NOTICE OF INTENT
AND ACCOMPANYING STORMWATER MANAGEMENT REPORT

PROPOSED 22-UNIT
RESIDENTIAL BUILDING
15 REAR FRONT STREET
BRAINTREE, MA 02184

Prepared For:

Mike McGough
30 Beaumont Street
Boston, 02124

Submitted By:

GREATER BOSTON SURVEY AND ENGINEERING
17 FREDITH ROAD
WEYMOUTH, MA 02189

March 15, 2021

NOTICE OF INTENT
AND ACCOMPANYING STORMWATER MANAGEMENT REPORT

PROPOSED 22-UNIT
RESIDENTIAL BUILDING
15 REAR FRONT STREET
BRAINTREE, MA 02184

TABLE OF CONTENTS

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
Braintree
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):

15 Rear Front Street — a. Street Address
Braintree — b. City/Town
02184 — c. Zip Code

Latitude and Longitude:
42.13047 — d. Latitude
70.5806 — e. Longitude

3005 — f. Assessors Map/Plat Number
38A — g. Parcel /Lot Number

2. Applicant:

Mike — a. First Name
McGough — b. Last Name
c. Organization
30 Beaumont St — d. Street Address
Boston — e. City/Town
MA — f. State
02124 — g. Zip Code
617-594-6444 — h. Phone Number
i. Fax Number
mh.mcgough@gmail.com — 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):

Paul — a. First Name
Tyrell — b. Last Name
Greater Boston Survey and Engineering — c. Company
17 Fredith Rd — d. Street Address
Weymouth — e. City/Town
MA — f. State
02189 — g. Zip Code
781-412-7029 — h. Phone Number
i. Fax Number
p.j.tyrell@att.net — j. Email address

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

$1,050 — a. Total Fee Paid
$512.50 — b. State Fee Paid
$537.50 — c. City/Town Fee Paid

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A. General Information (continued)

6. General Project Description:

The applicant proposes the demolition of two existing buildings and bituminous concrete parking areas and the construciton of a new 22-unit residential building, including 1,500 SF retail space and parking garage. Portions of the work are within the 100 & 200 inner and outer riparian zones to a perennial stream (Smelt Brook). The project proposed a reduction in altered areas within the buffer.

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

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

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

1. ☐ Yes ☒ No

If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

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

8. Property recorded at the Registry of Deeds for:

a. County	b. Certificate # (if registered land)
Norfolk	
c. Book	d. Page Number
4715	228

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. ☐ Bank	1. linear feet	2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ☐ Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☐ Bordering Land Subject to Flooding	1. square feet 3. cubic feet of flood storage lost	2. square feet 4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. ☒ Riverfront Area	Smelt Brook 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: 15,802 (14,459 already degraded)

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.
12,488	1,659	10,829

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. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☐ Land Under the Ocean	1. square feet 2. cubic yards dredged	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☐ Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. ☐ Coastal Dunes	1. square feet	2. cubic yards dune nourishment

	Size of Proposed Alteration	Proposed Replacement (if any)
f. ☐ Coastal Banks	1. linear feet	
g. ☐ Rocky Intertidal Shores	1. square feet	
h. ☐ Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. ☐ Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. ☐ Land Containing Shellfish	1. square feet	
k. ☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 1. cubic yards dredged	
l. ☐ Land Subject to Coastal Storm Flowage	1. square feet	

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

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

5. ☐ Project Involves Stream Crossings

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

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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

   Oliver - MassGIS
   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 http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/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 http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/mesa/mesa_fee_schedule.htm). 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, http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/mesa/mesa_exemptions.htm; 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:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: DMF.EnvReview-South@state.ma.us

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

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.

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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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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.

Plan of Proposed Construction - 15-17 Front Street, Weymouth, Massachusetts
a. Plan Title

Paul J. Tyrell, PE
b. Prepared By

Paul J. Tyrell, PE
c. Signed and Stamped by

3/15/21
d. Final Revision Date

Varies
e. Scale

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:

2475
2. Municipal Check Number

3/16/21
3. Check date

2479
4. State Check Number

3/16/21
5. Check date

Greater Boston Survey & Engineering
6. Payor name on check: First Name

TYRELL
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.

1. Signature of Applicant	2. Date 3/16/21
3. Signature of Property Owner (if different)	4. Date 3/16/21
5. Signature of Representative (if any)	6. Date

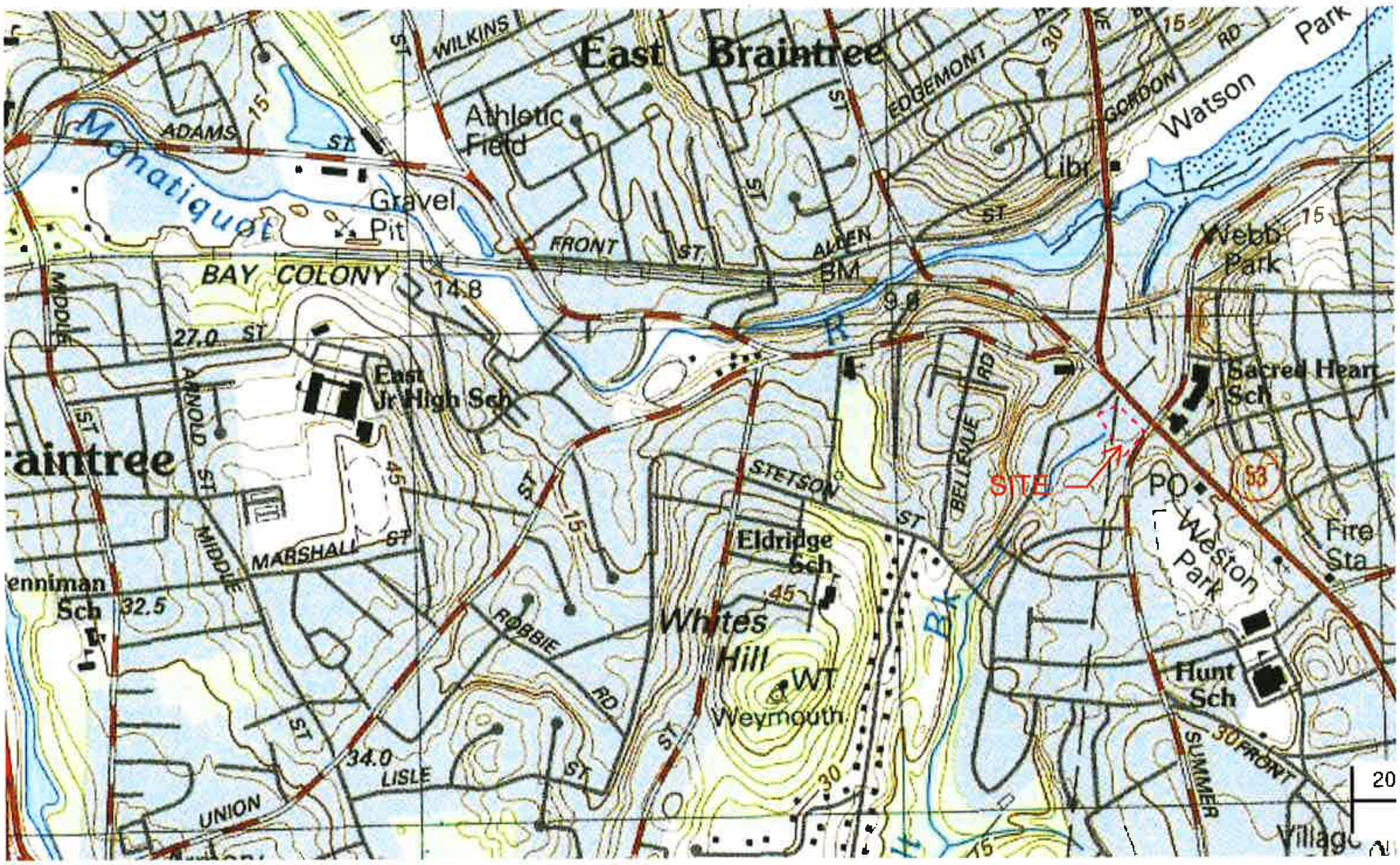
For Conservation Commission:
Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

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.

FIGURE #1



East Braintree
WILKINS
EDGEMONT
GORDON RD
Watson Park
Athletic Field
ADAMS ST
Monatiquot
Gravel Pit
FRONT ST
ALLEN ST
BM
Libr
Webb Park
BAY COLONY
14.8
9.8
27.0 ST
MIDDLE
East Jr High Sch
Sacred Heart Sch
raintree
ARNOLD ST
STETSON
BELLEVUE RD
SITE
PO
53
Weston Park
Fire Sta
MARSHALL ST
Eldridge Sch
enniman Sch
32.5
ROBBIE RD
Whites Hill
WT
Weymouth
Bk
Hunt Sch
SUMMER
FRONT
34.0
LISLE
UNION
Village

National Flood Hazard Layer FIRMette

FIGURE #2

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
- NO SCREEN 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
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 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

N

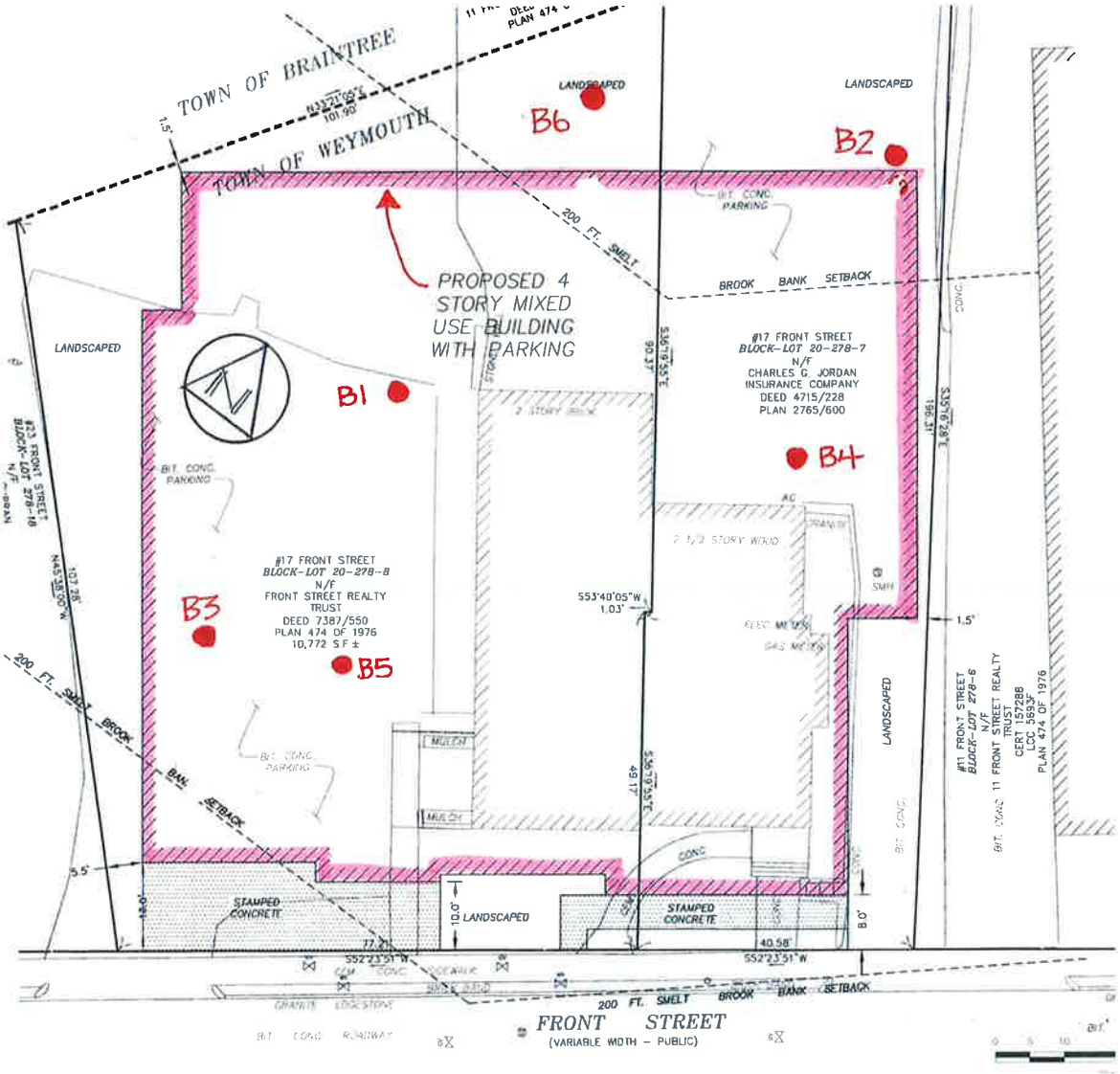
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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 11/19/2020 at 6:52 AM 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.

FIGURE #3



TEST BORE LOCATIONS

TEST BORING LOG

SOIL X, Corp.
148 Pioneer Drive
Leominster, MA 01453

Proposed Building
15-17 Front Street
Weymouth, MA

BORING B-1

20-10002

Ground Elevation: 91 ft+/-
Date Started: 10/15/2020
Date Finished: 10/15/2020
Driller: RB
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING AT	STABILIZATION
10/15/20	15 ft		

Depth Ft.	Casing bl/ft	Sample No.	Sample Pen/Rec	Sample Depth	Sample Blows/6"	Strata Break	Visual Identification of Soil and / or Rock Sample
						2"	ASPHALT
1		1	4"	0'6"-2'6"	3-3-2-2		Brown, Sand & Gravel
		2	6"	2'6"-4'6"	3-2-2-2		Same, minor loam
5		3	0"	5'0"-7'0"	9-5-6-6		No Recovery
		4	4"	7'0"-9'0"	9-12-8-11		Brown, fine to medium Sand, some silt, little gravel (FILL)
							Topsoil/Subsoil
10		5	6"	10'0"-12'0"	4-3-4-5		Dark Brown, loamy, silty Sand, trace gravel (ORGANIC)
		6	14"	12'0"-14'0"	8-11-12-13	12'	Brown, fine to medium Sand & Gravel, trace silt, cobbles, dry
						14'	
15		7	10"	15'0"-17'0"	12-15-19-24		Brown, Fine Sand & Silt, wet
						17'6"	
20							Refusal at 17'6" Ground Water encountered 15 ft at completion
25							
30							

Notes: Hollow Stem Auger 4 1/4

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V Dense.
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M Stiff 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	
HAMMER FALL (IN)		30"	

TEST BORING LOG

SOIL X, Corp.
148 Pioneer Drive
Leominster, MA 01453

Proposed Building
15-17 Front Street
Weymouth, MA

BORING B-2

20-10002

Ground Elevation: 84 ft+/-
Date Started: 10/15/2020
Date Finished: 10/15/2020
Driller: RB
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING AT	STABILIZATION
10/15/20	14 ft		

Depth Ft.	Casing bl/ft	Sample No.	Sample Pen/Rec	Sample Depth	Sample Blows/6"	Strata Break	Visual Identification of Soil and / or Rock Sample
						3"	ASPHALT
1		1	10"	0'6"-2'6"	5-5-3-2		Brown, Sand & Gravel, little silt, dry
		2	8"	2'6"-4'6"	2-2-6-5		Dark Brown, loamy, silty Sand, trace gravel
5		3	0"	5'0"-7'0"	9-5-6-6		No Recovery (FILL)
		4	6"	7'0"-9'0"	5-6-7-6		Dark Brown, loamy, silty Sand, organic, wood (FILL)
						9'6"	
10		5	10"	10'0"-10'11"	14-50/5"		Brown, Fine Sand, little silt, wet
							(GLACIAL)
15		6	10"	15'0"-15'10"	24-50/4"		Brown, fine to coarse Sand & Gravel, trace silt, cobbles, wet
						15'10"	
20							Refusal at 15'10" Ground Water encountered 14 ft at completion
25							
30							

Notes: Hollow Stem Auger 4 1/4

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V Dense.
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M Stiff 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	
HAMMER FALL (IN)		30"	

TEST BORING LOG

SOIL X, Corp.
148 Pioneer Drive
Leominster, MA 01453

Proposed Building
15-17 Front Street
Weymouth, MA

BORING B-3

20-10002

Ground Elevation: 97 ft+/-
Date Started: 10/15/2020
Date Finished: 10/15/2020
Driller: RB
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING AT	STABILIZATION
10/15/20	n/a		

Depth Ft.	Casing bl/ft	Sample No.	Sample Pen/Rec	Sample Depth	Sample Blows/6"	Strata Break	Visual Identification of Soil and / or Rock Sample
						2"	ASPHALT
1		1	14"	0'6"-2'6"	7-8-8-6		Brown, fine to medium Sand, little gravel, little silt
		2	12"	2'6"-4'6"	9-10-11-12		Dark Brown, Sand & Gravel, little silt, loam, cobbles (FILL)
						5'	
5		3	2"	5'0"-7'0"	23-19-14-17		Brown, fine to medium Sand, little gravel, little silt, cobbles
							(GLACIAL)
10		4	0"	10'0"-10'3"	50/3"		Brown, f-m Sand & Gravel, dry
						10'3"	
15							Refusal at 10'3" No Ground Water encountered at completion
20							
25							
30							

Notes: Hollow Stem Auger 4 1/4

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V Dense.
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M Stiff 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	
HAMMER FALL (IN)		30"	

TEST BORING LOG

SOIL X, Corp.
148 Pioneer Drive
Leominster, MA 01453

Proposed Building
15-17 Front Street
Weymouth, MA

BORING B-4

20-10002

Ground Elevation: 86 ft+/-
Date Started: 10/15/2020
Date Finished: 10/15/2020
Driller: RB
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING AT	STABILIZATION
10/15/20	n/a		

Depth Ft.	Casing bl/ft	Sample No.	Sample Pen/Rec	Sample Depth	Sample Blows/6"	Strata Break	Visual Identification of Soil and / or Rock Sample
						2"	ASPHALT
1		1	8"	0'6"-2'6"	4-4-5-4	2'6"	Brown, fine to coarse Sand & Gravel, trace silt (FILL)
		2	8"	2'6"-4'6"	13-18-29-30		Brown, f-c Sand & Gravel, dry
5		3	14"	5'0"-7'0"	18-24-22-23		Brown, fine to coarse Sand & Gravel, trace silt, cobbles, dry (GLACIAL)
10		4	14"	10'0"-11'5"	30-35-50/2"	11'5"	Same, dry
15							Refusal at 11'5" No Ground Water encountered at completion
20							
25							
30							

Notes: Hollow Stem Auger 4 1/4

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V Dense.
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M Stiff 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	
HAMMER FALL (IN)		30"	

