NOTICE OF INTENT

Proposed Parking Improvements
Local IBEW Educational Corporation
Freeport Street
Dorchester – Boston, Massachusetts

SUBMITTED TO:
City of Boston
Conservation Commission
City Hall Plaza, Room 709
Boston, Massachusetts 02201

PREPARED FOR:
Local IBEW Educational Corporation
256 Freeport Street
Dorchester, MA 02122

PREPARED BY:
Lucas Environmental, LLC
500A Washington Street
Quincy, Massachusetts 02169

IN ASSOCIATION WITH:
Howard Stein Hudson
11 Beacon Street, Suite 1010
Boston, MA 02108

REPORT DATE: March 22, 2022

LUCAS ENVIRONMENTAL, LLC

March 22, 2022

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

Re: Notice of Intent
Local IBEW Educational Corporation
Freeport Street (Parcel 1600008002)
Dorchester – Boston, Massachusetts

Members of the Boston Conservation Commission:

On behalf of Local IBEW Educational Corporation (Applicant), and in association with Howard Stein Hudson (HSH), Lucas Environmental, LLC (LE) is pleased to submit this Notice of Intent (NOI) to the Boston Conservation Commission for the proposed parking improvements at Freeport Street (Parel 1600008002) in the Dorchester neighborhood of Boston, Massachusetts. The proposed work includes the construction of a parking area with associated stormwater improvements and grading. The proposed work will occur within the 100-Foot Buffer Zone to two locally regulated Isolated Vegetated Wetlands. This NOI is submitted in accordance with the Ordinance Protecting Local Wetlands and Promoting Climate Change Adaptation in the City of Boston (the "Ordinance") and Boston Wetland Regulations.

As you are aware, an Enforcement Order (EO) was issued to the Applicant for unpermitted alteration to Isolated Land Subject to Flooding (ILSF) and the Isolated Vegetated Wetlands on the property. A Wetland and Buffer Restoration Plan, dated March 15, 2022, has been submitted to the Conservation Commission under separate cover. This NOI pertains only to the proposed parking related site improvements. Since no work associated with the parking improvements will occur in state regulated wetland resource or buffer zone, this filing is submitted solely under the Ordinance.

Enclosed please find one original and one copy of the NOI. The copies of the Stormwater Compliance Report and the Plans reduced to 11" x 17" will be provided under separate cover. The NOI application package includes the NOI application form, project narrative, figures, photographic documentation, abutter notification, and filing fees.

A link to an electronic copy of the pdf file of the NOI application and supporting documentation will be provided concurrently with this submittal. We respectfully request that you place this matter on your agenda for the April 6, 2022 Public Hearing.

If you have any questions, please do not hesitate to contact me at 617.405.4053 or tel@lucasenviro.com. Thank you for your consideration in this matter.

Sincerely,
LUCAS ENVIRONMENTAL, LLC

Thomas E. Liddy, PWS/CWS, CESSWI
Environmental Consultant/Wetland & Soil Scientist

cc: Local IBEW Educational Corporation (Applicant, electronically)
Commonwealth of Massachusetts (Owner, electronically)
Howard Stein Hudson (electronic)

LUCAS ENVIRONMENTAL, LLC

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LUCAS ENVIRONMENTAL, LLC

SECTION I – FORMS

Boston NOI Checklist

Boston NOI Form

MassDOT Lease Agreement

Checklist for Filing a Notice of Intent with Boston Conservation Commission

In order for the Boston Conservation Commission to effectively process your Notice of Intent, BCC requests that you complete the checklist below and include it with your submission. If you should need assistance please contact Commission Staff: 617-635-3850 (cc@boston.gov).

Please Submit the Following to the Conservation Commission:

- ☐ Two copies (a signed original and 1 copy) of a completed Notice of Intent (WPA Form 3)
- ☑ Two copies (a signed original and 1 copy) of a completed Boston Notice of Intent (Local Form)
- ☑ Two copies of plans (reduced to 11" X 17") in their final form with engineer's stamp affixed supporting calculations and other documentation necessary to completely describe the proposed work and mitigating measures. Plans must include existing conditions, the proposed project, erosion controls and mitigation measures, grading and spot elevations and all wetland resource areas and associated buffer zones. Some projects may require both an aerial view of the plans along with a profile view of plans depending on the scope of work. (Under Separate Cover)
- ☑ Two copies of an 8 ½" x 11" section of the USGS quadrangle map of the area, containing sufficient information for the Conservation Commission and the Department to locate the site of the work.
- ☑ (If applicable) Two copies the Federal Emergency Management Agency Flood Insurance Rate Map for the project site. FEMA Flood Maps: https://msc.fema.gov/portal.
- ☑ Two copies of the determination regarding the Natural Heritage and Endangered Species Program: Review Section C. Other Applicable Standards and Requirements of the Notice of Intent, page 4 of 8, pertaining to wildlife habitat. The Conservation Commission and the Natural Heritage & Endangered Species Program have the maps necessary to make this determination.
- ☑ (If applicable) Two hard copies of a Stormwater Report to document compliance with the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q), including associated drainage calculations for rooftops, parking lots, driveways, etc., for the required design storm events. (Under Separate Cover)
- ☑ (If applicable) A narrative detailing best management practices for stormwater management as set forth in the Stormwater Management Standards of the Massachusetts Department of Environmental Protection and any separate standards and guidelines prepared by the City and the Boston Water and Sewer Commission.
- ☑ (If applicable) Two hard copies of the Checklist for Stormwater Report
- ☑ Details of the stormwater management system, including: catch basins, oil separating tanks, detention basins, outfalls, sewer connections, etc.
- ☑ Any photographs related to the project representing the wetland resource areas.
- ☑ Two copies of a detailed project narrative describing the following: an overview of the entire project, the work proposed within wetland resource areas and/or buffer zones; how the performance standards specific to the wetland resource areas will be met (listing out each performance standard); a consideration of the effect that projected sea level rise, changes in storm intensity and frequency, and other consequences of climate change may have on the resource areas and proposed activities; construction equipment and material involved; and measures to protect wetland resource areas and mitigate impacts. The applicant shall also include narrative on how they plan to integrate climate change and adaptation planning considerations into their project to promote climate resilience to protect and promote Resource Area Values and functions into the future.
- ☑ Two copies of an Abutters List, Affidavit of Service and Abutter Notification, filed concurrently with the Notice of Intent. Abutter notices shall be sent in both English and the second most commonly spoken language(s) in the neighborhood(s) where the project is proposed. Notices shall also include Babel notice cards for additional translation and language access services. All abutters within 300' of the project

property line must be notified including those in a neighboring municipality. In such an instance, a copy of the filing must also be sent to the local Conservation Commission of the neighboring municipality. EXCEPTION: When work is in land under water bodies and waterways or on a tract of land greater than 50 acres, written notification must only be given to abutters within 300 feet of the "project site."

☐ Two copies of the BPDA Climate Resiliency Checklist (for new buildings). This can be completed online at http://www.bostonplans.org/planning/planning-initiatives/article-37-green-building-guidelines. Please print the pdf that you will receive via email after completion and include it in your submission.

☑ **Electronic copies.** Documents may be submitted via email, or via an email link to downloadable documents.

To minimize the use of non-recyclable materials ***please do not include vinyl or plastic binders, bindings, folders or covers with the filing.*** Staples and binder clips are good choices.

INSTRUCTIONS FOR COMPLETING APPLICATION NOTICE OF INTENT – BOSTON NOI FORM

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

INSTRUCTIONS TO SECTION B: BUFFER ZONE AND RESOURCE AREA IMPACTS

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

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

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

INSTRUCTIONS TO SECTION C: OTHER APPLICABLE STANDARDS AND REQUIREMENTS

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

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

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

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

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

City of Boston Environment

NOTICE OF INTENT APPLICATION FORM

Boston Wetlands Ordinance

City of Boston Code, Ordinances, Chapter 7-1.4

Boston File Number

MassDEP File Number

A. GENERAL INFORMATION

1. Project Location

Freeport Street	Boston (Dorchester)	02122
a. Street Address	b. City/Town	c. Zip Code

1600008002	
f. Assessors Map/Plat Number	g. Parcel /Lot Number

2. Applicant

Louis	Antonellis	Local IBEW Educational Coportation
a. First Name	b. Last Name	c. Company

256 Freeport Street
d. Mailing Address

Dorchester	MA	02122
e. City/Town	f. State	g. Zip Code

617.436.3710		lantonellis@ibew103.com
h. Phone Number	i. Fax Number	j. Email address

3. Property Owner

	MassDOT Office of Real Estate and Asset Development Attn: Director of Real Estate
a. First Name	b. Last Name c. Company

10 Park Plaza, Suite 5720
d. Mailing Address

Boston	MA	02116
e. City/Town	f. State	g. Zip Code

857.368.4636		
h. Phone Number	i. Fax Number	j. Email address

❑ Check if more than one owner

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

4. Representative (if any)

Thomas	Liddy	Lucas Environmental, LLC
a. First Name	b. Last Name	c. Company

500A Washington Street
d. Mailing Address

Quincy	MA	02169
e. City/Town	f. State	g. Zip Code

617.405.4053		tel@lucasenviro.com
h. Phone Number	i. Fax Number	j. Email address

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

❑ Yes ☒ No

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

6. General Information

The proposed project involves the construction of additional parking and associated grading and drainage within the 100-Foot Buffer Zone of Isolated Vegetated Wetlands.

7. Project Type Checklist

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

8. Property recorded at the Registry of Deeds

a. County	b. Page Number
Parcel part of Highway Layout with no deed reference.	
c. Book	d. Certificate # (if registered land)

9. Total Fee Paid

a. Total Fee Paid	b. State Fee Paid	c. City Fee Paid
$1,800.00	N/A	$1,800.00

B. BUFFER ZONE & RESOURCE AREA IMPACTS

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

☒ Yes ❑ No

1. Coastal Resource Areas

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

2. Inland Resource Areas

Resource Area	**Resource Area Size**	**Proposed Alteration***	**Proposed Migitation**
❑ *Inland Flood Resilience Zone*	*Square feet*	*Square feet*	*Square feet*
❑ *Isolated Wetlands*	*Square feet*	*Square feet*	*Square feet*
❑ *Vernal Pool*	*Square feet*	*Square feet*	*Square feet*
❑ *Vernal Pool Habitat (vernal pool + 100 ft. upland area)*	*Square feet*	*Square feet*	*Square feet*
❑ *25-foot Waterfront Area*	*Square feet*	*Square feet*	*Square feet*
❑ *Riverfront Area*	*Square feet*	*Square feet*	*Square feet*

C. OTHER APPLICABLE STANDARDS & REQUIREMENTS

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

No other state or local approvals are required.

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

❑ Yes ☒ No

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

A. Submit Supplemental Information for Endangered Species Review

☐ Percentage/acreage of property to be altered:

(1) within wetland Resource Area _____ percentage/acreage

(2) outside Resource Area _____ percentage/acreage

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

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

❑ Yes ☒ No

If yes, provide the name of the ACEC: _____

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

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

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

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

❑ Yes ☒ No

D. SIGNATURES AND SUBMITTAL REQUIREMENTS

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

Louis J Cintolo — 3-15-2022

Signature of Applicant — Date

(See attached Lease Agreement)

Signature of Property Owner (if different) — Date

[signature] — 3-24-2022

Signature of Representative (if any) — Date

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION

LICENSE AGREEMENT

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, a body politic and corporate and public instrumentality of the Commonwealth of Massachusetts, duly established and existing pursuant to Chapter 6C of the Massachusetts General Laws, as amended, with an address of Ten Park Plaza, Boston, Massachusetts 02116 ("Licensor") and **LOCAL #103, I.B.E.W. BUILDING CORPORATION**, a Massachusetts corporation, having a usual place of business at 256 Freeport Street, Boston, Massachusetts 02122 ("Licensee") (each, a "Party"; collectively, the "Parties"), enter into this License Agreement (this "License"), as of December 1, 2021, subject to the terms and conditions set forth below.

1. Grant of License

Subject to the terms and conditions set forth in this License and in accordance with all applicable laws, ordinances, regulations, and permits, and any rights of third parties in and to the Licensed Area (as defined below) existing as of the date hereof, Licensor grants to Licensee, its officers, agents, employees, and invitees the non-exclusive right to enter upon certain portions of a parcel of Licensor's land at 256 Freeport Street in Boston, Massachusetts, consisting of approximately 81,000 square feet as shown on the plan entitled "256 Freeport Street, Boston, MA Proposed Parking Layout" attached hereto and incorporated herein as Exhibit A (the "Licensed Area").

This License is granted to Licensee for the purpose of constructing, using and operating a parking lot for passenger vehicles at the Licensed Area for use by Licensee, its employees, agents and invitees with respect to activities only held in Licensee's building, including, but not limited to, the right to grade, pave, fence, and illuminate the Licensed Area in connection therewith (collectively, the "Permitted Uses"), but not for rental use of parking by the general public or for uses that are not accessory to Licensee's Permitted Uses on site. Licensee shall not use the Licensed Area for any public or private gatherings, meetings, or events. Licensee shall use commercially reasonable efforts to minimize the number of lighting fixtures to be installed on the Licensed Area.

Licensee hereby grants to Licensor the right to cross the area, owned by Licensee, shown on Exhibit A labelled as "IBEW Property" to access any existing and future Massachusetts Department of Transportation land and/or stormwater infrastructure in the area labelled as "Future MassDOT Stormwater Area."

Licensee is strictly prohibited from using the Licensed Area for any other purposes or uses, including, but not limited to, advertising, storage, or general parking for the public, whether for profit or not.

Licensee covenants that it is qualified to occupy and use the Licensed Area for the purposes set forth herein and has obtained or will obtain all requisite licenses and permits for such purposes. Licensee shall provide Licensor a copy of all such licenses and permits or, in the

event that the licenses and permits have not been obtained at the time of execution of this License, Licensee shall provide a list of all required licenses and permits and a schedule within which said licenses and permits will be obtained and copies thereof provided to Licensor. Licensee shall provide copies of any required licenses and permits for any extension of the Term of this License.

This License does not create or vest in Licensee any estate or real property interest in the Licensed Area, but only the limited right to occupy and use the Licensed Area. This License does not create an agency or joint venture relationship between Licensor and Licensee or any invitee thereof, or confer third party beneficiary rights to any other persons or entities that may use the Licensed Area.

Licensor reserves the right for itself and for the U.S. Federal Highway Administration ("FHWA"), and each of their respective successors, assigns, contractors, licensees, employees, agents, invitees, and other designees (their respective "Agents") to enter upon and use the Licensed Area for any purposes, including the construction, installation, alteration, maintenance, inspection, improvement, repair, removal, or replacement of any structure, utility, improvement, or facility at, in, on, above, or under the Licensed Area, at Licensor's sole discretion, and further to enter upon the Licensed Area in connection with the construction, installation, alteration, maintenance, inspection, improvement, replacement, removal, repair, use, or operation of highways, drives, walkways, surface streets, sidewalks, utilities, structures, improvements, or other facilities, whether or not owned or operated by Licensor, at, on, above, under, within, or adjacent to the Licensed Area. In exercising its foregoing rights, Licensor and FWHA shall use and require their respective Agents to use reasonable efforts not to materially interfere with Licensee's use and occupancy of the Licensed Area. Licensor further reserves the right to grant, at any time during the Term, leases, licenses, or other rights to any third party to enter upon and use the Licensed Area for any purposes, at Licensor's sole discretion, in a manner which does not unduly interfere with Licensee's use and occupancy of the Licensed Area.

In the event of a public health or safety emergency, as determined at the sole discretion of Licensor, Licensor reserves for itself and its Agents the right to enter upon the Licensed Area and undertake whatever action may be necessary, in Licensor's sole discretion, to alleviate the emergency, including, but not limited to, requiring the temporary suspension or termination without the notice otherwise required herein, of Licensee's use and occupancy of the Licensed Area and the moving or removal of any or all motor vehicles and other property of Licensee or its employees, contractors, licensees, invitees and other third parties claiming by, through, or under Licensee.

2. Restrictions on Work and Use

Licensee is prohibited from performing any work, including, but not limited to, construction, installation, operation, repair, removal, or alteration within, upon, or affecting the Licensed Area without the prior written approval of Licensor's Director of Highway Division District 6 or his/her designee. See also Section 7 below.

Licensee shall not interfere with (a) the safe and efficient use, operation, repair, and

maintenance of the highways, drives, walkways, surface streets, sidewalks, utilities or other facilities, whether or not owned and operated by Licensor, within or adjacent to the Licensed Area; (b) Licensor's or its Agents' or Massachusetts Bay Transportation Authority's transportation or other operations in, in the vicinity of, or adjacent to the Licensed Area; or (c) the rights of others from time to time, now or hereafter, entitled to use and occupy adjacent property of Licensor. In the event of any interference by Licensee or its Agents (defined above) with any use or operations of Licensor's or MBTA's transportation facilities or purposes, Licensor may terminate this License immediately without any notice otherwise required hereunder. Licensee for itself and its Agents hereby releases Licensor and its Agents from any liability for any damages or nuisance caused by the negative impacts of the Licensed Area being under and adjacent to transportation facilities.

3. Term of License

The term of this License (the "Term") shall be for a period of one (1) year commencing on Dec. 1, 2021 (the "Commencement Date") and terminating on Nov. 30, 2022, or upon any earlier termination by either Party upon thirty (30) days written notice or other termination by Licensor in accordance with the terms of this License.

This License terminates immediately if the Licensed Area or a portion thereof is taken by the right of eminent domain or if the Licensed Area or a portion thereof is substantially damaged or made unusable, as determined by Licensor, by fire or other casualty, either immediately upon delivery of written notice from Licensor to Licensee. Licensor may revoke this License without notice otherwise required hereunder if Licensor determines, in its sole discretion, that Licensee's use of the Licensed Area poses any risk or danger to the public or to highways or other transportation facilities owned or operated by Licensor or the MBTA in, above, adjacent or near the Licensed Area.

Upon the expiration or termination of this License, Licensee shall promptly vacate and surrender the Licensed Area and remove from all of its personal property and any fixtures, equipment, and improvements installed by Licensee unless Licensor notifies the Licensee that any or all of such fixtures, equipment, and improvements shall remain at the Licensed Area. Any property not so removed shall, at the option of Licensor and at the sole expense of Licensee, either become the property of Licensor or be removed by Licensor and disposed of without any liability to Licensor for such removal and disposition. Licensee shall restore the Licensed Area to its condition as of the Commencement Date, reasonable wear and tear excepted. Licensee shall repair any damage caused by any restoration required hereunder, unless otherwise agreed to by Licensor. The restoration shall be subject to final inspection and approval by Licensor.

4. Consideration

As consideration for the grant of this License and in accordance with the terms of this Section 4, Licensee shall pay to Licensor in advance of the Commencement Date of the Term the following fees (the "License Fee"), due and payable without demand, notice, offset, deduction, charge, or abatement of any kind or nature whatsoever, as set forth in the following schedule:

Administrative Fee:
Security Deposit:
Annual License Fee:

[redacted]

The Security Deposit shall be due contemporaneously with the execution of this License, which shall be held by Licensor to secure Licensee's performance of its obligations under this License. The Security Deposit is not an advance payment of the Annual License Fee or a measure or limit of Licensor's damages upon an event of Default (as defined in Section 17 herein). Licensor may from time to time following a Default and without prejudice to any other remedy, use all or a part of the Security Deposit to perform any obligation Licensee fails to perform hereunder. Following any such application of the Security Deposit, Licensee shall pay to Licensor the amount so applied in order to restore the Security Deposit to its original amount. Provided that Licensee has performed all of its obligations hereunder, Licensor shall, within sixty (60) days after Licensee vacates the Licensed Area, return to Licensee the portion of the Security Deposit which was not applied to satisfy Licensee's obligations. The Security Deposit may be commingled with other funds, and no interest shall be paid thereon.

