A25 Stop	Blue Flags	Bordering Vegetated Wetlands located off-site to the north that is associated with Mother Brook, a perennial stream.
Start R1 to R21 Stop	Pink Flags	Upper boundary of Bank and Mean Annual High-water Line (MAHWL) of Mother Brook located off-site to the north.

Findings

Wetland A (i.e., A- series flags) consists of a band of forested swamp located off-site to the north that is associated with Mother Brook which is also located off-site to the north. Plant species observed include red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), and American elm (*Ulmus americana*) trees, saplings, and/or shrubs; poison ivy (*Toxicodendron radicans*) climbing woody vines and ground cover; silky dogwood (*Cornus amomum*) and glossy buckthorn (*Rhamnus frangula*) shrubs; and grasses (Gramineae sp.), sedges (Cyperaceae sp.), rushes (Juncaceae sp.), purple loosestrife (*Lythrum salicaria*), spotted touch-me-not (*Impatiens capensis*), and golden-rods (*Solidago* sp.) ground cover. Evidence of wetland hydrology, including hydric soils, high groundwater, saturated soils, pore linings, and evidence of flooding, was observed within the delineated wetland. This vegetated wetland borders a perennial stream; accordingly, the vegetated wetlands would be regulated as Bordering Vegetated Wetlands and the perennial stream would be regulated as Bank and Land Under Water Bodies and Waterways under the Regulations and Ordinance. A 100-foot Buffer Zone extends horizontally outward from the edge of Bordering Vegetated Wetlands under the Regulations and Ordinance. The 100-foot Buffer Zone is a resource area under the Ordinance. Land Under Water Bodies and Waterways, Bank, and Bordering Vegetated Wetlands do not occur on the 1799 and 1817 River Street properties. The 100-foot Buffer Zone to Bordering Vegetated Wetlands extends onto both the 1799 and 1817 River Street properties.

Bordering Land Subject to Flooding is an area that floods due to a rise in floodwaters from a bordering waterway or water body. Where flood studies have been completed, the boundary of Bordering Land Subject to Flooding is based upon flood profile data prepared by the National Flood Insurance Program. Section 10.57(2)(a)3. states that "The boundary of Bordering Land Subject to Flooding is the estimated maximum lateral extent of flood water which will theoretically result from the statistical 100-year frequency storm." Based upon a review of the Flood Insurance Rate Map, Map Number 25025C0157J, Effective Date March 16, 2016 (attached), there is a mapped Zone AE (i.e., 100-year floodplain) with a 100-year flood elevation of 50 feet (NAVD 1988) and Floodway associated with Mother Brook proximate to the site. Based upon a survey by Norwood Engineering Co., Inc., Bordering Land Subject to Flooding occurs in the extreme northern portion of the 1799 River Street property and does not occur on the 1817 River Street property. When present, Bordering Land Subject to Flooding would occur in areas where the 100-year flood elevation is located outside of or upgradient of the delineated Bordering Vegetated Wetlands boundary. Bordering Land Subject to Flooding does not have a 100-foot Buffer Zone under the Regulations or Ordinance.

The Massachusetts Rivers Protection Act amended the Act to establish an additional wetland resource area: Riverfront Area. Based upon a review of the current USGS Map (i.e., Norwood Quadrangle, dated 1985, attached), Mother Brook, a perennially mapped stream, is located over 25 feet to the north of the site. Streams that are shown as perennial on the current USGS map are designated perennial under the Regulations. Unless this perennial designation is overcome, Riverfront Area under the Regulations in Boston is presumed to extend 25 feet horizontally upgradient from the mean annual high-water line of the stream. Section 10.58(2)(a)2. states that the "Mean annual high-water line of a river is the line that is apparent from visible markings or changes in the character of soils or vegetation due to prolonged presence of water and that distinguishes between predominantly aquatic and predominantly terrestrial land. Field indicators of bankfull conditions shall be used to determine the mean annual high-water line. Bankfull field indicators include but are not limited to: changes in slope, changes in vegetation, stain lines, top of pointbars, changes in bank materials, or bank undercuts." Section 10.58(2)(a)2.a. states that "In most rivers, the first observable break in slope is coincident with bankfull conditions and the mean annual high-water line." The mean annual high-water line of the stream was delineated in the field with pink R-series flags based upon the above-referenced regulation. Based upon a review of the current USGS Map and observations made during the site inspection, there are no mapped or significant unmapped streams located on or within 25 feet of the site; as such, Riverfront Area under the Regulations does not occur on the site. Riverfront Area does not have a Buffer Zone under the Act but may overlap other wetland resources and their Buffer Zones.

The Ordinance establishes a 25-foot Riverfront Area associated with all streams regardless of stream status. As such, Mother Brook would have a 25-foot Riverfront Area extending outward from the pink R-series flags. However, since Mother Brook is located greater than 25 feet from the site, Riverfront Area under the Ordinance would not occur on the site. The Ordinance also establishes a 25-foot Waterfront Area that extends horizontally outward from the 25-foot

Mr. Anthony Ferrara
October 30, 2021
Page 4.

Riverfront Area under the Ordinance. The Waterfront Area associated with the Riverfront Area to Mother Brook is located to the north of the 1799 River Street property and occurs only in the extreme northwestern corner of the 1817 River Street Property. Riverfront Area and Waterfront Area under the Ordinance are part of the 100-foot Buffer Zone under the Ordinance and do not have a 100-foot Buffer Zone under the Ordinance.

The Regulations require that no project may be permitted that will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures set forth at 310 CMR 10.59. Based upon a review of the *Massachusetts Natural Heritage Atlas*, 15th edition, Priority Habitats and Estimated Habitats from the NHESP Interactive Viewer, valid from August 1, 2021, and Certified and Potential Vernal Pools from MassGIS (attached), there are no Estimated Habitats [for use with the Act and Regulations (310 CMR 10.00 *et seq.*)], Priority Habitats [for use with Massachusetts Endangered Species Act (M.G.L. Ch. 131A; "MESA") and MESA Regulations (321 CMR 10.00 *et seq.*)], or Certified or Potential Vernal Pools on or in the immediate vicinity of the site.

The reader should be aware that the regulatory authority for determining wetland jurisdiction rests with local, state, and federal authorities. A brief description of my experience and qualifications is attached. If you have any questions, please feel free to contact me at any time.

Cordially,
ECOTEC, INC.



John P. Rockwood, Ph.D., SPWS
Principal Environmental Scientist

Attachments (5, 8 pages)

18/BOSTON1817RIVERWRE2021

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Prepared by: EcoTec, Inc. Project location: 1817 River Street, Boston DEP File #:

Check all that apply:

- Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- Vegetation and other indications of hydrology used to delineate BVW boundary: fill out Sections I and II
- Method other than dominance test used (attach additional information)

Section I. Vegetation		Observation Plot Number: A7	Transect Number: Up	Date of Delineation: 10/07/2021	
A. Sample Layer and Plant Species # (by common/scientific name)		B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category * #
Tree	Norway Maple	60	100	Yes	NL
Climby Woody Vine	Oriental Bitter-sweet	15	100	Yes	NL
Shrub	Silky Dogwood	15	30	Yes	FACW*
	Tartarian Honeysuckle	15	30	Yes	FACU
	Japanese Barberry	10	20	Yes	FACU
	Multiflora Rose	10	20	Yes	FACU
Ground Cover	Virginia Creeper	15	75	Yes	FACU
	Norway Maple	5	25	Yes	NL
	<i>Acer platanoides</i>				
	<i>Celastrus orbiculata</i>				
	<i>Cornus amomum</i>				
	<i>Lonicera tatarica</i>				
	<i>Berberis thunbergii</i>				
	<i>Rosa multiflora</i>				
	<i>Parthenocissus quinquefolia</i>				
	<i>Acer platanoides</i>				

* Plant Taxonomy and Wetland Indicator Category from "National List of Plant Species that Occur in Wetlands: Massachusetts" (Fish & Wildlife Service, U.S. Department of the Interior, 1988) as required by 310 CMR 10.55(2)(e).

* Use an asterisk to mark wetland indicator plants; plant species listed in the Wetlands Protection Act (MGL c. 131, s. 40); plants in the genus *Sphagnum*; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusions:

Number of dominant wetland indicator plants: 1 Number of dominant non-wetland indicator plants: 7
 Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? No

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent.

TRANSECT A7 UP (CONT.)

Section II. Indicators of Hydrology

1. Soil Survey

Is there a published soil survey for this site? -

file/date: -
map number: -
soil type mapped: -
hydric soil inclusions: -

Are field observations consistent with soil survey? -

Remarks: -

2. Soil Description

Horizon Depth (inches) Matrix Color Mottle Color

A	0-6	10 YR 3/1 Loam	-
B	6-16	10 YR 5/4 Sandy Loam	-

Remarks: Terminated at 16 inches; groundwater not encountered.

3. Other: -

Conclusion: Is soil Hydric? No

Other Indications of Hydrology: (check all that apply and describe)

- Site inundated: _____
- Depth to free water in observation hole: _____
- Depth to soil saturation in observation hole: _____
- Water marks: _____
- Drift lines: _____
- Sediment deposits: _____
- Drainage patterns in BWV: _____
- Oxidized rhizospheres: _____
- Water-stained leaves: _____
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- Other: _____

Vegetation and Hydrology Conclusion	yes	no
Number of wetland indicator plants ≥ number of non-wetland indicator plants	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
other indicators of hydrology present	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample location is in a BWV	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Prepared by: EcoTec, Inc. Project location: 1817 River Street, Boston DEP File #:

- Check all that apply:
- Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
 - Vegetation and other indications of hydrology used to delineate BVW boundary: fill out Sections I and II
 - Method other than dominance test used (attach additional information)

Section I. Vegetation Observation Plot Number: A7 Transect Number: Wet Date of Delineation: 10/07/2021

A. Sample Layer and Plant Species # (by common/scientific name)	B. Percent Cover (or basal area)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category * #
Tree				
Red Maple	15	25	Yes	FAC*
Norway Maple	15	25	Yes	NL
American Elm	15	25	Yes	FACW-*
Silver Maple	15	25	Yes	FACW*
Climbing Woody Vine	10	100	Yes	FAC*
Shrub				
Silky Dogwood	50	100	Yes	FACW*
Ground Cover				
Japanese Knotweed	30	100	Yes	FACU

Plant Taxonomy and Wetland Indicator Category from "National List of Plant Species that Occur in Wetlands: Massachusetts" (Fish & Wildlife Services, U.S. Department of the Interior, 1988) as required by 310 CMR 10.55(2)(c).
 *Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c. 131, s. 40); plants in the genus *Sphagnum*; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.

Vegetation conclusions:
 Number of dominant wetland indicator plants: 5 Number of dominant non-wetland indicator plants: 2
 Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? Yes

TRANSECT A7 WET (CONT.)

Section II. Indicators of Hydrology

1. Soil Survey

Is there a published soil survey for this site? -

title/date: -
 map number: -
 soil type mapped: -
 hydric soil inclusions: -

Are field observations consistent with soil survey? -

Remarks: -

2. Soil Description

Horizon	Depth (inches)	Matrix Color	Mottle Color
A	0-8	10 YR 2/1 Mucky Loam	-
B	8-16	10 YR 5/2 Sandy Loam	10 YR 6/4, 7.5 YR 5/6

Remarks: Terminated at 16 inches.

3. Other: -

Conclusion: Is soil Hydric? Yes

Other Indications of Hydrology: (check all that apply and describe)

- Site inundated: _____
- Depth to free water in observation hole: 8 inches
- Depth to soil saturation in observation hole: Surface
- Water marks: _____
- Drift lines: _____
- Sediment deposits: _____
- Drainage patterns in BVW: _____
- Oxidized rhizospheres: _____
- Water-stained leaves: _____
- Recorded data (stream, lake, or tidal gauge; aerial photo; other): _____
- Other: _____

Vegetation and Hydrology Conclusion	yes	no
Number of wetland indicator plants ≥ number of non-wetland indicator plants	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wetland hydrology present:		
hydric soil present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
other indicators of hydrology present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample location is in a BVW	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Submit this form with the Request for Determination of Applicability or Notice of Intent.

National Flood Hazard Layer FIRMette



71°8'40"W 42°14'51"N

25025C0157J
MARCH 16, 2016



71°8'3"W 42°14'24"N

1:6,000

0 250 500 1,000 1,500 2,000 Feet

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes, *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS

- Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES

- Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS

- Digital Data Available
- No Digital Data Available
- Unmapped

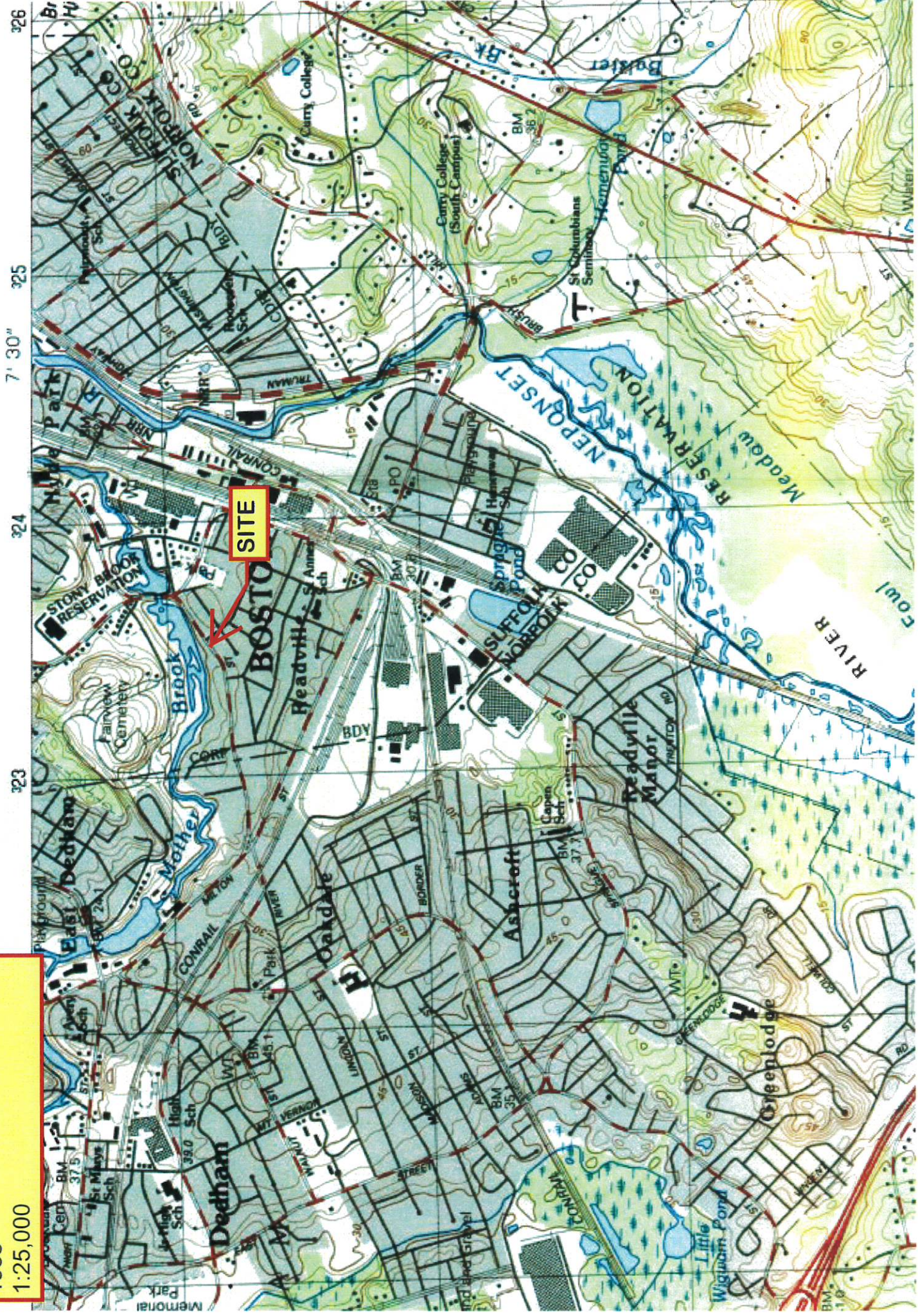
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/30/2021 at 7:05 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

USGS TOPOGRAPHICAL MAP
NORWOOD QUADRANGLE
1985
1:25,000



SITE

BOSTON

326
325
324
323

71 30"

NHESP ATLAS, 15TH EDITION, VALIS AUGUST 1, 2021
PRIORITY HABITAT, ESTIMATED HABITAT AND
CERTIFIED AND POTENTIAL VERNAL POOLS
SCALE 1:36,112
CREATED OCTOBER 30, 2021



EcoTec, Inc.
ENVIRONMENTAL CONSULTING SERVICES
102 Grove Street
Worcester, MA 01605-2629
508-752-9666 – Fax: 508-752-9494

John P. Rockwood, Ph.D., SPWS
Principal Environmental Scientist

Dr. John P. Rockwood has been a Staff Scientist with EcoTec, Inc. since October 1999. He was previously a Chief Environmental Scientist at Sanford Ecological Services, Inc. of Southborough, Massachusetts from September 1990 to October 1999. Dr. Rockwood was certified in August 2002 and recertified in March 2008, January 2013, and June 2018 as a Professional Wetland Scientist (PWS) by the Society of Wetland Scientists Professional Certification Program (SWSPCP), and in April 2020, he was made a Senior Professional Wetland Scientist (SPWS) by the SWSPCP. His project experience includes wetland resource evaluation, delineation, and permitting at the local, state, and federal levels; wildlife habitat evaluation; pond and stream evaluation; vernal pool evaluation, certification, construction/replication, and monitoring; rare species habitat and impact assessment; wetland replacement, replication, and restoration area design, construction, and monitoring; invasive species removal and treatment protocols and monitoring; and expert testimony preparation. He has served as a consultant to municipalities, conservation commissions, the development community, engineering and survey firms, industry, and citizen's groups. He has managed and participated in a wide variety of wetlands-related projects ranging in scope from single-family house lots to subdivisions, commercial developments, mixed use developments, golf courses, a water park, MBTA commuter train station, and a regional mall. He has assessed the potential impacts of stormwater runoff, landfill leachate, and/or hazardous waste disposal sites on rare vertebrate and/or invertebrate species, and has conducted and/or directed surveys, delineated actual habitat, conducted habitat evaluations, and/or developed mitigation strategies necessary to protect rare vertebrate, invertebrate, and plant species and their habitats from proposed development-related impacts. He has designed and conducted drift fence studies for rare vertebrates. He has conducted and led preconstruction sweeps for the spotted turtle, wood turtle, and eastern box turtle. He has filed MESA Project Review Checklists for numerous species and has prepared applications for Conservation and Management Permits and Amendments for the eastern box turtle and marbled salamander under MESA. He has submitted rare animal and plant observation forms to NHESP for several vertebrate, invertebrate, and plant species. He has conducted environmental impact assessments and has prepared MEPA documentation related to an office park, an MBTA commuter train station, water park, residential subdivisions, skating rink facility, landfill, and regional mall. Dr. Rockwood also has extensive experience in environmental site assessment related to possible oil and/or hazardous material contamination. He has conducted numerous environmental assessments, several including subsurface investigations, for sites located in Massachusetts, and has conducted preliminary environmental assessments for properties located in New York, New Hampshire, and Rhode Island. He has conducted ecological risk assessments (i.e., Stage I Environmental Screenings and Stage II Environmental Risk Characterizations) for a number of disposal sites in Massachusetts, including several disposal sites that had the potential to affect state-listed vertebrate and invertebrate species, and has utilized the EPA Rapid Bioassessment Protocol for macroinvertebrates to assess potential impacts of disposal sites and hazardous material releases on streams and rivers in Massachusetts and New York. He has served as the environmental contractor to the Franklin Consolidated Office of the Federal Deposit Insurance Corporation (FDIC-FCO) for 16 months, where he reviewed environmental reports, prepared scopes-of-work for site assessments, and provided technical advice to FDIC employees related to environmentally compromised assets. Dr. Rockwood has designed, conducted, and evaluated numerous surface water and groundwater monitoring programs. His prior research includes laboratory studies of the effects of low pH and aluminum on dragonfly nymphs and a field survey of the impact of chlorinated sewerage effluent on algal periphyton community dynamics. Dr. Rockwood is the co-author of a textbook on aquatic biology and is the principal author of three peer-reviewed research publications in the field of aquatic toxicology that address the effect of low pH and aluminum on nymphs of the dragonfly *Libellula julia*. Dr. Rockwood served as the as the Editor of the AMWS Newsletter from November 2004 to October 2010 and as Assistant Editor from May 2003 to November 2004 and October 2010 to January 2012. He served as President of the Association of Massachusetts Wetland Scientists from November 2013 to December 2015 and as Immediate Past President from December 2015 to December 2017. He was twice awarded by AMWS with their President's Award.

Education: Doctor of Philosophy (Ph.D.): Aquatic Pollution Biology – Plant and Soil Sciences
University of Massachusetts at Amherst, 1989
Bachelor of Science (B.S.): Environmental Sciences, *Summa Cum Laude*
University of Massachusetts at Amherst, 1984

Professional Affiliations: Society for Freshwater Science
Sigma Xi, Full Member
Association of Massachusetts Wetland Scientists, Voting Member
Society of Wetland Scientists
Massachusetts Association of Conservation Commissions

Certifications: Society of Wetlands Scientists Senior Professional Wetland Scientist, Certification Number 1349
OSHA Health and Safety Training, 40-Hour Training, 29 CFR 1910.120
OSHA Health and Safety Training, 8-Hour Supervisor Training
OSHA Health and Safety Training, 8-Hour Refresher Training

1812269089

300' ASSESSOR'S INFORMATION

Mother Brook Pond

Mother Brook Reservation

300'

1812369000

1789
1795
1812371000

1812370000

1812369001

1821
1825
1829
1833

1812374001

Locus
1817
1812374000

1799
1812373000

1746
1748

1812579000

1740
1742

1812378000

1812377005

1812376001

000927181
1812375000

18237181
18237181

1812567000

1750759
1812578000

1812580000

1812581000

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1812374001

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1812526000

1812525000

1812524000

1812523000

1812522000

1812521000

1812520000

1812519000

1812518000

1812517000

River Street

Norton Street

EMBARO ROAD

Chesterfield Street

Edson Street



**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. **1817 River Street LLC** has filed a Notice of Intent with the Boston Conservation Commission seeking permission to alter an Area Subject to Protection under the Wetlands Protection Act (General Laws Chapter 131, section 40) and Boston Wetlands Ordinance.
- B. The address of the lot where the activity is proposed is 1817 River Street (Lots A, B & C), Hyde Park, MA
Construction of a 1-family house, a 2-family house, both with associated site features,
- C. The project involves along with parking improvements at the existing 3-family house at 1817 River Street.
- 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 Norwood Engineering Co., Inc. by contacting them at 1410 Route One, Norwood, MA 02062 between the hours of 9 AM & 3 PM Mon-Fri, (781-762-0143).
- 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.



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. **1817 River Street 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 **1817 River Street (Lotes A, B, C), Hyde Park, MA.**
- C. El proyecto consiste en **la construcción de una vivienda para 1 y 2 familias, ambas con características de diseño similares, y la ejecución de mejoras en el sector de estacionamiento en la vivienda para 3 familias ya existente, sita en 1817 River Street.**
- 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 **Norwood Engineering Co., Inc., sita en 1410 Route 1, Norwood, MA 02062** entre las **9 AM y las 3 PM, de lunes a viernes, (781-762-0143).**
- 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 1-929-2056099, 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
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
Environment



**AFFIDAVIT OF SERVICE
FOR ABUTTER NOTIFICATION**

**Under the Massachusetts Wetlands Protection Act
and Boston Wetlands Ordinance**

I, Matthew D. Smith, 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:

Notice of Intent

A ~~Please Select Application Type~~ was filed under the Massachusetts Wetlands Protection Act and/or the Boston Wetlands Ordinance by HUB Development LLC for the construction of a ~~1-family house, a 2-family house,~~ both with associated site features, along with parking improvements at the existing ~~3-family house at 1817 River Street (Lots A, B & C),~~ Hyde Park, Massachusetts, located at 1817 River Street (Lots A, B & C), Hyde Park, Massachusetts.

The Abutter Notification For, the list of abutters to whom it was given, and their addresses are attached to this Affidavit of Service.

[Signature]
Name

6/8/22
Date

Translator Affidavit

Regarding the **1817 River Street (Lots A, B, C), Hyde Park, MA** I make the following Affidavit.

- Boston Linguistics MA is listed in the Boston Office of Language and Communication Access online list of translators.
- Boston Linguistics MA prepared the attached translation for **1817 River Street (Lots A, B, C), Hyde Park, MA**



Boston Linguistics MA

DATE :
06/02/2022



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。如果您有需要请联联系我们的邮箱 cc@boston.gov 电话# 617-635-3850.

Cape Verdean Creole:

INPURTANTI! Es dokumentu ó aplikason ten **informason inpurtanti** sobri bu direitus, rasponsabilidadi i/ó benefisius. Ê krusial ki bu intendi informason na es dokumentu 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 فوائده. 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:

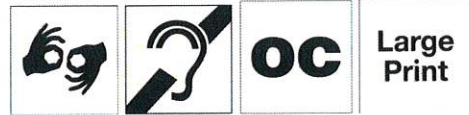
ВАЖНО! В этом документе или заявлении содержится **важная информация** о ваших правах, обязанностях и/или льготах. Для нас очень важно, чтобы вы понимали приведенную в этом документе и/или заявлении информацию, и мы готовы бесплатно предоставить вам информацию на предпочитаемом вами языке. Если Вам они 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.



**Pre-Development & Post-Development
Stormwater Calculations
1817 River Street
Boston, Massachusetts**

Prepared For
Anthony Ferrara
1817 River Street LLC
394 Washington Street Unit B
Dedham, MA, 02026



Prepared By
Norwood Engineering Co., Inc.
1410 Route One
Norwood, Ma 02062

**Norwood
Engineering**

May 26, 2022

Table of Contents

- Stormwater Management Summary
- Exhibit #1 – Drainage Summary
- Existing Drainage Area Plan
- Proposed Drainage Area Plan
- Existing Drainage Calculations
- Proposed Drainage Calculations
- Soils Information
- Soil Test Data
- Rainfall Data

Stormwater Management Summary

In the existing condition, there is an existing 3-family house with an existing paved driveway, gravel area and grass area. This area (E1) flows untreated and un-detained overland to the rear of the lot and towards the wetland and towards Mother Brook.

In the proposed condition, there will be a new Lot A for the existing 3 family house. The driveway to the existing 3-family house will be modified. The higher portions of the driveway will have a grass berm to direct the flow to the lower areas of the driveway. The driveway will have an infiltration trench along the low areas of the driveway to treat and infiltrate the paved area. This drainage will then flow overland over grass towards the wetland and toward Mother Brook. This infiltration trench and grass area will provide the 80% TSS required. This area is a portion of the (P1) proposed overland drainage area.

The remainder of the property will have 2 additional Lots, Lot B and Lot C which will have a 21' wide driveway from River Street that is split by the lot line. This driveway will service 2 parking areas to the rear of each of the lots. This driveway will have a deep sump catch basin with a hood that flow to 20 Cultec R-280HD infiltration chambers. The treatment of the deep sump catch basin and the infiltration system will meet the necessary 80% TSS requirement. The roof from both Lot B and Lot C will also flow into the infiltration chambers. These chambers will overflow towards the wetland and Mother Brook. This is the (P2) Drainage area.

The Overland flow from Lot B and Lot C are the remainder of the (P1) drainage area.

The proposed drainage from the property will have balanced rates of flow in all storm events from the property towards the wetland and Mother Brook. The stormwater will be treated and detained meeting the requirements of the Massachusetts and City of Boston stormwater regulations and will improve the quality of water from this site towards the wetlands and Mother Brook.

The design criteria used for the calculations as well as a summary of pre and post flow rates are shown on Exhibit #1 – Drainage Summary. The infiltration volume required and the infiltration volume proposed are also shown on Exhibit #1.

Exhibit #1 – Drainage Summary

**Existing Lots / Drainage
Areas = 21,328 s.f.**

**Proposed Lots / Drainage
Areas = 21,328 s.f.**

Soil Types = “A” soils

Ground Cover includes: Gravel, Pavement, Roofs and Grass

Infiltration Rates Used

Soils classified as “626 B” Merrimac Urban Land complex Sandy Loam “A” Soils Rawls Rate of 1.02 in/hr has been used for the “A” soils for infiltration calculations. Soil testing has been done in the areas of the infiltration systems and the soils consist of Sandy Loam “A” soils. This soil data and test hole locations are shown on the site plan set and information provided at the end of this report.

Infiltration Volume Required

Proposed Impervious Area (pavement, roofs and walks) = 10,510.s.f.

Massachusetts Stormwater Recharge Requirement

$10,510 \text{ s.f.} \times .6'' = 10,510 \text{ s.f} \times .6''/12'' = 525.5 \text{ c.f. recharge required}$

City of Boston Stormwater Recharge Requirement

$10,510 \text{ s.f.} \times 1'' = 10,510 \times 1''/12'' = 875.8 \text{ c.f. recharge required}$

Infiltration Volume Provided

The total recharge volume provided in the infiltration systems is 1,466.5 c.f. This system also totally recharges the 2-year storm event for the P2 Drainage area. This provides a storage volume equal to 1.67' over the total proposed impervious area of 10,150 s.f.

Stone Void Ratio Used = 0.40 (40% voids)

Drainage Runoff Rates Summary Table

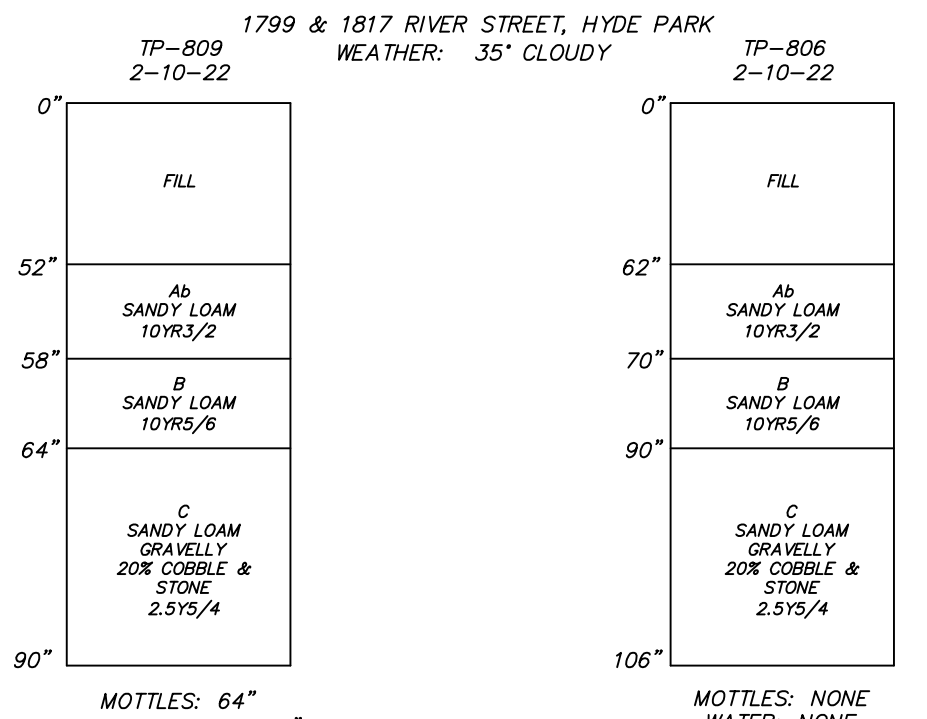
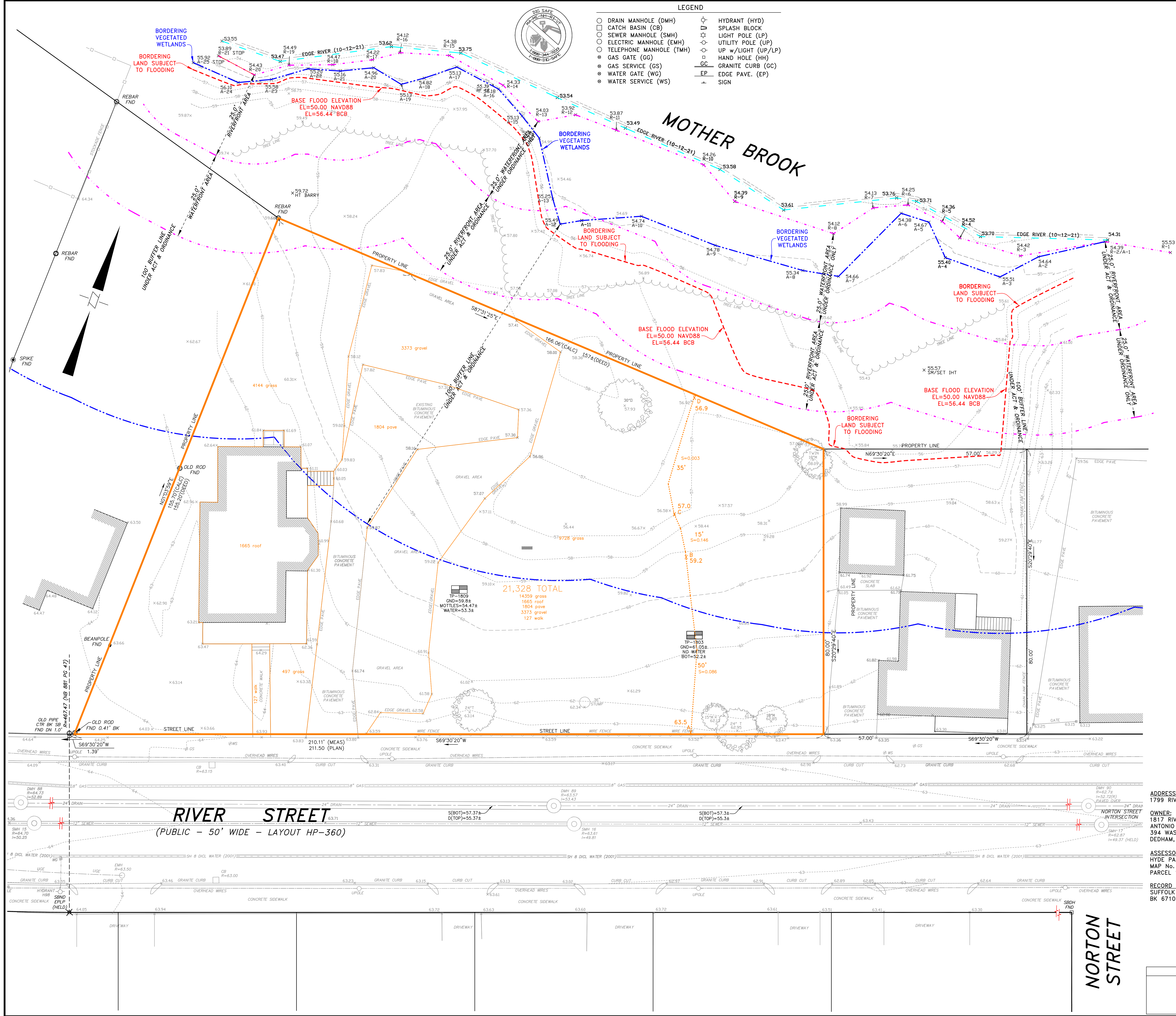
The NOAA Atlas 14 Precipitation Rates were used.

Using TR55 Calculations the following results were obtained:

Storm Event (inches)	Total (E1) Existing Rate Rear of Property	Total (E1) Existing Volume Rear of Property	Total (P1 and P2) Proposed Rate Rear of Property	Total (P1 and P2) Proposed Volume To Rear of Property
1 Year Storm (2.75")	0.04 cfs	0.008 a.f.	0.02 cfs	0.004 a.f.
2 Year Storm (3.39")	0.14 cfs	0.017 a.f.	0.06 cfs	0.009 a.f.
10 Year Storm (5.30")	0.72 cfs	0.055 a.f.	0.38 cfs	0.046 a.f.
25 Year Storm (6.49")	1.18 cfs	0.086 a.f.	0.92cfs	0.079 a.f.
100 Year Storm (8.33")	1.97 cfs	0.138 a.f.	1.94 cfs	0.134 a.f.



- LEGEND**
- DRAIN MANHOLE (DMH)
 - CATCH BASIN (CB)
 - SEWER MANHOLE (SMH)
 - ELECTRIC MANHOLE (EMH)
 - TELEPHONE MANHOLE (TMH)
 - ⊗ GAS GATE (GG)
 - ⊗ GAS SERVICE (GS)
 - ⊗ WATER GATE (WG)
 - ⊗ WATER SERVICE (WS)
 - HYDRANT (HYD)
 - SPLASH BLOCK
 - ☆ LIGHT POLE (LP)
 - UTILITY POLE (UP)
 - UP w/LIGHT (UP/LP)
 - HAND HOLE (HH)
 - GRANITE CURB (GC)
 - EP EDGE PAVE. (EP)
 - SIGN



MOTTLES: 64"
WATER STANDING: 78"
SOIL EVALUATIONS PERFORMED BY MASSACHUSETTS
CERTIFIED DEP SOIL EVALUATOR ON FEB. 10, 2022

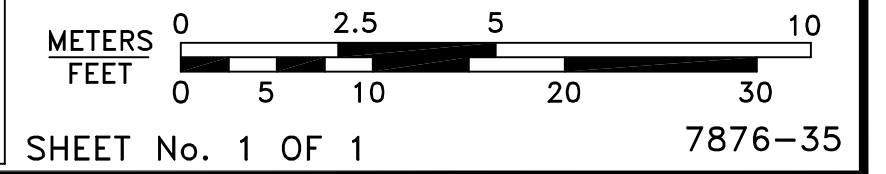
ADDRESS: 1799 RIVER STREET, HYDE PARK
ADDRESS: 1817 RIVER STREET
OWNER/APPLICANT: 1817 RIVER STREET LLC
ANTONIO FERRARA
394 WASHINGTON ST - UNIT B
DEDHAM, MA 02026
CONTACT: TONY FERRARA 617-438-2171

ASSESSOR'S REFERENCE: HYDE PARK - WARD 18
MAP No. 18236
PARCEL 12373-000
RECORD DEED: SUFFOLK REGISTRY
BK 67102 - PG 267

ASSESSOR'S REFERENCE: HYDE PARK - WARD 18
MAP No. 18236
PARCEL 12374-000
RECORD DEED: SUFFOLK REGISTRY
BK 67102 - PG 250

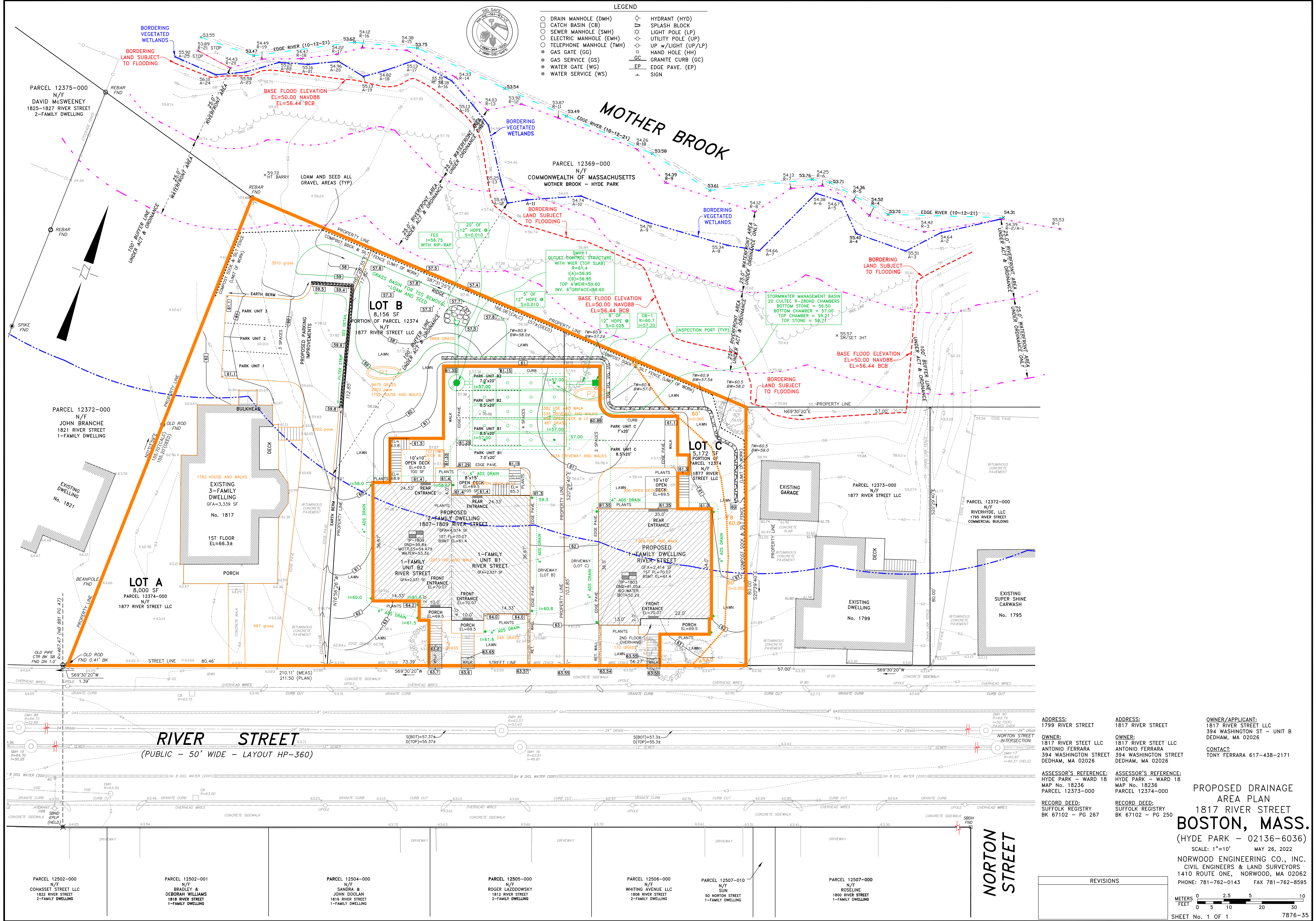
EXISTING DRAINAGE AREA PLAN
1817 RIVER STREET
BOSTON, MASS.
(HYDE PARK - 02136-6036)
SCALE: 1"=10' MAY 26, 2022
NORWOOD ENGINEERING CO., INC.
CIVIL ENGINEERS & LAND SURVEYORS
1410 ROUTE ONE, NORWOOD, MA 02062
PHONE: 781-762-0143 FAX 781-762-8595

NO.	DATE	DESCRIPTION





- LEGEND**
- DRAIN MANHOLE (DMH)
 - CATCH BASIN (CB)
 - SEWER MANHOLE (SMH)
 - ELECTRIC MANHOLE (EMH)
 - TELEPHONE MANHOLE (TMH)
 - ⊗ GAS GATE (GG)
 - ⊗ GAS SERVICE (GS)
 - ⊗ WATER GATE (WG)
 - ⊗ WATER SERVICE (WS)
 - HYDRANT (HYD)
 - SPLASH BLOCK
 - ☆ LIGHT POLE (LP)
 - UTILITY POLE (UP)
 - UP w/LIGHT (UP/LP)
 - HAND HOLE (HH)
 - GRANITE CURB (GC)
 - EP EDGE PAVE. (EP)
 - SIGN