TEST BORING LOG

SOIL X, Corp.
148 Pioneer Drive
Leominster, MA 01453

Proposed Building
15-17 Front Street
Weymouth, MA

BORING B-5

20-10002

Ground Elevation: 93 ft+/-
Date Started: 10/15/2020
Date Finished: 10/15/2020
Driller: RB
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING AT	STABILIZATION
10/15/20	n/a		

Depth Ft.	Casing bl/ft	Sample No.	Sample Pen/Rec	Sample Depth	Sample Blows/6"	Strata Break	Visual Identification of Soil and / or Rock Sample
						2"	ASPHALT
1		1	6"	0'6"-2'6"	5-4-3-2		Brown, Sand & Gravel, concrete and brick (FILL)
		2	0"	2'6"-4'6"	2-3-6-8		Dark Brown, silty Sand, little gravel, brick (FILL)
						3'6"	
5		3	12"	5'0"-6'5"	16-32-50/2"		Brown, fine to coarse Sand & Gravel, cobbles, dry
							(GLACIAL)
10		4	16"	10'0"-11'10"	13-14-18-50/4"		Brown, f-c Sand & Gravel, little silt, dry
						11'10"	
15							Refusal at 11'10" No Ground Water encountered at completion
20							
25							
30							

Notes: Hollow Stem Auger 4 1/4

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V Dense.
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M Stiff 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace	0 to 10%
Little	10 to 20%
Some	20 to 35%
And	35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	
HAMMER FALL (IN)		30"	

TEST BORING LOG

SOIL X, Corp.
148 Pioneer Drive
Leominster, MA 01453

Proposed Building
15-17 Front Street
Weymouth, MA

BORING B-6

20-10002

Ground Elevation: 85 ft+/-
Date Started: 10/15/2020
Date Finished: 10/15/2020
Driller: RB
Soil Engineer/Geologist:

GROUNDWATER OBSERVATIONS

DATE	DEPTH	CASING AT	STABILIZATION
10/15/20	14 ft		

Depth Ft.	Casing bl/ft	Sample No.	Sample Pen/Rec	Sample Depth	Sample Blows/6"	Strata Break	Visual Identification of Soil and / or Rock Sample
						3"	ASPHALT
1		1	8"	0'6"-2'6"	5-7-4-3		Brown, Sand & Gravel, little silt
		2	6"	2'6"-4'6"	2-1-1-1		Black, Sand & Gravel, trace cinders (FILL)
5		3	6"	5'0"-7'0"	2-3-12-10		Sand, Gravel, Brick, Rubble (FILL)
		4	8"	7'0"-9'0"	5-4-7-4		Sand, Gravel, Concrete, Rubble
10		5	2"	10'0"-10'2"	50/2"		Brown, Sand, some gravel, cobbles, brick, concrete voids (FILL)
						13'	
		6	10"	13'0"-15'0"	Taken From Flight		Brown, fine to coarse Sand & Gravel, trace silt, cobbles, wet
15		7	10"	15'0"-17'0"	24-22-26-27		(GLACIAL)
						17'6"	
20							Refusal at 17'6" Ground Water encountered 14 ft at completion
25							
30							

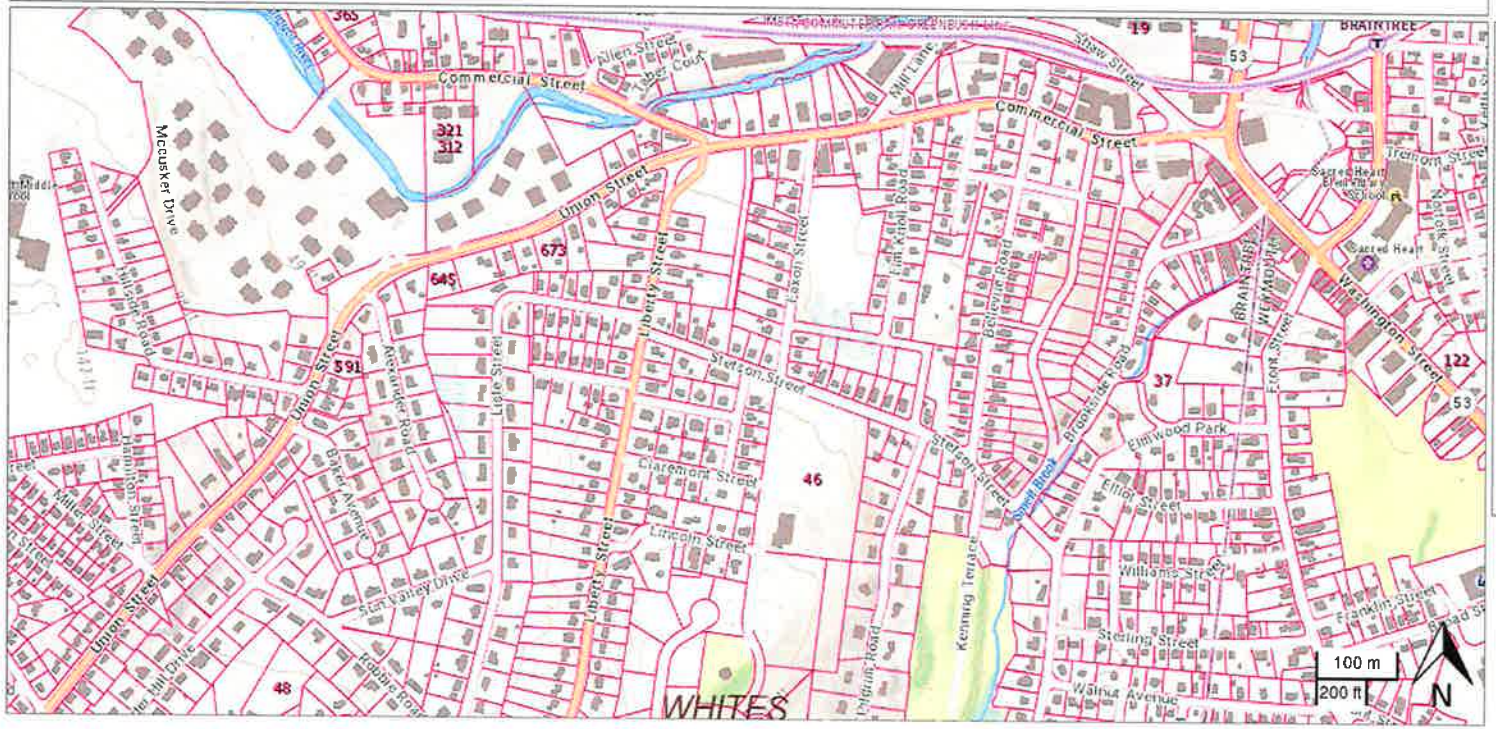
Notes: Hollow Stem Auger 4 1/4

Cohesionless: 0 - 4 V. Loose, 4 - 10 Loose, 10 -30 M Dense, 30 -50 Dense, 50+ V Dense.
Cohesive: 0 -2 V Soft, 2 -4 Soft, 4 -8 M Stiff 8 -15 Stiff, 15 -30 V. Stiff, 30 + Hard.

Trace 0 to 10%
Little 10 to 20%
Some 20 to 35%
And 35% to 50%

	CASING	SAMPLE	CORE TYPE
ID SIZE (IN)		SS	
HAMMER WGT (LB)		140 lb.	
HAMMER FALL (IN)		30"	

NHESP



NHESP Priority Habitats of Rare Species

NHESP Estimated Habitats of Rare Wildlife

Tax Parcels for Query

Detailed Features

Tax Parcels for Display

Structures

MassGIS Statewide Basemap
MassGIS Topographic Features Basemap

SECTION II

- Project Summary
- Wetland Fee Transmittal Form

PROJECT SUMMARY

PS 1 Proposed Activities

Present development includes an existing building with associated pavement, that is situated on two separate lots (#15 & #17) on Front Street in Weymouth, MA. Portions of the rear of property (15 Rear Front St) fall with the Town of Braintree. The only work proposed in Braintree consists of demolition of existing bituminous concrete within the riverfront area, and reseeding/landscaping of this area.

The proposed project includes the demolition of the existing buildings and existing pavement and the construction of a new 22-residential unit building, 1,500 SF of retails space and a parking garage. The existing building and associated bituminous concrete will be removed and disposed to accommodate the project. The new building is mixed-use, steel and wood-framed building approximately 11,770 ft² in footprint. The first floor will be used for retail, egress and vehicular parking with residential units above. It is intended to support the building on a basement garage foundation using conventional spread footings. The basement level will be used for additional vehicular parking and mechanical.

PS 2 Impacts to Resource Areas from the Proposed Project

As part of the proposed renovations, work will occur within the 100 and 200 inner and other riparian zones of a nearby perennial stream (Smelt Brook), north of the project site. The project is a redevelopment within previously developed riverfront areas as described in the Massachusetts Wetlands Protection Act, section 10.58 (c).

The existing buildings, as well as existing impervious parking lots are located within the riparian zones. The total existing square footage of degraded area within the inner riparian zone is 4,736 sf (2,018 sf in Braintree) and is comprised existing bituminous concrete parking areas. The total existing square footage of degraded area within the outer riparian zone is 9,723 sf and is comprised of 2,789 sf of existing buildings, and 6,934 sf of bituminous concrete parking areas and walkways. This results in a total degraded area of 14,459 sf.

The proposed project will reduce this total square footage of degraded area to a total of 12,488 sf within the riparian zones. The inner riparian zone degraded area is reduced from 4,736 sf to 1,659 sf. In addition, the 1,659 sf consists of only building area, which is considered clean run-off. The proposed outer riparian zone degraded area is a total of 10,829 sf, which is a slight increase, however 10,255 sf of this is building area so the total of bituminous concrete area is reduced by 6,360 sf contributing to the river.

Overall the project results in a decrease of 1,971 sf of degraded area within the Riverfront Area, but of importance is the project results in a total decrease of 11,097 sf of untreated bituminous concrete pavement within the riverfront area.

Provided the project results in an overall decrease of degraded area, within the riverfront area, the applicant considers this an improvement to the previously developed riverfront area, and the project has no adverse impact to Smelt Brook.

PS 3 Utilities

Proposed drainage runoff from the impervious area will be collected in a storm drainage system and infiltrated to offset peak flow rates and volumes. The majority of the stormwater is runoff associated with the proposed building area, which is considered clean runoff. Refer to the stormwater management report, under separate cover, for system specifics.

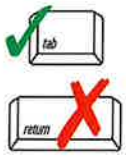
Sewer and water will be provided via municipal systems that are present in Front Street.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

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

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



A. Applicant Information

1. Location of Project:

15 Rear Front Street	Braintree
a. Street Address	b. City/Town
2478	$1,050 TOWN TOWN = 53750
c. Check number	d. Fee amount

2. Applicant Mailing Address:

Mike	McGough
a. First Name	b. Last Name

c. Organization

30 Beaumont St
d. Mailing Address

Boston	MA	02124
e. City/Town	f. State	g. Zip Code

617-594-6444		mh.mcgough@gmail.com
h. Phone Number	i. Fax Number	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

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

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.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

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

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Cat. 3b - each bldg, including site	1	$1,050	$1,050

Step 5/Total Project Fee: $1,050

Step 6/Fee Payments:

Total Project Fee:	$1,050 (a. Total Fee from Step 5)
State share of filing Fee:	$512.50 (b. 1/2 Total Fee **less** $12.50)
City/Town share of filling Fee:	$537.50 (c. 1/2 Total Fee **plus** $12.50)

C. Submittal Requirements

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

Department of Environmental Protection
Box 4062
Boston, MA 02211

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

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

SECTION III

- Notification to Abutter Form
- Certified List of Abutters

Notification to Abutters

Under the Wetlands Protection Act

In accordance with the Massachusetts General Laws Chapter 131, Section 40, you are hereby notified of the following:

The name of the applicant is Mike McGough.

The applicant has filed an application with the Braintree Conservation Commission for activity in an area jurisdictional to the Commission.

The location of the property is 15 Rear Front Street, Braintree.

Description of the project:

Applicant proposes to demolish existing buildings and bit. conc. paving. and construct a new 22-unit residential building with some commercial areas.

Copies of the application may be reviewed at the Braintree Conservation Commission office at 1 JFK Memorial Dr., Braintree, MA 02184 between the hours of 8:30 am – 4:30 pm, Monday through Friday.

Or copies of the application may be obtained by calling the applicant at 617-947-1319 between the hours of 9:00 am and 4:00 pm.

Notice of the public hearing will be:

- sent to abutters;
- published in the Patriot Ledger at least five business days before the hearing;
- or may be obtained by calling the Braintree Planning & Community Development office at 781 794-8233.

Office of the Board of Assessors

One JFK Memorial Drive
Braintree, Massachusetts 02184
Telephone: (781) 794-8050 • Fax: (781) 794-8068

Charles C. Kokoros
Mayor

Robert Brinkmann
Deputy Assessor

Board of Assessors
Robert Cusack
Chair
Susan O'Brien
Vice Chair
Robert Connolly

DATE:	October 26, 2020
OWNER:	Charles G Jordan Insurance Agency
ADDRESS:	15 Rear Front Street
MAP & LOT:	3005 0 38A

This is to certify that at the time of submission of this form to the Board of Assessors, the names and addresses of the parties assessed as adjoining owners to the parcel of land shown and described are as written and are the parties according to the records of the Assessors.

Office of the Board of Assessors FS

Robert M Cusack
Chairman

Braintree
Abutters List

Subject Parcel ID:

Subject Property Location:

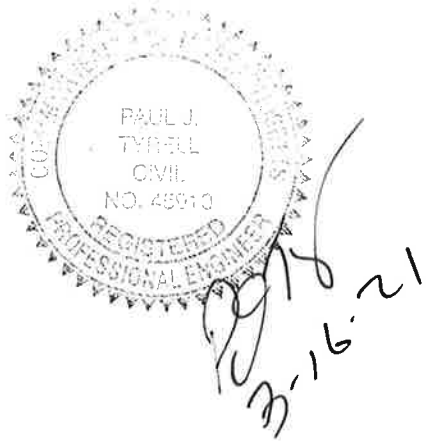
ParcelID	Location	Owner	Co-Owner	Mailing Address	City	State	Zip
3005 0 25	BROOKSIDE RD	BRAINTREE TOWN OF	TREAS DEED	TOWN HALL	BRAINTREE	MA	02184
3005 0 34A	24 26 BROOKSIDE RD	SALEH YASER F	ALI HASSAN ELHAM F T	50 GRAY TERRACE	BRAINTREE	MA	02184
3005 0 34B	20 BROOKSIDE RD	TAPPA CHARLES L		20 BROOKSIDE RD	BRAINTREE	MA	02184
3005 0 34C	16 BROOKSIDE RD	ALFEO SALVATORE	ALFEO MADDALENA G	22 BIRCHCROFT RD	BRAINTREE	MA	02184
3005 0 34D	10 BROOKSIDE RD	BICKEL LAURA C		43 WALNUT AVENUE	BRAINTREE	MA	02184
3005 0 34F	REAR BROOKSIDE RD	BRAINTEEE TOWN OF	SEWER DEPT	TOWN HALL	BRAINTREE	MA	02184
3005 0 37	WEYMOUTH LINE	11 FRONT STREET LLC		11 FRONT STREET	WEYMOUTH	MA	02188
3005 0 38A	15 REAR FRONT ST	JORDAN CHARLES G	INSURANCE AGENCY	15 FRONT STREET	WEYMOUTH	MA	02188
3005 0 39B	5 ELMWOOD PK	11 FRONT STREET LLC		c/o 23 FRONT STREET	WEYMOUTH	MA	02188

Parcel Count: **9**

End of Report

OPERATION & MAINTENANCE PLAN

STORMWATER MANAGEMENT FACILITIES
PROPOSED 22-UNIT
RESIDENTIAL BUILDING
15-17 FRONT STREET
WEYMOUTH, MASSACHUSETTS



March 16, 2021

GREATER BOSTON SURVEY AND ENGINEERING
17 FREDITH ROAD
WEYMOUTH, MA 02189

OPERATION & MAINTENANCE PLAN
STORMWATER MANAGEMENT FACILITIES
PROPOSED 22-UNIT
RESIDENTIAL BUILDING
15-17 FRONT STREET
WEYMOUTH, MASSACHUSETTS

The proposed project includes stormwater runoff controls associated with the construction of a new 22-unit residential building. The major components associated with maintenance needs are the proposed cultec units that will handle runoff from the proposed impervious areas onsite. These will need to be cleaned periodically as noted below. Cleaning of this structures shall be done by the property owner or by a specialty contractor with hydraulic cleaning ability. The following outlines the major maintenance issues associated with the project:

Cultecs/Cleaning:

The cultecs should be inspected monthly during the first year, and then every third year following the 1-year inspection.

The cultecs are equipped with an inspection port on the top the each unit. After removal of this cover, a stadia rod should be used to measure the depth of sediment. If the depth of sediment is in excess of 3", then this row should be cleaned with high pressure water through a culver cleaning nozzle.

Oil & Water Separator Inspection/Cleaning:

Have the oil & water separator cleaned out completely twice annually during April and October, if required.

MAINTENANCE RESPONSIBILITIES

The maintenance of the Drainage System is the responsibility of the Property Owners. The actual work can be accomplished by the Owner or can be subcontracted to a company that specializes in the cleaning of storm drainage facilities. Inspections should be performed annually by independent individual such as the design engineer or other experienced individual in the field. Inspection reports shall be provided to the Town Engineer once completed.

Construction period pollution control

Erosion and sedimentation control measures will be implemented prior to and during construction activities to minimize impacts from land disturbance activities. Erosion and sedimentation control measures implemented on the site will include, at a minimum, dust

control measures, the installation of silt fence barriers on the up-gradient side of resource areas and catch basin inlet protection. Controls may also include temporary sedimentation basins and diversion swales and temporary seeding. The erosion and sedimentation controls will be inspected at the end of the day if precipitation is forecast, and after each rainfall event of 0.5 inches or more. Should construction occur during winter months, seasonally appropriate stabilization measure will be utilized.