Payments of the License Fee shall be due and payable by checks made payable to the order of "Massachusetts Department of Transportation", delivered to Licensor's address specified in Section 16 hereof, on, or before the applicable dates the various components of the License Fee are due and payable as set forth above, regardless of whether Licensor provides an invoice or other demand to Licensee. Licensee agrees to receive any billing notices or invoices that Licensor may choose to deliver from time to time at Licensee's address specified in Section 16 of this License.

If a component of the License Fee is not paid within thirty (30) days of the date when it is due, it shall bear interest compounded daily from such due date until full payment is received by Licensor at the annual rate of interest of twelve percent (12%).

5. Holding Over

If Licensee desires to continue the Permitted Uses and occupy the Licensed Area after the expiration or termination of this License, the resulting license shall be on a month-to-month basis and may be terminated by either Party at any time by providing the other Party with thirty (30) days prior written notice of termination. During the holdover period, the Annual License Fee shall increase by three percent (3%) annually on the anniversary of Licensee's execution of this License and shall be paid annually in advance of such anniversary date by Licensee to Licensor as payments are described in Section 4 above. During such holdover period, Licensee shall be bound by all applicable provisions of this License.

6. Licensed Area Unwarranted

Licensee acknowledges and agrees for itself and its Agents, including its invitees, that it accepts the Licensed Area in "as is", "where is", and "with all defects" condition.

Licensor is under no obligation to make any repairs, renovations, or alterations to the Licensed Area. Licensor has made no representations or warranties regarding the adequacy, operability, safety, or fitness of the Licensed Area for any particular purpose or use. Licensor has made no representations that the Licensed Area complies with applicable laws, ordinances, rules, and regulations of government authorities. Licensee further acknowledges and agrees that entry and activities upon the Licensed Area by Licensee and its Agents shall be at the sole risk and sole expense of Licensee and its Agents.

7. Licensee's Improvements

Licensee may, at its sole cost, pave or re-pave the surface of the Licensed Area, provided that the proper permit or license is obtained from Highway Division District 6 Office for that work. Licensee is required to install, at its sole cost, a 72" tall chain link fence between the parking lot and I-93, as permitted by Highway Division District 6 Office. Notwithstanding the above, Licensee shall construct no additional improvements, alterations, additions, improvements or other work to the Licensed Area. For the avoidance of doubt, the right of Licensee to install any signage at or on the Licensed Area shall be limited to signs related to the operation of a parking lot and Licensee shall not have the right to install any billboard, political signage or advertising signage at or on the Licensed Area.

8. Maintenance and Operation of the Licensed Area

(a) Licensee, at its sole cost and expense, shall maintain the Licensed Area in a good and clean condition and in an appearance and manner reasonably satisfactory to Licensor at all times when Licensee is authorized to use and occupy the same. Licensee's maintenance obligations under this License shall include:

i. Removal of snow and ice from the Licensed Area, including plowing the Licensed Area as shown on Exhibit A attached hereto as well as the daily inspection of and the removal of trash and debris from the Licensed Area by Licensor or its Agent ("Required Maintenance Obligations");

ii. Any repairs necessary for utilization as a parking lot.

(b) At all times during the Term, Licensee, at its sole cost and expense, shall be responsible for the security of the Licensed Area. In the case security patrols of the Licensed Area should be deemed necessary by either Party, such security patrols shall be undertaken by Licensee, at Licensee's sole cost and expense, with a security firm approved by Licensor. Licensor may require Licensee to provide additional security to the Licensed Area if conditions warrant. Licensee shall not permit any loitering or trespassing in or on the Licensed Area.

(c) Licensee shall not make any modifications, alterations, or changes to or interfere in any manner with the public traffic patterns at or around the Licensed Area.

(d) The only construction and installation Licensee is permitted to perform in the Licensed

Area is the paving, re-paving and grading of the parking lot, lighting, signage and required fencing (see Section 7).

(e) Throughout the Term of the License, Licensor shall have the right at any time to inspect the Licensed Area. Licensee shall neither cause nor suffer any waste of the Licensed Area, nor shall Licensee cause or permit any unlawful conduct, unreasonable annoyance, or nuisance to exist or arise in the course of, or as a result of, the use of the Licensed Area.

(f) Licensee shall pay and be responsible for the repair of any and all damage or breakage in or to the Licensed Area resulting from the intentional acts or negligence of Licensee or its officers, agents, contractors, subcontractors, employees, representatives, licensees, or invitees and from any acts of vandalism and/or any acts or omissions of others which are not a Party to this License occurring in the Licensed Area during those times when Licensee is authorized to use and occupy the same. All repairs shall be made by Licensee in a timely manner satisfactory to Licensor.

(g) Licensee shall immediately, or within a reasonable time period as determined by Licensor for each instance, following receipt of written notice from Licensor, remedy any violation of, or failure to comply with, any term or condition of this License or any deficiencies in appearance and/or condition of the Licensed Area as Licensor may report to Licensee. If Licensee fails to respond to such notification within the time set forth in such notice, at Licensor's option and in its sole discretion, Licensor may either terminate the License upon Licensee's failure to cure the violation or failure to comply within fifteen (15) days, or make such reasonable repairs or cause such reasonable repairs to be made. Licensee shall reimburse Licensor for any and all reasonable costs incurred by Licensor in making such repairs or causing such repairs to be made. Said reimbursement shall be paid by Licensee and received by Licensor within thirty (30) days after written demand by Licensor.

(h) No action or direction of Licensor shall be deemed to be the exercise of supervision or control over Licensee's performance that is contrary to an independent contractor relationship.

(i) Any maintenance by Licensee cannot cause any interference with transportation related structures.

9. Licensor Access

Licensee shall install a gate and a crushed stone transition over Licensor's property, in the location shown in Exhibit A, labelled as "Gate and Crushed Stone Transition" ("Stormwater Access"). Licensor shall have the ability to use the Stormwater Access 24/7 to access Licensor's existing infrastructure and future Massachusetts Department of Transportation stormwater infrastructure.

10. Hazardous Materials and Emergencies

Without limiting any of Licensee's obligations under this License, Licensee agrees that Licensee shall not, nor permit its officers, agents, employees, representatives, contractors,

subcontractors, invitees, or any other third parties to use, generate, store, release or dispose of, at, in, on, under, about, or from the Licensed Area or any structures located thereon from any source whatsoever, or transport to or from the Licensed Area any hazardous wastes, toxic substances, or related materials ("Hazardous Materials") in any manner without express written authorization from Licensor. For purposes of this Section, "hazardous materials" shall include, but not be limited to, substances defined as "hazardous materials," "hazardous substances," "hazardous waste," "toxic substances," "pollutants," or "contaminants" in the Comprehensive Environmental Response Compensation and Liability Act of 1980, as amended, 42 U.S.C. Sec. 9601 et seq.; Hazardous Materials Transportation Act, as amended, 49 U.S.C. Sec. 1802 et seq.; and Resource Conservation and Recovery Act, 42 U.S.C. Sec. 6903 et seq.; and/or applicable federal and Massachusetts law now or hereafter enacted including all other regulations and policies adopted or publications promulgated thereunder. If oil, hazardous substances, and/or Hazardous Materials are present or are released into the environment in, on, under or around the Licensed Area as a result of the activities of Licensee, then Licensee shall be responsible for the containment of such oil, hazardous substances, and/or Hazardous Materials through the implementation of any process acceptable to the Massachusetts Department of Environmental Protection. In the event of any release of oil or Hazardous Material or any other emergency within or from the Licensed Area, in addition to providing any regulatory notice required by any local, state or federal law or regulation, Licensee shall provide notice of any such release or other emergency to Licensor as soon as practicable thereafter, but not more than three (3) hours following any such release or emergency. Notice shall be given orally by telephone to Licensor's Operations Control Center at *(617) 946-3150*. In the case of a release or other environmental emergency, notice also must be given on the same day as the release or other emergency is discovered immediately in writing by hand delivery or by recognized overnight carrier addressed for next morning earliest delivery, in addition to the addresses set forth in Section 16 below for notices to Licensor, to the following addresses:

Massachusetts Department of Transportation
Highway Division, District 6
185 Kneeland Street
Boston, Massachusetts
Attn: District Highway Director

and to:

Massachusetts Department of Transportation
State Transportation Building
10 Park Plaza, Suite 4260
Boston, MA 02116
Attn: Director of Environmental Services

Notwithstanding any provision of this License to the contrary, the presence of oil, gasoline, diesel fuel, or other substances ordinarily incident to the operation of passenger vehicles and wholly contained within such vehicles on the Licensed Area in accordance with all applicable laws shall not be deemed to be subject to or a violation of this Section

10. In no event, may Licensee or its Agents bring or allow to be brought onto the Licensed Area, any propane, kerosene, or similar highly combustible fuel or materials and if on the Licensed Area shall be immediately removed by Licensee or its Agents or may be removed by Licensor or its Agents. Any Hazardous Materials, including any of the foregoing brought or left on the Licensed Area by a third party shall be subject to immediate removal by law enforcement or Licensor's Highway Division District 6 Office personnel and upon immediate notice of the presence and location thereof by Licensee or its Agents.

Licensee may bring on to the Licensed Area small amounts of Hazardous Materials (such as cleaning products) that are readily available to the Licensee and its Agents by unregulated retail purchase if these are necessary in some way to the exercise of the Permitted Uses, provided, however, Licensee accepts full responsibility for such Hazardous Materials and shall store, use, and dispose of such Hazardous Materials using the highest industry standards and in compliance with all laws and comply with all rules and requirements that Licensor may from time to time impose.

Notwithstanding, this License does not relieve Licensee of its obligation to procure all necessary local, state or federal permits or licenses or to take any other actions as may be required by law.

11. Indemnification

Licensee shall indemnify, defend (at Licensor's election) and hold harmless Licensor, including its board members, officers, agents, contractors, subcontractors, employees, tenants, licensees, and invitees, from and against any and all claims, third party claims, liabilities, losses, damages, penalties, fines, forfeitures, demands, causes of action, suits, judgments, costs, and expenses (including, but not limited to, reasonable attorneys' fees and costs of litigation) relating to or arising out of (1) any default or breach by Licensee under this License, or (2) any accident, injury, loss, death or damage, or allegation of same, whatsoever of or to any person (including, without limitation, bodily injury, personal injury, and pecuniary injury), or to the property of any person, occurring in or about the Licensed Area and related to, arising out of, or in connection with (a) Licensee's use or occupancy of the Licensed Area, or any of Licensee's activities under this License in any way, including, without limitation, environmental contamination or the release or threat of release of oil, hazardous waste, or hazardous materials; (b) any debris, rubbish, or other objects which may fall from I-93 or otherwise land on the Licensed Area; (c) the acts, omissions, or negligence, directly or indirectly, of Licensee, its officers, directors, partners, owners, contractors, representatives, invitees, employees, agents, subcontractors, or by any other person acting for or by permission of Licensee; or (d) the exercise of any right or privilege hereby granted.

The indemnification obligations set forth in this License shall not be limited by the existence of any insurance policy or by any limitation on the amount or type of damages, compensation, or benefits payable by or for Licensee, its officers, employees, representatives, agents, contractors, subcontractors, licensees, and invitees, or by any other person acting for or by permission of Licensee. Licensor shall have full control over how

any claims against Licensor in relation to this License are defended, including settlement thereof. The indemnification obligation(s) under this Section shall survive the expiration or termination of this License.

12. Insurance

Throughout the Term of the License, Licensee shall purchase and maintain, and shall cause any of its contractors that will enter upon the Licensed Area to purchase and maintain, adequate insurance coverage for the benefit of Licensor, which coverage shall meet the following minimum requirements:

A. Commercial General Liability Insurance with combined limits for bodily injury and property damage liability of $1,000,000 per occurrence and $2,000,000 in the aggregate. Such insurance shall apply to (i) liability arising out of or negligent acts, omissions or other activities of Licensee and its contractor(s) and their respective employees, agents, contractors, subcontractors, representatives and any other party for whom Licensee or its contractor(s) is legally responsible; (ii) liability assumed under contract; and (iii) liability imputed to Licensee or its contractor(s) through the activities of independent contractors. Coverage shall be written on an occurrence basis and shall include such additional coverages as Licensor shall reasonably require.

B. Massachusetts Worker's Compensation insurance in compliance with applicable law and Employer's Liability insurance with limits of not less than $1,000,000 per accident per employee, and $1,000,000 per disease per employee, for all persons to be employed by Licensee and its contractor(s).

C. Automobile Liability Insurance covering all owned, non-owned and hired vehicles in accordance with applicable laws, including without limitation, the automobile insurance laws of the Commonwealth of Massachusetts and of the state(s) in which Licensee and its contractor(s) maintain their respective principal places of business, with limits of not less than $1,000,000 combined single limits for bodily injury and property damage liability. Coverage shall be written on a per accident basis.

D. Umbrella Liability coverage, providing excess coverage over the above-named primary policies. Coverage shall be written on an occurrence basis with limits of not less than $5,000,000 combined single limit.

E. Such additional or different coverages and/or coverage amounts as Licensor may reasonably require from time to time while this License is in effect, or as may be required pursuant to applicable law.

F. General

a. Certificates of Insurance evidencing all insurance policies specified above shall be submitted to Licensor prior to or simultaneously with Licensor's execution of this License, which certificates shall be attached hereto as Exhibit B, and certificates showing insurance renewal within thirty (30) days prior to the expiration of any such

insurance. Licensee's contractor(s) performing work or conducting activities under this License shall submit certificates of insurance within 10 days of the award of their subject contract or license. Such Certificates shall be addressed to Licensor and shall contain an unequivocal provision that Licensor will be given 30 days prior written notice of cancellation or non-renewal of any of the specified policies. Licensor is entitled to rely upon the information provided in the certificate and Licensee is responsible for the accuracy and validity of such information. Licensee agrees that, if any certificate of insurance required hereunder does not conform with the requirements set forth in this Section 11.F.a., states that said certificate does not confer rights to the certificate holder or otherwise disclaims responsibility for Licensor's reliance thereon, Licensee must provide Licensor with an endorsement or other evidence satisfactory to Licensor demonstrating the specified additional insured status.

b. All insurance to be provided hereunder shall be with insurance companies licensed or approved by the Commonwealth of Massachusetts and shall have a Best's Rating of not less than "A-minus", Financial Size Code IX.

c. Except for Workers' Compensation insurance policies, all insurance policies specified above shall be endorsed to name Licensor as an additional insured on a primary and non-contributory basis. This provision must be specifically stated as being endorsed to each required insurance policy on the certificate of insurance evidencing such coverage.

d. All required insurance policies must be endorsed to waive the insurer's rights of subrogation against Licensor. This provision must be specifically stated as applying to or endorsed as appropriate to each required insurance policy on the certificate of insurance evidencing such coverage and the workers compensation policy must be specifically endorsed as such.

e. If requested by Licensor in writing, Licensee shall furnish certified copies of the aforementioned policies to Licensor's designated representative.

f. All insurance maintained by Licensee and/or its contractor(s) shall provide that insurance for the benefit of Licensor shall be primary and non-contributory. This provision must be specifically stated as applying to each required insurance policy on the certificate of insurance evidencing such coverage.

Licensee hereby releases from all responsibility, and waives any rights of recovery against, Licensor and its respective board members, officers, agents, attorneys, employees, successors, assigns and representatives, tenants, subtenants, contractors, subcontractors, licensees, invitees, bond trustees and mortgagees for damage to Licensee’s property, excepting for any such liability arising solely out of the gross negligence or intentional misconduct of Licensor, its officers, agents, employees, or contractors, acting within the scope of their agency or employment, and such release and waiver shall apply whether or not such damage is covered by insurance. Licensee shall cause any of its contractors or invitees who will enter upon the Licensed Area and conduct activities pursuant to this

License, to provide the same release and waiver prior to their entry upon or use of the Licensed Area pursuant to this License.

13. Qualifications and Compliance with Applicable Laws

Licensee covenants that it is qualified to occupy and use the Licensed Area for the Permitted Uses and has obtained all requisite approvals, licenses, permits, and the like for such Permitted Uses. Licensee shall provide Licensor with a copy of all such approvals, licenses, permits, or the like, which are incorporated by reference herein.

Throughout the Term of this License, Licensee shall comply with all applicable federal, state, and local laws, rules, regulations, ordinances, by-laws, and permits, which in any manner affect this License and/or apply to the Licensed Area and its use and/or those engaged or employed by Licensee. Without limiting any other indemnity obligations in this License, Licensee shall indemnify, defend, and hold harmless Licensor, its members, officers, employees, contractors, subcontractors, agents, and representatives from all fines, penalties and liabilities imposed on Licensor under any such laws, rules, and regulations, when the imposition of same is attributable to the failure of Licensee to keep fully informed and to comply with Licensee's obligations in this regard. The terms and provisions of this Section 13 shall survive the expiration or termination of this License.

14. Transfer and Assignment

Licensee shall not mortgage, sublicense, sublet, transfer, or assign any of its rights or interests in the Licensed Area or in this License, nor shall Licensee record this License. Notwithstanding the foregoing, nothing in this Section 14 or this License shall be construed to prevent Licensee from entering into contracts or other agreements with third parties for the operation, management, and maintenance of the Licensed Area for the benefit of Licensee, but, notwithstanding any such contracts or other agreements, Licensee shall remain solely liable to Licensor for the fulfillment of its obligations under this License. Licensee shall be wholly responsible for any and all actions of third parties under any such contracts or other agreements, and Licensee shall indemnify, defend, and hold harmless Licensor in the event of any dispute arising out of any such contracts or other agreements.

15. Attachment Prohibited

Licensee is not authorized to permit and shall not permit any liens, mortgages, or other security interests for any purpose to be attached to the Licensed Area in connection with Licensee's use of, occupancy of and/or activities in, around, or near the Licensed Area under this License, including without limitation any repairs, renovations, alterations, additions, betterments, fixtures, and/or improvements to the Licensed Area. Licensee shall, upon request of Licensor, furnish such waivers of any liens, mortgages, and/or any other security interests, as Licensor may require and in a form that is satisfactory to Licensor. Licensee shall, upon the request of Licensor, furnish such surety bonds as Licensor may request and require, as it relates to said waivers. In the event that any liens, mortgages, or other security interests is attached to the Licensed Area or any part thereof or improvement thereto, Licensee shall forthwith cause such liens, mortgages, and/or security interests to be released

of record without cost to Licensor.

16. Notice

Unless otherwise specified, any notice hereunder shall be in writing and shall be deemed delivered when given in person to either Party or deposited with Federal Express or other recognized commercial overnight carrier, fees prepaid and marked for next day earliest morning delivery without the requirement of a signature for delivery, and addressed as follows:

To Licensor:	Massachusetts Department of Transportation Office of Real Estate and Asset Development 10 Park Plaza, Suite 5720 Boston, MA 02116 Attn: Director of Real Estate
With copies to:	Massachusetts Department of Transportation Highway Division, District 6 185 Kneeland Street Boston, MA 02111 Attn: District Highway Director
and to:	Massachusetts Department of Transportation Office of the General Counsel 10 Park Plaza, Suite 3510 Boston, MA 02116 Attn: General Counsel
To Licensee:	Local #103, I.B.E.W. Building Corporation 256 Freeport Street Boston, MA 02122 Attn: Louis J. Antonellis

Licensor and Licensee shall, at any time and from time to time, have the ability to update addresses, or point of contacts for purposes of this License, giving twenty-four (24) hours written notice thereof to the other Party.

