HARDY + MAN
DESIGN GROUP, PC
CIVIL ENGINEERING &
LAND DEVELOPMENT CONSULTING

1285 Washington Street,
Weymouth, MA 02189
Phone: 781-335-1464

August 29, 2019

Conservation Commission
City of Boston
Room 709
1 City Hall Plaza
Boston, MA 02201

RE: 199 Condor Street
East Boston, MA 02201

Dear Members:

Attached please find a Notice of Intent (NOI) application for proposed redevelopment at the referenced location. The proposal involves the demolition of existing and construction of a new multi-family building. The subject property consists of a lot located at 197-199 Condor Street in East Boston, Massachusetts.

The NOI package includes:

- Site Plan
- Drainage Report
- Stormwater Check List
- O & M Plan
- USGS Locus Map
- MassGIS Resource Area Map
- Site Aerial & Photos
- FEMA Flood Map

The proposed site is located outside of FEMA Flood Zone. The resource area associated with this project is buffer zone to Coastal

Beach/Coastal Bank. The project site is totally separate from the resource area by Condor Street which is a 2-lanes paved roadway. There is no disturbance proposed within any resource area. Work proposed is within 100' buffer zone only.

The project will require Boston Water and Sewer Commission (BWSC) Site Plan Approval. The site will include a stormwater management system consists of roof leader and direct all roof runoff onto an underground recharge system that will hold and infiltrate 1" of the site impervious surface. The drainage system design will meet BWSC Site Plan requirement. Parking facility will be internal under the building. There will be internal floor drain to collect parking drainage. All floor drain will be treated by oil/water separator and then discharged onto the BWSC sanitary sewer system.

Our submittal includes an O & M Plan to ensure erosion and sedimentation control during and after construction.

Mitigation measures by this project include:

Stormwater Infiltration – This project will install a stormwater management system to control and infiltrate surface runoff on-site as comparing to the existing site with no stormwater BMP. The proposed infiltration system can improve water quality and lower surface runoff volume and peak rate.

Erosion Control – As state in our O & M plan within the Stormwater Report, A erosion control barrier "filter sock" will be installed in place during construction to ensure site runoff with be filtered to prevent erosion and siltation off-site. The O & M Plan also includes maintenance instruction for on-site BMP to ensure the stormwater system can operate in a long-term basis.

These mitigation measures not only can reduce site runoff peak rate and volume, but also can improve water quality from site runoff.

If you have any further questions regarding this application, please feel free to contact me at 781-335-1464. We look forward to discussing this project at the next public hearing.

Sincerely,

Chi Y. Man, PE
Managing Partner

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

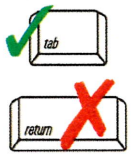
Provided by MassDEP:

MassDEP File Number

Document Transaction Number

City/Town

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):

197-199 Condor Street (a. Street Address) | East Boston (b. City/Town) | 02128 (c. Zip Code)

Latitude and Longitude: 42.382407 (d. Latitude) | -71.033099 (e. Longitude)

1090 (f. Assessors Map/Plat Number) | Parcel ID#0103316000 (g. Parcel /Lot Number)

2. Applicant:

Ilya (a. First Name) | Zvenigorodskiy (b. Last Name)

197-199 CONDOR LLC (c. Organization)

226 Harvard Street (d. Street Address)

Brookline (e. City/Town) | MA (f. State) | 02446 (g. Zip Code)

860-833-4081 (h. Phone Number) | (i. Fax Number) | ilya@riseboston.com (j. Email Address)

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

Yevgeny (a. First Name) | Bernshtein (b. Last Name)

197-199 CONDOR LLC (c. Organization)

226 Harvard Street (d. Street Address)

Brookline (e. City/Town) | MA (f. State) | 02446 (g. Zip Code)

978-689-5773 (h. Phone Number) | (i. Fax Number) | gene@riseboston.com (j. Email address)

4. Representative (if any):

Chi (a. First Name) | Man (b. Last Name)

Hardy + Man Design Group, PC (c. Company)

1285 Washington Street (d. Street Address)

Waymouth (e. City/Town) | MA (f. State) | 02189 (g. Zip Code)

781 335 1464 (h. Phone Number) | (i. Fax Number) | mancivilengineer@outlook.com (j. Email address)

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

$1262.5 (a. Total Fee Paid) | $512.50 (b. State Fee Paid) | $750 (c. City/Town Fee Paid)

Massachusetts Department of Environmental Protection
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WPA Form 3 – Notice of Intent

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

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A. General Information (continued)

6. General Project Description:

To demolish distressed single family home and build a six unit building with six parking spots. The building has been approved by zoning, community and mayor's office. The new constuction will improve drainage on the site.

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

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

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

1. ☐ Yes ☒ No

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

2. Limited Project Type

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

8. Property recorded at the Registry of Deeds for:

suffolk	
a. County	b. Certificate # (if registered land)
58901	
c. Book	d. Page Number

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

1. ☒ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
2. ☐ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

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

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

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

City/Town

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

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

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ 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	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.

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:
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City/Town

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

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

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

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	0 (BUFFER ZONE ONLY) 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

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

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MassDEP File Number
Document Transaction Number
City/Town

C. Other Applicable Standards and Requirements

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

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

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

   CURRENT MASSGIS DATA

   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

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* 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.

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

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
City/Town

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.

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:

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City/Town

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 equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

      or

D. Additional Information

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

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

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

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)

2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.

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

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D. Additional Information (cont'd)

3. ☐ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☒ List the titles and dates for all plans and other materials submitted with this NOI.

Proposed Building on 197-199 Condor Street in Boston (East), Massachusetts
a. Plan Title

Hardy + Man Design Group, PC
b. Prepared By

Chi Man, PE
c. Signed and Stamped by

7-31-2019
d. Final Revision Date

1"=10'
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:

1013
2. Municipal Check Number

8/19/19
3. Check date

1014
4. State Check Number

8/19/19
5. Check date

197-199 CONDOR LLC
6. Payor name on check: First Name

7. Payor name on check: Last Name

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

Provided by MassDEP:

MassDEP File Number

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City/Town

F. Signatures and Submittal Requirements

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

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

1. Signature of Applicant — 2. Date: 8/20/19

3. Signature of Property Owner (if different) — 4. Date: 8/20/19

5. Signature of Representative (if any) Chi Y. Man, PE HARDY + MAN DESIGN GROUP PC — 6. Date: 9-5-19

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.

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

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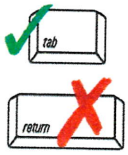


A. Applicant Information

1. Location of Project:

197-199 Condor Street — a. Street Address
East Boston — b. City/Town
c. Check number
$1262.5 — d. Fee amount

2. Applicant Mailing Address:

Ilya — a. First Name
Zvenigorodskiy — b. Last Name
197-199 CONDOR LLC — c. Organization
226 Harvard St — d. Mailing Address
Brookline — e. City/Town
MA — f. State
02446 — g. Zip Code
860-833-4081 — h. Phone Number
i. Fax Number
j. Email Address

3. Property Owner (if different):

Yevgeny — a. First Name
Bernshtein — b. Last Name
197-199 CONDOR LLC — c. Organization
226 Harvard St — d. Mailing Address
Brookline — e. City/Town
MA — f. State
02461 — g. Zip Code
978-689-5773 — 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
3	b	$1050.00	$1050.00

Step 5/Total Project Fee: $1050.00

Step 6/Fee Payments:

Total Project Fee:	$1262.50 (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:	$750.00 (*LOCAL FEE)

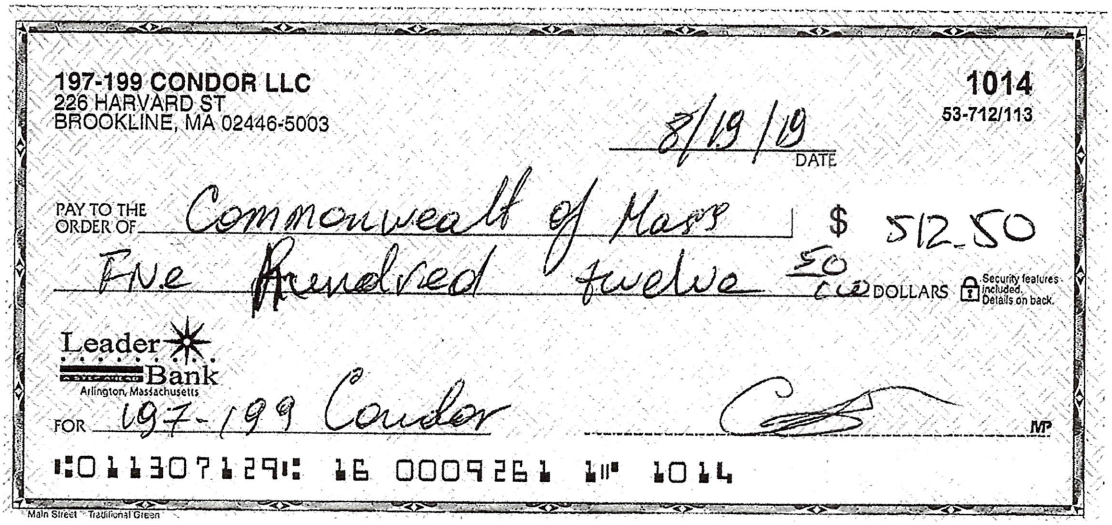
C. Submittal Requirements

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.)



197-199 CONDOR LLC
226 HARVARD ST
BROOKLINE, MA 02446-5003

1014
53-712/113

8/19/19
DATE

PAY TO THE ORDER OF Commonwealth of Mass $ 512.50

Five Hundred twelve 50/100 DOLLARS

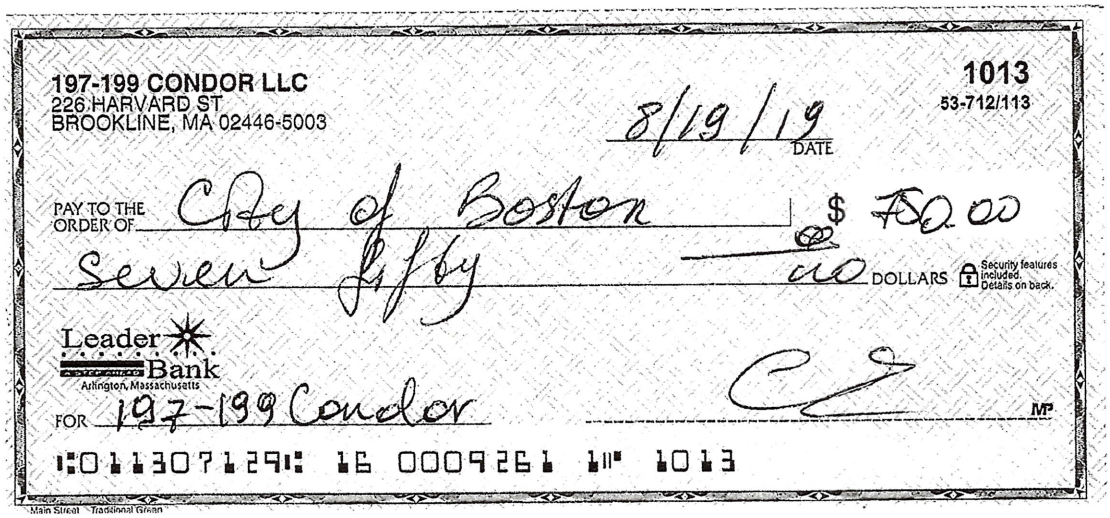
Security features included. Details on back.

Leader Bank
Arlington, Massachusetts

FOR 197-199 Condor

⑆011307129⑆ 16 0009261 ⑈ 1014

Main Street · Traditional Green



197-199 CONDOR LLC
226 HARVARD ST
BROOKLINE, MA 02446-5003

1013
53-712/113

8/19/19
DATE

PAY TO THE ORDER OF City of Boston $ 750.00

Seven fifty 00/100 DOLLARS

Security features included. Details on back.

Leader Bank
Arlington, Massachusetts

FOR 197-199 Condor

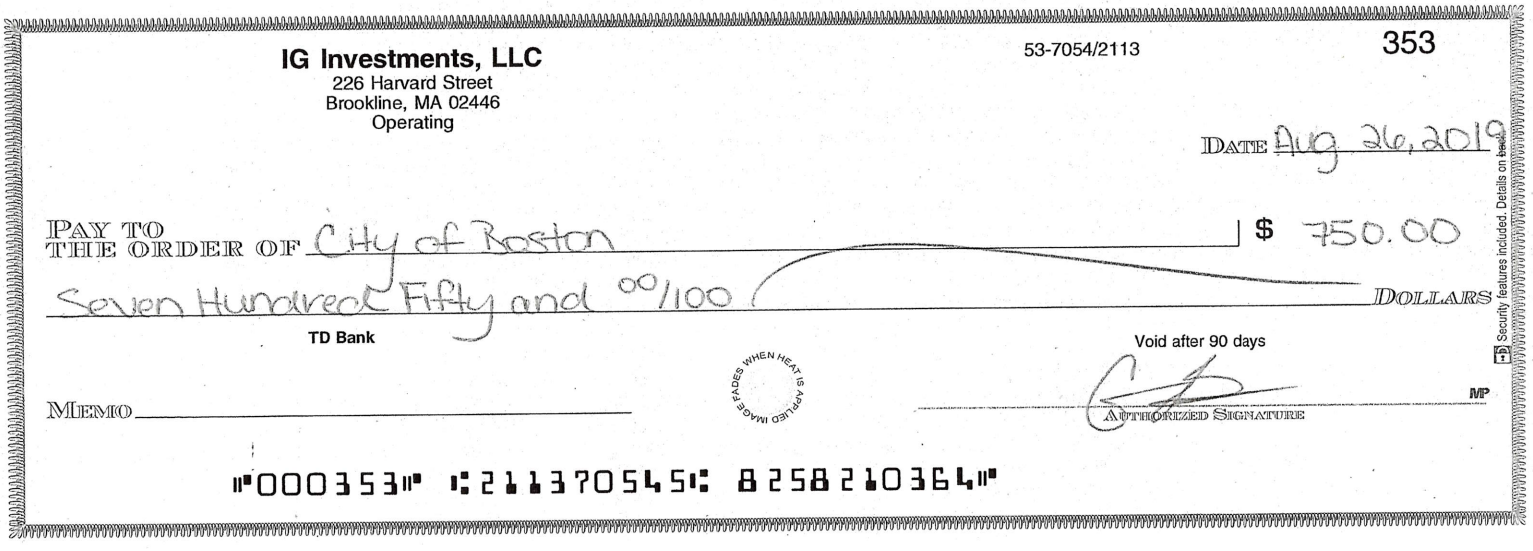
⑆011307129⑆ 16 0009261 ⑈ 1013

Main Street · Traditional Green

Local Fee :

Project Budget @ $1 Million

$1 Million x 0.075% = $750 -



IG Investments, LLC
226 Harvard Street
Brookline, MA 02446
Operating

53-7054/2113

353

DATE Aug 26, 2019

PAY TO THE ORDER OF City of Boston $ 750.00

Seven Hundred Fifty and 00/100 DOLLARS

TD Bank

Void after 90 days

MEMO

AUTHORIZED SIGNATURE

Security features included. Details on back.

"000353" ⑆211370545⑆ 8258210364"

Notification to Abutters
Under the
Wetlands Protection Act (MGL c. 131, s. 40) and Stormwater Management Rules and Regulations

In accordance with the Wetlands Protection Act (MGL c. 131, s. 40) and Stormwater Management Rules and Regulations you are hereby notified of the following:

A. The name of the **Applicant** is: ILYA ZVENIGORODSKIY

B. The Applicant has filed a **–Notice of Intent and a Major Stormwater Management Permit Application** with the Boston Conservation Commission seeking permission to remove, fill, dredge or alter an Area Subject to Protection (Wetland Resource Area and/or Buffer Zone) under the Massachusetts Wetlands Protection Act (310 CMR 10).

C. The **address** of the lot where the activity is proposed: 197-199 CONDOR STREET, BOSTON, MA 02026

D. The **proposed activity** is: DEMOLISH EXISTING SINGLE-FAMILY HOUSE & REPLACE WITH A NEW MULTI-FAMILY APARTMENT BUILDING

E. A **Public Meeting** regarding this Request for Determination will be held on: Wednesday, SEP 4TH 2019 at 6 P.M. in PIEMONTE ROOM, 5th FLOOR, Boston City Hall, Boston, MA.

Information regarding the date, time, and place of the public meeting may be obtained from the applicant or the Boston Conservation Commission. Note that the commission office will not be able to discuss projects in depth over the telephone. You must personally view the file for have a representative view the file to decide for yourself if you have any interests/concerns.

F. Copies of the Notice of Intent may be examined at the **BOSTON CONSERVATION COMMISSION OFFICE** at Boston City Hall between 8:30 A.M. & 4:30 P.M. Monday to Friday (7:00 P.M. on Wednesdays). For more information or to make an appointment, call: (617) 635-3850.

G. Copies of the Notice of Intent may be obtained from either the Applicant, or the Applicant's representative, HARDY + MAN DESIGN GROUP, P.C , by calling this telephone number: 781-335-1464 between the hours of 9 AM – 5 PM on the following days of the week: MONDAY - FRIDAY .

NOTE: Notice of the public meeting, including its date, time, and place, will be posted in the Town Hall not less than forty-eight (48) hours in advance and a Public Meeting Notice, including its date, time, and place, will be published at least 5 days in advance of the first hearing only in The Dedham Times (at the applicant's expense).

AFFIDAVIT OF SERVICE
Under the Massachusetts Wetlands Protection Act

(to be submitted to the Massachusetts Department of Environmental Protection and the Conservation Commission when filing a Notice of Intent)

I, Chi Y. Man, hereby certify under the pains and penalties of perjury that on 8/20/19 I gave notification to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, and the **DEP Guide to Abutter Notification** dated April 8, 1994, in connection with the following matter:

A Notice of Intent filed under the Massachusetts Wetlands Protection Act by Ilya Zveniagorodskiy with the City of Boston Conservation Commission on 8/20/2019 for property located at 199 Condor Street.

The form of the notification, and a list of the abutters to whom it was given and their addresses are attached to this Affidavit of Service.

Chi Y. Man PE — 8/20/19

Signature — Date

HARRY + MAN
DESIGN GROUP, PC.

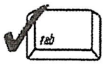
PID	OWNER	ADDRESSEE	MLG_ADDRESS	MLG_CITYSTATE	MLG_ZIPCO	LOC_ADDRESS	LOC_CITY	LOC_ZIPCODE
103304000	RUBIO DORIS V	RUBIO DORIS V	12 EMMONS ST	EAST BOSTON MA	2128	152 A152 FALCON ST	EAST BOSTON	2128
103305000	COCHRANE VIVIAN L	COCHRANE VIVIAN L	150 FALCON ST	EAST BOSTON MA	2128	150 FALCON ST	EAST BOSTON	2128
103306000	MORALES BERNARDO R	MORALES BERNARDO R	148 FALCON ST	EAST BOSTON MA	2128	148 FALCON ST	EAST BOSTON	2128
103307000	ARTEAGA ALVARO E	ARTEAGA ALVARO E	146 FALCON ST	EAST BOSTON MA	2128	146 FALCON ST	EAST BOSTON	2128
103308000	ARAUJO GEIZA MIRANDA	ARAUJO GEIZA MIRANDA	144 FALCON ST	E BOSTON MA	2128	144 FALCON ST	EAST BOSTON	2128
103309000	FERNANDEZ ALFONSO	FERNANDEZ ALFONSO	142 FALCON	EAST BOSTON MA	2128	142 FALCON ST	EAST BOSTON	2128
103310000	GRIECO VINCENT ETAL	GRIECO VINCENT ETAL	140 FALCON ST #	E BOSTON MA	2128	140 FALCON ST	EAST BOSTON	2128
103311000	OLIVEIRA FLAVIO	OLIVEIRA FLAVIO	138 FALCON ST	EAST BOSTON MA	2128	138 FALCON ST	EAST BOSTON	2128
103312000	MUNDELL PATRICIA SUE	MUNDELL PATRICIA SUE	10 PUTNAM ST	E BOSTON MA	2128	10 PUTNAM ST	EAST BOSTON	2128
103313000	BONILLA HENRY M	BONILLA HENRY M	8 PUTNAM ST	EAST BOSTON MA	2128	8 PUTNAM ST	EAST BOSTON	2128
103314000	BETANCUR JORGE	BETANCUR JORGE	278 CHELSEA ST #1	EAST BOSTON MA	2128	2 PUTNAM ST	EAST BOSTON	2128
103315000	GONZALEZ ROLANDO	GONZALEZ ROLANDO	42 JOEY RD	REVERE MA	2151	195 CONDOR ST	EAST BOSTON	2128
103316000	HANSEN VIRGINIA L	HANSEN VIRGINIA L	226 HARVARD ST	BROOKLINE MA	2446	197 CONDOR ST	EAST BOSTON	2128
103317000	HANSEN VIRGINIAL	HANSEN VIRGINIAL	226 HARVARD ST	BROOKLINE MA	2446	199 CONDOR ST	EAST BOSTON	2128
103318000	GUITIERREZ JAVIER A	GUITIERREZ JAVIER A	203 CONDOR ST	EAST BOSTON MA	2128	203 CONDOR ST	EAST BOSTON	2128
103319000	TW011-255 CONDOR ST HOLDINGS	TW011-255 CONDOR ST HOLDINGS	5 GREEN PARK	NEWTON MA	2458	211 207 CONDOR ST	EAST BOSTON	2128
103709000	N E TEL * TEL CO	N E TEL * TEL CO	PO BOX 2749	ADDISON TX	75001	CONDOR ST	EAST BOSTON	2128
103709001	N E TEL * TEL CO	N E TEL * TEL CO	PO BOX 2749	ADDISON TX	75001	CONDOR ST	EAST BOSTON	2128
103710000	ONE-92 X CONDOR LLC	ONE-92 X CONDOR LLC	103 RIVER RD	TOPSFIELD MA	1983	192 X CONDOR ST	EAST BOSTON	2128

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

Checklist for Stormwater Report

A. Introduction

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



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

The Stormwater Report must include:

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

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

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

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

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

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

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

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

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

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

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

Registered Professional Engineer's Certification

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

Registered Professional Engineer Block and Signature

8/19/19

Signature and Date

Checklist

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

☐ New development

☐ Redevelopment

☒ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

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

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

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.