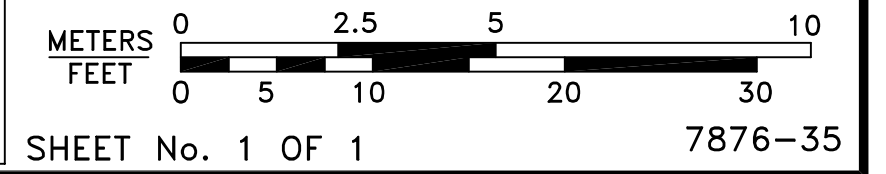


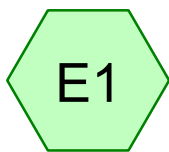
ADDRESS: 1799 RIVER STREET
OWNER: 1817 RIVER STEET LLC
OWNER/APPLICANT: 1817 RIVER STREET LLC
 1817 RIVER STREET LLC
 394 WASHINGTON STREET
 DEDHAM, MA 02026
CONTACT: TONY FERRARA 617-438-2171

ASSESSOR'S REFERENCE: HYDE PARK - WARD 18
 MAP No. 18236
 PARCEL 12373-000
RECORD DEED: SUFFOLK REGISTRY
 BK 67102 - PG 267

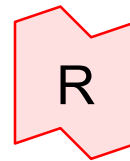
PROPOSED DRAINAGE AREA PLAN
1817 RIVER STREET
BOSTON, MASS.
 (HYDE PARK - 02136-6036)
 SCALE: 1"=10' MAY 26, 2022
NORWOOD ENGINEERING CO., INC.
 CIVIL ENGINEERS & LAND SURVEYORS
 1410 ROUTE ONE, NORWOOD, MA 02062
 PHONE: 781-762-0143 FAX 781-762-8595
 SHEET No. 1 OF 1 7876-35

NO.	DESCRIPTION

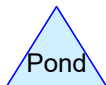
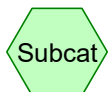




EXISTING AREA



TO REAR OF
PROPERTY



Routing Diagram for 7876-35 Existing

Prepared by na, Printed 6/1/2022

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7876-35 Existing

Prepared by na

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Printed 6/1/2022

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.330	39	>75% Grass cover, Good, HSG A (E1)
0.077	96	Gravel surface, HSG A (E1)
0.083	98	Pave, Roof, Walk, HSG A (E1)
0.490	58	TOTAL AREA

7876-35 Existing

Prepared by na

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.490	HSG A	E1
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.490		TOTAL AREA

7876-35 Existing

Prepared by na

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Page 4

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.330	0.000	0.000	0.000	0.000	0.330	>75% Grass cover, Good	E1
0.077	0.000	0.000	0.000	0.000	0.077	Gravel surface	E1
0.083	0.000	0.000	0.000	0.000	0.083	Pave, Roof, Walk	E1
0.490	0.000	0.000	0.000	0.000	0.490	TOTAL AREA	

7876-35 Existing

Type III 24-hr 1 Year Storm Rainfall=2.77"

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

Subcatchment E1: EXISTING AREA

Runoff Area=21,328 sf 16.86% Impervious Runoff Depth=0.20"
Flow Length=100' Tc=5.1 min CN=58 Runoff=0.04 cfs 0.008 af

Link R: TO REAR OF PROPERTY

Inflow=0.04 cfs 0.008 af
Primary=0.04 cfs 0.008 af

Total Runoff Area = 0.490 ac Runoff Volume = 0.008 af Average Runoff Depth = 0.20"
83.14% Pervious = 0.407 ac 16.86% Impervious = 0.083 ac

Summary for Subcatchment E1: EXISTING AREA

Runoff = 0.04 cfs @ 12.33 hrs, Volume= 0.008 af, Depth= 0.20"

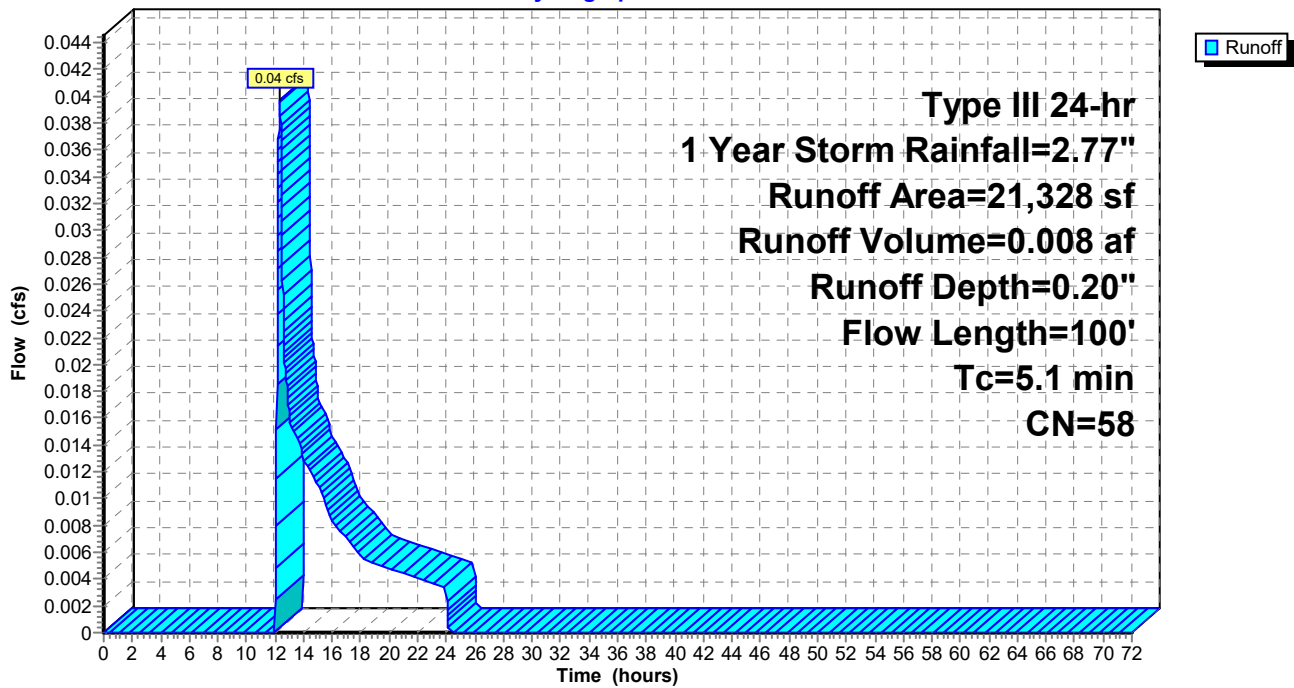
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 1 Year Storm Rainfall=2.77"

Area (sf)	CN	Description
14,359	39	>75% Grass cover, Good, HSG A
3,373	96	Gravel surface, HSG A
* 3,596	98	Pave, Roof, Walk, HSG A
21,328	58	Weighted Average
17,732		83.14% Pervious Area
3,596		16.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	50	0.0860	0.19		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.41"
0.0	15	0.1460	6.15		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
0.7	35	0.0030	0.88		Shallow Concentrated Flow, C-D Unpaved Kv= 16.1 fps
5.1	100	Total			

Subcatchment E1: EXISTING AREA

Hydrograph



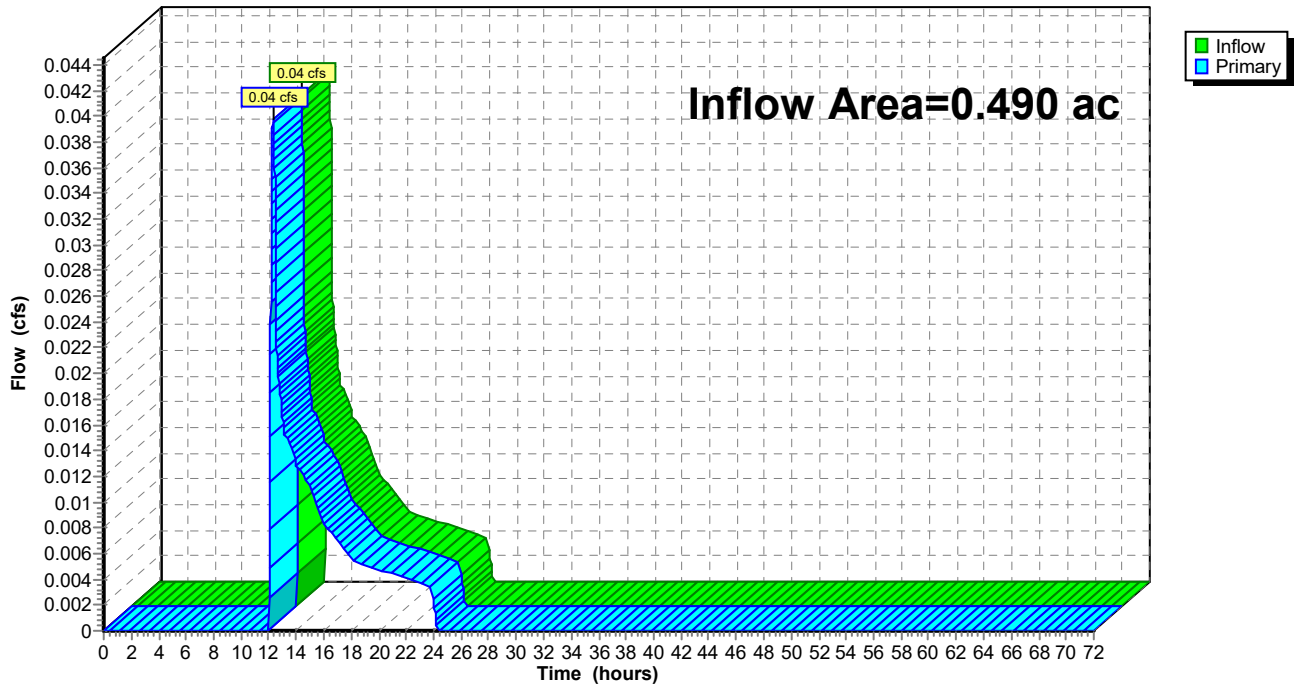
Summary for Link R: TO REAR OF PROPERTY

Inflow Area = 0.490 ac, 16.86% Impervious, Inflow Depth = 0.20" for 1 Year Storm event
Inflow = 0.04 cfs @ 12.33 hrs, Volume= 0.008 af
Primary = 0.04 cfs @ 12.33 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

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

Link R: TO REAR OF PROPERTY

Hydrograph



7876-35 Existing

Type III 24-hr 2 Year Storm Rainfall=3.41"

Prepared by na

Printed 6/1/2022

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

Subcatchment E1: EXISTING AREA

Runoff Area=21,328 sf 16.86% Impervious Runoff Depth=0.42"
Flow Length=100' Tc=5.1 min CN=58 Runoff=0.14 cfs 0.017 af

Link R: TO REAR OF PROPERTY

Inflow=0.14 cfs 0.017 af
Primary=0.14 cfs 0.017 af

Total Runoff Area = 0.490 ac Runoff Volume = 0.017 af Average Runoff Depth = 0.42"
83.14% Pervious = 0.407 ac 16.86% Impervious = 0.083 ac

Summary for Subcatchment E1: EXISTING AREA

Runoff = 0.14 cfs @ 12.12 hrs, Volume= 0.017 af, Depth= 0.42"

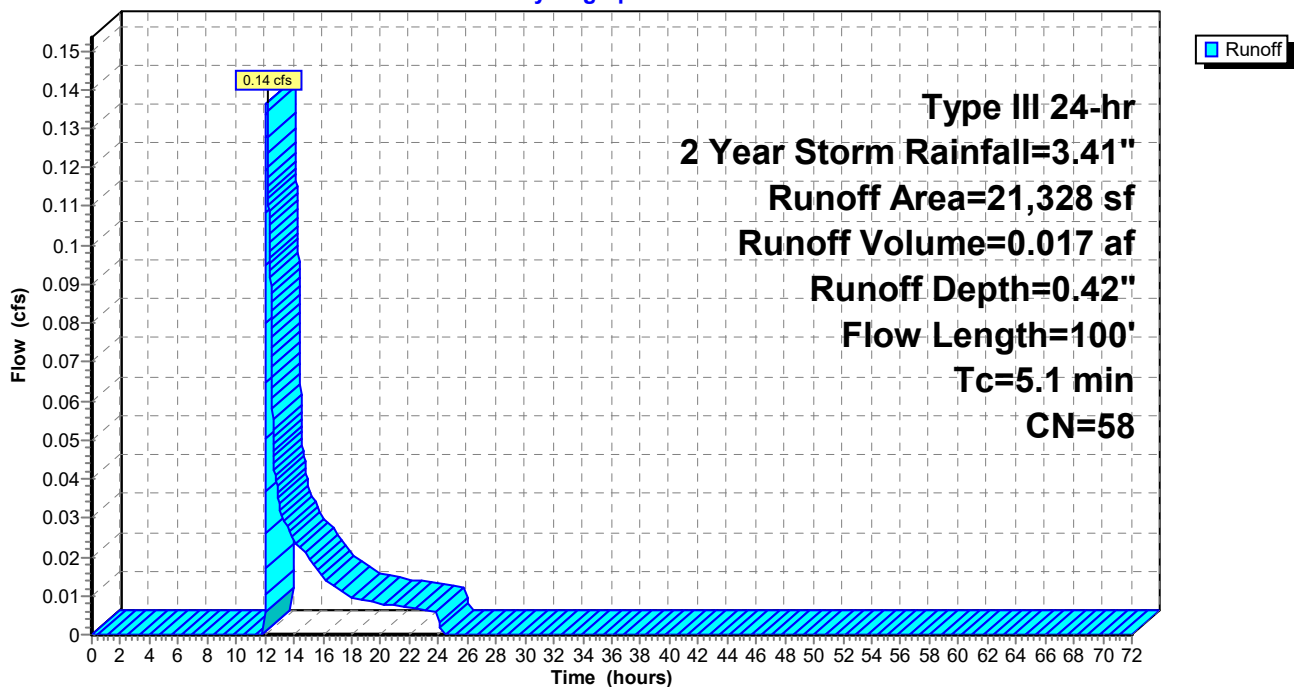
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2 Year Storm Rainfall=3.41"

Area (sf)	CN	Description
14,359	39	>75% Grass cover, Good, HSG A
3,373	96	Gravel surface, HSG A
* 3,596	98	Pave, Roof, Walk, HSG A
21,328	58	Weighted Average
17,732		83.14% Pervious Area
3,596		16.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	50	0.0860	0.19		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.41"
0.0	15	0.1460	6.15		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
0.7	35	0.0030	0.88		Shallow Concentrated Flow, C-D Unpaved Kv= 16.1 fps
5.1	100	Total			

Subcatchment E1: EXISTING AREA

Hydrograph



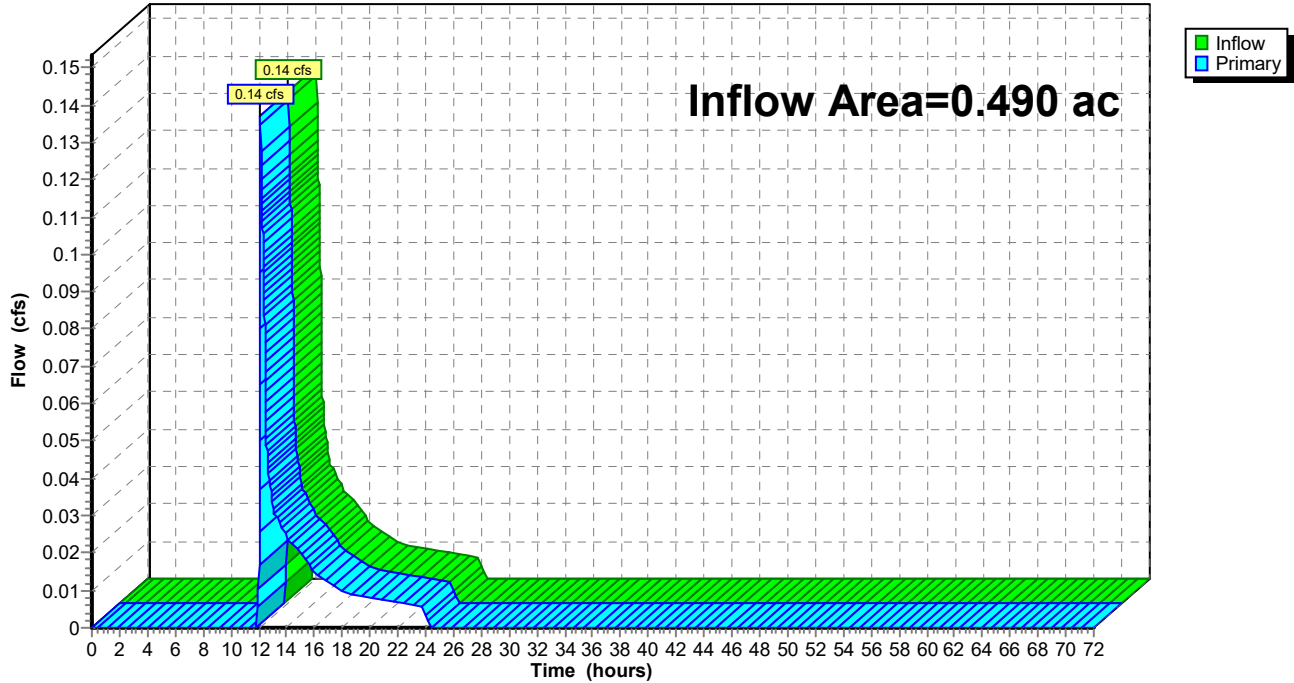
Summary for Link R: TO REAR OF PROPERTY

Inflow Area = 0.490 ac, 16.86% Impervious, Inflow Depth = 0.42" for 2 Year Storm event
Inflow = 0.14 cfs @ 12.12 hrs, Volume= 0.017 af
Primary = 0.14 cfs @ 12.12 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

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

Link R: TO REAR OF PROPERTY

Hydrograph



7876-35 Existing

Type III 24-hr 10 Year Storm Rainfall=5.33"

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

Subcatchment E1: EXISTING AREA

Runoff Area=21,328 sf 16.86% Impervious Runoff Depth=1.35"
Flow Length=100' Tc=5.1 min CN=58 Runoff=0.72 cfs 0.055 af

Link R: TO REAR OF PROPERTY

Inflow=0.72 cfs 0.055 af
Primary=0.72 cfs 0.055 af

Total Runoff Area = 0.490 ac Runoff Volume = 0.055 af Average Runoff Depth = 1.35"
83.14% Pervious = 0.407 ac 16.86% Impervious = 0.083 ac

Summary for Subcatchment E1: EXISTING AREA

Runoff = 0.72 cfs @ 12.09 hrs, Volume= 0.055 af, Depth= 1.35"

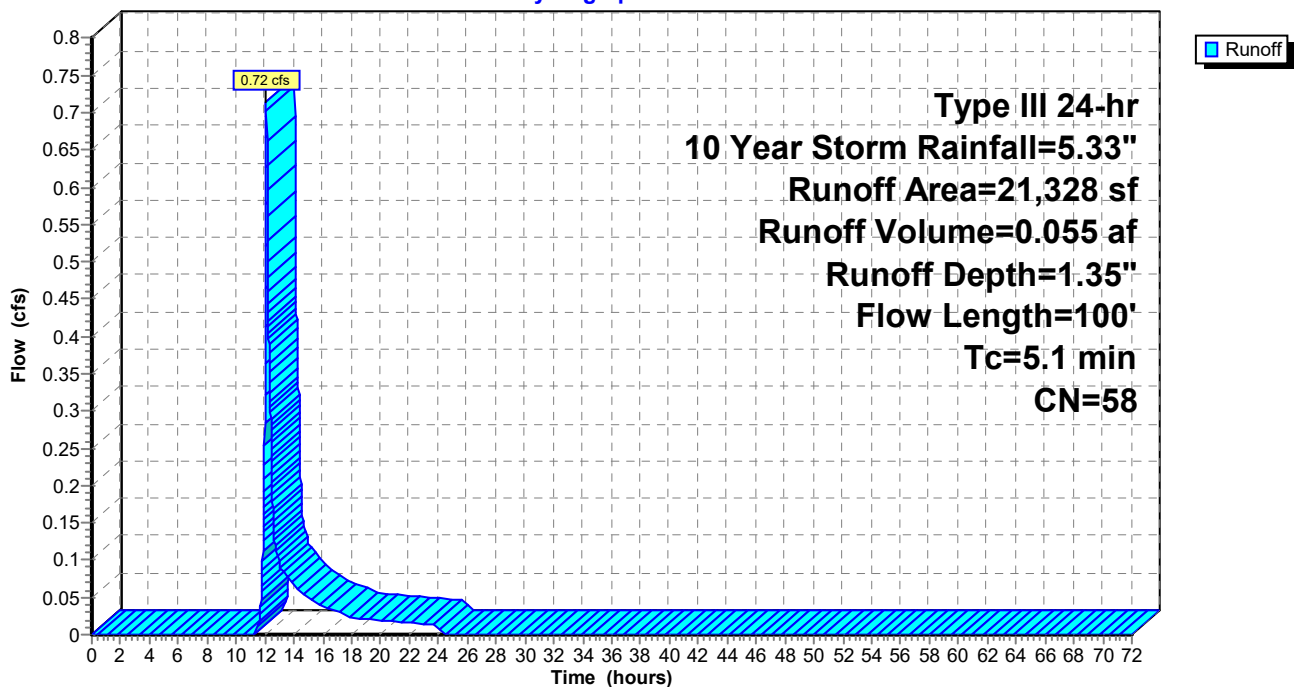
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Storm Rainfall=5.33"

Area (sf)	CN	Description
14,359	39	>75% Grass cover, Good, HSG A
3,373	96	Gravel surface, HSG A
* 3,596	98	Pave, Roof, Walk, HSG A
21,328	58	Weighted Average
17,732		83.14% Pervious Area
3,596		16.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	50	0.0860	0.19		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.41"
0.0	15	0.1460	6.15		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
0.7	35	0.0030	0.88		Shallow Concentrated Flow, C-D Unpaved Kv= 16.1 fps
5.1	100	Total			

Subcatchment E1: EXISTING AREA

Hydrograph



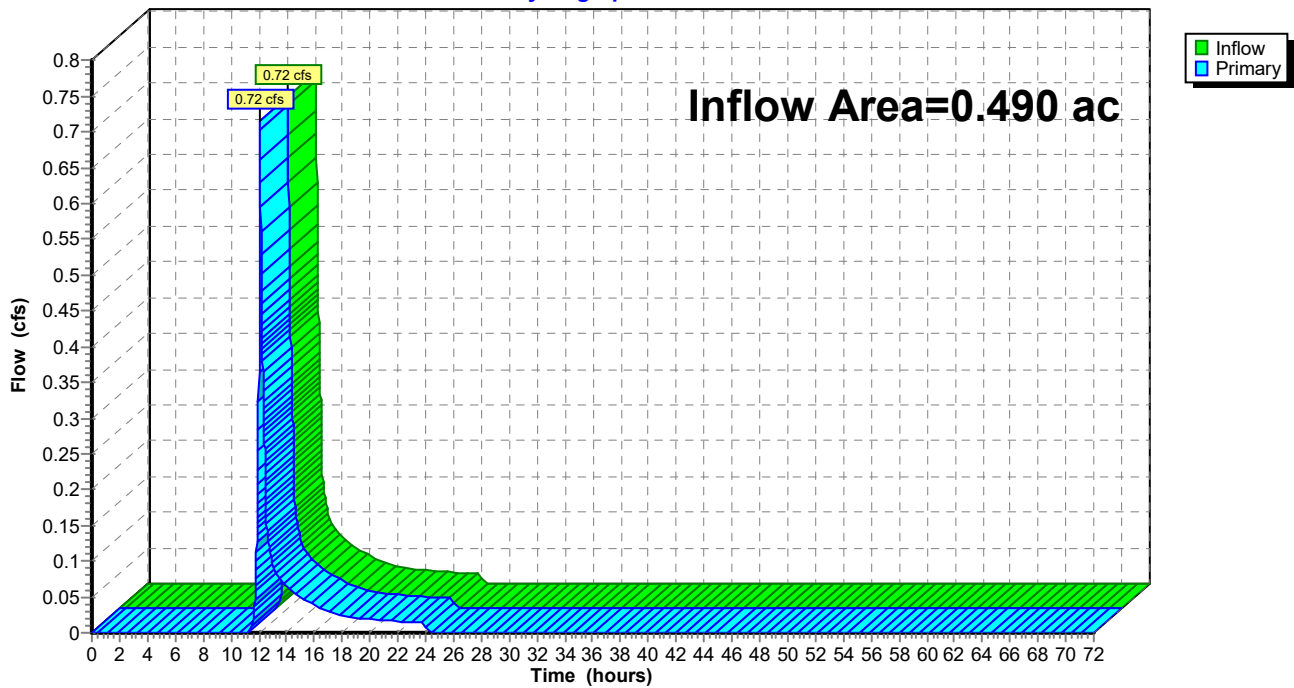
Summary for Link R: TO REAR OF PROPERTY

Inflow Area = 0.490 ac, 16.86% Impervious, Inflow Depth = 1.35" for 10 Year Storm event
Inflow = 0.72 cfs @ 12.09 hrs, Volume= 0.055 af
Primary = 0.72 cfs @ 12.09 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min

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

Link R: TO REAR OF PROPERTY

Hydrograph



7876-35 Existing

Type III 24-hr 25 Year Storm Rainfall=6.53"

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

Subcatchment E1: EXISTING AREA

Runoff Area=21,328 sf 16.86% Impervious Runoff Depth=2.10"
Flow Length=100' Tc=5.1 min CN=58 Runoff=1.18 cfs 0.086 af

Link R: TO REAR OF PROPERTY

Inflow=1.18 cfs 0.086 af
Primary=1.18 cfs 0.086 af

Total Runoff Area = 0.490 ac Runoff Volume = 0.086 af Average Runoff Depth = 2.10"
83.14% Pervious = 0.407 ac 16.86% Impervious = 0.083 ac

Summary for Subcatchment E1: EXISTING AREA

Runoff = 1.18 cfs @ 12.08 hrs, Volume= 0.086 af, Depth= 2.10"

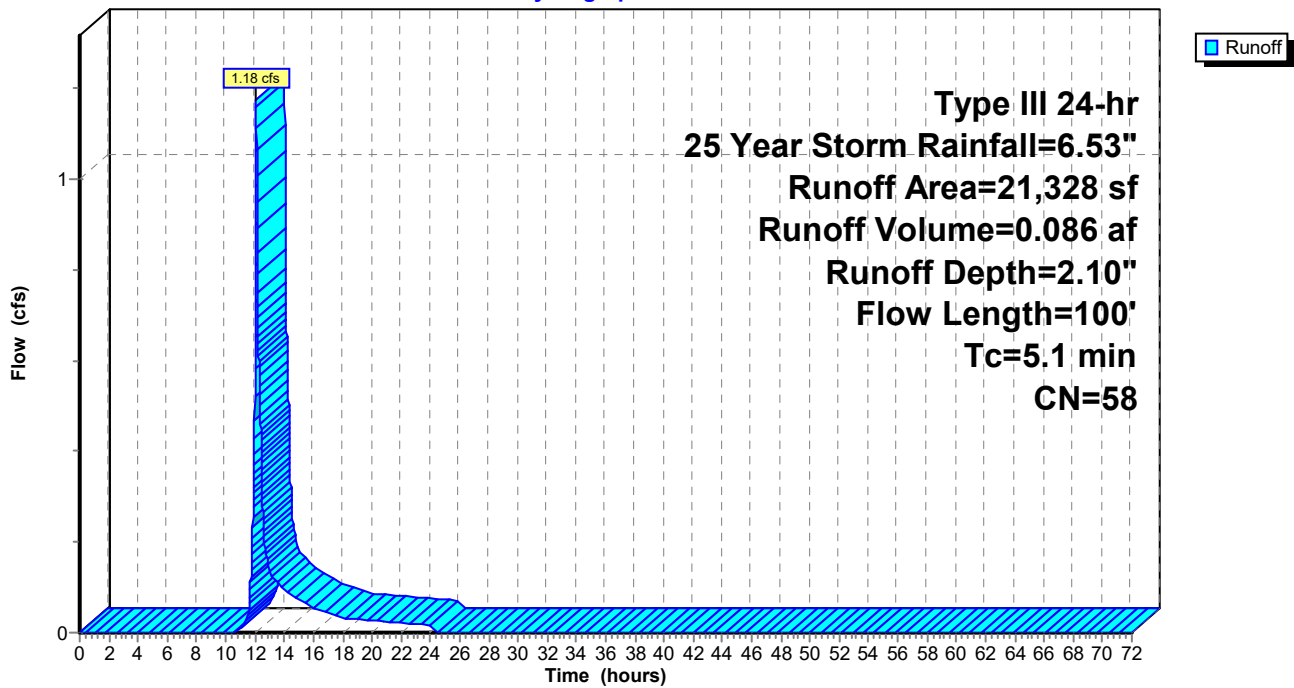
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25 Year Storm Rainfall=6.53"

Area (sf)	CN	Description
14,359	39	>75% Grass cover, Good, HSG A
3,373	96	Gravel surface, HSG A
* 3,596	98	Pave, Roof, Walk, HSG A
21,328	58	Weighted Average
17,732		83.14% Pervious Area
3,596		16.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	50	0.0860	0.19		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.41"
0.0	15	0.1460	6.15		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
0.7	35	0.0030	0.88		Shallow Concentrated Flow, C-D Unpaved Kv= 16.1 fps
5.1	100	Total			

Subcatchment E1: EXISTING AREA

Hydrograph



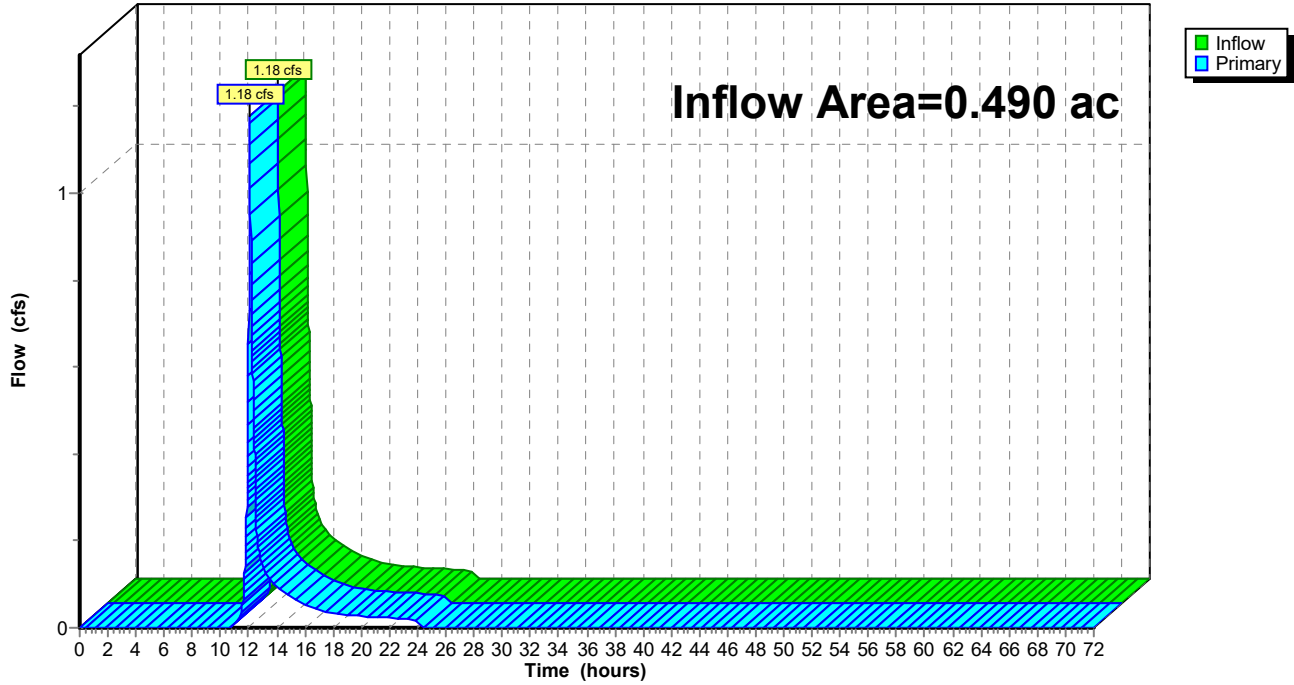
Summary for Link R: TO REAR OF PROPERTY

Inflow Area = 0.490 ac, 16.86% Impervious, Inflow Depth = 2.10" for 25 Year Storm event
Inflow = 1.18 cfs @ 12.08 hrs, Volume= 0.086 af
Primary = 1.18 cfs @ 12.08 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min

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

Link R: TO REAR OF PROPERTY

Hydrograph



7876-35 Existing

Type III 24-hr 100 Year Storm Rainfall=8.37"

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

Subcatchment E1: EXISTING AREA

Runoff Area=21,328 sf 16.86% Impervious Runoff Depth=3.38"
Flow Length=100' Tc=5.1 min CN=58 Runoff=1.97 cfs 0.138 af

Link R: TO REAR OF PROPERTY

Inflow=1.97 cfs 0.138 af
Primary=1.97 cfs 0.138 af

Total Runoff Area = 0.490 ac Runoff Volume = 0.138 af Average Runoff Depth = 3.38"
83.14% Pervious = 0.407 ac 16.86% Impervious = 0.083 ac

Summary for Subcatchment E1: EXISTING AREA

Runoff = 1.97 cfs @ 12.08 hrs, Volume= 0.138 af, Depth= 3.38"

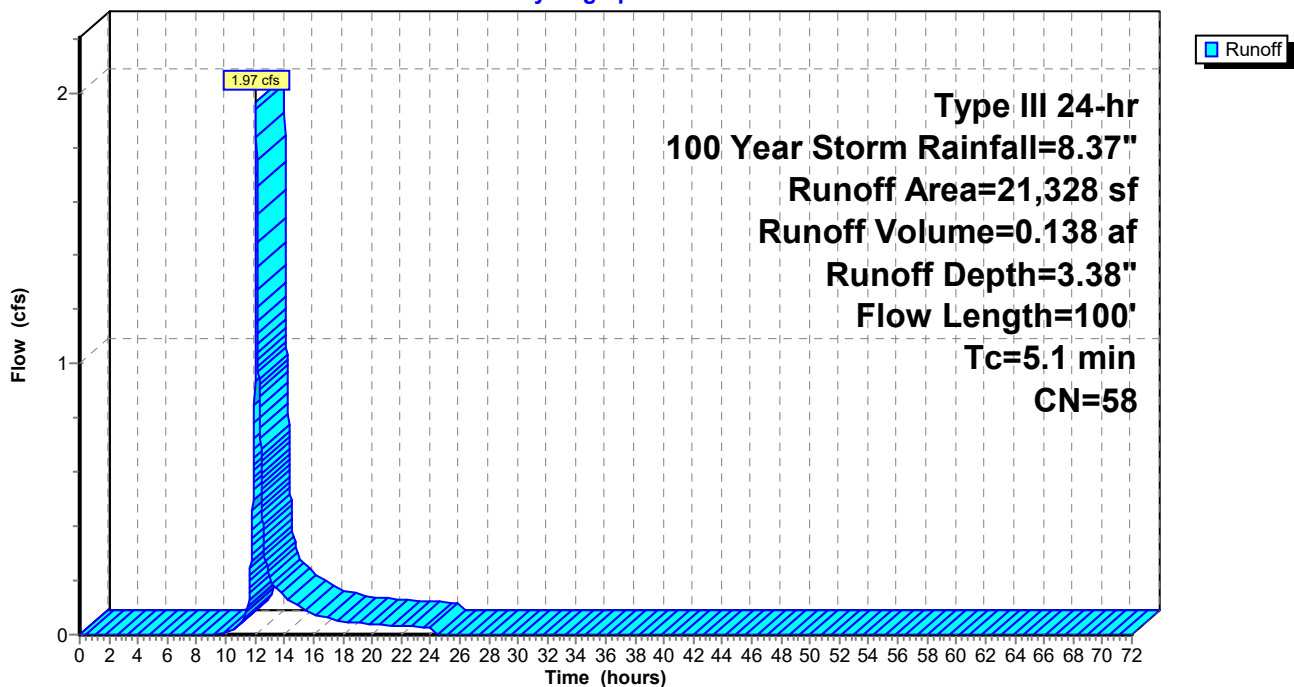
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100 Year Storm Rainfall=8.37"

Area (sf)	CN	Description
14,359	39	>75% Grass cover, Good, HSG A
3,373	96	Gravel surface, HSG A
* 3,596	98	Pave, Roof, Walk, HSG A
21,328	58	Weighted Average
17,732		83.14% Pervious Area
3,596		16.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	50	0.0860	0.19		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.41"
0.0	15	0.1460	6.15		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
0.7	35	0.0030	0.88		Shallow Concentrated Flow, C-D Unpaved Kv= 16.1 fps
5.1	100	Total			

Subcatchment E1: EXISTING AREA

Hydrograph



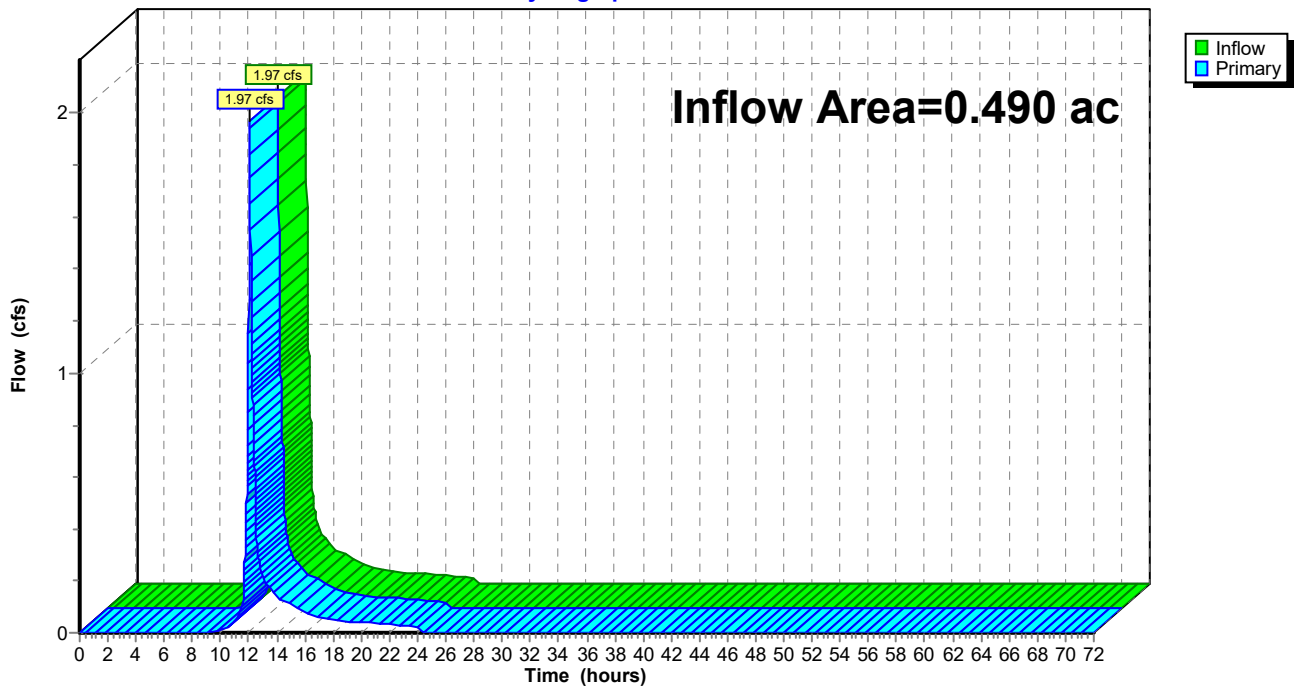
Summary for Link R: TO REAR OF PROPERTY

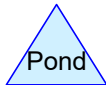
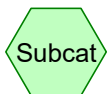
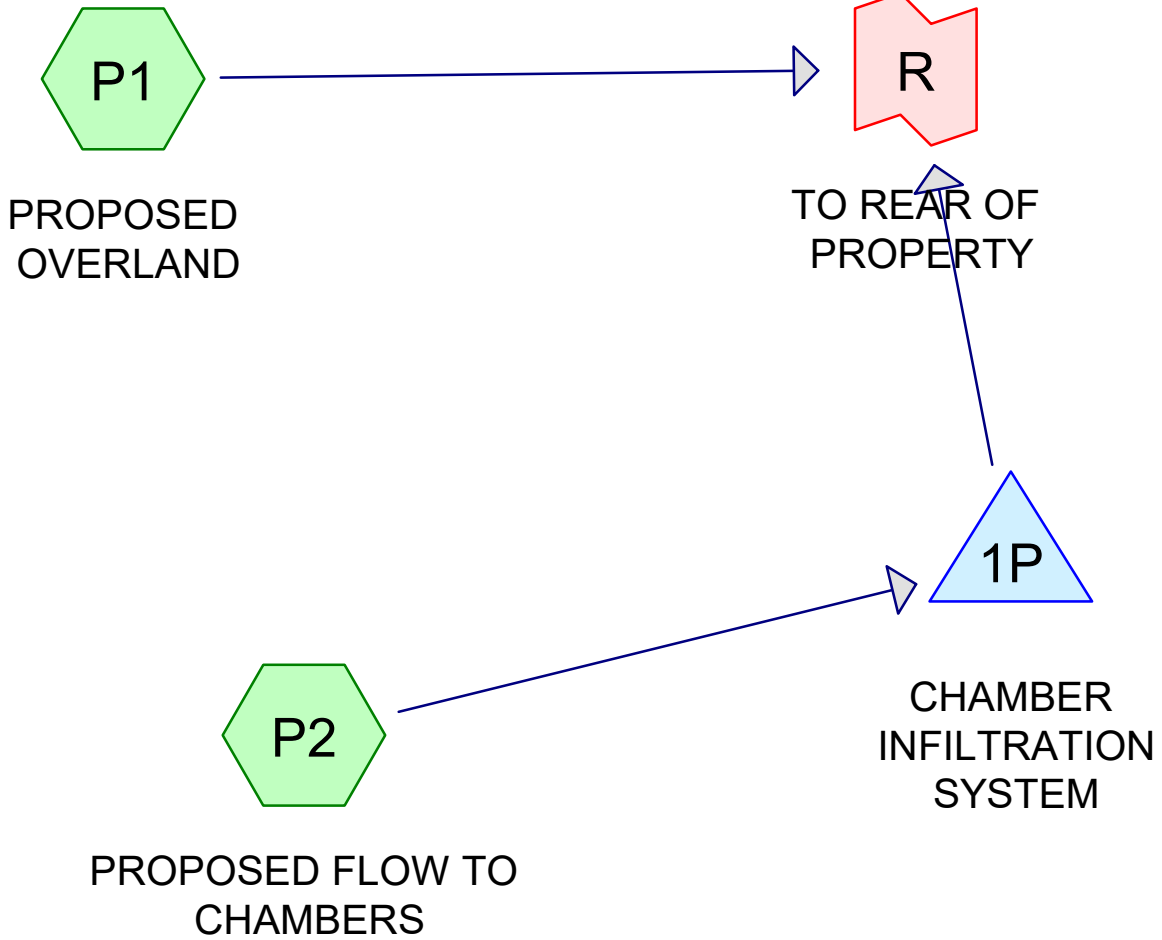
Inflow Area = 0.490 ac, 16.86% Impervious, Inflow Depth = 3.38" for 100 Year Storm event
Inflow = 1.97 cfs @ 12.08 hrs, Volume= 0.138 af
Primary = 1.97 cfs @ 12.08 hrs, Volume= 0.138 af, Atten= 0%, Lag= 0.0 min