17. Termination and Default

This License is not an interest in real estate. This License is at the pleasure and discretion of the Licensor and, in addition to any other revocation rights of the Licensor provided in this License, is revocable at any time immediately upon written notice from the Licensor to Licensee. Licensee waives any statutory notices and other legal process relating to tenancies and acknowledges that Licensee is not a tenant of the Licensed Area and has no property or possessory rights in or to the Licensed Area, but only a revocable license to enter onto the Licensed Area for temporary use. Licensee shall vacate the Licensed Area and return to the Licensor on the date of revocation or termination. Licensee shall remove

all improvements from the Licensed Area, including but not limited to the asphalt paving and shall leave the Licensed Area in as good condition as of the date of this License (reasonable wear and tear and casualty and condemnation excepted). Upon the effective date of any revocation or termination of this License, Licensee shall have no further rights in or access to the Licensed Area, and the Licensor shall continue to have possession of the Licensed Area with the right to re-license or lease the same to any party. Licensee acknowledges that time is of the essence in vacating the Licensed Area at the expiration of the Term.

In the event that Licensee shall neglect or fail to pay any sum herein specified to be paid upon the due date hereunder or fails to perform or observe any of the other covenants or agreements contained in this instrument and on its part to be performed or observed, Licensee shall be in Default and the Licensor shall have the right at any time to terminate this License immediately upon written notice and/or apply the Security Deposit, as detailed in Section 4 ("Default").

In the event this License is terminated pursuant to a Default, the Licensor shall retain the Security Deposit and Annual License Fee as partial damages, without prejudice to its right to claim additional damages as a result of the breach.

18. Nondiscrimination.

Licensee shall not discriminate against any person, employee or applicant for employment because of race, color, creed, national origin, age, sex, sexual orientation, disability or military veteran status in its activities at the Licensed Area, including without limitation, the hiring and discharging of employees, the provision or use of services and the selection of suppliers, contractors, or subcontractors.

Licensee shall not exclude from, or deny use of the Licensed Area or the services provided thereon to any person on the grounds of race, color, creed, national origin, age, sex, sexual orientation, disability or military veteran status.

Consistent with the law, Licensee shall use reasonable efforts to contact, encourage and utilize minority and female business enterprises in the procurement of materials and service under this License.

With respect to its exercise of all rights and privileges herein granted, Licensee shall undertake affirmative action as required by federal and state laws, rules and regulations pertinent to Civil Rights and Equal Opportunity unless otherwise exempted therefrom. Licensee agrees that it shall comply with any and all required affirmative action plans submitted pursuant to the directives of any federal agency and in accordance with applicable Federal law and applicable state laws, rules and regulations.

19. Licensee's Certification

Licensee warrants the truth, accuracy, and completeness of the terms herein and in the Disclosure Statement under M.G.L. c. 7C, sec. 38 to be executed simultaneously with the

execution of this License by Licensee.

20. Amendments

No amendment to this License shall be effective unless it is in writing and signed by duly authorized representatives of both Parties. Any such duly executed amendment shall be incorporated into and made a part of this License.

21. Authorization

Licensee and Licensor each represents that it has taken all necessary actions to enter into this License and that the person signing below has been authorized to do so on its behalf.

22. Choice of Law

This License has been made in, and shall be construed under and governed by the laws of the Commonwealth of Massachusetts. The Parties agree to commence any action arising to which Licensee and Licensor are parties in the Superior Court Department of the Trial Court, Suffolk County, and in no event shall the Parties bring an action in a court outside the Commonwealth of Massachusetts.

23. Headings and Interpretations

The headings used herein are for reference and convenience only and shall not be a factor in the interpretation of this License. All terms contained herein shall be construed, whenever the context of this License requires, so that the singular number shall include the plural, and the plural the singular, and the use of any gender shall include all genders.

24. Entire Agreement

The terms of this License are intended by the Parties as the entire agreement between them on the subject matter herein and such terms may not be contradicted by evidence of any prior agreement or contemporaneous oral agreement.

25. Waiver

The obligations and conditions imposed by this License can be waived only by written agreement. The one-time waiver of any obligation, condition or breach of the terms hereof shall not be construed to be a continuing waiver thereof.

26. Severability

If any part of this License is declared or found to be illegal, void, or unenforceable, then both Parties shall be relieved of all obligations under that provision. The remainder of this License shall be enforced to the fullest extent permitted by law.

27. Exhibits

The following exhibits indicated below are attached hereto and incorporated by reference herein and are made a part of this License for all purposes:

Exhibit A — Plan of Licensed Area
Exhibit B — Insurance Certificates

[*Signature page follows*]

IN WITNESS WHEREOF, Licensor and Licensee have caused this License to be executed under seal by their duly authorized officers as of the date first above written.

LICENSOR:

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION

By: DocuSigned by: Scott H. Bosworth E2F2D0161A904D2...
Name: Scott H. Bosworth
Title: Undersecretary

LICENSEE:

LOCAL #103, I.B.E.W. BUILDING CORPORATION

By: Louis J. Antonellis
Name: Louis J. Antonellis
Title: Business Manager/Financial Secretary

LUCAS ENVIRONMENTAL, LLC

SECTION II – PROJECT NARRATIVE

1.0 INTRODUCTION

On behalf of Local IBEW Educational Corporation (Applicant), and in association with Howard Stein Hudson (HSH), Lucas Environmental, LLC (LE) is pleased to submit this Notice of Intent (NOI) to the Boston Conservation Commission for the proposed parking improvements at Freeport Street (Parcel 1600008002) in the Dorchester neighborhood of Boston, Massachusetts. The proposed work includes the construction of parking areas with associated stormwater improvements and grading. The proposed work will occur within the 100-Foot Buffer Zone of two Isolated Vegetated Wetlands regulated under the City of Boston Ordinance Protecting Local Wetlands and Promoting Climate Change Adaptation in the City of Boston (Chapter VII) (the "Ordinance"). This NOI is submitted in accordance with the Ordinance and the City of Boston Wetlands Regulations.

The proposed parking improvements are critical to the operation of the IBEWs school and training facilities. The IBEW has gained 2,000 new members in the past five years and currently have over 1,600 full time day school students and apprentices. The IBEW has partnered with MassDOT by establishing a long-term lease agreement to create additional parking on the subject parcel. This project will help IBEW stay committed to its longstanding goal of providing Greater Boston with the best trained, most efficient, safest electricians and telecommunications specialists, with a focus on learning and developing some of the most innovative energy efficient technologies related to solar and wind power.

This project narrative describes the existing conditions, wetland resource areas, proposed design, project impacts, and regulatory compliance for work within jurisdictional areas on the site. The proposed project is depicted on the enclosed permitting titled "Site Preparation Plan", prepared by Howard Stein Hudson, dated March 15, 2022.

2.0 EXISTING CONDITIONS

The property is an approximate 1.9-acre parcel located at Freeport Street in the Dorchester neighborhood of Boston, Massachusetts (See Figure 1 – USGS and Figure 2 – Aerial Map). The property is bound by a private driveway and service garage to the north and west, the Southeast Expressway (I-93) to the east, and the IBEW property to the south. The upland areas consists of fill material vegetated by a denes thicket of upland plant species such as black cherry (*Prunus serotina*), catalpa (*Catalpa speciosa*), staghorn sumac (*Rhus typhina*), Japanese knotweed (*Lonicera japonica*), multiflora rose (*Rosa multiflora*), red cedar (*Juniperus virginiana*), Tatarian honeysuckle (*Lonicera tatarica*), oriental bittersweet (*Celastrus orbiculatus*), European privet (*Ligustrum vulgare*), bittersweet nightshade (*Solanum dulcamara*), garlic mustard (*Alliaria petiolata*) and poison ivy (*Toxicodendron radicans*).

A review of the current MassGIS data layer for the Massachusetts Natural Heritage Atlas (effective August 1, 2021) under the Natural Heritage & Endangered Species Program (NHESP) indicates that no portion of the Study Area is located within Estimated Habitat of Rare Wildlife or Priority Habitat of Rare Species (See Figure 3 – NHESP Map). No Certified or Potential Vernal Pools under the jurisdiction of the Wetlands Protection Act Regulations (310 CMR 10.00 et seq.) or the Massachusetts Endangered Species Act (321 CMR 10.00 et seq.) are mapped by NHESP in the Study Area.

According to the March 16, 2016 FEMA Flood Insurance Rate Maps (FIRM) for Suffolk County, Massachusetts, Map Number 25025C0091J, the Study Area is located within Zone X, which is classified as areas outside the 0.2% annual chance floodplain (500-year floodplain). Therefore, Bordering Land Subject to Flooding and Land Subject to Coastal Storm Flowage (100-year floodplain) do not exist within the Study Area (See Figure 4 – FEMA Map).

The Study Area is not located within an Area of Critical Environmental Concern (ACEC), Outstanding Resource Water (ORW), or MassDEP Wellhead Protection Area.

3.0 WETLAND RESOURCE AREAS

A Professional Wetland Scientist (PWS) from LE completed a site walk within the Study Area and immediately surrounding areas on June 10, 2020. The wetland investigation was performed in accordance with the Massachusetts Wetlands Protection Act (M.G.L. Ch. 131, § 40) and regulations (310 CMR 10.00 et seq.); Section 404 of the Clean Water Act (33 U.S.C. 1344); Massachusetts Department of Environmental Protection (MassDEP) publication "Delineating Bordering Vegetated Wetlands" under the Massachusetts Wetlands Protection Act (1995); the U.S. Army Corp of Engineers (USACE) Wetland Delineation Manual (1987); the Northcentral and Northeast Regional Supplement (2012); and the Ordinance.

The following data sources were examined prior to the site investigation:

- FEMA Flood Insurance Rate Maps
- United States Geological Survey Topographic Quadrangle;
- MassGIS MassDEP Wetland and Hydrography Datalayers;
- MassGIS Natural Heritage Atlas Datalayers; and
- United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) Soil Survey.

The resource areas delineated within the project site include two Isolated Vegetated Wetlands regulated under the Ordinance. Engineering calculations performed by HSH determined that Isolated Land Subject to Flooding (ILSF) as defined by the WPA and Ordinance also occurs on the property. Under the WPA and Ordinance, the resource areas are regulated as follows.

1.1 Isolated Land Subject to Flooding – 310 CMR 10.57 & 7-1.4(b) of Ordinance

Section 310 CMR 10.57(2)(b) of the WPA defines ILSF as *an isolated depression or closed basin without an inlet or an outlet. It is an area which at least once a year confines standing water to a volume of at least ¼ acre-feet and to an average depth of at least six inches.*

The ISLF is described below.

1.2 Isolated Vegetated Wetland – 7-1.4(b) of Ordinance

Section 7-1.4(b) of the Ordinance defines IVW as *freshwater wetlands, of at least one thousand (1,000) square feet in area that do not border on creeks, rivers, streams, ponds or lakes. The types of Isolated Vegetated Wetlands include wet meadows, marshes, swamps and bogs. In addition to the minimum size requirement, Isolated Vegetated Wetlands must also meet the definition of Bordering Vegetated Wetlands (310 CMR 10.55(2)) with the exception that these wetlands do not border any creeks, rivers, streams, ponds, lakes or other water bodies. The boundaries of Isolated Vegetated Wetlands are the same as those for Bordering Vegetated Wetlands as defined in 310 CMR 10.55 (2)(c).* The IVW is described below.

1.3 Resource Area Descriptions

The following section briefly characterizes the wetland resource area identified on-site. Representative photographs are included in Appendix A. Wetland Delineation Field Data Forms were completed for the wetland described below and are attached in Appendix E.

Wetland A

Wetland A is a large IVW located in the southern portion of the parcel, landward of the IBEW parking lot. Wetland A was delineated with pink survey tape numbered sequentially from WFA-1 to WFA-22. The wetland is an emergent marsh vegetated by a monoculture of common reed (*Phragmites australis*). The perimeter of the marsh transitions into a scrub shrub wetland community vegetated by a mix of green ash (*Fraxinus pennsylvanica*), common elderberry (*Sambucus canadensis*), serviceberry (*Amelanchier canadensis*), pussy willow (*Salix bicolor*), jack-in-the-pulpit (*Arisaema triphyllum*), and poison ivy.

Soils within the wetland generally consist of a very shallow or non-existent mineral fill layer underlain by clay. The wetland/upland boundary corresponds with a topographic break in slope from the fill and the transition to a non-hydrophytic plant community, and absence of hydric soils/wetland hydrology. Soils in the upland consist of deeper fill layer which allows for a dominance of upland plant species. Local and federal boundaries are coincident. Indicators of wetland hydrology include evidence of shall surface water inundation, and shallow soil saturation within interior portions of the wetland. There are no internal creeks, rivers, streams, ponds or lakes that would make this wetland area a "Bordering Vegetated Wetland" under the WPA Regulations.

Wetland B

Wetland B is an IVW located in the northern portion of the parcel. Wetland B was delineated with pink survey tape numbered sequentially from WFB-1 to WFB-15. The wetland is an emergent marsh vegetated with a mix of wetland and upland plant species such as common elderberry, pussy willow, catalpa (*Catalpa speciosa*), staghorn sumac, rough stemmed goldenrod (*Solidago rugosa*), common reed, Canada thistle (*Cirsium arvense*), American pokeweed (*Phytolacca americana*).

Soils and topography within the wetland are irregular due to the previous fill. Soils vary throughout the wetland; however, generally consist of a mineral fill layer of varying depth overlying clay. Indicators of wetland hydrology include evidence of shall surface water inundation, and shallow soil saturation within interior portions of the wetland. Groundwater was not encountered the day of the site visit.

There are no internal creeks, rivers, streams, ponds or lakes that would make this wetland area a "Bordering Vegetated Wetland" under the WPA Regulations.

ILSF Discussion

To qualify as ILSF, the area must meet two criteria as defined in the WPA Regulations (310 CMR 10.57(2)(b)). First the isolated wetland must be an isolated depression or closed basin without an inlet or an outlet. Second, at least once a year, the wetland must confine standing water to a volume of at least ¼ acre-feet to an average depth of at least six inches. In 1985 MassDEP also issued a program policy (DWW Policy 85-2) to assist engineers and consultants with interpreting the definition of ILSF and calculating the boundary of ILSF. In accordance with MassDEP Policy 85-2 on ILSF, a portion of the IVW meets the first criteria as an isolated basin with a restrictive outlet.

Engineering calculations are necessary to determine if the area contains the volume of water necessary to be regulated as ILSF. ILSF calculations were prepared by HSH in accordance with the above-mentioned definition and guidance documents. HSH determined the boundary of the ILSF extends to an elevation of 14.67 feet (City of Boston Datum) on the property. HSH also determined the area holds greater than a ¼-acre-foot with the volume of the area equal to 33,615 cubic feet, with average depths greater than six inches. Therefore, the area below elevation 14.67 qualifies as ILSF per the definitions under the WPA.

4.0 PROPOSED WORK

The proposed work includes the construction of parking areas with associated grading and stormwater improvements within the 100-Foot Buffer Zone of two Isolated Vegetated Wetlands. There is no work proposed within ILSF or the IVW areas. The project proposes the construction of two parking lots that provide parking for 67 vehicles. The northern parking lot will consist of asphalt paving while the southern lot consists of porous pavement. A retaining wall is proposed along the access driveway to reduce the limit/extent of grading needed. The parking areas will be surrounded by chain link fencing. Solar/wind powered light posts will be installed to eliminate the need for electrical utility conduit installation.

This narrative has been prepared to describe the means and methods associated with the proposed work and address compliance with applicable performance standards that exist for protected areas within which work is proposed. The proposed work is located within the 100-Foot Buffer Zone to IVW regulated under the Ordinance. No work is proposed within actual wetland resource areas.

Overall, the project will result in a total of 16,640 square feet of impervious area. Stormwater generated from the project will be treated on-site. There will be no discharge to off-property wetlands or City drainage. The proposed stormwater management system consists of stone and sod pretreatment, sediment forebays, porous pavement, and infiltration basin.

Compliance with Ordinance

Presently, the Ordinance does not list any performance standards specific to work only within the 100' Buffer Zone and the Ordinance lacks regulations that include specific performance standards for activities within the 100' Buffer Zone. The Ordinance at Section c) which discusses jurisdiction states that *"...Buffer Zone is presumed important to the protection of the resource area because activities undertaken in close proximity to resource areas have a reasonable probability of adverse impact upon the wetland or other resource, either immediately, as a consequence of construction, or over time, as a consequence of daily operation or existence of the activities. These adverse impacts from construction and use can include, without limitation, erosion, silt at ion, loss of groundwater recharge, degraded water quality, loss of wildlife habitat, degradation of wet land plant habitat, alteration of hydrology, soil contamination, and proliferation of invasive plants*."

The means and measures to protect the adjacent wetland resources and to mitigate project impacts include the installation of an erosion control barrier comprising entrenched silt fence fronted by compost sock at the limit of work as shown on the Site Plan and the installation of drain inlet protect ion (e.g., silt sacks) in all catch basins proximate to the subject lot. The erosion control barrier will serve as the limit of work; no work will occur on the resource area side of the erosion control barrier. The erosion control measures will be installed prior to any other work on the site, will be maintained throughout construction, and will be removed at the end of the proposed work after the site is stabilized. The proposed retaining wall along the driveway will serve to limit steep slopes. This retaining wall also serves as a true physical demarcation to limit potential future expansion.

The construction equipment and materials involved will be typical of parking lot construction and all equipment and materials access will be directly from the existing IBEW parking lot. It is anticipated work will begin upon permit approval and may last two to three months. The generalized construction sequence for the proposed project, subject to modification, is as follows:

1. Install erosion control barrier as shown on the Site Plan; install silt sacks in nearby catch basins; maintain extra supply of erosion control materials;
2. Clear and grub work area; rough grade the work area;
3. Grade for proposed retaining wall; install rear retaining wall; backfill to the wall;
4. Install stormwater infiltration systems with associated drainage lines;
5. Grade site; rough-out proposed driveway and parking lots;
6. Install driveway base;
7. Complete driveway and parking lot paving;
8. Complete final site grading/loam; seed or hydroseed;
9. Install chain link fencing and light post; and
10. Once site is stable, request permission to remove the erosion control barrier.

Stormwater

To mitigate project impacts post-construction, two stormwater infiltration systems are proposed to be installed on the site that will recharge rainfall over all impervious surfaces on the site. The proposed stormwater management system has been designed to meet the requirements as set forth by the standards of MassDEP and the Boston Water and Sewer Commission (BWSC). The proposed stormwater system will remove 80% of total suspended solids (TSS). The project will not result in new untreated discharges, and the proposed parking areas will not discharge to the City of Boston municipal stormwater system.

Runoff control, water quality improvement, and groundwater recharge will be accomplished by implementing the following drainage improvements:

- Collect storm runoff will discharge to an infiltration system and porous pavement to achieve 80% of TSS removal.
- Reduce peak discharge rates for the 2- and 10-year storm.
- Implement a Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan to control erosion, sedimentation and other construction related impacts during construction.
- Implement a Post Construction Operation and Maintenance (O&M) Plan for the proposed stormwater management system that describes the various components of the system, identifies inspection and maintenance tasks, and provides a schedule to follow which will ensure the proper, long-term, post-construction performance of the system.
- Implement a Long-Term Pollution Prevention Plan (LTPPP) as part of the O&M Plan to prevent illicit discharges to the stormwater management system.