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

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

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

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

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

Standard 3: Recharge

☐ Soil Analysis provided.

☒ Required Recharge Volume calculation provided.

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

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

☒ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

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

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

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

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

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

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

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

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

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

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

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

Standard 4: Water Quality

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

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

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

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

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

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

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

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

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

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

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

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

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs) NOT APPLICABLE

☐ 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.

City of Boston

Conservation Commission

Illicit Discharge Statement

I, as Owner Representative, certify that:

1) The existing building located at 199 Condor Street, Boston, MA Massachusetts is to be demolished under the proposed Notice of Intent (NOI) filing application. During the building demolition process, any illicit discharge, if exists, will be removed as part of the demolition process.
2) The plan accompanied the NOI submittal clearly identifies the following:
    - The location of all on-site systems for conveying wastewater, stormwater.
    - The location of any measures taken to prevent the entry of illicit discharges int the Town of Dedham storm drain system.
    - There is no connects between the wastewater management and the Town of Dedham storm drain system.

Property Owner:
199-197 Condor LLC
226 Harvard Street
Brookline, MA
Attn: Ilya Zvenigorodskiy

Signature:

8-29-19

Chi Y. Man, PE
Hardy + Man Design Group, PC

Drainage Report

For:

197-199 Condor Street
Boston, MA

Prepared For:
Ilya Zvenigorodskiy
226 Harvard Street
Brookline, MA

Prepared By:

HARDY + MAN
DESIGN GROUP, PC
CIVIL ENGINEERING &
LAND DEVELOPMENT CONSULTING

Hardy + Man Design Group, PC
1285 Washington Street
Weymouth, MA 02189

COMMONWEALTH OF MASSACHUSETTS
CHI Y MAN
CIVIL
NO. 45441
REGISTERED
PROFESSIONAL ENGINEER

July 31, 2019
Revised August 26, 2019

Existing Site Conditions

The existing site is a 3,281 SF parcel of land located at 197-199 Condor Street between Putnam Street and Glendon Street in the Central Square area of East Boston. The parcel currently contains a two-story single-family residence, a wooden shed and a driveway which will be demolished.

Based on the dynamic map of national flood hazard layer, this site is not within FEMA Flood Zone.

A geotechnical report summarizes the existing site soil conditions. Test borings preformed indicate that Urban Fill was encountered to depths of 5-7 ft below grade. The Fill (Urban Fill) varies in composition but generally includes a dark brown, loamy, silty Sand, little gravel with trace brick, rubble, clay, organic, glass, ash and other matter. The Fill is generally loose. There should also be fill associated with the existing buildings and associated utilities.

Methodology

This drainage analysis will be based on state post construction stormwater standards of Massachusetts because the project is located in land subject to costal storm flowage and stormwater discharges is to a wetland subject to coastal flooding so that peak rate attenuation will be waved. To calculate the volume of stormwater for new development, 1" stormwater is estimated for all impervious area of the site.

Proposed Conditions

The applicant proposes the construction of a four-story six-unit residential building. Six parking spaces will be located under the building at ground level. The building units share a driveway entrance from Condor Street.

The proposed impervious coverage on the site will increase from 1,364 SF to 3,281 SF, resulting in 1,917 SF of new impervious area. Runoff from the proposed roof will be routed into (4) 330XLHD Cultec chambers. The proposed chambers and surrounding stone will provide a total of 403.1 cubic feet of storage and were sized designed to capture more than 1" stormwater for all impervious area of proposed construction. The stormwater retention system can also reduce runoff from the post-development site discharge as comparing to the pre-development conditions as depicted on the following tables:

Peak Rate of Discharge (cfs)

	2-yr	10-yr	25-yr	100-yr
Pre-development	0.13	0.23	0.31	0.41
Post-development	0	0.13	0.28	0.39
Reduction	100%	43%	1%	0.5%

Volume of Discharge (af)

	2-yr	10-yr	25-yr	100-yr
Pre-development	0.007	0.013	0.018	0.024
Post-development	0	0.004	0.008	0.013
Reduction	100%	69%	56%	46%

Erosion and Sedimentation Control Measures

Erosion control measures to be employed include a staked "Filter Sock" erosion control barrier as depicted in the site plan. The barrier shall be inspected daily and be kept in place until such time that disturbed areas are re-vegetated or paved and are no longer a potential source of siltation.

Conclusion

The stormwater management system will reduce the stormwater runoff flowrate by providing an on-site infiltration system. This system is composed of (4) 330XLHD Cultec chambers and has been sized to match 1" stormwater for all impervious area of proposed construction.

During construction, the proposed erosion control measures protect sedimentation from construction activities from migrating from the site onto the public street and abutting properties.

The proposed stormwater management and erosion control design of the proposed development will meet the City of Boston Stormwater Ordinance.

Infiltration Structure Sizing Calculations

Total impervious area = 3,302 sf x 1/12 = 273.4 cf

2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length

2 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 10.67' Base Width

6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

4 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 231.0 cf Chamber Storage

661.1 cf Field - 231.0 cf Chambers = 430.1 cf Stone x 40.0% Voids = 172.1 cf Stone Storage

Chamber Storage + Stone Storage = 403.0 cf > 273.4 cf OK

Stormwater Operation and Maintenance Plan

197-199 Condor
East Boston, MA
February 18, 2019

Stormwater Management System Owner:

Property Owner

The following Operation and Maintenance Plan is intended as a guide for maintaining the structural and non-structural BMP's post-construction. In order to document maintenance activities, the attached maintenance log should be kept on site. A minimum of two years' worth of records should be up to date and available for review and inspection, if requested by City officials. The transfer of ownership (e.g. from developer to condo association) also includes the transfer of the maintenance obligation to the new owners. In order to ensure the proposed stormwater management system continues to function as designed and to prevent any adverse impacts down-gradient, proper maintenance is required. This maintenance plan shall be recorded at the Norfolk Registry of Deeds.

Operation and Maintenance Plan During Construction

All erosion and sediment control measures must be in place prior to any disturbance.

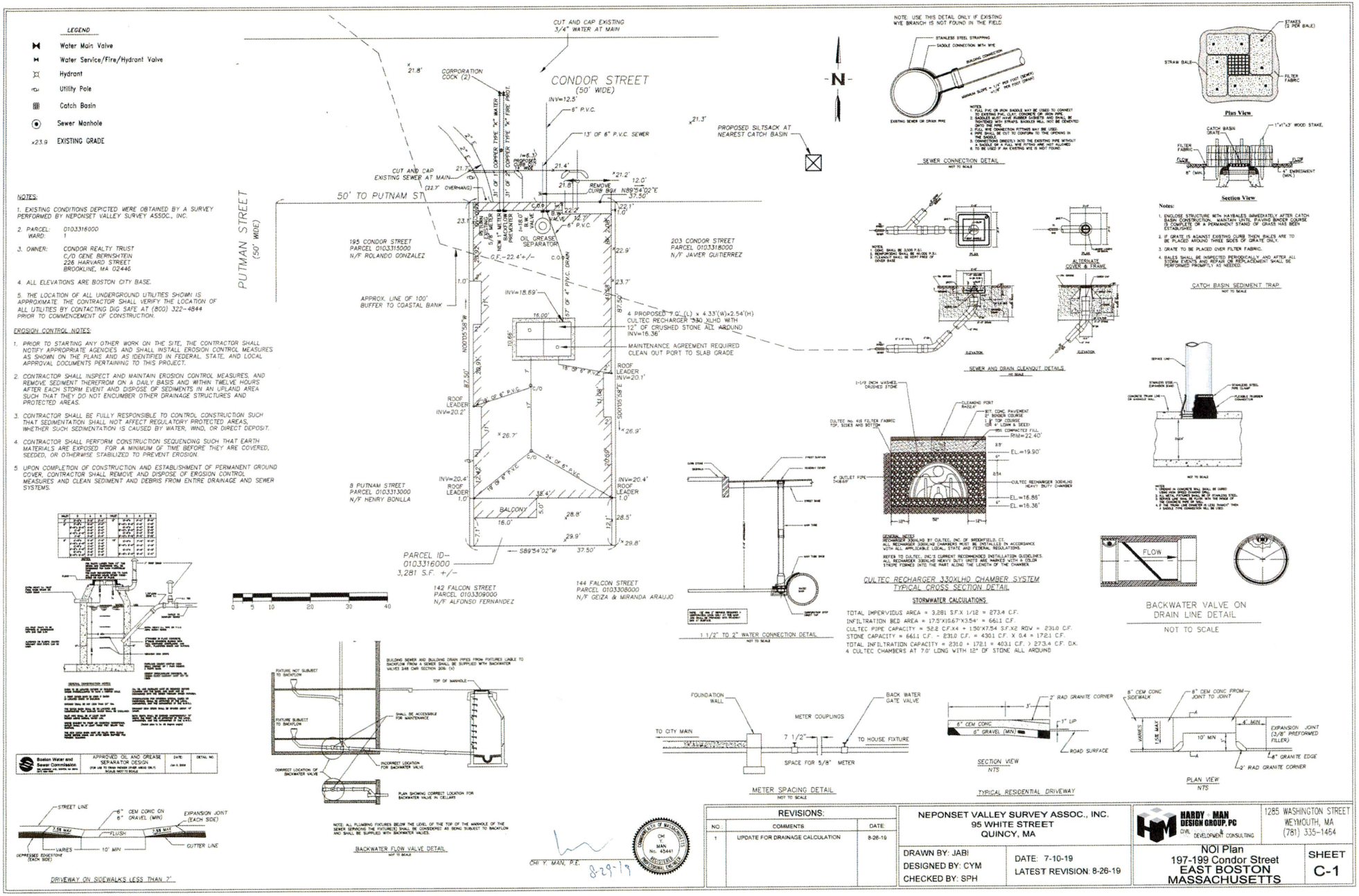
Inlet Protection: catch basins shall be protected from siltation during construction through the use of siltation fabric. The siltation fabric must be installed under the catch basin grates and the grates must be secured to prevent untreated seepage. The fabric should be inspected daily and immediately after a rainstorm. Sediment deposits must be removed promptly and fabric must be repaired as necessary.

Perimeter Silt Protection: A "Silt Sock" (or approved equal) perimeter fence must be installed around the perimeter of work limits and material stockpiles. Installation shall be in accordance with manufacturer specifications and attached details. Silt fence shall be inspected daily. Trapped sediments shall be removed and repairs shall be made promptly.

Operation and Maintenance Activities

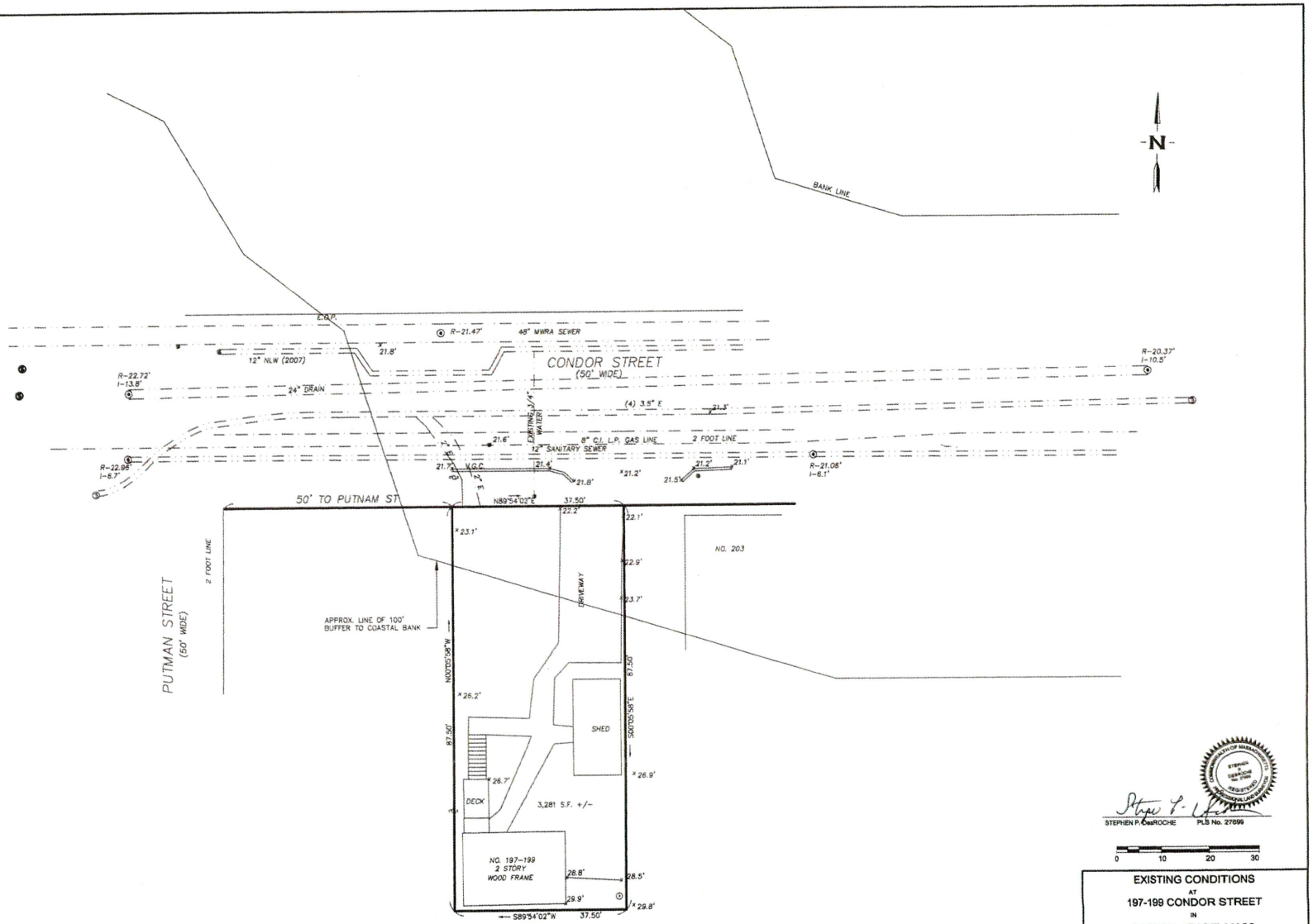
Infiltration Basin Inspection and Cleaning: The subsurface infiltration basin does not require regular maintenance if pretreatment devices since only roof flows are connected to it. The system has inspection ports that should be inspected when the other on-site stormwater devices are inspected. If sediment build-up within the retention system is found during inspection, the sediment shall be removed by vacuumed method through the inspection ports.

Snow and Ice: During winter snow season, snow shall be mechanically removed. Snow shall be stock pile at the landscape areas on-site where it can naturally melt. Snow melt runoff can then be slowly infiltrated into the ground or treated by the stormwater management system. If excessive snow encountered, the excessive snow shall be removed by a private contractor for off-site disposal. At no time snow shall be pushed off site to the public right of way of abutting lands.


LEGEND
Water Main Valve
Water Service/Fire/Hydrant Valve
Hydrant
Utility Pole
Catch Basin
Sewer Manhole
x23.6 EXISTING GRADE
NOTES:
1. EXISTING CONDITIONS DEPICTED WERE OBTAINED BY A SURVEY PERFORMED BY NEPONSET VALLEY SURVEY ASSOC., INC.
2. PARCEL: 0103316000
WARD: 1
3. OWNER: CONDOR REALTY TRUST
C/O GENE BERNSHTEIN
226 HARVARD STREET
BROOKLINE, MA 02446
4. ALL ELEVATIONS ARE BOSTON CITY BASE.
5. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN IS APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES BY CONTACTING DIG SAFE AT (800) 322-4844 PRIOR TO COMMENCEMENT OF CONSTRUCTION.
EROSION CONTROL NOTES:
1. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
2. CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES, AND REMOVE SEDIMENT THEREFROM ON A DAILY BASIS AND WITHIN TWELVE HOURS AFTER EACH STORM EVENT AND DISPOSE OF SEDIMENTS IN AN UPLAND AREA SUCH THAT THEY DO NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
3. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
4. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
5. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS.
CUT AND CAP EXISTING 3/4" WATER AT MAIN
CONDOR STREET (50' WIDE)
CORPORATION COCK (2)
6" P.V.C.
13' OF 6" P.V.C. SEWER
CUT AND CAP EXISTING SEWER AT MAIN
(22.7' OVERHANG)
REMOVE CURB BOX
N89°54'02"E 37.50'
50' TO PUTNAM ST
PUTNAM STREET (50' WIDE)
195 CONDOR STREET
PARCEL 0103315000
N/F ROLANDO GONZALEZ
203 CONDOR STREET
PARCEL 0103318000
N/F JAVIER GUITIERREZ
OIL GREASE SEPARATOR
APPROX. LINE OF 100' BUFFER TO COASTAL BANK
4 PROPOSED 7.0'(L) x 4.33'(W)x2.54'(H) CULTEC RECHARGER 330 XLHD WITH 12" OF CRUSHED STONE ALL AROUND
INV=16.36'
MAINTENANCE AGREEMENT REQUIRED
CLEAN OUT PORT TO SLAB GRADE
ROOF LEADER INV=20.1'
ROOF LEADER INV=20.2'
ROOF LEADER INV=20.4'
ROOF LEADER INV=20.4'
BALCONY
8 PUTNAM STREET
PARCEL 0103313000
N/F HENRY BONILLA
PARCEL ID- 0103316000
3,281 S.F. +/-
S89°54'02"W 37.50'
142 FALCON STREET
PARCEL 0103309000
N/F ALFONSO FERNANDEZ
144 FALCON STREET
PARCEL 0103308000
N/F GEIZA & MIRANDA ARAUJO
PROPOSED SILTSACK AT NEAREST CATCH BASIN
N
0 5 10 20 30 40
NOTE: USE THIS DETAIL ONLY IF EXISTING WYE BRANCH IS NOT FOUND IN THE FIELD
STAINLESS STEEL STRAPPING
SADDLE CONNECTION WITH WYE
BUILDING CONNECTION
EXISTING SEWER OR DRAIN PIPE
SEWER CONNECTION DETAIL
NOT TO SCALE
STAKES (2 PER BALE)
STRAW BALE
FILTER FABRIC
Plan View
CATCH BASIN GRATE
1"x1"x3' WOOD STAKE
FILTER FABRIC
FLOW
8" (MIN.)
4" EMBEDMENT (MIN.)
Section View
Notes:
1. ENCLOSE STRUCTURE WITH HAYBALES IMMEDIATELY AFTER CATCH BASIN CONSTRUCTION. MAINTAIN 12"ITE. PAVING BINDER COURSE
3. COMPLETE OR A PERMANENT STAND OF GRASS HAS BEEN ESTABLISHED.
2. IF GRATE IS AGAINST EXISTING CURB THEN BALES ARE TO BE PLACED AROUND THREE SIDES OF GRATE ONLY.
3. CRATE TO BE PLACED OVER FILTER FABRIC.
4. BALES SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.
CATCH BASIN SEDIMENT TRAP
NOT TO SCALE
ALTERNATE COVER & FRAME
SEWER AND DRAIN CLEANOUT DETAILS
NO SCALE
1-1/2 INCH WASHED CRUSHED STONE
CULTEC No. 410 FILTER FABRIC TOP, SIDES AND BOTTOM
CLEANING PORT 8inDIA
BIT. CONC. PAVEMENT
2" BINDER COURSE
1.5" TOP COURSE
SB 4" LOAM & SEED
12" COMPACTED FILL
RIM=22.40'
4" OUTLET PIPE INV=18.69'
EL.=19.90'
CULTEC RECHARGER 330XLHD HEAVY DUTY CHAMBER
EL.=16.86'
EL.=16.36'
GENERAL NOTES
RECHARGER 330XLHD BY CULTEC, INC. OF BRENTWOOD, CT.
ALL RECHARGER 330XLHD CHAMBERS MUST BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
REFER TO CULTEC, INC.'S CURRENT RECOMMENDED INSTALLATION GUIDELINES.
ALL RECHARGER 330XLHD HEAVY DUTY UNITS ARE MARKED WITH A YELLOW STRIPE RUNNING INTO THE PANEL ALONG THE LENGTH OF THE CHAMBER.
CULTEC RECHARGER 330XLHD CHAMBER SYSTEM TYPICAL CROSS SECTION DETAIL
STORMWATER CALCULATIONS
TOTAL IMPERVIOUS AREA = 3,281 S.F.X 1/12 = 273.4 C.F.
INFILTRATION BED AREA = 17.5'X10.67'X3.54' = 661.1 C.F.
CULTEC PIPE CAPACITY = 52.2 C.F.X4 + 1.50'X7.54 S.F.X2 ROW = 231.0 C.F.
STONE CAPACITY = 661.1 C.F. - 231.0 C.F. = 430.1 C.F. X 0.4 = 172.1 C.F.
TOTAL INFILTRATION CAPACITY = 231.0 + 172.1 = 403.1 C.F. > 273.4 C.F. O.K.
4 CULTEC CHAMBERS AT 7.0' LONG WITH 12" OF STONE ALL AROUND
1 1/2" TO 2" WATER CONNECTION DETAIL
NOT TO SCALE
FLOW
BACKWATER VALVE ON DRAIN LINE DETAIL
NOT TO SCALE
Boston Water and Sewer Commission
APPROVED OIL AND GREASE SEPARATOR DESIGN
FOR USE TO SERVE FOOD USE SALES
SCALE: NOT TO SCALE
DETAIL NO.
FIXTURE NOT SUBJECT TO BACKFLOW
FIXTURE SUBJECT TO BACKFLOW
BUILDING SEWER AND BUILDING DRAIN PIPES FROM FIXTURES LIABLE TO BACKFLOW FROM A SEWER SHALL BE SUPPLIED WITH BACKWATER VALVES 248 CMR SECTION 2.06 (4)
TOP OF MANHOLE
SHALL BE ACCESSIBLE FOR MAINTENANCE
INCORRECT LOCATION FOR BACKWATER VALVE
CORRECT LOCATION OF BACKWATER VALVE
PLAN SHOWING CORRECT LOCATION FOR BACKWATER VALVE IN CELLARS
NOTE: ALL PLUMBING FIXTURES BELOW THE LEVEL OF THE TOP OF THE MANHOLE OF THE SEWER SERVICING THE FIXTURE(S) SHALL BE CONSIDERED AS BEING SUBJECT TO BACKFLOW AND SHALL BE SUPPLIED WITH BACKWATER VALVES.
BACKWATER FLOW VALVE DETAIL
NOT TO SCALE
FOUNDATION WALL
BACK WATER GATE VALVE
METER COUPLINGS
TO CITY MAIN
7 1/2"
TO HOUSE FIXTURE
SPACE FOR 5/8" METER
METER SPACING DETAIL
NOT TO SCALE
2' RAD GRANITE CORNER
3'
6" CEM CONC
8" GRAVEL (MIN)
1" LIP
ROAD SURFACE
SECTION VIEW
NTS
TYPICAL RESIDENTIAL DRIVEWAY
6" CEM CONC SIDEWALK
8" CEM CONC FROM JOINT TO JOINT
4" MIN
EXPANSION JOINT (3/8" PREFORMED FILLER)
MARKS
1.5% MAX
10" MIN
6" GRANITE EDGE
2' RAD GRANITE CORNER
PLAN VIEW
NTS
STREET LINE
6" CEM CONC ON 6" GRAVEL (MIN)
EXPANSION JOINT (EACH SIDE)
7.5% MAX
FLUSH
7.5% MAX
VARIES
10' MIN
GUTTER LINE
GERANESE EDGESTONE (EACH SIDE)
DRIVEWAY ON SIDEWALKS LESS THAN 7'
CHI Y. MAN, P.E.
COMMONWEALTH OF MASSACHUSETTS
CHI
MAN
No. 45441
REGISTERED PROFESSIONAL ENGINEER
8-29-19
REVISIONS:
NO. | COMMENTS | DATE:
1 | UPDATE FOR DRAINAGE CALCULATION | 8-26-19
NEPONSET VALLEY SURVEY ASSOC., INC.
95 WHITE STREET
QUINCY, MA
HARDY - MAN DESIGN GROUP, PC
CIVIL DEVELOPMENT & CONSULTING
1285 WASHINGTON STREET
WEYMOUTH, MA
(781) 335-1464
DRAWN BY: JABI
DESIGNED BY: CYM
CHECKED BY: SPH
DATE: 7-10-19
LATEST REVISION: 8-26-19
NOI Plan
197-199 Condor Street
EAST BOSTON
MASSACHUSETTS
SHEET
C-1