Below is a summary of the minimum construction period pollution control requirements. These topics are presented as a means of demonstrating understanding of pollution control but are not meant to supplant preparation of the SWPPP. Please refer to the SWPPP for complete construction activity details.

a. Dust Control

Mitigation measures will be implemented to control fugitive dust during construction activities. Dust control measure may include seeding, wet suppression, application of soil stabilization agents, or other measures to control dust generated by construction activities. The Contractor shall confirm with state and local regulations to see if the use of calcium chloride for dust suppression is allowed.

b. Erosion Control Barriers

Prior to any ground disturbance, erosion control barriers will be installed at the limit of work at down-gradient positions on the site. The barriers will consist of silt fence and staked hay bales and will be entrenched in the soil to prevent underflow.

c. Catch Basin Inlet Protection

All existing and newly installed catch basin shall be protected during construction with a filter insert system. These sedimentation control measures will be regularly maintained until the drainage area tributary to the catch basin has been stabilized.

d. Temporary Sedimentation Basins and Diversion Swales

If necessary, temporary sedimentation basins will be constructed to prevent transport of fine-grained sediment into wetland resource areas and other off-site areas. These temporary basins will be located where appropriate, as determined by the contractor. Temporary diversion swales or berms may be used to convey runoff from construction areas to temporary or previously constructed basins.

e. Temporary Seeding

Temporary seeding will be used where vegetative cover is required for less than one year on disturbed soil areas. Such areas will be seeded if the soils will be exposed without construction activity for more than 30 days. Rapidly growing annual grasses, such as annual rye grass, oats, perennial rye grass or winter rye will be uniformly applied.

Depending on the slope, the soil may be covered with a layer of straw mulch, an erosion control blanket, or a bonded fiber matrix.

f. Permanent Seeding

Upon completion of the final grading, any areas not covered by pavement, other forms of stabilization, including landscaping, will be seeded with rapidly growing annual rye grass/red fescue seed mix.

STORMWATER MANAGEMENT REPORT
PROPOSED 22-UNIT
RESIDENTIAL BUILDING
15-17 FRONT STREET
WEYMOUTH, MASSACHUSETTS

INSPECTION REPORT:

Inspection Firm: _____

Inspectors Name: _____ Date: _____

Components Inspected: _____

Signed: _____

SYSTEM MAINTENANCE:

Maintenance Firm: _____ Date: _____

Cultec Units Inspected: Yes ____ No ____ Comments: _____

_____

Cultec Units Cleaned: Yes ____ No ____ Comments: _____

Oil & Water Separator Inspected: Yes ____ No ____ Comments: _____

_____

Oil & Water Separator Cleaned: Yes ____ No ____ Comments: _____

Other Comments: _____

_____

_____

Signed: _____

DRAINAGE SUMMARY

PROPOSED 22-UNIT
RESIDENTIAL BUILDING
15 FRONT STREET
WEYMOUTH, MASSACHUSETTS

November 27, 2020
(Revised February 17, 2021)
(Revised March 15, 2021)

GREATER BOSTON SURVEY AND ENGINEERING
17 FREDITH ROAD
WEYMOUTH, MA 02189

DRAINAGE SUMMARY
PROPOSED 22-UNIT
RESIDENTIAL BUILDING
WEYMOUTH, MASSACHUSETTS

The proposed project consists of the demolition of two existing commercial buildings and bituminous concrete parking lots, and the construction of a new twenty-two (22) unit residential building, including underground parking in Weymouth, MA, under the requirements of the City of Weymouth.

The on-site soils in the area are shown as predominantly "602-Urban Land 0 to 15 percent slopes" that are soils that do not fall within the Hydrological Soil Group. A geotechnical investigation was completed on October 14, 2020 and the onsite soils were confirmed as a sandy/gravel fill material above granular utwash. These soils generally include a brown, well-graded, fine to coarse Sand & Gravel, trace silt. For purposes of our drainage design, we have designed based on soil Type C and used a conservative infiltration rate of 0.27 in/hr based on Rawles Rates.

Ground cover on the site is an existing building and two bituminous concrete parking lots. The existing drainage on the site flows overland from Front street towards the rear of the property and ultimately sheet flowing towards Smelt Brook. Overall, the proposed site will consist mostly of the proposed building, however stormwater runoff will be collected, infiltrated to maximum extent practical, before it continues to flow towards the rear of the property.

There is a perennial stream (Smelt Brook) north of the property and the project locus falls withing the 200 and 100 riverfront riparian zones. The amount of impervious area within the riverfront zones will be reduced by 2,315 sf. There are no Bordering Vegetated wetlands within the project area. The proposed drainage controls are designed to capture & contain the runoff from the proposed building. This system will store the runoff from the proposed Building and allow the stored water to slowly infiltrate after the storm event and overflow offsite.

Under the proposed conditions, the rate of site runoff from the re-developed lot area will be greater than the existing conditions for the 2, 10, 25 and 100-year storm events. The proposed controls have been designed to store this increase to maintain the pre and post runoff rates. In addition, the proposed controls will provide some additional recharge of the groundwater at the site.

COMPLIANCE WITH STORMWATER STANDARDS

Untreated Stormwater (Standard 1)

The project is designed so that new stormwater conveyances (outfalls/discharges) do not discharge untreated stormwater into, or cause erosion to, existing wetlands.

Post-Development Peak Rates (Standard 2)

A hydrologic study was performed to determine the rate of runoff for the 2-, 10-, 50- and 100-year storm events under pre-development (existing) conditions. Unmitigated post-development rates were then computed in a similar manner. The study point where the peak rates were compared were taken at one (1) location at the existing offsite flow area. From these analyses, it was determined that the proposed project and its stormwater management system would not increase the peak runoff rates above existing levels. It is the intent of the stormwater management system to minimize impacts to drainage patterns, downstream property, and wetlands prior to its release from the site or discharge to wetlands.

The *United States Department of Agriculture (U.S.D.A)*. Soil Conservation Service (SCS) Technical Release 55 (TR-55), 1986, was used as the procedure for estimating runoff. A SCS TR-20-based computer program was used for estimating peak discharges. TR-55 is a generally accepted model for use on small sites that begin with a rainfall amount uniformly imposed on the watershed over a specified time distribution. Mass rainfall is converted to mass runoff by using a runoff curve number (CN). CN is based on soils, plant cover, impervious areas, interception, and surface storage. Runoff is then transformed into a hydrograph that depends on runoff travel time through segments of the watershed.

Development in a watershed changes the watershed's response to precipitation. The most common effects are reduced infiltration and decreased travel time, which can result in significantly higher peak rates of runoff. The volume of runoff is determined primarily by the amount of precipitation and by infiltration characteristics related to soil type, antecedent rainfall, type of vegetal cover, impervious surfaces, and surface retention. Travel time is determined primarily by slope, flow length, depth of flow, and roughness of flow surfaces. Peak rates of discharge are based on the relationship of the above parameters, as well as the total drainage area of the watershed, the location of the development in relation to the total drainage area, and the effect of any flood control works or other manmade storage. Peak rates of discharge are also influenced by the distribution of rainfall within a given storm event.

Stormwater management computations for the full-build were performed using a SCS-based *HYDROCAD* for existing and proposed conditions, curve numbers, time of concentrations and unit hydrograph computations. NOAA Atlas 14, NOAA Hydrometeorological Design Studies Center, September 2015 was used for the 24-hr design storm.

Existing Conditions

Table 1. Shows the curve numbers, areas and times of concentration used to develop the pre-development hydrologic model of the site.

Table 1. – Existing Conditions					
Sub-Areas	**Surface Cover**	**Curve Number (CN)**	**Area (SF)**	**Tc (Mins.)**	**Remarks**
Area #1				5.0	
	Exist Bldg.	98	2,788		
	Exist. Imp.	98	10,426		Driveway & Walks
	Lawn Areas	79	3,614		
		Total Area	16,828		
*CN based on Class C soils.					

Proposed Conditions

The proposed conditions will result in a new collection system that will collect the site run-off from the proposed building and direct it to underground leaching systems prior to overflowing off-site.

Table 2. Shows the curve numbers, areas and times of concentration used to develop the post-development hydrologic model of the site.

Table 2. – Proposed Conditions					
Sub-Areas	**Surface Cover**	**Curve Number (CN)**	**Area (SF)**	**Tc (Mins.)**	**Remarks**
Area #1				5.0	
	Exist. Lawn	79	4,223		
	Conc. Walks	98	835		
Area #2				5.0	
	Prop. Bldg.	98	11,770		Incls. Patio
		Total Area	16,828		
*CN based on Class C soils.					

Peak Rate Summary

Table 3. Shows the peak runoff for the existing, as well as for the developed site at 2-, 10-, 25- and 100-year design storms.

Areas	**Design Storm**	**Existing Runoff* (CFS)**	**Existing Volume* (Ac-Ft)**	**Proposed Runoff* (CFS)**	**Proposed Volume* (Ac-Ft)**
Offsite Flow					
	2-yr.	1.12	0.082	0.21	0.015
	10-yr.	1.77	0.134	0.40	0.035
	25-yr	2.28	0.175	0.56	0.074
	100-yr.	3.31	0.260	1.13	0.156

Recharge to Groundwater (Standard 3)

The change in groundcover for the new development will change by decreasing the impervious areas by approximately 609 sf of impervious area.

Required Recharge Volume for the entire site was calculated in accordance with the Massachusetts Stormwater Management Standards:

Rv = F * impervious area (in acres)
Rv = (0.25/12) * 0.289 = 0.006 Ac-ft. =262.60 CF

Rv = Required Recharge Volume;
F = Target Depth Factor (0.25 in. for soils of Hydrologic Soil Group C);
Impervious area = building, pavement on site in post development condition (0.289 Ac).

The proposed onsite leaching systems will infiltrate over 262.60 cf in the 2-year storm event alone. This requirement has been met.

Removal of TSS (Standard 4)

The underground stormwater storage is sized based on the building roof footprint, which will be clean runoff. Therefore, TSS removal is not anticipated.

Land Uses with Higher Potential Pollutant Loads (Standard 5)

The use proposed does not differ from the current use of the space and has no higher potential for pollution.

Critical Areas (Standard 6 – Water Quality Treatments)

This site does not lie within a critical area. One-half inch (1/2") of runoff is the standard for treatment relative to water quality, but as stated prior, the proposed use will not create pollutants in excess of what exists today.

Redevelopment (Standard 7)

Redevelopment projects are those that involve development, rehabilitation or expansion on previously developed sites provided the redevelopment results in no net increase in impervious area. Furthermore, components of redevelopment project, which include development of previously undeveloped sites, do not fall under Standard 7. In addition, redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable. However, if it is not practicable to meet all the Standards, new (retrofitted or expanded) stormwater management systems must be

designed to improve existing conditions.

The project, as proposed, is a new building on an existing site that has been previously developed. GBSE has considered this project a re-development and we have met all of the applicable standards of the Massachusetts Stormwater Policy to the maximum extent possible.

Erosion and Sedimentation Controls (Standard 8)

Erosion control is depicted on the Proposed Site Plan provided as part of the application.

Operation and Maintenance Plan (Standard 9)

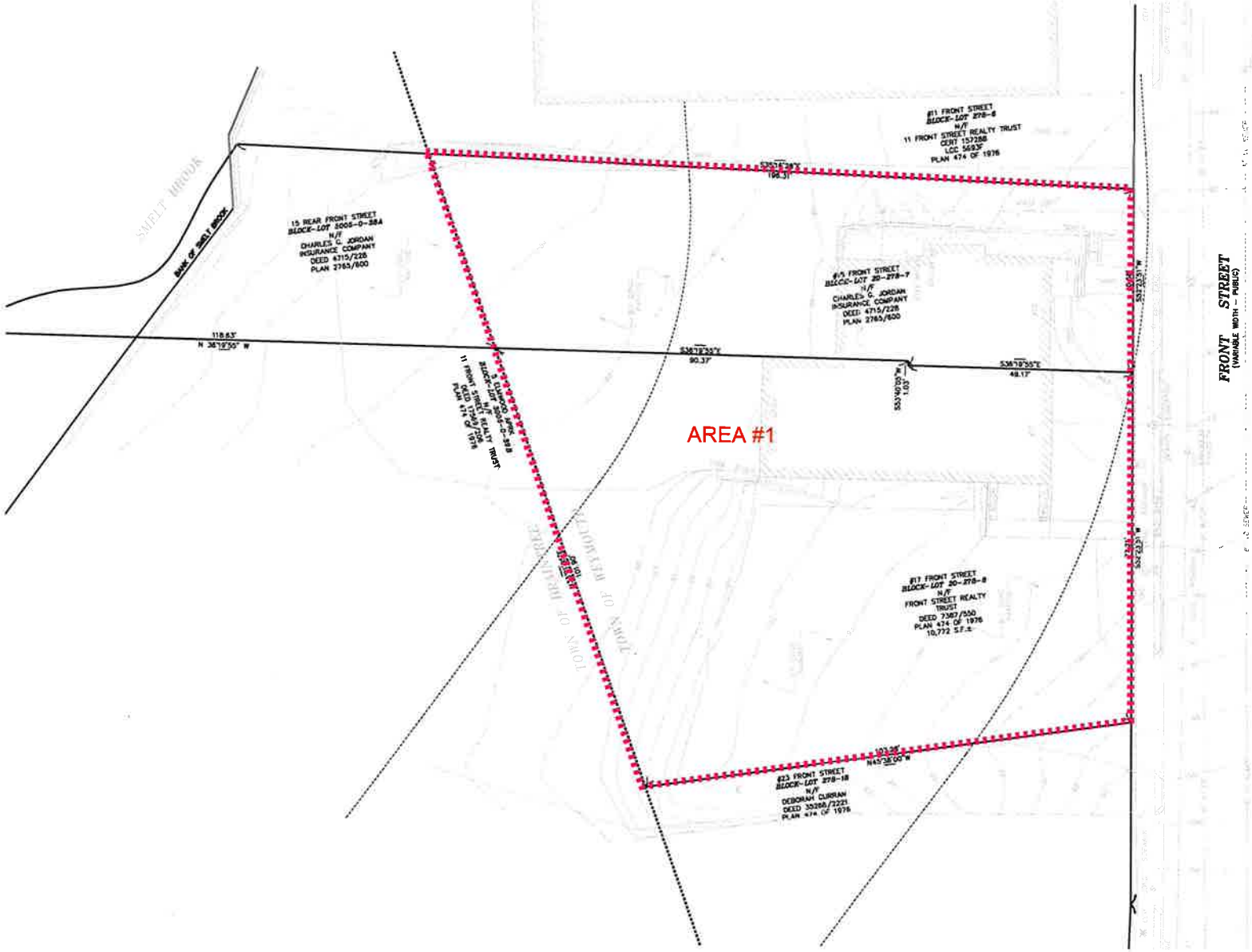
An Operation and Maintenance (O&M) Plan is provided as part of the application.

Prohibition of Illicit Discharges

The Owner and User of the facility, assures that there will not be illicit discharges to the nearby wetlands from the proposed facility.

Floodplain (310 CMR 10.57)

The project site does not fall with a floodplain district.



15-17 FRONT ST
WEYMOUTH, MA
PRE-DEVELOPMENT
CATCHMENT AREA PLAN
n.t.s.

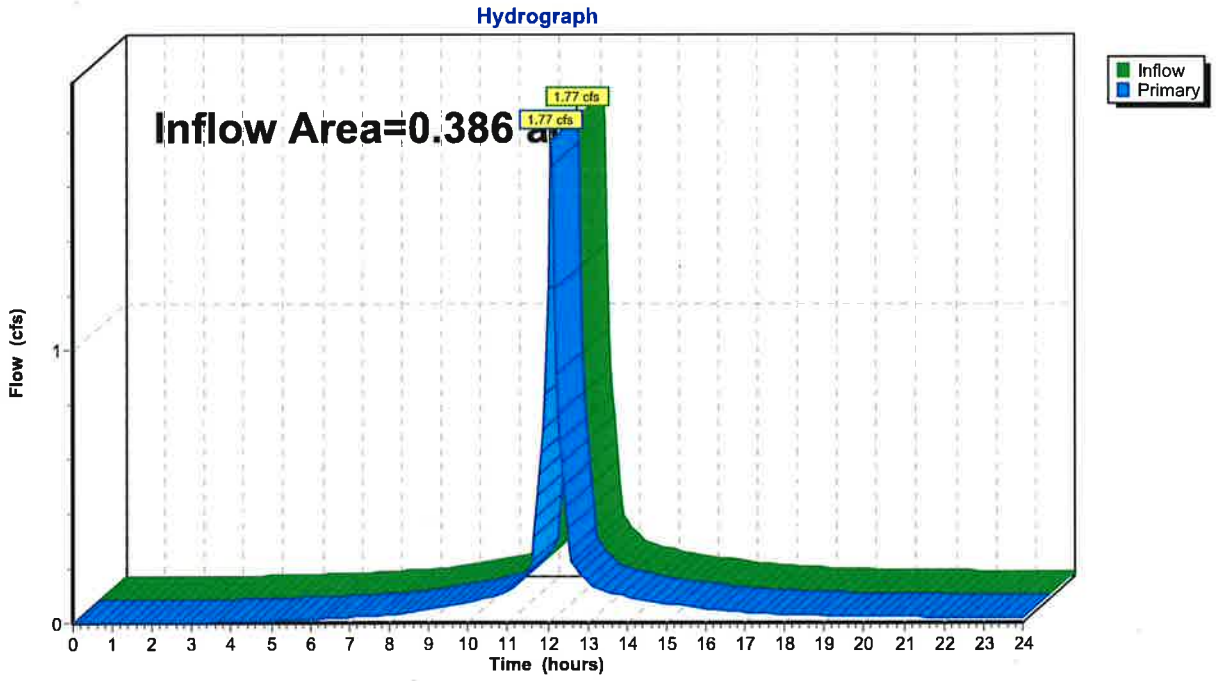
Summary for Pond 1P: Offsite - Smelt Brook

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.386 ac, 78.52% Impervious, Inflow Depth > 4.17" for 10-Year event
Inflow = 1.77 cfs @ 12.07 hrs, Volume= 0.134 af
Primary = 1.77 cfs @ 12.07 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Pond 1P: Offsite - Smelt Brook



Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.103	79	50-75% Grass cover, Fair, HSG C (1)
0.233	98	Existing Bit Conc. Parking (1)
0.041	98	Existing Building (1)
0.009	98	Existing Walks (1)
0.386	**93**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Existing Site Runoff Area=16,828 sf 73.37% Impervious Runoff Depth>2.46"
Tc=5.0 min CN=93 Runoff=1.09 cfs 0.079 af

Pond 1P: Offsite - Smelt Brook Inflow=1.09 cfs 0.079 af
Primary=1.09 cfs 0.079 af

Total Runoff Area = 0.386 ac Runoff Volume = 0.079 af Average Runoff Depth = 2.46"
26.63% Pervious = 0.103 ac 73.37% Impervious = 0.283 ac