The proposed Post Construction Operation and Maintenance (O&M) Plan included in the Stormwater Management Report outlines procedures and time tables for the long-term operation and maintenance of the proposed site stormwater management system, including initial inspections upon completion of construction, and periodic monitoring of the system components in accordance with established practices and manufacturer's recommendations. The O&M Plan includes a list of responsible parties associated with inspections and maintenance.

In addition, a stabilized construction entrance will be installed at each of the proposed parking lot locations. The construction entrance will consist of 1-½-inch crushed stone placed 12-inches deep. The construction entrance will be 24-feet in width and 50-feet in length. The entrance will be maintained in a condition that will prevent tracking or flowing of sediment onto the surrounding area. The entrance will be inspected regularly in accordance with the Stormwater Pollution Prevention Plan (SWPPP) and after significant rainfall events. Any mud or sediment tracked onto adjacent areas will be removed immediately.

Erosion and sedimentation control Best Management Practices (BMPs) have been incorporated into the project design in order to control runoff and prevent siltation to the wetland resource area during construction (See Site Plans). At the outset of the construction, the site limit of work will be staked, and erosion controls will be installed.

5.0 CLIMATE CHANGE AND RESILIENCY

This section assesses how climate change will impact the entire property regardless of whether climate change will have an immediate impact on the project in the proposal.

Sea Level Rise and Changes in Coastal and Stormwater Flooding

The site is not located within Land Subject to Coastal Storm Flowage and has no connection with Dorchester Bay. The Climate Ready Boston Map Explorer Tool was used to determine if future flooding impacts may occur on the project site based on current sea-level rise projections through 2070. The Explorer Tool determined the site will not experience any coastal flooding impact based on current sea-level rise projections through 2070. Accordingly, consideration of long-term sea level rise and changes in coastal and stormwater flooding are not applicable to this site use.

Extreme Precipitation Events and Changing Precipitation Patterns

The project is subject to stormwater management standards based on the proposed impervious area. Therefore, the resulting required recharge volume for the infiltration system is one-inch per square foot of impervious area, which has been provided in the stormwater design. The project area does not discharge to off-property areas, therefore will not contribute to off-site flooding impacts from extreme precipitation patterns.

Heat Island Effect

The proposed project will result in an increase of impervious area and removal of vegetated areas. This increase in impervious area designates that the proposed project is not anticipated to have an impact on heat island effect as the project area is surrounded by impervious surface on all sides.

6.0 SUMMARY

The proposed project consists of the construction of much needed additional parking areas with associated grading and stormwater improvements. Portions of the proposed work will occur within the 100-Foot Buffer Zone to Isolated Vegetated Wetlands.

The Project will include new water quality and quantity controls designed to protect surface and groundwater resources and adjacent properties from potential impacts resulting from the proposed project. The proposed work will not have any adverse effect on any interests identified in the Ordinance and the project is designed to minimize adverse effects on the resource areas as follows:

- The proposed project includes the installation of a stormwater management system designed in accordance with the MassDEP standards.
- Erosion controls will be installed as noted on the Site Plans.
- No work is proposed within any wetland resource areas, including floodplain.

The proposed design achieves the goals of the Applicant, while being sensitive to adjacent regulated resource areas. Accordingly, the Applicant respectfully requests that the Boston Conservation Commission consider a finding that the proposed design is adequately protective of the interests identified in the Wetlands Protection Act and City of Boston Ordinance and issue an Order of Conditions approving the project as described in this Notice of Intent and as shown on the attached Site Plans.

LUCAS ENVIRONMENTAL, LLC

SECTION III – FIGURES

Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs; USGS Color Topographic Quadrangle

N

0 500 1,000 2,000 Feet

USGS Map

Local IBEW Educational Corporation
Freeport Street
Boston, MA

FIGURE 1

LUCAS ENVIRONMENTAL, LLC

Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs; USGS Color Ortho Imagery - 15cm (2019)

N

0 25 50 100 Feet

Aerial Map

Local IBEW Educational Corporation
Freeport Street
Boston, MA

FIGURE 2

LUCAS ENVIRONMENTAL, LLC

Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs; USGS Color Ortho Imagery - 15cm (2019)

N

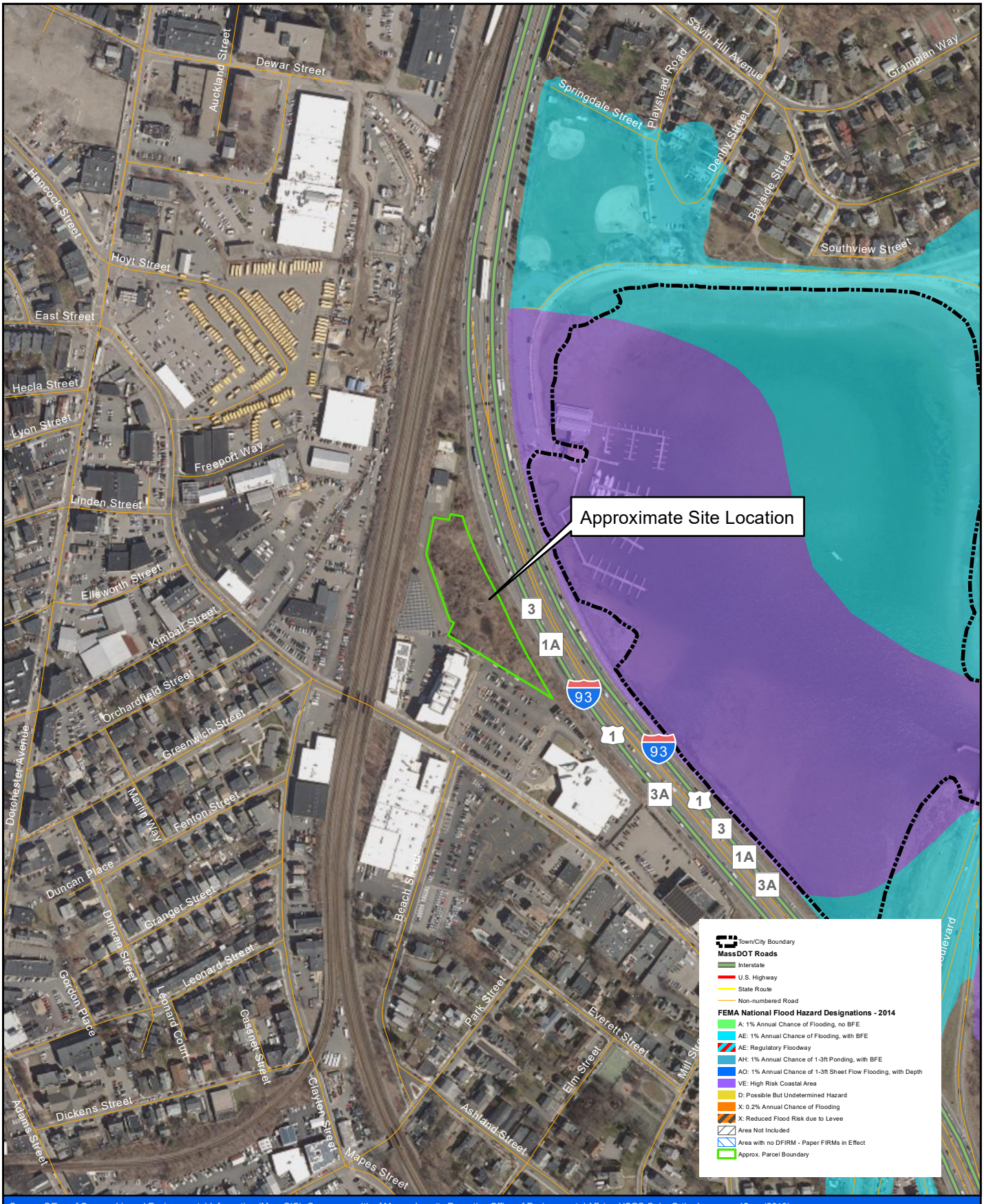
0 500 1,000 2,000 Feet

NHESP Map

Local IBEW Educational Corporation
Freeport Street
Boston, MA

FIGURE 3

LUCAS ENVIRONMENTAL, LLC



Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs; USGS Color Ortho Imagery - 15cm (2019)

N

0 125 250 500 Feet

FEMA Map

Local IBEW Educational Corporation
Freeport Street
Boston, MA

FIGURE 4

LUCAS ENVIRONMENTAL, LLC

SECTION IV – APPENDICES

LUCAS
ENVIRONMENTAL, LLC

APPENDIX A

PHOTOGRAPHIC DOCUMENTATION

PHOTOGRAPHIC DOCUMENTATION

DATE: June 10, 2020

Photograph 1: Wetland A viewed from adjacent paved parking area.

Photograph 2: Wetland A, viewed from the adjacent highway shoulder.

Photograph 3: Upland area adjacent to Wetland A.

Photograph 4: Wetland B, viewed from the adjacent highway shoulder.

Photograph 5: Wetland B, viewed from the adjacent highway shoulder.

Photograph 6: Upland area adjacent to Wetland B.

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ENVIRONMENTAL, LLC

APPENDIX B

ABUTTER INFORMATION

City of Boston
Environment

CITY of BOSTON
Conservation Commission

NOTIFICATION TO ABUTTERS
BOSTON CONSERVATION COMMISSION

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

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

B. The address of the lot where the activity is proposed is Freeport Street (IBEW Parcel 1600008002).

C. The project involves The construction of parking areas and associated grading and drainage within the 100-Foot Buffer Zone to Isolated Wetlands.

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

E. Copies of the Notice of Intent may be obtained from Lucas Environmental, LLC by contacting them at 617.405.4053; tel@lucasenviro.com between the hours of 8:00 am to 5:00 PM, Monday - Friday.

F. In accordance with the Chapter 20 of the Acts of 2021, the public hearing will take place **virtually** at https://zoom.us/j/6864582044. If you are unable to access the internet, you can call 1-929-205-6099, enter Meeting ID 686 458 2044 # and use # as your participant ID.

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

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

NOTE: Notice of the public hearing, including its date, time, and place, will be posted on www.boston.gov/public-notices and in Boston City Hall not less than forty-eight (48) hours in advance. If you would like to provide comments, you may attend the public hearing or send written comments to CC@boston.gov or Boston City Hall, Environment Department, Room 709, 1 City Hall Square, Boston, MA 02201

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

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

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

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

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

A. **Corporación educacional local de IBEW (Local IBEW Educational Corporation)** ha presentado una solicitud a la Comisión de Conservación de Boston pidiendo permiso para modificar una zona sujeta a protección en virtud de la Ley de protección de los humedales (Leyes generales, capítulo 131, sección 40) y la Ordenanza sobre los humedales de Boston.

B. La dirección del lote donde se propone la actividad es **Calle Freeport (Parcel 1600008002).**

C. El proyecto consiste en **la construcción de áreas de estacionamiento y escultura, y drenaje asociado dentro de los 100 pies de la zona de protección hacia el humedal.**

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

E. Las copias de la notificación de intención pueden obtenerse en **Lucas Environmental, LLC al contactarlos al 617.405.4053; tel@lucasenviro.com** entre las 8:00 AM hasta las 5:00 PM, lunes - viernes.

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

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

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

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

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

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

MAPA Translations, Inc
216 Concord Rd
Wayland, MA 01778
contact@mapatranslation.com
www.mapatranslation.com

Affidavit of Authenticity

The undersigned, **MAPA Translations, Inc.,** hereby states as proof that the below translation provided to **Lucas Environmental, LLC** is a certified translation:

0304/2022 Spanish Translation

Client: Lucas Environmental, LLC
Division: City of Boston
Project: City of Boston Environment (Boston Conservation Commission)
Document: Notification to Abutters
Word Count: 489
Requested by Thomas Liddy on 3-3-2022
Job Number: MAR2022-080

I declare, to the best of my knowledge and belief, the information herein is true, correct, and complete.

Name: Drita Protopapa

Date: March 4, 2022

Signature: Drita Protopapa

BABEL NOTICE

English:

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

Spanish:

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

Haitian Creole:

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

Traditional Chinese:

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

Vietnamese:

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

Simplified Chinese:

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

CITY of BOSTON

Cape Verdean Creole:

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

Arabic:

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

Russian:

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

Portuguese:

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

French:

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

CITY of BOSTON

300-Foot Abutters List - March 2, 2022							
Parcel ID	**Abutter Address**	**CITY**	**Owner**	**Mailing Address**	**Town**	**State**	**Zip Code**
1600008002	FREEPORT ST	DORCHESTER	MASS DOT	10 PARK PLAZA	BOSTON	MA	02116
1600002000	WM T MORRISSEY BL	DORCHESTER	MASS DOT	10 PARK PLAZA	BOSTON	MA	02116
1302220000	SAVIN HILL AV	DORCHESTER	MASS DOT	10 PARK PLAZA	BOSTON	MA	02116
1302238002	SPRINGDALE ST	DORCHESTER	DOR YACHT CLUB INC LESSEE	110 BREEDS HILL RD SUITE 7	HYANNIS	MA	02601
1600008010	FREEPORT ST	DORCHESTER	LOCAL 103 IBEW EDUCATIONAL CORP.	256 FREEPORT ST	DORCHESTER	MA	02125
1302240000	RAILROAD ST	DORCHESTER	CITY OF BOSTON	1 CITY HALL SQUARE, ROOM 714	BOSTON	MA	02201
1600007000	256 FREEPORT ST	DORCHESTER	IBEW BUILDING CORPORATION	256 FREEPORT	DORCHESTER	MA	02122
1503093000	74 80 FREEPORT ST	DORCHESTER	NORTH DORCHESTER LLC MASS LLC	36 WESTWOOD ST	DORCHESTER	MA	02121
1600008001	FREEPORT ST	DORCHESTER	CITY OF BOSTON BY FCL	12 CHANNEL STREET, 9TH FLOOR	BOSTON	MA	02210
1503091000	150 FREEPORT ST	DORCHESTER	PETER JUNKOVIC	150 FREEPORT ST	DORCHESTER	MA	02125
1503095002	35 FREEPORT WY	DORCHESTER	NORTH DORCHESTER LLC A MASS LLC	36 WESTWOOD ST	DORCHESTER	MA	02121
1600009000	194 FREEPORT ST	DORCHESTER	LOCAL 103 IBEW EDUCATIONAL CORP	170 FREEPORT ST	DORCHESTER	MA	02122
1302239000	SPRINGDALE ST	DORCHESTER	DORCHESTER YACHT CLUB INC	110 BREEDS HILL RD SUITE 7	HYANNIS	MA	02601
1503092000	90 FREEPORT ST	DORCHESTER	NORTH DORCHESTER LLC MASS LLC	36 WESTWOOD ST	DORCHESTER	MA	02121
1600009001	170 FREEPORT ST	DORCHESTER	LOCAL 103 IBEW EDUCATIONAL CORP	170 FREEPORT	DORCHESTER	MA	02122
1503090000	FREEPORT ST	DORCHESTER	MASS DOT	10 PARK PLAZA	BOSTON	MA	02116

City of Boston
Environment

CITY of BOSTON
Conservation Commission

AFFIDAVIT OF SERVICE
FOR ABUTTER NOTIFICATION

Under the Massachusetts Wetlands Protection Act
and Boston Wetlands Ordinance

I, Christopher M. Lucas, hereby certify under pains and penalties of perjury that that at least one week prior to the public hearing, I gave notice to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, section 40, and the DEP Guide to Abutter Notification dated April 8, 1994, in connection with the following matter:

A Notice of Intent was filed under the Massachusetts Wetlands Protection Act and/or the Boston Wetlands Ordinance by IBEW Educational Corporation for the construction of parking areas with associated grading and drainage within the 100-foot Buffer Zone of Isolated Vegetated Wetlands. located at Freeport Street (Parcel 1600008002).

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

Christopher M. Lucas
Name

March 22, 2022
Date

UNITED STATES POSTAL SERVICE®

Certificate of Mailing — Firm

Name and Address of Sender	TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here *Postmark with Date of Receipt.*
Lucas Environmental, LLC 500A Washington Street Quincy, MA 02169	6/8	8 X	 
	Postmaster, per *(name of receiving employee)* x Michael Barba		

USPS® Tracking Number / Firm-specific Identifier	Address	Postage	Fee	Special Handling	Parcel Airlift
1.	MASS DOT 10 Park Plaza Boston, MA 02116	.47			
2.	Dor Yacht Club Inc Lessee 110 Breeds Hill Rd Suite 7 Hyannis. MA 02061	.47			
3.	Local 103 IBEW Educational Corp 256 Freeport St Dorchester, MA 02125	.47			
4.	City of Boston 1 City Hall Square, Room 714 Boston, MA 02201	.47			
5.	North Dorchester LLC Mass LLC 36 Westwood Street Dorchester. MA 02121	.47			
6.	City of Boston by FCL 12 Channel Street, 9th Floor Boston, MA 02210	.47			

PS Form **3665**, January 2017 (Page 1 of 2) PSN 7530-17-000-5549

Total $ 2.82

See Reverse for Instructions

UNITED STATES POSTAL SERVICE®

Certificate of Mailing — Firm

Name and Address of Sender	TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here *Postmark with Date of Receipt.*
Lucas Environmental, LLC 500A Washington Street Quincy, MA 02169	2/8	8	
	Postmaster, per *(name of receiving employee)*		

USPS® Tracking Number Firm-specific Identifier	Address	Postage	Fee	Special Handling	Parcel Airlift
1.	Peter Junkovic 150 Freeport Street Dorchester, MA 02125	.47			
2.	Local 103 IBEW Educational Corp 170 Freeport Street Dorchester, MA 02122	.47			
3.					
4.					
5.					
6.					
		.94			

See Reverse for Instructions

LUCAS ENVIRONMENTAL, LLC

APPENDIX C

FILING FEE INFORMATION

LUCAS
ENVIRONMENTAL, LLC

CALCULATED FILING FEE STATEMENT

The proposed project is located at Freeport Street in Boston, Massachusetts. Proposed activities are included under the Notice of Intent Fee Category in the Boston Conservation Commission Guidelines.