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

Link R: TO REAR OF PROPERTY

Hydrograph





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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.233	39	>75% Grass cover, Good, HSG A (P1, P2)
0.015	39	Open Deck and Landscaping, Good, HSG A (P2)
0.241	98	Pave, Roof, Walk, HSG A (P1, P2)
0.490	68	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.490	HSG A	P1, P2
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.490		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatcl Number:
0.233	0.000	0.000	0.000	0.000	0.233	>75% Grass cover, Good	
0.015	0.000	0.000	0.000	0.000	0.015	Open Deck and Landscaping, Good	
0.241	0.000	0.000	0.000	0.000	0.241	Pave, Roof, Walk	
0.490	0.000	0.000	0.000	0.000	0.490	TOTAL AREA	

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Type III 24-hr 1 Year Storm Rainfall=2.77"

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

Subcatchment P1: PROPOSED OVERLAND Runoff Area=13,469 sf 28.17% Impervious Runoff Depth=0.16"
Flow Length=110' Tc=5.7 min CN=56 Runoff=0.02 cfs 0.004 af

Subcatchment P2: PROPOSED FLOW TO Runoff Area=7,859 sf 85.46% Impervious Runoff Depth=1.69"
Tc=6.0 min CN=89 Runoff=0.36 cfs 0.025 af

Pond 1P: CHAMBER INFILTRATION SYSTEM Peak Elev=57.63' Storage=534 cf Inflow=0.36 cfs 0.025 af
Discarded=0.02 cfs 0.025 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.025 af

Link R: TO REAR OF PROPERTY Inflow=0.02 cfs 0.004 af
Primary=0.02 cfs 0.004 af

Total Runoff Area = 0.490 ac Runoff Volume = 0.030 af Average Runoff Depth = 0.72"
50.72% Pervious = 0.248 ac 49.28% Impervious = 0.241 ac

7876-35 Proposed

Type III 24-hr 1 Year Storm Rainfall=2.77"

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Summary for Subcatchment P1: PROPOSED OVERLAND

Runoff = 0.02 cfs @ 12.39 hrs, Volume= 0.004 af, Depth= 0.16"

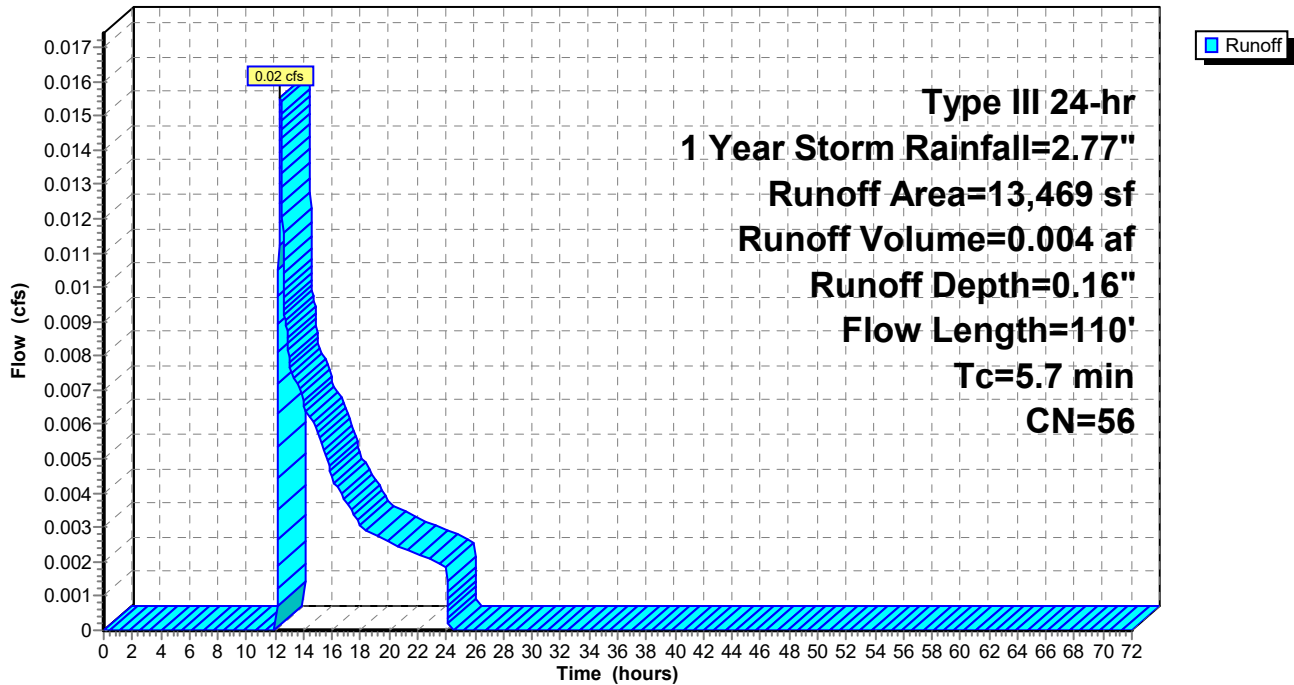
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 1 Year Storm Rainfall=2.77"

Area (sf)	CN	Description
9,675	39	>75% Grass cover, Good, HSG A
* 3,794	98	Pave, Roof, Walk, HSG A
13,469	56	Weighted Average
9,675		71.83% Pervious Area
3,794		28.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0500	0.15		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.41"
0.2	60	0.0650	4.10		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
5.7	110	Total			

Subcatchment P1: PROPOSED OVERLAND

Hydrograph



Summary for Subcatchment P2: PROPOSED FLOW TO CHAMBERS

Runoff = 0.36 cfs @ 12.09 hrs, Volume= 0.025 af, Depth= 1.69"

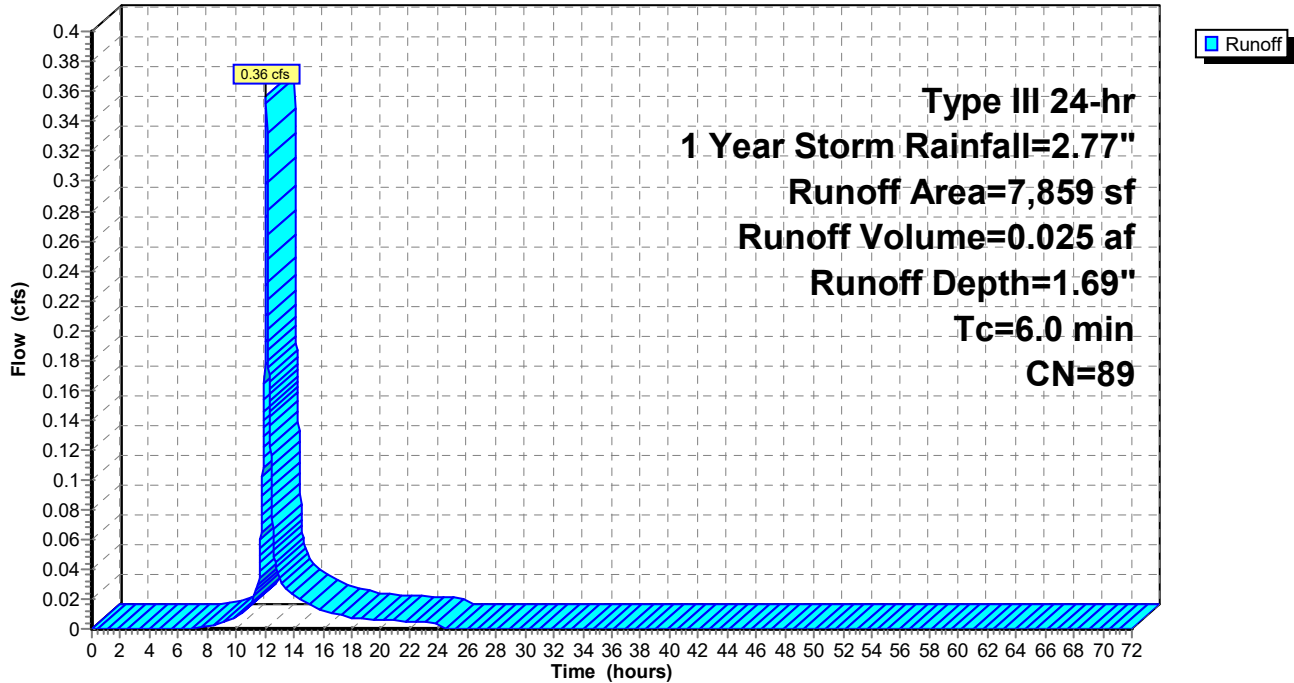
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 1 Year Storm Rainfall=2.77"

Area (sf)	CN	Description
487	39	>75% Grass cover, Good, HSG A
* 656	39	Open Deck and Landscaping, Good, HSG A
* 6,716	98	Pave, Roof, Walk, HSG A
7,859	89	Weighted Average
1,143		14.54% Pervious Area
6,716		85.46% Impervious Area

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

Subcatchment P2: PROPOSED FLOW TO CHAMBERS

Hydrograph



Summary for Pond 1P: CHAMBER INFILTRATION SYSTEM

Inflow Area = 0.180 ac, 85.46% Impervious, Inflow Depth = 1.69" for 1 Year Storm event
 Inflow = 0.36 cfs @ 12.09 hrs, Volume= 0.025 af
 Outflow = 0.02 cfs @ 14.29 hrs, Volume= 0.025 af, Atten= 94%, Lag= 132.0 min
 Discarded = 0.02 cfs @ 14.29 hrs, Volume= 0.025 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 57.63' @ 14.29 hrs Surf.Area= 731 sf Storage= 534 cf

Plug-Flow detention time= 262.7 min calculated for 0.025 af (100% of inflow)
 Center-of-Mass det. time= 262.7 min (1,079.7 - 817.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.50'	586 cf	23.58'W x 31.00'L x 3.21'H Field A 2,346 cf Overall - 880 cf Embedded = 1,465 cf x 40.0% Voids
#2A	57.00'	880 cf	Cultec R-280HD x 20 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 5 rows
		1,466 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.50'	1.020 in/hr Exfiltration over Wetted area
#2	Primary	58.50'	6.0" Vert. Orifice/Grate C= 0.600
#3	Primary	59.60'	4.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.02 cfs @ 14.29 hrs HW=57.63' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=56.50' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)
 ↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: CHAMBER INFILTRATION SYSTEM - Chamber Wizard Field A

Chamber Model = Cultec R-280HD (Cultec Recharger® 280HD)

Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf

Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap

Row Length Adjustment= +1.00' x 6.07 sf x 5 rows

47.0" Wide + 6.0" Spacing = 53.0" C-C Row Spacing

4 Chambers/Row x 7.00' Long +1.00' Row Adjustment = 29.00' Row Length +12.0" End Stone x 2 = 31.00' Base Length

5 Rows x 47.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 23.58' Base Width

6.0" Base + 26.5" Chamber Height + 6.0" Cover = 3.21' Field Height

20 Chambers x 42.5 cf +1.00' Row Adjustment x 6.07 sf x 5 Rows = 880.4 cf Chamber Storage

2,345.6 cf Field - 880.4 cf Chambers = 1,465.2 cf Stone x 40.0% Voids = 586.1 cf Stone Storage

Chamber Storage + Stone Storage = 1,466.5 cf = 0.034 af

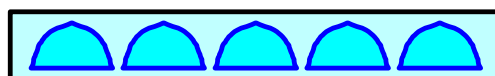
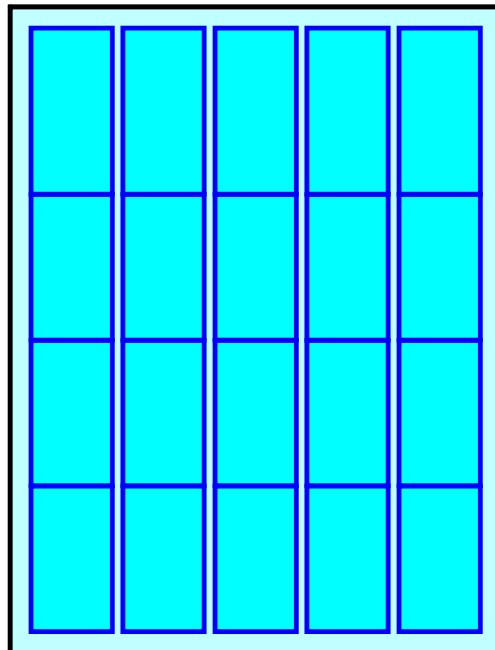
Overall Storage Efficiency = 62.5%

Overall System Size = 31.00' x 23.58' x 3.21'

20 Chambers

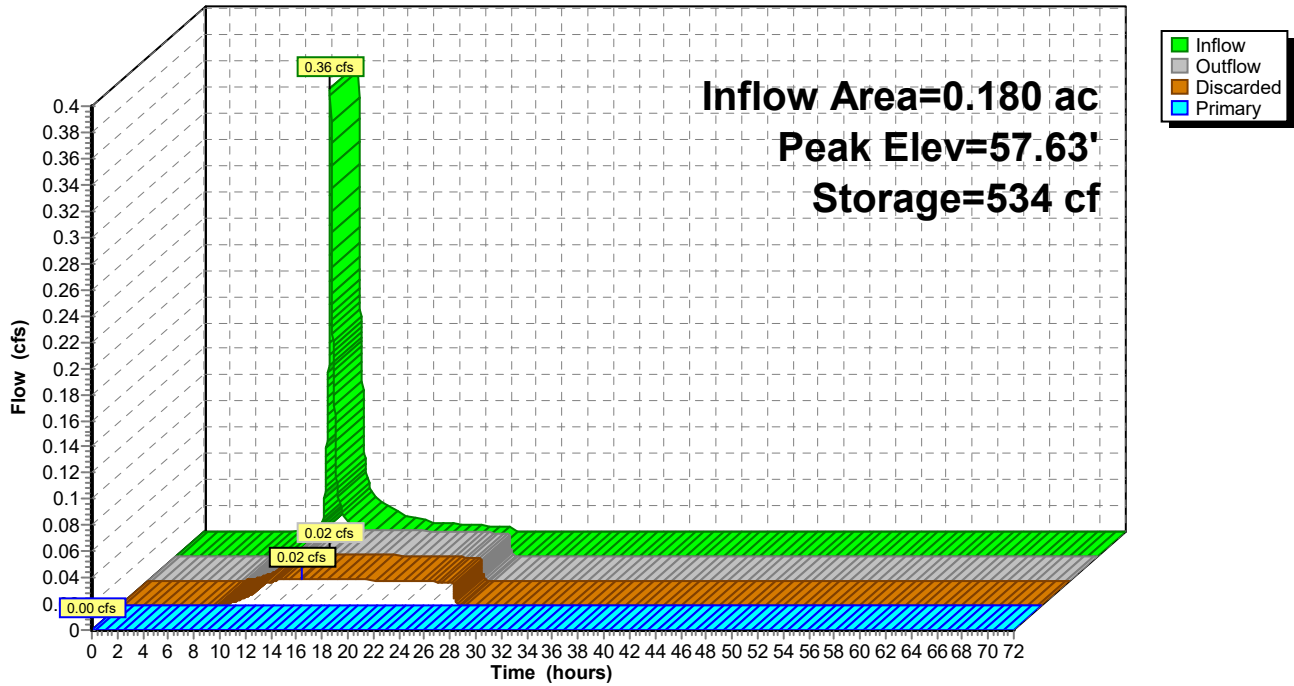
86.9 cy Field

54.3 cy Stone



Pond 1P: CHAMBER INFILTRATION SYSTEM

Hydrograph



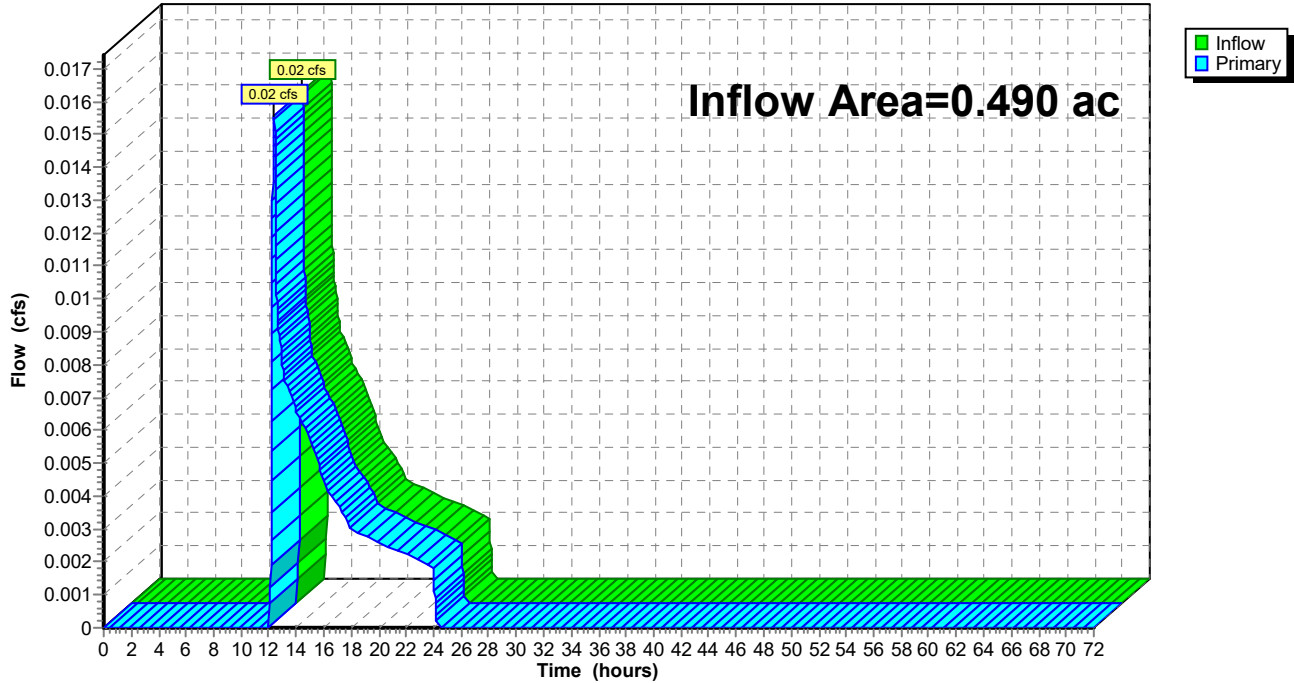
Summary for Link R: TO REAR OF PROPERTY

Inflow Area = 0.490 ac, 49.28% Impervious, Inflow Depth = 0.10" for 1 Year Storm event
Inflow = 0.02 cfs @ 12.39 hrs, Volume= 0.004 af
Primary = 0.02 cfs @ 12.39 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

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

Link R: TO REAR OF PROPERTY

Hydrograph



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Type III 24-hr 2 Year Storm Rainfall=3.41"

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

Subcatchment P1: PROPOSED OVERLAND Runoff Area=13,469 sf 28.17% Impervious Runoff Depth=0.35"
Flow Length=110' Tc=5.7 min CN=56 Runoff=0.06 cfs 0.009 af

Subcatchment P2: PROPOSED FLOW TO Runoff Area=7,859 sf 85.46% Impervious Runoff Depth=2.27"
Tc=6.0 min CN=89 Runoff=0.48 cfs 0.034 af

Pond 1P: CHAMBER INFILTRATION SYSTEM Peak Elev=58.07' Storage=788 cf Inflow=0.48 cfs 0.034 af
Discarded=0.02 cfs 0.034 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.034 af

Link R: TO REAR OF PROPERTY Inflow=0.06 cfs 0.009 af
Primary=0.06 cfs 0.009 af

Total Runoff Area = 0.490 ac Runoff Volume = 0.043 af Average Runoff Depth = 1.06"
50.72% Pervious = 0.248 ac 49.28% Impervious = 0.241 ac

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Type III 24-hr 2 Year Storm Rainfall=3.41"

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Summary for Subcatchment P1: PROPOSED OVERLAND

Runoff = 0.06 cfs @ 12.14 hrs, Volume= 0.009 af, Depth= 0.35"

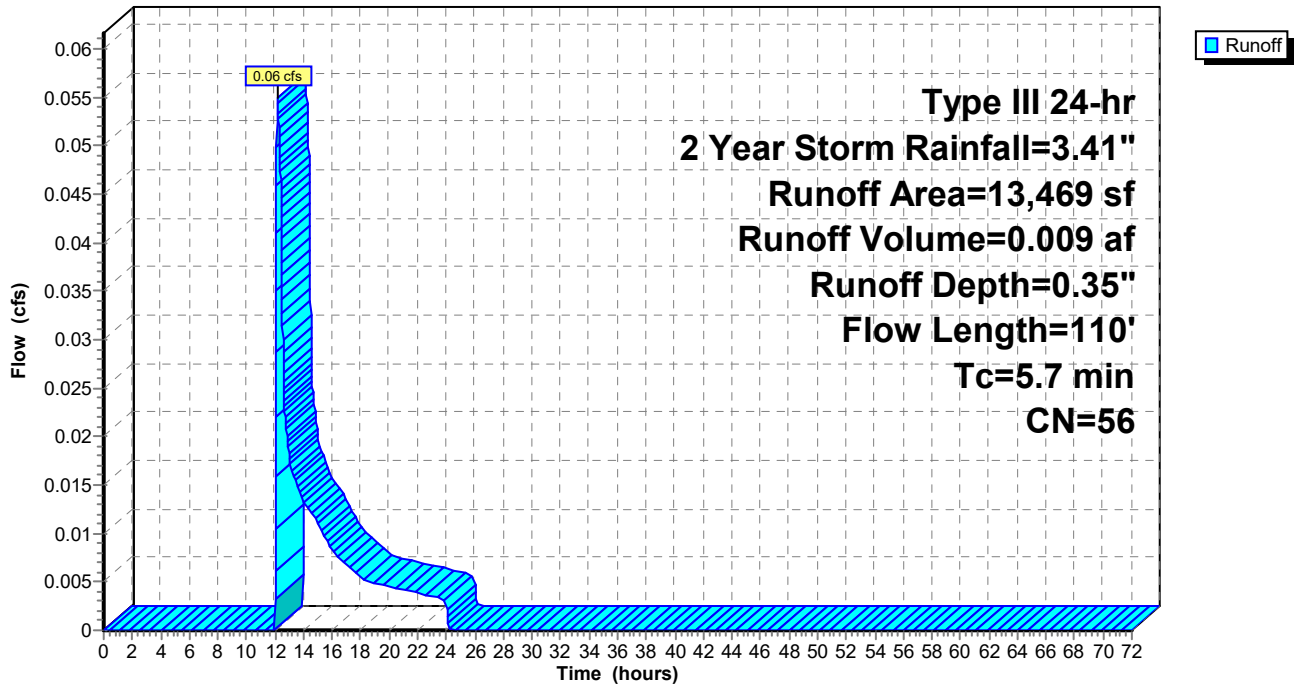
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Storm Rainfall=3.41"

Area (sf)	CN	Description
9,675	39	>75% Grass cover, Good, HSG A
* 3,794	98	Pave, Roof, Walk, HSG A
13,469	56	Weighted Average
9,675		71.83% Pervious Area
3,794		28.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0500	0.15		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.41"
0.2	60	0.0650	4.10		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
5.7	110	Total			

Subcatchment P1: PROPOSED OVERLAND

Hydrograph



Summary for Subcatchment P2: PROPOSED FLOW TO CHAMBERS

Runoff = 0.48 cfs @ 12.09 hrs, Volume= 0.034 af, Depth= 2.27"

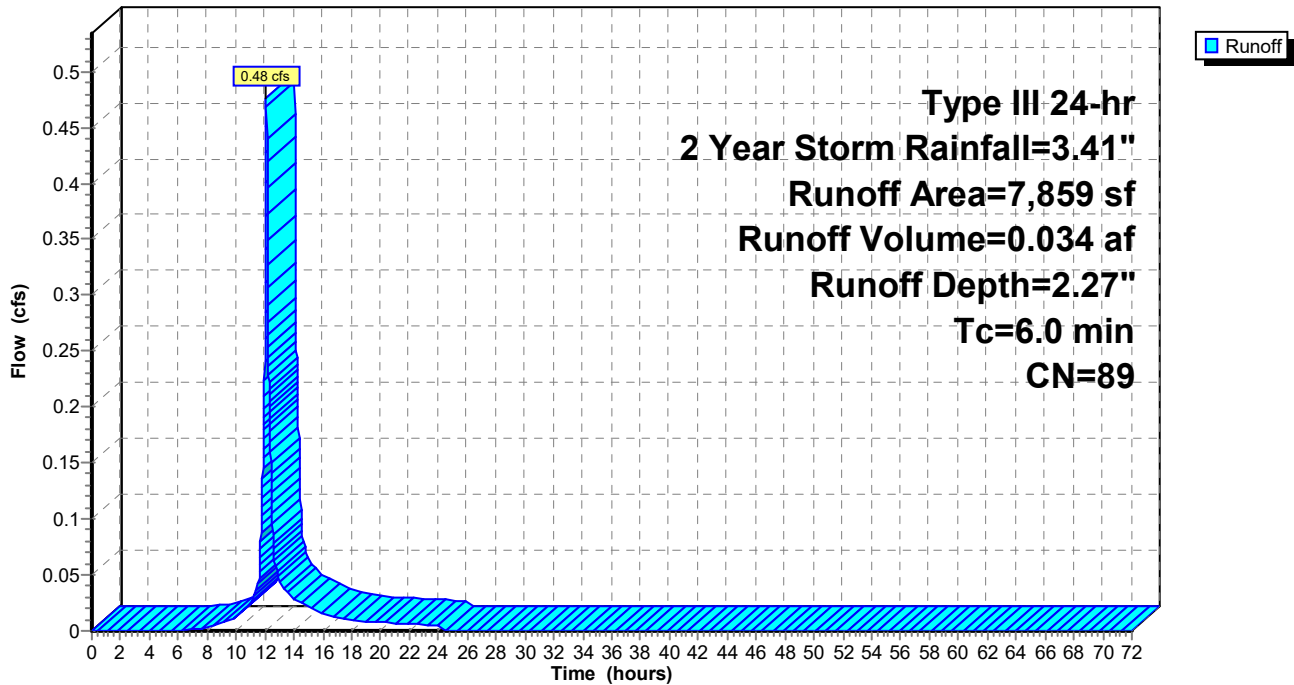
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2 Year Storm Rainfall=3.41"

Area (sf)	CN	Description
487	39	>75% Grass cover, Good, HSG A
* 656	39	Open Deck and Landscaping, Good, HSG A
* 6,716	98	Pave, Roof, Walk, HSG A
7,859	89	Weighted Average
1,143		14.54% Pervious Area
6,716		85.46% Impervious Area

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

Subcatchment P2: PROPOSED FLOW TO CHAMBERS

Hydrograph



Summary for Pond 1P: CHAMBER INFILTRATION SYSTEM

Inflow Area = 0.180 ac, 85.46% Impervious, Inflow Depth = 2.27" for 2 Year Storm event
 Inflow = 0.48 cfs @ 12.09 hrs, Volume= 0.034 af
 Outflow = 0.02 cfs @ 15.03 hrs, Volume= 0.034 af, Atten= 96%, Lag= 176.8 min
 Discarded = 0.02 cfs @ 15.03 hrs, Volume= 0.034 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 58.07' @ 15.03 hrs Surf.Area= 731 sf Storage= 788 cf

Plug-Flow detention time= 371.5 min calculated for 0.034 af (100% of inflow)
 Center-of-Mass det. time= 371.5 min (1,180.1 - 808.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.50'	586 cf	23.58'W x 31.00'L x 3.21'H Field A 2,346 cf Overall - 880 cf Embedded = 1,465 cf x 40.0% Voids
#2A	57.00'	880 cf	Cultec R-280HD x 20 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 5 rows
		1,466 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.50'	1.020 in/hr Exfiltration over Wetted area
#2	Primary	58.50'	6.0" Vert. Orifice/Grate C= 0.600
#3	Primary	59.60'	4.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.02 cfs @ 15.03 hrs HW=58.07' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=56.50' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)
 ↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: CHAMBER INFILTRATION SYSTEM - Chamber Wizard Field A

Chamber Model = Cultec R-280HD (Cultec Recharger® 280HD)

Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf

Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap

Row Length Adjustment= +1.00' x 6.07 sf x 5 rows

47.0" Wide + 6.0" Spacing = 53.0" C-C Row Spacing

4 Chambers/Row x 7.00' Long +1.00' Row Adjustment = 29.00' Row Length +12.0" End Stone x 2 = 31.00' Base Length

5 Rows x 47.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 23.58' Base Width

6.0" Base + 26.5" Chamber Height + 6.0" Cover = 3.21' Field Height

20 Chambers x 42.5 cf +1.00' Row Adjustment x 6.07 sf x 5 Rows = 880.4 cf Chamber Storage

2,345.6 cf Field - 880.4 cf Chambers = 1,465.2 cf Stone x 40.0% Voids = 586.1 cf Stone Storage

Chamber Storage + Stone Storage = 1,466.5 cf = 0.034 af

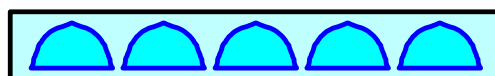
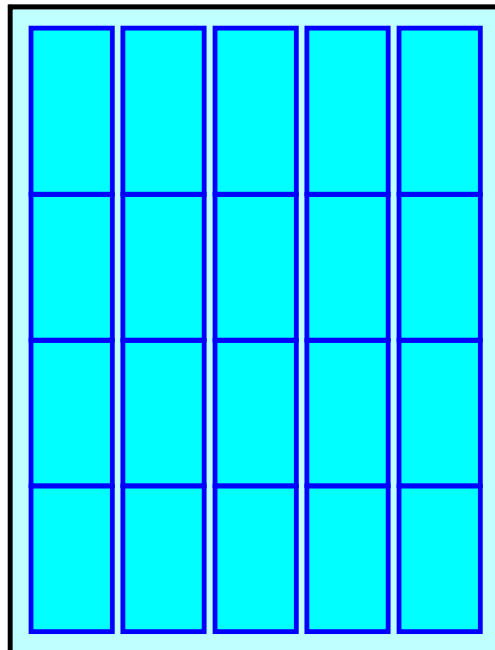
Overall Storage Efficiency = 62.5%

Overall System Size = 31.00' x 23.58' x 3.21'

20 Chambers

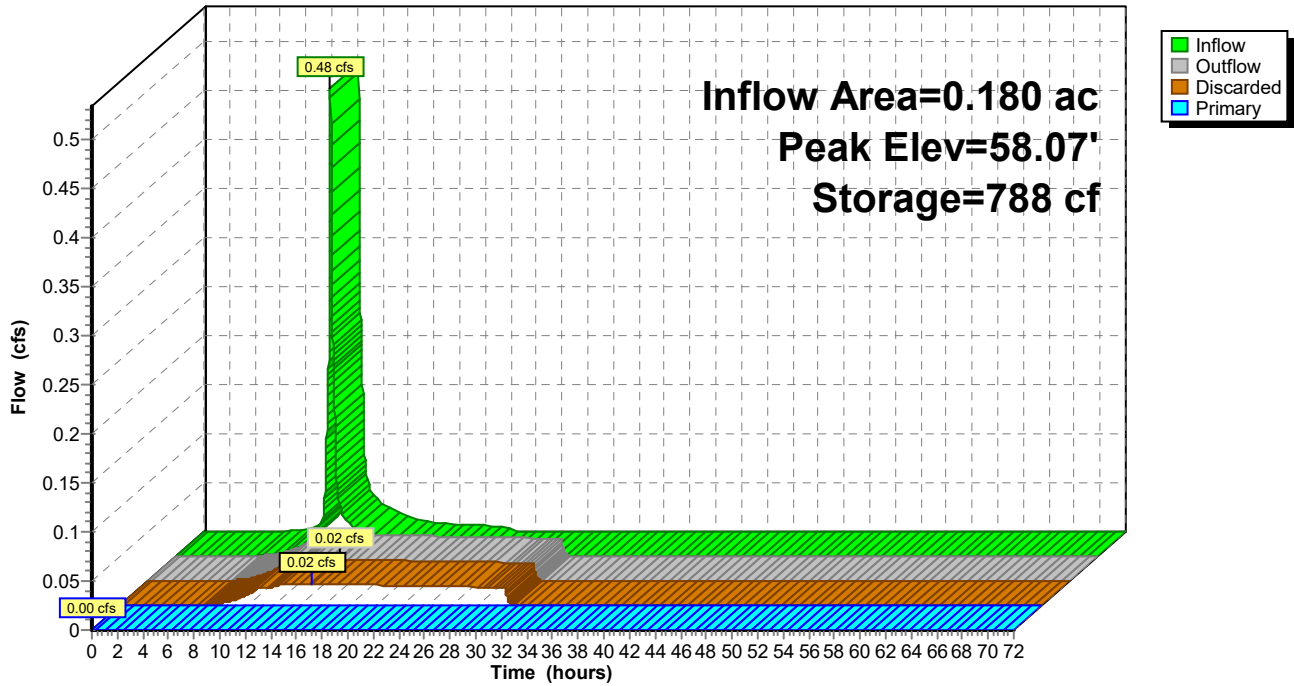
86.9 cy Field

54.3 cy Stone



Pond 1P: CHAMBER INFILTRATION SYSTEM

Hydrograph



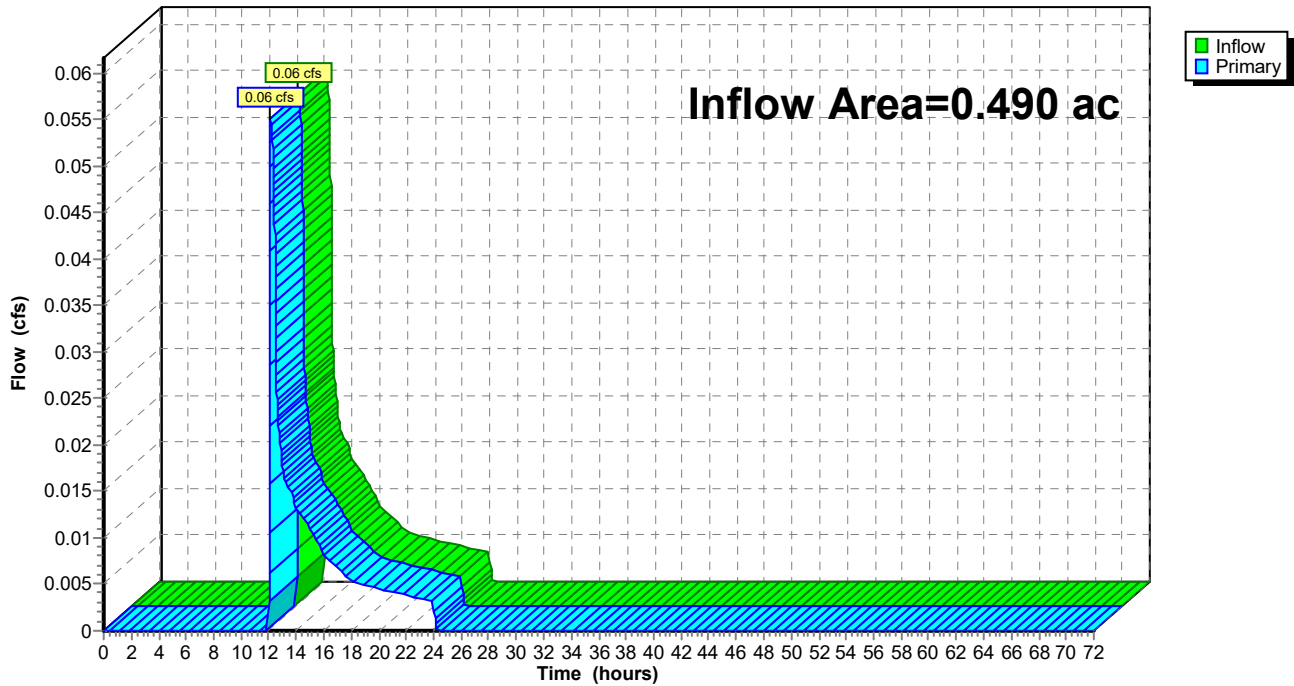
Summary for Link R: TO REAR OF PROPERTY

Inflow Area = 0.490 ac, 49.28% Impervious, Inflow Depth = 0.22" for 2 Year Storm event
Inflow = 0.06 cfs @ 12.14 hrs, Volume= 0.009 af
Primary = 0.06 cfs @ 12.14 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

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

Link R: TO REAR OF PROPERTY

Hydrograph



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Type III 24-hr 10 Year Storm Rainfall=5.33"

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

Subcatchment P1: PROPOSED OVERLAND Runoff Area=13,469 sf 28.17% Impervious Runoff Depth=1.22"
Flow Length=110' Tc=5.7 min CN=56 Runoff=0.38 cfs 0.031 af

Subcatchment P2: PROPOSED FLOW TO Runoff Area=7,859 sf 85.46% Impervious Runoff Depth=4.09"
Tc=6.0 min CN=89 Runoff=0.84 cfs 0.061 af

Pond 1P: CHAMBER INFILTRATION SYSTEM Peak Elev=58.79' Storage=1,165 cf Inflow=0.84 cfs 0.061 af
Discarded=0.02 cfs 0.047 af Primary=0.22 cfs 0.015 af Outflow=0.24 cfs 0.061 af

Link R: TO REAR OF PROPERTY Inflow=0.38 cfs 0.046 af
Primary=0.38 cfs 0.046 af

Total Runoff Area = 0.490 ac Runoff Volume = 0.093 af Average Runoff Depth = 2.27"
50.72% Pervious = 0.248 ac 49.28% Impervious = 0.241 ac

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Type III 24-hr 10 Year Storm Rainfall=5.33"

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Summary for Subcatchment P1: PROPOSED OVERLAND

Runoff = 0.38 cfs @ 12.10 hrs, Volume= 0.031 af, Depth= 1.22"

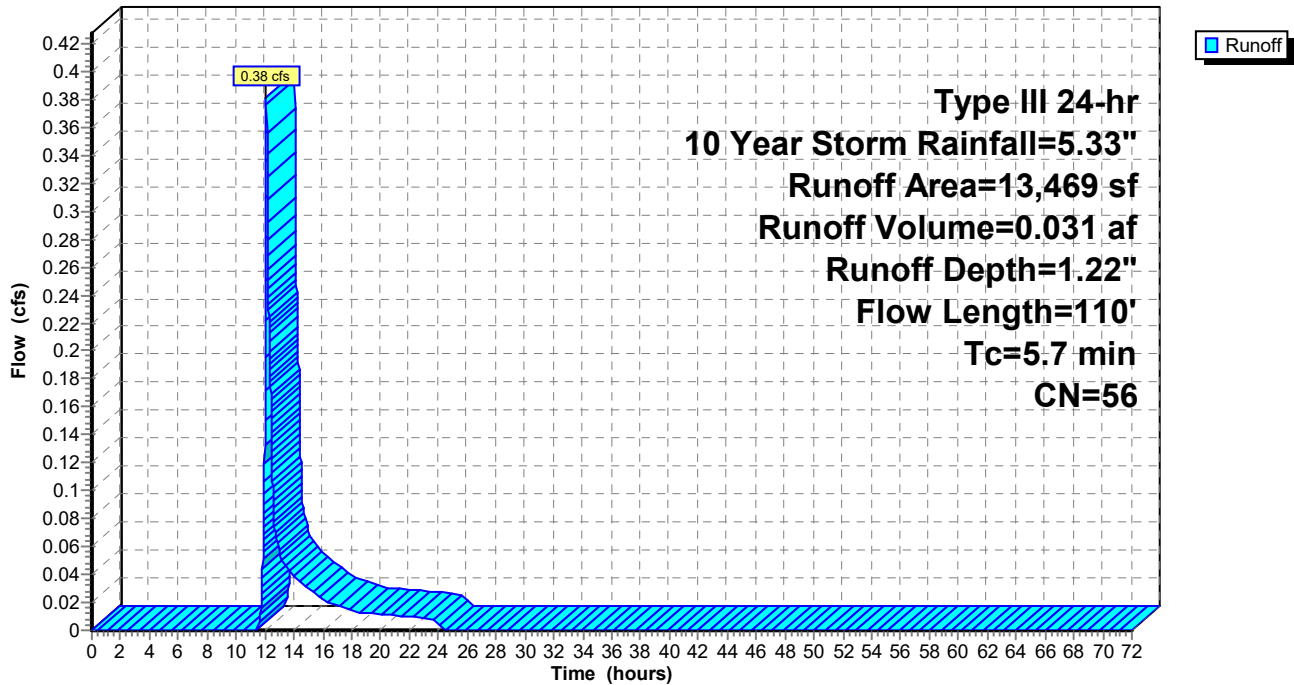
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Storm Rainfall=5.33"

Area (sf)	CN	Description
9,675	39	>75% Grass cover, Good, HSG A
* 3,794	98	Pave, Roof, Walk, HSG A
13,469	56	Weighted Average
9,675		71.83% Pervious Area
3,794		28.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0500	0.15		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.41"
0.2	60	0.0650	4.10		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
5.7	110	Total			

Subcatchment P1: PROPOSED OVERLAND

Hydrograph



Summary for Subcatchment P2: PROPOSED FLOW TO CHAMBERS

Runoff = 0.84 cfs @ 12.09 hrs, Volume= 0.061 af, Depth= 4.09"