Summary for Subcatchment 1: Existing Site

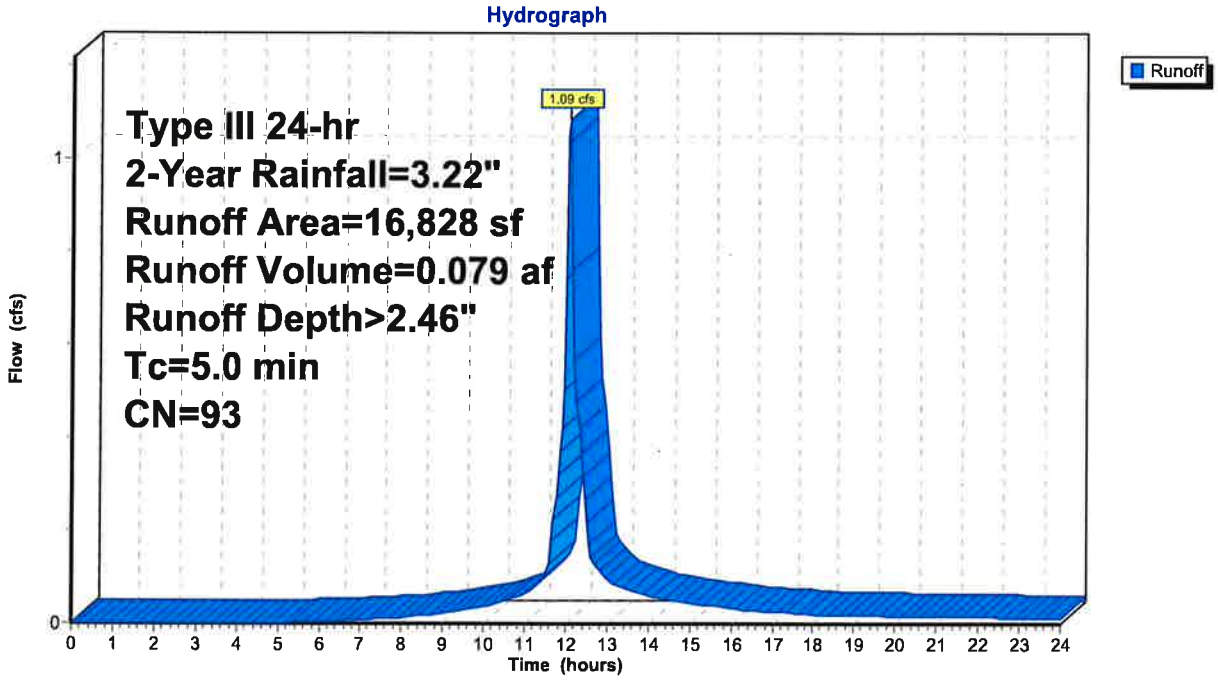
Runoff = 1.09 cfs @ 12.07 hrs, Volume= 0.079 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.22"

	Area (sf)	CN	Description
	4,481	79	50-75% Grass cover, Fair, HSG C
*	1,795	98	Existing Building
*	10,164	98	Existing Bit Conc. Parking
*	388	98	Existing Walks
	16,828	93	Weighted Average
	4,481		26.63% Pervious Area
	12,347		73.37% Impervious Area

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

Subcatchment 1: Existing Site

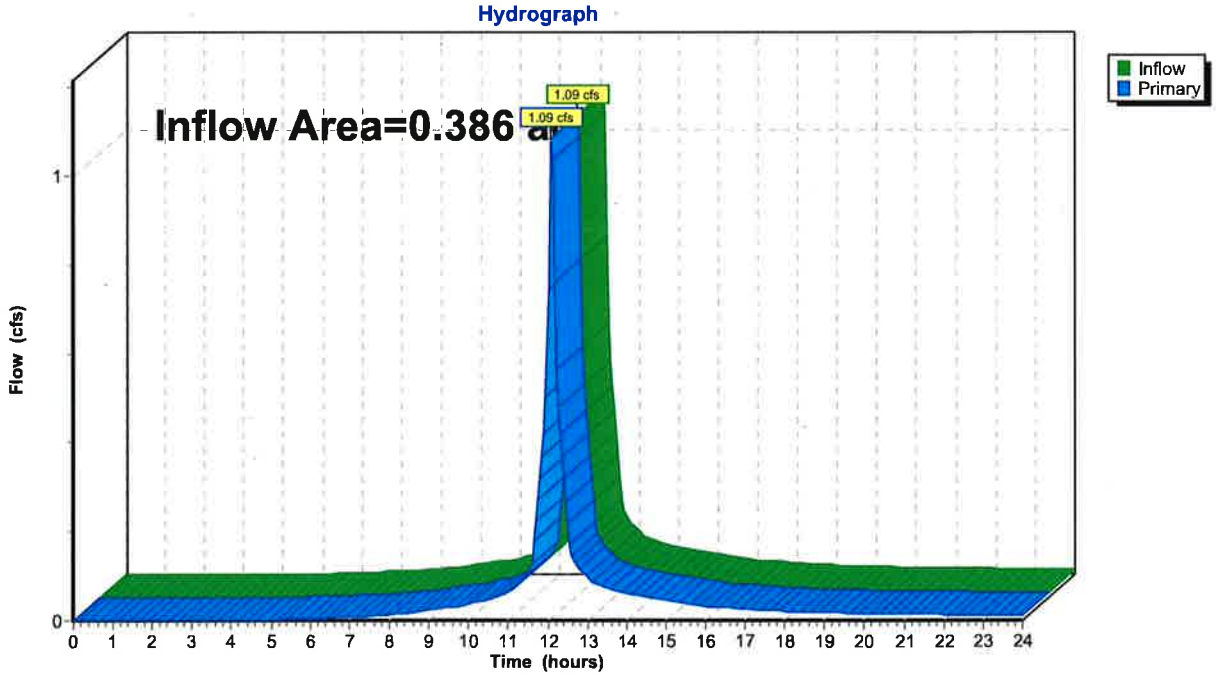


Summary for Pond 1P: Offsite - Smelt Brook

Inflow Area = 0.386 ac, 73.37% Impervious, Inflow Depth > 2.46" for 2-Year event
Inflow = 1.09 cfs @ 12.07 hrs, Volume= 0.079 af
Primary = 1.09 cfs @ 12.07 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Pond 1P: Offsite - Smelt Brook



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Existing Site Runoff Area=16,828 sf 73.37% Impervious Runoff Depth>4.06"
Tc=5.0 min CN=93 Runoff=1.74 cfs 0.131 af

Pond 1P: Offsite - Smelt Brook Inflow=1.74 cfs 0.131 af
Primary=1.74 cfs 0.131 af

Total Runoff Area = 0.386 ac Runoff Volume = 0.131 af Average Runoff Depth = 4.06"
26.63% Pervious = 0.103 ac 73.37% Impervious = 0.283 ac

Summary for Subcatchment 1: Existing Site

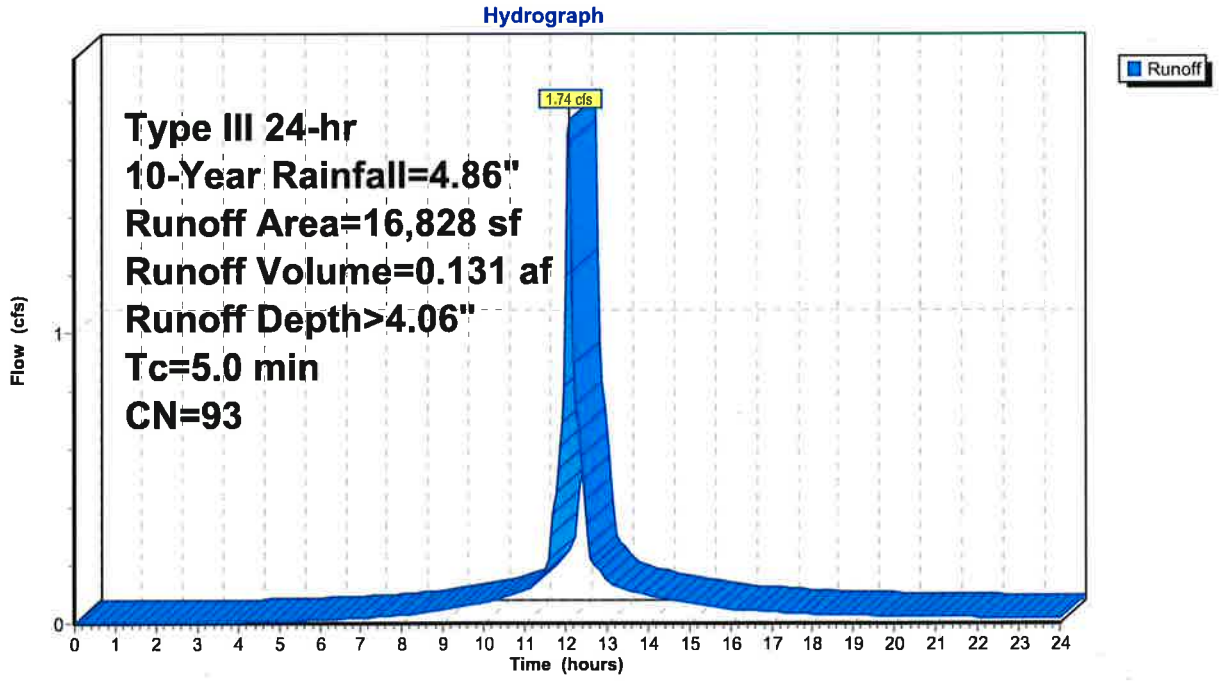
Runoff = 1.74 cfs @ 12.07 hrs, Volume= 0.131 af, Depth> 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.86"

	Area (sf)	CN	Description
	4,481	79	50-75% Grass cover, Fair, HSG C
*	1,795	98	Existing Building
*	10,164	98	Existing Bit Conc. Parking
*	388	98	Existing Walks
	16,828	93	Weighted Average
	4,481		26.63% Pervious Area
	12,347		73.37% Impervious Area

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

Subcatchment 1: Existing Site

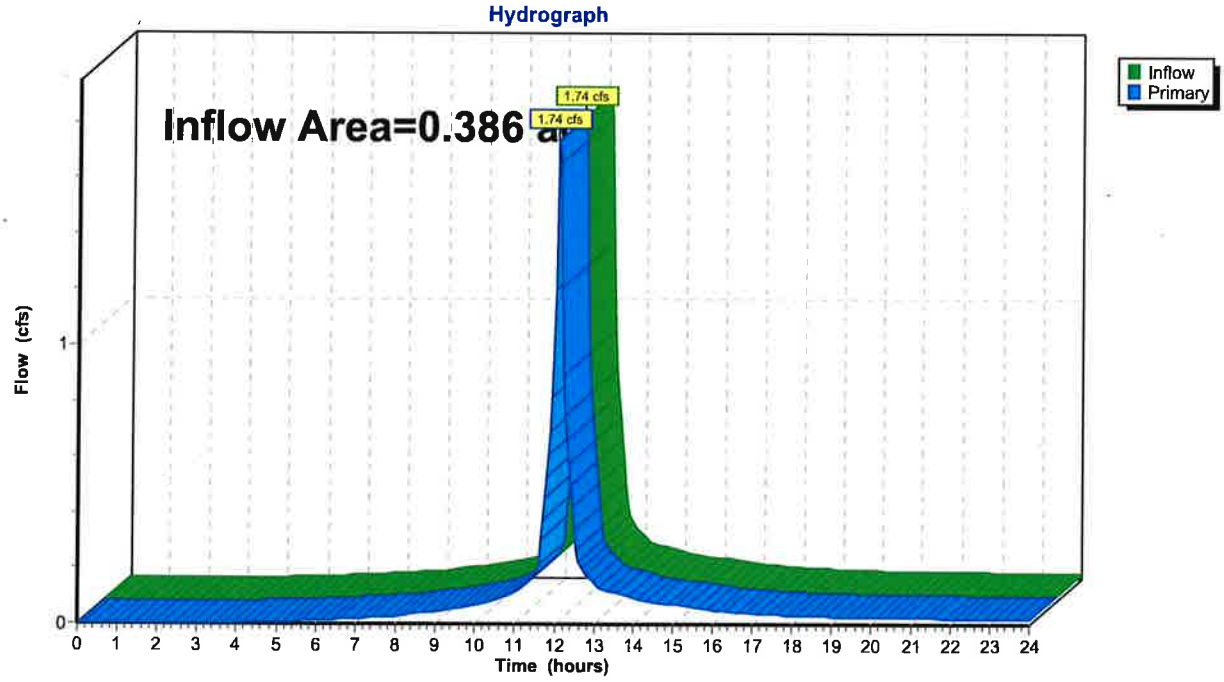


Summary for Pond 1P: Offsite - Smelt Brook

Inflow Area = 0.386 ac, 73.37% Impervious, Inflow Depth > 4.06" for 10-Year event
Inflow = 1.74 cfs @ 12.07 hrs, Volume= 0.131 af
Primary = 1.74 cfs @ 12.07 hrs, Volume= 0.131 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Pond 1P: Offsite - Smelt Brook



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Existing Site Runoff Area=16,828 sf 73.37% Impervious Runoff Depth>5.33"
Tc=5.0 min CN=93 Runoff=2.25 cfs 0.172 af

Pond 1P: Offsite - Smelt Brook Inflow=2.25 cfs 0.172 af
Primary=2.25 cfs 0.172 af

Total Runoff Area = 0.386 ac Runoff Volume = 0.172 af Average Runoff Depth = 5.33"
26.63% Pervious = 0.103 ac 73.37% Impervious = 0.283 ac

Summary for Subcatchment 1: Existing Site

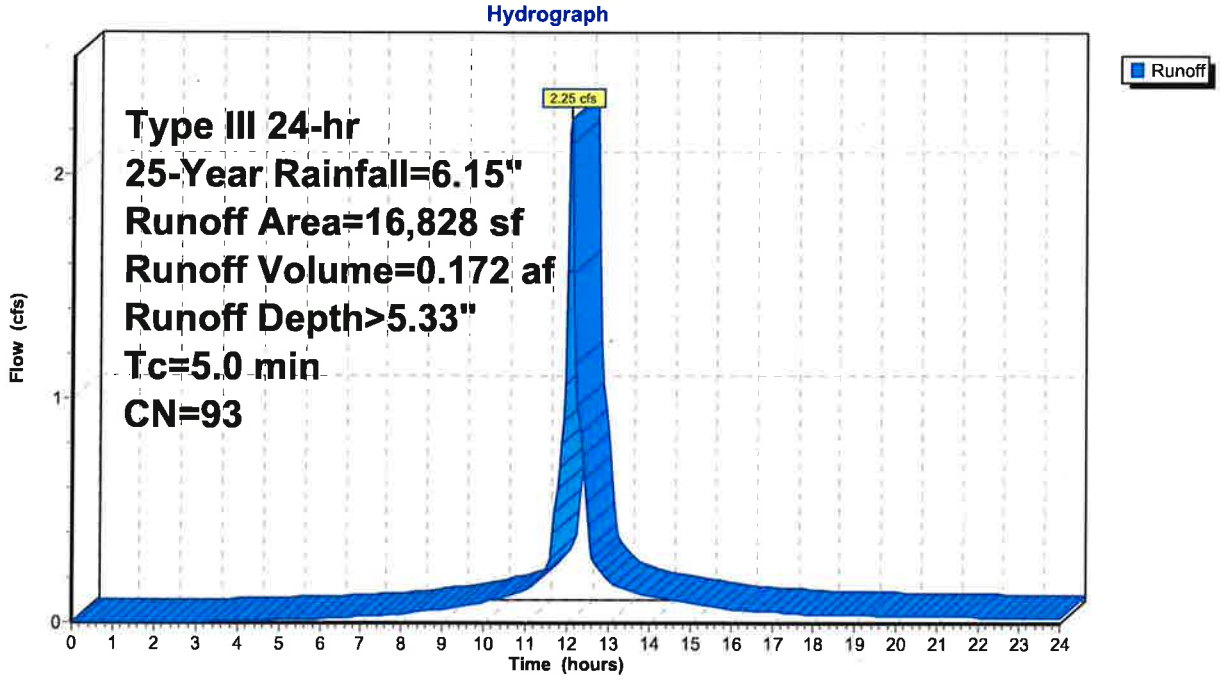
Runoff = 2.25 cfs @ 12.07 hrs, Volume= 0.172 af, Depth> 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.15"

	Area (sf)	CN	Description
	4,481	79	50-75% Grass cover, Fair, HSG C
*	1,795	98	Existing Building
*	10,164	98	Existing Bit Conc. Parking
*	388	98	Existing Walks
	16,828	93	Weighted Average
	4,481		26.63% Pervious Area
	12,347		73.37% Impervious Area

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

Subcatchment 1: Existing Site

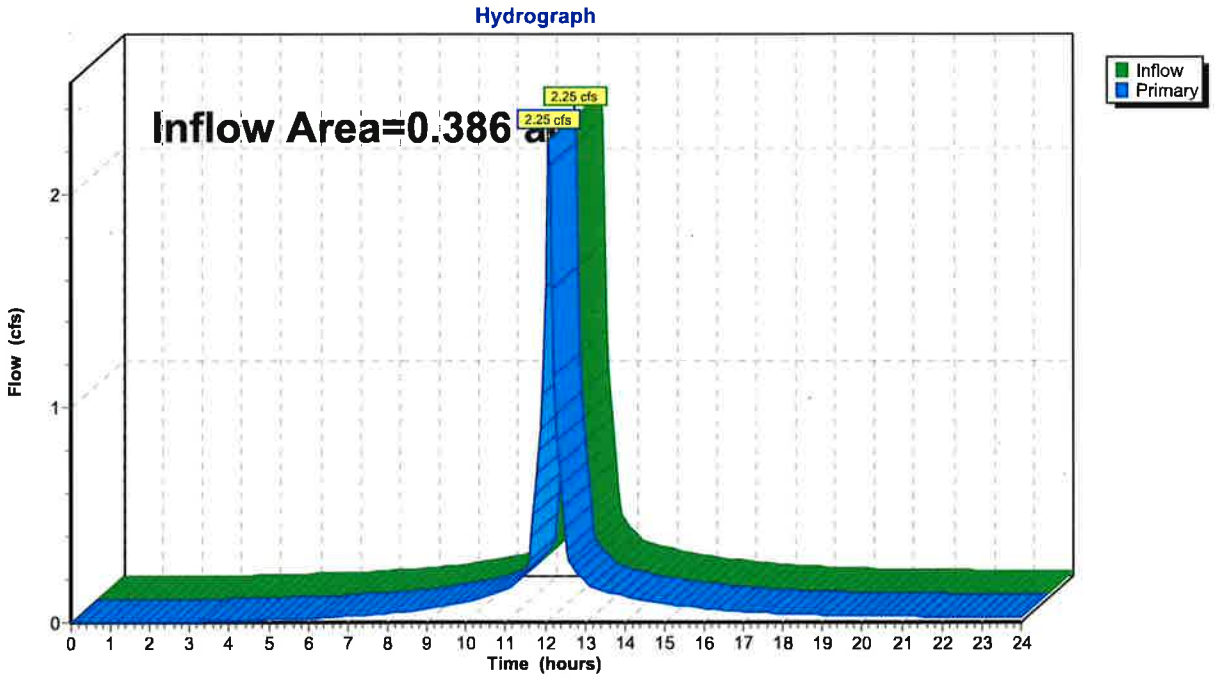


Summary for Pond 1P: Offsite - Smelt Brook

Inflow Area = 0.386 ac, 73.37% Impervious, Inflow Depth > 5.33" for 25-Year event
Inflow = 2.25 cfs @ 12.07 hrs, Volume= 0.172 af
Primary = 2.25 cfs @ 12.07 hrs, Volume= 0.172 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Pond 1P: Offsite - Smelt Brook