Local Fees:

Category 2 = 1 x $300.00 = $300.00 under local Ordinance.
Total Local Fee = $300.00

Check Payable to: City of Boston for $300.00

LUCAS ENVIRONMENTAL, LLC

APPENDIX D

ILSF CALCULATIONS

TO:	City of Boston Conservation Commission	DATE:	March 18, 2022
FROM:	James Downing	HSH PROJECT NO.:	2019059.01
SUBJECT:	IBEW, 253 Freeport Street, Boston – ILSF Calculation		

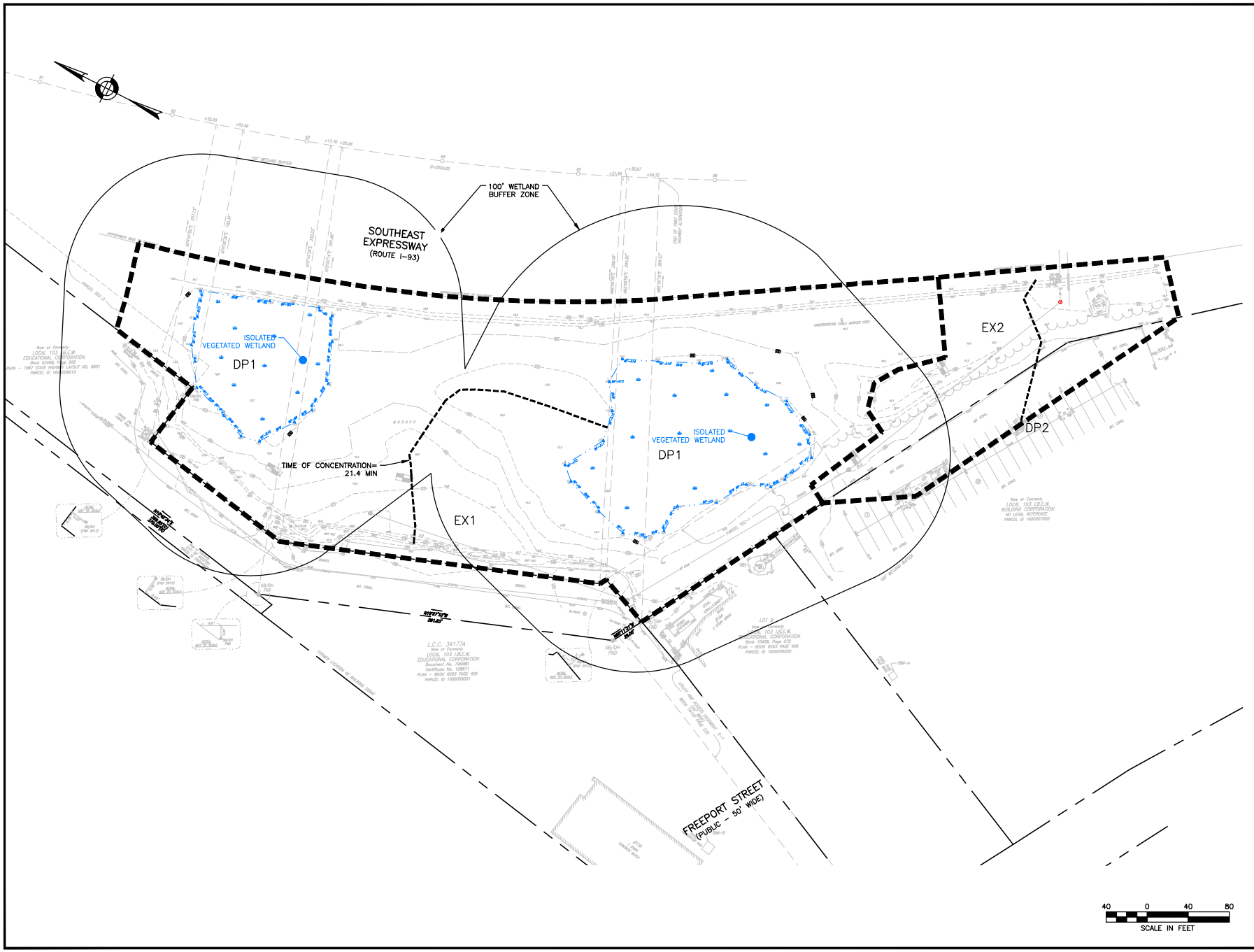
Isolated Land Subject to Flooding

Howard Stein Hudson performed an analysis for an area of land (site) located at the rear of 253 Freeport Street, Boston MA to determine if the it could be considered Isolated Land Subject to Flooding (ILSF). As defined in 310 CMR 10.57(2) (b)1. an Isolated Land Subject to Flooding (ILSF) is required once a year to contain a volume of ¼ acre feet (10,890 cf) at an average depth of six inches (0.5'). Our calculations show that the site does meet both requirements. Along with this determination, the elevation associated with the ILSF is 14.67' Boston City Base (BCB).

The site is an area of land which has two depressed isolated vegetated wetlands. A site walk and the review of all record plans determined that there is no outfall from this area. The area analyzed is shown as EX-1in the attached existing conditions hydrology plan.

The hydrology was analyzed with HydroCAD v 10.2, model using the procedures defined in 310 CMR 10.57 (2) (a) 3. a-c. The 100-year storm used in the analysis has a rainfall amount of 7.0 inches. This rainfall event was applied to the catchment area based on the existing conditions survey to determine the total volume of stormwater that remains with the depressed basins.

The HydroCAD analysis results are attached to the memo. The result of the analysis provided indicate that the peak elevation of the 100-year storm event is 14.67' BCB with approximately 33,615 cf of storage. Therefore this area exceeds both the required volume and depth requirements for it to be considered an IFSF per 310 CMR 10.57 (2)(b) 1.



HOWARD STEIN HUDSON
11 Beacon Street, Suite 1010
Boston, MA 02108
www.hshassoc.com

PREPARED FOR:

256 FREEPORT STREET
BOSTON, MA

REVISIONS:

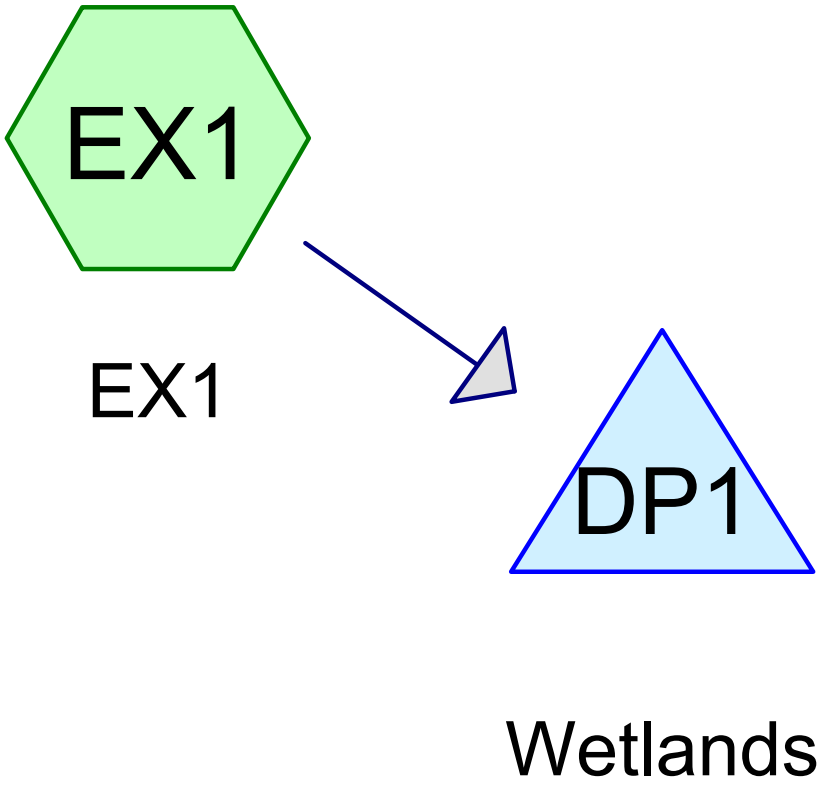
NO	BY	DATE	DESCRIPTION

NOT FOR CONSTRUCTION

EXISTING HYDROLOGY

DATE:	3/06/22
PROJECT NUMBER:	19059
DESIGNED BY:	RJM
DRAWN BY:	RJM
CHECKED BY:	JD

FIG 1



Subcat Reach Pond Link

Routing Diagram for ISLF
Prepared by Howard Stein Hudson Associates, Printed 3/18/2022

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.364	73	Woods, Fair, HSG C (EX1)
2.364	**73**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
2.364	HSG C	EX1
0.000	HSG D	
0.000	Other	
2.364		**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	0.000	2.364	0.000	0.000	2.364	Woods, Fair	EX1
0.000	**0.000**	**2.364**	**0.000**	**0.000**	**2.364**	**TOTAL AREA**	

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

SubcatchmentEX1: EX1 Runoff Area=102,960 sf 0.00% Impervious Runoff Depth>3.92"
Flow Length=237' Tc=21.4 min CN=73 Runoff=7.13 cfs 0.772 af

Pond DP1: Wetlands Peak Elev=14.67' Storage=33,615 cf Inflow=7.13 cfs 0.772 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 2.364 ac Runoff Volume = 0.772 af Average Runoff Depth = 3.92"
100.00% Pervious = 2.364 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment EX1: EX1

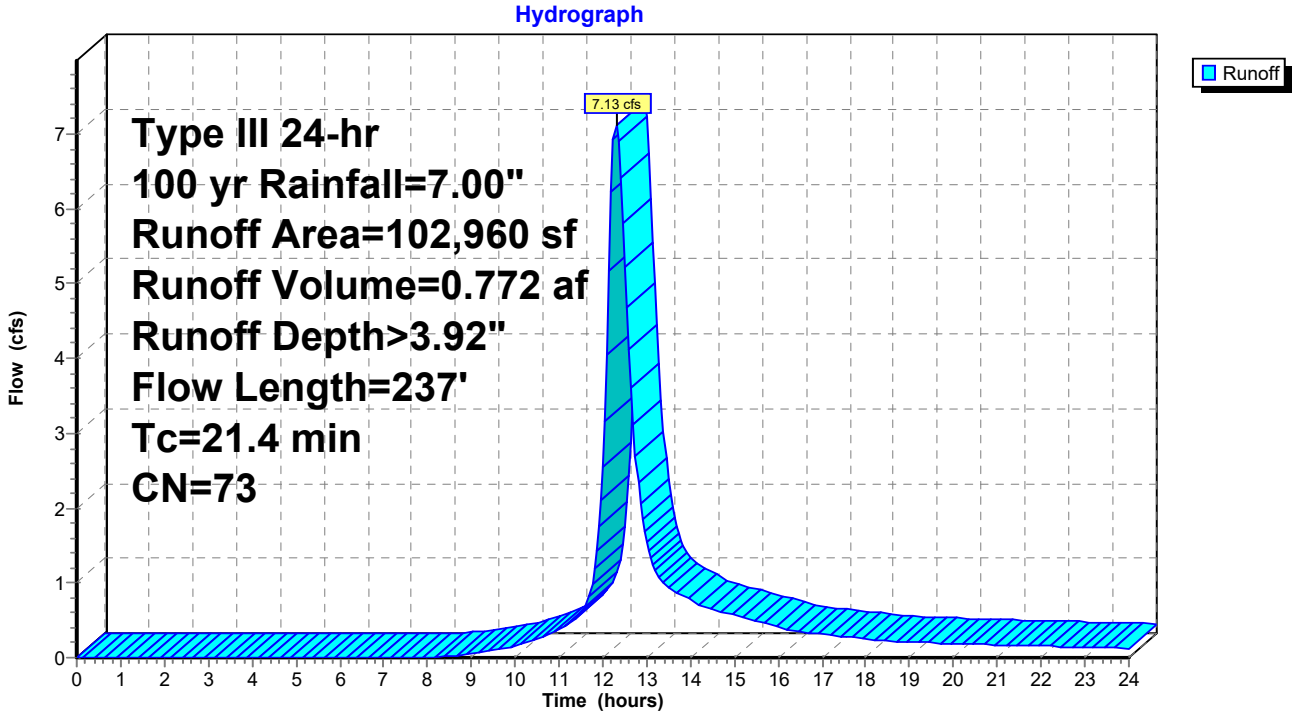
Runoff = 7.13 cfs @ 12.30 hrs, Volume= 0.772 af, Depth> 3.92"
Routed to Pond DP1 : Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 yr Rainfall=7.00"

Area (sf)	CN	Description
102,960	73	Woods, Fair, HSG C
102,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	50	0.0740	0.07		**Sheet Flow, Sheet Flow** Woods: Dense underbrush n= 0.800 P2= 3.26"
0.7	33	0.0240	0.77		**Shallow Concentrated Flow, Shallow Concentrated** Woodland Kv= 5.0 fps
0.4	28	0.0700	1.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.7	126	0.0030	0.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.4	237	Total			

Subcatchment EX1: EX1



Summary for Pond DP1: Wetlands

Inflow Area = 2.364 ac, 0.00% Impervious, Inflow Depth > 3.92" for 100 yr event
Inflow = 7.13 cfs @ 12.30 hrs, Volume= 0.772 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

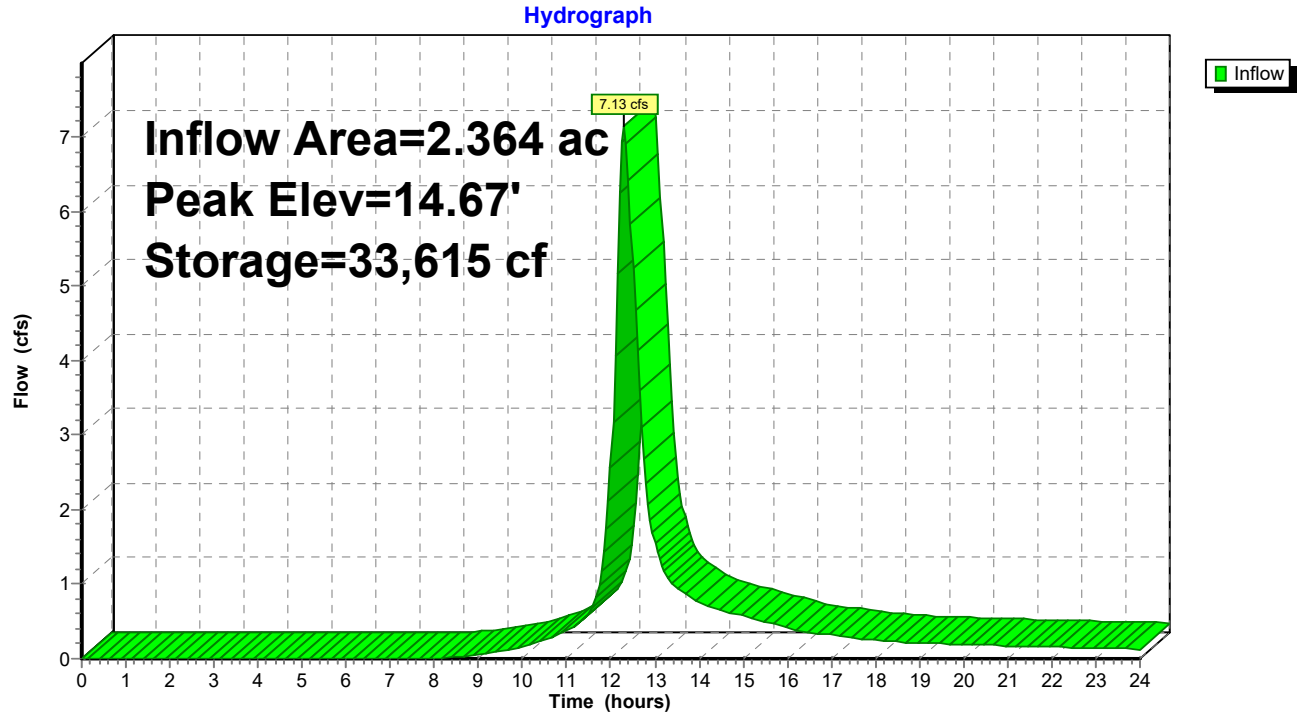
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 14.67' @ 24.00 hrs Surf.Area= 46,462 sf Storage= 33,615 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	13.75'	50,175 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.75	23,495	0	0
14.00	33,076	7,071	7,071
15.00	53,131	43,104	50,175

Pond DP1: Wetlands



LUCAS
ENVIRONMENTAL, LLC

APPENDIX E

WETLAND DETERMINATION FORMS

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Freeport Street (Parcel 1600008002) City/County: Boston/Suffolk Sampling Date: 6/10/2020

Applicant/Owner: IBEW Building Corporation State: MA Sampling Point: WFA-8 (wetland)

Investigator(s): Lucas Environmental, LLC Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Coastal plain Local relief (concave, convex, none): Concave

Slope (%): 10 Lat: 42.305369 Long: 71.054156 Datum: _____

Soil Map Unit Name: Urban land, wet substratum, 0 to 3 percent slopes NWI Classification: Palustrine Shrub-Scrub

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)

Are Vegetation ☐ Soil ☒ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐
Hydric Soil Present?	Yes ☒	No ☐	
Wetland Hydrology Present?	Yes ☒	No ☐	If yes, optional Wetland Site ID: _____

Remarks: (explain alternative procedures here or in separate report)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☒ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches)
Water Table Present?	Yes ☐	No ☒	Depth (inches)
Saturation Present? (include capillary fringe)	Yes ☒	No ☐	Depth (inches) 6

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants **Sampling Point:** WFA-8

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size:30 ft)			
1. Absent			
2.			
3 .			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:15 ft)			
1. Common Elder (Sambucus nigra)	20.5	Yes	FACW
2. Canadian Serviceberry (A. canadensis)	20.5	Yes	FAC
3 .			
4.			
5.			
6.			
7.			
8.			
	41.0 = Total Cover		
Herb Stratum (Plot size:5 ft)			
1. Common Reed (Phragmites australis)	98.0	Yes	FACW
2. Louise's Swallowwort (Cynanchum louiseae)	Tr	No	UPL
3 .			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	98.0 = Total Cover		
Woody Vine Stratum (Plot size:_____ft)			
1. Oriental Bittersweet (Celastrus orbiculatus)	10.5	Yes	UPL
2.			
3 .			
4.			
	10.5 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (C)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.01
- ☐ Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation1 (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBHand greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardlessof size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: (Include photo numbers here or on a separate sheet.)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches	Matrix	Redox Features			Texture	Remarks
	Color (moist) %	Color (moist) %	Type[1]	Loc[2]		
0-4	10YR 4/2				silty loam	
4-16	10YR 6/1				clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grain. [2]Location: PL=Pore Lining M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (**LRR, R, MLRA 149B**)
- ☐ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ☐ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ☐ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

Soils appear to be historically disturbed with irregular observations and the presence of debris/trash throughout.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Freeport Street (Parcel 1600008002) City/County: Boston/Suffolk Sampling Date: 6/10/2020

Applicant/Owner: IBEW Building Corporation State: MA Sampling Point: WFA-8 (upland)

Investigator(s): Lucas Environmental, LLC Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Coastal plain Local relief (concave, convex, none): Concave

Slope (%): 10 Lat: 42.305369 Long: 71.054156 Datum: _____

Soil Map Unit Name: Urban land, wet substratum, 0 to 3 percent slopes NWI Classification: Palustrine Shrub-Scrub

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)

Are Vegetation ☐ Soil ☒ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☐	No ☒	If yes, optional Wetland Site ID: _____

Remarks: (explain alternative procedures here or in separate report)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches)
Water Table Present?	Yes ☐	No ☒	Depth (inches)
Saturation Present? (include capillary fringe)	Yes ☐	No ☒	Depth (inches)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants **Sampling Point:** WFA-8