REFERENCE:
BOOK 24271 PAGE 345
PLAN BOOK 569 PAGE 305

NOTE: TIES DEPICTED FROM CORNER BOARD



PARCEL ID-
0103317000
3,281 S.F. +/-

STEPHEN P. CONROCHE PLS No. 27899

0 10 20 30

EXISTING CONDITIONS
AT
197-199 CONDOR STREET
IN
BOSTON, (EAST) MASS.

NEPONSET VALLEY SURVEY ASSOC., INC.
95 WHITE STREET
QUINCY, MA 02269
TEL. 617-472-4887

SCALE: 1"=10'

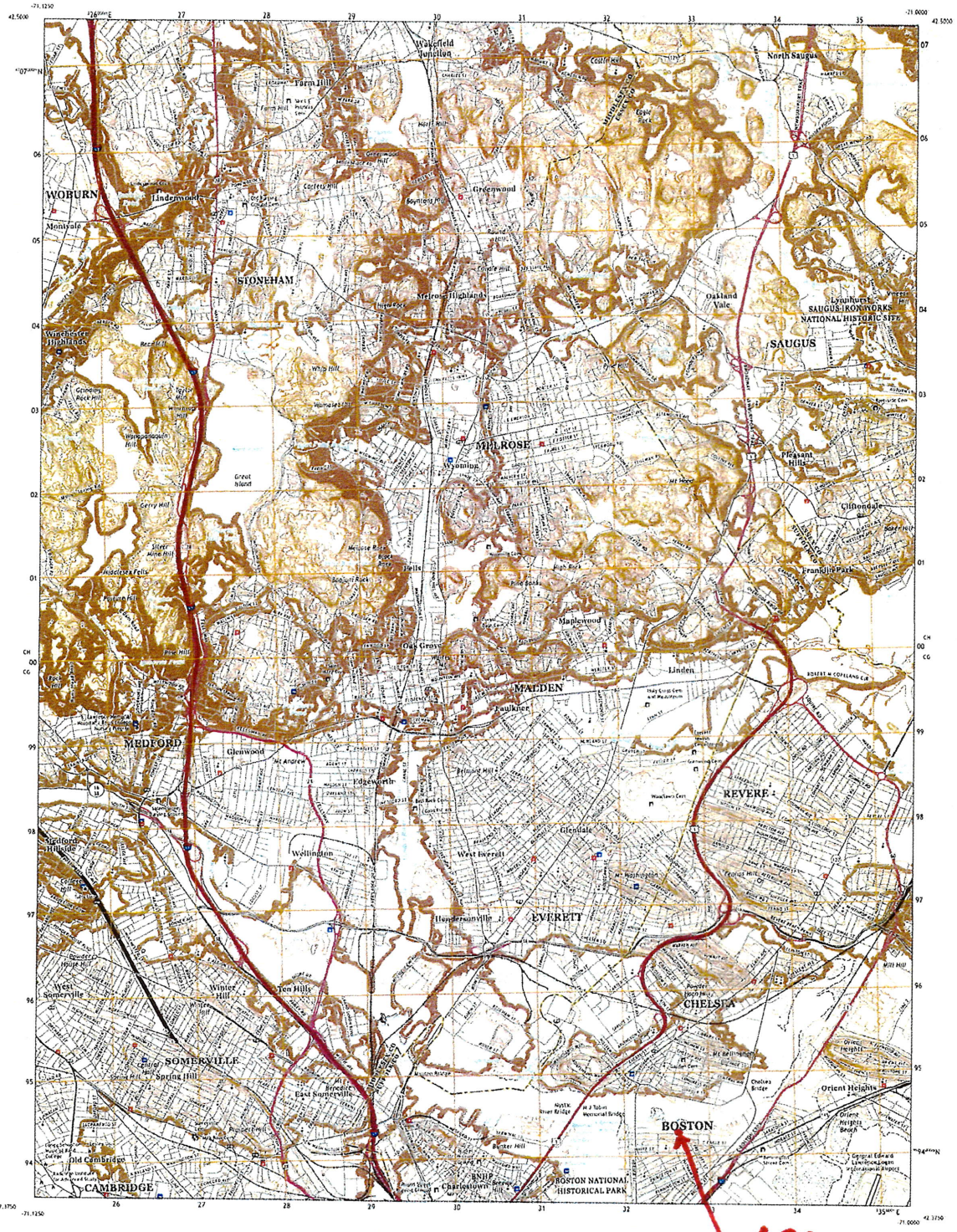
DATE: AUGUST 27, 2019

USGS
science for a changing world

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map
US Topo

BOSTON NORTH QUADRANGLE
MASSACHUSETTS
7.5-MINUTE SERIES



Produced by the United States Geological Survey

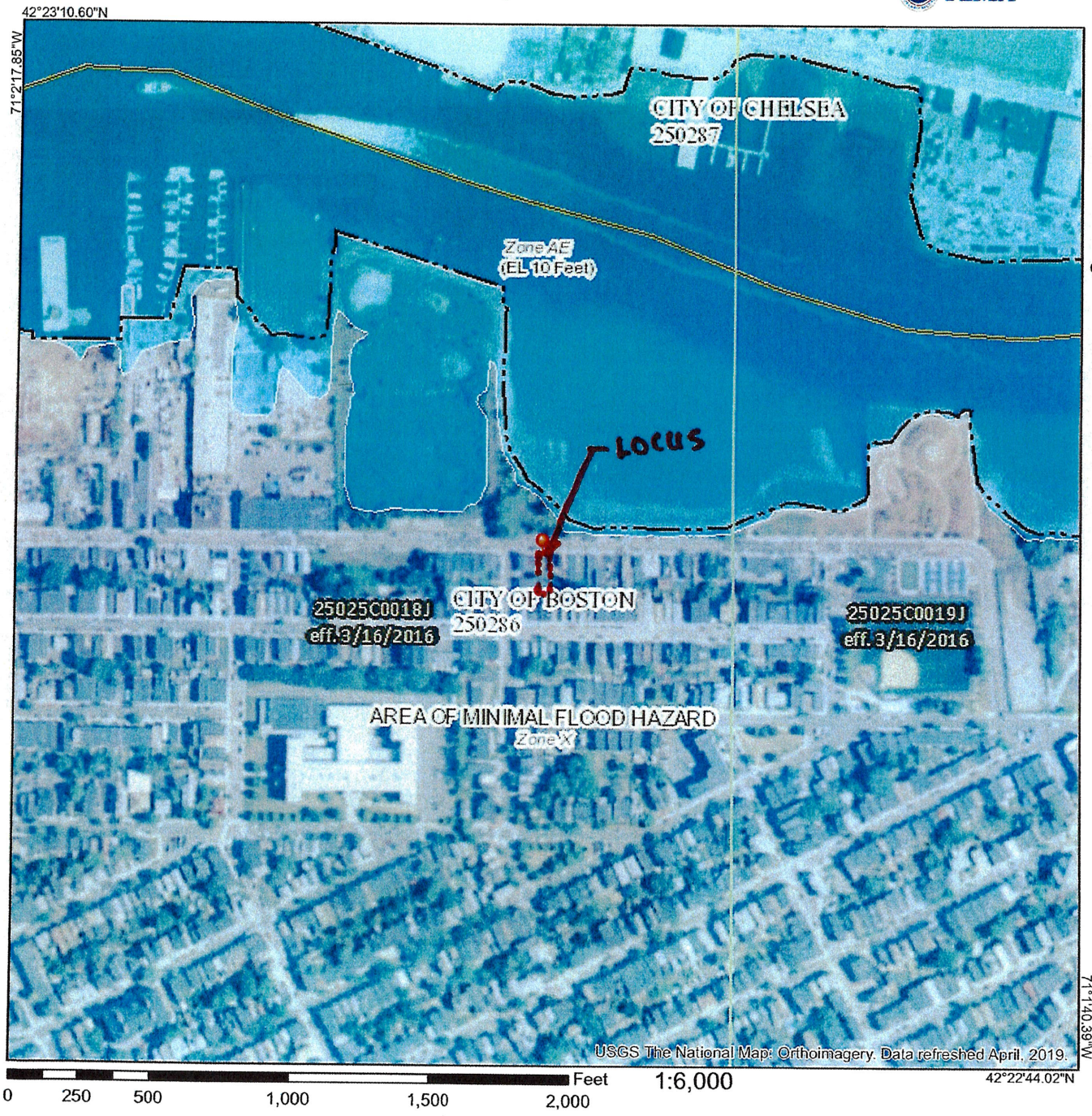
SCALE 1:24 000

ROAD CLASSIFICATION

BOSTON NORTH, MA
2018

National Flood Hazard Layer FIRMette

FEMA



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
  - 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

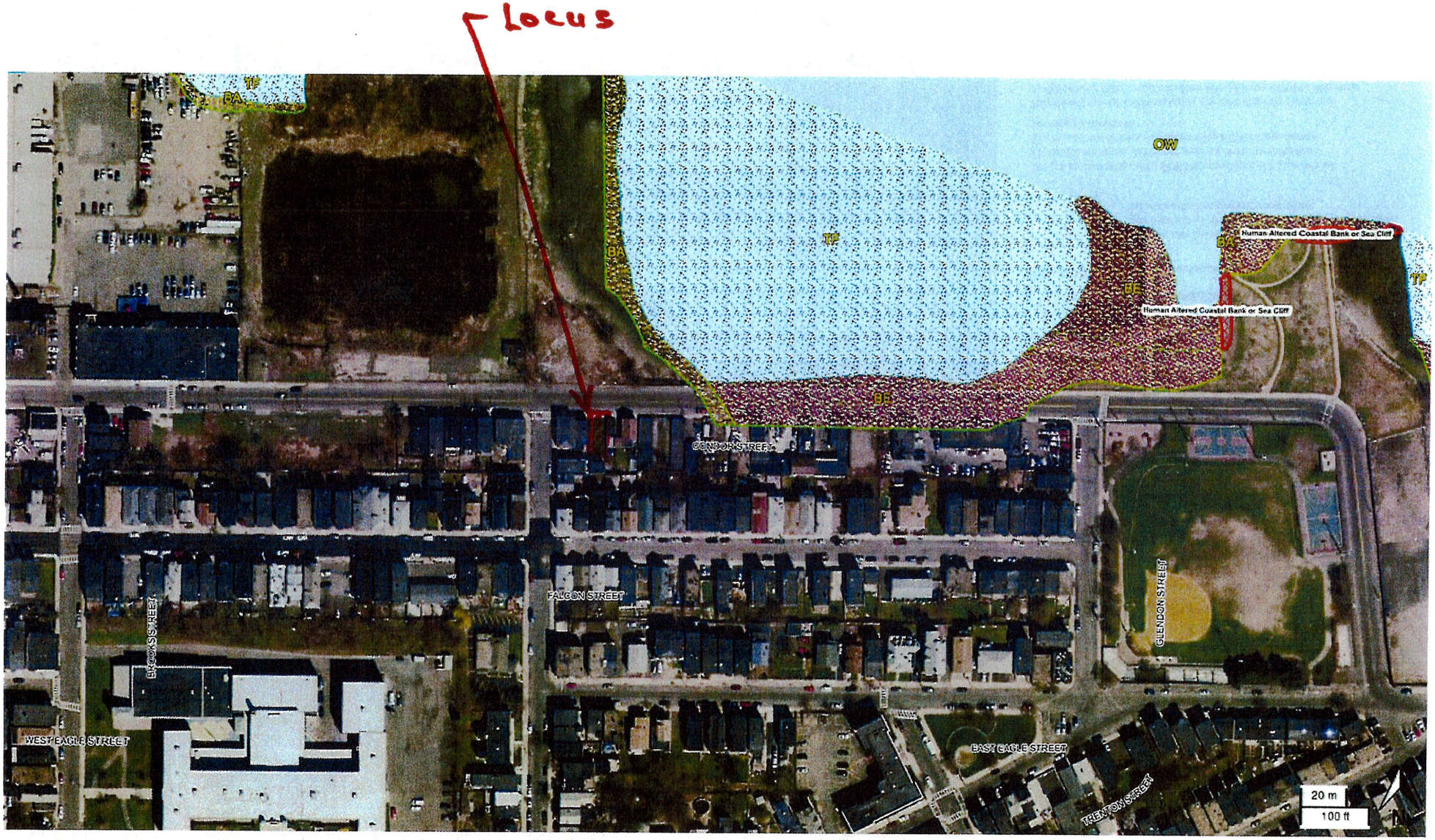
N

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 **8/5/2019 at 1:15:56 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.


Locus
TF
BA
OW
BE
Human Altered Coastal Bank or Sea Cliff
GLENDON STREET
FALCON STREET
WEST EAGLE STREET
EAST EAGLE STREET
TRENTON STREET
20 m
100 ft

WETCODE	IT_VALC	IT_VALDESC
1	BA	COASTAL BANK BLUFF OR SEA CLIFF
2	BB	BARRIER BEACH SYSTEM
3	BE	COASTAL BEACH
4	BG	BOG
5	CB	CRANBERRY BOG
6	D	COASTAL DUNE
7	DM	DEEP MARSH
8	M	SHALLOW MARSH, MEADOW, OR FEN
9	OW	OPEN WATER
10	RS	ROCKY INTERTIDAL SHORE
11	SM	SALT MARSH
12	SS	SHRUB SWAMP
13	TF	TIDAL FLAT
14	WS1	WOODED SWAMP DECIDUOUS
15	WS2	WOODED SWAMP CONIFEROUS
16	WS3	WOODED SWAMP MIXED TREES
17	BB-BE	BARRIER BEACH-COASTAL BEACH
18	BB-BG	BARRIER BEACH-BOG
19	BB-D	BARRIER BEACH-COASTAL DUNE
20	BB-DM	BARRIER BEACH-DEEP MARSH
21	BB-M	BARRIER BEACH-MARSH
22	B-OW	BARRIER BEACH-OPEN WATER
23	BB-SS	BARRIER BEACH-SHRUB SWAMP
24	BB-WS1	BARRIER BEACH-WOODED SWAMP DECIDUOUS
25	BB-WS2	BARRIER BEACH-WOODED SWAMP CONIFEROUS
26	BB-WS3	BARRIER BEACH-WOODED SWAMP MIXED TREES
27	BB-SM	BARRIER BEACH-SALT MARSH
88	N/A	NOT INTERPRETED


DEP Wetlands Original Labels
DEP Wetlands Original Linear Features
SHORELINE
HYDROLOGIC CONNECTION
MEAN WATER LINE
APPARENT WETLAND LIMIT
CLOSURE LINE
EDGE OF INTERPRETED AREA
DEP Wetlands Change
Photo Year 2001 and 2003
Photo Year 2005
Photo Year 2008 and 2009
Wetland Change ID
Photo Year 2011 and 2012
Wetland Change ID
DEP 2005 Human Altered Areas
DEP Wetlands Hydrologic Connections
DEP Wetlands Outlines Only
DEP Wetlands General Categories
MARSH/BOG
WOODED MARSH
CRANBERRY BOG
SALT MARSH
OPEN WATER
RESERVOIR (WITH PWSID)
TIDAL FLATS
BEACH/DUNE
DEP Wetlands Detailed With Outlines
Barrier Beach System
Barrier Beach-Deep Marsh
Barrier Beach-Wooded Swamp Mixed Trees
Barrier Beach-Coastal Beach
Barrier Beach-Coastal Dune
Barrier Beach-Marsh
Barrier Beach-Salt Marsh
Barrier Beach-Shrub Swamp
Barrier Beach-Wooded Swamp Coniferous
Barrier Beach-Wooded Swamp Deciduous
Bog
Coastal Bank Bluff or Sea Cliff
Coastal Beach
Coastal Dune
Cranberry Bog
Deep Marsh
Barrier Beach-Open Water
Open Water
Rocky Intertidal Shore
Salt Marsh
Shallow Marsh Meadow or Fen
Shrub Swamp
Tidal Flat
Wooded Swamp Coniferous
Wooded Swamp Deciduous
Wooded Swamp Mixed Trees
DEP Wetlands Detailed
Barrier Beach System
Barrier Beach-Deep Marsh
Barrier Beach-Wooded Swamp Mixed Trees
Barrier Beach-Coastal Beach
Barrier Beach-Coastal Dune
Barrier Beach-Marsh
Barrier Beach-Salt Marsh
Barrier Beach-Shrub Swamp
Barrier Beach-Wooded Swamp Coniferous
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Bog
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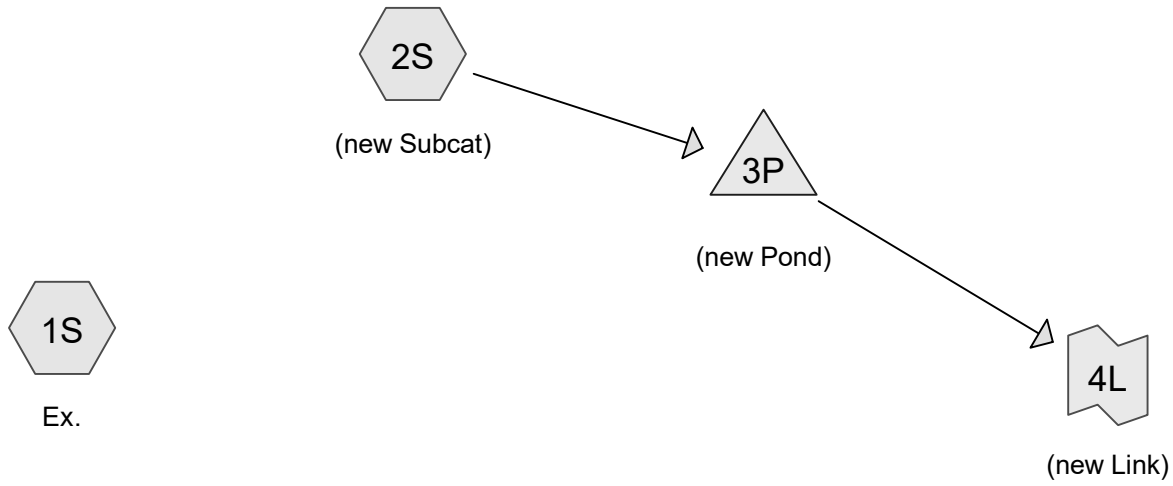
Wooded Swamp Coniferous
Wooded Swamp Deciduous
Wooded Swamp Mixed Trees
DEP Wetlands Labels
DEP Wetlands Linear Features
SHORELINE
HYDROLOGIC CONNECTION
MEAN WATER LINE
APPARENT WETLAND LIMIT
CLOSURE LINE
EDGE OF INTERPRETED AREA
Outstanding Resource Waters
PUBLIC WATER SUPPLY CONTRIBUTOR
ORW FOR ACEC
ORW FOR BOTH WATER SUPPLY AND OTHER
Areas of Critical Environmental Concern ACECs Boundaries
ROAD/RAIL BASED
RIVER BASED
WETLAND BASED
FLOODPLAIN BASED
TIDAL BASED
CONTOUR BASED
POLITICAL BOUNDARY
PROPERTY LINE BASED
OTHER
NOT DEFINED
Areas of Critical Environmental Concern ACECs
BioMap2 Core Habitat Vernal Pool Core
BioMap2 Core Habitat Priority Natural Communities
BioMap2 Core Habitat Forest Core
BioMap2 Core Habitat Wetlands
BioMap2 Core Habitat Aquatic Core
BioMap2 Core Habitat Species of Conservation Concern
Potential Vernal Pools
NHESP Natural Communities
NHESP Certified Vernal Pools
NHESP Ecoregions
MassDOT Roads Street Names
Major MassDOT Routes
Interstate Highways
US Roads
State
Massachusetts Towns
NHESP Estimated Habitats of Rare Wildlife
NHESP Priority Habitats of Rare Species
Orthos 2013-2014
2013-2014 Color Orthos (USGS)