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Existing Site Runoff Area=16,828 sf 73.37% Impervious Runoff Depth>7.95"
Tc=5.0 min CN=93 Runoff=3.29 cfs 0.256 af

Pond 1P: Offsite - Smelt Brook Inflow=3.29 cfs 0.256 af
Primary=3.29 cfs 0.256 af

Total Runoff Area = 0.386 ac Runoff Volume = 0.256 af Average Runoff Depth = 7.95"
26.63% Pervious = 0.103 ac 73.37% Impervious = 0.283 ac

Summary for Subcatchment 1: Existing Site

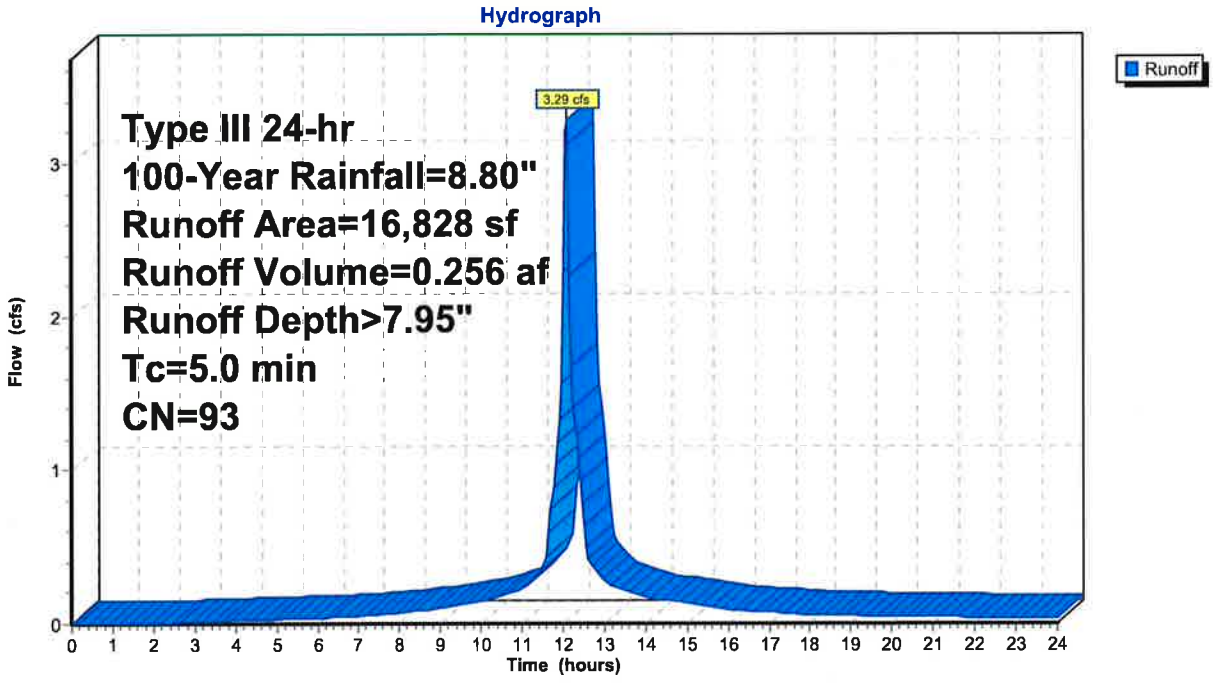
Runoff = 3.29 cfs @ 12.07 hrs, Volume= 0.256 af, Depth> 7.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.80"

	Area (sf)	CN	Description
	4,481	79	50-75% Grass cover, Fair, HSG C
*	1,795	98	Existing Building
*	10,164	98	Existing Bit Conc. Parking
*	388	98	Existing Walks
	16,828	93	Weighted Average
	4,481		26.63% Pervious Area
	12,347		73.37% Impervious Area

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

Subcatchment 1: Existing Site

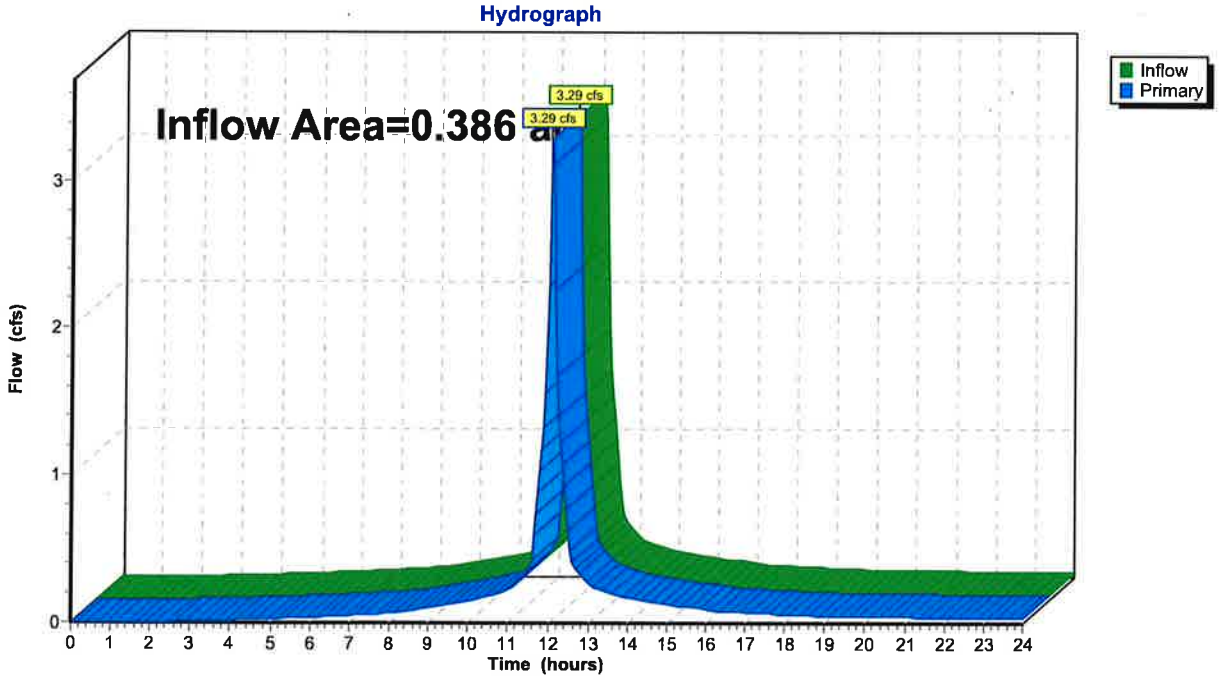


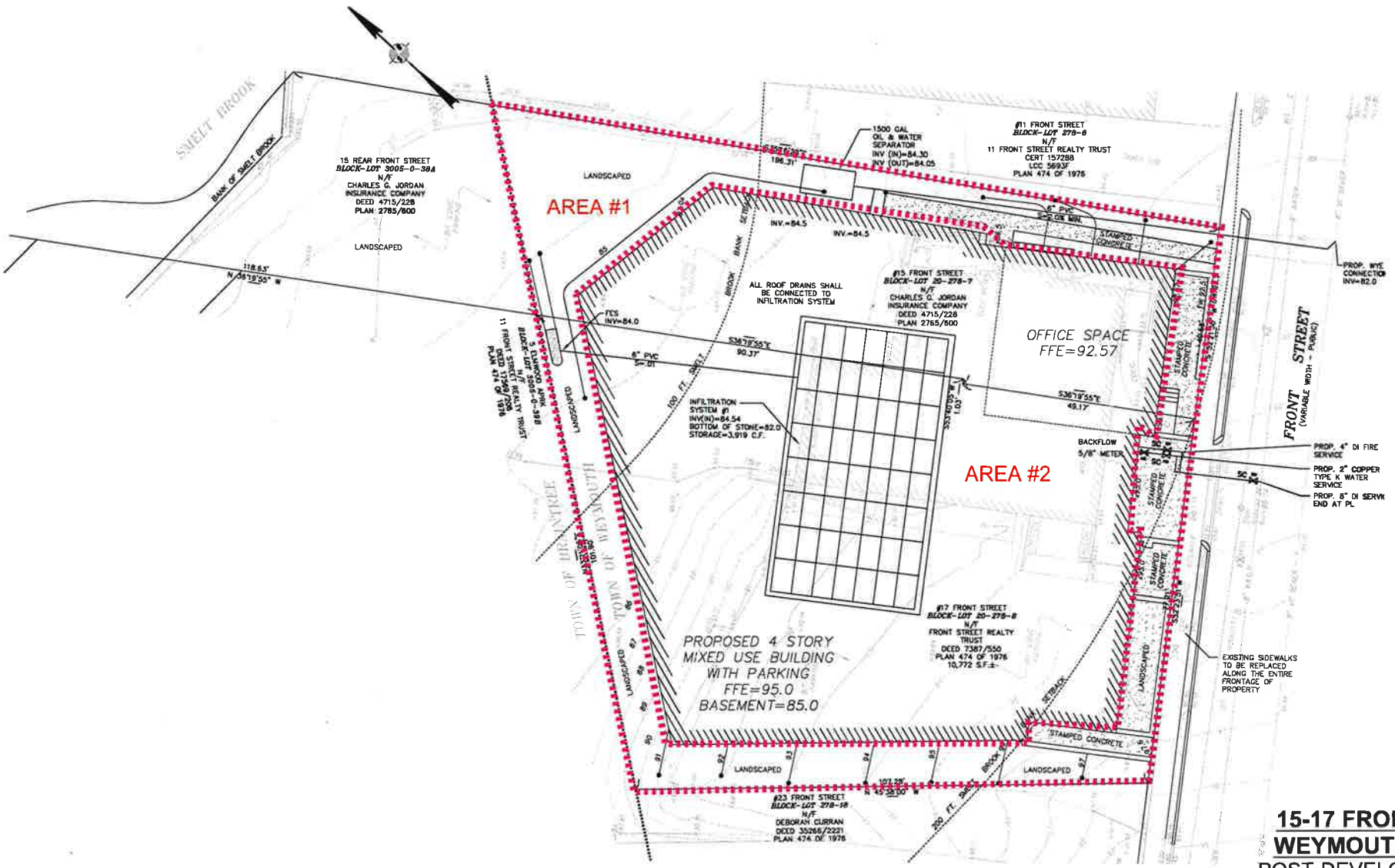
Summary for Pond 1P: Offsite - Smelt Brook

Inflow Area = 0.386 ac, 73.37% Impervious, Inflow Depth > 7.95" for 100-Year event
Inflow = 3.29 cfs @ 12.07 hrs, Volume= 0.256 af
Primary = 3.29 cfs @ 12.07 hrs, Volume= 0.256 af, Atten= 0%, Lag= 0.0 min

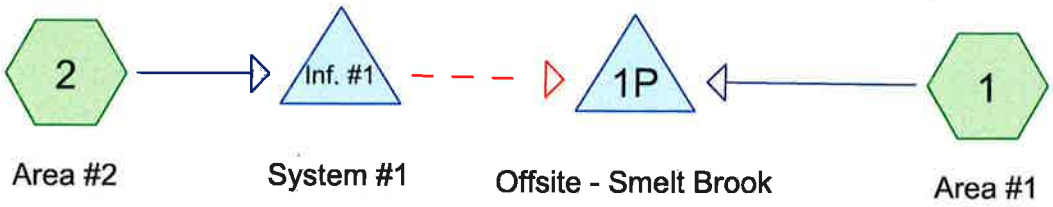
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Pond 1P: Offsite - Smelt Brook





15-17 FRONT ST
WEYMOUTH, MA
POST-DEVELOPMENT
CATCHMENT AREA PLAN
n.t.s.



Subcat Reach Pond Link

Routing Diagram for Front St Proposed_rev
Prepared by HP, Printed 3/15/2021

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.097	79	50-75% Grass cover, Fair, HSG C (1)
0.270	98	Prop. Buidling (2)
0.019	98	Stamped Conc. Walks (1)
0.386	**93**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Area#1 Runoff Area=5,058 sf 16.51% Impervious Runoff Depth>1.55"
Tc=5.0 min CN=82 Runoff=0.21 cfs 0.015 af

Subcatchment2: Area#2 Runoff Area=11,770 sf 100.00% Impervious Runoff Depth>2.99"
Tc=5.0 min CN=98 Runoff=0.85 cfs 0.067 af

Pond 1P: Offsite - Smelt Brook Inflow=0.21 cfs 0.015 af
Primary=0.21 cfs 0.015 af

Pond Inf. #1: System#1 Peak Elev=83.80' Storage=0.049 af Inflow=0.85 cfs 0.067 af
Discarded=0.01 cfs 0.019 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.019 af

Total Runoff Area = 0.386 ac Runoff Volume = 0.082 af Average Runoff Depth = 2.56"
25.10% Pervious = 0.097 ac 74.90% Impervious = 0.289 ac

Summary for Subcatchment 1: Area #1

[49] Hint: Tc<2dt may require smaller dt

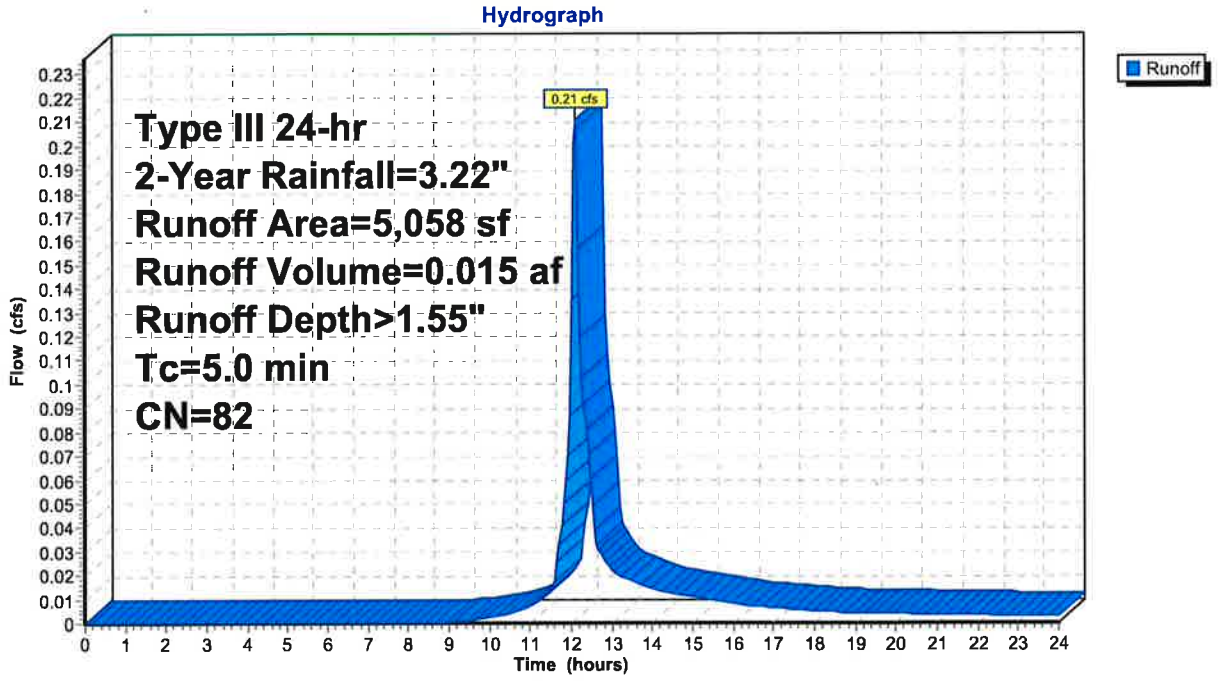
Runoff = 0.21 cfs @ 12.08 hrs, Volume= 0.015 af, Depth> 1.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.22"

	Area (sf)	CN	Description
	4,223	79	50-75% Grass cover, Fair, HSG C
*	835	98	Stamped Conc. Walks
	5,058	82	Weighted Average
	4,223		83.49% Pervious Area
	835		16.51% Impervious Area

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

Subcatchment 1: Area #1



Summary for Subcatchment 2: Area #2

[49] Hint: Tc<2dt may require smaller dt

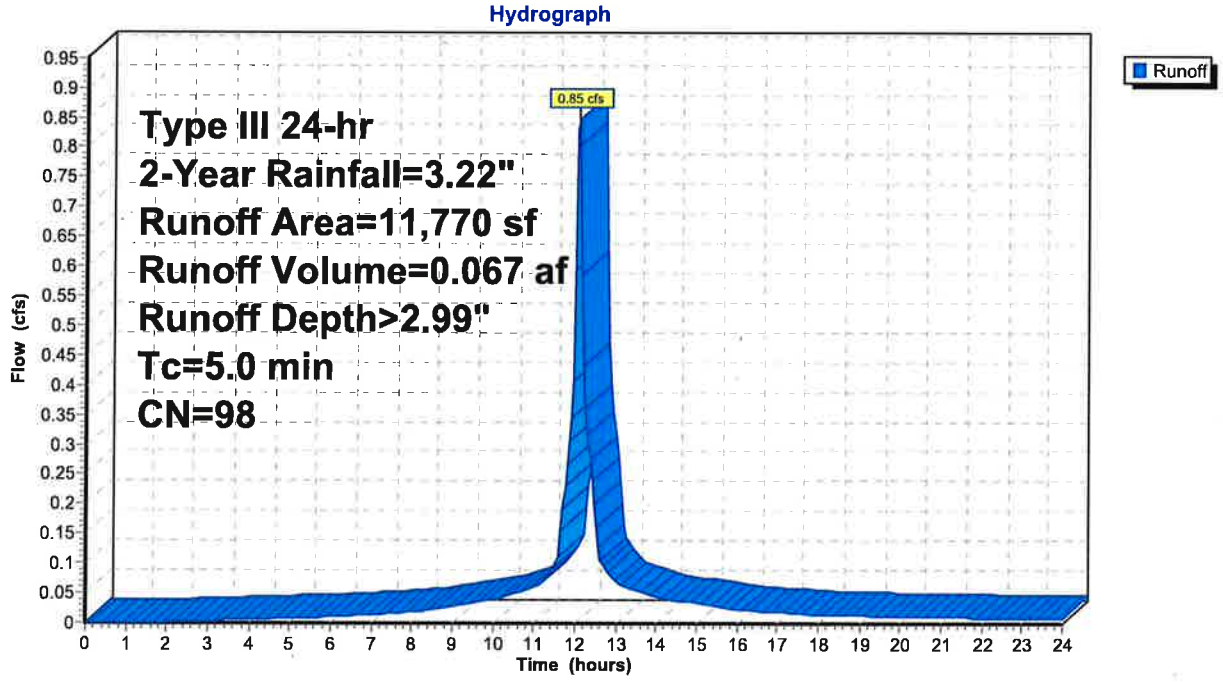
Runoff = 0.85 cfs @ 12.07 hrs, Volume= 0.067 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.22"