Tree Stratum (Plot size:30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Absent			
2.			
3 .			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:15 ft)			
1. Black Chokecherry (Aronia melanocarpa)	63.0	Yes	FAC
2. Multiflora Rose (Rose multiflora)	20.5	Yes	FACU
3 .Common Buckthorn (Rhamnus cathartica)	3.0	No	FAC
4. Tatarian Honeysuckle (Lonicera tatarica)	10.5	No	FACU
5. Black Cherry (Prunus serotina)	20.5	Yes	FACU
6. Burning Bush (Euonymus alatus)	10.5	No	UPL
7. Serviceberry (Amelanchier arborea)	10.5	No	FACU
8. American Elm (Ulmus americana)	3.0	No	FACW
	141.5 = Total Cover		
Herb Stratum (Plot size:5 ft)			
1. Multiflora Rose (Rosa multiflora)	20.5	Yes	FACU
2. Wood Aster	3.0	No	FACU
3 .Black Nightshade (Solanum americanum	3.0	No	FACU
4. Black Chokecherry	20.5	Yes	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	47.0 = Total Cover		
Woody Vine Stratum (Plot size:_____ft)			
1. Oriental Bittersweet (Celastrus orbiculatus)	38.0	Yes	UPL
2. Poison Ivy (Toxicodendron radicans)	10.5	Yes	FAC
3 .			
4.			
	48.5 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 42.9% (C)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.01
- ☐ Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation1 (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBHand greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardlessof size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: (Include photo numbers here or on a separate sheet.)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches	Matrix	Redox Features			Texture	Remarks
	Color (moist) %	Color (moist) %	Type[1]	Loc[2]		
0-6	10YR 4/2				loamy fill	fill
6-16	10YR 6/2				clay-loam	mixed with debris/fill

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grain. [2]Location: PL=Pore Lining M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (**LRR, R, MLRA 149B**)
- ☐ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ☐ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ☐ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

Soils appear to be historically disturbed with irregular observations and the presence of debris/trash throughout.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Freeport Street (Parcel 1600008002) City/County: Boston/Suffolk Sampling Date: 6/10/2020

Applicant/Owner: IBEW Building Corporation State: MA Sampling Point: WFB-10 (wetland)

Investigator(s): Lucas Environmental, LLC Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Coastal plain Local relief (concave, convex, none): Concave

Slope (%): 10 Lat: 42.305369 Long: 71.054156 Datum: _____

Soil Map Unit Name: Urban land, wet substratum, 0 to 3 percent slopes NWI Classification: Palustrine Shrub-Scrub

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)

Are Vegetation ☐ Soil ☒ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐
Hydric Soil Present?	Yes ☒	No ☐	
Wetland Hydrology Present?	Yes ☒	No ☐	If yes, optional Wetland Site ID: _____

Remarks: (explain alternative procedures here or in separate report)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☒ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches)
Water Table Present?	Yes ☐	No ☒	Depth (inches)
Saturation Present? (include capillary fringe)	Yes ☐	No ☒	Depth (inches)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants **Sampling Point:** WFB-10

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size:30 ft)			
1. Absent			
2.			
3 .			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:15 ft)			
1. Common Elder (Sambucus nigra)	38.0	Yes	FACW
2. Staghorn Sumac (Rhus typhina)	10.5	Yes	UPL
3 .Glossy Buckthorn (Frangula alnus)	3.0	No	FAC
4.			
5.			
6.			
7.			
8.			
	41.5 = Total Cover		
Herb Stratum (Plot size:5 ft)			
1. Wrinkleleaf Goldenrod (Solidago rugosa)	85.5	Yes	FAC
2. Smartweed (Polygonum sp.)	Tr	No	
3 .Common Elder (Sambucus nigra)	Tr	No	FACW
4. Common Reed (Phragmites australis)	3.0	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	88.5 = Total Cover		
Woody Vine Stratum (Plot size:_____ft)			
1. Absent			
2.			
3 .			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (C)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.01
- ☐ Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBHand greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardlessof size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: (Include photo numbers here or on a separate sheet.)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches	Matrix	Redox Features			Texture	Remarks
	Color (moist) %	Color (moist) %	Type[1]	Loc[2]		
3-0	10YR 2/1				fibric	
0-10	10YR 5/1				clay silt loam	
10-20	10YR 6/1				clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grain. [2]Location: PL=Pore Lining M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (**LRR, R, MLRA 149B**)
- ☐ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ☐ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ☐ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12)
- ☐ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

Soils appear to be historically disturbed with irregular observations and the presence of debris/trash throughout.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Freeport Street (Parcel 1600008002) City/County: Boston/Suffolk Sampling Date: 6/10/2020

Applicant/Owner: IBEW Building Corporation State: MA Sampling Point: WFB-10 (upland)

Investigator(s): Lucas Environmental, LLC Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Coastal plain Local relief (concave, convex, none): Concave

Slope (%): 10 Lat: 42.305369 Long: 71.054156 Datum: _____

Soil Map Unit Name: Urban land, wet substratum, 0 to 3 percent slopes NWI Classification: Palustrine Shrub-Scrub

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks)

Are Vegetation ☐ Soil ☒ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☐	No ☒	If yes, optional Wetland Site ID: _____

Remarks: (explain alternative procedures here or in separate report)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
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- ☐ Marl Deposits (B15)
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- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
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- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches)
Water Table Present?	Yes ☐	No ☒	Depth (inches)
Saturation Present? (include capillary fringe)	Yes ☐	No ☒	Depth (inches)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants **Sampling Point:** WFB-10

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size:30 ft)			
1. Absent			
2.			
3 .			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:15 ft)			
1. Staghorn Sumac (Rhus typhina)	63.0	Yes	UPL
2. Black Cherry (Prunus serotina)	20.5	Yes	FACU
3 .			
4.			
5.			
6.			
7.			
8.			
	83.5 = Total Cover		
Herb Stratum (Plot size:5 ft)			
1. Wrinkleleaf Goldenrod (Solidago rugosa)	20.5	Yes	FAC
2. Garlic Mustard (Alliaria petiolata)	3.0	No	FACU
3 .Black Nightshade (Solanum americanum	Tr	No	FACU
4. Common Reed (Phragmites australis)	Tr	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	23.5 = Total Cover		
Woody Vine Stratum (Plot size:_____ft)			
1. Oriental Bittersweet (Celastrus orbiculatus)	63.0	Yes	UPL
2.			
3 .			
4.			
	63.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (C)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.01
- ☐ Morphological Adaptations1 (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

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Woody vines – All woody vines greater than 3.28 ft in height

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: (Include photo numbers here or on a separate sheet.)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches	Matrix	Redox Features			Texture	Remarks
	Color (moist) %	Color (moist) %	Type[1]	Loc[2]		
0-12	10YR 3/2				loam	fill
12-16	10YR 6/1				clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grain. [2]Location: PL=Pore Lining M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
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Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ☐ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ☐ Dark Surface (S7) (**LRR K, L**)
- ☐ Polyvalue Below Surface (S8) (**LRR K, L**)
- ☐ Thin Dark Surface (S9) (**LRR K, L**)
- ☐ Iron-Manganese Masses (F12)
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- ☐ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☒

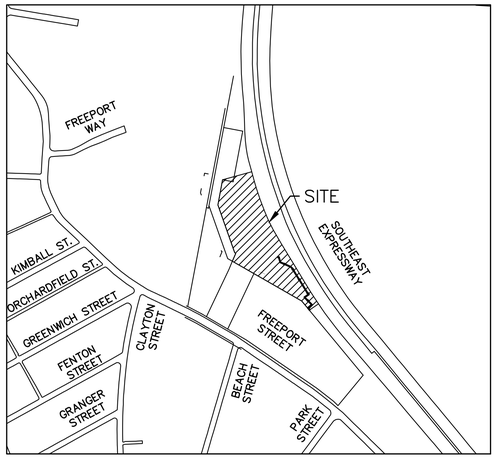
Remarks:

Soils appear to be historically disturbed with irregular observations and the presence of debris/trash throughout.

NOTICE OF INTENT DRAWINGS
256 FREEPORT STREET
DORCHESTER, MA.

SHEET INDEX

SHEET C0.01	COVER SHEET
SHEET C1.00	SITE PREPARATION PLAN
SHEET C2.00	LAYOUT AND MATERIALS PLAN
SHEET C3.00	GRADING AND DRAINAGE PLAN
SHEET C4.00	DETAIL SHEET
SHEET C4.01	DETAIL SHEET



LOCUS MAP
1"=250'

PARCEL INFORMATION
PARCEL ID 1600008002

HOWARD STEIN HUDSON
114 Turnpike Road, Suite 2C
Chelmsford, MA 01824
www.hshassoc.com

PREPARED FOR:

IBEW LOCAL 103
256 FREEPORT STREET
DORCHESTER, MA 02122

256 FREEPORT STREET
BOSTON, MA

REVISIONS:

NO	BY	DATE	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
RICHARD E. LATINI
CIVIL
No. 41033
REGISTERED PROFESSIONAL ENGINEER

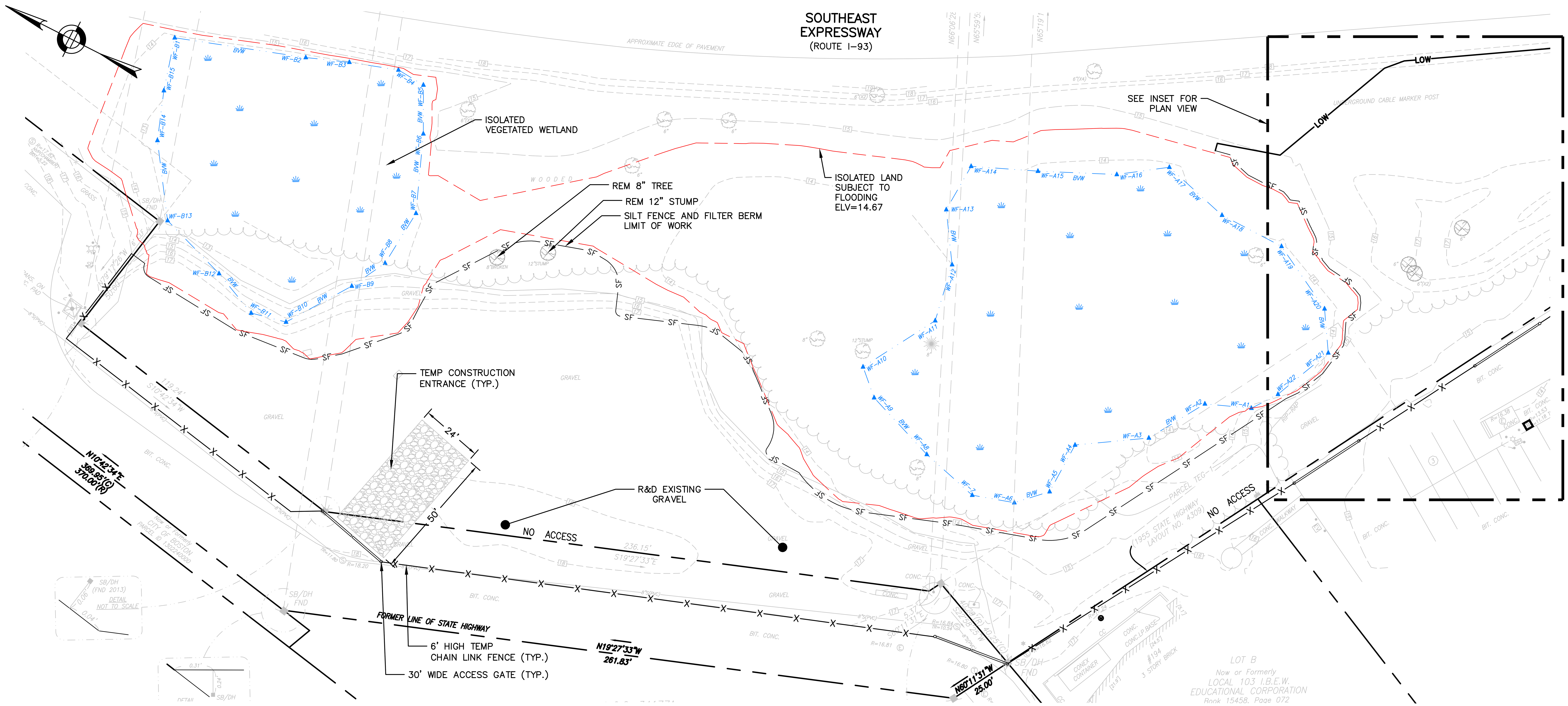
PERMIT SET
NOT FOR CONSTRUCTION

COVER SHEET

DATE:	03/25/22
PROJECT NUMBER:	19059
DESIGNED BY:	RJM
DRAWN BY:	RJM
CHECKED BY:	JD

C0.01

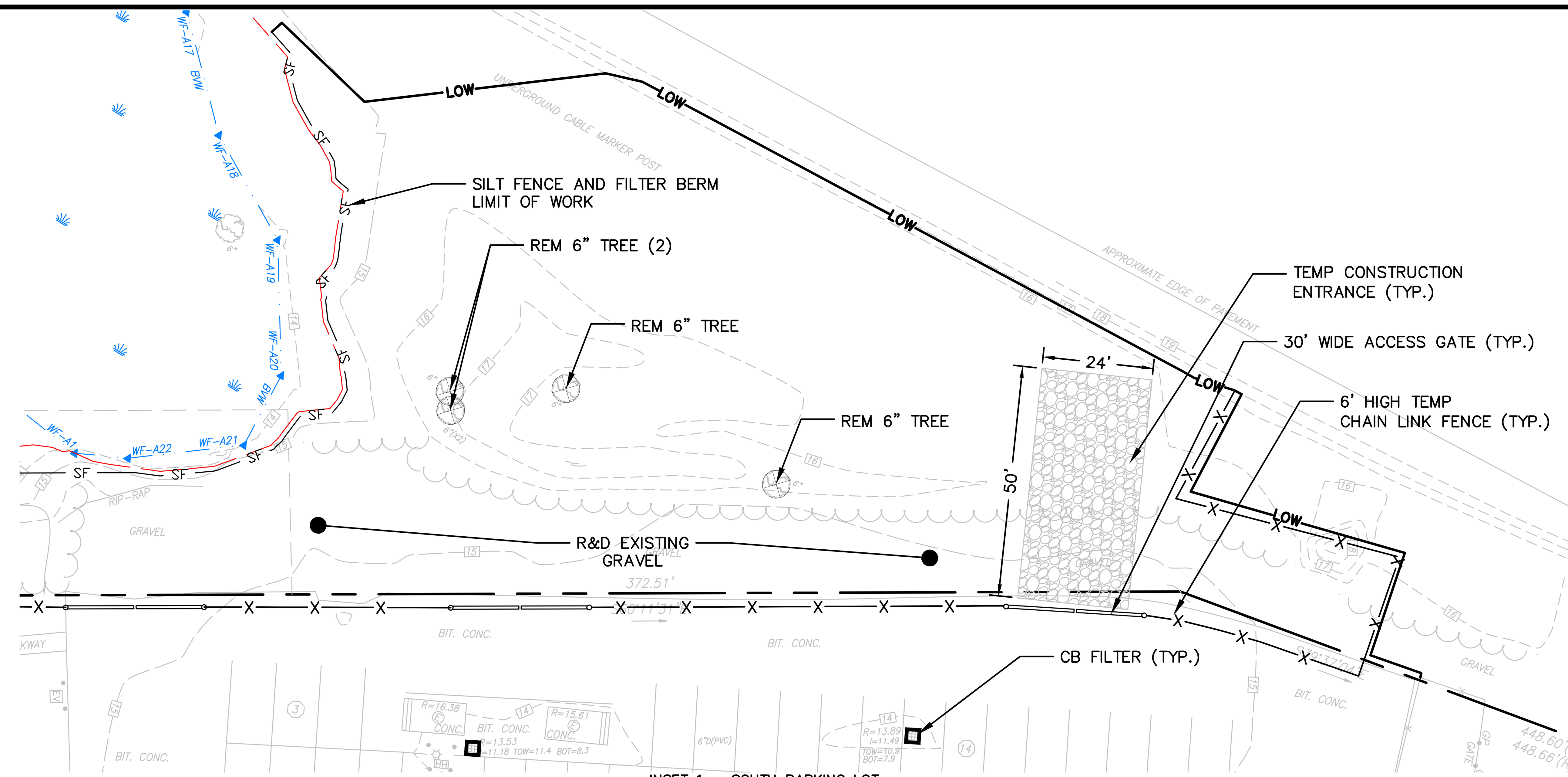
3/25/2022 - L:\19059\CIVIL\TIF\SHEET\19059 - GRADING AND UTILITIES.dwg
Last Saved by: ROBERT.MESSENGER
Printed by: Robert Messenger



NORTH PARKING LOT
PLAN VIEW 1"=20'

NOTES:

1. EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED PRIOR TO THE START OF CONSTRUCTION AND MAINTAINED AND UPGRADED AS NECESSARY DURING CONSTRUCTION BY THE CONTRACTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT AND INSTALL ADDITIONAL CONTROL MEASURES AS NEEDED DURING CONSTRUCTION.
2. STABILIZATION OF ALL RE-GRADED AND SOIL STOCKPILE AREAS MUST BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION.
3. SEDIMENT REMOVED FROM EROSION AND SEDIMENT CONTROL DEVICES MUST BE PROPERLY REMOVED AND DISPOSED. ALL DAMAGED CONTROLS MUST BE REMOVED AND REPLACED.
4. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING THE EROSION AND SEDIMENT CONTROL PLAN. THIS INCLUDES THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE CONSTRUCTION SITE OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN, AND NOTIFYING THE PROPER CITY AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING WIND EROSION AND DUST THROUGHOUT THE LIFE OF HIS CONTRACT. DUST CONTROL MAY INCLUDE, BUT IS NOT LIMITED TO, SPRINKLING OF WATER ON EXPOSED SOILS AND STREET SWEEPING ADJACENT ROADWAYS.
6. IF FINAL GRADING IS TO BE DELAYED FOR MORE THAN 21 DAYS AFTER LAND DISTURBANCE ACTIVITIES CEASE, TEMPORARY VEGETATION OR MULCH SHALL BE USED TO STABILIZED SOILS WITHIN 14 DAYS OF THE LAST DISTURBANCE.
7. IF A DISTURBED AREA WILL BE EXPOSED FOR GREATER THAN ONE YEAR, PERMANENT GRASSES OR OTHER APPROVED COVER MUST BE INSTALLED.
8. THE CONTRACTOR MUST KEEP ON-SITE AT ALL TIMES ADDITIONAL COMPOST FILTER TUBES AND/OR SILT FENCE FOR THE INSTALLATION AT THE DIRECTION OF THE ENGINEER OR CONSERVATION COMMISSION TO MITIGATE ANY EMERGENCY CONDITION.
9. THE EROSION AND SEDIMENT CONTROLS AS SHOWN MAY NOT BE PRACTICAL DURING ALL STAGES OF CONSTRUCTION. EARTHWORK ACTIVITY ON-SITE MUST BE DONE IN A MANNER SUCH THAT RUNOFF IS DIRECTED TO A SEDIMENT CONTROL DEVICE OR INFILTRATED TO THE GROUND.
10. DEMOLITION AND CONSTRUCTION DEBRIS MUST BE PROPERLY CONTAINED AND DISPOSED OF.
11. DISPOSAL OF ALL DEMOLISHED MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE HAULED OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.