VIEW FROM CONDOR STREET


COASTAL BANK
≈95 ft
Condor St
Condor St
Condor St
Angelo's Auto Body
197 Condor Street
Putnam St
Falcon St
Falcon St
Falcon St
Putnam St
Igreja Missionaria Betel

VIEW FROM LOCUS
TOWARD COASTAL BEACH / BANK



Subcat Reach Pond Link

Routing Diagram for 197-199 Condor Street
Prepared by {enter your company name here}, Printed 8/29/2019

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.044	61	>75% Grass cover, Good, HSG B (1S)
0.016	98	Paved parking, HSG B (1S)
0.059	98	Unconnected pavement, HSG B (2S)
0.015	98	Unconnected roofs, HSG B (1S)
0.016	65	Woods/grass comb., Fair, HSG B (2S)
0.151	**84**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.151	HSG B	1S, 2S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.151		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.044	0.000	0.000	0.000	0.044	>75% Grass cover, Good	1S
0.000	0.016	0.000	0.000	0.000	0.016	Paved parking	1S
0.000	0.059	0.000	0.000	0.000	0.059	Unconnected pavement	2S
0.000	0.015	0.000	0.000	0.000	0.015	Unconnected roofs	1S
0.000	0.016	0.000	0.000	0.000	0.016	Woods/grass comb., Fair	2S
0.000	**0.151**	**0.000**	**0.000**	**0.000**	**0.151**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Ex. Runoff Area=3,281 sf 41.57% Impervious Runoff Depth>1.19"
Tc=0.0 min CN=76 Runoff=0.13 cfs 0.007 af

Subcatchment 2S: (new Subcat) Runoff Area=3,281 sf 78.45% Impervious Runoff Depth>2.31"
Tc=0.0 min CN=91 Runoff=0.24 cfs 0.014 af

Pond 3P: (new Pond) Peak Elev=18.61' Storage=0.007 af Inflow=0.24 cfs 0.014 af
Discarded=0.02 cfs 0.013 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.013 af

Link 4L: (new Link) Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Total Runoff Area = 0.151 ac Runoff Volume = 0.022 af Average Runoff Depth = 1.75"
39.99% Pervious = 0.060 ac 60.01% Impervious = 0.090 ac

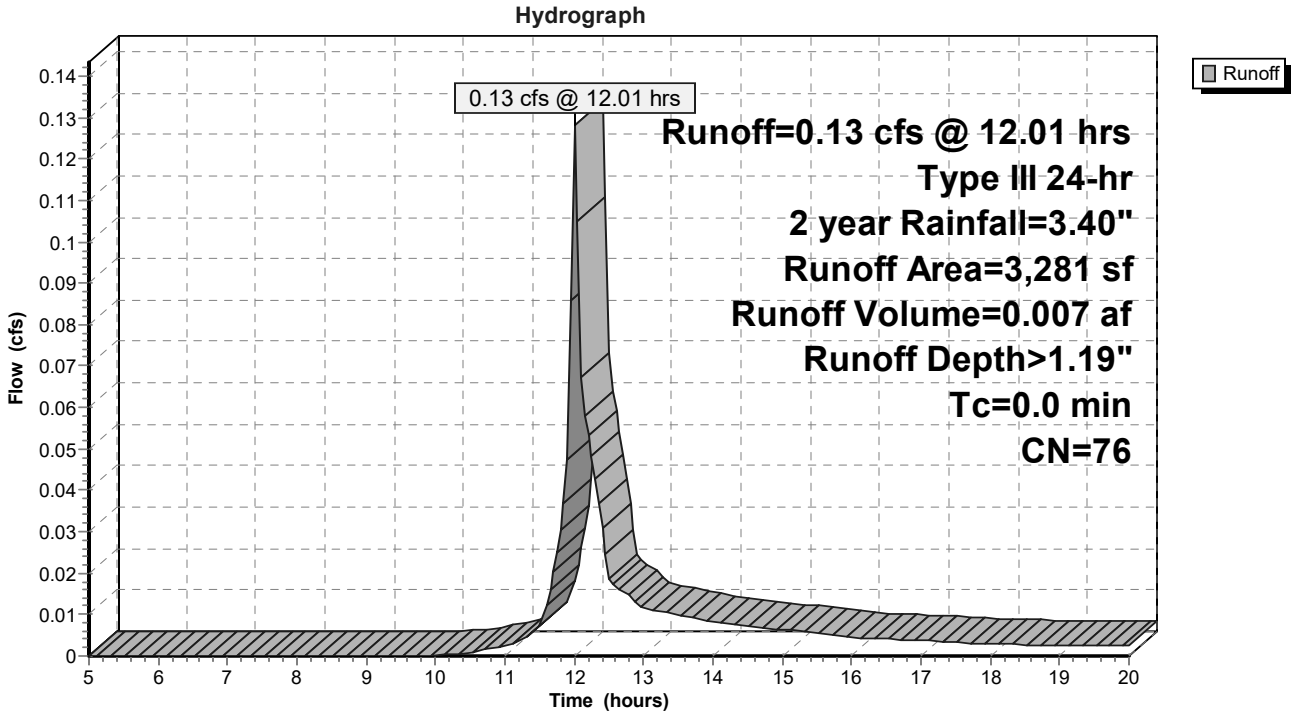
Summary for Subcatchment 1S: Ex.

Runoff = 0.13 cfs @ 12.01 hrs, Volume= 0.007 af, Depth> 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
700	98	Paved parking, HSG B
451	98	Unconnected roofs, HSG B
213	98	Unconnected roofs, HSG B
1,917	61	>75% Grass cover, Good, HSG B
3,281	76	Weighted Average
1,917		58.43% Pervious Area
1,364		41.57% Impervious Area
664		48.68% Unconnected

Subcatchment 1S: Ex.



Hydrograph for Subcatchment 1S: Ex.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.24	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.27	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.46	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.56	0.00	0.00
9.75	0.60	0.00	0.00
10.00	0.64	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.79	0.01	0.00
11.00	0.85	0.01	0.00
11.25	0.92	0.02	0.00
11.50	1.01	0.04	0.01
11.75	1.21	0.09	0.02
12.00	1.70	0.27	**0.13**
12.25	2.19	0.52	0.05
12.50	2.39	0.63	0.02
12.75	2.48	0.68	0.01
13.00	2.55	0.73	0.01
13.25	2.61	0.76	0.01
13.50	2.66	0.80	0.01
13.75	2.71	0.83	0.01
14.00	2.76	0.86	0.01
14.25	2.80	0.88	0.01
14.50	2.84	0.91	0.01
14.75	2.87	0.93	0.01
15.00	2.90	0.95	0.01
15.25	2.94	0.97	0.01
15.50	2.96	0.99	0.01
15.75	2.99	1.01	0.01
16.00	3.01	1.02	0.00
16.25	3.03	1.04	0.00
16.50	3.05	1.05	0.00
16.75	3.07	1.07	0.00
17.00	3.09	1.08	0.00
17.25	3.11	1.09	0.00
17.50	3.13	1.10	0.00
17.75	3.14	1.11	0.00
18.00	3.16	1.12	0.00
18.25	3.17	1.13	0.00
18.50	3.18	1.14	0.00
18.75	3.19	1.15	0.00
19.00	3.21	1.16	0.00
19.25	3.22	1.17	0.00
19.50	3.23	1.17	0.00
19.75	3.24	1.18	0.00
20.00	**3.25**	**1.19**	0.00

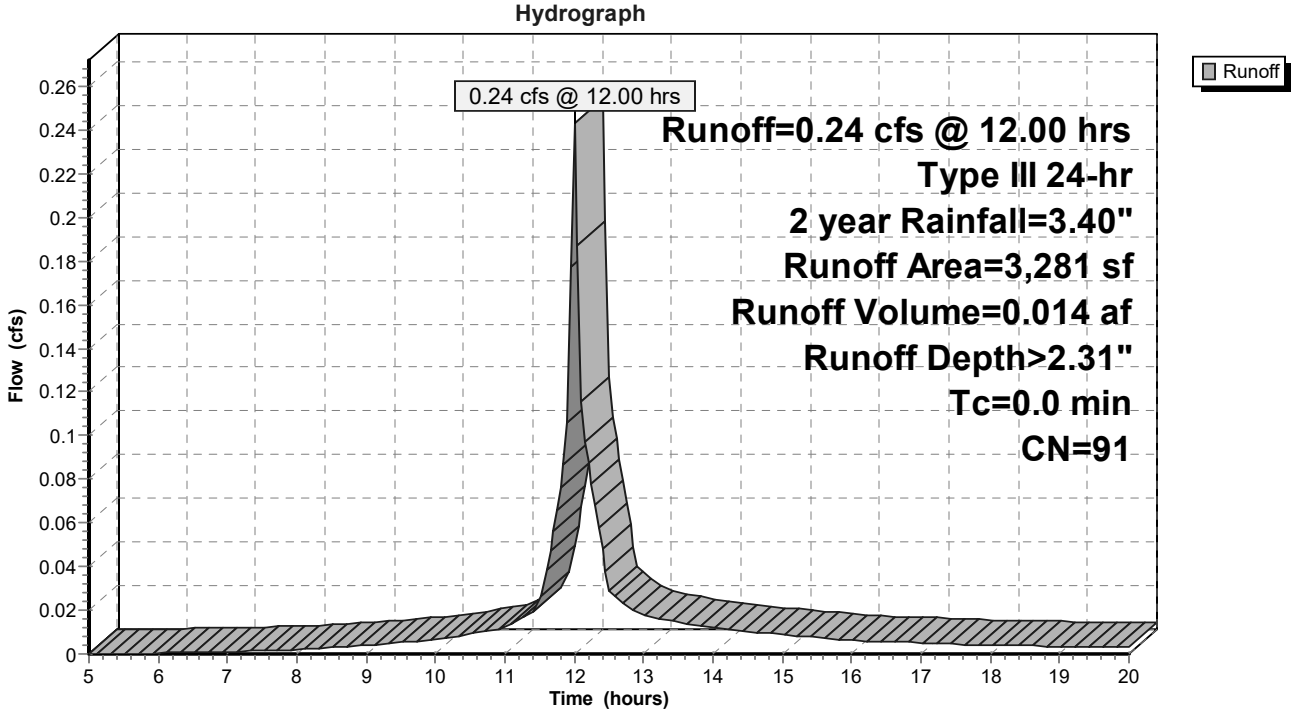
Summary for Subcatchment 2S: (new Subcat)

Runoff = 0.24 cfs @ 12.00 hrs, Volume= 0.014 af, Depth> 2.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.40"

Area (sf)	CN	Description
2,574	98	Unconnected pavement, HSG B
707	65	Woods/grass comb., Fair, HSG B
3,281	91	Weighted Average
707		21.55% Pervious Area
2,574		78.45% Impervious Area
2,574		100.00% Unconnected

Subcatchment 2S: (new Subcat)



Hydrograph for Subcatchment 2S: (new Subcat)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.24	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.27	0.01	0.00
6.75	0.29	0.01	0.00
7.00	0.31	0.01	0.00
7.25	0.33	0.01	0.00
7.50	0.35	0.02	0.00
7.75	0.37	0.02	0.00
8.00	0.39	0.03	0.00
8.25	0.41	0.04	0.00
8.50	0.44	0.05	0.00
8.75	0.46	0.06	0.00
9.00	0.50	0.07	0.00
9.25	0.53	0.08	0.00
9.50	0.56	0.10	0.01
9.75	0.60	0.12	0.01
10.00	0.64	0.14	0.01
10.25	0.69	0.16	0.01
10.50	0.74	0.19	0.01
10.75	0.79	0.22	0.01
11.00	0.85	0.26	0.01
11.25	0.92	0.31	0.02
11.50	1.01	0.37	0.02
11.75	1.21	0.51	0.07
12.00	1.70	0.91	**0.24**
12.25	2.19	1.33	0.08
12.50	2.39	1.51	0.03
12.75	2.48	1.59	0.02
13.00	2.55	1.66	0.02
13.25	2.61	1.71	0.02
13.50	2.66	1.76	0.01
13.75	2.71	1.81	0.01
14.00	2.76	1.85	0.01
14.25	2.80	1.88	0.01
14.50	2.84	1.92	0.01
14.75	2.87	1.95	0.01
15.00	2.90	1.98	0.01
15.25	2.94	2.01	0.01
15.50	2.96	2.04	0.01
15.75	2.99	2.06	0.01
16.00	3.01	2.08	0.01
16.25	3.03	2.10	0.01
16.50	3.05	2.12	0.01
16.75	3.07	2.14	0.01
17.00	3.09	2.16	0.01
17.25	3.11	2.17	0.00
17.50	3.13	2.19	0.00
17.75	3.14	2.20	0.00
18.00	3.16	2.22	0.00
18.25	3.17	2.23	0.00
18.50	3.18	2.24	0.00
18.75	3.19	2.25	0.00
19.00	3.21	2.26	0.00
19.25	3.22	2.28	0.00
19.50	3.23	2.29	0.00
19.75	3.24	2.30	0.00
20.00	**3.25**	**2.31**	0.00

Summary for Pond 3P: (new Pond)

Inflow Area = 0.075 ac, 78.45% Impervious, Inflow Depth > 2.31" for 2 year event
Inflow = 0.24 cfs @ 12.00 hrs, Volume= 0.014 af
Outflow = 0.02 cfs @ 13.00 hrs, Volume= 0.013 af, Atten= 93%, Lag= 59.8 min
Discarded = 0.02 cfs @ 13.00 hrs, Volume= 0.013 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 18.61' @ 13.00 hrs Surf.Area= 0.004 ac Storage= 0.007 af

Plug-Flow detention time= 157.3 min calculated for 0.013 af (88% of inflow)
Center-of-Mass det. time= 120.3 min (884.3 - 764.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	16.36'	0.004 af	**10.67'W x 17.50'L x 3.54'H Field A** 0.015 af Overall - 0.005 af Embedded = 0.010 af x 40.0% Voids
#2A	16.86'	0.005 af	**Cultec R-330XLHD** x 4 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 2 rows
		0.009 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	18.69'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	16.36'	**2.410 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.02 cfs @ 13.00 hrs HW=18.61' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=16.36' (Free Discharge)
↑—**1=Orifice/Grate** (Controls 0.00 cfs)

Pond 3P: (new Pond) - 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 2 rows

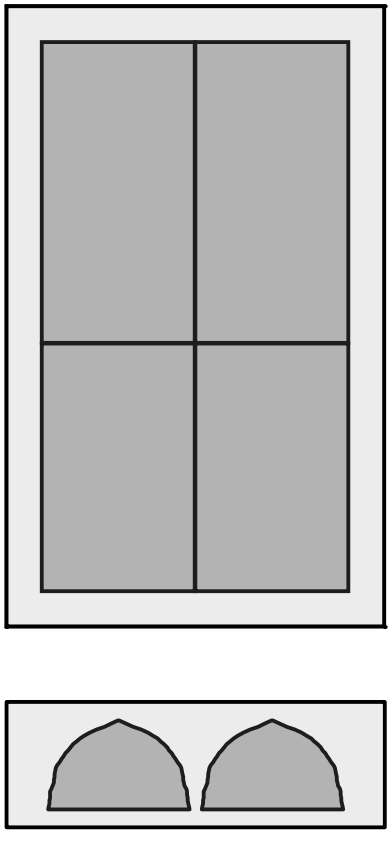
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
2 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 10.67' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

4 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 231.0 cf Chamber Storage

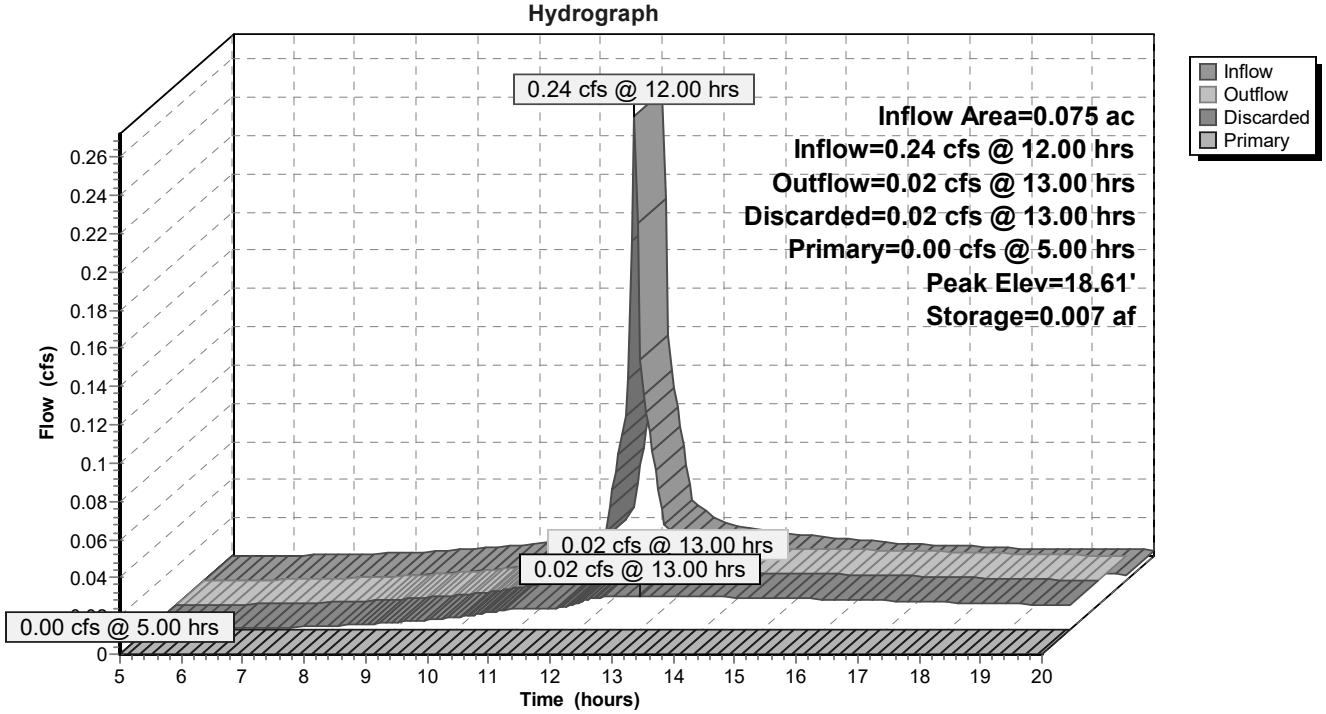
661.1 cf Field - 231.0 cf Chambers = 430.1 cf Stone x 40.0% Voids = 172.1 cf Stone Storage

Chamber Storage + Stone Storage = 403.0 cf = 0.009 af
Overall Storage Efficiency = 61.0%
Overall System Size = 17.50' x 10.67' x 3.54'