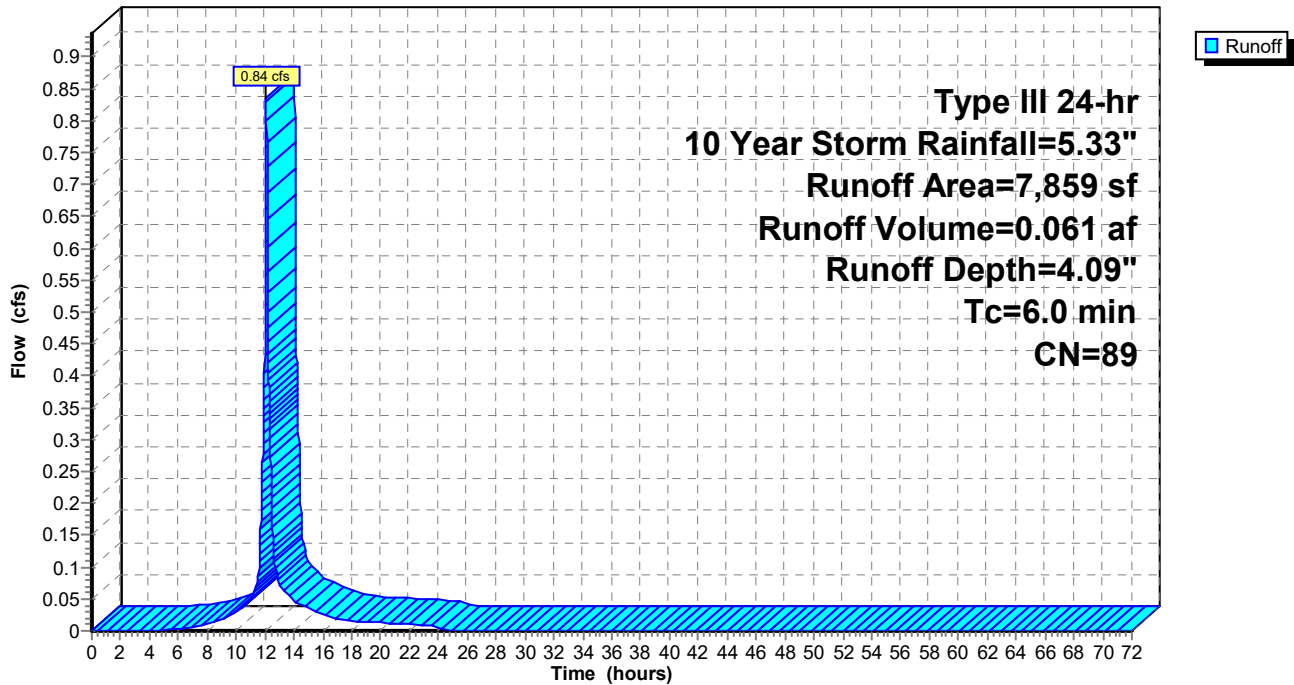
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Storm Rainfall=5.33"

Area (sf)	CN	Description
487	39	>75% Grass cover, Good, HSG A
* 656	39	Open Deck and Landscaping, Good, HSG A
* 6,716	98	Pave, Roof, Walk, HSG A
7,859	89	Weighted Average
1,143		14.54% Pervious Area
6,716		85.46% Impervious Area

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

Subcatchment P2: PROPOSED FLOW TO CHAMBERS

Hydrograph



Summary for Pond 1P: CHAMBER INFILTRATION SYSTEM

Inflow Area = 0.180 ac, 85.46% Impervious, Inflow Depth = 4.09" for 10 Year Storm event
 Inflow = 0.84 cfs @ 12.09 hrs, Volume= 0.061 af
 Outflow = 0.24 cfs @ 12.43 hrs, Volume= 0.061 af, Atten= 72%, Lag= 20.5 min
 Discarded = 0.02 cfs @ 12.43 hrs, Volume= 0.047 af
 Primary = 0.22 cfs @ 12.43 hrs, Volume= 0.015 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 58.79' @ 12.43 hrs Surf.Area= 731 sf Storage= 1,165 cf

Plug-Flow detention time= 366.5 min calculated for 0.061 af (100% of inflow)
 Center-of-Mass det. time= 366.6 min (1,158.7 - 792.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.50'	586 cf	23.58'W x 31.00'L x 3.21'H Field A 2,346 cf Overall - 880 cf Embedded = 1,465 cf x 40.0% Voids
#2A	57.00'	880 cf	Cultec R-280HD x 20 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 5 rows
		1,466 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.50'	1.020 in/hr Exfiltration over Wetted area
#2	Primary	58.50'	6.0" Vert. Orifice/Grate C= 0.600
#3	Primary	59.60'	4.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.02 cfs @ 12.43 hrs HW=58.79' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.21 cfs @ 12.43 hrs HW=58.79' (Free Discharge)

↑2=Orifice/Grate (Orifice Controls 0.21 cfs @ 1.83 fps)

↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: CHAMBER INFILTRATION SYSTEM - Chamber Wizard Field A

Chamber Model = Cultec R-280HD (Cultec Recharger® 280HD)

Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf

Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap

Row Length Adjustment= +1.00' x 6.07 sf x 5 rows

47.0" Wide + 6.0" Spacing = 53.0" C-C Row Spacing

4 Chambers/Row x 7.00' Long +1.00' Row Adjustment = 29.00' Row Length +12.0" End Stone x 2 = 31.00' Base Length

5 Rows x 47.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 23.58' Base Width

6.0" Base + 26.5" Chamber Height + 6.0" Cover = 3.21' Field Height

20 Chambers x 42.5 cf +1.00' Row Adjustment x 6.07 sf x 5 Rows = 880.4 cf Chamber Storage

2,345.6 cf Field - 880.4 cf Chambers = 1,465.2 cf Stone x 40.0% Voids = 586.1 cf Stone Storage

Chamber Storage + Stone Storage = 1,466.5 cf = 0.034 af

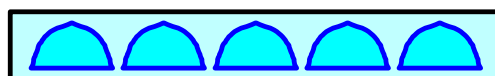
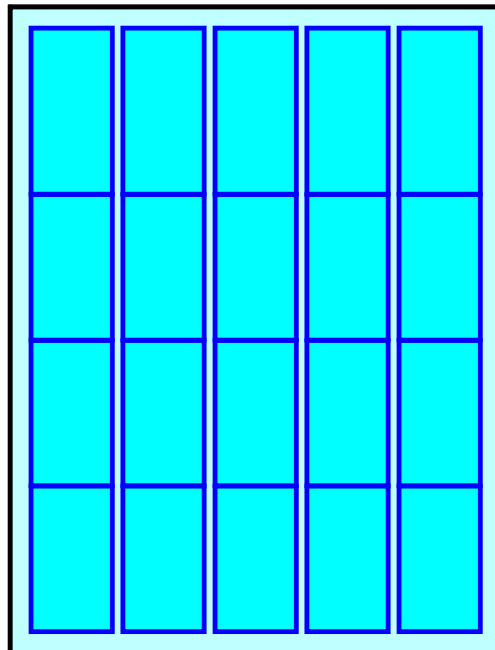
Overall Storage Efficiency = 62.5%

Overall System Size = 31.00' x 23.58' x 3.21'

20 Chambers

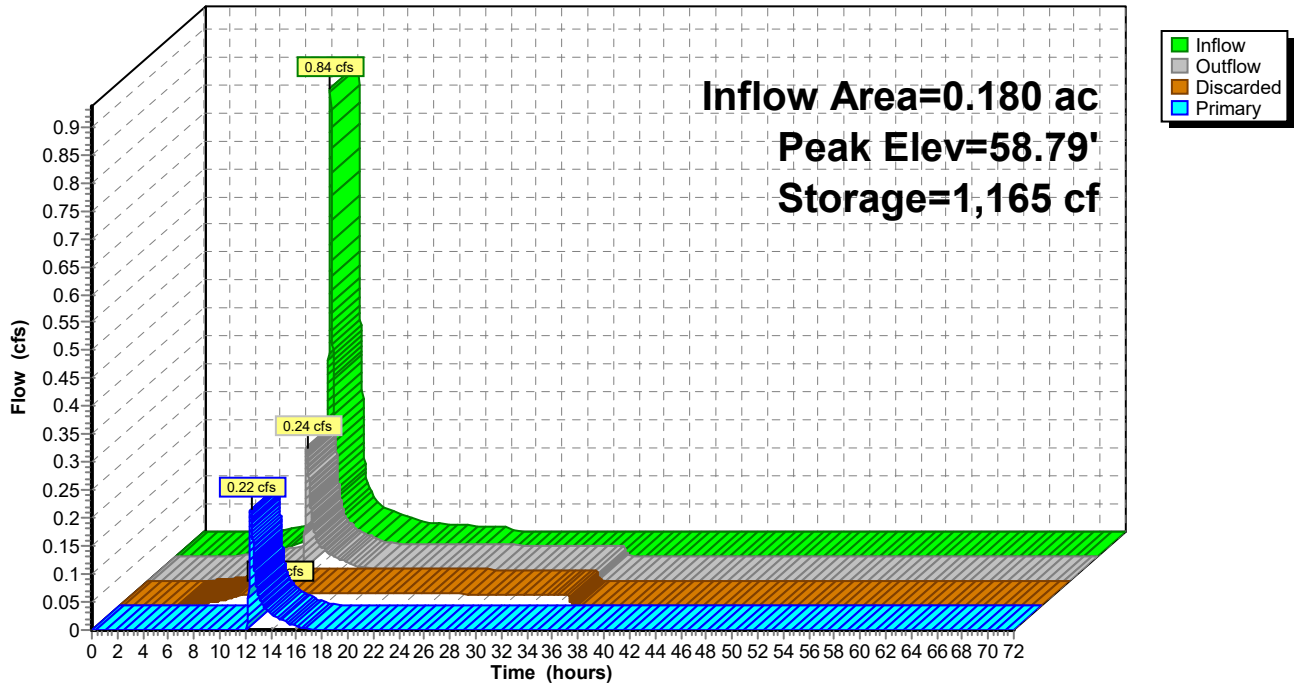
86.9 cy Field

54.3 cy Stone



Pond 1P: CHAMBER INFILTRATION SYSTEM

Hydrograph



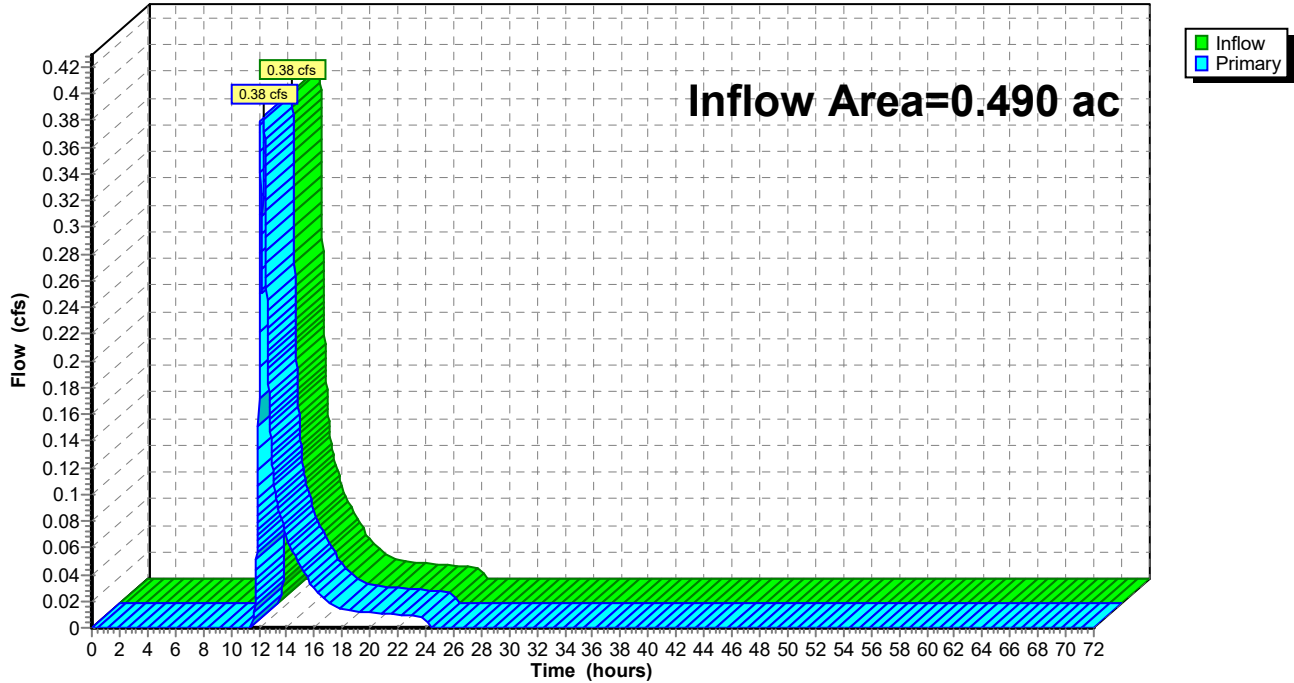
Summary for Link R: TO REAR OF PROPERTY

Inflow Area = 0.490 ac, 49.28% Impervious, Inflow Depth = 1.13" for 10 Year Storm event
Inflow = 0.38 cfs @ 12.38 hrs, Volume= 0.046 af
Primary = 0.38 cfs @ 12.38 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.0 min

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

Link R: TO REAR OF PROPERTY

Hydrograph



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Type III 24-hr 25 Year Storm Rainfall=6.53"

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

Subcatchment P1: PROPOSED OVERLAND Runoff Area=13,469 sf 28.17% Impervious Runoff Depth=1.92"
Flow Length=110' Tc=5.7 min CN=56 Runoff=0.65 cfs 0.049 af

Subcatchment P2: PROPOSED FLOW TO Runoff Area=7,859 sf 85.46% Impervious Runoff Depth=5.25"
Tc=6.0 min CN=89 Runoff=1.06 cfs 0.079 af

Pond 1P: CHAMBER INFILTRATION SYSTEM Peak Elev=59.03' Storage=1,262 cf Inflow=1.06 cfs 0.079 af
Discarded=0.02 cfs 0.050 af Primary=0.50 cfs 0.029 af Outflow=0.52 cfs 0.079 af

Link R: TO REAR OF PROPERTY Inflow=0.92 cfs 0.079 af
Primary=0.92 cfs 0.079 af

Total Runoff Area = 0.490 ac Runoff Volume = 0.128 af Average Runoff Depth = 3.15"
50.72% Pervious = 0.248 ac 49.28% Impervious = 0.241 ac

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Type III 24-hr 25 Year Storm Rainfall=6.53"

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Summary for Subcatchment P1: PROPOSED OVERLAND

Runoff = 0.65 cfs @ 12.09 hrs, Volume= 0.049 af, Depth= 1.92"

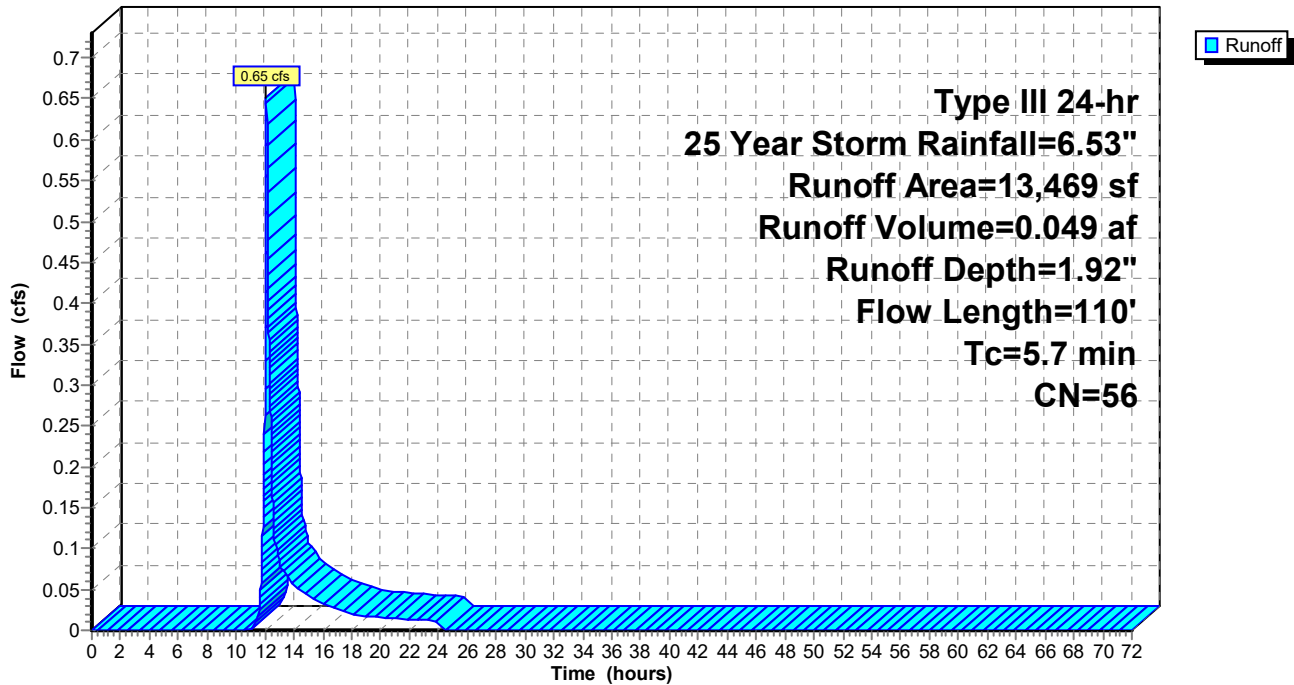
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Storm Rainfall=6.53"

Area (sf)	CN	Description
9,675	39	>75% Grass cover, Good, HSG A
* 3,794	98	Pave, Roof, Walk, HSG A
13,469	56	Weighted Average
9,675		71.83% Pervious Area
3,794		28.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0500	0.15		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.41"
0.2	60	0.0650	4.10		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
5.7	110	Total			

Subcatchment P1: PROPOSED OVERLAND

Hydrograph



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Type III 24-hr 25 Year Storm Rainfall=6.53"

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Summary for Subcatchment P2: PROPOSED FLOW TO CHAMBERS

Runoff = 1.06 cfs @ 12.08 hrs, Volume= 0.079 af, Depth= 5.25"

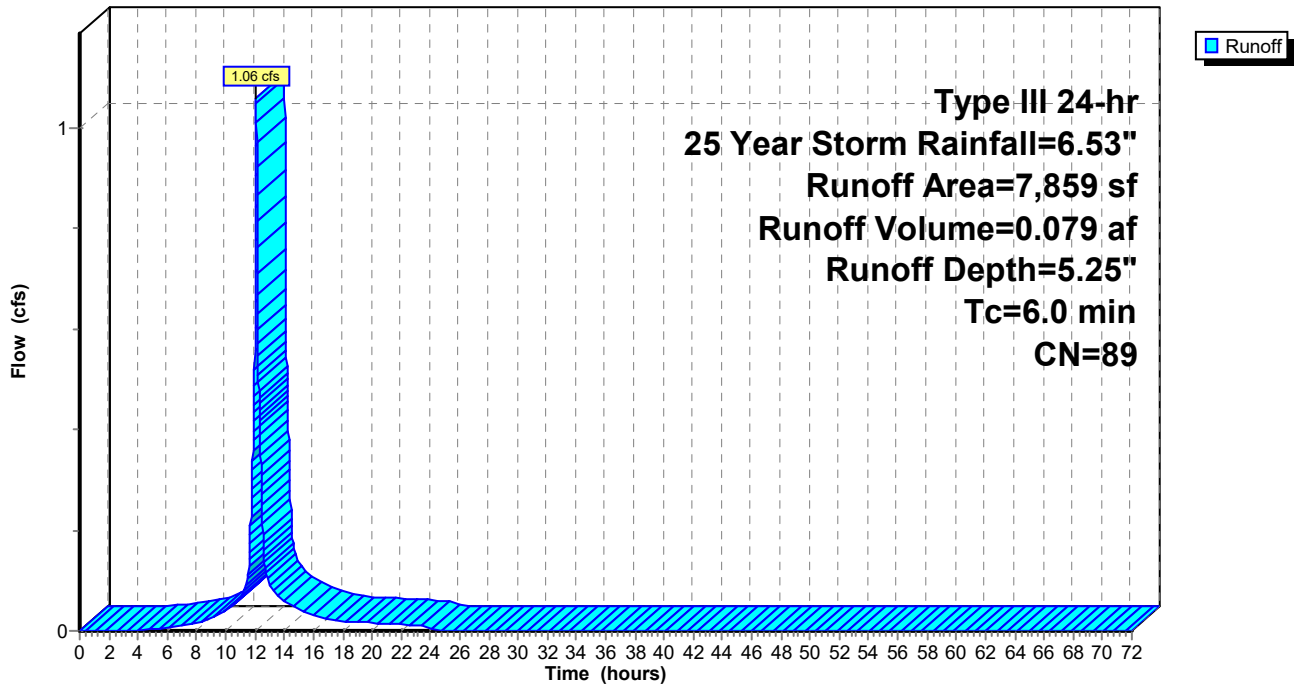
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Storm Rainfall=6.53"

Area (sf)	CN	Description
487	39	>75% Grass cover, Good, HSG A
* 656	39	Open Deck and Landscaping, Good, HSG A
* 6,716	98	Pave, Roof, Walk, HSG A
7,859	89	Weighted Average
1,143		14.54% Pervious Area
6,716		85.46% Impervious Area

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

Subcatchment P2: PROPOSED FLOW TO CHAMBERS

Hydrograph



Summary for Pond 1P: CHAMBER INFILTRATION SYSTEM

Inflow Area = 0.180 ac, 85.46% Impervious, Inflow Depth = 5.25" for 25 Year Storm event
 Inflow = 1.06 cfs @ 12.08 hrs, Volume= 0.079 af
 Outflow = 0.52 cfs @ 12.23 hrs, Volume= 0.079 af, Atten= 51%, Lag= 9.0 min
 Discarded = 0.02 cfs @ 12.23 hrs, Volume= 0.050 af
 Primary = 0.50 cfs @ 12.23 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 59.03' @ 12.23 hrs Surf.Area= 731 sf Storage= 1,262 cf

Plug-Flow detention time= 310.0 min calculated for 0.079 af (100% of inflow)
 Center-of-Mass det. time= 310.0 min (1,095.4 - 785.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.50'	586 cf	23.58'W x 31.00'L x 3.21'H Field A 2,346 cf Overall - 880 cf Embedded = 1,465 cf x 40.0% Voids
#2A	57.00'	880 cf	Cultec R-280HD x 20 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 5 rows
		1,466 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.50'	1.020 in/hr Exfiltration over Wetted area
#2	Primary	58.50'	6.0" Vert. Orifice/Grate C= 0.600
#3	Primary	59.60'	4.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.02 cfs @ 12.23 hrs HW=59.02' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.50 cfs @ 12.23 hrs HW=59.02' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 0.50 cfs @ 2.52 fps)
 ↑3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: CHAMBER INFILTRATION SYSTEM - Chamber Wizard Field A

Chamber Model = Cultec R-280HD (Cultec Recharger® 280HD)

Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf

Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap

Row Length Adjustment= +1.00' x 6.07 sf x 5 rows

47.0" Wide + 6.0" Spacing = 53.0" C-C Row Spacing

4 Chambers/Row x 7.00' Long +1.00' Row Adjustment = 29.00' Row Length +12.0" End Stone x 2 = 31.00' Base Length

5 Rows x 47.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 23.58' Base Width

6.0" Base + 26.5" Chamber Height + 6.0" Cover = 3.21' Field Height

20 Chambers x 42.5 cf +1.00' Row Adjustment x 6.07 sf x 5 Rows = 880.4 cf Chamber Storage

2,345.6 cf Field - 880.4 cf Chambers = 1,465.2 cf Stone x 40.0% Voids = 586.1 cf Stone Storage

Chamber Storage + Stone Storage = 1,466.5 cf = 0.034 af

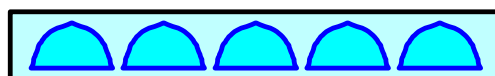
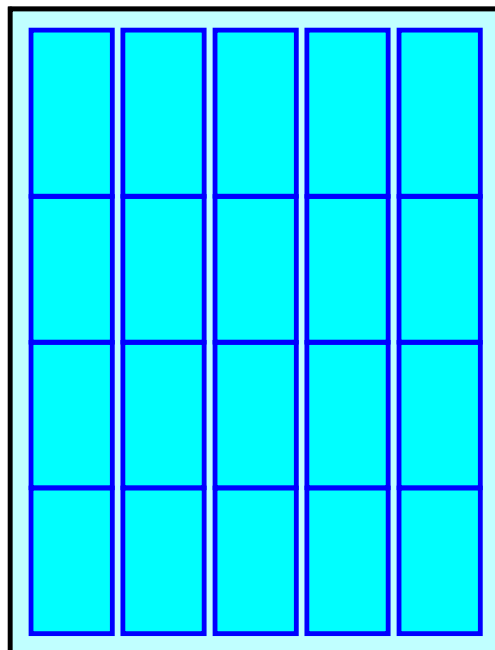
Overall Storage Efficiency = 62.5%

Overall System Size = 31.00' x 23.58' x 3.21'

20 Chambers

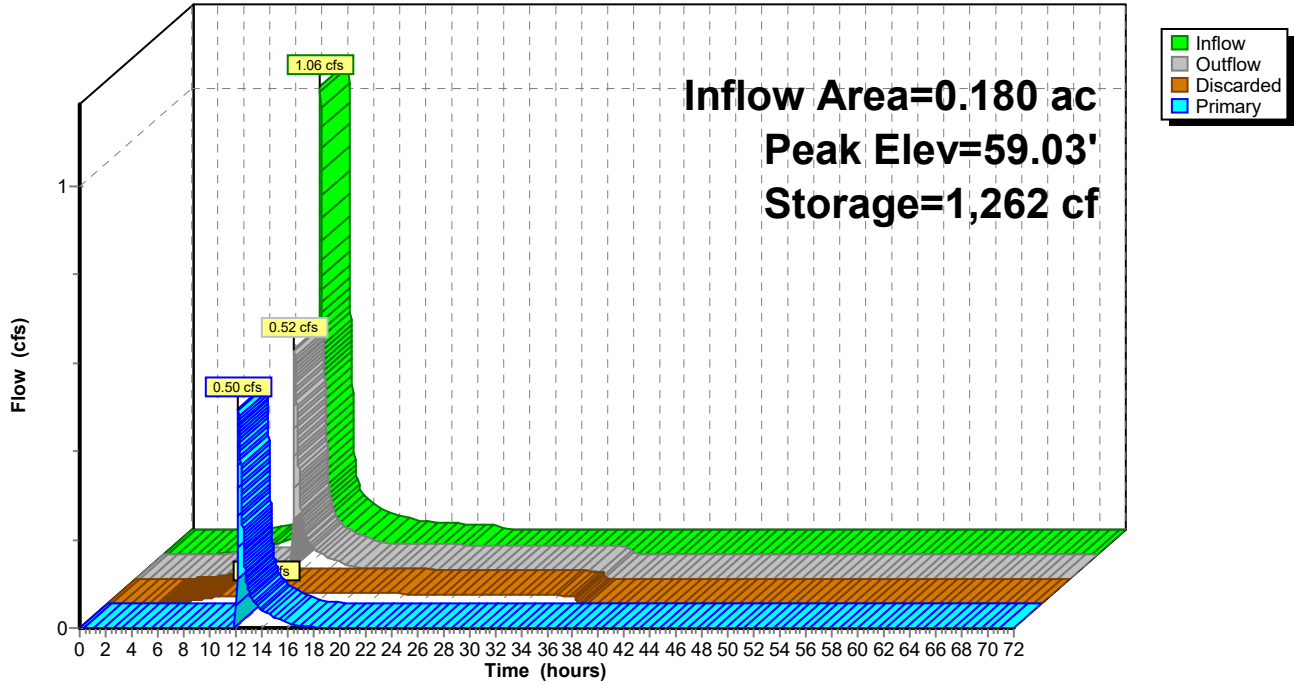
86.9 cy Field

54.3 cy Stone



Pond 1P: CHAMBER INFILTRATION SYSTEM

Hydrograph



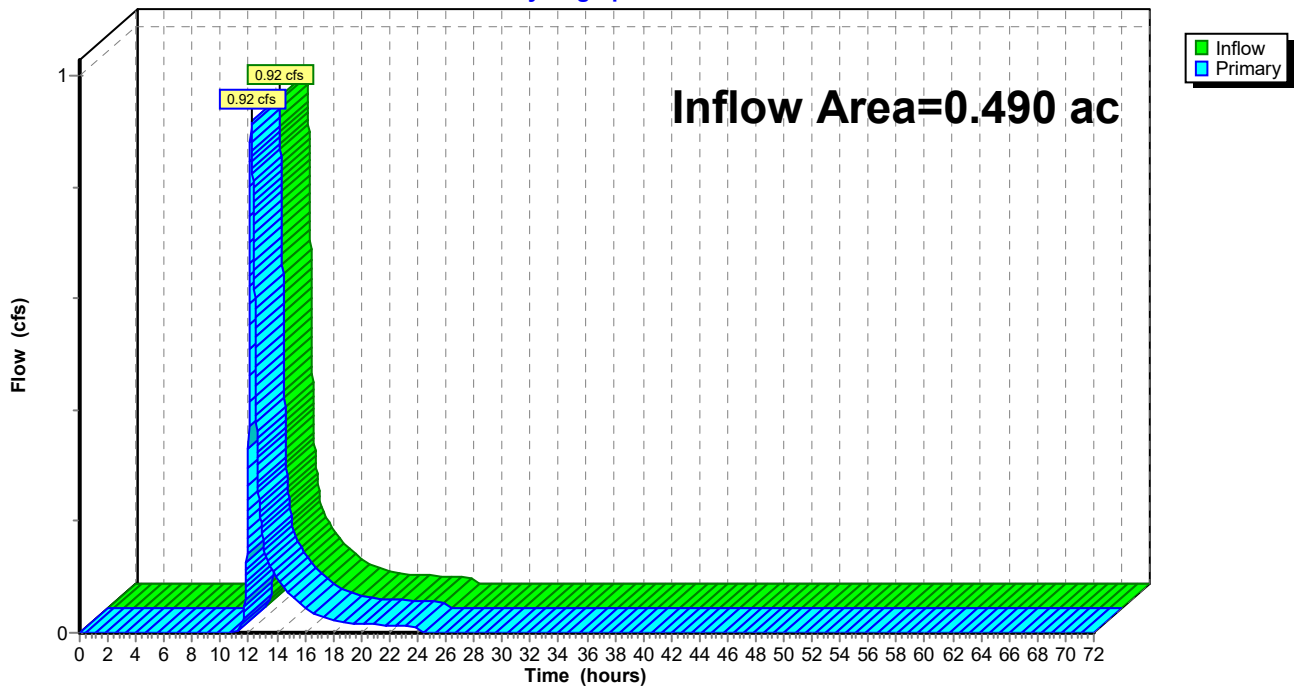
Summary for Link R: TO REAR OF PROPERTY

Inflow Area = 0.490 ac, 49.28% Impervious, Inflow Depth = 1.93" for 25 Year Storm event
Inflow = 0.92 cfs @ 12.17 hrs, Volume= 0.079 af
Primary = 0.92 cfs @ 12.17 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min

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

Link R: TO REAR OF PROPERTY

Hydrograph



7876-35 Proposed

Type III 24-hr 100 Year Storm Rainfall=8.37"

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

Subcatchment P1: PROPOSED OVERLAND Runoff Area=13,469 sf 28.17% Impervious Runoff Depth=3.15"
Flow Length=110' Tc=5.7 min CN=56 Runoff=1.12 cfs 0.081 af

Subcatchment P2: PROPOSED FLOW TO Runoff Area=7,859 sf 85.46% Impervious Runoff Depth=7.05"
Tc=6.0 min CN=89 Runoff=1.40 cfs 0.106 af

Pond 1P: CHAMBER INFILTRATION SYSTEM Peak Elev=59.65' Storage=1,450 cf Inflow=1.40 cfs 0.106 af
Discarded=0.03 cfs 0.054 af Primary=1.03 cfs 0.052 af Outflow=1.06 cfs 0.106 af

Link R: TO REAR OF PROPERTY Inflow=1.94 cfs 0.134 af
Primary=1.94 cfs 0.134 af

Total Runoff Area = 0.490 ac Runoff Volume = 0.187 af Average Runoff Depth = 4.59"
50.72% Pervious = 0.248 ac 49.28% Impervious = 0.241 ac

Summary for Subcatchment P1: PROPOSED OVERLAND

Runoff = 1.12 cfs @ 12.09 hrs, Volume= 0.081 af, Depth= 3.15"

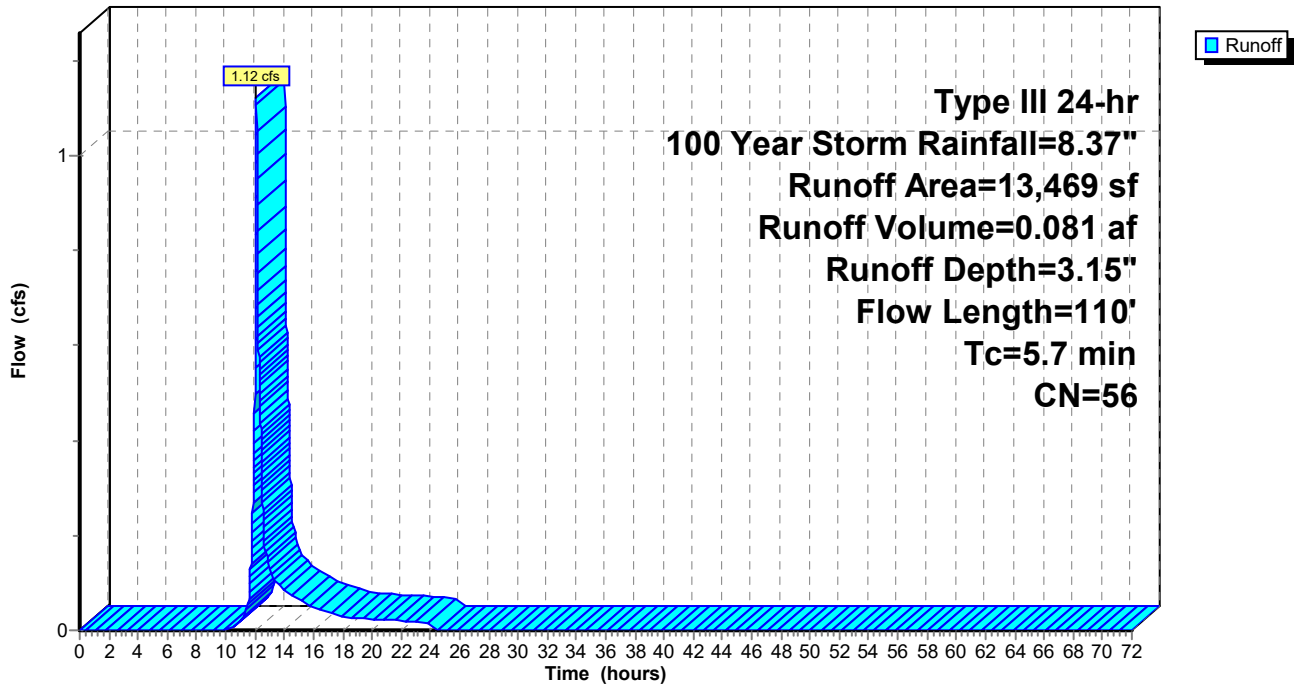
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100 Year Storm Rainfall=8.37"

Area (sf)	CN	Description
9,675	39	>75% Grass cover, Good, HSG A
* 3,794	98	Pave, Roof, Walk, HSG A
13,469	56	Weighted Average
9,675		71.83% Pervious Area
3,794		28.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	50	0.0500	0.15		Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.41"
0.2	60	0.0650	4.10		Shallow Concentrated Flow, B-C Unpaved Kv= 16.1 fps
5.7	110	Total			

Subcatchment P1: PROPOSED OVERLAND

Hydrograph



Summary for Subcatchment P2: PROPOSED FLOW TO CHAMBERS

Runoff = 1.40 cfs @ 12.08 hrs, Volume= 0.106 af, Depth= 7.05"

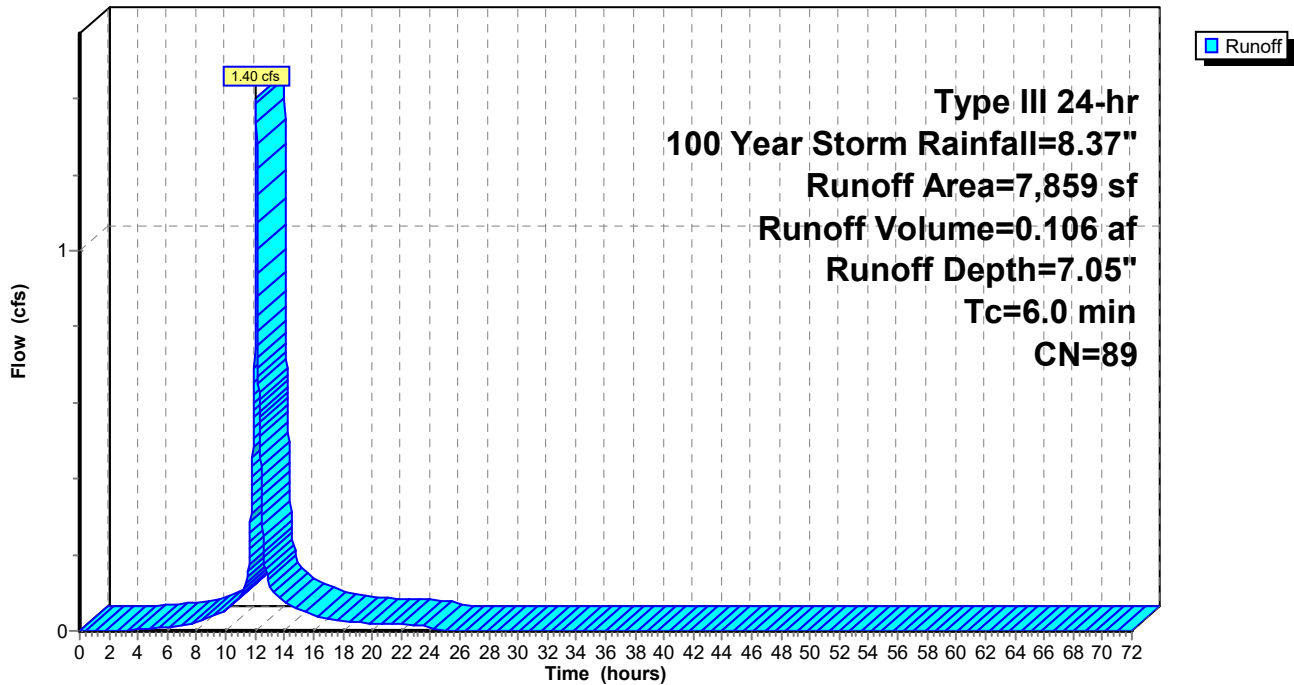
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Type III 24-hr 100 Year Storm Rainfall=8.37"

Area (sf)	CN	Description
487	39	>75% Grass cover, Good, HSG A
* 656	39	Open Deck and Landscaping, Good, HSG A
* 6,716	98	Pave, Roof, Walk, HSG A
7,859	89	Weighted Average
1,143		14.54% Pervious Area
6,716		85.46% Impervious Area

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

Subcatchment P2: PROPOSED FLOW TO CHAMBERS

Hydrograph



Summary for Pond 1P: CHAMBER INFILTRATION SYSTEM

Inflow Area = 0.180 ac, 85.46% Impervious, Inflow Depth = 7.05" for 100 Year Storm event
 Inflow = 1.40 cfs @ 12.08 hrs, Volume= 0.106 af
 Outflow = 1.06 cfs @ 12.15 hrs, Volume= 0.106 af, Atten= 25%, Lag= 4.1 min
 Discarded = 0.03 cfs @ 12.15 hrs, Volume= 0.054 af
 Primary = 1.03 cfs @ 12.15 hrs, Volume= 0.052 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 59.65' @ 12.15 hrs Surf.Area= 731 sf Storage= 1,450 cf

Plug-Flow detention time= 255.2 min calculated for 0.106 af (100% of inflow)
 Center-of-Mass det. time= 255.2 min (1,032.9 - 777.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	56.50'	586 cf	23.58'W x 31.00'L x 3.21'H Field A 2,346 cf Overall - 880 cf Embedded = 1,465 cf x 40.0% Voids
#2A	57.00'	880 cf	Cultec R-280HD x 20 Inside #1 Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap Row Length Adjustment= +1.00' x 6.07 sf x 5 rows
		1,466 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	56.50'	1.020 in/hr Exfiltration over Wetted area
#2	Primary	58.50'	6.0" Vert. Orifice/Grate C= 0.600
#3	Primary	59.60'	4.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.03 cfs @ 12.15 hrs HW=59.65' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=1.02 cfs @ 12.15 hrs HW=59.65' (Free Discharge)
 ↑2=Orifice/Grate (Orifice Controls 0.90 cfs @ 4.57 fps)
 ↑3=Broad-Crested Rectangular Weir (Weir Controls 0.13 cfs @ 0.63 fps)

Pond 1P: CHAMBER INFILTRATION SYSTEM - Chamber Wizard Field A

Chamber Model = Cultec R-280HD (Cultec Recharger® 280HD)

Effective Size= 46.9"W x 26.0"H => 6.07 sf x 7.00'L = 42.5 cf

Overall Size= 47.0"W x 26.5"H x 8.00'L with 1.00' Overlap

Row Length Adjustment= +1.00' x 6.07 sf x 5 rows

47.0" Wide + 6.0" Spacing = 53.0" C-C Row Spacing

4 Chambers/Row x 7.00' Long +1.00' Row Adjustment = 29.00' Row Length +12.0" End Stone x 2 = 31.00' Base Length

5 Rows x 47.0" Wide + 6.0" Spacing x 4 + 12.0" Side Stone x 2 = 23.58' Base Width

6.0" Base + 26.5" Chamber Height + 6.0" Cover = 3.21' Field Height

20 Chambers x 42.5 cf +1.00' Row Adjustment x 6.07 sf x 5 Rows = 880.4 cf Chamber Storage

2,345.6 cf Field - 880.4 cf Chambers = 1,465.2 cf Stone x 40.0% Voids = 586.1 cf Stone Storage

Chamber Storage + Stone Storage = 1,466.5 cf = 0.034 af

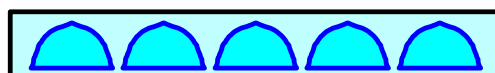
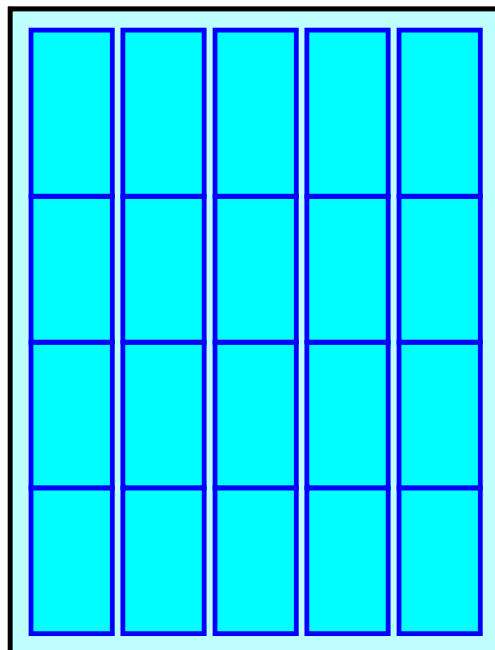
Overall Storage Efficiency = 62.5%

Overall System Size = 31.00' x 23.58' x 3.21'