INSET 1 – SOUTH PARKING LOT
PLAN VIEW 1"=20'

LEGEND

ABANDON	ABAN
REMOVE AND DISPOSE	R&D
REMOVE AND STOCKPILE	R&S
CATCH BASIN FILTER	▫
CONSTRUCTION ENTRANCE	
CONSTRUCTION FENCE	—x—x—x—
REMOVE TREE	
LIMIT OF WORK	—LOW—
SILT FENCE	—SF—SF—SF—

20 0 20 40
SCALE IN FEET

HOWARD STEIN HUDSON
11 Beacon Street, Suite 1010
Boston, MA 02108
www.hshassoc.com

PREPARED FOR:
IBEW LOCAL 103
256 FREEPORT STREET
DORCHESTER, MA 02122

256 FREEPORT STREET
BOSTON, MA

REVISIONS:

NO	BY	DATE	DESCRIPTION

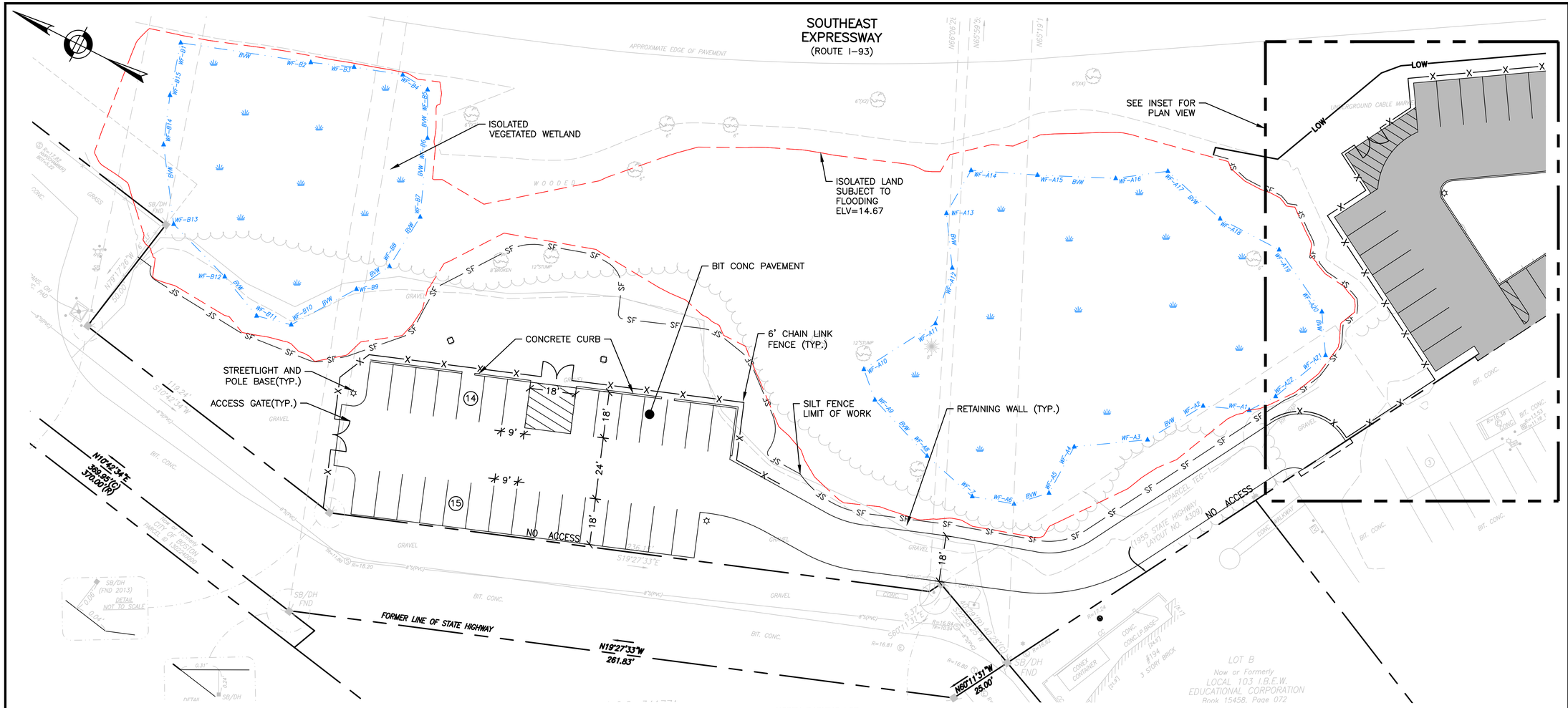
COMMONWEALTH OF MASSACHUSETTS
RICHARD E. LATINI
CIVIL
No. 41033
REGISTERED PROFESSIONAL ENGINEER

PERMIT SET
NOT FOR CONSTRUCTION

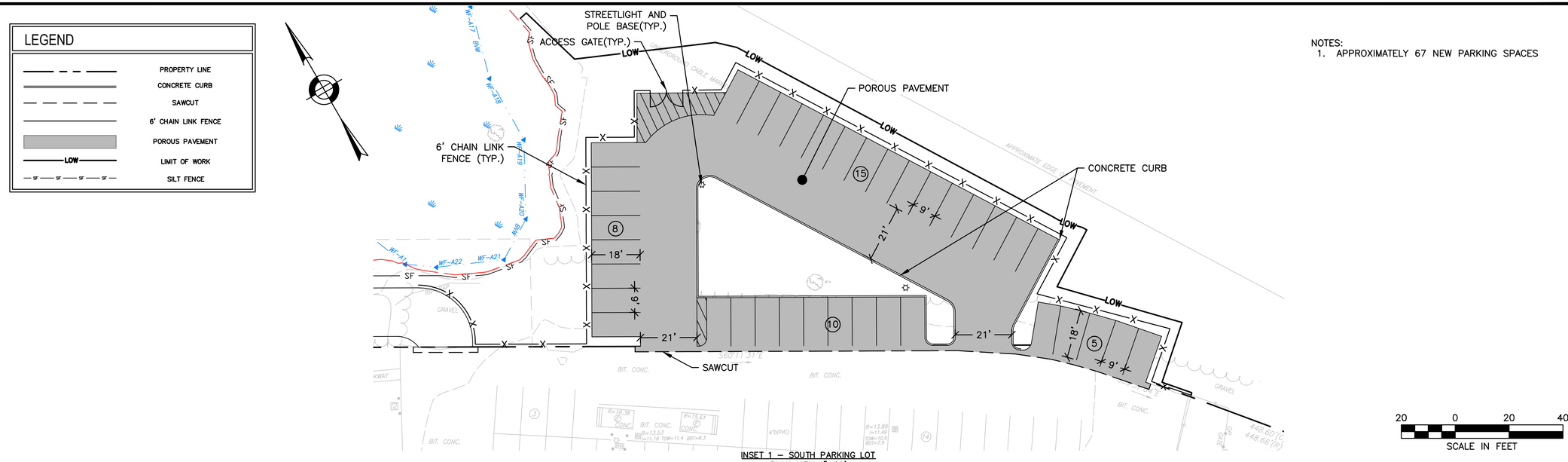
SITE PREPARATION PLAN

DATE:	03/25/22
PROJECT NUMBER:	19059
DESIGNED BY:	RJM
DRAWN BY:	RJM
CHECKED BY:	JD

C1.00



NORTH PARKING LOT
PLAN VIEW 1"=20'



INSET 1 – SOUTH PARKING LOT
PLAN VIEW 1"=20'

HOWARD STEIN HUDSON
11 Beacon Street, Suite 1010
Boston, MA 02108
www.hshassoc.com

PREPARED FOR:

IBEW LOCAL 103
256 FREEPORT STREET
DORCHESTER, MA 02122

256 FREEPORT STREET
BOSTON, MA

REVISIONS:

NO	BY	DATE	DESCRIPTION

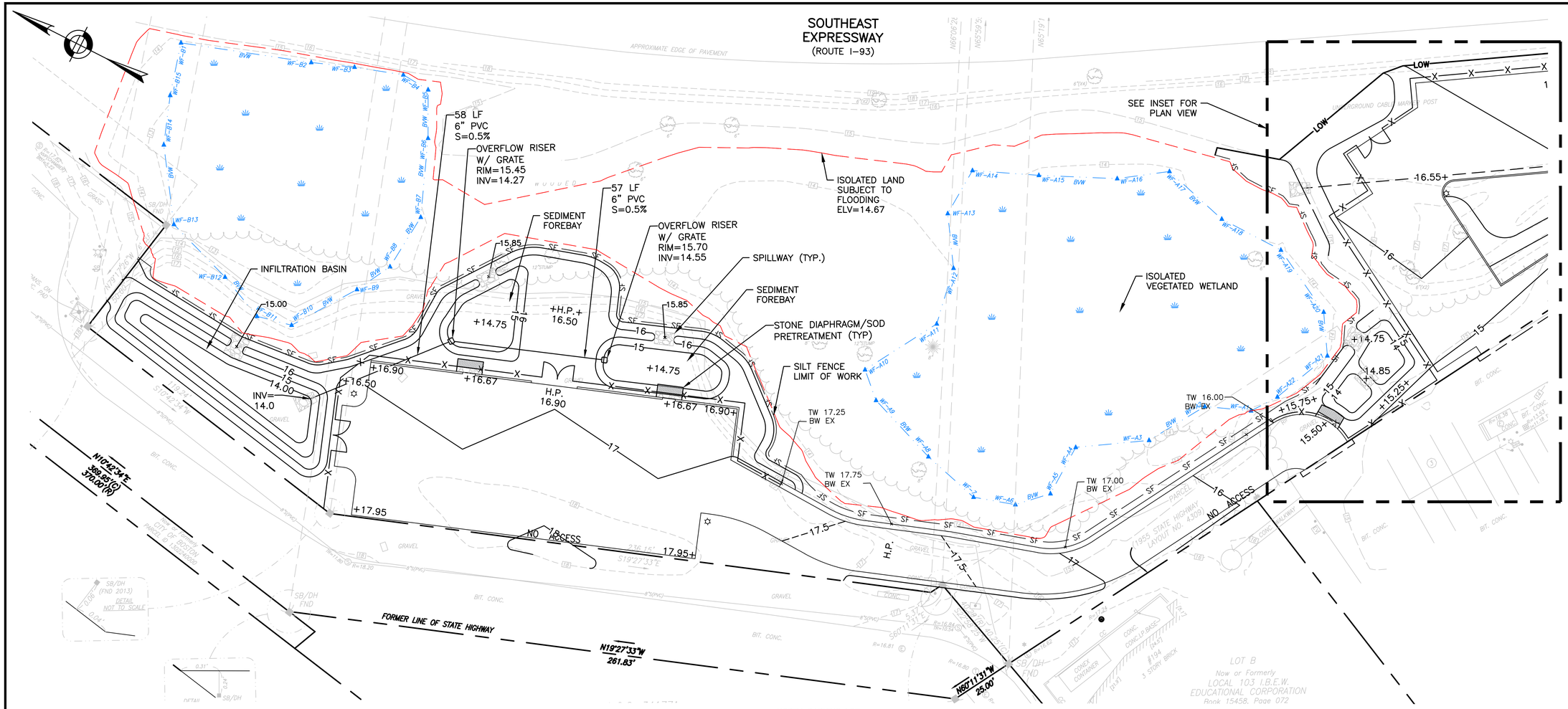
COMMONWEALTH OF MASSACHUSETTS
RICHARD E. LATINI
CIVIL
No. 41033
REGISTERED PROFESSIONAL ENGINEER

PERMIT SET
NOT FOR CONSTRUCTION

LAYOUT AND MATERIALS PLAN

DATE:	03/25/22
PROJECT NUMBER:	19059
DESIGNED BY:	RJM
DRAWN BY:	RJM
CHECKED BY:	JD

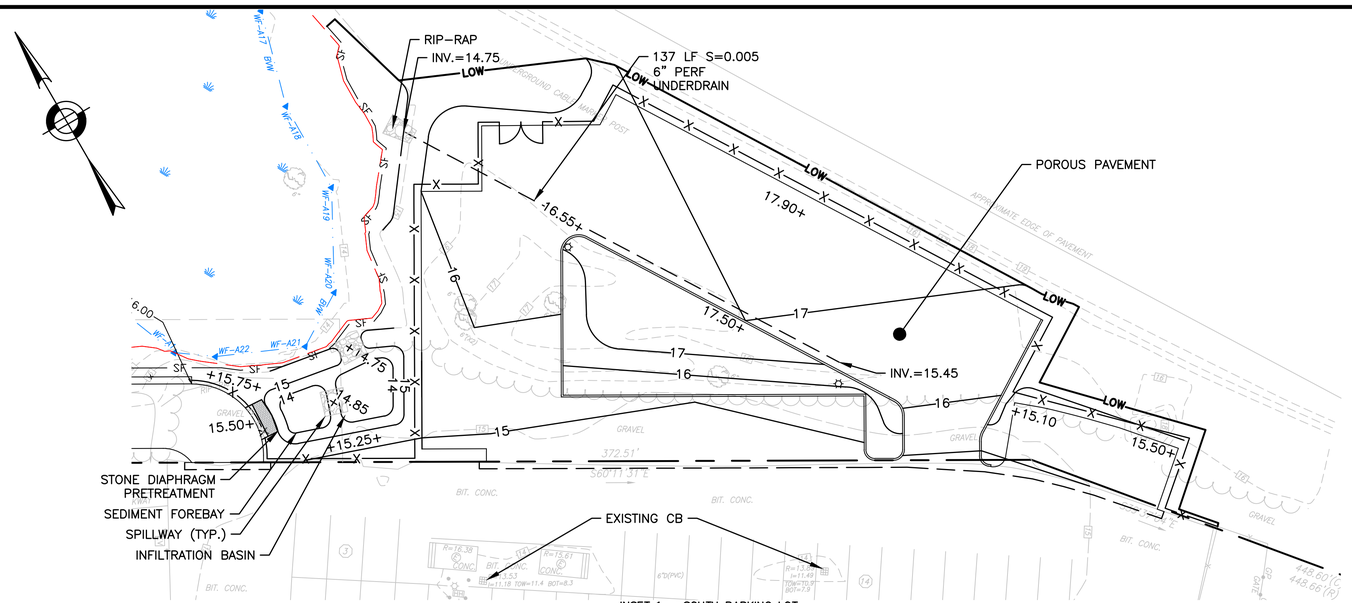
C2.00



NORTH PARKING LOT
PLAN VIEW 1"=20'

PROPOSED LEGEND

PVC	POLYVINYL CHOLRIDE PIPE
LF	LINEAR FEET
S=	SLOPE
INV	INVERT ELEVATION
	PROPERTY LINE
D	STORM DRAIN
15	PROPOSED CONTOUR
15	EXISTING CONTOUR
LOW	LIMIT OF WORK
SF	SILT FENCE



INSET 1 - SOUTH PARKING LOT
PLAN VIEW 1"=20'

20 0 20 40
SCALE IN FEET

HOWARD STEIN HUDSON
11 Beacon Street, Suite 1010
Boston, MA 02108
www.hshassoc.com

PREPARED FOR:

IBEW LOCAL 103
256 FREEPORT STREET
DORCHESTER, MA 02122

256 FREEPORT STREET
BOSTON, MA

REVISIONS:

NO	BY	DATE	DESCRIPTION

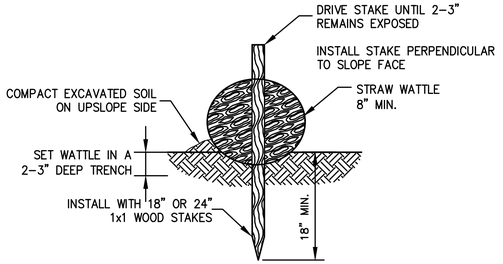
COMMONWEALTH OF MASSACHUSETTS
RICHARD E. LATINI
CIVIL
No. 41039
REGISTERED PROFESSIONAL ENGINEER

PERMIT SET
NOT FOR CONSTRUCTION

GRADING AND DRAINAGE PLAN

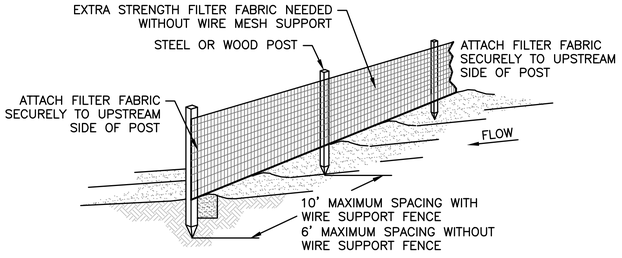
DATE:	03/25/22
PROJECT NUMBER:	19059
DESIGNED BY:	RJM
DRAWN BY:	RJM
CHECKED BY:	JD

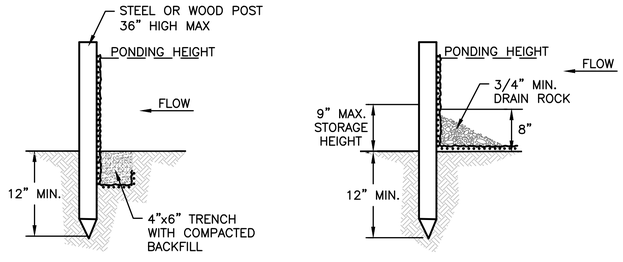
C3.00



NOTES:
1. BEGIN AT THE LOCATION WHERE THE WATTLE IS TO BE INSTALLED BY EXCAVATING A 2–3"(5–7.5 CM) DEEP X 9"(22.9 CM) WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UP–SLOPE FROM THE ANCHOR TRENCH.
2. PLACE THE WATTLE IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE WATTLE ON THE UPHILL SIDE. ADJACENT WATTLES SHOULD TIGHTLY ABUT.
3. SECURE THE WATTLE WITH 18–24" (45.7–61 CM) STAKES EVERY 3–4' (0.9 – 1.2 M) AND WITH A STAKE ON EACH END. (STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE WATTLE LEAVING AT LEAST 2–3" (5–7.5 CM) OF STAKE EXTENDING ABOVE THE WATTLE. STAKES SHOULD BE DRIVEN PERPENDICULAR TO SLOPE FACE.

FILTER BERM
NOT TO SCALE



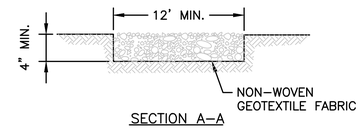


TRENCH DETAIL — INSTALLATION WITHOUT TRENCHING

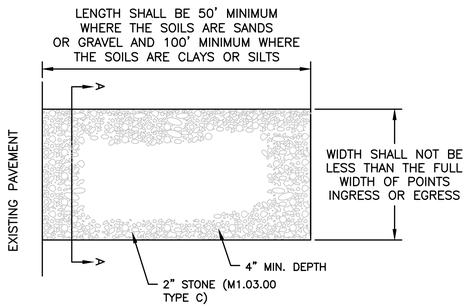
NOTES:

1. EROSION CONTROL BARRIER (HAY BALES, SILT FENCE OR EROSION STOCK) SHALL BE PLACED AROUND ALL MATERIAL STOCKPILE AREAS AND MAINTAINED AT STAGING AREAS TO ASSURE NO SILTATION ONTO PUBLIC OR PRIVATE WAYS OR PROPERTY.

EROSION CONTROL BARRIER
NOT TO SCALE



SECTION A–A

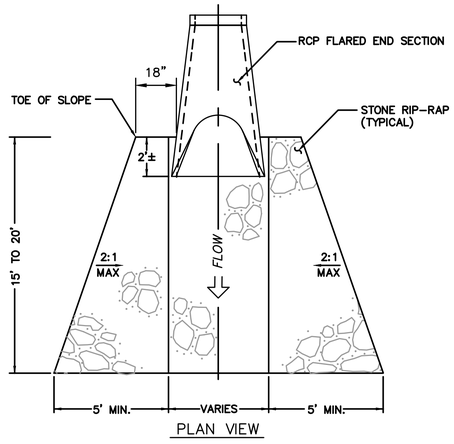


PLAN

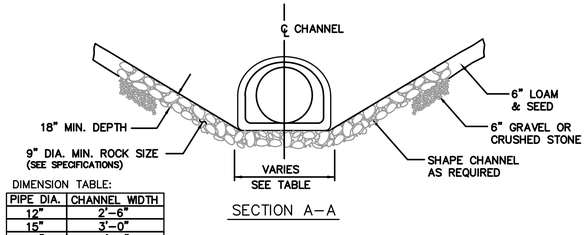
NOTES:

1. INSTALLATION: THE AREA OF THE ENTRANCE SHOULD BE CLEARED OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. THE GRAVEL SHALL BE PLACED TO THE SPECIFIED DIMENSIONS NOTED ABOVE.
2. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENTS ONTO PUBLIC RIGHT–OF–WAYS. THIS WILL REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE, OR ADDITIONAL LENGTH, AS CONDITIONS DEMAND, AND REPAIR, AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT–OF–WAYS MUST BE REMOVED IMMEDIATELY.
3. LOCATION: SEE C1.0 FOR LOCATION OF CONSTRUCTION ENTRANCES.