4 Chambers
24.5 cy Field
15.9 cy Stone



Pond 3P: (new Pond)



Hydrograph for Pond 3P: (new Pond)

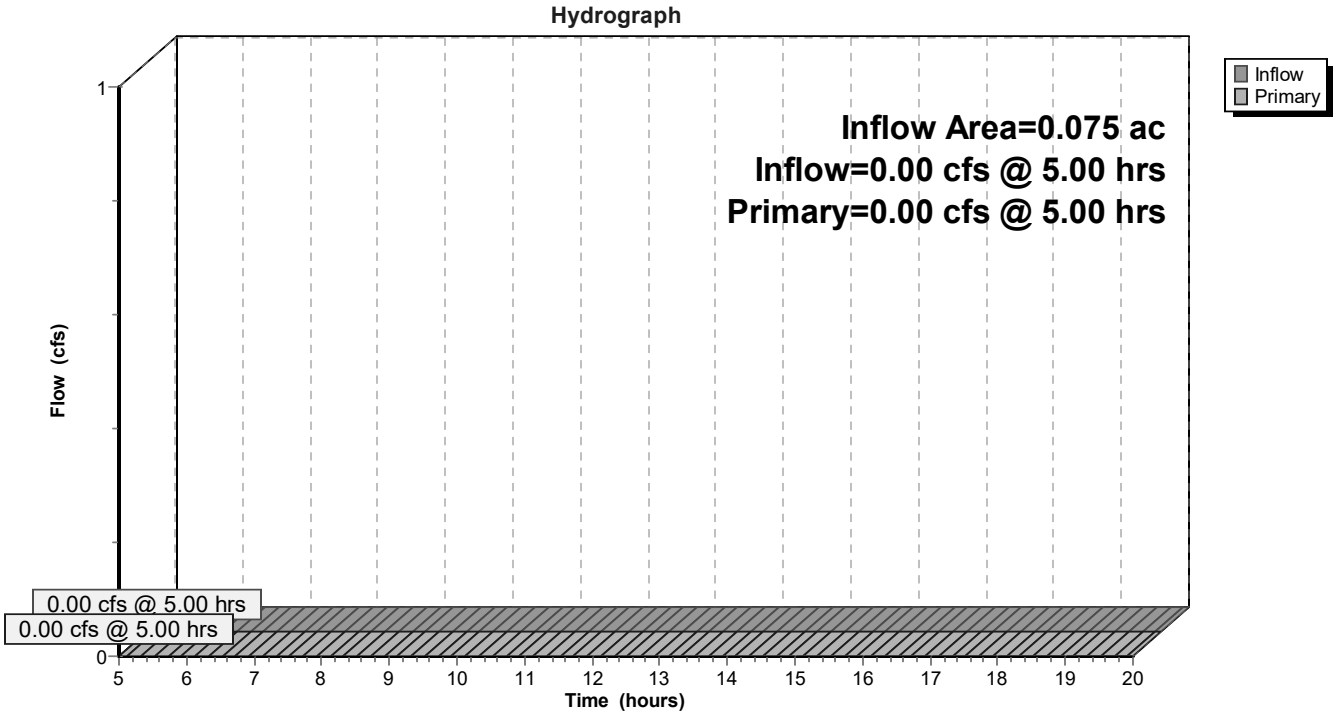
Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
5.00	0.00	0.000	16.36	0.00	0.00	**0.00**
5.50	0.00	0.000	16.36	0.00	0.00	0.00
6.00	0.00	0.000	16.36	0.00	0.00	0.00
6.50	0.00	0.000	16.36	0.00	0.00	0.00
7.00	0.00	0.000	16.36	0.00	0.00	0.00
7.50	0.00	0.000	16.36	0.00	0.00	0.00
8.00	0.00	0.000	16.37	0.00	0.00	0.00
8.50	0.00	0.000	16.37	0.00	0.00	0.00
9.00	0.00	0.000	16.37	0.00	0.00	0.00
9.50	0.01	0.000	16.38	0.01	0.01	0.00
10.00	0.01	0.000	16.38	0.01	0.01	0.00
10.50	0.01	0.000	16.39	0.01	0.01	0.00
11.00	0.01	0.000	16.40	0.01	0.01	0.00
11.50	0.02	0.000	16.55	0.01	0.01	0.00
12.00	**0.24**	0.003	17.55	0.01	0.01	0.00
12.50	0.03	0.006	18.53	0.02	0.02	0.00
13.00	0.02	**0.007**	**18.61**	**0.02**	**0.02**	0.00
13.50	0.01	0.006	18.58	0.02	0.02	0.00
14.00	0.01	0.006	18.52	0.02	0.02	0.00
14.50	0.01	0.006	18.44	0.02	0.02	0.00
15.00	0.01	0.006	18.34	0.02	0.02	0.00
15.50	0.01	0.005	18.23	0.02	0.02	0.00
16.00	0.01	0.005	18.11	0.02	0.02	0.00
16.50	0.01	0.005	17.99	0.02	0.02	0.00
17.00	0.01	0.004	17.86	0.02	0.02	0.00
17.50	0.00	0.004	17.73	0.01	0.01	0.00
18.00	0.00	0.003	17.60	0.01	0.01	0.00
18.50	0.00	0.003	17.47	0.01	0.01	0.00
19.00	0.00	0.002	17.35	0.01	0.01	0.00
19.50	0.00	0.002	17.22	0.01	0.01	0.00
20.00	0.00	0.002	17.11	0.01	0.01	0.00

Summary for Link 4L: (new Link)

Inflow Area = 0.075 ac, 78.45% Impervious, Inflow Depth = 0.00" for 2 year event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 4L: (new Link)



Hydrograph for Link 4L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	**0.00**	**0.00**	**0.00**	18.25	0.00	0.00	0.00
5.25	0.00	0.00	0.00	18.50	0.00	0.00	0.00
5.50	0.00	0.00	0.00	18.75	0.00	0.00	0.00
5.75	0.00	0.00	0.00	19.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	19.25	0.00	0.00	0.00
6.25	0.00	0.00	0.00	19.50	0.00	0.00	0.00
6.50	0.00	0.00	0.00	19.75	0.00	0.00	0.00
6.75	0.00	0.00	0.00	20.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00				
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.00	0.00	0.00				
11.00	0.00	0.00	0.00				
11.25	0.00	0.00	0.00				
11.50	0.00	0.00	0.00				
11.75	0.00	0.00	0.00				
12.00	0.00	0.00	0.00				
12.25	0.00	0.00	0.00				
12.50	0.00	0.00	0.00				
12.75	0.00	0.00	0.00				
13.00	0.00	0.00	0.00				
13.25	0.00	0.00	0.00				
13.50	0.00	0.00	0.00				
13.75	0.00	0.00	0.00				
14.00	0.00	0.00	0.00				
14.25	0.00	0.00	0.00				
14.50	0.00	0.00	0.00				
14.75	0.00	0.00	0.00				
15.00	0.00	0.00	0.00				
15.25	0.00	0.00	0.00				
15.50	0.00	0.00	0.00				
15.75	0.00	0.00	0.00				
16.00	0.00	0.00	0.00				
16.25	0.00	0.00	0.00				
16.50	0.00	0.00	0.00				
16.75	0.00	0.00	0.00				
17.00	0.00	0.00	0.00				
17.25	0.00	0.00	0.00				
17.50	0.00	0.00	0.00				
17.75	0.00	0.00	0.00				
18.00	0.00	0.00	0.00				

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Ex. Runoff Area=3,281 sf 41.57% Impervious Runoff Depth>2.13"
Tc=0.0 min CN=76 Runoff=0.23 cfs 0.013 af

Subcatchment 2S: (new Subcat) Runoff Area=3,281 sf 78.45% Impervious Runoff Depth>3.49"
Tc=0.0 min CN=91 Runoff=0.36 cfs 0.022 af

Pond 3P: (new Pond) Peak Elev=18.96' Storage=0.007 af Inflow=0.36 cfs 0.022 af
Discarded=0.02 cfs 0.015 af Primary=0.13 cfs 0.004 af Outflow=0.15 cfs 0.019 af

Link 4L: (new Link) Inflow=0.13 cfs 0.004 af
Primary=0.13 cfs 0.004 af

Total Runoff Area = 0.151 ac Runoff Volume = 0.035 af Average Runoff Depth = 2.81"
39.99% Pervious = 0.060 ac 60.01% Impervious = 0.090 ac

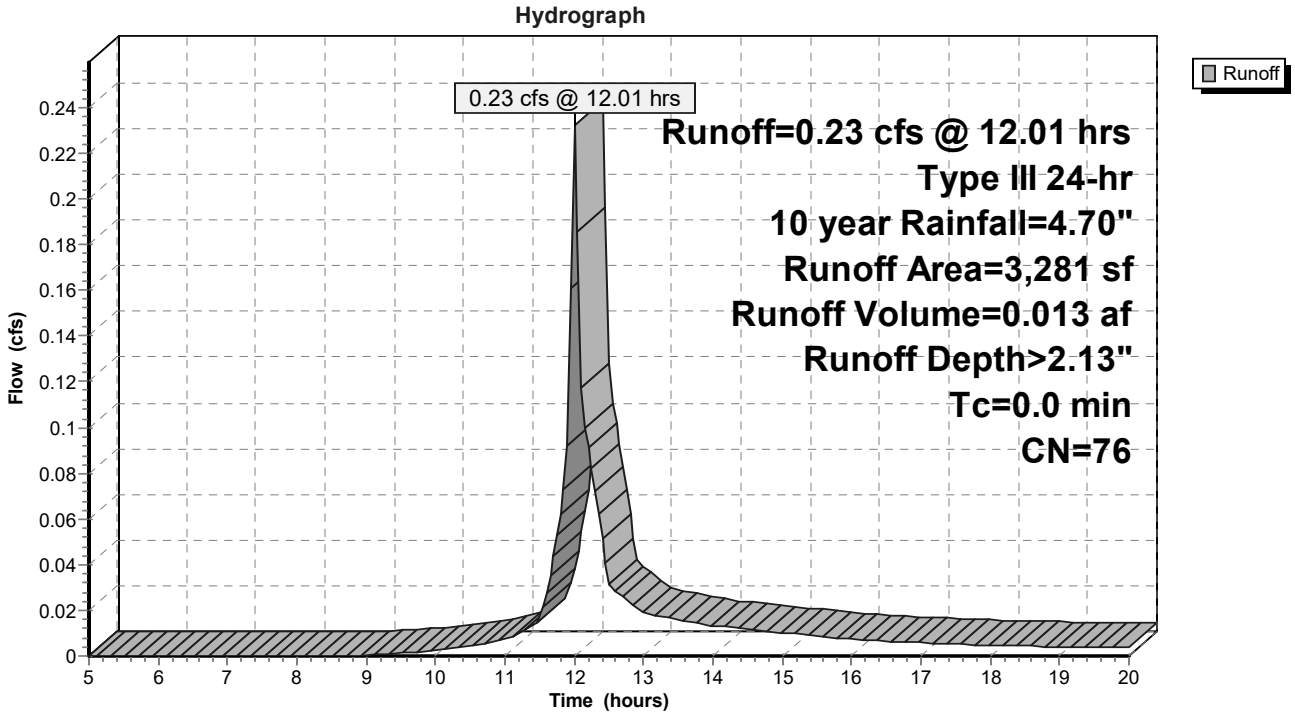
Summary for Subcatchment 1S: Ex.

Runoff = 0.23 cfs @ 12.01 hrs, Volume= 0.013 af, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
700	98	Paved parking, HSG B
451	98	Unconnected roofs, HSG B
213	98	Unconnected roofs, HSG B
1,917	61	>75% Grass cover, Good, HSG B
3,281	76	Weighted Average
1,917		58.43% Pervious Area
1,364		41.57% Impervious Area
664		48.68% Unconnected

Subcatchment 1S: Ex.



Hydrograph for Subcatchment 1S: Ex.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.27	0.00	0.00
5.25	0.28	0.00	0.00
5.50	0.30	0.00	0.00
5.75	0.32	0.00	0.00
6.00	0.34	0.00	0.00
6.25	0.36	0.00	0.00
6.50	0.38	0.00	0.00
6.75	0.40	0.00	0.00
7.00	0.43	0.00	0.00
7.25	0.45	0.00	0.00
7.50	0.48	0.00	0.00
7.75	0.51	0.00	0.00
8.00	0.54	0.00	0.00
8.25	0.57	0.00	0.00
8.50	0.60	0.00	0.00
8.75	0.64	0.00	0.00
9.00	0.69	0.00	0.00
9.25	0.73	0.00	0.00
9.50	0.78	0.01	0.00
9.75	0.83	0.01	0.00
10.00	0.89	0.02	0.00
10.25	0.95	0.03	0.00
10.50	1.02	0.04	0.00
10.75	1.09	0.06	0.01
11.00	1.18	0.08	0.01
11.25	1.27	0.11	0.01
11.50	1.40	0.15	0.02
11.75	1.67	0.26	0.05
12.00	2.35	0.61	**0.23**
12.25	3.03	1.04	0.08
12.50	3.30	1.22	0.03
12.75	3.43	1.31	0.02
13.00	3.52	1.38	0.02
13.25	3.61	1.44	0.02
13.50	3.68	1.50	0.02
13.75	3.75	1.55	0.01
14.00	3.81	1.60	0.01
14.25	3.87	1.64	0.01
14.50	3.92	1.68	0.01
14.75	3.97	1.72	0.01
15.00	4.01	1.75	0.01
15.25	4.06	1.78	0.01
15.50	4.10	1.81	0.01
15.75	4.13	1.84	0.01
16.00	4.16	1.87	0.01
16.25	4.19	1.89	0.01
16.50	4.22	1.91	0.01
16.75	4.25	1.93	0.01
17.00	4.27	1.95	0.01
17.25	4.30	1.97	0.01
17.50	4.32	1.99	0.01
17.75	4.34	2.00	0.00
18.00	4.36	2.02	0.00
18.25	4.38	2.03	0.00
18.50	4.40	2.05	0.00
18.75	4.42	2.06	0.00
19.00	4.43	2.08	0.00
19.25	4.45	2.09	0.00
19.50	4.47	2.10	0.00
19.75	4.48	2.12	0.00
20.00	**4.50**	**2.13**	0.00

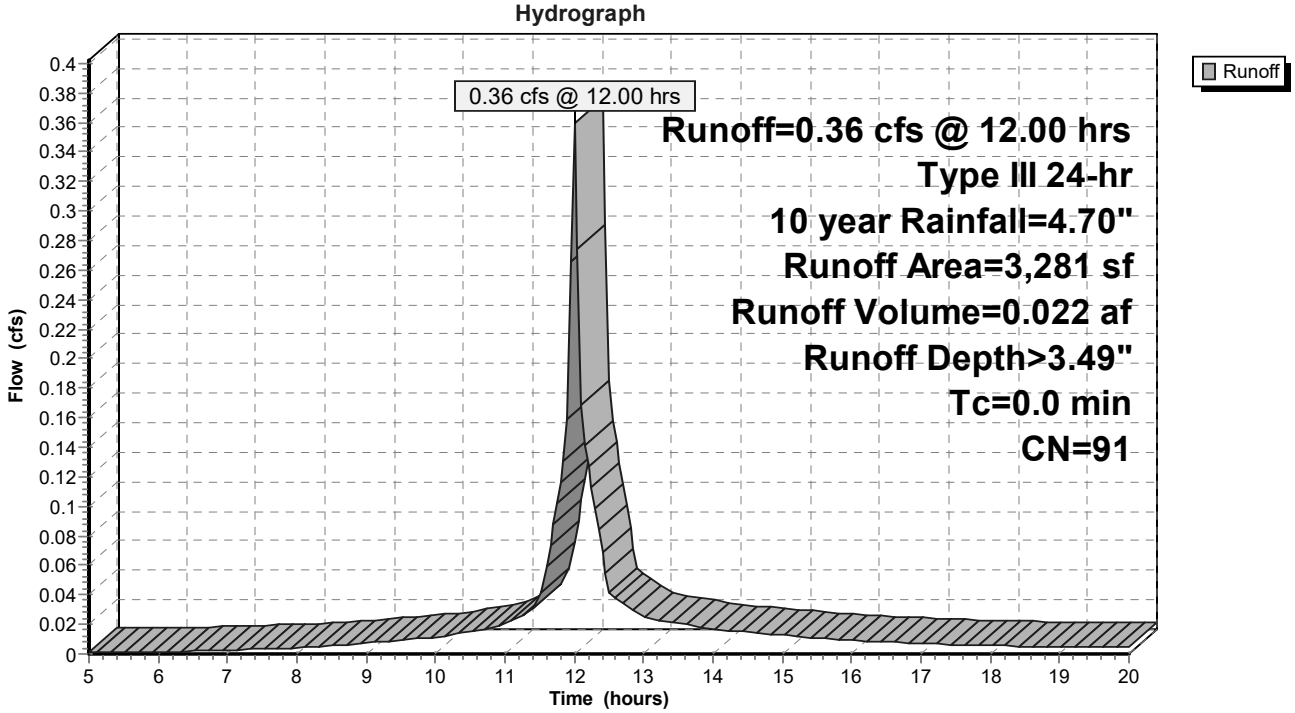
Summary for Subcatchment 2S: (new Subcat)

Runoff = 0.36 cfs @ 12.00 hrs, Volume= 0.022 af, Depth> 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.70"

Area (sf)	CN	Description
2,574	98	Unconnected pavement, HSG B
707	65	Woods/grass comb., Fair, HSG B
3,281	91	Weighted Average
707		21.55% Pervious Area
2,574		78.45% Impervious Area
2,574		100.00% Unconnected

Subcatchment 2S: (new Subcat)



Hydrograph for Subcatchment 2S: (new Subcat)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.27	0.00	0.00
5.25	0.28	0.01	0.00
5.50	0.30	0.01	0.00
5.75	0.32	0.01	0.00
6.00	0.34	0.02	0.00
6.25	0.36	0.02	0.00
6.50	0.38	0.03	0.00
6.75	0.40	0.03	0.00
7.00	0.43	0.04	0.00
7.25	0.45	0.05	0.00
7.50	0.48	0.06	0.00
7.75	0.51	0.07	0.00
8.00	0.54	0.09	0.00
8.25	0.57	0.10	0.00
8.50	0.60	0.12	0.01
8.75	0.64	0.14	0.01
9.00	0.69	0.16	0.01
9.25	0.73	0.19	0.01
9.50	0.78	0.22	0.01
9.75	0.83	0.25	0.01
10.00	0.89	0.28	0.01
10.25	0.95	0.32	0.01
10.50	1.02	0.37	0.02
10.75	1.09	0.43	0.02
11.00	1.18	0.49	0.02
11.25	1.27	0.56	0.03
11.50	1.40	0.66	0.04
11.75	1.67	0.88	0.10
12.00	2.35	1.47	**0.36**
12.25	3.03	2.10	0.11
12.50	3.30	2.35	0.04
12.75	3.43	2.47	0.03
13.00	3.52	2.56	0.02
13.25	3.61	2.64	0.02
13.50	3.68	2.71	0.02
13.75	3.75	2.78	0.02
14.00	3.81	2.84	0.02
14.25	3.87	2.89	0.02
14.50	3.92	2.94	0.01
14.75	3.97	2.99	0.01
15.00	4.01	3.03	0.01
15.25	4.06	3.07	0.01
15.50	4.10	3.11	0.01
15.75	4.13	3.14	0.01
16.00	4.16	3.17	0.01
16.25	4.19	3.20	0.01
16.50	4.22	3.23	0.01
16.75	4.25	3.26	0.01
17.00	4.27	3.28	0.01
17.25	4.30	3.30	0.01
17.50	4.32	3.33	0.01
17.75	4.34	3.35	0.01
18.00	4.36	3.36	0.01
18.25	4.38	3.38	0.01
18.50	4.40	3.40	0.01
18.75	4.42	3.42	0.01
19.00	4.43	3.43	0.00
19.25	4.45	3.45	0.00
19.50	4.47	3.47	0.00
19.75	4.48	3.48	0.00
20.00	**4.50**	**3.50**	0.00

Summary for Pond 3P: (new Pond)

Inflow Area = 0.075 ac, 78.45% Impervious, Inflow Depth > 3.49" for 10 year event
Inflow = 0.36 cfs @ 12.00 hrs, Volume= 0.022 af
Outflow = 0.15 cfs @ 12.15 hrs, Volume= 0.019 af, Atten= 58%, Lag= 8.9 min
Discarded = 0.02 cfs @ 12.15 hrs, Volume= 0.015 af
Primary = 0.13 cfs @ 12.15 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 18.96' @ 12.15 hrs Surf.Area= 0.004 ac Storage= 0.007 af

Plug-Flow detention time= 121.1 min calculated for 0.019 af (87% of inflow)
Center-of-Mass det. time= 79.8 min (834.4 - 754.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	16.36'	0.004 af	**10.67'W x 17.50'L x 3.54'H Field A** 0.015 af Overall - 0.005 af Embedded = 0.010 af x 40.0% Voids
#2A	16.86'	0.005 af	**Cultec R-330XLHD** x 4 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 2 rows
		0.009 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	18.69'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	16.36'	**2.410 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.02 cfs @ 12.15 hrs HW=18.96' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.13 cfs @ 12.15 hrs HW=18.96' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.13 cfs @ 1.76 fps)

Pond 3P: (new Pond) - 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 2 rows