20 Chambers

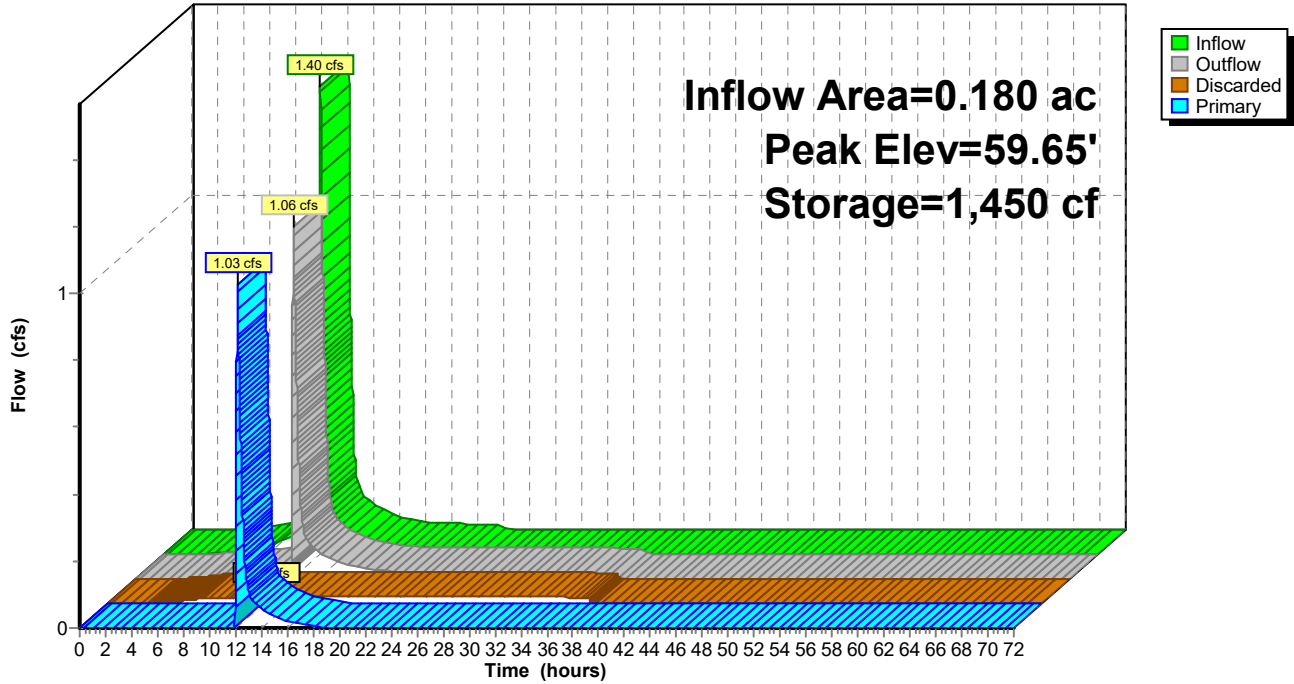
86.9 cy Field

54.3 cy Stone



Pond 1P: CHAMBER INFILTRATION SYSTEM

Hydrograph



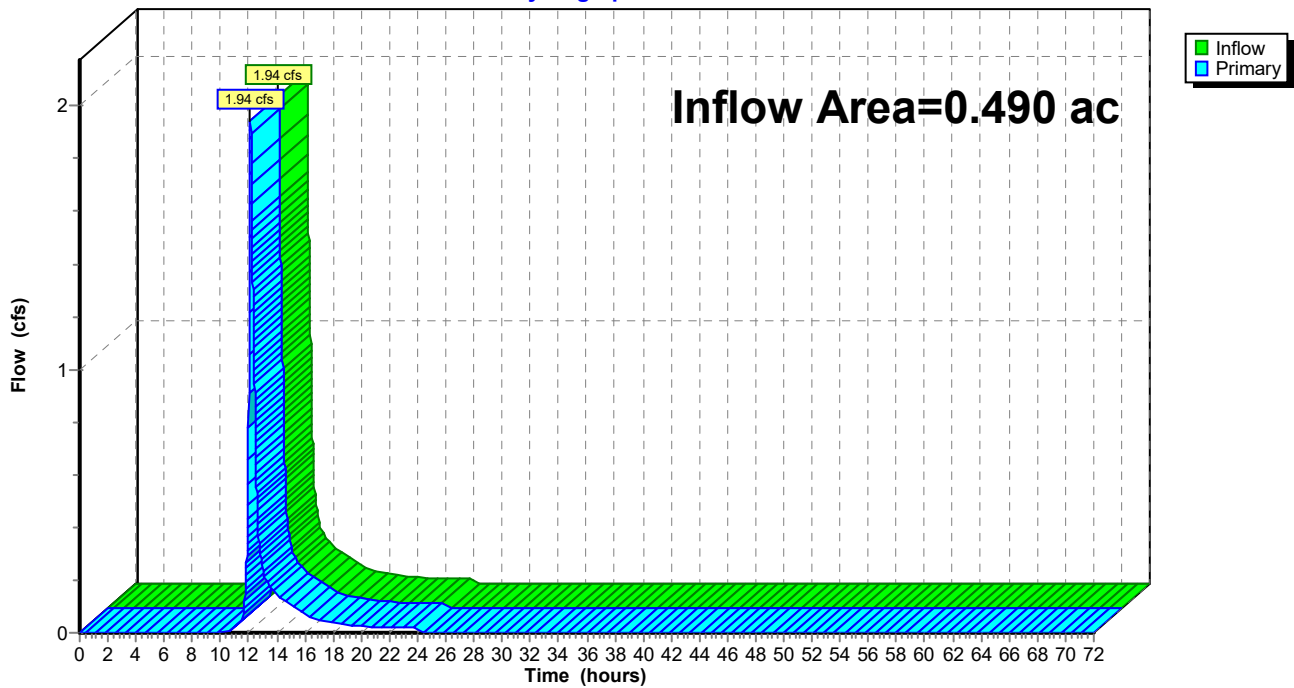
Summary for Link R: TO REAR OF PROPERTY

Inflow Area = 0.490 ac, 49.28% Impervious, Inflow Depth = 3.28" for 100 Year Storm event
Inflow = 1.94 cfs @ 12.14 hrs, Volume= 0.134 af
Primary = 1.94 cfs @ 12.14 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min

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

Link R: TO REAR OF PROPERTY

Hydrograph



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Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007 (<http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba>). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007 (<http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba>). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties—Norfolk and Suffolk Counties, Massachusetts														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
52—Freetown muck, 0 to 1 percent slopes			<i>In</i>				L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H
Freetown	85	B/D	0-2	Mucky peat, muck, woody muck, peat, woody peat, woody mucky peat	PT	A-8	0-0-0	0-0-0	—	—	—	—	—	—
			2-79	Muck, woody muck	PT	A-8	0-0-0	0-0-0	—	—	—	—	—	—

Engineering Properties—Norfolk and Suffolk Counties, Massachusetts														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
103C—Charlton-Hollis-Rock outcrop complex, 8 to 15 percent slopes			<i>In</i>					L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H
Charlton, extremely stony	50 B		0-2	Slightly decomposed plant material, highly decomposed plant material, moderately decomposed plant material	PT	A-8	0-0-0	0-0-0	—	—	—	—	—	—
			2-4	Sandy loam, fine sandy loam, gravelly sandy loam, loam, gravelly loam	GC-GM, SM, SC-SM, GM	A-5, A-1-b, A-2-4, A-1-a, A-4	0-0-9	0-0-18	48-100-100	31-84-84	24-72-77	13-41-46	0-45-80	NP-4-8
			4-27	Fine sandy loam, gravelly loam, loam, gravelly sandy loam, very gravelly sandy loam, gravelly fine sandy loam	ML, GM, SC-SM, OL, CL, SC, GC-GM, CL-ML, SM, GC	A-2-5, A-5, A-2-6, A-1-b, A-7-5, A-2-7, A-2-4, A-6, A-4	0-0-6	0-3-13	59-87-100	46-79-91	37-68-88	22-41-57	0-22-41	NP-6-11

Engineering Properties—Norfolk and Suffolk Counties, Massachusetts														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>				L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H
			27-65	Gravelly loam, loam, fine sandy loam, sandy loam, gravelly fine sandy loam, gravelly sandy loam, very gravelly sandy loam	GC-GM, SM, GM, SC, SC-SM, GC	A-4, A-2-4, A-1-b	0-0-0-6	0-7-25	49-76-100	36-68-92	30-60-82	16-35-47	0-22-24	NP-6-6
Hollis, extremely stony	20 D		0-2	Slightly decomposed plant material, moderately decomposed plant material, highly decomposed plant material	PT	A-8	0-0-0	0-0-0	—	—	—	—	—	—
			2-7	Fine sandy loam, very gravelly sandy loam, loam, gravelly loam, cobbly fine sandy loam, very gravelly loam, stony loam, stony fine sandy loam, gravelly highly organic fine sandy loam	SM, GM, GC-GM, SC-SM	A-2-5, A-4, A-1-a, A-1-b, A-2-4, A-5	0-0-16	0-5-34	40-83-88	33-72-88	26-61-80	14-35-48	0-42-80	NP-4-8
			7-16	Fine sandy loam, very gravelly sandy loam, loam, gravelly loam, cobbly fine sandy loam, very gravelly loam, stony loam, stony fine sandy loam, gravelly highly organic fine sandy loam	SM, SC-SM, CL-ML, CL, ML, GM, GC, GC-GM	A-2, A-4, A-2-5, A-1-b, A-2-4, A-5, A-2-6, A-7-5	0-0-14	0-7-29	47-84-91	41-75-91	33-65-87	19-39-56	0-22-41	NP-6-11
				gravelly loam, stony loam, stony fine sandy loam, gravelly fine sandy loam, gravelly sandy loam, very gravelly sandy loam	GC-GM, National Cooperative Soil Survey	Web Soil Survey A-7-5								5/18/2022 Page 6 of 17



Natural Resources Conservation Service

Engineering Properties—Norfolk and Suffolk Counties, Massachusetts															
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index	
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200			
Rock outcrop	10 D		<i>In</i> 0-79	Bedrock	—	—	—	—	—	—	—	—	—	—	—
104D—Hollis-Rock outcrop-Charlton complex, 15 to 35 percent slopes															
Hollis	35 D		0-3	Fine sandy loam	GM, ML, SM	A-2, A-4	0- 0- 5	5- 5- 15	65-95-100	60-90-95	40-63-85	20-43-65	15-20-25	NP-3 -5	
			3-14	Gravelly fine sandy loam, sandy loam, loam	GM, ML, SM	A-2, A-4	0- 0- 5	0- 8- 15	65-83-100	60-78-95	40-60-80	20-43-65	15-20-25	NP-3 -5	
			14-18	Unweathered bedrock	—	—	—	—	—	—	—	—	—	—	—
Charlton	25 A		0-6	Fine sandy loam	ML, SM	A-2, A-4	0- 0- 5	5- 5- 20	75-95-95	70-90-90	60-73-85	30-50-70	15-20-25	NP-3 -5	
			6-36	Fine sandy loam, gravelly fine sandy loam, gravelly loam	ML, SM	A-2, A-4	0- 0- 5	0- 1- 15	65-90-90	60-90-90	50-65-80	20-43-65	15-20-25	NP-2 -3	
			36-60	Fine sandy loam, gravelly fine sandy loam, gravelly sandy loam	GM, SM	A-2, A-4	0- 0- 5	5- 5- 25	60-90-90	55-85-85	40-58-75	20-33-45	—	NP	

Engineering Properties—Norfolk and Suffolk Counties, Massachusetts																	
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index			
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200					
305B—Paxton fine sandy loam, 3 to 8 percent slopes			<i>In</i>														
Paxton	80	C	0-8	Fine sandy loam, loam, gravelly sandy loam, gravelly fine sandy loam	SM, SC-SM	A-1, A-7, A-4	0- 0- 22	0- 0- 22	47-89-89	44-89-89	34-75-85	18-43-55	0-29 -41	NP-3 -11			
			8-15	Fine sandy loam, loam, gravelly sandy loam	CL-ML, GM, CL, ML, SM	A-2, A-1, A-6, A-4	0- 0- 7	0- 0- 14	52-91-91	50-91-91	38-76-87	20-44-57	0-21 -32	NP-3 -11			
			15-26	Fine sandy loam, loam, gravelly sandy loam	CL-ML, ML, SM, GM, CL	A-2, A-1, A-6, A-4	0- 0- 6	0- 0- 13	56-85-92	55-85-92	41-71-88	22-41-57	0-19 -29	NP-3 -11			
			26-65	Gravelly sandy loam, gravelly fine sandy loam, fine sandy loam, loam, gravelly coarse sandy loam	CL-ML, SM, ML, GM, CL	A-1, A-6, A-4, A-2-4	0- 0- 6	0- 0- 12	61-70-94	59-69-93	45-58-90	24-34-58	0-18 -28	NP-3 -11			

Engineering Properties—Norfolk and Suffolk Counties, Massachusetts														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>					L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H
305C—Paxton fine sandy loam, 8 to 15 percent slopes														
Paxton	85	C	0-8	Gravelly sandy loam, fine sandy loam, loam, gravelly fine sandy loam	SC-SM, SC, CL, ML, SM, OL, OH, GM, GC, GC-GM, CL-ML	A-1-b, A-2-4, A-2-5, A-5, A-4	0-0-21	0-0-21	49-90-90	47-90-90	36-76-86	19-44-56	0-30-60	NP-5-10
			8-15	Loam, gravelly sandy loam, fine sandy loam	SM, GC-GM, CL-ML, SC-SM, SC, GM, GC, CL, ML	A-4, A-6, A-1-b, A-2-4, A-2-6	0-0-7	0-0-14	52-91-91	50-91-91	38-76-87	20-44-57	0-21-32	NP-3-11
			15-26	Loam, gravelly sandy loam, fine sandy loam	SM, GC-GM, CL-ML, CL, ML, SC-SM, SC, GM, GC	A-6, A-2-6, A-2-4, A-1-b, A-4	0-0-6	0-0-13	56-85-92	55-85-92	41-71-88	22-41-57	0-19-29	NP-3-11
			26-65	Gravelly sandy loam, loam, gravelly coarse sandy loam, gravelly fine sandy loam, fine sandy loam	GM, GC, SM, SC-SM, SC, GC-GM, CL-ML, CL, ML	A-2-4, A-4, A-1-b, A-6, A-2-6	0-0-6	0-0-12	61-70-94	59-69-93	45-58-90	24-34-58	0-18-28	NP-3-11

Engineering Properties—Norfolk and Suffolk Counties, Massachusetts														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>					<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>	<i>L-R-H</i>
305D—Paxton fine sandy loam, 15 to 25 percent slopes														
Paxton	85	C	0-8	Loam, gravelly fine sandy loam, gravelly sandy loam, fine sandy loam	SC-SM, SC, CL, ML, SM, OL, OH, GM, GC, GC-GM, CL-ML	A-1-b, A-2-4, A-2-5, A-5, A-4	0-0-21	0-0-21	49-90-90	47-90-90	36-76-86	19-44-56	0-30-60	NP-5-10
			8-15	Fine sandy loam, loam, gravelly sandy loam	SM, SC-SM, SC, GM, GC, GC-GM, CL-ML, CL, ML	A-2-4, A-1-b, A-4, A-6, A-2-6	0-0-7	0-0-14	52-91-91	50-91-91	38-76-87	20-44-57	0-21-32	NP-3-11
			15-26	Fine sandy loam, gravelly sandy loam, loam	SM, SC-SM, SC, GM, GC, GC-GM, CL-ML, CL, ML	A-2-4, A-1-b, A-4, A-6, A-2-6	0-0-6	0-0-13	56-85-92	55-85-92	41-71-88	22-41-57	0-19-29	NP-3-11

Engineering Properties—Norfolk and Suffolk Counties, Massachusetts														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>					L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H
			26-65	Gravelly coarse sandy loam, fine sandy loam, loam, gravelly fine sandy loam, gravelly sandy loam	SM, SC- SM, SC, GM, GC, GC- GM, CL-ML, CL, ML	A-1-b, A-6, A-2-6, A-2-4, A-4	0- 0- 6	0- 0- 12	61-70- 94	59-69- 93	45-58- 90	24-34- 58	0-18 -28	NP-3 -11

Engineering Properties—Norfolk and Suffolk Counties, Massachusetts															
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index	
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200			
			<i>In</i>												
			5-16	Gravelly loam, very fine sandy loam, very sandy loam, very gravelly sandy loam, very fine sandy loam, very gravelly fine sandy loam, very fine sandy loam, gravelly fine sandy loam	SC, SC-SM, SM, SM	A-2-4, A-4	0- 0- 20	0- 0- 6	82-96-100	63-92-100	53-81-92	27-43-51	0-19 -27	NP-4 -6	L-R-H
			16-22	Gravelly loam, very fine sandy loam, very sandy loam, very gravelly very fine sandy loam, very gravelly fine sandy loam, very sandy loam, very gravelly sandy loam, fine sandy loam, fine sandy loam, gravelly very fine sandy loam, sandy loam	SC-SM, SC, SM	A-4, A-2-4	0- 0- 20	0- 0- 6	82-88-100	63-76-100	52-64-91	26-32-50	0-0 -27	NP-0 -6	L-R-H

Engineering Properties—Norfolk and Suffolk Counties, Massachusetts														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>				L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H
			22-67	Very gravelly loamy fine sand, very gravelly sand, gravelly fine sand, gravelly loamy sand, gravelly coarse sand, gravelly loamy coarse sand, very gravelly loamy very fine sand, very gravelly fine sand, very gravelly coarse sand, gravelly loamy fine sand, very gravelly very fine sand, gravelly sand, very gravelly loamy coarse sand, very gravelly loamy sand, very gravelly loamy sand, gravelly very fine sand	SM	A-1-b, A-2-4	0- 0- 12	0- 0- 12	67-72-85	50-65-78	39-51-63	14-19-25	0-0 -17	NP-0 -2

Engineering Properties—Norfolk and Suffolk Counties, Massachusetts															
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index	
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200			
626B—Merrimac-Urban land complex, 0 to 8 percent slopes			<i>In</i>												
Merrimac	45	A	0-10	Gravelly fine sandy loam, very fine sandy loam, fine sandy loam, gravelly sandy loam, sandy loam, gravelly very fine sandy loam	SM, ML	A-4, A-2-4	0-0-0	0-0-0	69-84-100	68-83-100	53-72-97	29-44-62	0-26 -34	NP-2 -4	L-R-H
			10-22	Sandy loam, gravelly coarse sandy loam, very fine sandy loam, gravelly sandy loam, gravelly very fine sandy loam, fine sandy loam, coarse sandy loam, gravelly fine sandy loam	SM	A-1-b, A-2-4, A-4	0-0-0	0-0-0	70-78-100	68-77-100	50-62-93	24-31-54	0-16 -24	NP-1 -4	L-R-H

Engineering Properties—Norfolk and Suffolk Counties, Massachusetts														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			<i>In</i>											
			22-26	Stratified gravel to loamy sand, stratified gravel to loamy fine sand, stratified gravel to gravelly loamy sand, stratified gravel to coarse sandy loam, stratified gravel to loamy coarse sand, stratified gravel to gravelly coarse sandy loam, stratified gravel to gravelly loamy fine sand, stratified gravel to sandy loam, stratified gravel to gravelly sandy loam, stratified gravel to gravelly loamy coarse sand	SM, SC-SM	A-1-b, A-2-4, A-4	0- 0- 0	0- 0- 0	58-76-100	56-75-100	38-56-88	14-24-45	0-17 -24	NP-1 -4

Engineering Properties—Norfolk and Suffolk Counties, Massachusetts															
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index	
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200			
			<i>In</i>												
			26-65	Stratified gravel to gravelly sand, stratified gravel to coarse sand, stratified gravel to sand, stratified gravel to cobbles, stratified gravel to very gravelly coarse sand, stratified gravel to extremely gravelly coarse sand, gravel, stratified gravel to very gravelly sand, stratified gravel to gravelly coarse sand, stratified gravel to extremely gravelly sand	SP, SP-SM, GP, GP-GM, SM	A-1-a, A-2-4	0-0-0	0-12-31	13-44-78	9-41-77	5-25-58	1-5-15	0-0-14	NP	L-R-H
Urban land	40	D	0-10	Cemented material	—	—	—	—	—	—	—	—	—	—	—
654—Udorthents, loamy															
Udorthents	80	A	0-6	Variable	—	—	0-0-5	—	—	—	—	—	—	—	—
			6-60	Variable	—	—	0-0-5	—	—	—	—	—	—	—	—

Data Source Information

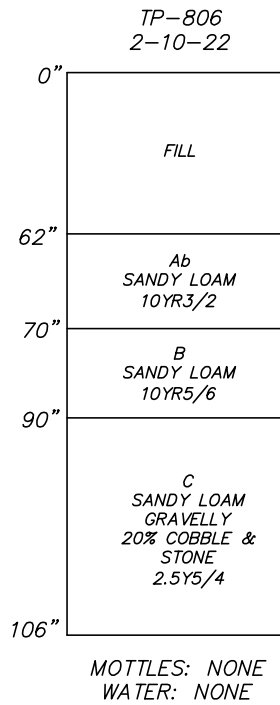
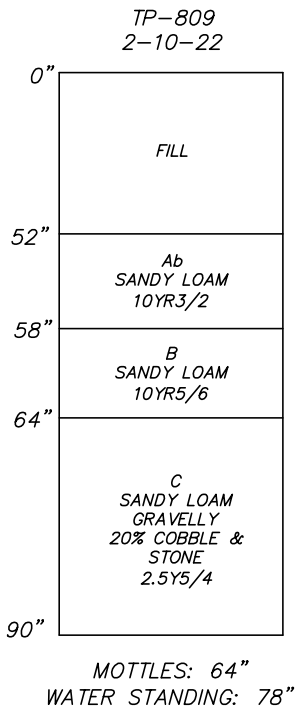
Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
 Survey Area Data: Version 17, Sep 3, 2021

1799 & 1817 RIVER STREET, HYDE PARK

WEATHER: 35° CLOUDY

SOIL EVALUATIONS PERFORMED BY MASSACHUSETTS
CERTIFIED DEP SOIL EVALUATOR ON FEB. 10, 2022


GREGORY A. BYNAVICZ, SE 2712





NOAA Atlas 14, Volume 10, Version 3
 Location name: Hyde Park, Massachusetts, USA*
 Latitude: 42.2437°, Longitude: -71.1393°
 Elevation: 56.83 ft**



* source: ESRI Maps
 ** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aeriels](#)

PF tabular

Duration	Average recurrence interval (years)										
	1	2	5	10	25	50	100	200	500	1000	
5-min	0.307 (0.246-0.382)	0.380 (0.305-0.474)	0.500 (0.399-0.626)	0.599 (0.476-0.755)	0.736 (0.564-0.984)	0.837 (0.628-1.15)	0.946 (0.689-1.37)	1.08 (0.730-1.59)	1.28 (0.828-1.96)	1.45 (0.915-2.27)	
10-min	0.434 (0.349-0.541)	0.538 (0.432-0.671)	0.708 (0.566-0.886)	0.848 (0.673-1.07)	1.04 (0.799-1.39)	1.19 (0.890-1.63)	1.34 (0.976-1.94)	1.53 (1.04-2.25)	1.81 (1.17-2.78)	2.05 (1.30-3.22)	
15-min	0.511 (0.411-0.637)	0.633 (0.508-0.790)	0.833 (0.666-1.04)	0.998 (0.793-1.26)	1.23 (0.940-1.64)	1.40 (1.05-1.92)	1.58 (1.15-2.28)	1.80 (1.22-2.65)	2.13 (1.38-3.27)	2.41 (1.52-3.79)	
30-min	0.698 (0.561-0.869)	0.868 (0.696-1.08)	1.15 (0.915-1.44)	1.38 (1.09-1.74)	1.69 (1.30-2.26)	1.93 (1.45-2.65)	2.18 (1.59-3.15)	2.49 (1.69-3.66)	2.95 (1.91-4.53)	3.34 (2.11-5.25)	
60-min	0.885 (0.711-1.10)	1.10 (0.885-1.37)	1.46 (1.16-1.83)	1.75 (1.39-2.21)	2.16 (1.66-2.89)	2.46 (1.85-3.39)	2.78 (2.03-4.02)	3.18 (2.15-4.68)	3.77 (2.45-5.79)	4.27 (2.70-6.72)	
2-hr	1.13 (0.909-1.39)	1.42 (1.15-1.76)	1.90 (1.53-2.37)	2.30 (1.84-2.88)	2.85 (2.20-3.79)	3.25 (2.46-4.46)	3.70 (2.71-5.32)	4.24 (2.88-6.19)	5.07 (3.30-7.72)	5.79 (3.68-9.02)	
3-hr	1.31 (1.06-1.61)	1.65 (1.34-2.04)	2.21 (1.78-2.74)	2.68 (2.14-3.34)	3.32 (2.57-4.40)	3.79 (2.87-5.17)	4.30 (3.17-6.17)	4.94 (3.37-7.18)	5.92 (3.86-8.97)	6.77 (4.30-10.5)	
6-hr	1.72 (1.40-2.11)	2.15 (1.75-2.63)	2.85 (2.31-3.51)	3.42 (2.76-4.25)	4.22 (3.28-5.55)	4.81 (3.66-6.50)	5.45 (4.02-7.74)	6.23 (4.27-8.98)	7.43 (4.87-11.2)	8.47 (5.40-13.0)	
12-hr	2.26 (1.85-2.75)	2.77 (2.27-3.38)	3.61 (2.95-4.42)	4.31 (3.49-5.31)	5.27 (4.11-6.86)	5.98 (4.56-8.00)	6.74 (4.99-9.46)	7.67 (5.27-10.9)	9.06 (5.96-13.5)	10.3 (6.56-15.6)	
24-hr	2.77 (2.29-3.35)	3.41 (2.81-4.13)	4.46 (3.66-5.42)	5.33 (4.34-6.52)	6.53 (5.13-8.45)	7.41 (5.69-9.86)	8.37 (6.24-11.7)	9.55 (6.59-13.5)	11.4 (7.49-16.7)	12.9 (8.30-19.5)	
2-day	3.17 (2.63-3.81)	3.98 (3.30-4.79)	5.32 (4.39-6.42)	6.42 (5.27-7.81)	7.95 (6.29-10.3)	9.06 (7.02-12.0)	10.3 (7.76-14.4)	11.9 (8.22-16.7)	14.4 (9.52-21.0)	16.6 (10.7-24.8)	
3-day	3.48 (2.90-4.16)	4.36 (3.63-5.22)	5.80 (4.81-6.98)	7.00 (5.76-8.48)	8.65 (6.87-11.1)	9.85 (7.66-13.0)	11.2 (8.46-15.6)	12.9 (8.96-18.1)	15.7 (10.4-22.8)	18.2 (11.7-26.9)	
4-day	3.77 (3.15-4.50)	4.68 (3.90-5.59)	6.17 (5.12-7.40)	7.41 (6.11-8.94)	9.11 (7.25-11.7)	10.3 (8.07-13.6)	11.7 (8.89-16.3)	13.5 (9.39-18.8)	16.4 (10.9-23.7)	19.0 (12.3-28.0)	
7-day	4.58	5.53	7.07	8.35	10.1	11.4	12.8	14.7	17.6	20.3	

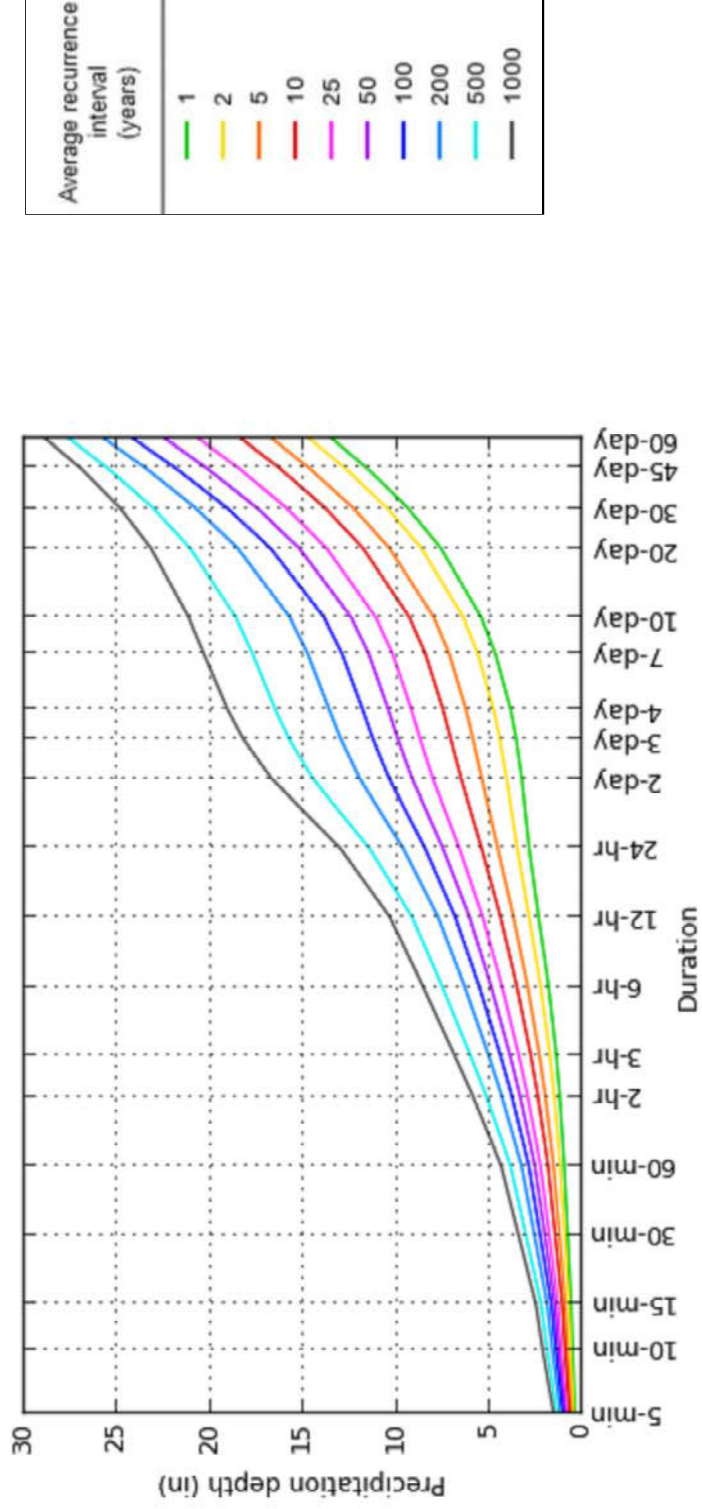
	(3.85-5.44)	(4.63-6.57)	(5.90-8.44)	(6.92-10.0)	(8.09-12.9)	(8.91-14.9)	(9.74-17.6)	(10.2-20.3)	(11.7-25.3)	(13.1-29.7)
10-day	5.34 (4.49-6.32)	6.31 (5.30-7.47)	7.89 (6.60-9.38)	9.20 (7.64-11.0)	11.0 (8.81-13.9)	12.3 (9.64-16.0)	13.8 (10.4-18.7)	15.6 (10.9-21.5)	18.5 (12.4-26.4)	21.1 (13.7-30.7)
20-day	7.52 (6.36-8.84)	8.56 (7.24-10.1)	10.3 (8.65-12.1)	11.7 (9.78-13.9)	13.7 (11.0-17.0)	15.1 (11.8-19.2)	16.7 (12.5-22.1)	18.4 (13.0-25.0)	21.0 (14.1-29.6)	23.1 (15.0-33.3)
30-day	9.30 (7.90-10.9)	10.4 (8.83-12.2)	12.2 (10.3-14.4)	13.7 (11.5-16.3)	15.8 (12.7-19.5)	17.4 (13.6-21.9)	19.0 (14.2-24.8)	20.7 (14.6-27.9)	23.0 (15.5-32.2)	24.8 (16.1-35.5)
45-day	11.5 (9.82-13.4)	12.7 (10.8-14.8)	14.6 (12.4-17.1)	16.2 (13.6-19.1)	18.4 (14.8-22.5)	20.1 (15.7-25.1)	21.8 (16.3-28.0)	23.4 (16.6-31.4)	25.5 (17.2-35.4)	26.9 (17.6-38.3)
60-day	13.4 (11.4-15.6)	14.6 (12.5-17.0)	16.6 (14.1-19.4)	18.3 (15.4-21.5)	20.5 (16.6-25.0)	22.3 (17.5-27.7)	24.1 (17.9-30.7)	25.6 (18.2-34.2)	27.5 (18.6-38.1)	28.8 (18.8-40.8)

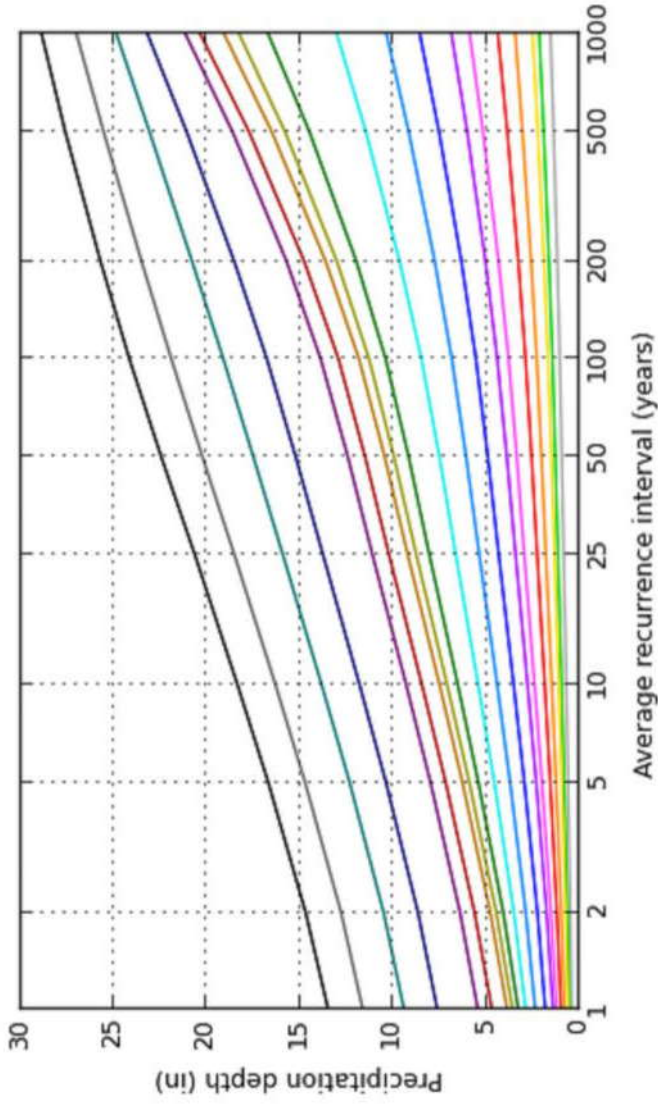
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 42.2437°, Longitude: -71.1393°

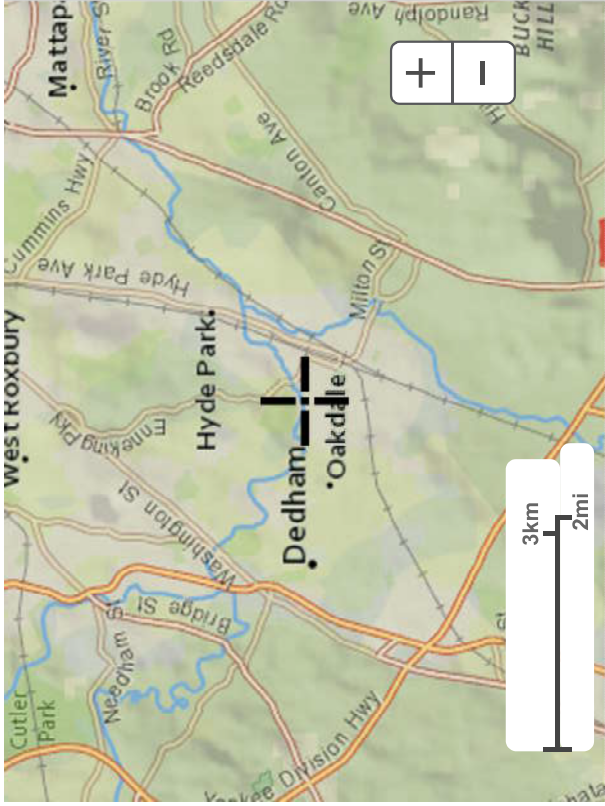




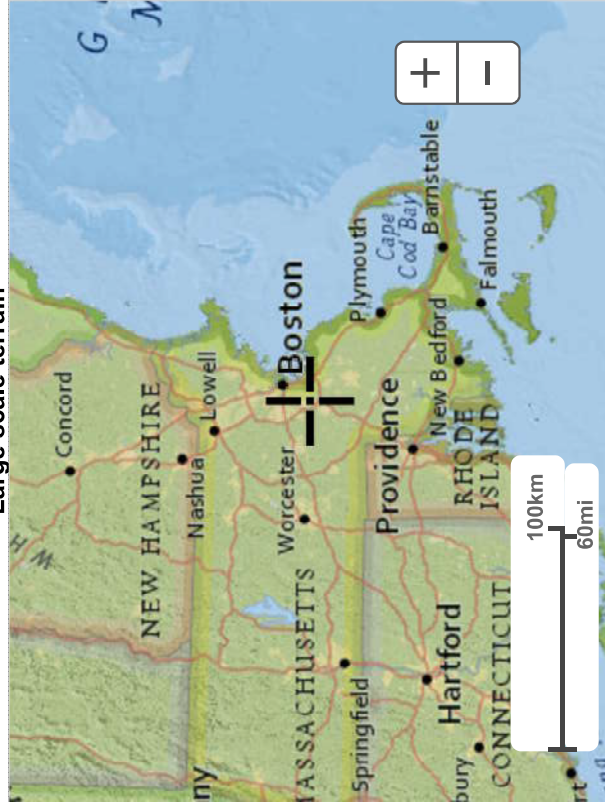
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Maps & aeriels

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



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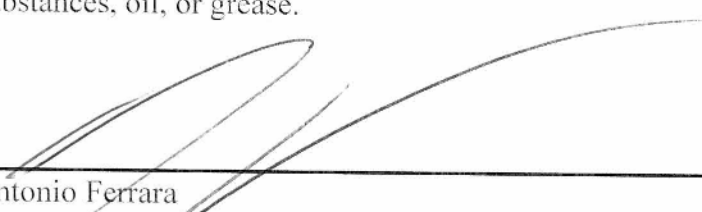
ILLCIT DISCHARGE STATEMENT

Standard 10 of the Stormwater Management Regulations prohibits illicit discharges to stormwater management systems.

The land is currently vacant. The previous existing building has been demolished and waste materials properly removed with the site and disposed of.

Attached is a plan that identifies the location of the proposed systems for conveying stormwater on the site as part of the proposed commercial development of 1817 River Street in Boston, Massachusetts. There is currently no known existing stormwater management system on the site. However, a comprehensive stormwater management system has been designed in accordance with the Stormwater Management Regulations to service the proposed site. The design of the proposed system is detailed on the attached plan set. Furthermore, the site will be connected to the municipal sewer system. The plan identifies the location of the proposed sewer system for conveying and disposal of wastewater on the site. Accordingly, there will be no proposed illicit discharges into the proposed stormwater management system.

I certify that to the best of my knowledge there are no known or proposed illicit discharges to the stormwater management system, including wastewater discharges and discharges of stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease.



Antonio Ferrara
1817 River Street LLC

May 26, 2022

Date



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.

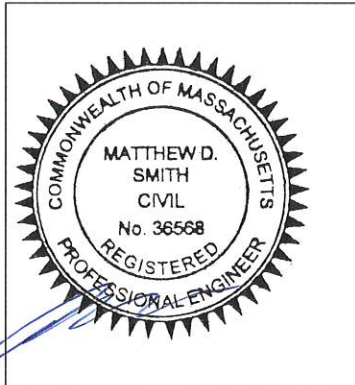
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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



Matthew D. Smith
President
NORWOOD ENGINEERING CO. INC

Signature and Date

6/7/22

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): Lot "A" will have a stone filter and a grass strip along the edge of pavement prior to flowing to a grass infiltration basin."country drainage" checked above

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 proprietary 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.

INSTRUCTIONS:

Version 1, Automated: Mar. 4, 2008

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.

Location: 1817 River Street, Boston, MA

	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
	Infiltration Basin	0.80	0.75	0.60	0.15
		0.00	0.15	0.00	0.15
		0.00	0.15	0.00	0.15
		0.00	0.15	0.00	0.15

Total TSS Removal =

85%

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

Project: 7876-35
 Prepared By: AK
 Date: 5/18/2022

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

INSTRUCTIONS:

Version 1, Automated: Mar. 4, 2008

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.

Location: 1817 River Street, Boston, MA

	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	Vegetated Filter Strip >25 feet	0.10	1.00	0.10	0.90
	Infiltration Basin	0.80	0.90	0.72	0.18
		0.00	0.18	0.00	0.18
		0.00	0.18	0.00	0.18
		0.00	0.18	0.00	0.18

Total TSS Removal =

82%

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

Project: 7876-35
 Prepared By: RH
 Date: 5/19/2022

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



**STORMWATER POLLUTION PREVENTION PLAN
LONG-TERM OPERATION AND MAINTENANCE PLAN**

For

**1817 River Street
Boston, Massachusetts**

**Prepared for
1817 River Street LLC
394 Washington Street Unit B
Dedham, MA, 02026**

Prepared by

**Norwood Engineering Company, Inc.
1410 Route One
Norwood, MA 02062**

May 26, 2022

Table of Contents and List of Attachments

I. Background

II. Identification of Operators

III. Pollution Prevention

IV. Pollution Prevention

- A. Components of System
- B. Operation and Maintenance Plan
- C. Maintenance Summary

V. Certification and Signatures

VI. Attachments

- A. BMP Inspection and Maintenance Checklist
- B. BMP Exhibit Plan

I. Background

This document provides a guideline for the long-term operation and maintenance of the stormwater system after the completion of construction activities located at 1817 River Street, Boston, MA 02026

The site has a comprehensive stormwater management system consistent with all agency requirements and has been designed and constructed to address water quality, peak rate attenuation and the control of erosion and sedimentation.

II. Identification of Operators

The name of the owner (Responsible Party) for the ongoing operation and maintenance of all components of the stormwater system is:

Antonio Ferrara
1817 River Street LLC
394 Washington Street – Unit B
Dedham, MA 02026
Email: Tony Ferrara tony@hubmtg.com

The Responsible Party for the Stormwater Management System must notify the Stormwater Authority of any changes in ownership, assignment of O&M responsibilities or assignment of financial responsibilities within 30 days of the change. The owner of record will be responsible for O&M activities until a copy of an updated plan is provided to the Stormwater Authority and signed by the new Owner or any Responsible Party.

III. Pollution Prevention

A. Components of System

1. The stormwater treatment train for Lots B & C provides for the collection of stormwater runoff from all impervious areas via a conventional catch basin, pipe and manhole system. Deep sump hooded catch basins are provided as an initial component to remove Total Suspended Solids, oil and grease from parking lot runoff. The system discharges to a deep sump and hooded catch basin and an infiltration basin, with 85% removal of Total Suspended Solids.
2. The stormwater treatment train for Lot A provides for the collection of stormwater runoff from all impervious areas via a filter strip and grass infiltration basin. The filter strip is provided as an initial component to remove Total Suspended Solids. The stormwater is then discharged to a grass strip and to the grass infiltration basin with 82% removal of Total Suspended Solids.