	Area (sf)	CN	Description
*	11,770	98	Prop. Buidling
	11,770		100.00% Impervious Area

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

Subcatchment 2: Area #2



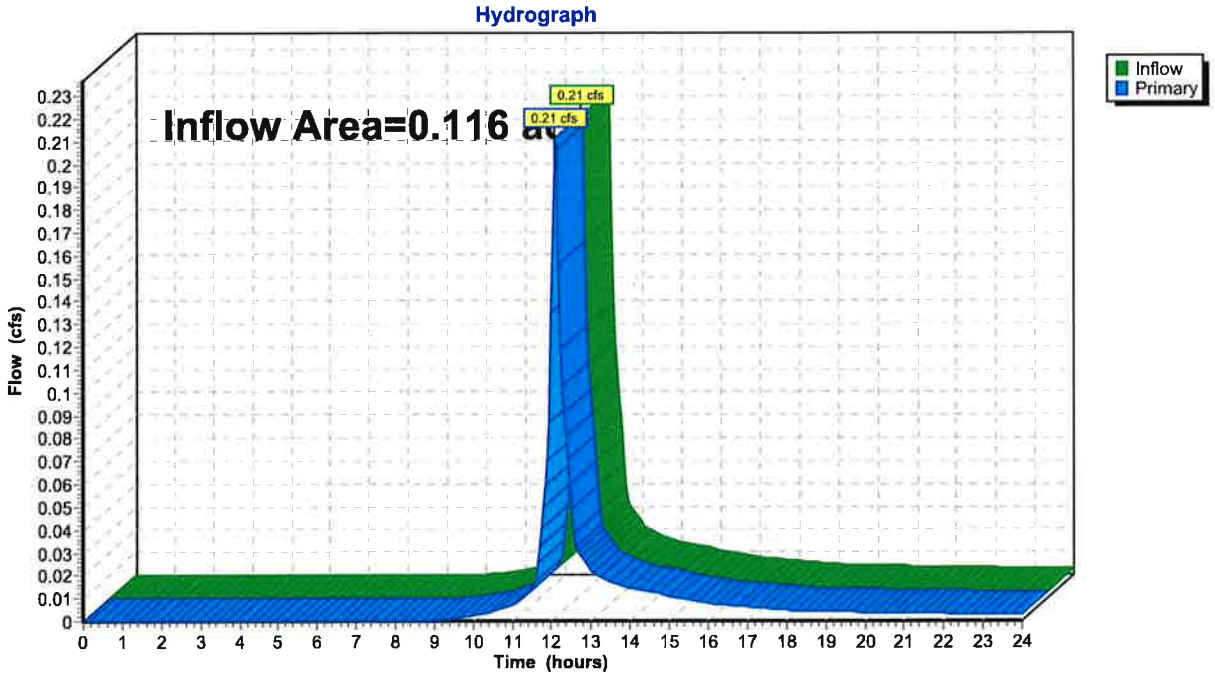
Summary for Pond 1P: Offsite - Smelt Brook

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.116 ac, 16.51% Impervious, Inflow Depth > 1.55" for 2-Year event
Inflow = 0.21 cfs @ 12.08 hrs, Volume= 0.015 af
Primary = 0.21 cfs @ 12.08 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Pond 1P: Offsite - Smelt Brook



Summary for Pond Inf. #1: System #1

Inflow Area = 0.270 ac,100.00% Impervious, Inflow Depth > 2.99" for 2-Year event
Inflow = 0.85 cfs @ 12.07 hrs, Volume= 0.067 af
Outflow = 0.01 cfs @ 7.10 hrs, Volume= 0.019 af, Atten= 99%, Lag= 0.0 min
Discarded = 0.01 cfs @ 7.10 hrs, Volume= 0.019 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 83.80' @ 19.57 hrs Surf.Area= 0.044 ac Storage= 0.049 af

Plug-Flow detention time= 292.1 min calculated for 0.019 af (29% of inflow)
Center-of-Mass det. time= 101.6 min (856.6 - 755.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	82.00'	0.044 af	**32.33'W x 59.50'L x 4.04'H Field A** 0.179 af Overall - 0.069 af Embedded = 0.110 af x 40.0% Voids
#2A	83.00'	0.069 af	**Cultec R-330XLHD** x 56 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 7 rows
		0.113 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	82.00'	**0.270 in/hr Exfiltration over Surface area**
#2	Secondary	84.54'	**6.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.01 cfs @ 7.10 hrs HW=82.04' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=82.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond Inf. #1: System #1 - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger®330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 7 rows

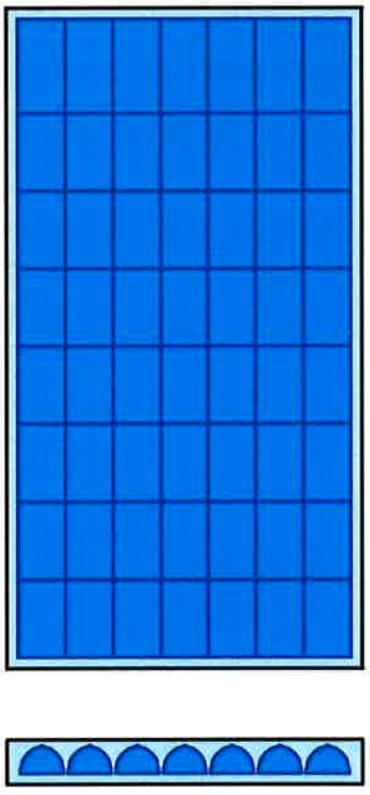
8 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 57.50' Row Length +12.0" End Stone x 2 = 59.50' Base Length
7 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 32.33' Base Width
12.0" Base + 30.5" Chamber Height + 6.0" Cover = 4.04' Field Height

56 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 7 Rows = 2,999.0 cf Chamber Storage

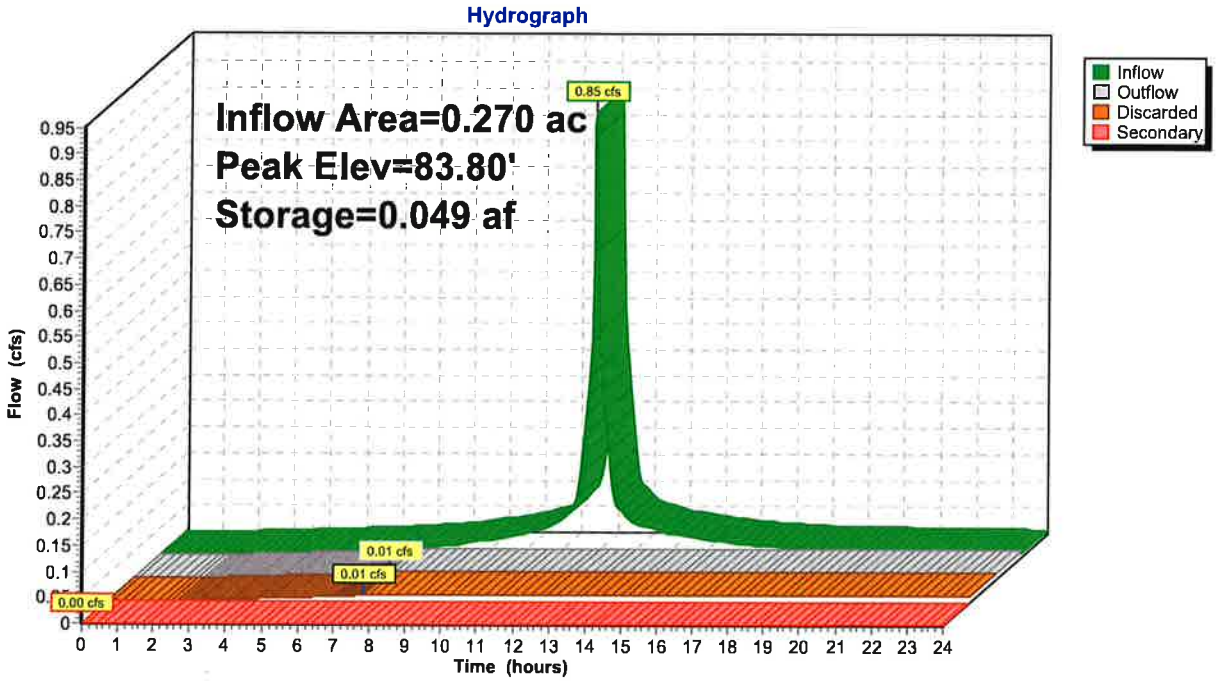
7,775.5 cf Field - 2,999.0 cf Chambers = 4,776.5 cf Stone x 40.0% Voids = 1,910.6 cf Stone Storage

Chamber Storage + Stone Storage = 4,909.6 cf = 0.113 af
Overall Storage Efficiency = 63.1%
Overall System Size = 59.50' x 32.33' x 4.04'

56 Chambers
288.0 cy Field
176.9 cy Stone



Pond Inf. #1: System #1



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Area #1 Runoff Area=5,058 sf 16.51% Impervious Runoff Depth>2.95"
Tc=5.0 min CN=82 Runoff=0.40 cfs 0.029 af

Subcatchment2: Area #2 Runoff Area=11,770 sf 100.00% Impervious Runoff Depth>4.62"
Tc=5.0 min CN=98 Runoff=1.29 cfs 0.104 af

Pond 1P: Offsite - Smelt Brook Inflow=0.40 cfs 0.035 af
Primary=0.40 cfs 0.035 af

Pond Inf. #1: System #1 Peak Elev=84.61' Storage=0.078 af Inflow=1.29 cfs 0.104 af
Discarded=0.01 cfs 0.021 af Secondary=0.02 cfs 0.006 af Outflow=0.03 cfs 0.027 af

Total Runoff Area = 0.386 ac Runoff Volume = 0.133 af Average Runoff Depth = 4.12"
25.10% Pervious = 0.097 ac 74.90% Impervious = 0.289 ac

Summary for Subcatchment 1: Area #1

[49] Hint: Tc<2dt may require smaller dt

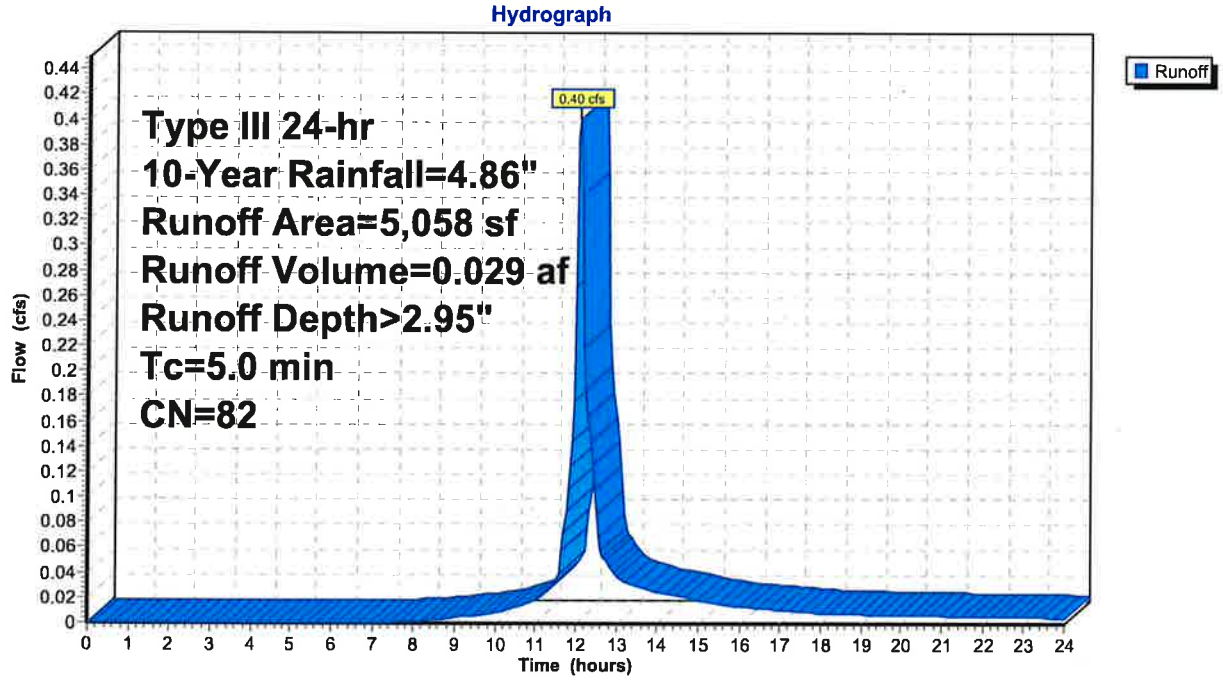
Runoff = 0.40 cfs @ 12.08 hrs, Volume= 0.029 af, Depth> 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.86"

	Area (sf)	CN	Description
	4,223	79	50-75% Grass cover, Fair, HSG C
*	835	98	Stamped Conc. Walks
	5,058	82	Weighted Average
	4,223		83.49% Pervious Area
	835		16.51% Impervious Area

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

Subcatchment 1: Area #1



Summary for Subcatchment 2: Area #2

[49] Hint: Tc<2dt may require smaller dt

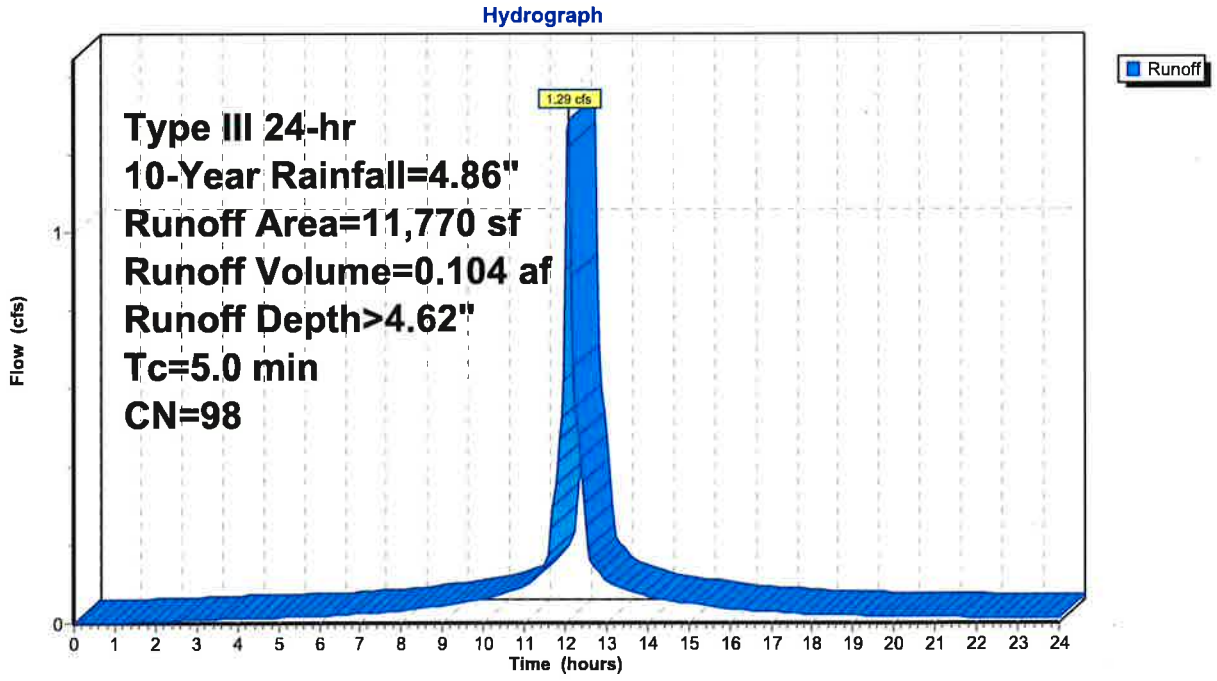
Runoff = 1.29 cfs @ 12.07 hrs, Volume= 0.104 af, Depth> 4.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.86"

	Area (sf)	CN	Description
*	11,770	98	Prop. Buidling
	11,770		100.00% Impervious Area