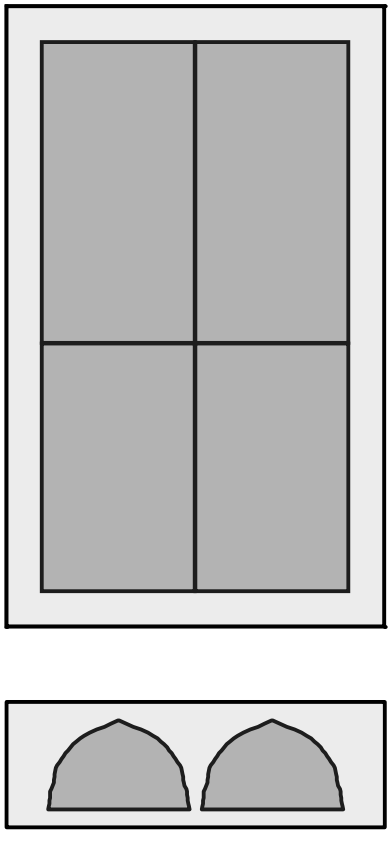
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
2 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 10.67' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

4 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 231.0 cf Chamber Storage

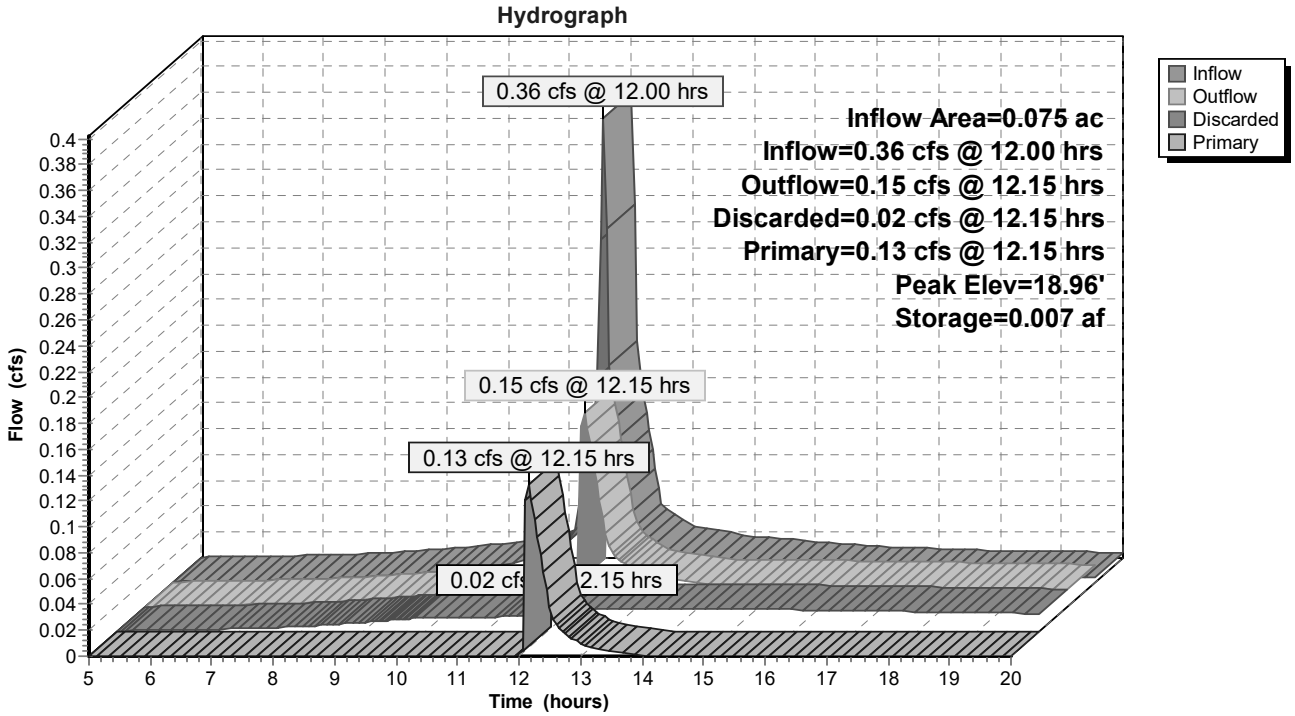
661.1 cf Field - 231.0 cf Chambers = 430.1 cf Stone x 40.0% Voids = 172.1 cf Stone Storage

Chamber Storage + Stone Storage = 403.0 cf = 0.009 af
Overall Storage Efficiency = 61.0%
Overall System Size = 17.50' x 10.67' x 3.54'

4 Chambers
24.5 cy Field
15.9 cy Stone



Pond 3P: (new Pond)



Hydrograph for Pond 3P: (new Pond)

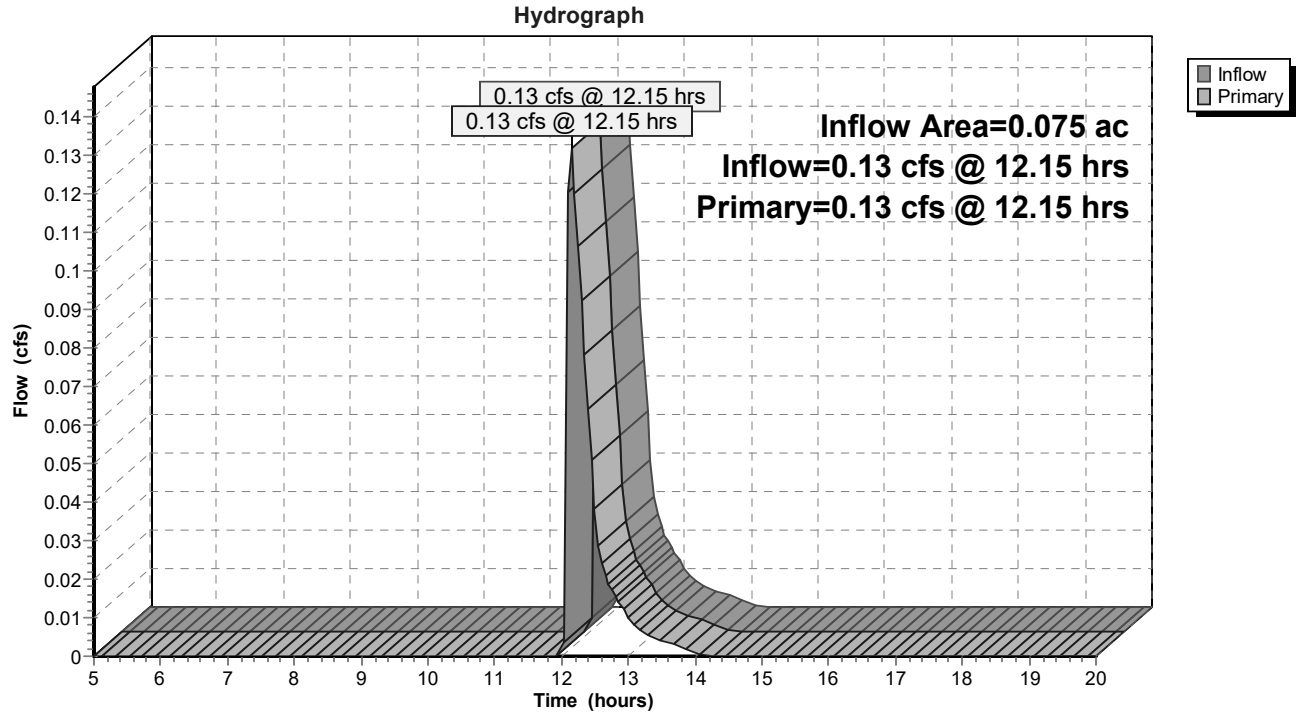
Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
5.00	0.00	0.000	16.36	0.00	0.00	0.00
5.50	0.00	0.000	16.36	0.00	0.00	0.00
6.00	0.00	0.000	16.36	0.00	0.00	0.00
6.50	0.00	0.000	16.37	0.00	0.00	0.00
7.00	0.00	0.000	16.37	0.00	0.00	0.00
7.50	0.00	0.000	16.37	0.00	0.00	0.00
8.00	0.00	0.000	16.37	0.00	0.00	0.00
8.50	0.01	0.000	16.38	0.01	0.01	0.00
9.00	0.01	0.000	16.38	0.01	0.01	0.00
9.50	0.01	0.000	16.39	0.01	0.01	0.00
10.00	0.01	0.000	16.40	0.01	0.01	0.00
10.50	0.02	0.000	16.46	0.01	0.01	0.00
11.00	0.02	0.000	16.62	0.01	0.01	0.00
11.50	0.04	0.001	16.92	0.01	0.01	0.00
12.00	**0.36**	**0.006**	**18.31**	**0.02**	**0.02**	**0.00**
12.50	0.04	**0.007**	**18.82**	**0.06**	**0.02**	**0.04**
13.00	0.02	0.007	18.75	0.03	0.02	0.01
13.50	0.02	0.007	18.73	0.02	0.02	0.00
14.00	0.02	0.007	18.70	0.02	0.02	0.00
14.50	0.01	0.007	18.67	0.02	0.02	0.00
15.00	0.01	0.007	18.62	0.02	0.02	0.00
15.50	0.01	0.006	18.54	0.02	0.02	0.00
16.00	0.01	0.006	18.44	0.02	0.02	0.00
16.50	0.01	0.006	18.32	0.02	0.02	0.00
17.00	0.01	0.005	18.21	0.02	0.02	0.00
17.50	0.01	0.005	18.09	0.02	0.02	0.00
18.00	0.01	0.005	17.96	0.02	0.02	0.00
18.50	0.01	0.004	17.84	0.02	0.02	0.00
19.00	0.00	0.004	17.71	0.01	0.01	0.00
19.50	0.00	0.003	17.59	0.01	0.01	0.00
20.00	0.00	0.003	17.47	0.01	0.01	0.00

Summary for Link 4L: (new Link)

Inflow Area = 0.075 ac, 78.45% Impervious, Inflow Depth = 0.70" for 10 year event
Inflow = 0.13 cfs @ 12.15 hrs, Volume= 0.004 af
Primary = 0.13 cfs @ 12.15 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 4L: (new Link)



Hydrograph for Link 4L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	18.25	0.00	0.00	0.00
5.25	0.00	0.00	0.00	18.50	0.00	0.00	0.00
5.50	0.00	0.00	0.00	18.75	0.00	0.00	0.00
5.75	0.00	0.00	0.00	19.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	19.25	0.00	0.00	0.00
6.25	0.00	0.00	0.00	19.50	0.00	0.00	0.00
6.50	0.00	0.00	0.00	19.75	0.00	0.00	0.00
6.75	0.00	0.00	0.00	20.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00				
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.00	0.00	0.00				
11.00	0.00	0.00	0.00				
11.25	0.00	0.00	0.00				
11.50	0.00	0.00	0.00				
11.75	0.00	0.00	0.00				
12.00	**0.00**	0.00	**0.00**				
12.25	**0.11**	0.00	**0.11**				
12.50	0.04	0.00	0.04				
12.75	0.02	0.00	0.02				
13.00	0.01	0.00	0.01				
13.25	0.01	0.00	0.01				
13.50	0.00	0.00	0.00				
13.75	0.00	0.00	0.00				
14.00	0.00	0.00	0.00				
14.25	0.00	0.00	0.00				
14.50	0.00	0.00	0.00				
14.75	0.00	0.00	0.00				
15.00	0.00	0.00	0.00				
15.25	0.00	0.00	0.00				
15.50	0.00	0.00	0.00				
15.75	0.00	0.00	0.00				
16.00	0.00	0.00	0.00				
16.25	0.00	0.00	0.00				
16.50	0.00	0.00	0.00				
16.75	0.00	0.00	0.00				
17.00	0.00	0.00	0.00				
17.25	0.00	0.00	0.00				
17.50	0.00	0.00	0.00				
17.75	0.00	0.00	0.00				
18.00	0.00	0.00	0.00				

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Ex. Runoff Area=3,281 sf 41.57% Impervious Runoff Depth>2.84"
Tc=0.0 min CN=76 Runoff=0.31 cfs 0.018 af

Subcatchment 2S: (new Subcat) Runoff Area=3,281 sf 78.45% Impervious Runoff Depth>4.32"
Tc=0.0 min CN=91 Runoff=0.44 cfs 0.027 af

Pond 3P: (new Pond) Peak Elev=19.28' Storage=0.008 af Inflow=0.44 cfs 0.027 af
Discarded=0.02 cfs 0.015 af Primary=0.28 cfs 0.008 af Outflow=0.30 cfs 0.024 af

Link 4L: (new Link) Inflow=0.28 cfs 0.008 af
Primary=0.28 cfs 0.008 af

Total Runoff Area = 0.151 ac Runoff Volume = 0.045 af Average Runoff Depth = 3.58"
39.99% Pervious = 0.060 ac 60.01% Impervious = 0.090 ac

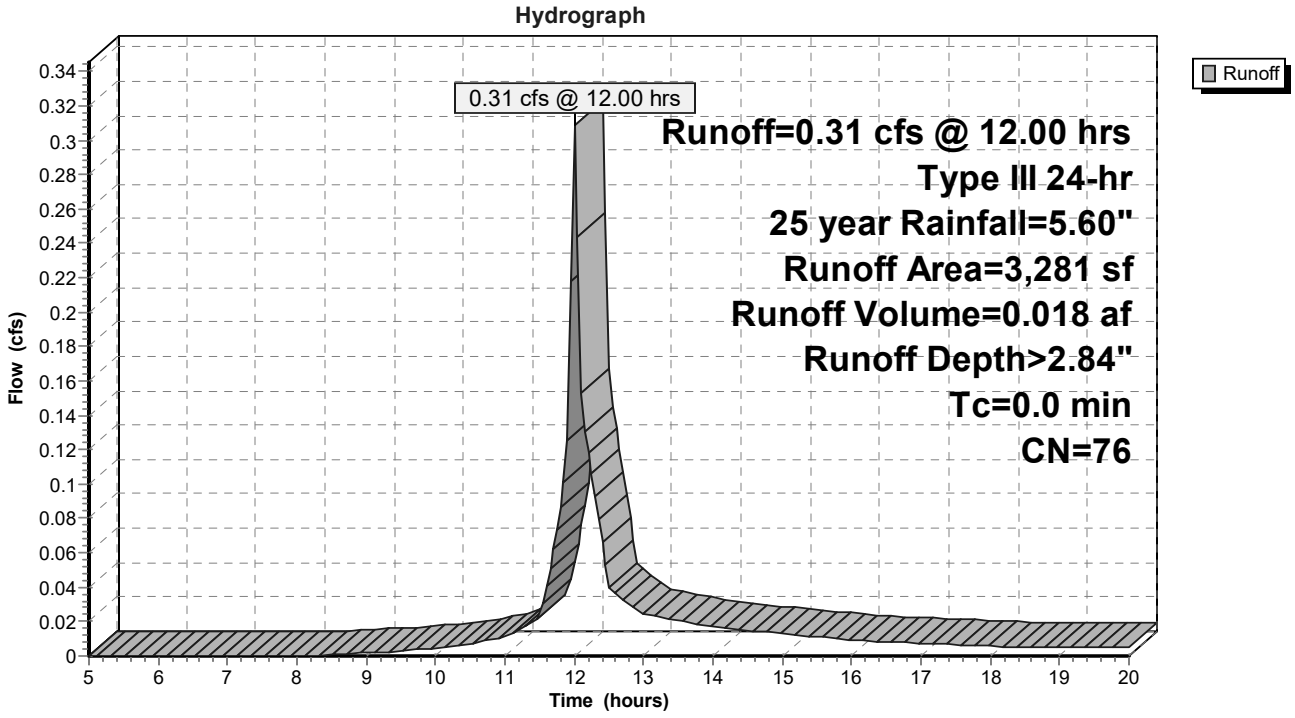
Summary for Subcatchment 1S: Ex.

Runoff = 0.31 cfs @ 12.00 hrs, Volume= 0.018 af, Depth> 2.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
700	98	Paved parking, HSG B
451	98	Unconnected roofs, HSG B
213	98	Unconnected roofs, HSG B
1,917	61	>75% Grass cover, Good, HSG B
3,281	76	Weighted Average
1,917		58.43% Pervious Area
1,364		41.57% Impervious Area
664		48.68% Unconnected

Subcatchment 1S: Ex.



Hydrograph for Subcatchment 1S: Ex.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.32	0.00	0.00
5.25	0.34	0.00	0.00
5.50	0.36	0.00	0.00
5.75	0.38	0.00	0.00
6.00	0.40	0.00	0.00
6.25	0.43	0.00	0.00
6.50	0.45	0.00	0.00
6.75	0.48	0.00	0.00
7.00	0.51	0.00	0.00
7.25	0.54	0.00	0.00
7.50	0.57	0.00	0.00
7.75	0.60	0.00	0.00
8.00	0.64	0.00	0.00
8.25	0.68	0.00	0.00
8.50	0.72	0.00	0.00
8.75	0.77	0.01	0.00
9.00	0.82	0.01	0.00
9.25	0.87	0.02	0.00
9.50	0.93	0.03	0.00
9.75	0.99	0.04	0.00
10.00	1.06	0.05	0.00
10.25	1.13	0.07	0.01
10.50	1.21	0.09	0.01
10.75	1.30	0.12	0.01
11.00	1.40	0.15	0.01
11.25	1.52	0.19	0.02
11.50	1.67	0.26	0.02
11.75	1.99	0.41	0.07
12.00	2.80	0.88	**0.31**
12.25	3.61	1.45	0.11
12.50	3.93	1.69	0.04
12.75	4.08	1.80	0.03
13.00	4.20	1.89	0.02
13.25	4.30	1.97	0.02
13.50	4.39	2.04	0.02
13.75	4.47	2.10	0.02
14.00	4.54	2.16	0.02
14.25	4.61	2.22	0.02
14.50	4.67	2.27	0.01
14.75	4.73	2.31	0.01
15.00	4.78	2.36	0.01
15.25	4.83	2.40	0.01
15.50	4.88	2.44	0.01
15.75	4.92	2.47	0.01
16.00	4.96	2.50	0.01
16.25	5.00	2.53	0.01
16.50	5.03	2.56	0.01
16.75	5.06	2.59	0.01
17.00	5.09	2.61	0.01
17.25	5.12	2.64	0.01
17.50	5.15	2.66	0.01
17.75	5.17	2.68	0.01
18.00	5.20	2.70	0.01
18.25	5.22	2.72	0.01
18.50	5.24	2.74	0.01
18.75	5.26	2.75	0.01
19.00	5.28	2.77	0.01
19.25	5.30	2.79	0.01
19.50	5.32	2.80	0.00
19.75	5.34	2.82	0.00
20.00	**5.36**	**2.83**	0.00

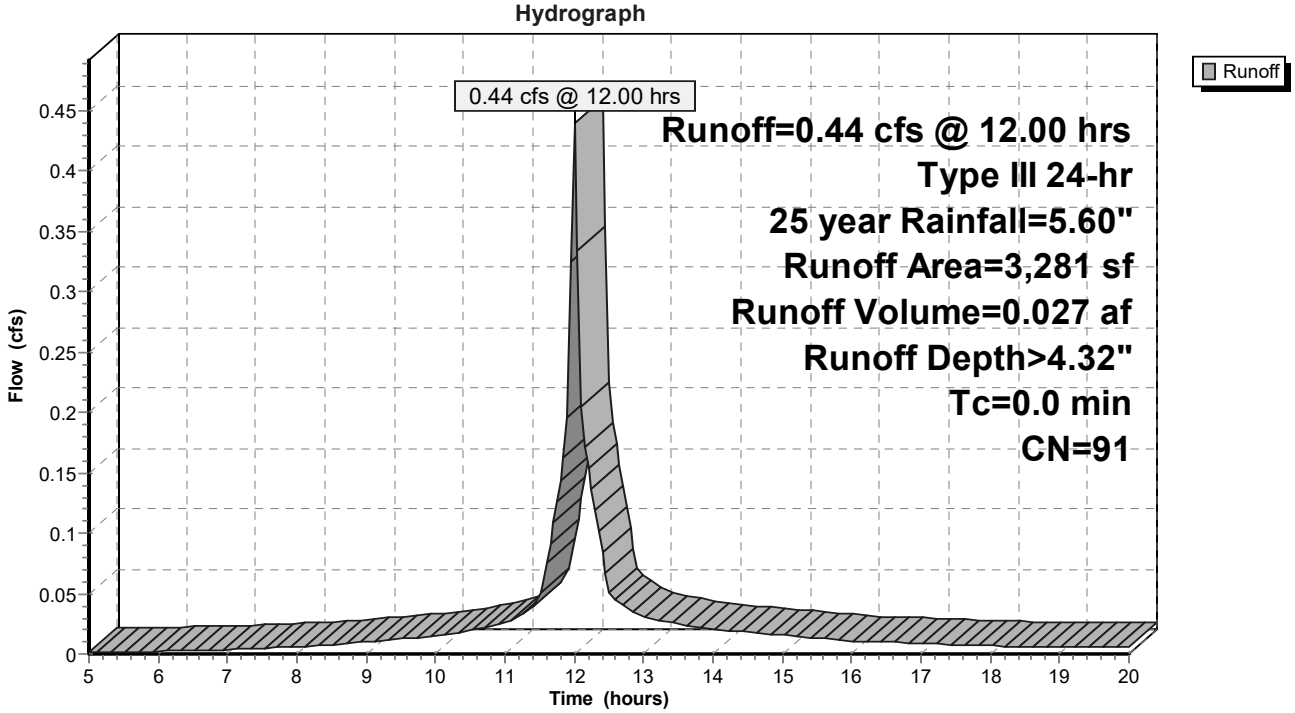
Summary for Subcatchment 2S: (new Subcat)