B. Operation and Maintenance Plan

1. It is necessary to maintain a comprehensive operational plan for the maintenance of these facilities to ensure that the high degree of water quality protection is continued after construction. The priority is to maintain the integrity of the site as designed. This includes maintenance and repair of any of the structures related to stormwater management BMPs.
2. Written maintenance agreements with permanent contractors will be provided to the Stormwater Authority that specify the proper operation, maintenance, emergency repairs, and financing. These documents will provide for the preservation of the stormwater conveyancing and infiltration areas and facilities, as well as maintenance of all structures.
3. To insure the long term optimal operation of the system, a strict program of maintenance will be followed. An initial budget of \$3,000.00 for the cleaning portion of the maintenance program will be established with the City of Boston by the Responsible Party to perform the periodic inspections. Funds will be replenished by the Responsible Party as required to maintain the systems.
4. Good housekeeping measures to be on-going by the Responsible Party are:
 - a. Storing of materials and waste products (trash) inside or under cover.
 - b. Routine inspections and maintenance of all stormwater BMP's.
 - c. Maintenance of lawns, gardens, and other landscape areas.
 - d. Proper storage and application of fertilizers, herbicides and pesticides.
 - e. Proper management and storage of deicing chemicals and snow disposal.
5. BMPs - Operation and Maintenance Plan
 - a. Curbing and Sweeping

All curbing is continuous where indicated on the plans to direct all runoff into the catch basins and stormwater treatment system. Should any curbing be damaged by snowplows or broken by the impact of vehicles, it will be repaired as soon as possible. Any catch basin inlet blocked by ice, snow, leaves or other debris will be cleaned as soon as it is noticed at inspection.

As part of this phase of maintenance, the paved parking areas will be swept on a scheduled, periodic basis to remove sand from de-icing operations, leaves, sticks, and foreign material left on the pavement. The more frequently the paved areas are swept, the less material will enter the basins and must be removed from the sumps of catch basins. This non-structural source control will be completed at least two times per year, or when sand is noticeable. It is critical to remove the accumulated sediment from the winter months (Nov.-March) as soon as possible, especially before heavy and frequent spring (April-June) precipitation.

b. Catch Basins and Drain Manholes

Catch basins and manholes will be inspected by a qualified contractor once per year for damage and cleaned at least once per year, typically in the spring. Catch basins will also be cleaned whenever the accumulated sediment is measured within two feet of the outlet invert by a qualified contractor. All necessary repairs will be done within six weeks of inspection.

c. Cultech Infiltration Chamber System

The inspection ports shall be opened and the condition of the chambers observed every two (2) years to determine that infiltration is provided according to the design. The system shall be cleaned when sediment exceeds 2" in depth. Jet spray cleaning of the chambers will be completed when required. Remedial action is required if the system is found not to be operating as designed.

d. Filter Strip

Regular maintenance is critical for filter strips to be effective and to ensure that flow does not short circuit the system. Inspect every 6 months during the first year of operation, and annually thereafter. Inspect for sediment buildup and the grass strip for signs of erosion, bare spots, and overall health. Regular, frequent mowing of the grass is required. Remove sediment from the toe of slope and reseed bare spots as necessary. Periodically, remove sediment that accumulates near the top of the strip to maintain the appropriate slope and prevent formation of a "berm" that could impede the distribution of runoff as sheet flow.

e. Grass Infiltration Basin

Once the basin is in use, inspect it after every major storm for the first few months. Ensure it is stabilized and functioning properly and if necessary, take corrective action. If the ponding is due to clogging, immediately address the reasons for the clogging (such as upland sediment erosion, excessive compaction of soils, or low spots). Thereafter, inspect the infiltration basin at least twice per year. Important items to check during the inspection include:

- Signs of differential settlement,
- Cracking,
- Erosion,
- Leakage in the embankments
- Tree growth on the embankments
- Condition of riprap,
- Sediment accumulation and
- The health of the turf.

At least twice a year, mow the buffer area, side slopes, and basin bottom. Remove grass clippings and accumulated organic matter to prevent an impervious organic mat from forming. Remove trash and debris at the same time. Use deep tilling to break up clogged surfaces and revegetate immediately. Remove sediment from the basin as necessary but wait until the floor of the basin is thoroughly dry. Use light equipment to remove the top layer so as to not compact the underlying soil. Deeply till the remaining soil and revegetate as soon as possible.

f. Snow and Snowmelt Management

Proper placement of plowed snow and minimization of chemicals for de-icing will be completed. Snow will not be piled over catch basins, and the snow will be kept a minimum distance of 20 feet away from the inlets. Plows will concentrate on clearing the inlet covers first, then working away to allow any runoff to get off the paved areas. Snow from paved areas will not be placed on pervious/grass surfaces that might allow oils to permeate the ground during a thaw or sand to damage any landscaping. De-icing compounds will not contain any sodium but may be calcium or magnesium based.

Prior to the first snowfall of each year, a meeting of all the hired snow plow contractors and the Responsible Party will be held on the site. This Operations and Maintenance Plan for snow removal will be reviewed and copies distributed.

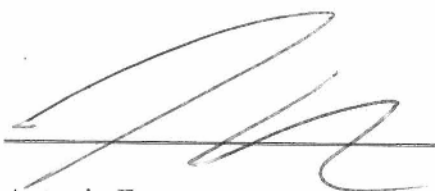
C. Maintenance Summary

1. Inspections

- a. The Responsible Party or designated agent will conduct and document inspections of all control measures as noted above. The purpose of such inspections will be to determine the overall effectiveness of the Stormwater Management Plan, and the need for maintenance or additional control measures as well as verifying compliance with the plan. The Responsible Party or designated agent will submit periodic reports as may be required to the Stormwater Authority or designated agent in a format approved by the Stormwater Authority.
- b. Inspect curbing and catch basin inlets. Any broken or missing curbing will be replaced as soon as feasible, and inlets cleared of debris immediately.
- c. Sweep the pavement two times a year, when sand is noticeable or after the winter months.
- d. Catch Basin sumps will be inspected at least once per year on a scheduled basis.
- e. The subsurface infiltration basins will be maintained by an outside firm specializing in this type of work. A written contract will be entered into with this firm to provide this service and a file maintained on-site.
- f. Inspect the filter strip for sediment buildup and the grass strip for signs of erosion. Remove any sediment buildup and maintain grass strip.
- g. Inspect Grass Infiltration Basin for any defects and maintain as described above.
- h. A log of all maintenance activities will be kept and made available when requested.

V. CERTIFICATIONS AND SIGNATURES

I certify, to the best of my knowledge the information contained in this Plan is accurate and correct.



May 26, 2022

Antonio Ferrara
1817 River Street LLC
394 Washington Street – Unit B
Dedham, MA 02026

Date



Basin 72 Hour Drain Down Calculations

**For
1799 & 1817 Washington Street
Boston, Massachusetts**

**Prepared For
Anthony Ferrara
1817 River Street LLC
394 Washington Street Unit B
Dedham, MA, 02026**

**Prepared by
Norwood Engineering Company, Inc.
1410 Route One
Norwood, MA 02062**

May 26, 2022

7876-35 Proposed

Type III 24-hr 100 Year Storm Rainfall=8.37"

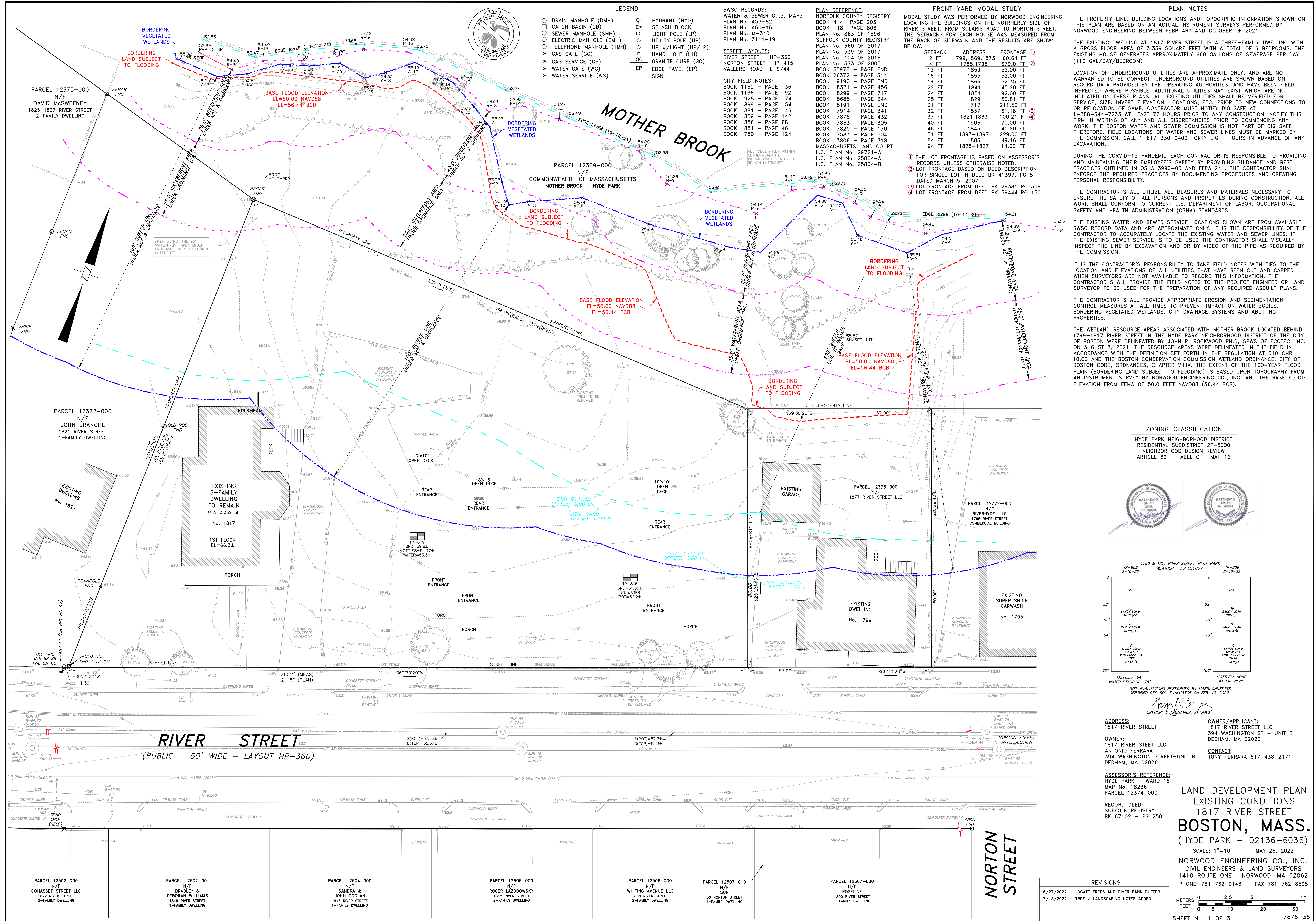
Prepared by na

Printed 5/20/2022

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Hydrograph for Pond 1P: CHAMBER INFILTRATION SYSTEM

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	56.50	0.00	0.00	0.00
2.00	0.00	0	56.50	0.00	0.00	0.00
4.00	0.00	1	56.50	0.00	0.00	0.00
6.00	0.01	5	56.52	0.01	0.01	0.00
8.00	0.02	16	56.55	0.02	0.02	0.00
10.00	0.06	162	57.02	0.02	0.02	0.00
12.00	0.87	1,145	58.75	0.19	0.02	0.16
14.00	0.08	1,095	58.64	0.08	0.02	0.06
16.00	0.04	1,066	58.58	0.04	0.02	0.02
18.00	0.02	1,044	58.54	0.03	0.02	0.01
20.00	0.02	1,024	58.50	0.02	0.02	0.00
22.00	0.02	992	58.44	0.02	0.02	0.00
24.00	0.01	938	58.34	0.02	0.02	0.00
26.00	0.00	786	58.07	0.02	0.02	0.00
28.00	0.00	635	57.80	0.02	0.02	0.00
30.00	0.00	489	57.56	0.02	0.02	0.00
32.00	0.00	347	57.32	0.02	0.02	0.00
34.00	0.00	210	57.10	0.02	0.02	0.00
36.00	0.00	77	56.76	0.02	0.02	0.00
38.00	0.00	0	56.50	0.00	0.00	0.00
40.00	0.00	0	56.50	0.00	0.00	0.00
42.00	0.00	0	56.50	0.00	0.00	0.00
44.00	0.00	0	56.50	0.00	0.00	0.00
46.00	0.00	0	56.50	0.00	0.00	0.00
48.00	0.00	0	56.50	0.00	0.00	0.00
50.00	0.00	0	56.50	0.00	0.00	0.00
52.00	0.00	0	56.50	0.00	0.00	0.00
54.00	0.00	0	56.50	0.00	0.00	0.00
56.00	0.00	0	56.50	0.00	0.00	0.00
58.00	0.00	0	56.50	0.00	0.00	0.00
60.00	0.00	0	56.50	0.00	0.00	0.00
62.00	0.00	0	56.50	0.00	0.00	0.00
64.00	0.00	0	56.50	0.00	0.00	0.00
66.00	0.00	0	56.50	0.00	0.00	0.00
68.00	0.00	0	56.50	0.00	0.00	0.00
70.00	0.00	0	56.50	0.00	0.00	0.00
72.00	0.00	0	56.50	0.00	0.00	0.00



LEGEND

- DRAIN MANHOLE (DMH)
- CATCH BASIN (CB)
- SEWER MANHOLE (SMH)
- ELECTRIC MANHOLE (EMH)
- TELEPHONE MANHOLE (TMH)
- ⊗ GAS GATE (GG)
- ⊗ GAS SERVICE (GS)
- ⊗ WATER GATE (WG)
- ⊗ WATER SERVICE (WS)
- ◇ HYDRANT (HYD)
- ◇ SPLASH BLOCK
- ◇ LIGHT POLE (LP)
- ◇ UTILITY POLE (UP)
- ◇ UP w/LIGHT (UP/LP)
- ◇ HAND HOLE (HH)
- ◇ GRANITE CURB (GC)
- ◇ EP EDGE PAVE. (EP)
- ◇ SIGN

BWSC RECORDS:

- WATER & SEWER G.I.S. MAPS
- PLAN No. A53-82
- PLAN No. A80-16
- PLAN No. M-340
- PLAN No. Z111-19

PLAN REFERENCE:

- NORFOLK COUNTY REGISTRY
- BOOK 414 PAGE 203
- BOOK 18 PAGE 803
- PLAN No. 863 OF 1896
- SUFFOLK COUNTY REGISTRY
- PLAN No. 360 OF 2017
- PLAN No. 359 OF 2017
- PLAN No. 104 OF 2016
- PLAN No. 375 OF 2005
- BOOK 35978 - PAGE END
- BOOK 26372 - PAGE 314
- BOOK 9190 - PAGE END
- BOOK 8321 - PAGE 456
- BOOK 8299 - PAGE 717
- BOOK 8685 - PAGE 344
- BOOK 8191 - PAGE END
- BOOK 7914 - PAGE 341
- BOOK 7875 - PAGE 432
- BOOK 7833 - PAGE 305
- BOOK 7825 - PAGE 170
- BOOK 7583 - PAGE 504
- BOOK 3806 - PAGE 318
- MASSACHUSETTS LAND COURT
- L.C. PLAN No. 29721-A
- L.C. PLAN No. 25804-A
- L.C. PLAN No. 25804-B

FRONT YARD MODAL STUDY

MODAL STUDY WAS PERFORMED BY NORWOOD ENGINEERING LOCATING THE BUILDINGS ON THE NOTRHYR SIDE OF RIVER STREET, FROM SOLARIS ROAD TO NORTON STREET. THE SETBACKS FOR EACH HOUSE WAS MEASURED FROM THE BACK OF SIDEWALK AND THE RESULTS ARE SHOWN BELOW.

SETBACK	ADDRESS	FRONTAGE
2 FT	1799,1869,1873	160.64 FT
4 FT	1785,1795	679.0 FT
12 FT	1859	52.00 FT
16 FT	1855	52.00 FT
19 FT	1863	52.35 FT
22 FT	1841	45.20 FT
24 FT	1851	92.00 FT
25 FT	1829	50.81 FT
31 FT	1717	211.50 FT
32 FT	1837	61.18 FT
37 FT	1821,1833	100.21 FT
40 FT	1903	70.00 FT
46 FT	1843	45.20 FT
51 FT	1893-1897	229.00 FT
84 FT	1883	49.16 FT
94 FT	1825-1827	14.00 FT

PLAN NOTES

THE PROPERTY LINE, BUILDING LOCATIONS AND TOPOGRAPHIC INFORMATION SHOWN ON THIS PLAN ARE BASED ON AN ACTUAL INSTRUMENT SURVEYS PERFORMED BY NORWOOD ENGINEERING BETWEEN FEBRUARY AND OCTOBER OF 2021.

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ZONING CLASSIFICATION

HYDE PARK NEIGHBORHOOD DISTRICT
RESIDENTIAL SUBDISTRICT 2F-5000
NEIGHBORHOOD DESIGN REVIEW
ARTICLE 69 - TABLE C - MAP 12



1799 & 1817 RIVER STREET, HYDE PARK		1799 & 1817 RIVER STREET, HYDE PARK	
TP-809 2-10-22		TP-806 2-10-22	
WEATHER: 35° CLOUDY			
0"	FILL	0"	FILL
52"	A SANDY LOAM 10H3/2	62"	A SANDY LOAM 10H3/2
58"	C SANDY LOAM 10H5/8	70"	C SANDY LOAM 10H5/8
64"	E SANDY LOAM 20K COBBLE & 2.5% _S /4	90"	E SANDY LOAM 20K COBBLE & 2.5% _S /4
90"	MOTTLES: 64"	106"	MOTTLES: NONE
WATER STANDING: 78"		MOTTLES: NONE	

SOIL EVALUATIONS PERFORMED BY MASSACHUSETTS CERTIFIED DEP SOIL EVALUATOR ON FEB. 10, 2022
GREGORY W. BANNAVICZ, SE 2212

ADDRESS: 1817 RIVER STREET
OWNER: 1817 RIVER STREET LLC
ANTONIO FERRARA
394 WASHINGTON STREET-UNIT B
DEDHAM, MA 02026

OWNER/APPLICANT: 1817 RIVER STREET LLC
354 WASHINGTON ST - UNIT B
DEDHAM, MA 02026
CONTACT: TONY FERRARA 617-438-2171

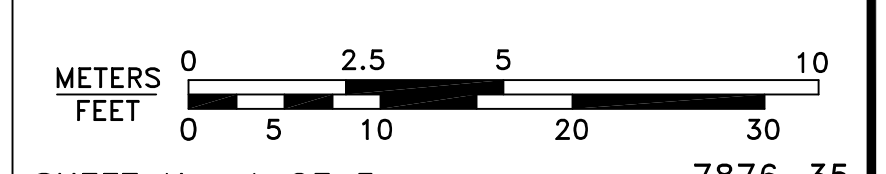
ASSESSOR'S REFERENCE:
HYDE PARK - WARD 18
MAP No. 18236
PARCEL 12374-000

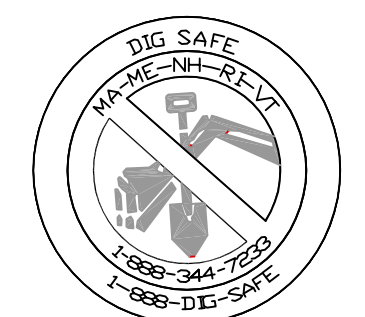
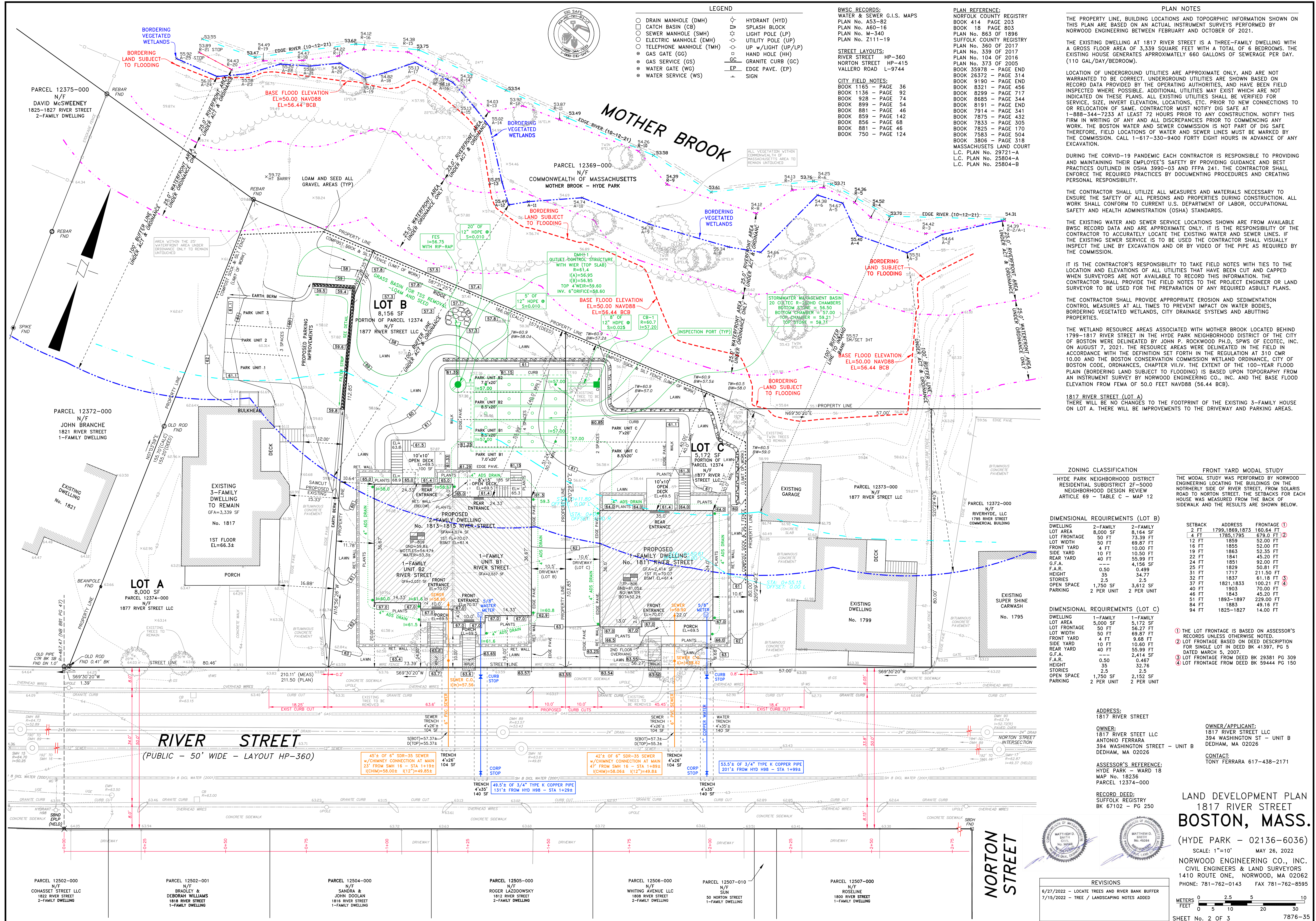
RECORD DEED:
SUFFOLK REGISTRY
BK 67102 - PG 250

LAND DEVELOPMENT PLAN
EXISTING CONDITIONS
BOSTON, MASS.
(HYDE PARK - 02136-6036)
SCALE: 1"=10'
MAY 26, 2022

NORWOOD ENGINEERING CO., INC.
CIVIL ENGINEERS & LAND SURVEYORS
1410 ROUTE ONE, NORWOOD, MA 02062
PHONE: 781-762-0143 FAX 781-762-8595

REVISIONS
6/27/2022 - LOCATE TREES AND RIVER BANK BUFFER
7/15/2022 - TREE / LANDSCAPING NOTES ADDED





- LEGEND**
- DRAIN MANHOLE (DMH)
 - CATCH BASIN (CB)
 - SEWER MANHOLE (SMH)
 - ELECTRIC MANHOLE (EMH)
 - TELEPHONE MANHOLE (TMH)
 - GAS SERVICE (GG)
 - GAS SERVICE (GS)
 - WATER GATE (WG)
 - WATER SERVICE (WS)
 - ◇ HYDRANT (HYD)
 - ◇ SPLASH POLE
 - ◇ LIGHT POLE (LP)
 - ◇ UTILITY POLE (UP)
 - ◇ UP w/LIGHT (UP/LP)
 - ◇ HAND HOLE (HH)
 - ◇ GRANITE CURB (GC)
 - ◇ EDGE PAVE. (EP)
 - ◇ SIGN

- BWSC RECORDS:**
 WATER & SEWER G.I.S. MAPS
 PLAN No. A53-82
 PLAN No. A60-16
 PLAN No. M-340
 PLAN No. Z111-19
- STREET LAYOUTS:**
 RIVER STREET HP-360
 NORTON STREET HP-415
 VALLERO ROAD L-9744
- CITY FIELD NOTES:**
 BOOK 1165 - PAGE 36
 BOOK 8321 - PAGE 92
 BOOK 928 - PAGE 74
 BOOK 899 - PAGE 54
 BOOK 881 - PAGE 46
 BOOK 859 - PAGE 142
 BOOK 856 - PAGE 68
 BOOK 881 - PAGE 46
 BOOK 750 - PAGE 124

- PLAN REFERENCE:**
 NORFOLK COUNTY REGISTRY
 BOOK 414 PAGE 203
 BOOK 18 PAGE 803
 PLAN No. 863 OF 1896
 SUFFOLK COUNTY REGISTRY
 PLAN No. 360 OF 2017
 PLAN No. 339 OF 2017
 PLAN No. 104 OF 2016
 PLAN No. 373 OF 2005
 BOOK 35978 - PAGE END
 BOOK 26372 - PAGE 314
 BOOK 9190 - PAGE END
 BOOK 8321 - PAGE 456
 BOOK 8299 - PAGE 717
 BOOK 8885 - PAGE 344
 BOOK 8191 - PAGE END
 BOOK 7914 - PAGE 341
 BOOK 7875 - PAGE 452
 BOOK 7833 - PAGE 305
 BOOK 7825 - PAGE 170
 BOOK 3806 - PAGE 318
 MASSACHUSETTS LAND COURT
 L.C. PLAN No. 29721-A
 L.C. PLAN No. 25804-A
 L.C. PLAN No. 25804-B

PLAN NOTES

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1817 RIVER STREET (LOT A)
 THERE WILL BE NO CHANGES TO THE FOOTPRINT OF THE EXISTING 3-FAMILY HOUSE ON LOT A. THERE WILL BE IMPROVEMENTS TO THE DRIVEWAY AND PARKING AREAS.

ZONING CLASSIFICATION

HYDE PARK NEIGHBORHOOD DISTRICT
 RESIDENTIAL SUBDISTRICT 2F-5000
 NEIGHBORHOOD DESIGN REVIEW
 ARTICLE 69 - TABLE C - MAP 12

FRONT YARD MODAL STUDY

THE MODAL STUDY WAS PERFORMED BY NORWOOD ENGINEERING LOCATING THE BUILDINGS ON THE NORTHERLY SIDE OF RIVER STREET, FROM SOLARIS ROAD TO NORTON STREET. THE SETBACKS FOR EACH HOUSE WAS MEASURED FROM THE BACK OF SIDEWALK AND THE RESULTS ARE SHOWN BELOW.

DIMENSIONAL REQUIREMENTS (LOT B)

DWELLING	2-FAMILY	2-FAMILY	SETBACK	ADDRESS	FRONTAGE
LOT AREA	8,000 SF	2,164 SF	2 FT	1799,1869,1873	160.64 FT
LOT FRONTAGE	50 FT	73.39 FT	4 FT	1785,1795	679.0 FT
LOT WIDTH	50 FT	69.87 FT	12 FT	1859	52.00 FT
FRONT YARD	4 FT	10.00 FT	16 FT	1855	52.00 FT
SIDE YARD	10 FT	10.50 FT	19 FT	1863	52.35 FT
REAR YARD	40 FT	55.99 FT	22 FT	1841	45.20 FT
G.F.A.	---	4,156 SF	24 FT	1851	92.00 FT
F.A.R.	0.50	0.499	25 FT	1829	50.81 FT
HEIGHT	35	34.77	31 FT	1717	211.50 FT
STORIES	2.5	2.5	32 FT	1837	61.18 FT
OPEN SPACE	1,750 SF	3,612 SF	37 FT	1821,1833	100.21 FT
PARKING	2 PER UNIT	2 PER UNIT	40 FT	1903	70.00 FT
			46 FT	1843	45.20 FT
			51 FT	1893-1897	229.00 FT
			84 FT	1883	49.16 FT
			94 FT	1825-1827	14.00 FT

DIMENSIONAL REQUIREMENTS (LOT C)

DWELLING	1-FAMILY	1-FAMILY
LOT AREA <td>5,000 SF <td>5,172 SF </td></td>	5,000 SF <td>5,172 SF </td>	5,172 SF
LOT FRONTAGE <td>50 FT <td>56.27 FT </td></td>	50 FT <td>56.27 FT </td>	56.27 FT
LOT WIDTH <td>50 FT <td>69.87 FT </td></td>	50 FT <td>69.87 FT </td>	69.87 FT
FRONT YARD <td>4 FT <td>9.68 FT </td></td>	4 FT <td>9.68 FT </td>	9.68 FT
SIDE YARD <td>10 FT <td>10.50 FT </td></td>	10 FT <td>10.50 FT </td>	10.50 FT
REAR YARD <td>40 FT <td>55.99 FT </td></td>	40 FT <td>55.99 FT </td>	55.99 FT
G.F.A. <td>---</td> <td>2,414 SF </td>	---	2,414 SF
F.A.R. <td>0.50</td> <td>0.467 </td>	0.50	0.467
HEIGHT <td>35</td> <td>32.6 </td>	35	32.6
STORIES <td>2.5</td> <td>2.5</td>	2.5	2.5
OPEN SPACE <td>1,750 SF</td> <td>2,152 SF </td>	1,750 SF	2,152 SF
PARKING <td>2 PER UNIT</td> <td>2 PER UNIT</td>	2 PER UNIT	2 PER UNIT

- ① THE LOT FRONTAGE IS BASED ON ASSESSOR'S RECORDS UNLESS OTHERWISE NOTED.
- ② LOT FRONTAGE BASED ON DEED DESCRIPTION FOR SINGLE LOT IN DEED BK 41397, PG 5 DATED MARCH 5, 2007.
- ③ LOT FRONTAGE FROM DEED BK 29381 PG 309
- ④ LOT FRONTAGE FROM DEED BK 59444 PG 159

ADDRESS:
 1817 RIVER STREET

OWNER:
 1817 RIVER STREET LLC
 ANTONIO FERRARA
 394 WASHINGTON STREET - UNIT B
 DEDHAM, MA 02026

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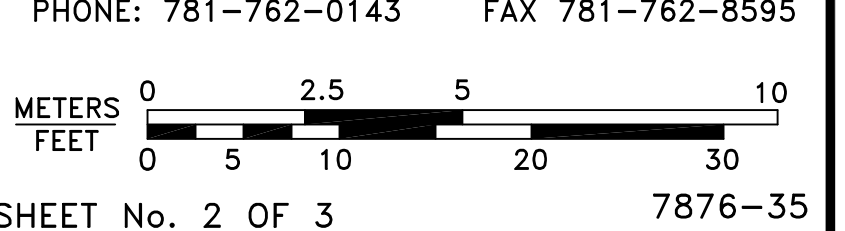
ASSESSOR'S REFERENCE:
 HYDE PARK - WARD 18
 MAP No. 182356
 PARCEL 12374-000

RECORD DEED:
 SUFFOLK COUNTY REGISTRY
 BK 67102 - PG 250

LAND DEVELOPMENT PLAN
1817 RIVER STREET
BOSTON, MASS.

(HYDE PARK - 02136-6036)
 SCALE: 1"=10'
 MAY 26, 2022

NORWOOD ENGINEERING CO., INC.
 CIVIL ENGINEERS & LAND SURVEYORS
 1410 ROUTE ONE, NORWOOD, MA 02062
 PHONE: 781-762-0143 FAX 781-762-8595



STORMWATER INFILTRATION NOTES

THE POST-CONSTRUCTION IMPERVIOUS AREA ON THE LOTS A,B AND C IS APPROXIMATELY 10,510 SQUARE FEET. TO MEET THE MINIMUM REQUIREMENT OF 1" OF STORAGE PER EACH SQUARE FOOT OF IMPERVIOUS AREA, A MINIMUM STORMWATER STORAGE CAPACITY OF 875.8 CUBIC FEET OR 6,551 GALLONS IS REQUIRED. [10,510 SF x 0.08333 FT (1") = 875.8 CUBIC FEET]

THE PROJECT WILL REQUIRE ONE (1) INFILTRATION SYSTEM, WITH A STORMWATER STORAGE CAPACITY OF 1,466.5 CUBIC FEET (10,969 GALLONS).

THE INFILTRATION SYSTEM, LOCATED BY THE REAR OF LOT B WILL COLLECT STORMWATER FROM THE DRIVEWAYS AND ROOFS FOR LOTS B AND C. THE SYSTEM WILL OVERFLOW TO A GRASS INFILTRATION BASIN IN THE EVENT OF A STORM GREATER THAN THE 2 YEAR STORM EVENT.

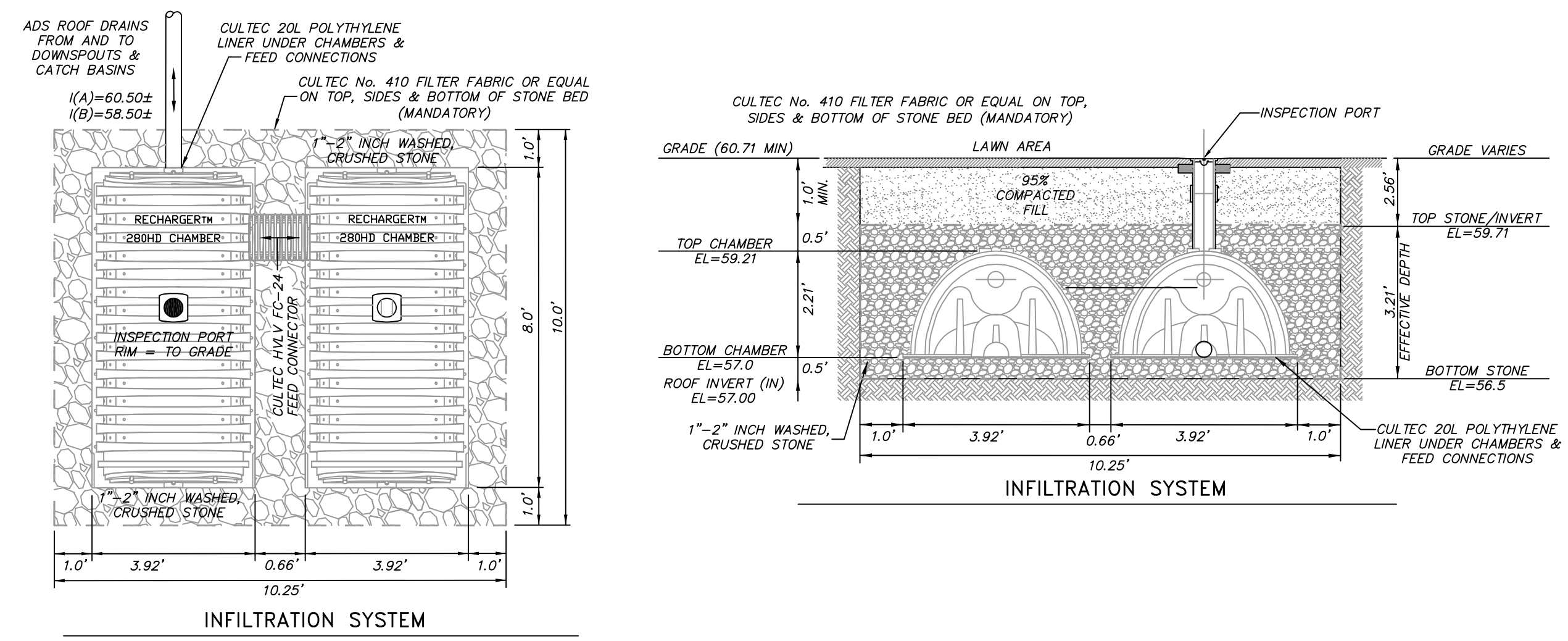
THE INFILTRATION SYSTEM WAS DESIGNED USING THE HYDROCAD PROGRAM. THE STORAGE VOLUMES DO NOT INCLUDE ANY POTENTIAL STORAGE IN THE ADS DRAIN PIPES CONNECTING THE DRAINAGE SYSTEMS.

REFER TO CULTEC, INC.'S CURRENT RECOMMENDED INSTALLATION GUIDELINES.

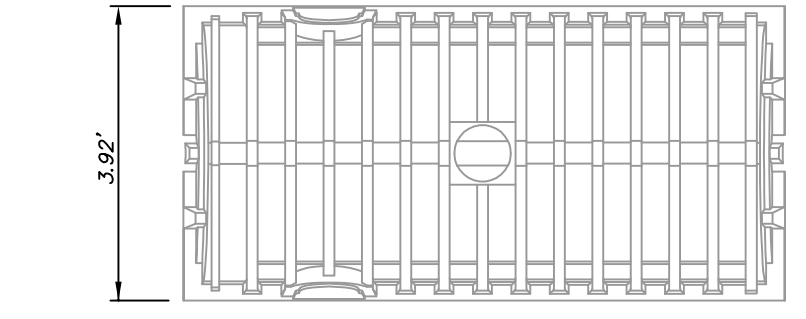
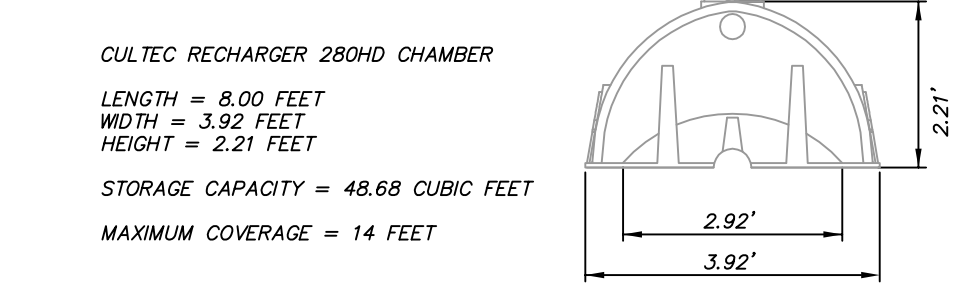
REQUIRED MATERIALS:
 RECHARGER 280HD CHAMBER
 20 CHAMBERS
 HVLV FC-24 FEED CONNECTOR
 16 CONNECTORS
 CULTEC No. 410 FILTER FABRIC
 175.2 SQUARE YARDS
 CULTEC No. 20 POLY. LINER
 625.8 SQUARE FEET
 1"-2" WASHED CRUSHED STONE
 54.3 CUBIC YARDS

INSPECTION PORT RIM GRADES
 OVER INLET FROM C-1 RIM=60.95
 OVER INLET FROM LOT C ROOF RIM=60.95
 OVER INLET FROM LOT B ROOF RIM=61.20
 OVER OUTLET TO CONTROL STRUCTURE RIM=61.20

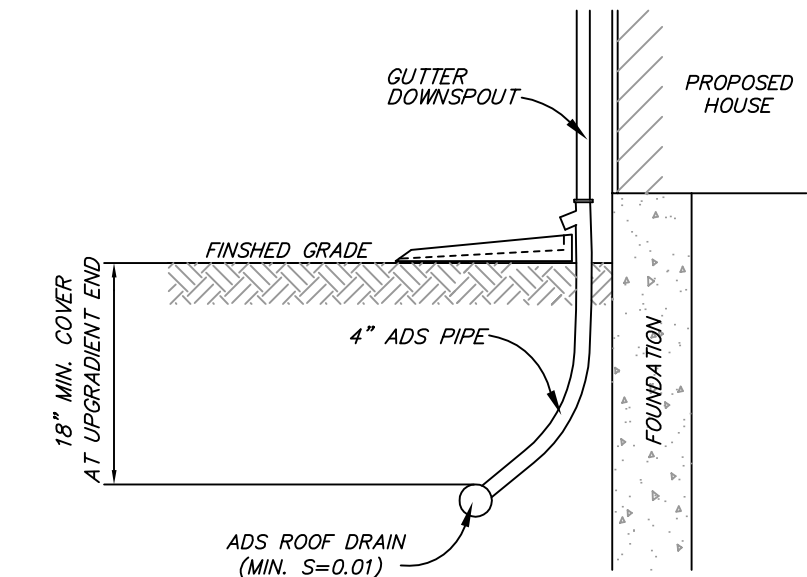
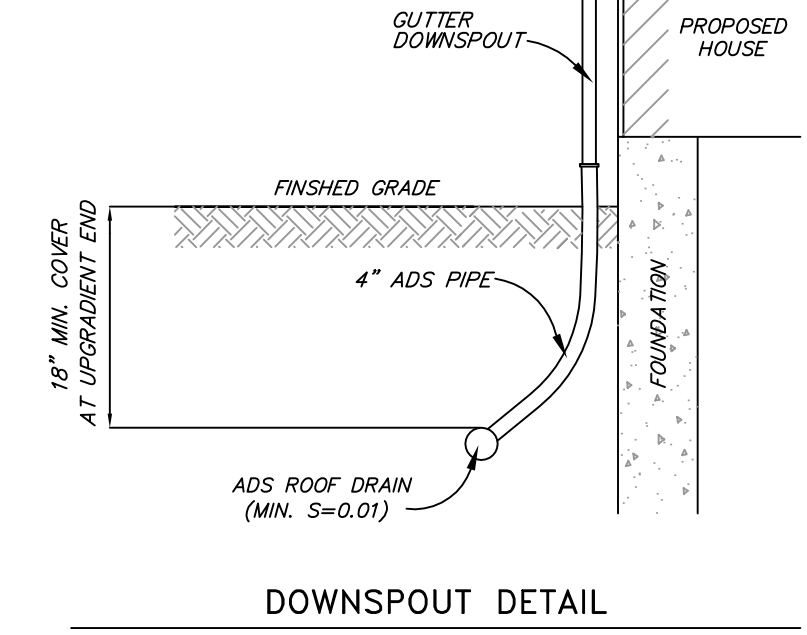
THE INFILTRATION SYSTEMS AND CATCH BASINS SHALL BE INSPECTED QUARTERLY AND CLEANED OF ANY DEBRIS OR SEDIMENT BUILDUP.
 MINIMUM COVER FOR THE PROPOSED ADS ROOF DRAINS SHALL BE 1.5 FEET.