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

Subcatchment 2: Area #2



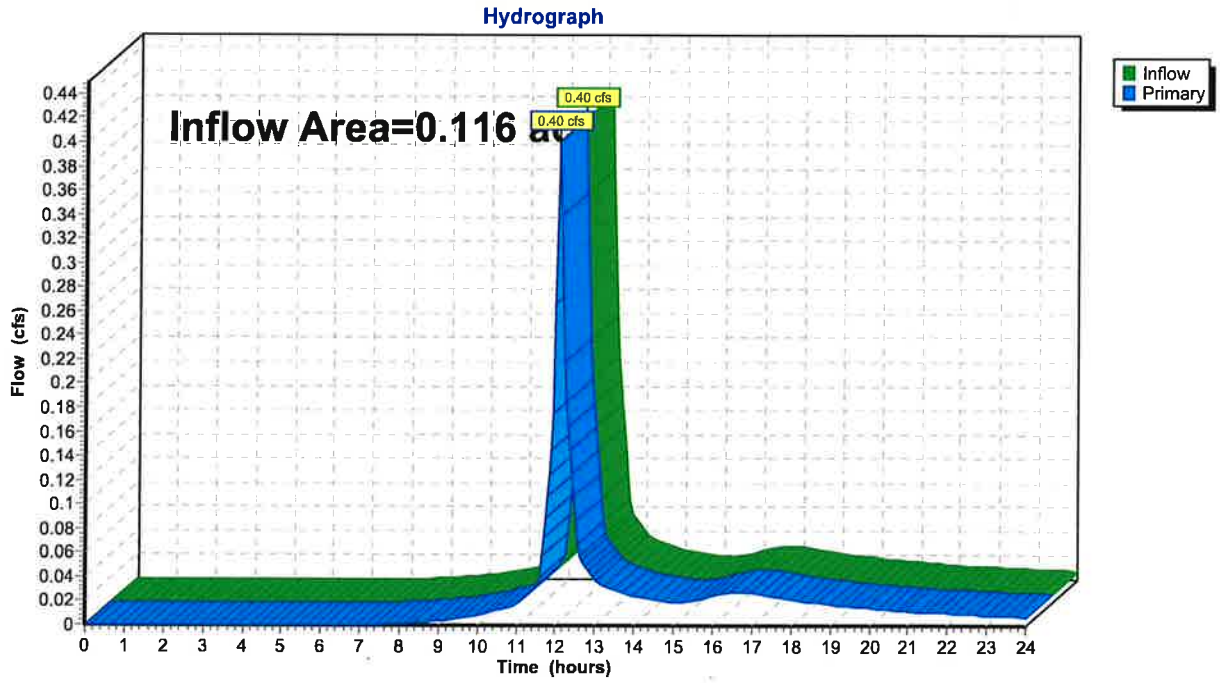
Summary for Pond 1P: Offsite - Smelt Brook

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.116 ac, 16.51% Impervious, Inflow Depth > 3.60" for 10-Year event
Inflow = 0.40 cfs @ 12.08 hrs, Volume= 0.035 af
Primary = 0.40 cfs @ 12.08 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Pond 1P: Offsite - Smelt Brook



Summary for Pond Inf. #1: System #1

Inflow Area = 0.270 ac,100.00% Impervious, Inflow Depth > 4.62" for 10-Year event
Inflow = 1.29 cfs @ 12.07 hrs, Volume= 0.104 af
Outflow = 0.03 cfs @ 16.99 hrs, Volume= 0.027 af, Atten= 98%, Lag= 295.4 min
Discarded = 0.01 cfs @ 4.85 hrs, Volume= 0.021 af
Secondary = 0.02 cfs @ 16.99 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 84.61' @ 16.99 hrs Surf.Area= 0.044 ac Storage= 0.078 af

Plug-Flow detention time= 351.7 min calculated for 0.027 af (26% of inflow)
Center-of-Mass det. time= 134.3 min (881.6 - 747.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	82.00'	0.044 af	**32.33'W x 59.50'L x 4.04'H Field A** 0.179 af Overall - 0.069 af Embedded = 0.110 af x 40.0% Voids
#2A	83.00'	0.069 af	**Cultec R-330XLHD** x 56 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 7 rows
		0.113 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	82.00'	**0.270 in/hr Exfiltration over Surface area**
#2	Secondary	84.54'	**6.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.01 cfs @ 4.85 hrs HW=82.04' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.02 cfs @ 16.99 hrs HW=84.61' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 0.02 cfs @ 0.90 fps)

Pond Inf. #1: System #1 - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger®330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 7 rows

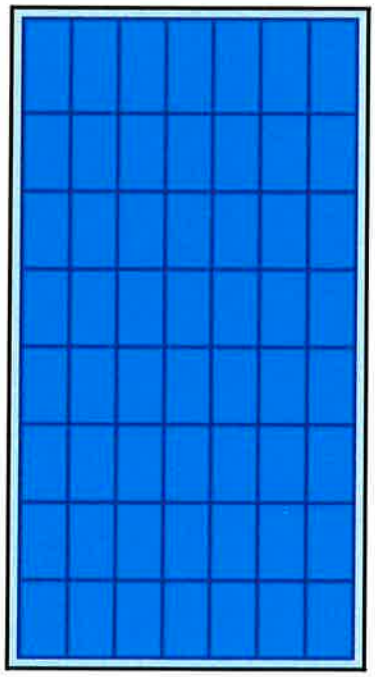
8 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 57.50' Row Length +12.0" End Stone x 2 = 59.50' Base Length
7 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 32.33' Base Width
12.0" Base + 30.5" Chamber Height + 6.0" Cover = 4.04' Field Height

56 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 7 Rows = 2,999.0 cf Chamber Storage

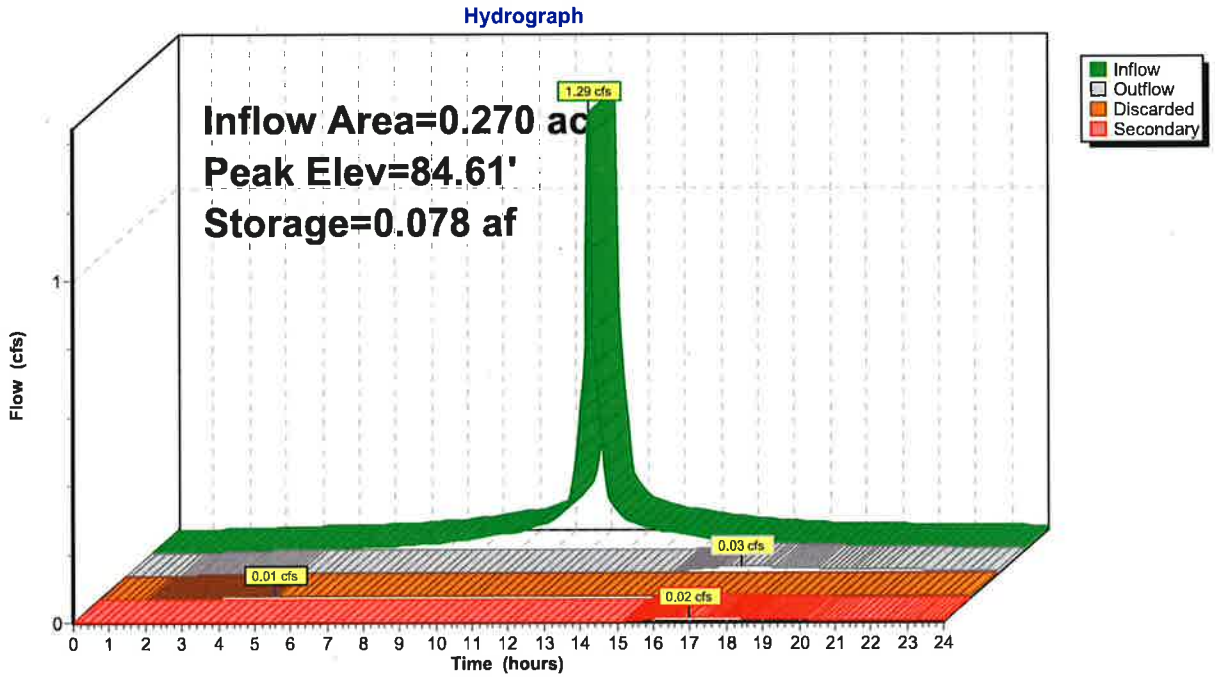
7,775.5 cf Field - 2,999.0 cf Chambers = 4,776.5 cf Stone x 40.0% Voids = 1,910.6 cf Stone Storage

Chamber Storage + Stone Storage = 4,909.6 cf = 0.113 af
Overall Storage Efficiency = 63.1%
Overall System Size = 59.50' x 32.33' x 4.04'

56 Chambers
288.0 cy Field
176.9 cy Stone



Pond Inf. #1: System #1



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Area#1 Runoff Area=5,058 sf 16.51% Impervious Runoff Depth>4.12"
Tc=5.0 min CN=82 Runoff=0.56 cfs 0.040 af

Subcatchment2: Area#2 Runoff Area=11,770 sf 100.00% Impervious Runoff Depth>5.91"
Tc=5.0 min CN=98 Runoff=1.64 cfs 0.133 af

Pond 1P: Offsite - Smelt Brook Inflow=0.56 cfs 0.074 af
Primary=0.56 cfs 0.074 af

Pond Inf. #1: System#1 Peak Elev=84.75' Storage=0.083 af Inflow=1.64 cfs 0.133 af
Discarded=0.01 cfs 0.022 af Secondary=0.12 cfs 0.034 af Outflow=0.13 cfs 0.056 af

Total Runoff Area = 0.386 ac Runoff Volume = 0.173 af Average Runoff Depth = 5.37"
25.10% Pervious = 0.097 ac 74.90% Impervious = 0.289 ac

Summary for Subcatchment 1: Area #1

[49] Hint: Tc<2dt may require smaller dt

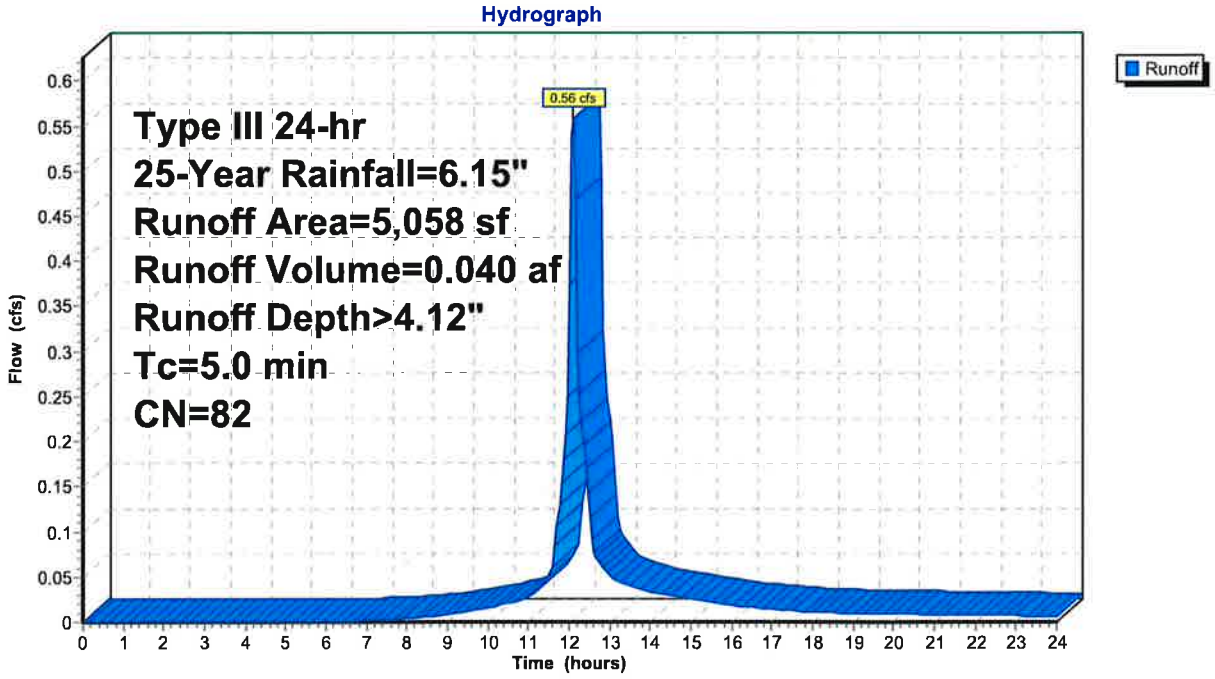
Runoff = 0.56 cfs @ 12.07 hrs, Volume= 0.040 af, Depth> 4.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.15"

	Area (sf)	CN	Description
	4,223	79	50-75% Grass cover, Fair, HSG C
*	835	98	Stamped Conc. Walks
	5,058	82	Weighted Average
	4,223		83.49% Pervious Area
	835		16.51% Impervious Area

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

Subcatchment 1: Area #1



Summary for Subcatchment 2: Area #2

[49] Hint: Tc<2dt may require smaller dt

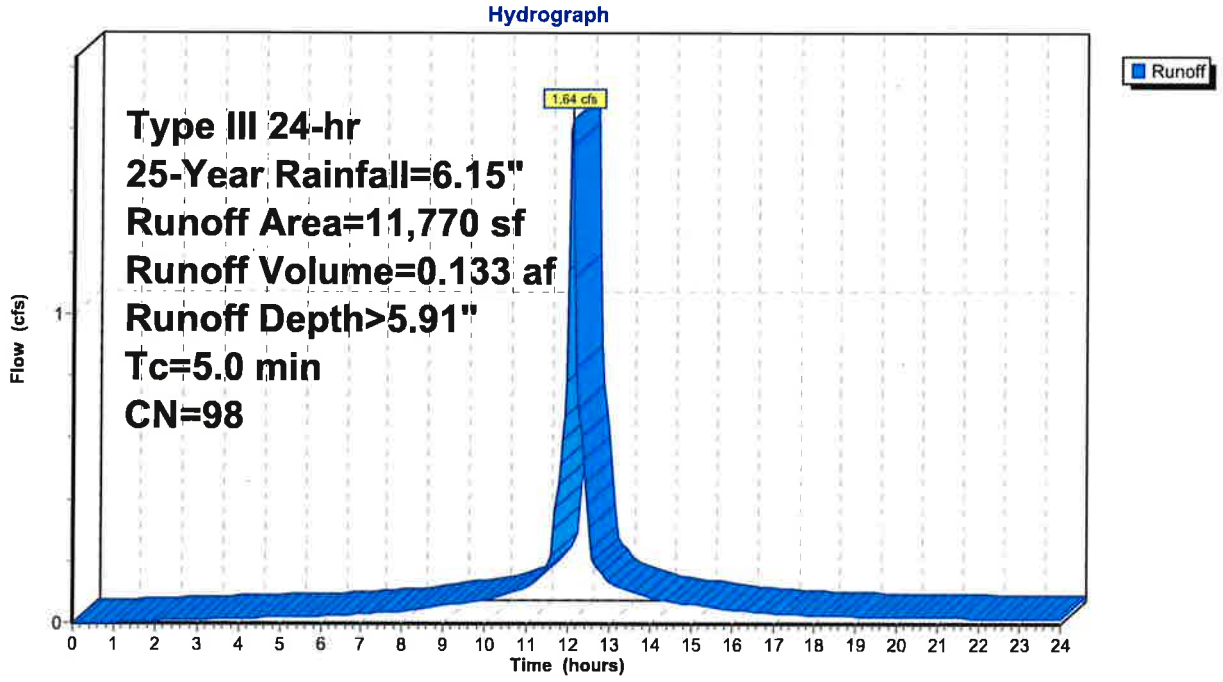
Runoff = 1.64 cfs @ 12.07 hrs, Volume= 0.133 af, Depth> 5.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.15"

	Area (sf)	CN	Description
*	11,770	98	Prop. Buidling
	11,770		100.00% Impervious Area

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

Subcatchment 2: Area #2



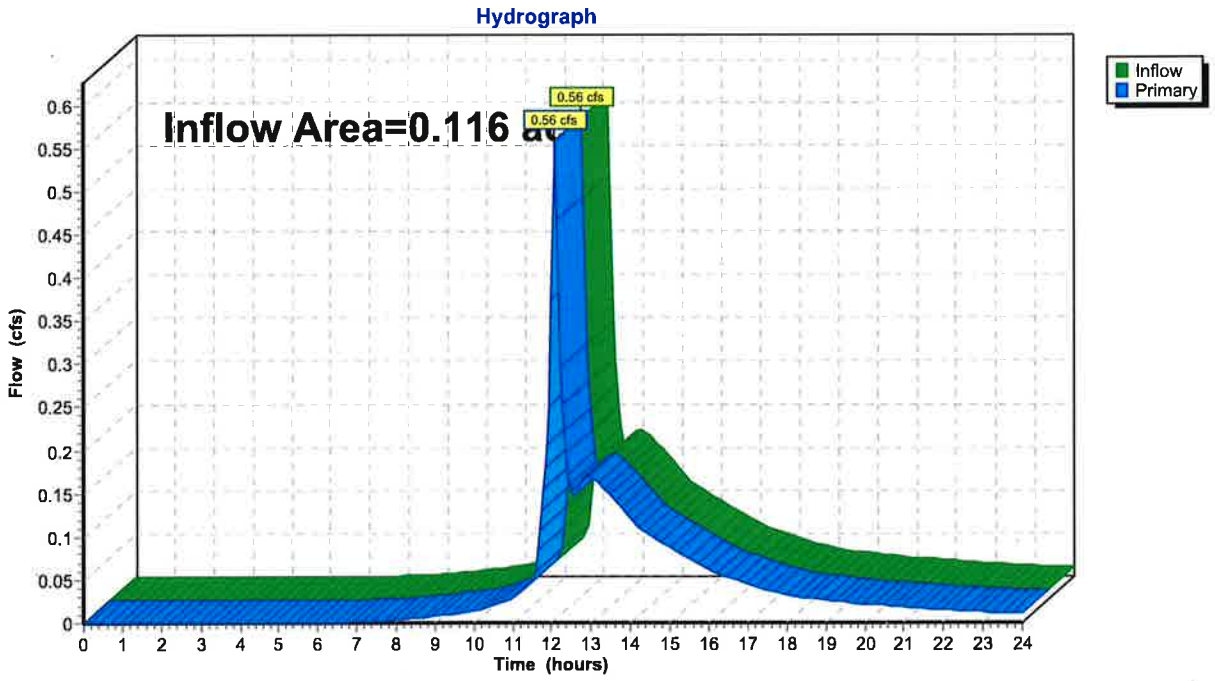
Summary for Pond 1P: Offsite - Smelt Brook

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.116 ac, 16.51% Impervious, Inflow Depth > 7.64" for 25-Year event
Inflow = 0.56 cfs @ 12.07 hrs, Volume= 0.074 af
Primary = 0.56 cfs @ 12.07 hrs, Volume= 0.074 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Pond 1P: Offsite - Smelt Brook



Summary for Pond Inf. #1: System #1

Inflow Area = 0.270 ac,100.00% Impervious, Inflow Depth > 5.91" for 25-Year event
Inflow = 1.64 cfs @ 12.07 hrs, Volume= 0.133 af
Outflow = 0.13 cfs @ 13.02 hrs, Volume= 0.056 af, Atten= 92%, Lag= 57.2 min
Discarded = 0.01 cfs @ 3.65 hrs, Volume= 0.022 af
Secondary = 0.12 cfs @ 13.02 hrs, Volume= 0.034 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 84.75' @ 13.02 hrs Surf.Area= 0.044 ac Storage= 0.083 af