Runoff = 0.44 cfs @ 12.00 hrs, Volume= 0.027 af, Depth> 4.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=5.60"

Area (sf)	CN	Description
2,574	98	Unconnected pavement, HSG B
707	65	Woods/grass comb., Fair, HSG B
3,281	91	Weighted Average
707		21.55% Pervious Area
2,574		78.45% Impervious Area
2,574		100.00% Unconnected

Subcatchment 2S: (new Subcat)



Hydrograph for Subcatchment 2S: (new Subcat)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.32	0.01	0.00
5.25	0.34	0.02	0.00
5.50	0.36	0.02	0.00
5.75	0.38	0.03	0.00
6.00	0.40	0.04	0.00
6.25	0.43	0.04	0.00
6.50	0.45	0.05	0.00
6.75	0.48	0.06	0.00
7.00	0.51	0.07	0.00
7.25	0.54	0.09	0.00
7.50	0.57	0.10	0.00
7.75	0.60	0.12	0.01
8.00	0.64	0.14	0.01
8.25	0.68	0.16	0.01
8.50	0.72	0.18	0.01
8.75	0.77	0.21	0.01
9.00	0.82	0.24	0.01
9.25	0.87	0.27	0.01
9.50	0.93	0.31	0.01
9.75	0.99	0.35	0.01
10.00	1.06	0.40	0.01
10.25	1.13	0.45	0.02
10.50	1.21	0.51	0.02
10.75	1.30	0.58	0.02
11.00	1.40	0.66	0.02
11.25	1.52	0.76	0.03
11.50	1.67	0.88	0.04
11.75	1.99	1.15	0.13
12.00	2.80	1.89	**0.44**
12.25	3.61	2.65	0.14
12.50	3.93	2.95	0.05
12.75	4.08	3.10	0.04
13.00	4.20	3.21	0.03
13.25	4.30	3.30	0.03
13.50	4.39	3.39	0.02
13.75	4.47	3.47	0.02
14.00	4.54	3.54	0.02
14.25	4.61	3.60	0.02
14.50	4.67	3.66	0.02
14.75	4.73	3.72	0.02
15.00	4.78	3.77	0.02
15.25	4.83	3.82	0.01
15.50	4.88	3.87	0.01
15.75	4.92	3.91	0.01
16.00	4.96	3.94	0.01
16.25	5.00	3.98	0.01
16.50	5.03	4.01	0.01
16.75	5.06	4.04	0.01
17.00	5.09	4.07	0.01
17.25	5.12	4.10	0.01
17.50	5.15	4.13	0.01
17.75	5.17	4.15	0.01
18.00	5.20	4.17	0.01
18.25	5.22	4.19	0.01
18.50	5.24	4.22	0.01
18.75	5.26	4.24	0.01
19.00	5.28	4.26	0.01
19.25	5.30	4.28	0.01
19.50	5.32	4.29	0.01
19.75	5.34	4.31	0.01
20.00	**5.36**	**4.33**	0.01

Summary for Pond 3P: (new Pond)

Inflow Area = 0.075 ac, 78.45% Impervious, Inflow Depth > 4.32" for 25 year event
Inflow = 0.44 cfs @ 12.00 hrs, Volume= 0.027 af
Outflow = 0.30 cfs @ 12.07 hrs, Volume= 0.024 af, Atten= 32%, Lag= 4.3 min
Discarded = 0.02 cfs @ 12.07 hrs, Volume= 0.015 af
Primary = 0.28 cfs @ 12.07 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 19.28' @ 12.07 hrs Surf.Area= 0.004 ac Storage= 0.008 af

Plug-Flow detention time= 102.2 min calculated for 0.024 af (87% of inflow)
Center-of-Mass det. time= 62.2 min (812.5 - 750.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	16.36'	0.004 af	**10.67'W x 17.50'L x 3.54'H Field A** 0.015 af Overall - 0.005 af Embedded = 0.010 af x 40.0% Voids
#2A	16.86'	0.005 af	**Cultec R-330XLHD** x 4 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 2 rows
		0.009 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	18.69'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	16.36'	**2.410 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.02 cfs @ 12.07 hrs HW=19.23' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.26 cfs @ 12.07 hrs HW=19.23' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.26 cfs @ 2.95 fps)

Pond 3P: (new Pond) - 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 2 rows

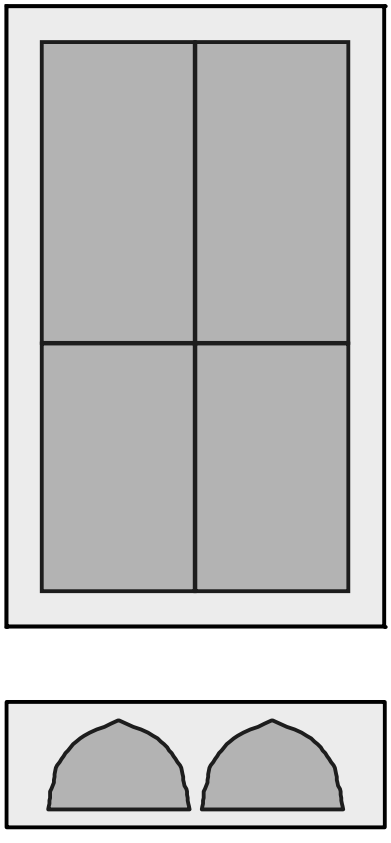
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
2 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 10.67' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

4 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 231.0 cf Chamber Storage

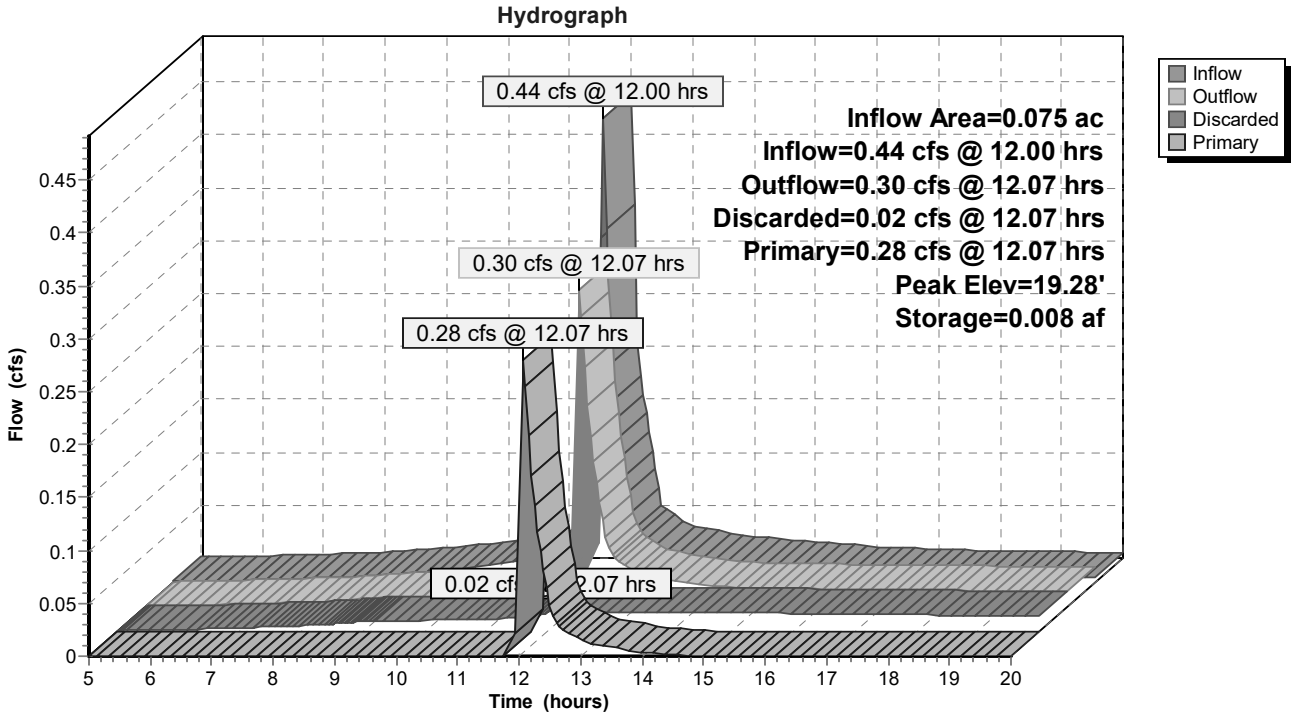
661.1 cf Field - 231.0 cf Chambers = 430.1 cf Stone x 40.0% Voids = 172.1 cf Stone Storage

Chamber Storage + Stone Storage = 403.0 cf = 0.009 af
Overall Storage Efficiency = 61.0%
Overall System Size = 17.50' x 10.67' x 3.54'

4 Chambers
24.5 cy Field
15.9 cy Stone



Pond 3P: (new Pond)



Hydrograph for Pond 3P: (new Pond)

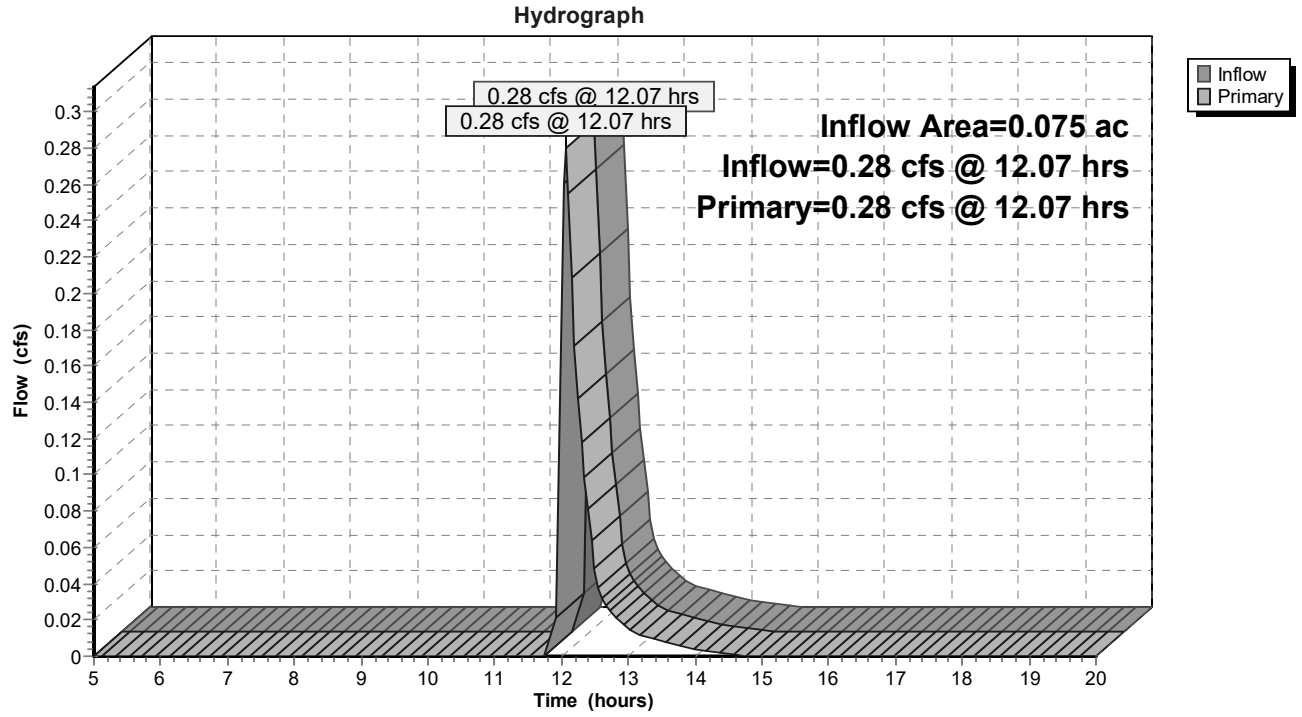
Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
5.00	0.00	0.000	16.36	0.00	0.00	0.00
5.50	0.00	0.000	16.37	0.00	0.00	0.00
6.00	0.00	0.000	16.37	0.00	0.00	0.00
6.50	0.00	0.000	16.37	0.00	0.00	0.00
7.00	0.00	0.000	16.37	0.00	0.00	0.00
7.50	0.00	0.000	16.38	0.00	0.00	0.00
8.00	0.01	0.000	16.38	0.01	0.01	0.00
8.50	0.01	0.000	16.38	0.01	0.01	0.00
9.00	0.01	0.000	16.39	0.01	0.01	0.00
9.50	0.01	0.000	16.41	0.01	0.01	0.00
10.00	0.01	0.000	16.48	0.01	0.01	0.00
10.50	0.02	0.000	16.63	0.01	0.01	0.00
11.00	0.02	0.001	16.87	0.01	0.01	0.00
11.50	0.04	0.002	17.13	0.01	0.01	0.00
12.00	**0.44**	**0.007**	**18.89**	**0.11**	**0.02**	**0.09**
12.50	0.05	**0.007**	**18.84**	**0.07**	**0.02**	**0.05**
13.00	0.03	0.007	18.77	0.03	0.02	0.01
13.50	0.02	0.007	18.75	0.03	0.02	0.01
14.00	0.02	0.007	18.73	0.02	0.02	0.00
14.50	0.02	0.007	18.71	0.02	0.02	0.00
15.00	0.02	0.007	18.68	0.02	0.02	0.00
15.50	0.01	0.007	18.64	0.02	0.02	0.00
16.00	0.01	0.006	18.56	0.02	0.02	0.00
16.50	0.01	0.006	18.46	0.02	0.02	0.00
17.00	0.01	0.006	18.35	0.02	0.02	0.00
17.50	0.01	0.005	18.24	0.02	0.02	0.00
18.00	0.01	0.005	18.12	0.02	0.02	0.00
18.50	0.01	0.005	18.00	0.02	0.02	0.00
19.00	0.01	0.004	17.89	0.02	0.02	0.00
19.50	0.01	0.004	17.77	0.01	0.01	0.00
20.00	0.01	0.004	17.65	0.01	0.01	0.00

Summary for Link 4L: (new Link)

Inflow Area = 0.075 ac, 78.45% Impervious, Inflow Depth = 1.29" for 25 year event
Inflow = 0.28 cfs @ 12.07 hrs, Volume= 0.008 af
Primary = 0.28 cfs @ 12.07 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 4L: (new Link)



Hydrograph for Link 4L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	18.25	0.00	0.00	0.00
5.25	0.00	0.00	0.00	18.50	0.00	0.00	0.00
5.50	0.00	0.00	0.00	18.75	0.00	0.00	0.00
5.75	0.00	0.00	0.00	19.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	19.25	0.00	0.00	0.00
6.25	0.00	0.00	0.00	19.50	0.00	0.00	0.00
6.50	0.00	0.00	0.00	19.75	0.00	0.00	0.00
6.75	0.00	0.00	0.00	20.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00				
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.00	0.00	0.00				
11.00	0.00	0.00	0.00				
11.25	0.00	0.00	0.00				
11.50	0.00	0.00	0.00				
11.75	0.00	0.00	0.00				
12.00	**0.09**	0.00	**0.09**				
12.25	**0.14**	0.00	**0.14**				
12.50	0.05	0.00	0.05				
12.75	0.02	0.00	0.02				
13.00	0.01	0.00	0.01				
13.25	0.01	0.00	0.01				
13.50	0.01	0.00	0.01				
13.75	0.01	0.00	0.01				
14.00	0.00	0.00	0.00				
14.25	0.00	0.00	0.00				
14.50	0.00	0.00	0.00				
14.75	0.00	0.00	0.00				
15.00	0.00	0.00	0.00				
15.25	0.00	0.00	0.00				
15.50	0.00	0.00	0.00				
15.75	0.00	0.00	0.00				
16.00	0.00	0.00	0.00				
16.25	0.00	0.00	0.00				
16.50	0.00	0.00	0.00				
16.75	0.00	0.00	0.00				
17.00	0.00	0.00	0.00				
17.25	0.00	0.00	0.00				
17.50	0.00	0.00	0.00				
17.75	0.00	0.00	0.00				
18.00	0.00	0.00	0.00				

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Ex. Runoff Area=3,281 sf 41.57% Impervious Runoff Depth>3.82"
Tc=0.0 min CN=76 Runoff=0.41 cfs 0.024 af

Subcatchment 2S: (new Subcat) Runoff Area=3,281 sf 78.45% Impervious Runoff Depth>5.43"
Tc=0.0 min CN=91 Runoff=0.54 cfs 0.034 af

Pond 3P: (new Pond) Peak Elev=19.72' Storage=0.009 af Inflow=0.54 cfs 0.034 af
Discarded=0.02 cfs 0.016 af Primary=0.39 cfs 0.013 af Outflow=0.41 cfs 0.030 af

Link 4L: (new Link) Inflow=0.39 cfs 0.013 af
Primary=0.39 cfs 0.013 af

Total Runoff Area = 0.151 ac Runoff Volume = 0.058 af Average Runoff Depth = 4.63"
39.99% Pervious = 0.060 ac 60.01% Impervious = 0.090 ac

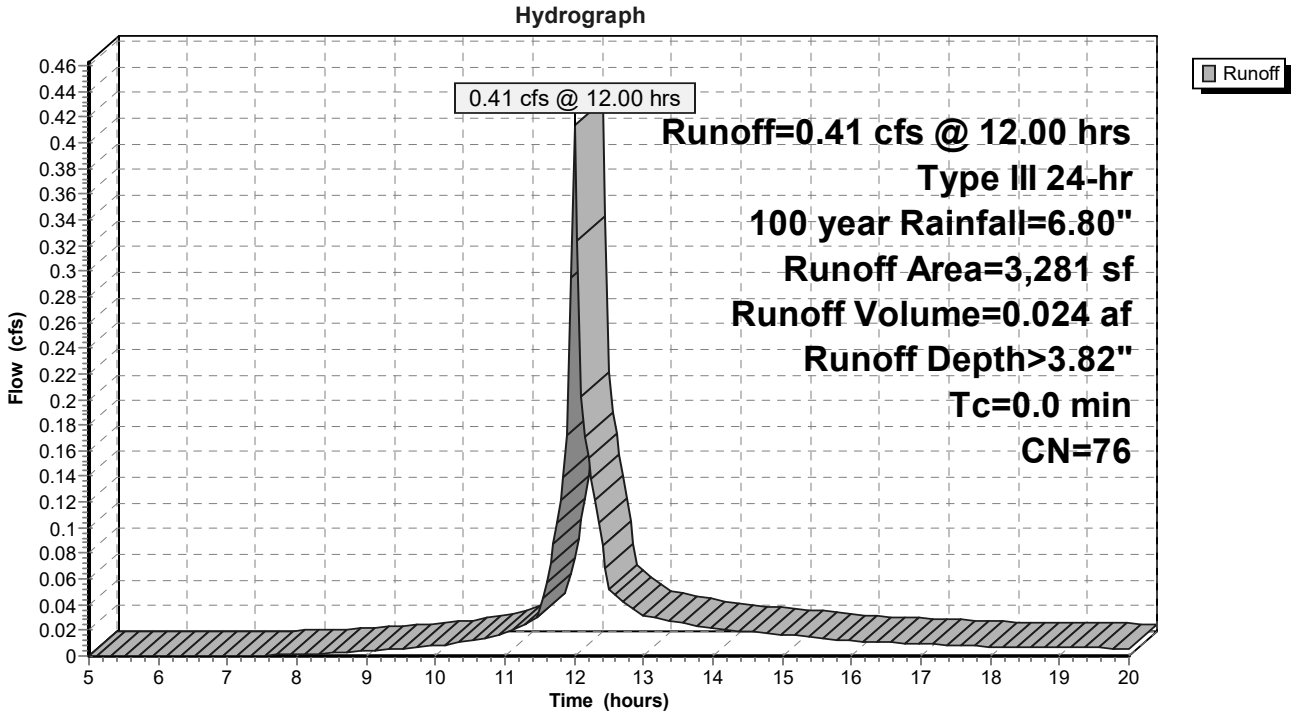
Summary for Subcatchment 1S: Ex.

Runoff = 0.41 cfs @ 12.00 hrs, Volume= 0.024 af, Depth> 3.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
700	98	Paved parking, HSG B
451	98	Unconnected roofs, HSG B
213	98	Unconnected roofs, HSG B
1,917	61	>75% Grass cover, Good, HSG B
3,281	76	Weighted Average
1,917		58.43% Pervious Area
1,364		41.57% Impervious Area
664		48.68% Unconnected

Subcatchment 1S: Ex.