INFILTRATION SYSTEM DETAILS AND NOTES - CULTEC RECHARGER 280HD CHAMBERS
 NOT TO SCALE

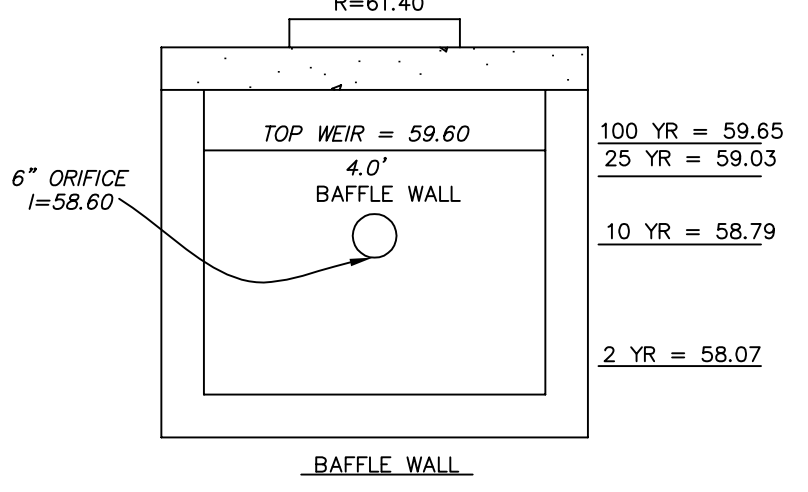
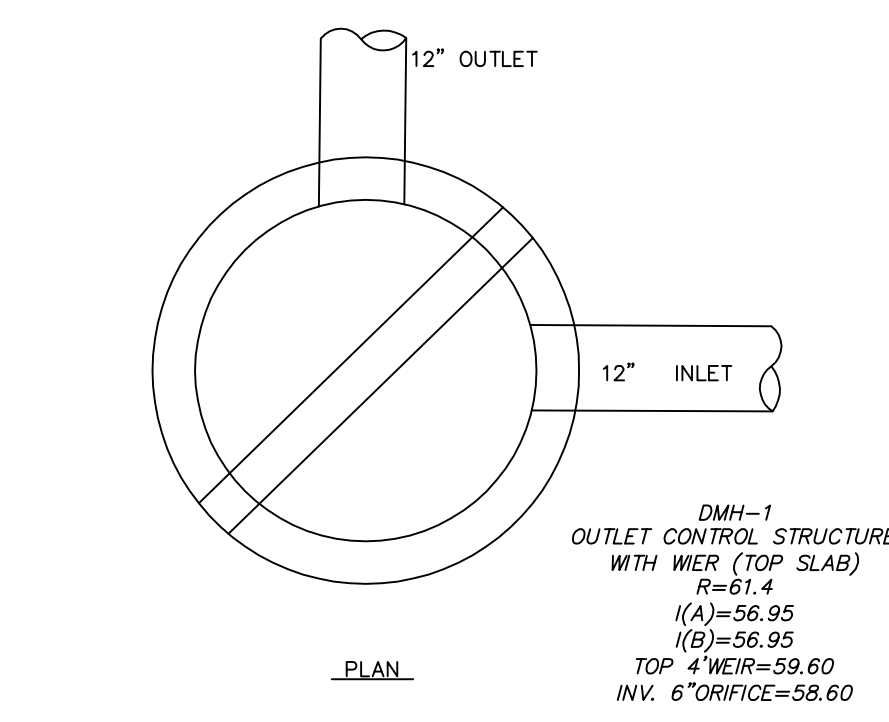
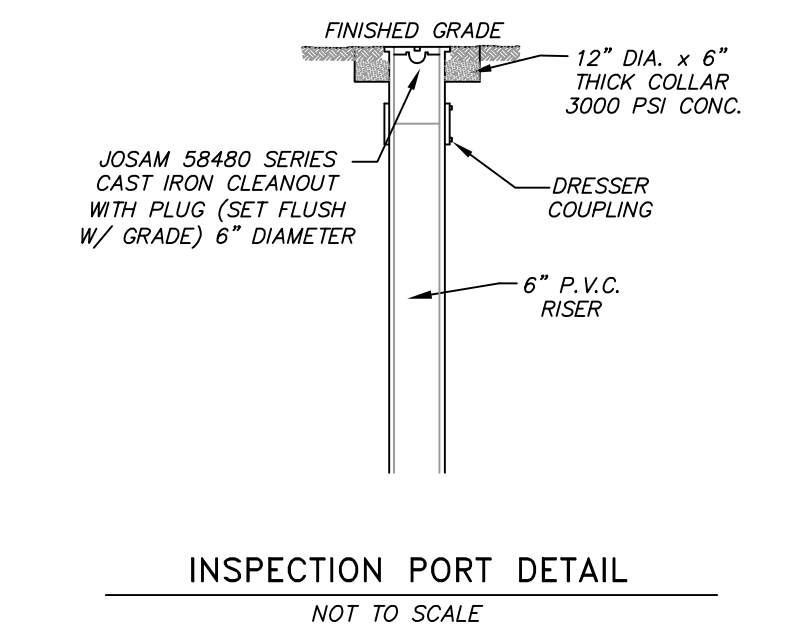


CULTEC RECHARGER 280HD INFILTRATION CHAMBER
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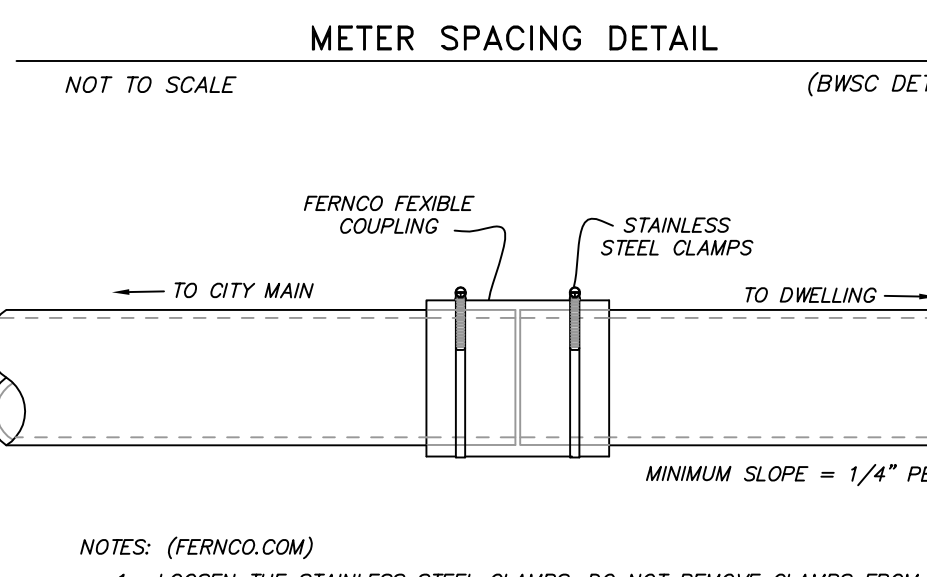
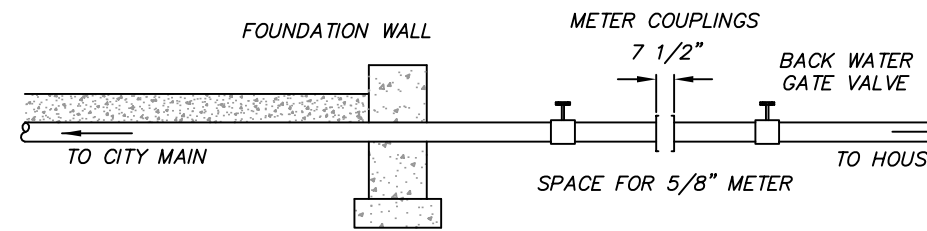
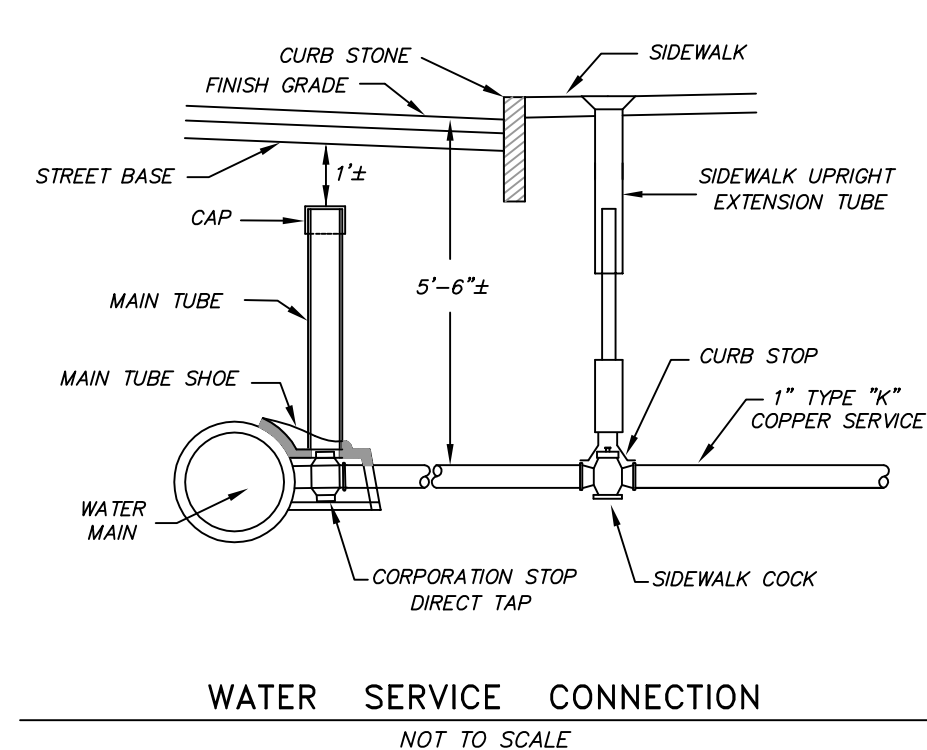
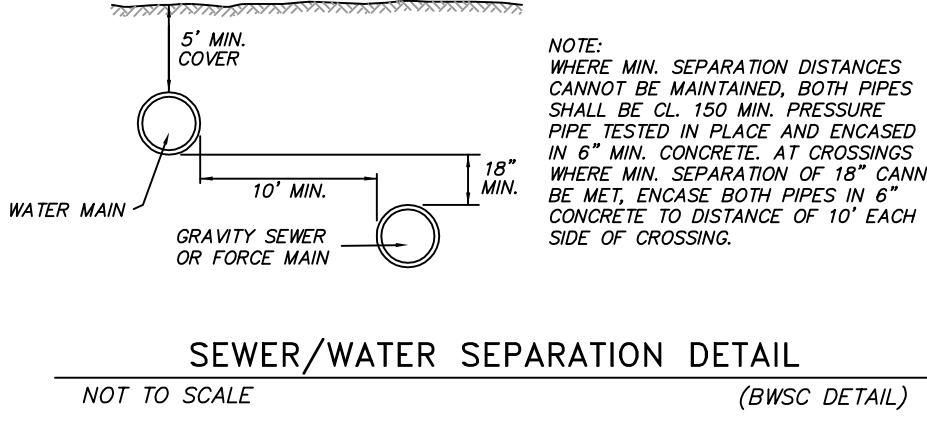
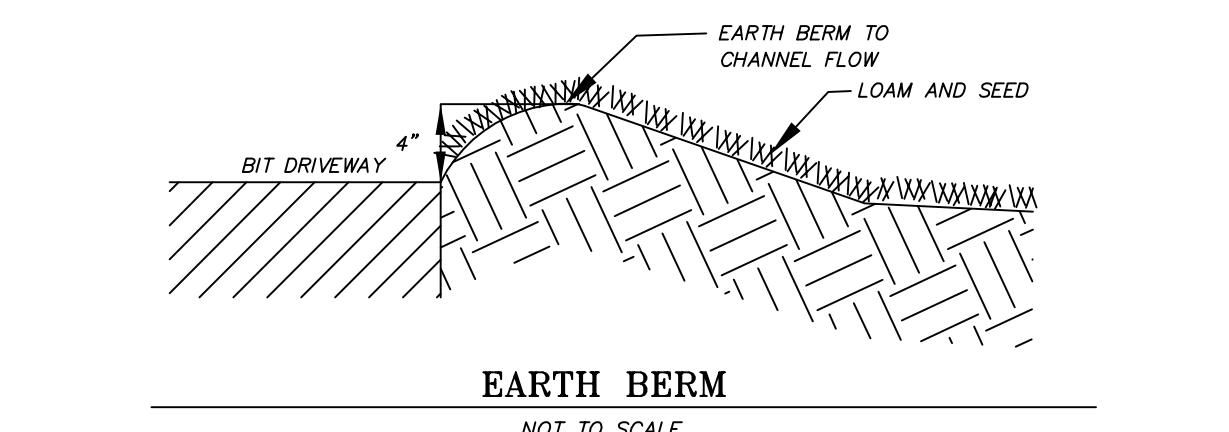
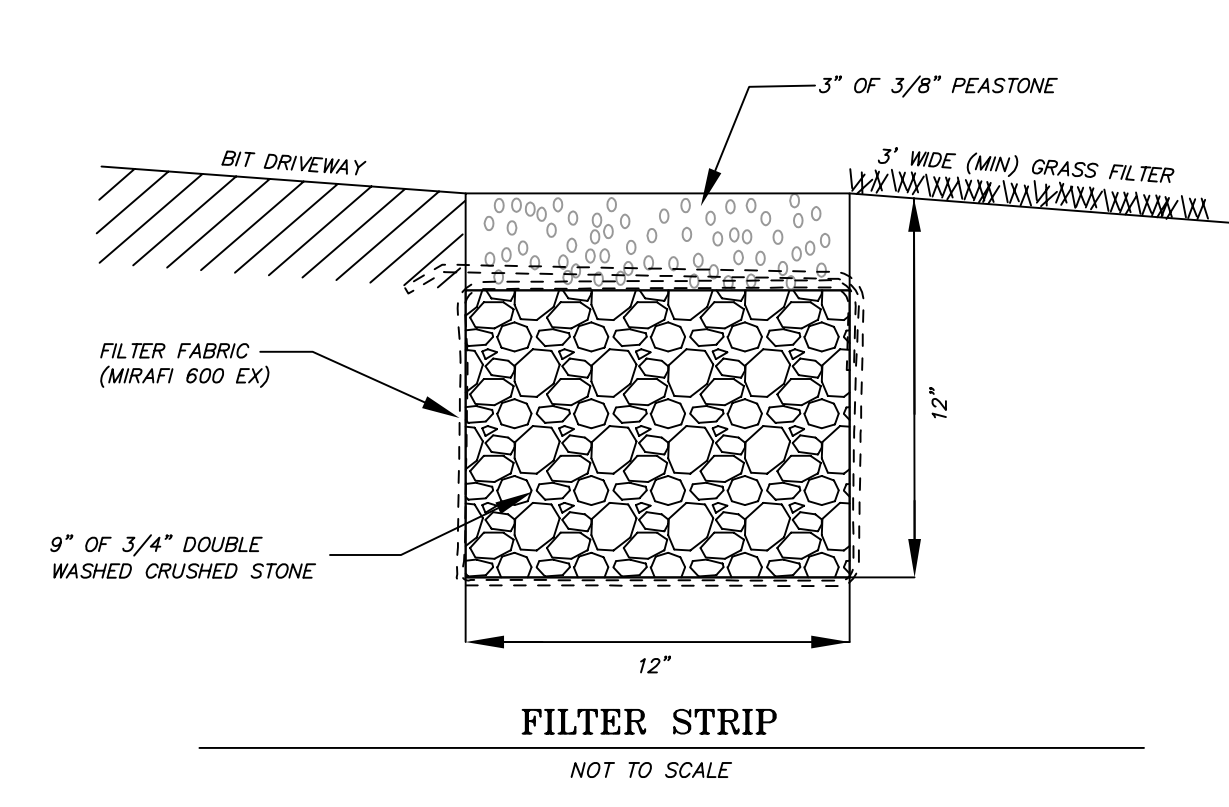


DOWNSPOUT w/ DIVERTER DETAIL
 NOT TO SCALE

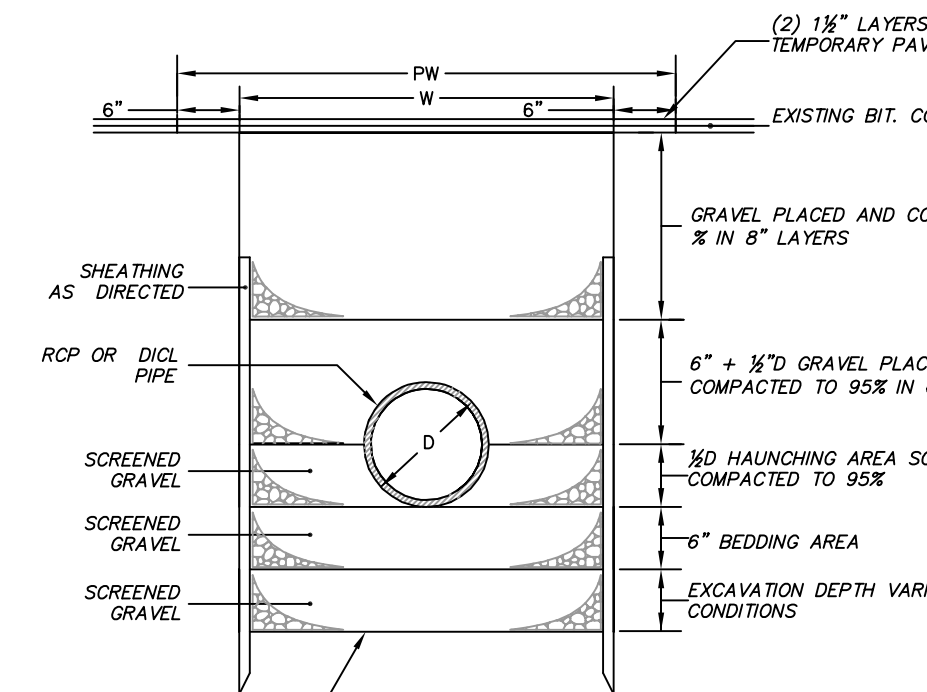
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CONTROL STRUCTURE MANHOLE
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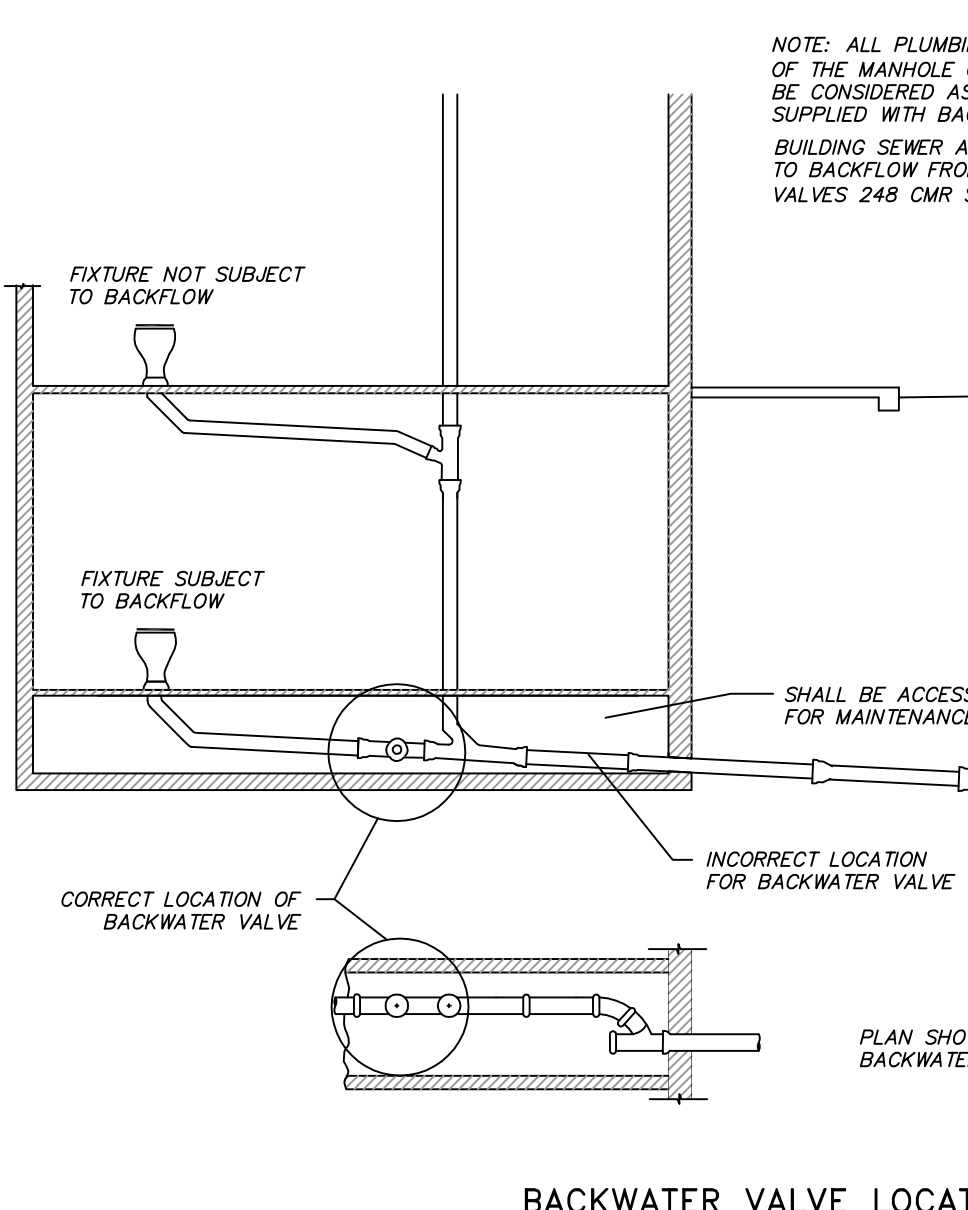
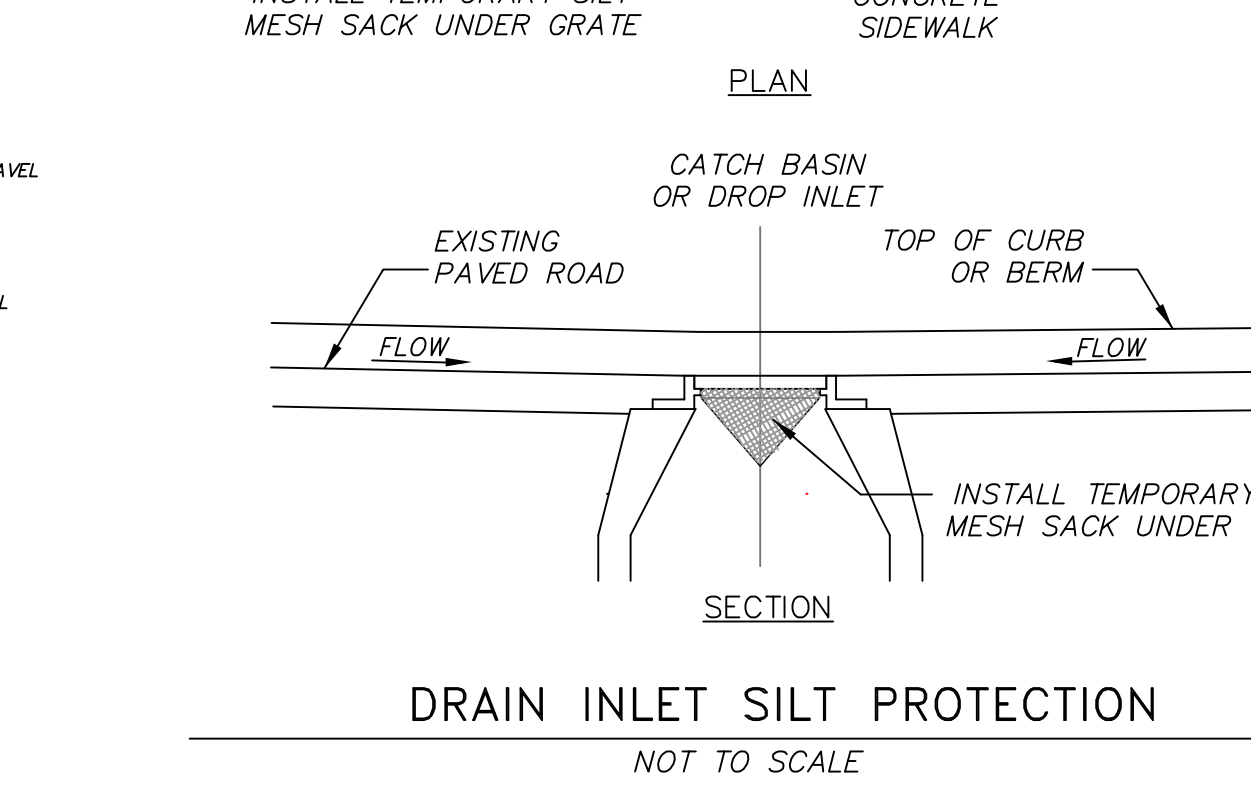
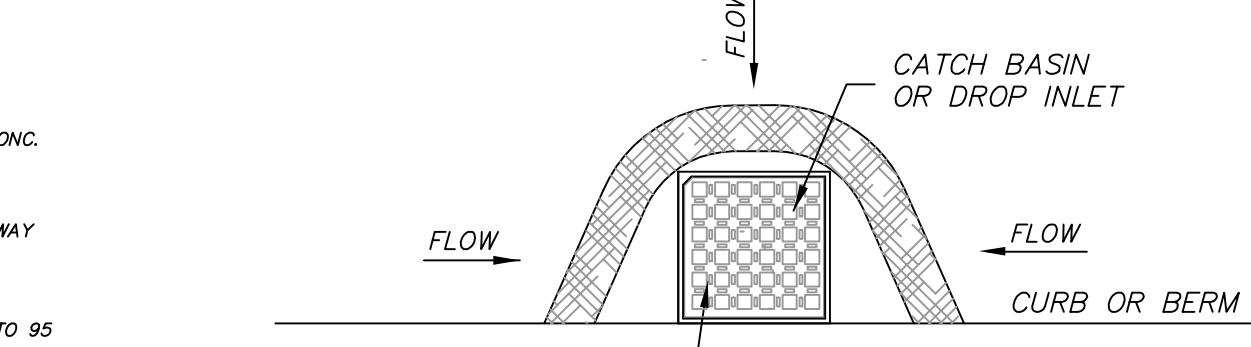
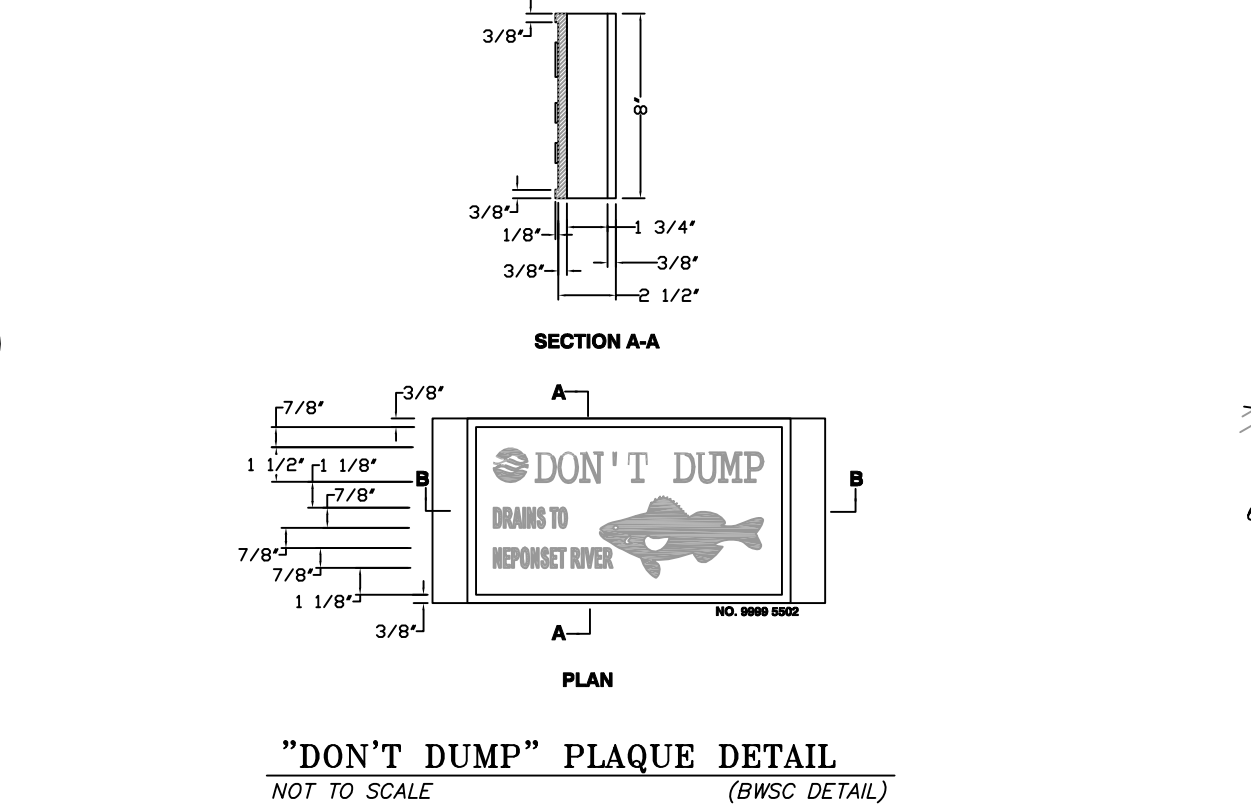
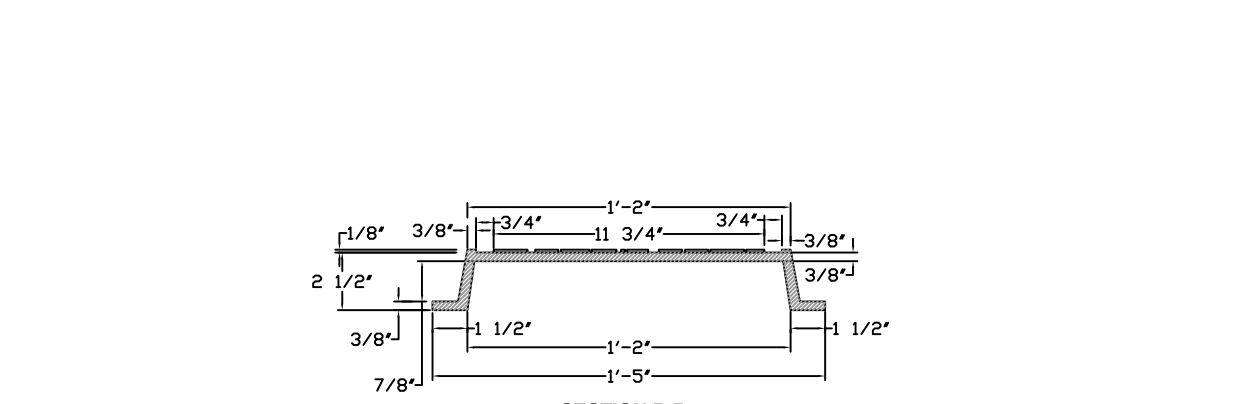
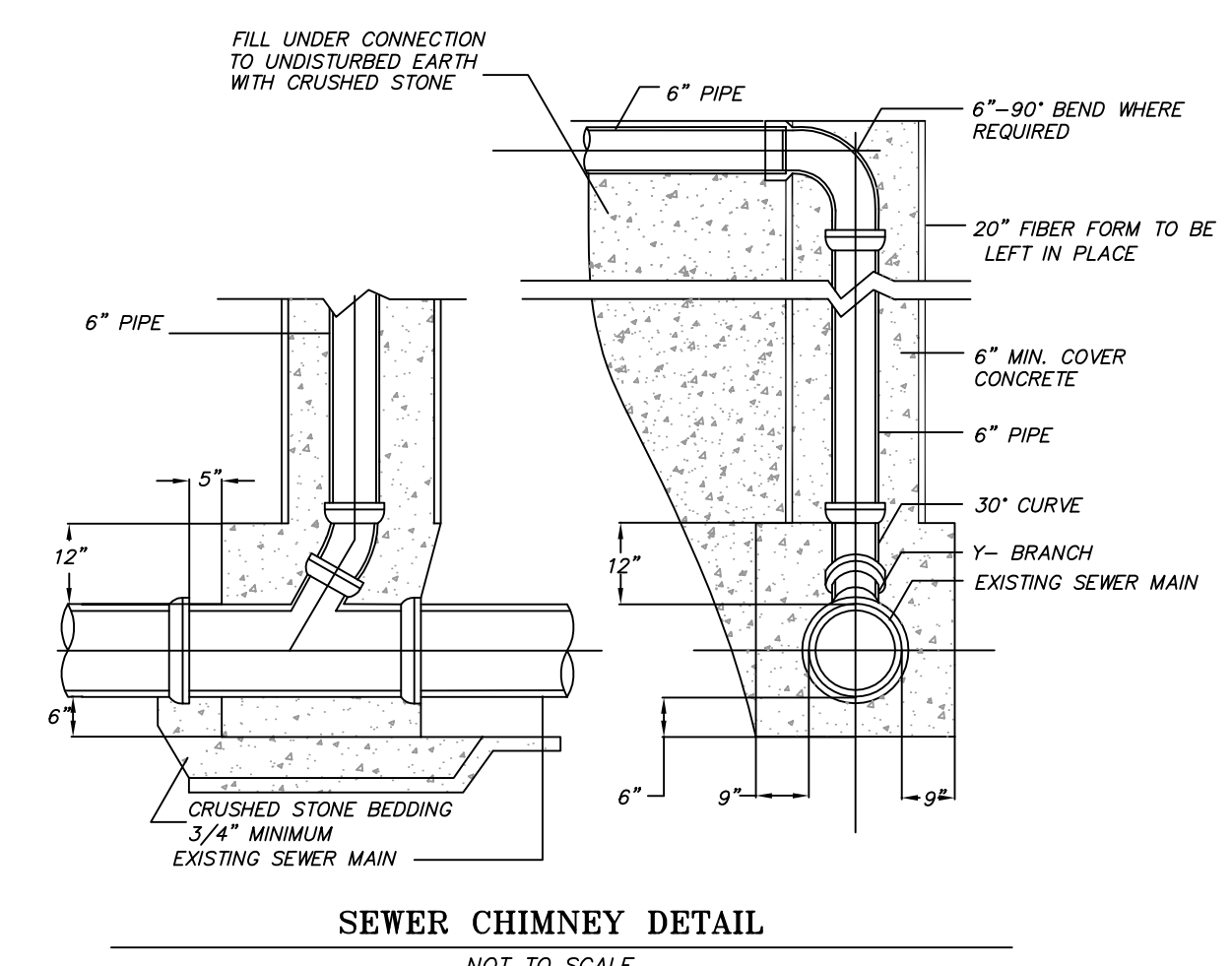


FERNCO FLEXIBLE COUPLING INSTALLATION
 NOT TO SCALE

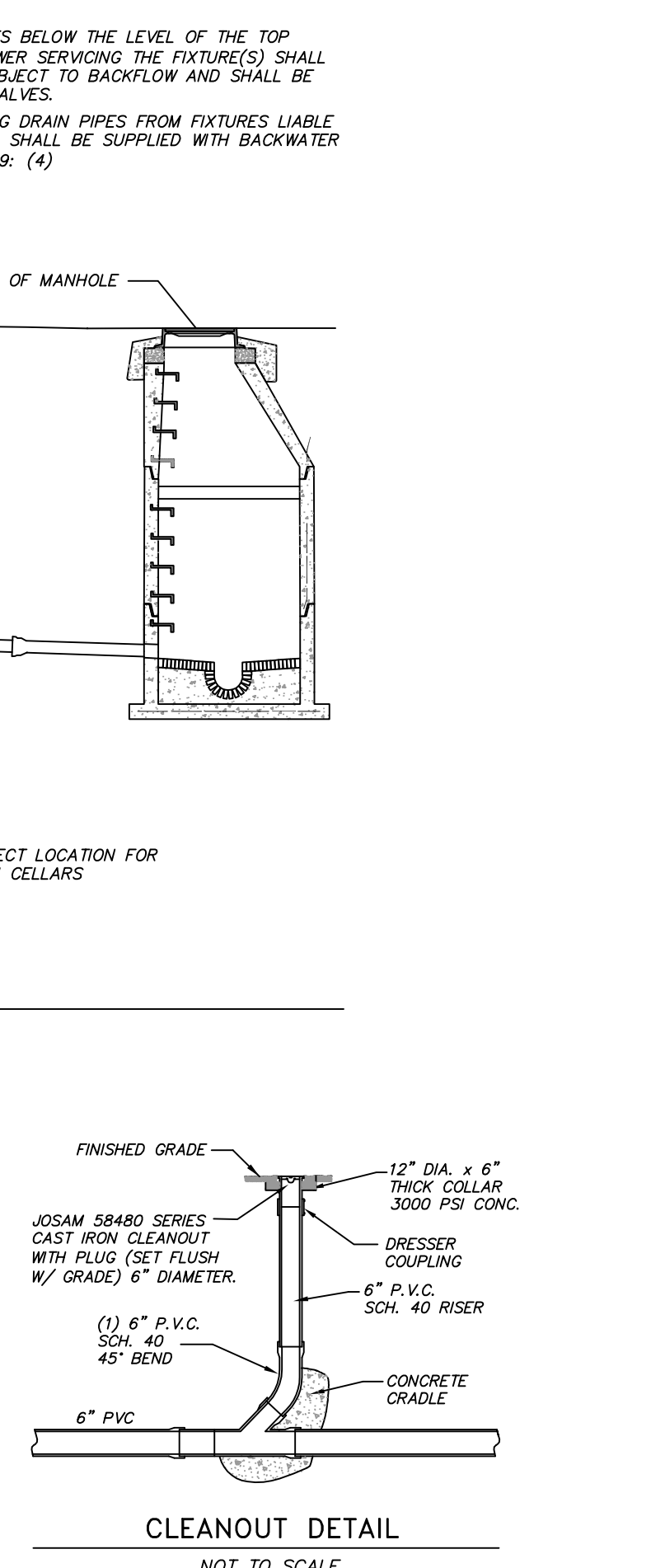


TRENCH DETAIL FOR P.V.C. PIPE
 NOT TO SCALE

TRENCH DETAIL FOR P.V.C. PIPE
 NOT TO SCALE



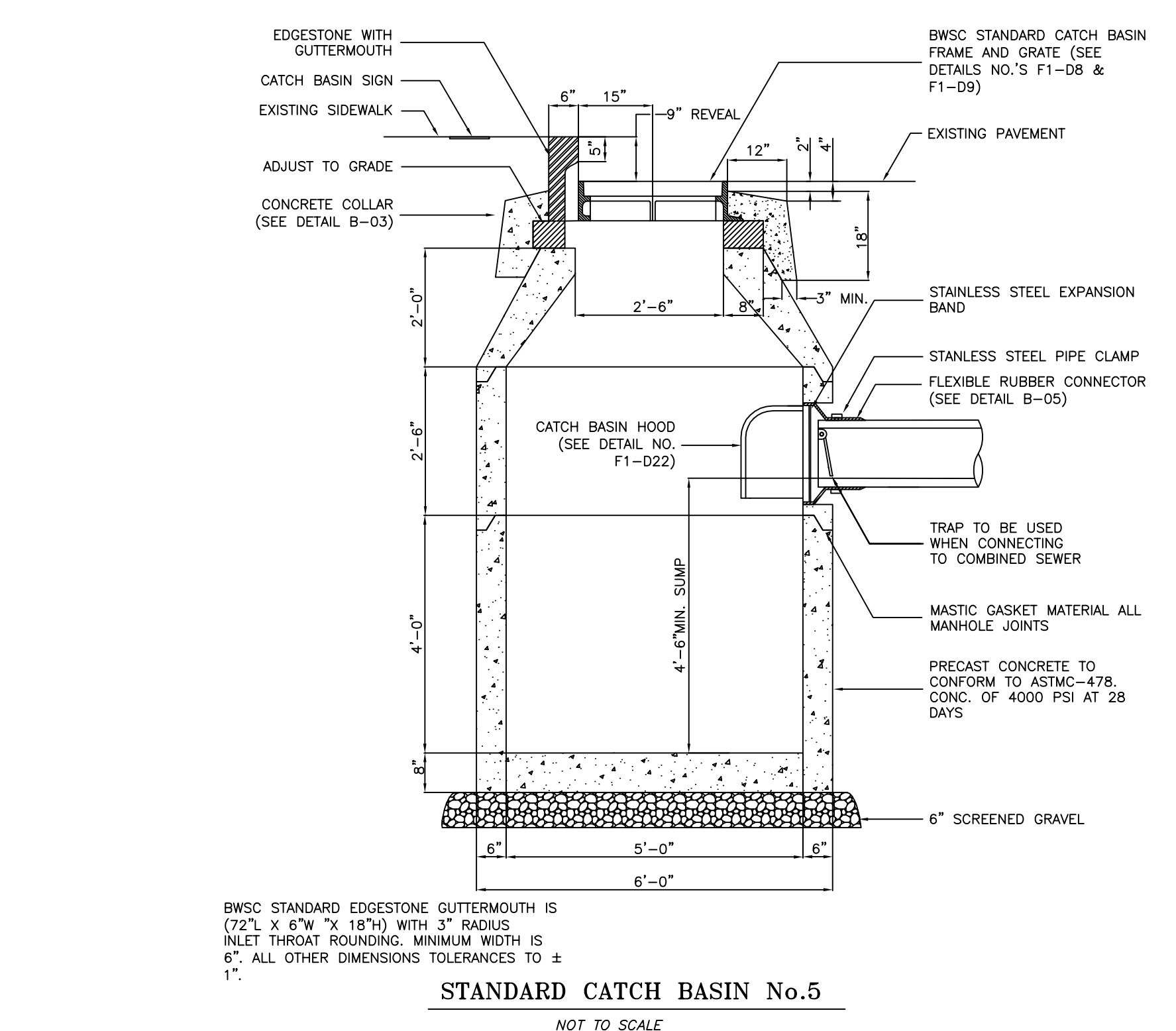
CONCRETE DRIVEWAY DETAIL
 NOT TO SCALE



CLEANOUT DETAIL
 NOT TO SCALE

MATERIAL SPECIFICATIONS

WATER LINE - 1" TYPE K COPPER PIPE
 SEWER LINE - 6" SDR 35 PVC PIPE AND FITTINGS
 DRAIN LINES - 4" & 6" ADS PIPE AND FITTINGS
 RECHARGE SYSTEM - CULTEC 280HD CHAMBERS



ADDRESS: 1817 RIVER STREET
 OWNER/APPLICANT: 1817 RIVER STREET LLC
 394 WASHINGTON ST - UNIT B
 DEDHAM, MA 02026
 CONTACT: TONY FERRARA 617-438-2171

ASSESSOR'S REFERENCE: HYDE PARK - WARD 18
 MAP No. 18236
 PARCEL 12374-000

RECORD DEED: SUFFOLK REGISTRY
 BK 67102 - PG 250

LAND DEVELOPMENT PLAN DETAILS
 1817 RIVER STREET
BOSTON, MASS.
 (HYDE PARK - 02136-6036)
 SCALE: AS NOTED MAY 26, 2022
 NORWOOD ENGINEERING CO., INC.
 CIVIL ENGINEERS & LAND SURVEYORS
 1410 ROUTE ONE, NORWOOD, MA 02062
 PHONE: 781-762-0143 FAX 781-762-8595

REVISIONS

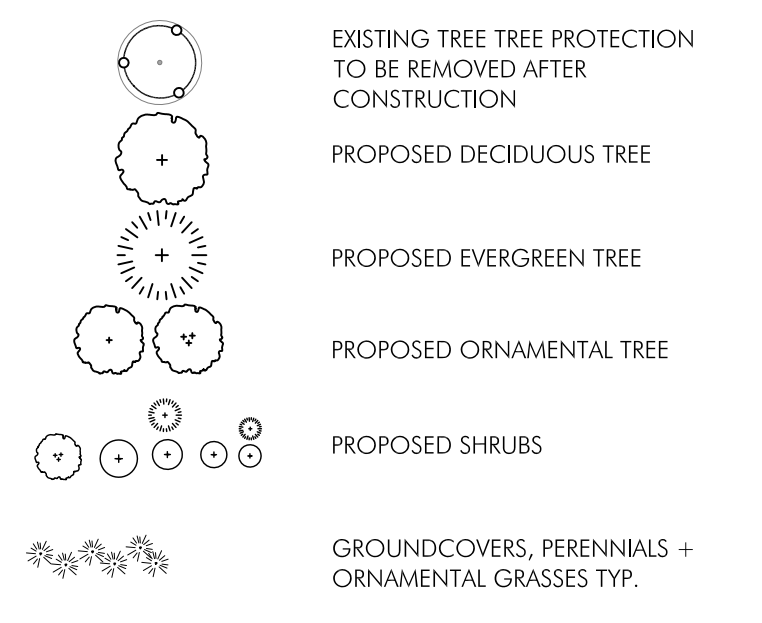
6/27/2022	- LOCATE TREES AND RIVER BANK BUFFER
7/15/2022	- TREE / LANDSCAPING NOTES ADDED

METERS 0 2.5 5 10
 FEET 0 5 10 20 30
 SHEET No. 3 OF 3 7876-35

SYMB	QTY.	LATIN NAME	COMMON NAME	SIZE	NOTES
TREES					
AG	3	Amelanchier x grandiflora	'Autumn Brilliance' Serviceberry	2-2.5" cal.	B&B
CC	2	Cercis canadensis	Eastern Red Bud	2" cal.	B&B, Fall Dig Hazard
CK	1	Cladrastis kentukea	American Yellowwood	2" cal.	B&B
PO	5	Platanus occidentalis	American Sycamore	2" cal.	B&B, Fall Dig Hazard
TO	7	Thuja occidentalis 'Nigra'	White Cedar	6-7ft.	B&B
SHRUBS					
CP	34	Comptonia pergrina	Sweet Fern	3 gal.	Pots
CS	6	Cornus sericea 'Isanti'	Isanti Red Twig Dogwood	5 gal.	4' o.c. for Native Hedge
HQ	-	Hydrangea quercifolia 'Alice'	Alice Oakleaf Hydrangea	#3	Urban tolerant
PSn	3	Pinus strobus 'Niagara Falls'	Niagara Falls Easter White Pine	5 gal.	
RM	5	Rhododendron maximum 'Roseum'	Rosebay Rhododendron	5 gal.	
PERENNIALS					
ah	37	Amsonia hubrichtii	Bluestar	2 gal.	24" o.c.
ca	25	Calamagrostis acutiflora 'Karl Foerster'	Feather Reed Grass	2 gal.	Pots
mf	9	Monarda fistulosa	Beebalm	2 gal.	