Plug-Flow detention time= 282.7 min calculated for 0.056 af (42% of inflow)
Center-of-Mass det. time= 130.6 min (874.1 - 743.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	82.00'	0.044 af	**32.33'W x 59.50'L x 4.04'H Field A** 0.179 af Overall - 0.069 af Embedded = 0.110 af x 40.0% Voids
#2A	83.00'	0.069 af	**Cultec R-330XLHD** x 56 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 7 rows
		0.113 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	82.00'	**0.270 in/hr Exfiltration over Surface area**
#2	Secondary	84.54'	**6.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.01 cfs @ 3.65 hrs HW=82.04' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.12 cfs @ 13.02 hrs HW=84.75' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 1.55 fps)

Pond Inf. #1: System #1 - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger®330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 7 rows

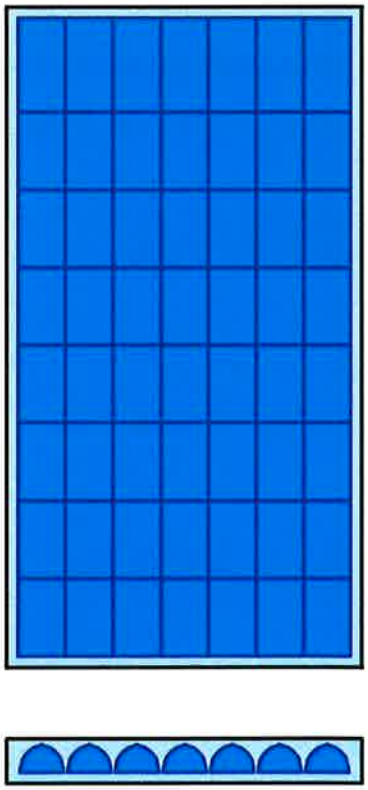
8 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 57.50' Row Length +12.0" End Stone x 2 = 59.50' Base Length
7 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 32.33' Base Width
12.0" Base + 30.5" Chamber Height + 6.0" Cover = 4.04' Field Height

56 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 7 Rows = 2,999.0 cf Chamber Storage

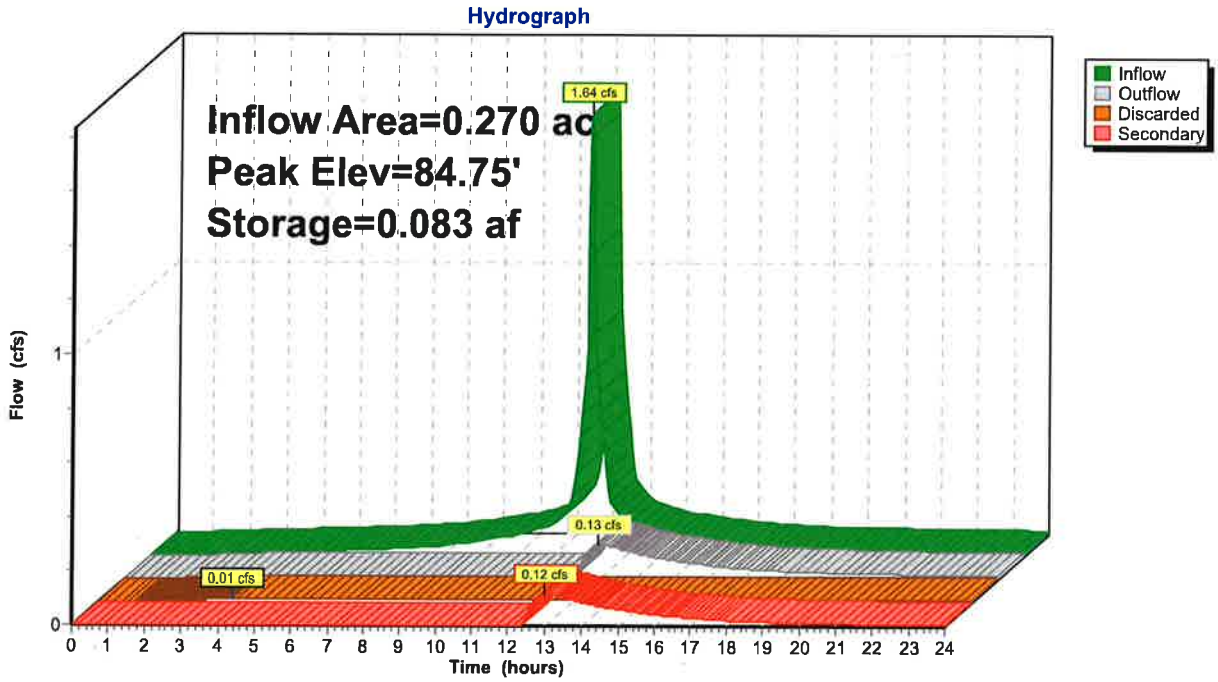
7,775.5 cf Field - 2,999.0 cf Chambers = 4,776.5 cf Stone x 40.0% Voids = 1,910.6 cf Stone Storage

Chamber Storage + Stone Storage = 4,909.6 cf = 0.113 af
Overall Storage Efficiency = 63.1%
Overall System Size = 59.50' x 32.33' x 4.04'

56 Chambers
288.0 cy Field
176.9 cy Stone



Pond Inf. #1: System #1



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Area #1 Runoff Area=5,058 sf 16.51% Impervious Runoff Depth>6.62"
Tc=5.0 min CN=82 Runoff=0.88 cfs 0.064 af

Subcatchment2: Area #2 Runoff Area=11,770 sf 100.00% Impervious Runoff Depth>8.56"
Tc=5.0 min CN=98 Runoff=2.35 cfs 0.193 af

Pond 1P: Offsite - Smelt Brook Inflow=1.13 cfs 0.156 af
Primary=1.13 cfs 0.156 af

Pond Inf. #1: System #1 Peak Elev=85.35' Storage=0.100 af Inflow=2.35 cfs 0.193 af
Discarded=0.01 cfs 0.022 af Secondary=0.71 cfs 0.092 af Outflow=0.72 cfs 0.115 af

Total Runoff Area = 0.386 ac Runoff Volume = 0.257 af Average Runoff Depth = 7.97"
25.10% Pervious = 0.097 ac 74.90% Impervious = 0.289 ac

Summary for Subcatchment 1: Area #1

[49] Hint: Tc<2dt may require smaller dt

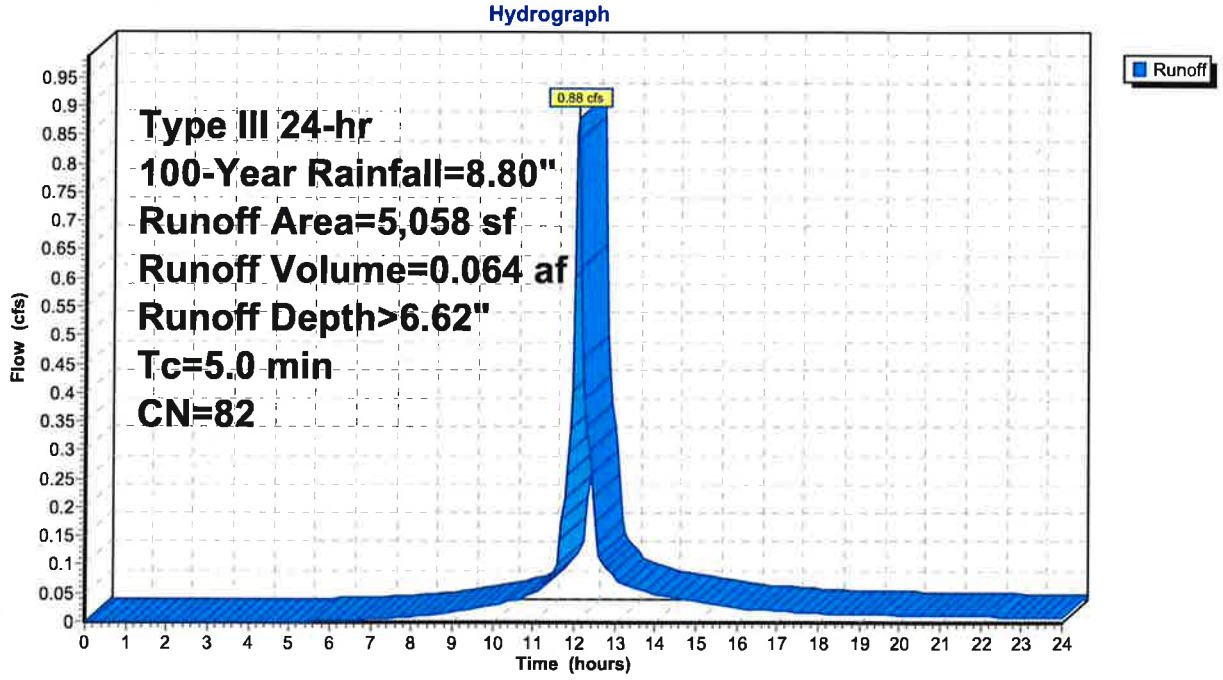
Runoff = 0.88 cfs @ 12.07 hrs, Volume= 0.064 af, Depth> 6.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.80"

	Area (sf)	CN	Description
	4,223	79	50-75% Grass cover, Fair, HSG C
*	835	98	Stamped Conc. Walks
	5,058	82	Weighted Average
	4,223		83.49% Pervious Area
	835		16.51% Impervious Area

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

Subcatchment 1: Area #1



Summary for Subcatchment 2: Area #2

[49] Hint: Tc<2dt may require smaller dt

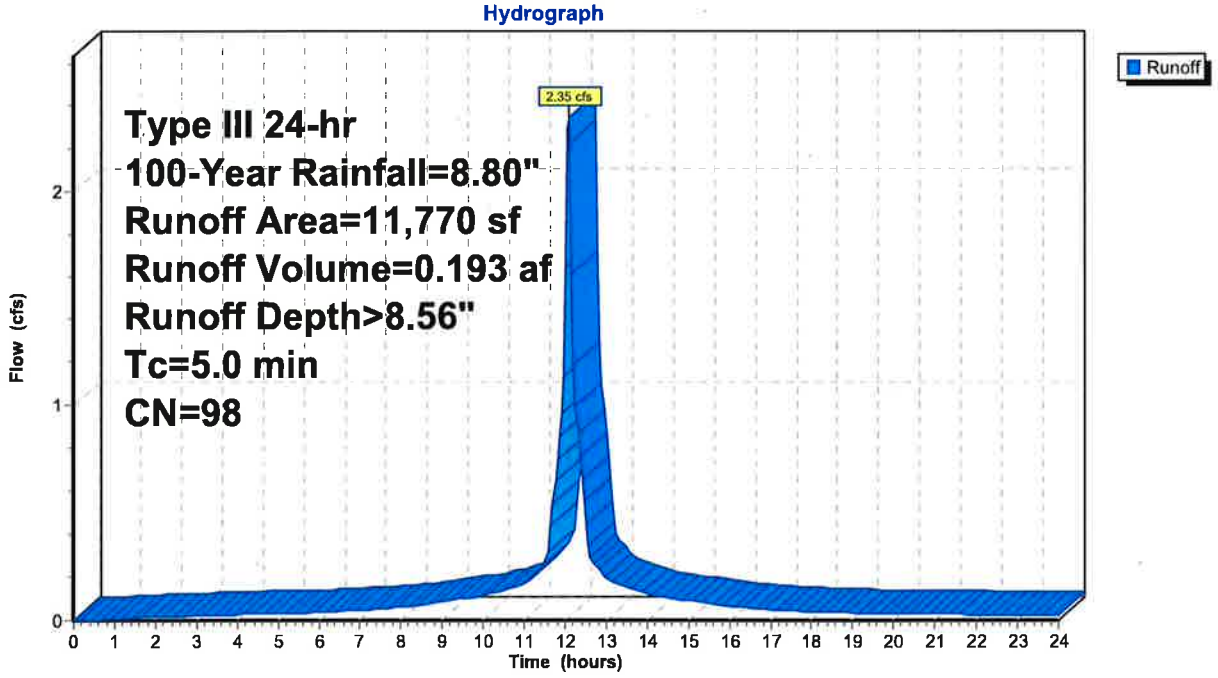
Runoff = 2.35 cfs @ 12.07 hrs, Volume= 0.193 af, Depth> 8.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.80"

	Area (sf)	CN	Description
*	11,770	98	Prop. Buidling
	11,770		100.00% Impervious Area

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

Subcatchment 2: Area #2



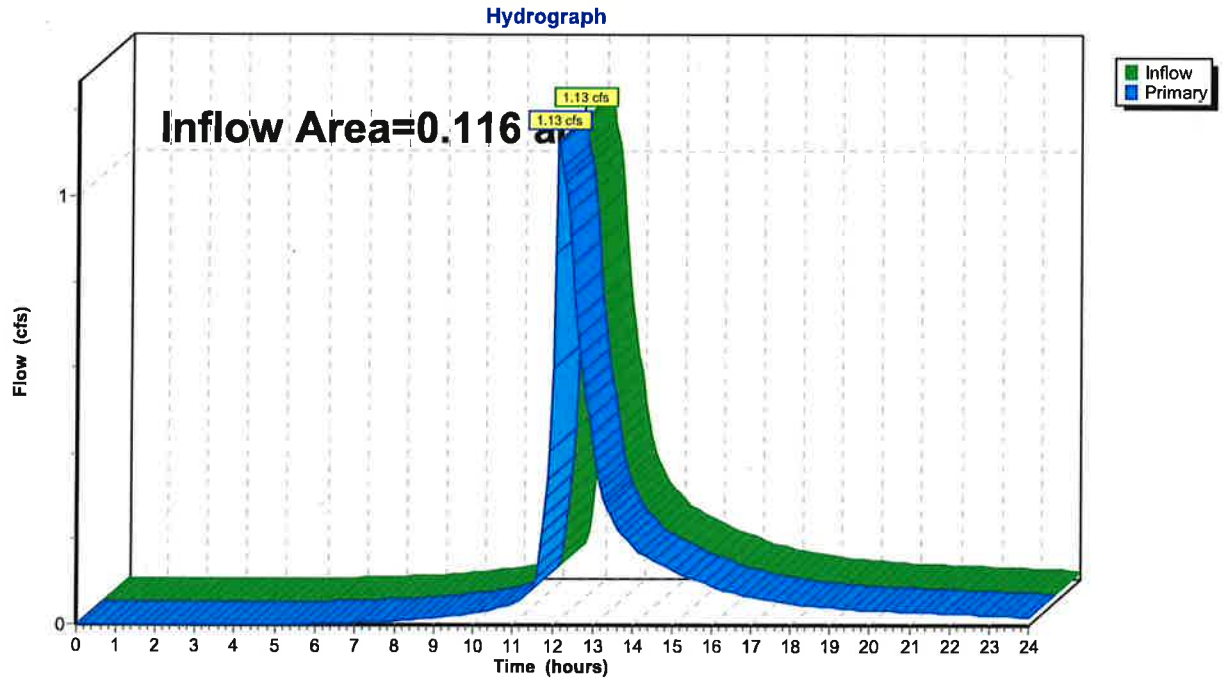
Summary for Pond 1P: Offsite - Smelt Brook

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.116 ac, 16.51% Impervious, Inflow Depth > 16.15" for 100-Year event
Inflow = 1.13 cfs @ 12.14 hrs, Volume= 0.156 af
Primary = 1.13 cfs @ 12.14 hrs, Volume= 0.156 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Pond 1P: Offsite - Smelt Brook



Summary for Pond Inf. #1: System #1

Inflow Area = 0.270 ac,100.00% Impervious, Inflow Depth > 8.56" for 100-Year event
Inflow = 2.35 cfs @ 12.07 hrs, Volume= 0.193 af
Outflow = 0.72 cfs @ 12.37 hrs, Volume= 0.115 af, Atten= 69%, Lag= 18.2 min
Discarded = 0.01 cfs @ 2.35 hrs, Volume= 0.022 af
Secondary = 0.71 cfs @ 12.37 hrs, Volume= 0.092 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 85.35' @ 12.37 hrs Surf.Area= 0.044 ac Storage= 0.100 af

Plug-Flow detention time= 216.0 min calculated for 0.114 af (59% of inflow)
Center-of-Mass det. time= 102.5 min (841.3 - 738.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	82.00'	0.044 af	**32.33'W x 59.50'L x 4.04'H Field A** 0.179 af Overall - 0.069 af Embedded = 0.110 af x 40.0% Voids
#2A	83.00'	0.069 af	**Cultec R-330XLHD** x 56 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 7 rows
		0.113 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	82.00'	**0.270 in/hr Exfiltration over Surface area**
#2	Secondary	84.54'	**6.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.01 cfs @ 2.35 hrs HW=82.04' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Secondary OutFlow Max=0.70 cfs @ 12.37 hrs HW=85.34' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 0.70 cfs @ 3.59 fps)

Pond Inf. #1: System #1 - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger®330XLHD)
Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf
Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap
Row Length Adjustment= +1.50' x 7.45 sf x 7 rows

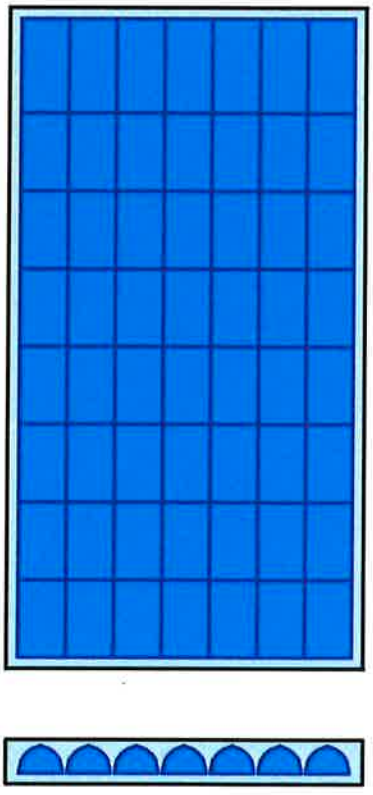
8 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 57.50' Row Length +12.0" End Stone x 2 = 59.50' Base Length
7 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 32.33' Base Width
12.0" Base + 30.5" Chamber Height + 6.0" Cover = 4.04' Field Height

56 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 7 Rows = 2,999.0 cf Chamber Storage

7,775.5 cf Field - 2,999.0 cf Chambers = 4,776.5 cf Stone x 40.0% Voids = 1,910.6 cf Stone Storage

Chamber Storage + Stone Storage = 4,909.6 cf = 0.113 af
Overall Storage Efficiency = 63.1%
Overall System Size = 59.50' x 32.33' x 4.04'

56 Chambers
288.0 cy Field
176.9 cy Stone



Pond Inf. #1: System #1