Hydrograph for Subcatchment 1S: Ex.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.39	0.00	0.00
5.25	0.41	0.00	0.00
5.50	0.44	0.00	0.00
5.75	0.46	0.00	0.00
6.00	0.49	0.00	0.00
6.25	0.52	0.00	0.00
6.50	0.55	0.00	0.00
6.75	0.58	0.00	0.00
7.00	0.62	0.00	0.00
7.25	0.65	0.00	0.00
7.50	0.69	0.00	0.00
7.75	0.73	0.00	0.00
8.00	0.78	0.01	0.00
8.25	0.82	0.01	0.00
8.50	0.87	0.02	0.00
8.75	0.93	0.03	0.00
9.00	0.99	0.04	0.00
9.25	1.06	0.05	0.00
9.50	1.13	0.07	0.01
9.75	1.20	0.09	0.01
10.00	1.29	0.11	0.01
10.25	1.37	0.14	0.01
10.50	1.47	0.18	0.01
10.75	1.58	0.22	0.01
11.00	1.70	0.27	0.02
11.25	1.84	0.34	0.02
11.50	2.03	0.43	0.03
11.75	2.42	0.64	0.10
12.00	3.40	1.29	**0.41**
12.25	4.38	2.04	0.14
12.50	4.77	2.35	0.05
12.75	4.96	2.50	0.04
13.00	5.10	2.62	0.03
13.25	5.22	2.72	0.03
13.50	5.33	2.81	0.03
13.75	5.43	2.89	0.02
14.00	5.51	2.97	0.02
14.25	5.60	3.03	0.02
14.50	5.67	3.10	0.02
14.75	5.74	3.16	0.02
15.00	5.81	3.22	0.02
15.25	5.87	3.27	0.02
15.50	5.93	3.32	0.01
15.75	5.98	3.36	0.01
16.00	6.02	3.40	0.01
16.25	6.07	3.44	0.01
16.50	6.11	3.47	0.01
16.75	6.15	3.51	0.01
17.00	6.18	3.54	0.01
17.25	6.22	3.57	0.01
17.50	6.25	3.60	0.01
17.75	6.28	3.62	0.01
18.00	6.31	3.65	0.01
18.25	6.34	3.67	0.01
18.50	6.36	3.70	0.01
18.75	6.39	3.72	0.01
19.00	6.41	3.74	0.01
19.25	6.44	3.76	0.01
19.50	6.46	3.78	0.01
19.75	6.49	3.80	0.01
20.00	**6.51**	**3.82**	0.01

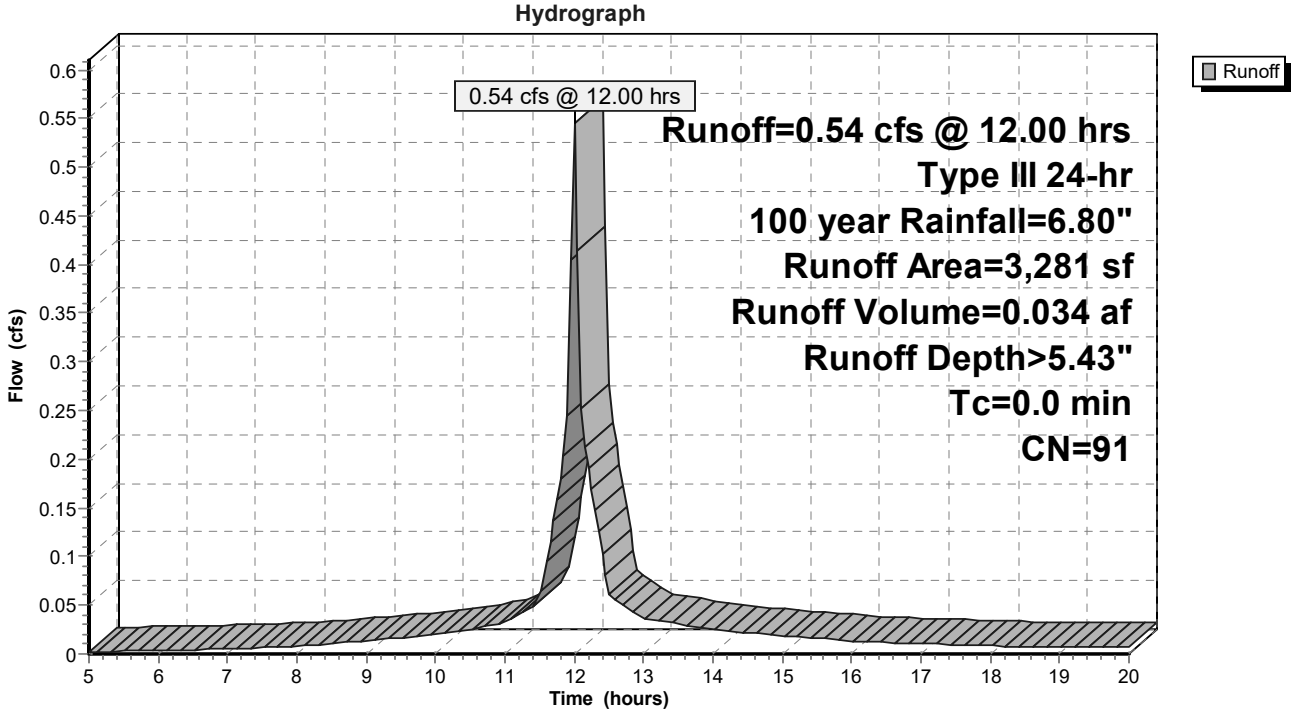
Summary for Subcatchment 2S: (new Subcat)

Runoff = 0.54 cfs @ 12.00 hrs, Volume= 0.034 af, Depth> 5.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=6.80"

Area (sf)	CN	Description
2,574	98	Unconnected pavement, HSG B
707	65	Woods/grass comb., Fair, HSG B
3,281	91	Weighted Average
707		21.55% Pervious Area
2,574		78.45% Impervious Area
2,574		100.00% Unconnected

Subcatchment 2S: (new Subcat)



Hydrograph for Subcatchment 2S: (new Subcat)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.39	0.03	0.00
5.25	0.41	0.04	0.00
5.50	0.44	0.05	0.00
5.75	0.46	0.06	0.00
6.00	0.49	0.07	0.00
6.25	0.52	0.08	0.00
6.50	0.55	0.09	0.00
6.75	0.58	0.11	0.00
7.00	0.62	0.12	0.01
7.25	0.65	0.14	0.01
7.50	0.69	0.16	0.01
7.75	0.73	0.19	0.01
8.00	0.78	0.21	0.01
8.25	0.82	0.24	0.01
8.50	0.87	0.27	0.01
8.75	0.93	0.31	0.01
9.00	0.99	0.35	0.01
9.25	1.06	0.40	0.01
9.50	1.13	0.45	0.02
9.75	1.20	0.51	0.02
10.00	1.29	0.57	0.02
10.25	1.37	0.64	0.02
10.50	1.47	0.72	0.03
10.75	1.58	0.81	0.03
11.00	1.70	0.91	0.03
11.25	1.84	1.03	0.04
11.50	2.03	1.19	0.06
11.75	2.42	1.53	0.16
12.00	3.40	2.45	**0.54**
12.25	4.38	3.39	0.17
12.50	4.77	3.76	0.06
12.75	4.96	3.94	0.05
13.00	5.10	4.08	0.04
13.25	5.22	4.19	0.03
13.50	5.33	4.30	0.03
13.75	5.43	4.40	0.03
14.00	5.51	4.48	0.02
14.25	5.60	4.56	0.02
14.50	5.67	4.64	0.02
14.75	5.74	4.71	0.02
15.00	5.81	4.77	0.02
15.25	5.87	4.83	0.02
15.50	5.93	4.89	0.02
15.75	5.98	4.94	0.01
16.00	6.02	4.98	0.01
16.25	6.07	5.02	0.01
16.50	6.11	5.06	0.01
16.75	6.15	5.10	0.01
17.00	6.18	5.14	0.01
17.25	6.22	5.17	0.01
17.50	6.25	5.20	0.01
17.75	6.28	5.23	0.01
18.00	6.31	5.26	0.01
18.25	6.34	5.29	0.01
18.50	6.36	5.31	0.01
18.75	6.39	5.34	0.01
19.00	6.41	5.36	0.01
19.25	6.44	5.39	0.01
19.50	6.46	5.41	0.01
19.75	6.49	5.43	0.01
20.00	**6.51**	**5.45**	0.01

Summary for Pond 3P: (new Pond)

Inflow Area = 0.075 ac, 78.45% Impervious, Inflow Depth > 5.43" for 100 year event
Inflow = 0.54 cfs @ 12.00 hrs, Volume= 0.034 af
Outflow = 0.41 cfs @ 12.06 hrs, Volume= 0.030 af, Atten= 24%, Lag= 3.3 min
Discarded = 0.02 cfs @ 12.06 hrs, Volume= 0.016 af
Primary = 0.39 cfs @ 12.06 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 19.72' @ 12.06 hrs Surf.Area= 0.004 ac Storage= 0.009 af

Plug-Flow detention time= 87.1 min calculated for 0.030 af (88% of inflow)
Center-of-Mass det. time= 47.9 min (793.9 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	16.36'	0.004 af	**10.67'W x 17.50'L x 3.54'H Field A** 0.015 af Overall - 0.005 af Embedded = 0.010 af x 40.0% Voids
#2A	16.86'	0.005 af	**Cultec R-330XLHD** x 4 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 2 rows
		0.009 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	18.69'	**4.0" Vert. Orifice/Grate** C= 0.600
#2	Discarded	16.36'	**2.410 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.02 cfs @ 12.06 hrs HW=19.71' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.39 cfs @ 12.06 hrs HW=19.71' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.39 cfs @ 4.43 fps)

Pond 3P: (new Pond) - 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 2 rows

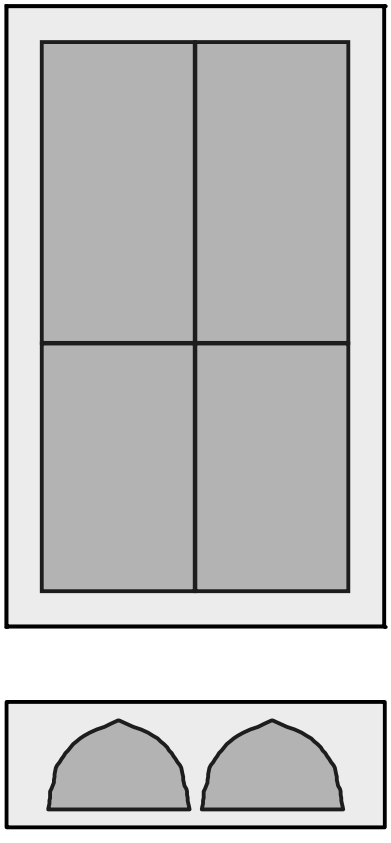
2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length
2 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 10.67' Base Width
6.0" Base + 30.5" Chamber Height + 6.0" Cover = 3.54' Field Height

4 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 2 Rows = 231.0 cf Chamber Storage

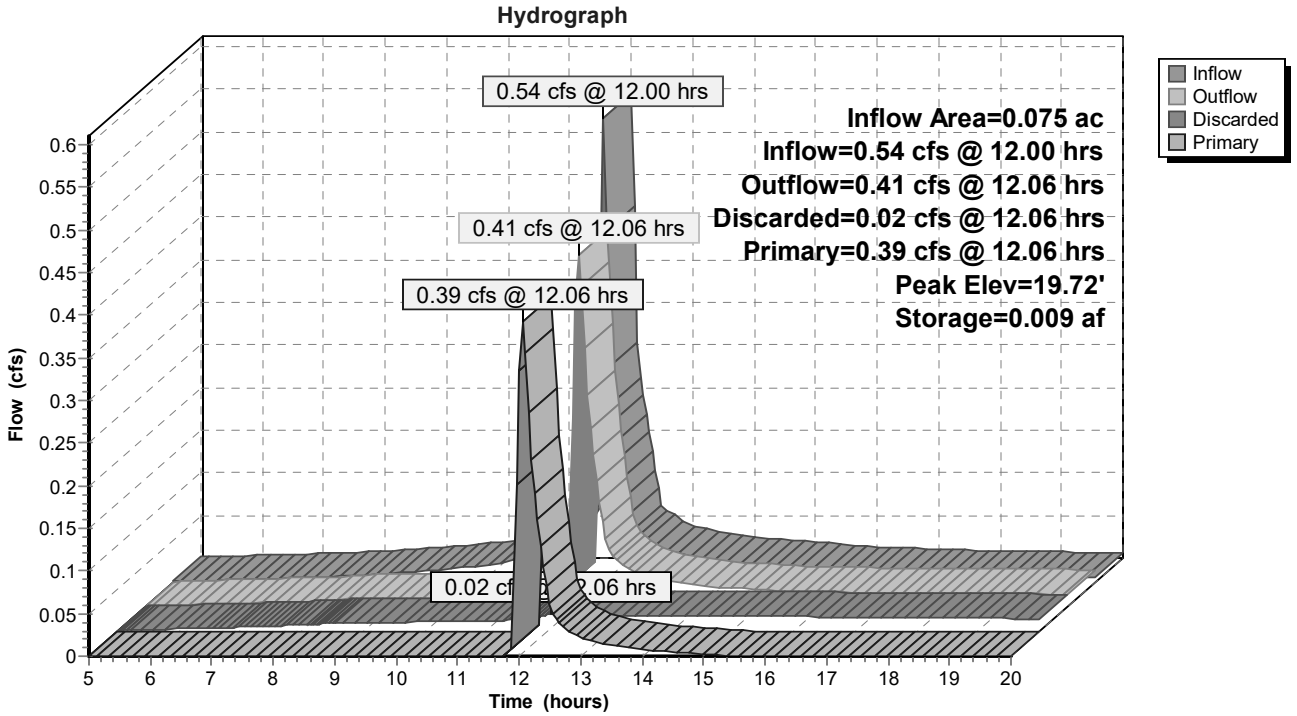
661.1 cf Field - 231.0 cf Chambers = 430.1 cf Stone x 40.0% Voids = 172.1 cf Stone Storage

Chamber Storage + Stone Storage = 403.0 cf = 0.009 af
Overall Storage Efficiency = 61.0%
Overall System Size = 17.50' x 10.67' x 3.54'

4 Chambers
24.5 cy Field
15.9 cy Stone



Pond 3P: (new Pond)



Hydrograph for Pond 3P: (new Pond)

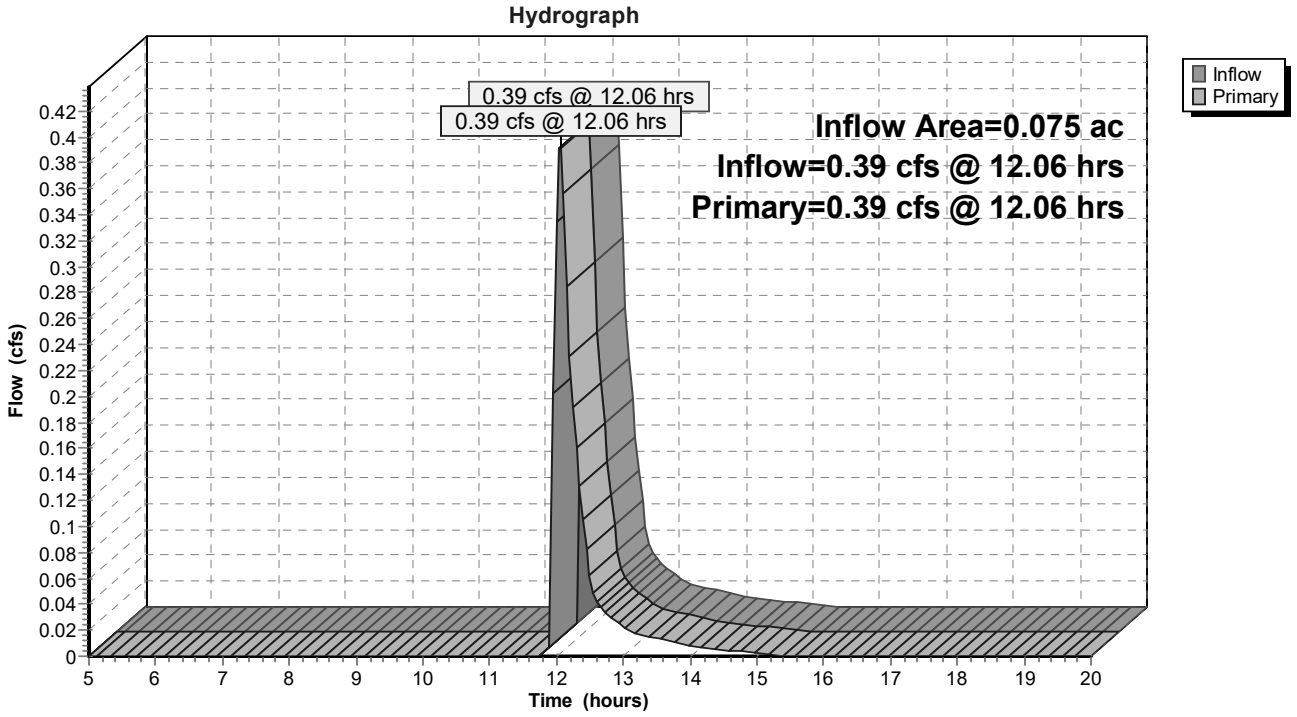
Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
5.00	0.00	0.000	16.36	0.00	0.00	0.00
5.50	0.00	0.000	16.37	0.00	0.00	0.00
6.00	0.00	0.000	16.37	0.00	0.00	0.00
6.50	0.00	0.000	16.37	0.00	0.00	0.00
7.00	0.01	0.000	16.38	0.01	0.01	0.00
7.50	0.01	0.000	16.38	0.01	0.01	0.00
8.00	0.01	0.000	16.39	0.01	0.01	0.00
8.50	0.01	0.000	16.39	0.01	0.01	0.00
9.00	0.01	0.000	16.43	0.01	0.01	0.00
9.50	0.02	0.000	16.53	0.01	0.01	0.00
10.00	0.02	0.001	16.69	0.01	0.01	0.00
10.50	0.03	0.001	16.91	0.01	0.01	0.00
11.00	0.03	0.002	17.10	0.01	0.01	0.00
11.50	0.06	0.003	17.47	0.01	0.01	0.00
12.00	**0.54**	**0.009**	**19.49**	**0.36**	**0.02**	**0.34**
12.50	0.06	**0.007**	**18.86**	**0.08**	**0.02**	**0.06**
13.00	0.04	0.007	18.79	0.04	0.02	0.02
13.50	0.03	0.007	18.77	0.03	0.02	0.01
14.00	0.02	0.007	18.75	0.03	0.02	0.01
14.50	0.02	0.007	18.73	0.02	0.02	0.00
15.00	0.02	0.007	18.72	0.02	0.02	0.00
15.50	0.02	0.007	18.69	0.02	0.02	0.00
16.00	0.01	0.007	18.65	0.02	0.02	0.00
16.50	0.01	0.006	18.58	0.02	0.02	0.00
17.00	0.01	0.006	18.49	0.02	0.02	0.00
17.50	0.01	0.006	18.40	0.02	0.02	0.00
18.00	0.01	0.006	18.29	0.02	0.02	0.00
18.50	0.01	0.005	18.18	0.02	0.02	0.00
19.00	0.01	0.005	18.07	0.02	0.02	0.00
19.50	0.01	0.005	17.96	0.02	0.02	0.00
20.00	0.01	0.004	17.85	0.02	0.02	0.00

Summary for Link 4L: (new Link)

Inflow Area = 0.075 ac, 78.45% Impervious, Inflow Depth = 2.14" for 100 year event
Inflow = 0.39 cfs @ 12.06 hrs, Volume= 0.013 af
Primary = 0.39 cfs @ 12.06 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 4L: (new Link)



Hydrograph for Link 4L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	18.25	0.00	0.00	0.00
5.25	0.00	0.00	0.00	18.50	0.00	0.00	0.00
5.50	0.00	0.00	0.00	18.75	0.00	0.00	0.00
5.75	0.00	0.00	0.00	19.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	19.25	0.00	0.00	0.00
6.25	0.00	0.00	0.00	19.50	0.00	0.00	0.00
6.50	0.00	0.00	0.00	19.75	0.00	0.00	0.00
6.75	0.00	0.00	0.00	20.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00				
7.25	0.00	0.00	0.00				
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.00	0.00	0.00				
9.50	0.00	0.00	0.00				
9.75	0.00	0.00	0.00				
10.00	0.00	0.00	0.00				
10.25	0.00	0.00	0.00				
10.50	0.00	0.00	0.00				
10.75	0.00	0.00	0.00				
11.00	0.00	0.00	0.00				
11.25	0.00	0.00	0.00				
11.50	0.00	0.00	0.00				
11.75	0.00	0.00	0.00				
12.00	**0.34**	0.00	**0.34**				
12.25	**0.19**	0.00	**0.19**				
12.50	0.06	0.00	0.06				
12.75	0.03	0.00	0.03				
13.00	0.02	0.00	0.02				
13.25	0.02	0.00	0.02				
13.50	0.01	0.00	0.01				
13.75	0.01	0.00	0.01				
14.00	0.01	0.00	0.01				
14.25	0.01	0.00	0.01				
14.50	0.00	0.00	0.00				
14.75	0.00	0.00	0.00				
15.00	0.00	0.00	0.00				
15.25	0.00	0.00	0.00				
15.50	0.00	0.00	0.00				
15.75	0.00	0.00	0.00				
16.00	0.00	0.00	0.00				
16.25	0.00	0.00	0.00				
16.50	0.00	0.00	0.00				
16.75	0.00	0.00	0.00				
17.00	0.00	0.00	0.00				
17.25	0.00	0.00	0.00				
17.50	0.00	0.00	0.00				
17.75	0.00	0.00	0.00				
18.00	0.00	0.00	0.00				