SEED MIX
NEWP: New England Wetland Plants MOIST SITE MIX aka (New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites 35 lbs/Acre.
The New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites contains a selection of native grasses and wildflowers designed to colonize generally moist, recently disturbed sites where quick growth of vegetation is desired to stabilize the soil surface. It is an appropriate seed mix for ecologically sensitive restorations that require stabilization as well as long-term establishment of native vegetation. This mix is particularly appropriate for detention basins that do not hold standing water. Many of the plants in this mix can tolerate infrequent inundation, but not constant flooding. The mix may be applied by hand, by mechanical spreader, or by hydroseeder. After sowing, lightly rake, roll or cultipack to insure good seed-to-soil contact. Best results are obtained with a Spring or late Summer seeding. Late Fall and Winter dormant seeding requires an increase in the application rate. A light mulching of clean, weed-free straw is recommended.

LEGEND: SEE PLANT SCHEDULE

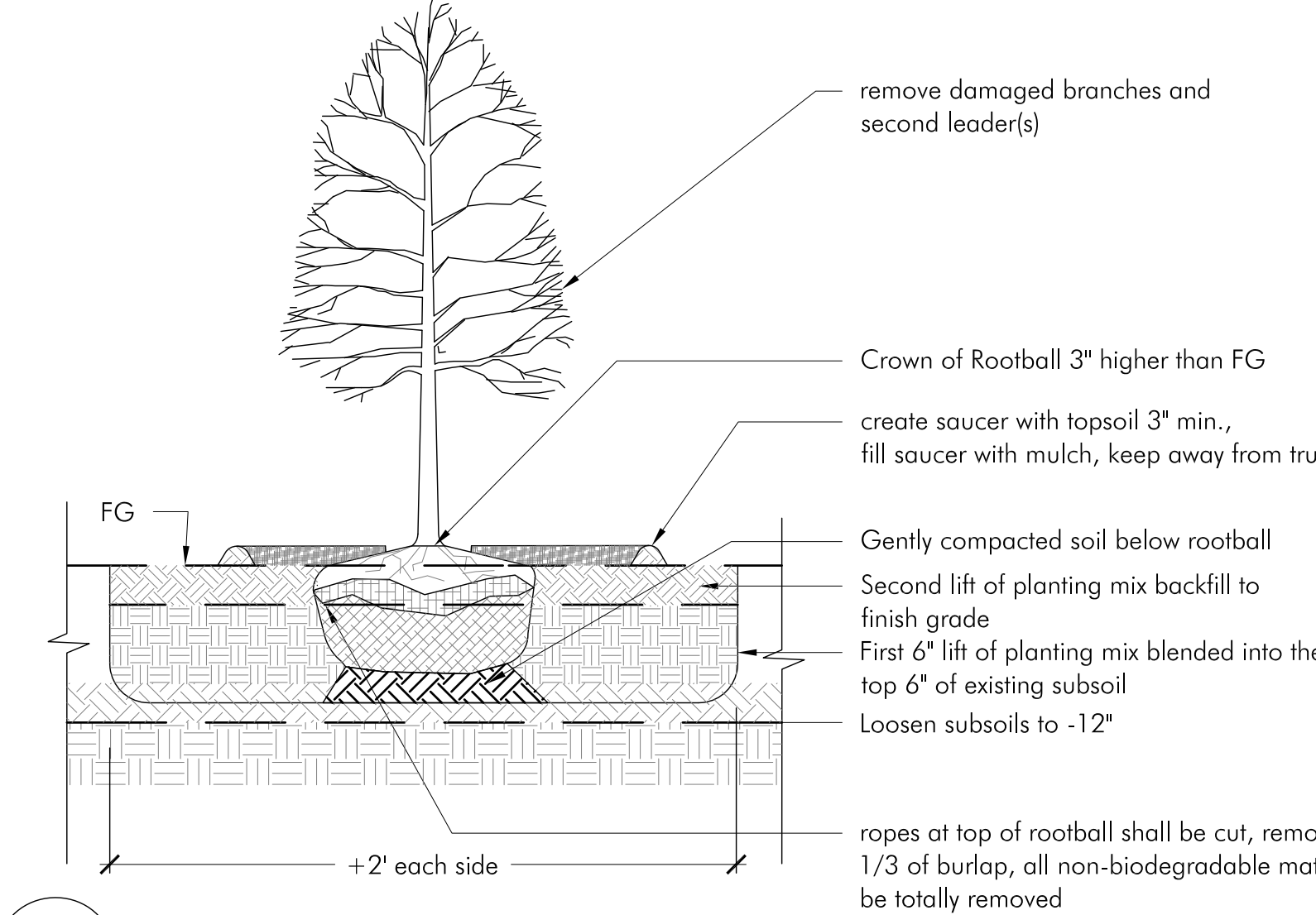
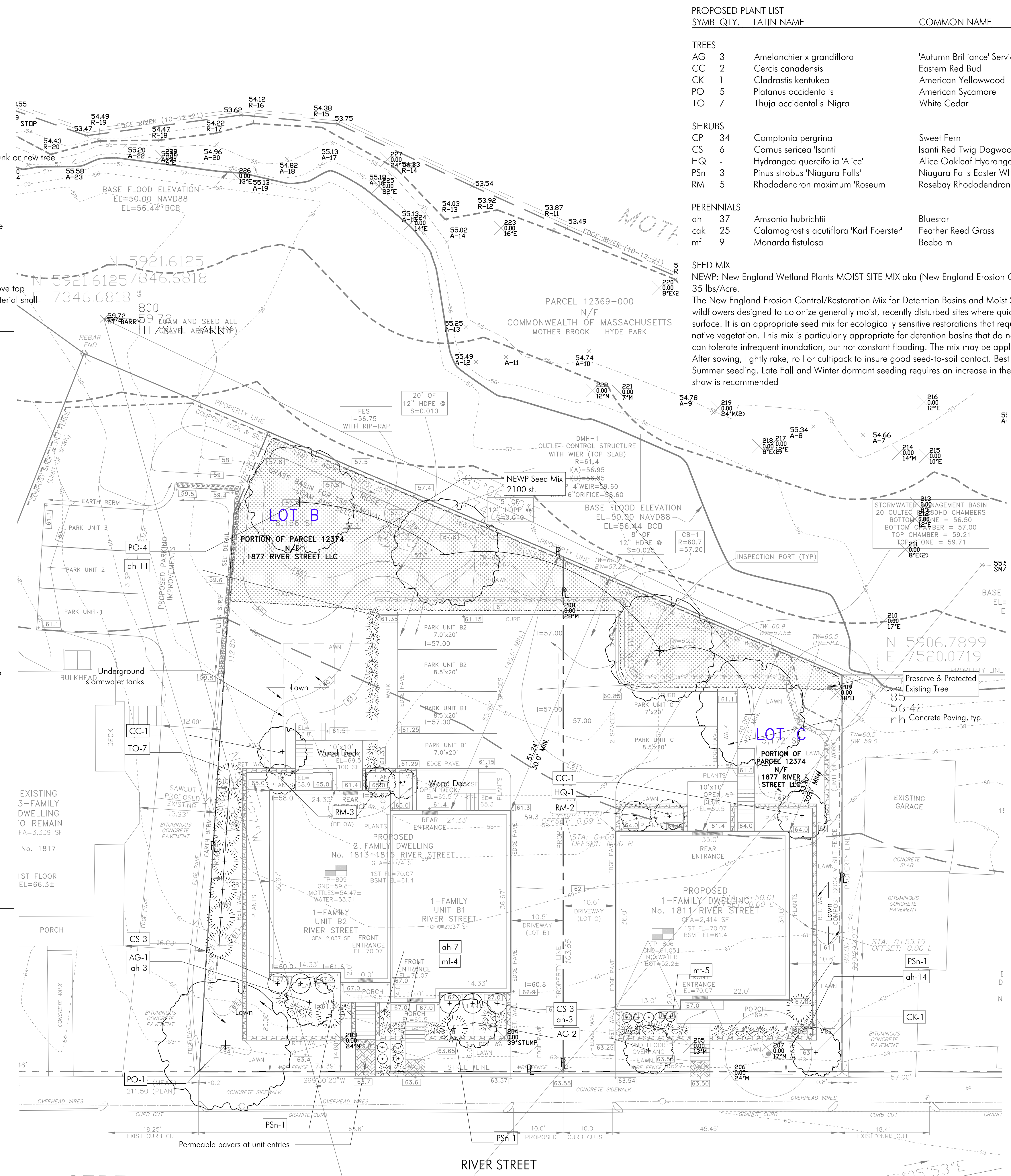


SEED MIXES: SEE SPECIFICATIONS AND DETAIL

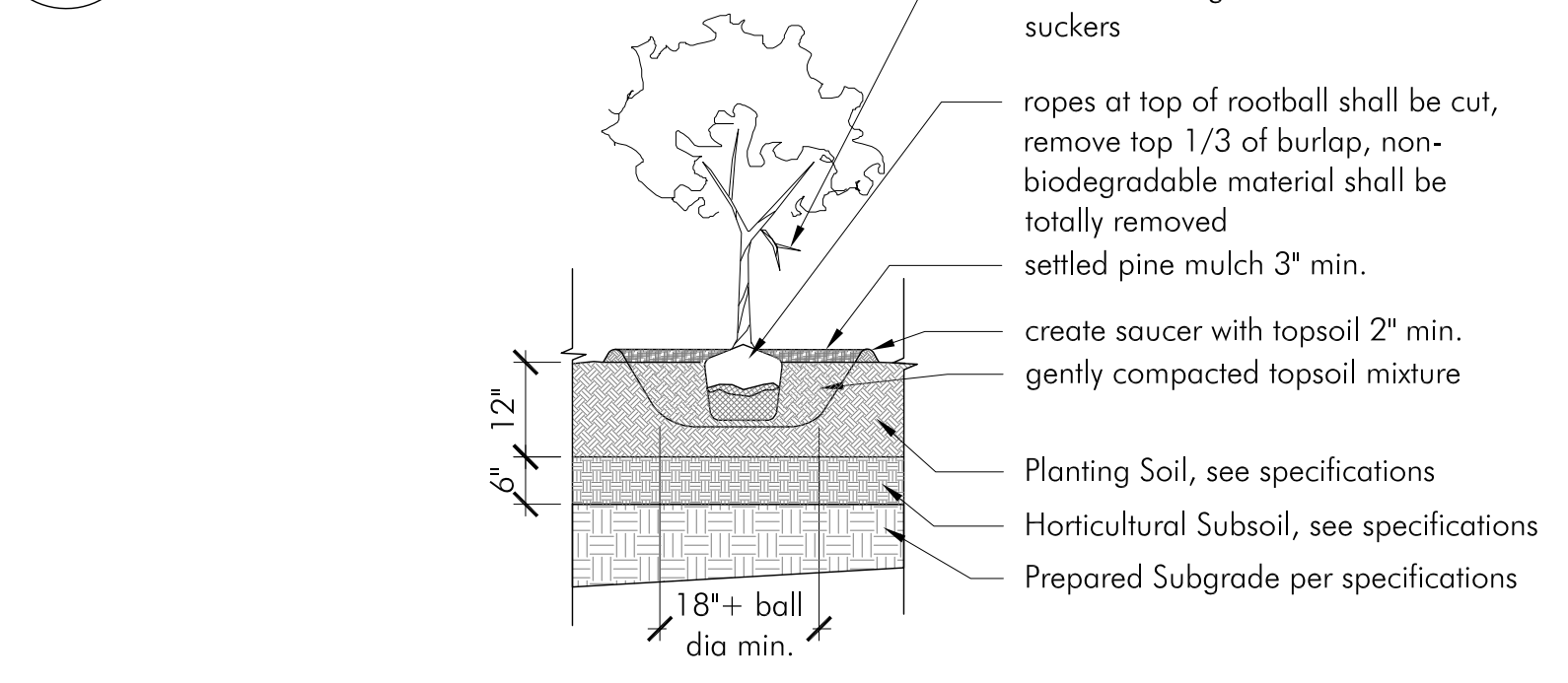
- Lawn: LOAM AND SEED - GENERAL LAWN SEE SPECIFICATIONS FOR SEED TYPE
- NEWP SEED MIX (MOW ONCE PER YEAR) PH: 413-548-8000 FX: 413-549-4000 E: info@newp.com
- New England Wetland Plants, Inc. 820 West Street Amherst, MA 01002

PLANTING NOTES

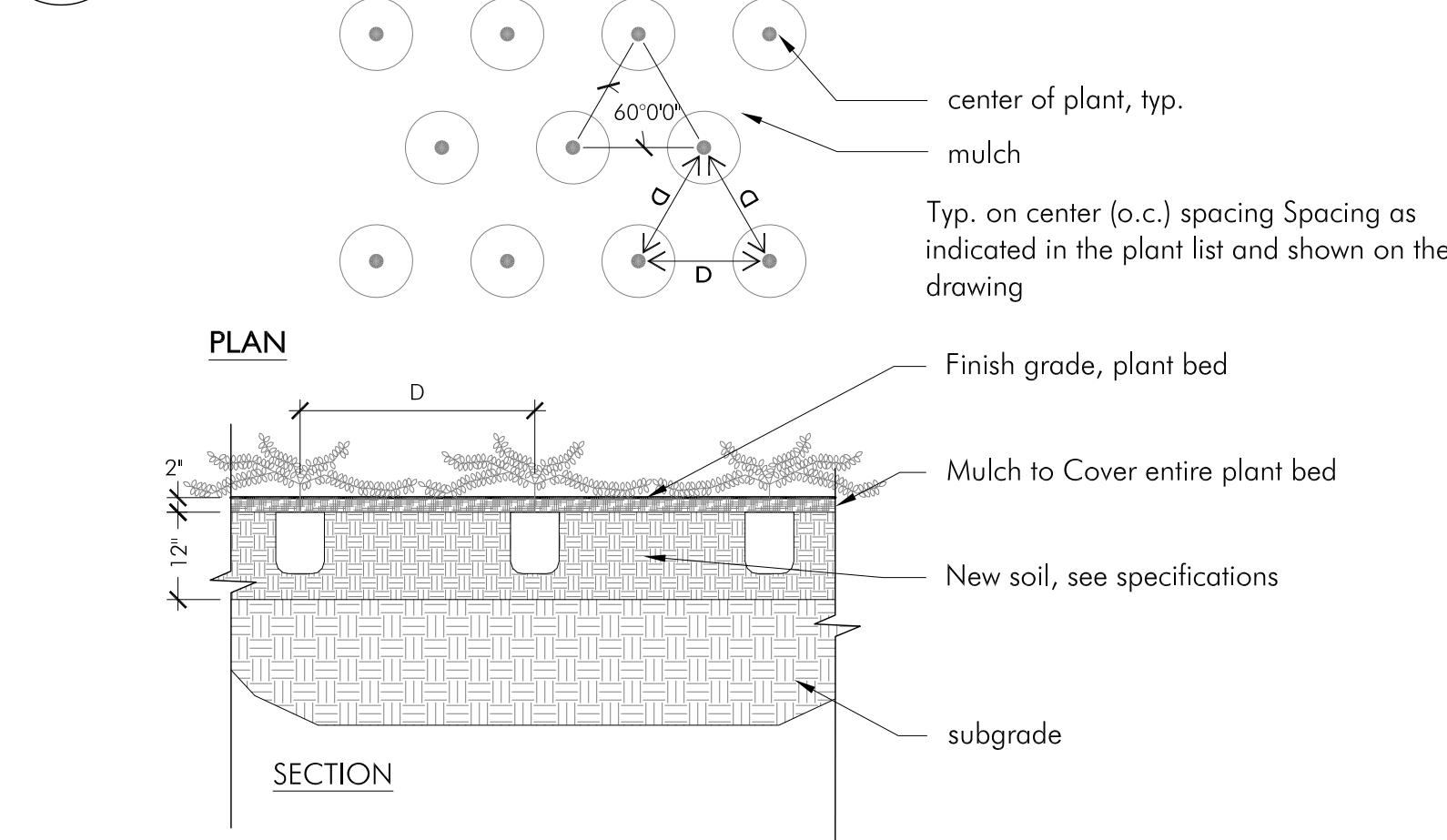
- All plant material shall be approved by the Landscape Architect prior to arrival on the site.
- All plant material shall conform to the guidelines established by "The American Standard for Nursery Stock", published by the American Hort.
- No substitution of plant species will be allowed without the written approval of the Landscape Architect. Any proposed substitutions of plant species shall be a plant of equivalent overall form, height and branching habit, flower, leaf and fruit, color and time of bloom.
- The Contractor shall locate and verify all utility line locations prior to excavation for tree pits and report any conflicts to the Landscape Architect.
- All plants shall be placed in their approximate location by the Contractor. The Contractor shall adjust the locations as required by the Landscape Architect. Trees shall be placed first, then shrubs, then perennials and last, groundcovers. Final locations must be approved by the Landscape Architect prior to planting.
- The rootballs of trees shall be planted 3" above adjacent finished grade. The rootballs of shrubs shall be planted 2" above adjacent finished grade. The rootflare of perennials shall be set at the level at which the plant was growing.
- All planting to be done under the full time supervision of a certified arborist, nurseryman or licensed Landscape Architect.
- All plants are to be thoroughly watered after installation, at least twice within the first 24 hours.



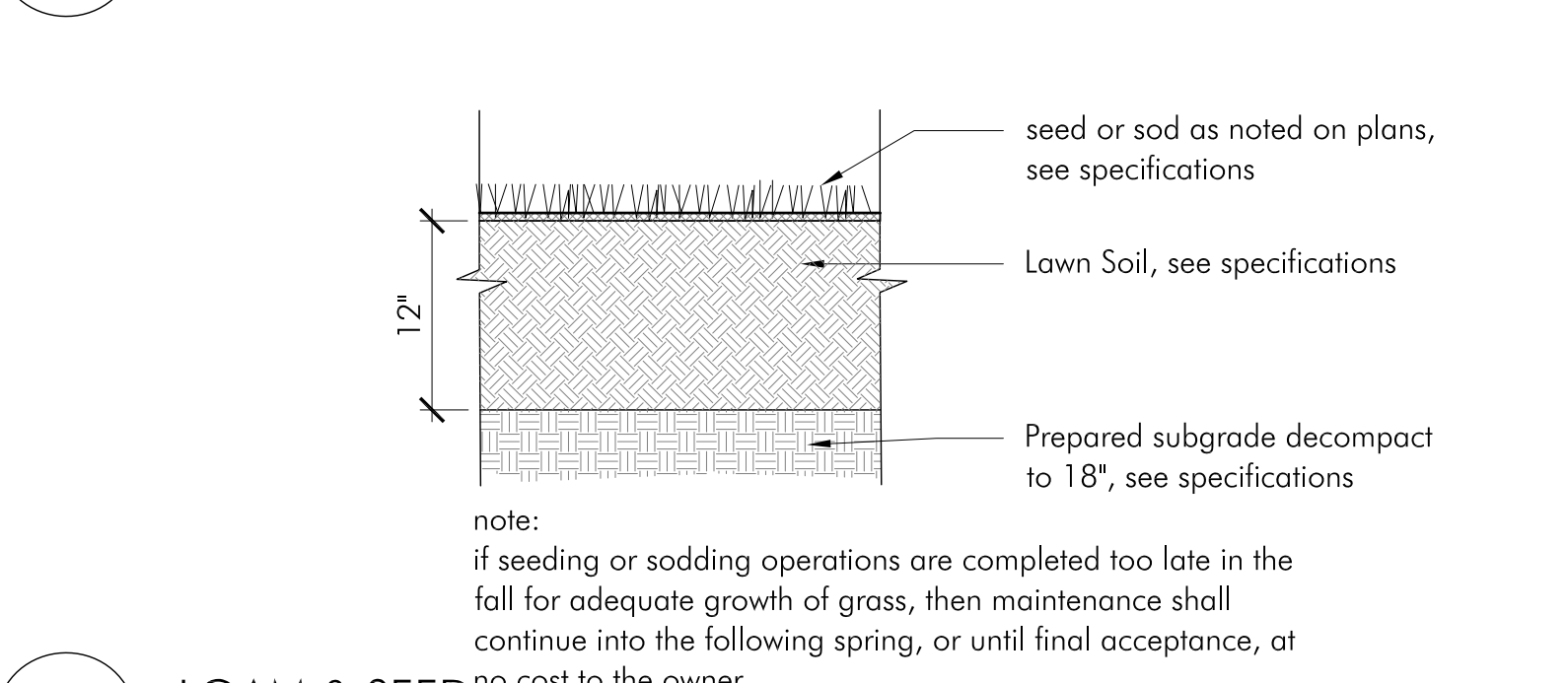
1 DECIDUOUS TREE PLANTING
SCALE: NTS



2 SHRUB PLANTING
SCALE: NTS



3 PERENNIAL, GRASSES AND GROUNDCOVER PLANTING
SCALE: NTS



4 LOAM & SEED
SCALE: NTS

1807-1809 RIVER STREET
BOSTON, MA

PLANTING PLAN

Project #: Date: 04/11/2022
Drawn by: JN Reviewed: NA
Scale: 1" = 10'-0"

Revisions:



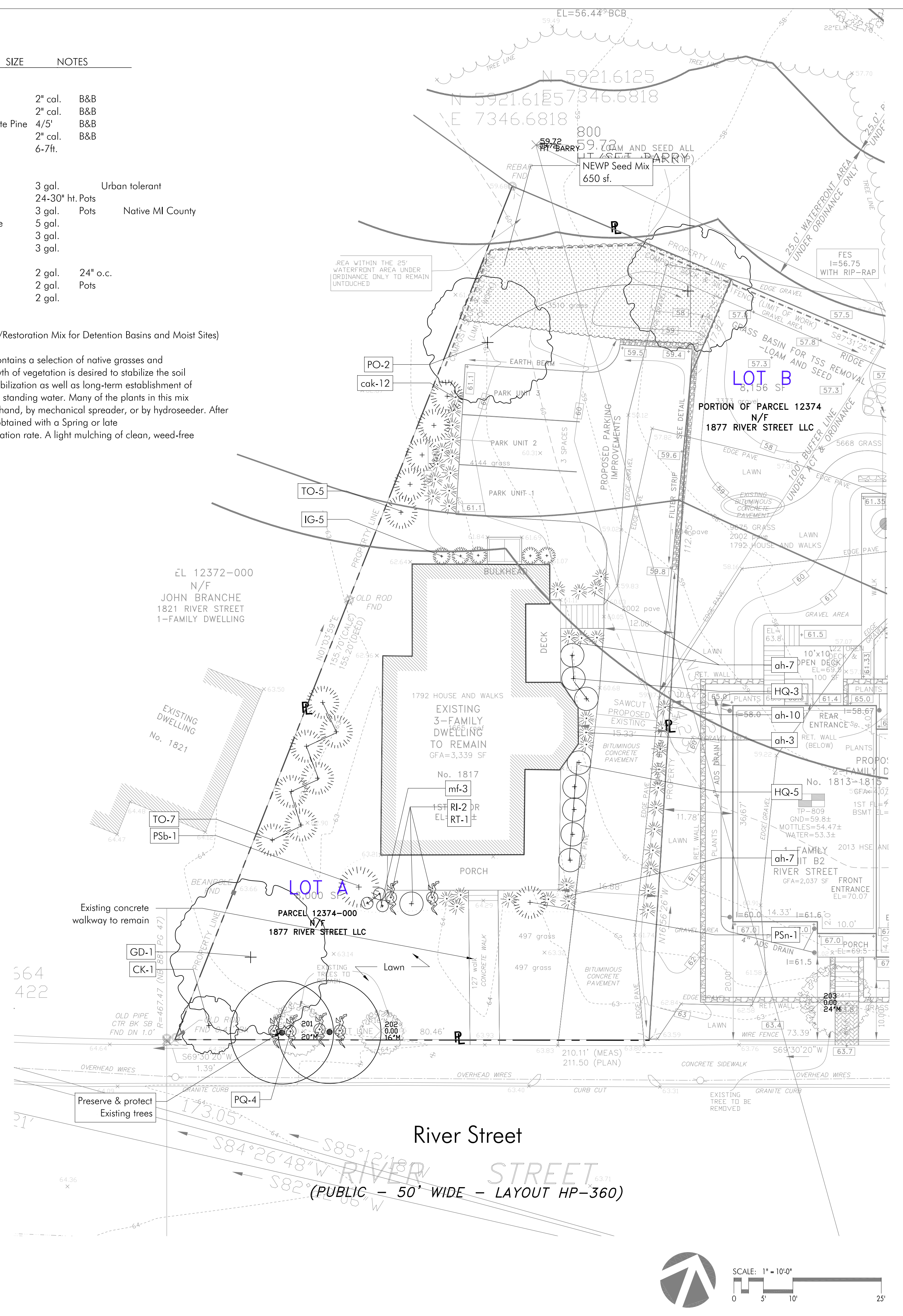
1817 RIVER STREET
BOSTON, MA
PLANTING PLAN

Project #: Date: 04/11/2022
Drawn by: JN Reviewed: NA
Scale: 1" = 10'-0"

Revisions:

L1

© Verdant Landscape Architecture



PROPOSED PLANT LIST

SYMB	QTY.	LATIN NAME	COMMON NAME	SIZE	NOTES
TREES					
CK	1	Cladrastis kentukea	American Yellowwood	2" cal.	B&B
GD	1	Gymnocladus dioicus	Kentucky Coffeetree	2" cal.	B&B
PSb	1	Pinus strobus 'Bennett's Oculus Draconis'	Bennett's Oculus Draconis White Pine	4/5'	B&B
PO	2	Platanus occidentalis	American Sycamore	2" cal.	B&B
TO	12	Thuja occidentalis 'Nigra'	White Cedar	6-7ft.	
SHRUBS					
HQ	8	Hydrangea quercifolia 'Snowflake'	Snowflake Oakleaf Hydrangea	3 gal.	Urban tolerant
IG	5	Ilex glabra	Inkberry	24-30" ht. Pots	
PQ	4	Parthenocissus quinquefolia (VINE)	Virginia Creeper	3 gal.	Pots Native MI County
PSn	1	Pinus strobus 'Niagara Falls'	Niagara Falls Easter White Pine	5 gal.	
RI	2	Rosa 'Iceberg Climbing'	Iceberg Climbing Rose (White)	3 gal.	
RT	1	Rhus typhina 'Tiger Eyes'	Cutleaf Staghorn Sumac	3 gal.	
PERENNIALS					
ah	27	Amsonia hubrichtii	Bluestar	2 gal.	24" o.c.
cak	12	Calamagrostis acutiflora 'Karl Foerster'	Feather Reed Grass	2 gal.	Pots
mf	3	Monarda fistulosa	Beebalm	2 gal.	

SEED MIX
NEWP: New England Wetland Plants MOIST SITE MIX aka (New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites) 35 lbs/Acre.
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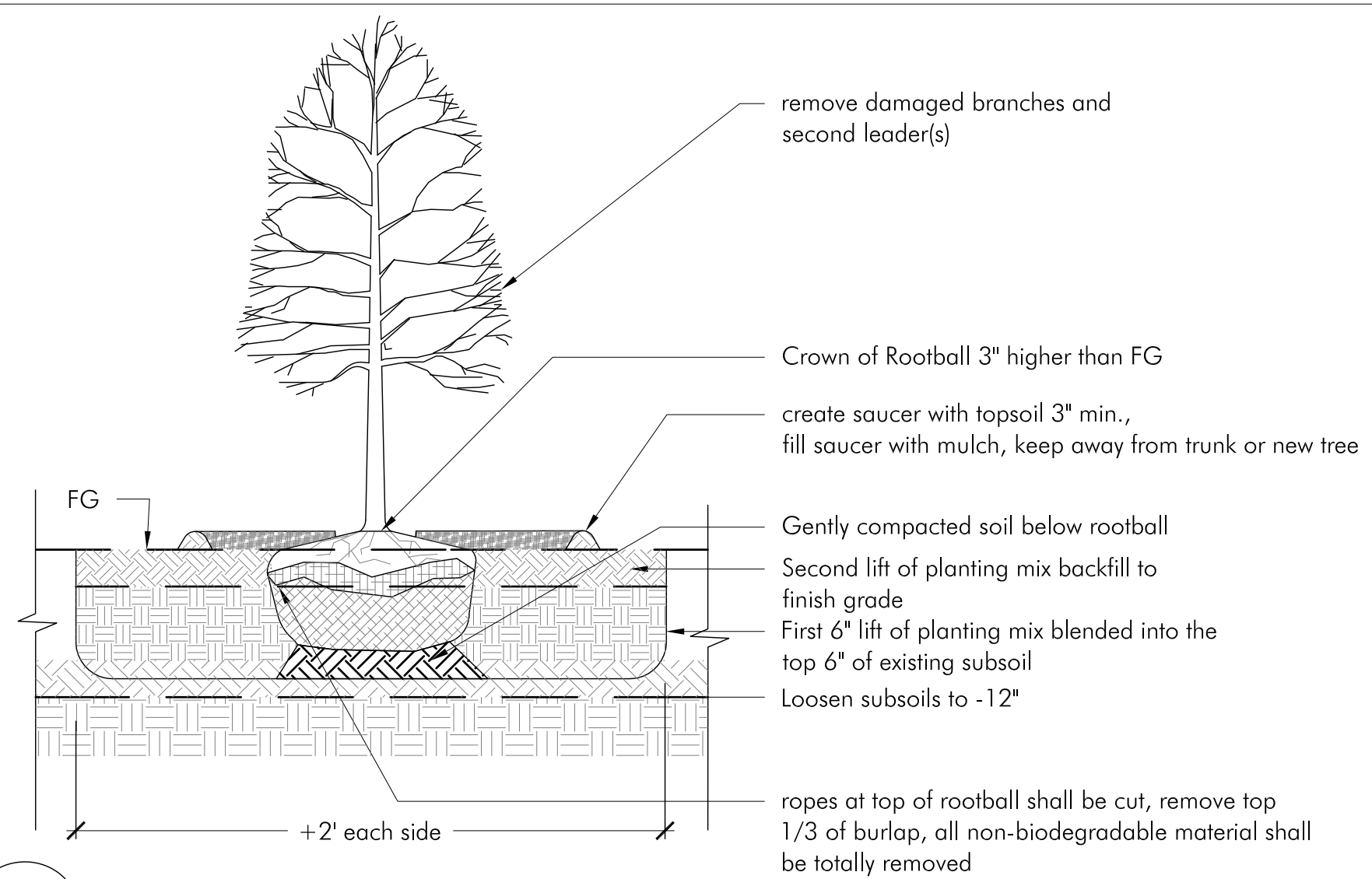
LEGEND: SEE PLANT SCHEDULE

- EXISTING TREE TREE PROTECTION TO BE REMOVED AFTER CONSTRUCTION
- PROPOSED DECIDUOUS TREE
- PROPOSED EVERGREEN TREE
- PROPOSED ORNAMENTAL TREE
- PROPOSED SHRUBS
- GROUNDCOVERS, PERENNIALS + ORNAMENTAL GRASSES TYP.

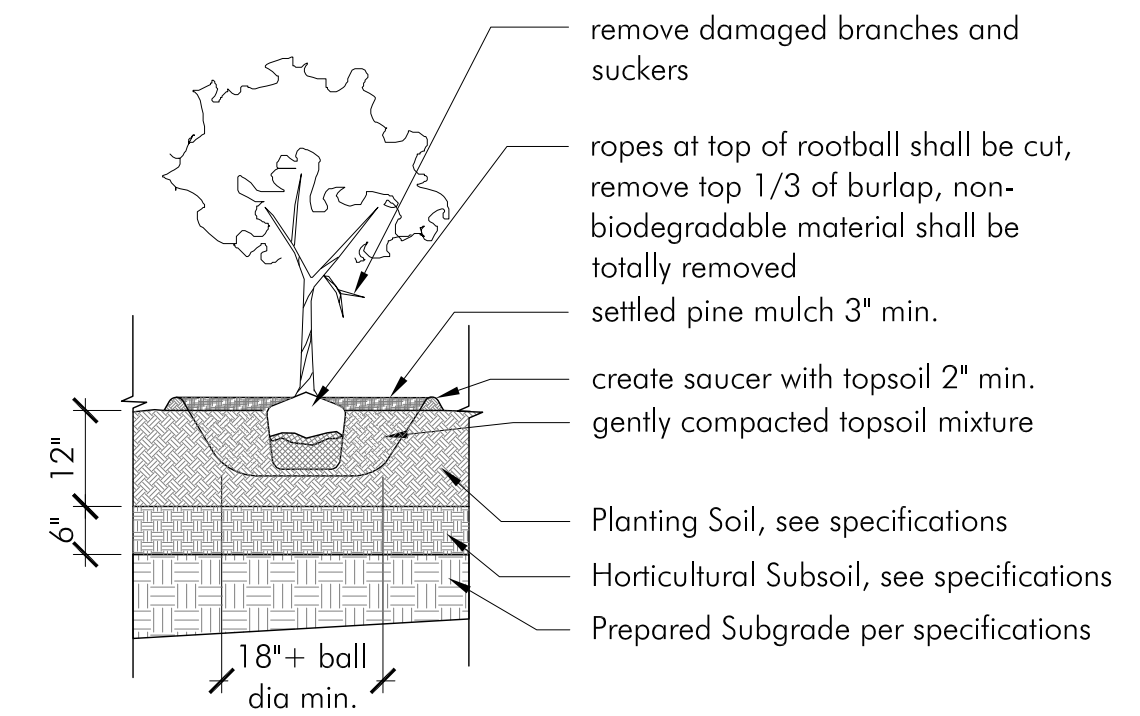
SEED MIXES: SEE SPECIFICATIONS AND DETAIL

- Lawn: LOAM AND SEED - GENERAL LAWN SEE SPECIFICATIONS FOR SEED TYPE
- NEWP SEED MIX (MOW ONCE PER YEAR) PH: 413-548-8000 FX: 413-549-4000 E: info@newp.com
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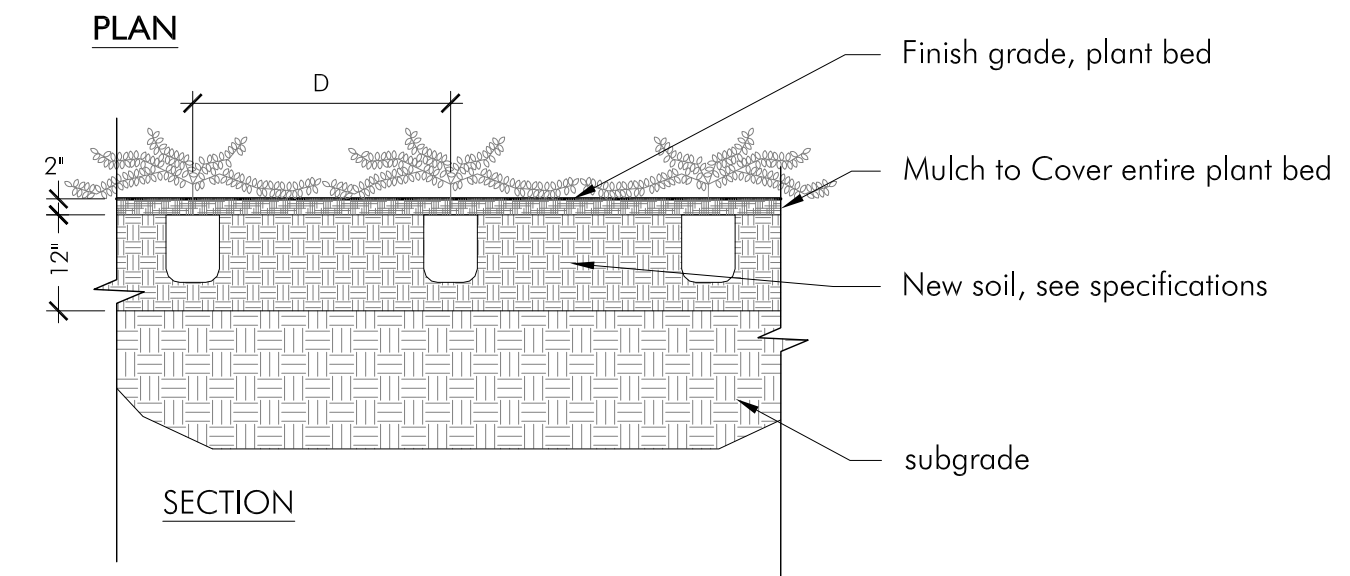
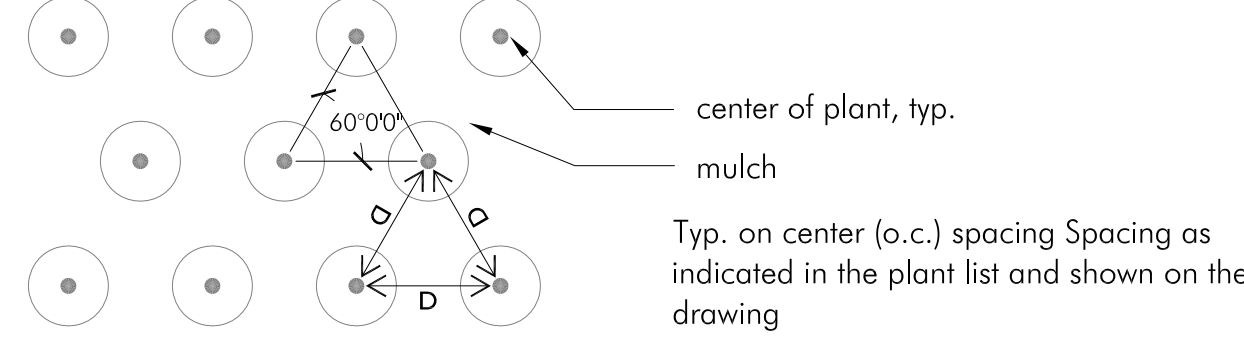
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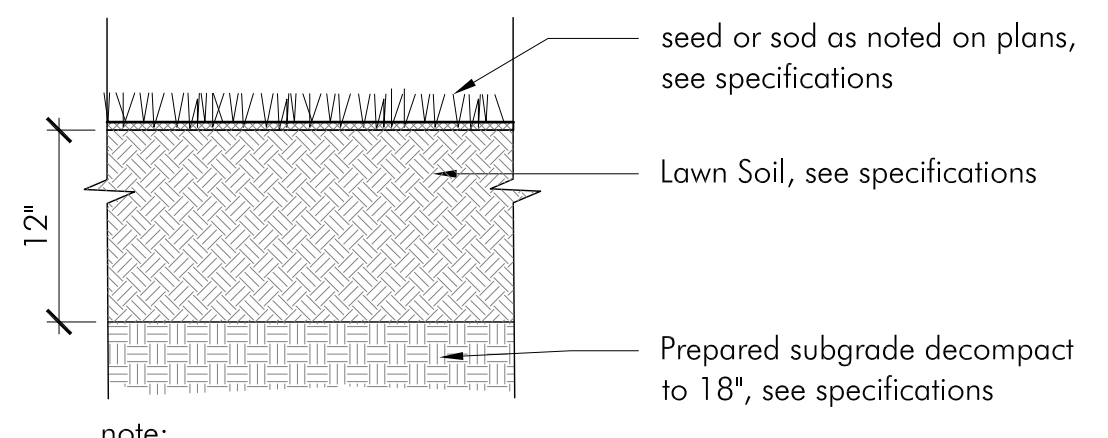
1 DECIDUOUS TREE PLANTING
SCALE: NTS



2 SHRUB PLANTING
SCALE: NTS



3 PERENNIAL, GRASSES AND GROUND COVER PLANTING
SCALE: NTS



4 LOAM & SEED
SCALE: NTS

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