TEMP CONSTRUCTION ENTRANCE
NOT TO SCALE



PLAN VIEW

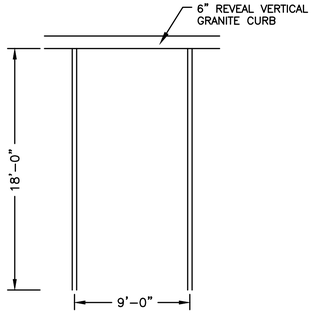


SECTION A–A

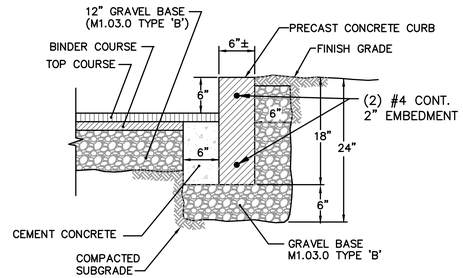
DIMENSION TABLE:

PIPE DIA.	CHANNEL WIDTH
12"	2'–6"
15"	3'–0"
18"	3'–7"
24"	4'–8"

OUTLET EROSION PROTECTION
NOT TO SCALE

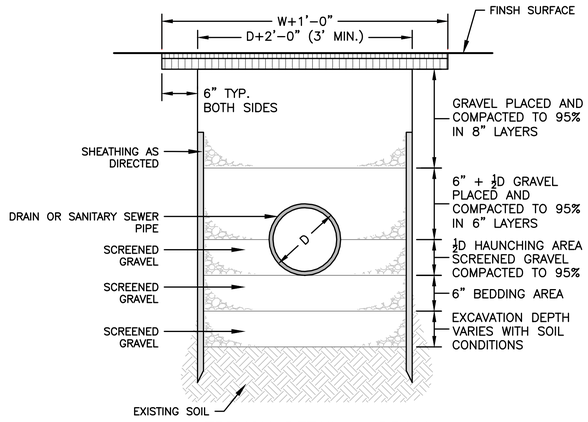


TYPICAL PARKING SPACE
NOT TO SCALE

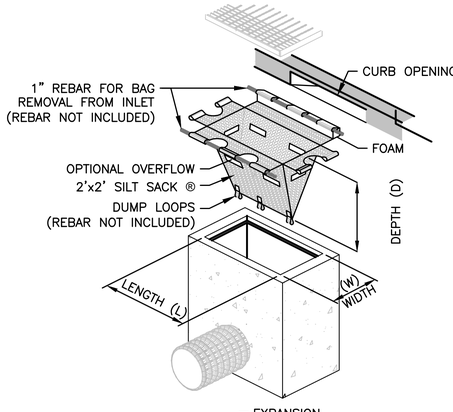


NOTE:
CURBS SHALL BE BACKED UP BY CONCRETE ANCHOR AT ALL JOINTS WHERE NOT ADJACENT TO A SIDEWALK OR OTHER STRUCTURE.

PRECAST CONCRETE CURB
NOT TO SCALE

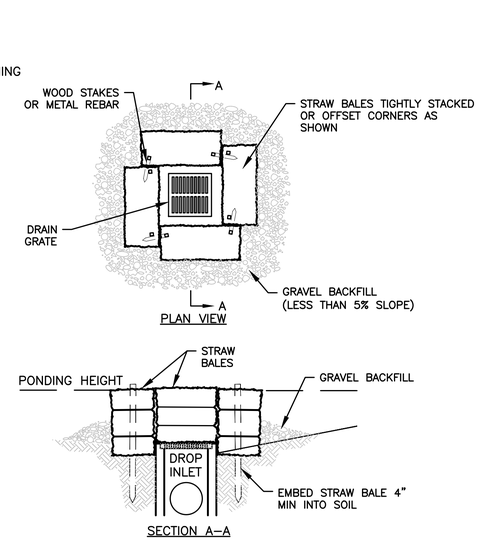


TRENCH DETAIL – DRAIN & SANITARY SEWER
NOT TO SCALE



SIDE VIEW INSTALLED

CATCH BASIN FILTER



SECTION A–A

STRAW BALE & GRAVEL INLET SEDIMENT BARRIER

TEMPORARY INLET PROTECTION
NOT TO SCALE

HOWARD STEIN HUDSON
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Boston, MA 02108
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PREPARED FOR:

256 FREEPORT STREET
BOSTON, MA

REVISIONS:

NO	BY	DATE	DESCRIPTION

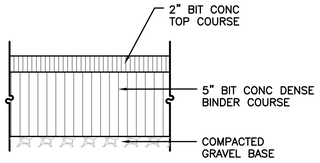
COMMONWEALTH OF MASSACHUSETTS
RICHARD E LATINI
CIVIL
No. 41033
REGISTERED PROFESSIONAL ENGINEER

PERMIT SET
NOT FOR CONSTRUCTION

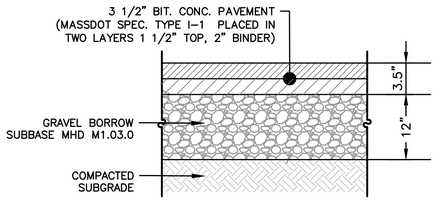
SITE DETAILS 1

DATE:	03/25/22
PROJECT NUMBER:	19059
DESIGNED BY:	RJM
DRAWN BY:	RJM
CHECKED BY:	JD

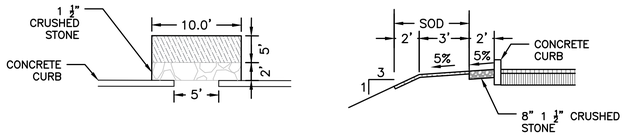
C4.00



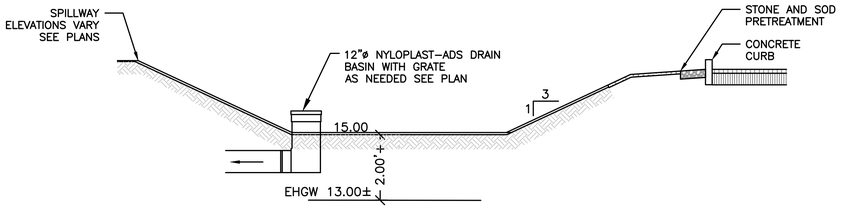
TRENCH PATCH DETAIL
NOT TO SCALE



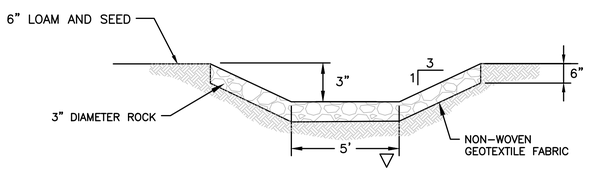
DRIVEWAY & PARKING LOT BIT. CONC. PAVEMENT
NOT TO SCALE



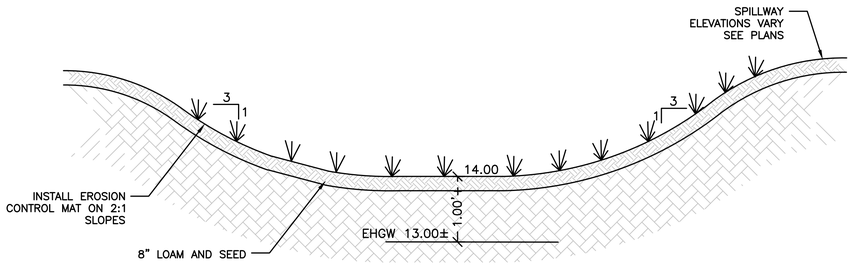
STONE AND SOD PRETREATMENT
NOT TO SCALE



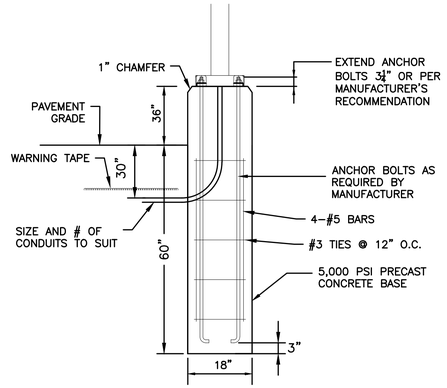
SEDIMENT FOREBAY
NOT TO SCALE

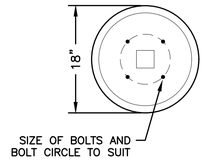


SPILLWAY DETAIL
NOT TO SCALE



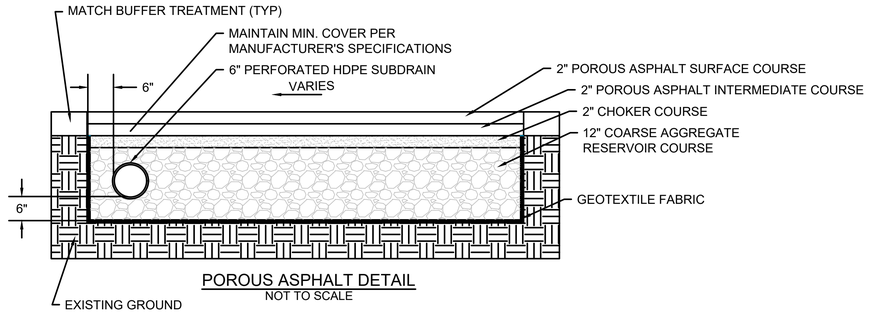
INFILTRATION BASIN DETAIL
NOT TO SCALE



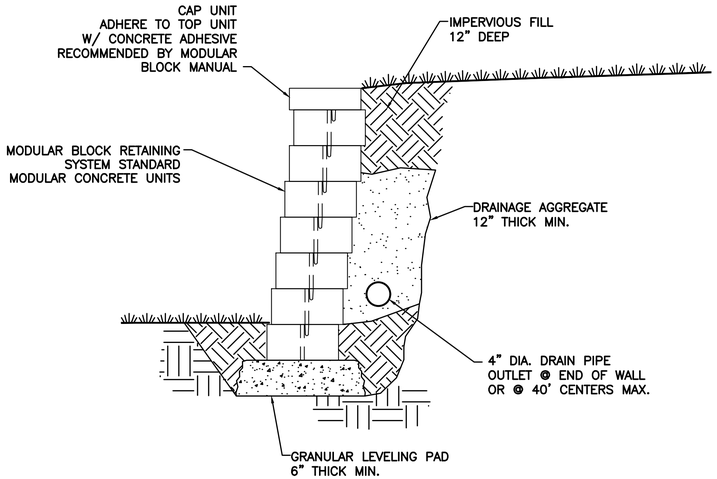


NOTES:
1. ANCHOR BOLTS SHALL BE STAINLESS STEEL OR GALVANIZED.
2. ASTM A-615 GRADE 60 STEEL REINFORCEMENT.
3. LIGHT POLE BASE REVEAL CAN BE REDUCED TO 4 INCHES WHERE LOCATED A MINIMUM 24 INCHES FROM PAVED AREA.
4. BASE SHALL BE INSTALLED ON A PROOF COMPACTED* SUBGRADE CONSISTING OF INORGANIC SOIL.

*PROOF COMPACTION SHALL CONSIST OF A MINIMUM 6 PASSES WITH A VIBRATORY COMPACTOR HAVING A MINIMUM OPERATION WEIGHT OF 500 POUNDS. ALL SOFT OR SPONGY AREAS DETECTED DURING PROOF COMPACTION SHOULD BE REMOVED AND REPLACED WITH COMPACTED GRAVEL OR 3/4" CRUSHED STONE



POROUS ASPHALT DETAIL
NOT TO SCALE



RETAINING WALL SHOWN FOR COORDINATION PURPOSES ONLY. FINAL WALL DESIGN SHALL BE PROVIDED BY OTHERS AND STAMPED BY A PROFESSIONAL ENGINEER.

TYPICAL SECTION-UNREINFORCED RETAINING WALL
MODULAR CONCRETE UNIT (NOT TO SCALE)

HOWARD STEIN HUDSON
11 Beacon Street, Suite 1010
Boston, MA 02108
www.hshassoc.com

PREPARED FOR:

256 FREEPORT STREET
BOSTON, MA

REVISIONS:

NO	BY	DATE	DESCRIPTION

COMMONWEALTH OF MASSACHUSETTS
RICHARD E. LATINI
CIVIL
No. 41033
REGISTERED PROFESSIONAL ENGINEER

PERMIT SET
NOT FOR CONSTRUCTION

SITE DETAILS 2

DATE:	03/25/22
PROJECT NUMBER:	19059
DESIGNED BY:	RJM
DRAWN BY:	RJM
CHECKED BY:	JD

C4.01

HOWARD STEIN HUDSON

Engineers + Planners

STORMWATER MANAGEMENT REPORT

256 Freeport Street

Boston, Massachusetts

Prepared for:

IBEW Local 103
256 Freeport Street
Dorchester, MA 02122

Prepared by

Howard Stein Hudson
11 Beacon Street, Suite 1010
Boston, MA 02108

617-482-7080

March 22, 2022

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Appendix E: Operation and Maintenance Plan (Under Separate Cover)

Appendix F: Checklist for Stormwater Report

Appendix G: Illicit Discharge Compliance Statement

Appendix H: Proposed Plans (under Separate Cover)

Introduction

This Stormwater Management Report describes the existing drainage conditions and proposed stormwater best management practices (BMPs) designed to treat and control runoff for the proposed new parking at 256 Freeport Street in Boston, MA.

The Project proposes the construction of two parking lots that provide parking for 67 vehicles. Construction will include asphalt paving, porous pavement, one retaining wall, fencing and lighting.

The approach to stormwater management for this project is to balance the needs of the project while preserving the integrity of the groundwater aquifer. The proposed stormwater management system incorporates Best Management Practices (BMPs), as described in the Department of Environmental Protection Stormwater Management Policy Handbook.

The Project will result in an increase in impervious area of approximately 16,640 ft². Stormwater BMPs will be constructed to improve the existing conditions. Stormwater BMPs include stone and sod pretreatment, sediment forebays, porous pavement and infiltration basin. Systems will capture and help reduce pollutant concentrations in the stormwater runoff.

Pre and post-construction hydrology was analyzed with HydroCAD v 10.0, model using TR-20 methodology. The rainfall data was obtained from the Cornell University Atlas of Precipitation Extremes for Northeastern United States & Southeastern Canada. The pre- and post-development peak discharge rates have been analyze and are included in Table 1. The project will result in a slight increase in peak discharge rates, but overall provides an improvement over existing conditions. Soils at the site are mapped as Natural Resource Conservation Service (NRCS) Hydrologic Soil Group C. The NRCS soil maps are included in Appendix A.

Hydrology

PRE-CONSTRUCTION HYDROLOGY

The hydrology calculations analyze two design points. Most existing stormwater runoff overland flows northerly toward on-site isolated vegetated wetlands, DP1. A portion of the existing site overland flows southwest toward an existing catch basin, DP2. These subcatchment areas are shown on the plan entitled “Existing Hydrology” provided in Appendix B.

POST-CONSTRUCTION HYDROLOGY

The project will result in an increase of impervious area of 16,640 square feet. Runoff within subcatchment PR1 will continue to be flow overland to the existing isolated vegetated wetlands. Runoff from subatchment PR 2 is captured by porous pavement and will either infiltrate or discharge to DP1 via an underdrain. Runoff from subactach PR3 overland flows through a stone diaphragm and sod pretreatment before entering an infiltration basin, which overflows to DP1. PR4 and PR5 overland flow through stone diaphragm and sod pretreatment to a sediment forebay, then an infiltration basin which overflows to DP1. PR6 overland flows southwest toward an existing catch basin, DP2. PR 7 is captured by porous pavement and will either infiltrate or discharge to DP2 via sheet flow. These subcatchment areas are shown on the plans entitled "Proposed Hydrology" provided in Appendix C.

Stormwater Management Standards

STANDARD 1: NO NEW UNTREATED DISCHARGES

The Massachusetts Stormwater Handbook requires that the project demonstrates that there are no new untreated discharges and that new discharges will not cause erosion or scour to downstream wetlands.

A majority of runoff from the paved areas will be pretreated and filtered through and infiltration basin or porous pavement. Other areas disturbed by construction will be stabilized with vegetation and is not expected to cause erosion or scouring downstream.

STANDARD 2: POST-DEVELOPMENT PEAK DISCHARGE RATES NOT TO EXCEED PRE-DEVELOPMENT PEAK DISCHARGE RATES

The project meets Standard 2 for the 2, 10 and 100 year storms. Peak discharge rates are provided in Table 1. Hydrology calculations are provided in Appendices B and C.

Table 1. Pre- Vs Post-Development Peak Discharge Rates

Design Point	Pre-Development Rate (cfs)	Post-Development Rate (cfs)
2-Year Storm Event		
DP #1: Isolated Vegetated Wetland	1.73	1.44
DP #2: Existing Catch Basin	1.17	0.57
2-Year Storm Event Total	2.90	2.01
10-Year Storm Event		
DP #1: Isolated Vegetated Wetland	3.94	3.89
DP #2: Existing Catch Basin	2.06	0.92

10-Year Storm Event Total	6.00	4.81
100-Year Storm Event		
DP #1: Isolated Vegetated Wetland	10.00	9.78
DP #2: Existing Catch Basin	4.19	1.75
100-Year Storm Event Total	14.19	11.53

STANDARD 3: MINIMIZE OR ELIMINATE LOSS OF ANNUAL RECHARGE TO GROUNDWATER

It is anticipated that the stormwater management system will increase the annual recharge to the groundwater over existing conditions. Recharge is provided by and infiltration basin and porous pavement. The recharge volumes calculations are provided in Appendix D.

STANDARD 4: STORMWATER MANAGEMENT SYSTEM TO REMOVE 80% OF AVERAGE ANNUAL LOAD OF TOTAL SUSPENDED SOLIDS (TSS)

The stormwater management system removes 80% of the average annual total suspended solids (TSS) for the overall project by utilizing infiltration basins and porous pavement. TSS Removal Calculations were computed using the MassDEP TSS Removal Calculation Worksheet. Calculations and the project's Water Quality Data Form are provided in Appendix D.

STANDARD 5: LAND USES WITH HIGHER POTENTIAL POLLUTANT LOADS

Standard 5 does not apply to the project. There are no land uses with higher potential pollutant loads within the project area.

STANDARD 6: STORMWATER DISCHARGES TO CRITICAL AREAS

This standard is not applicable. The stormwater discharges are not located within or near a critical area.

STANDARD 7: REDEVELOPMENT PROJECTS

The project lies within a previously developed area and will improve existing conditions.

STANDARD 8: PLAN TO CONTROL CONSTRUCTION-RELATED IMPACTS

The project will install erosion and sediment controls prior to any major earthwork activity.

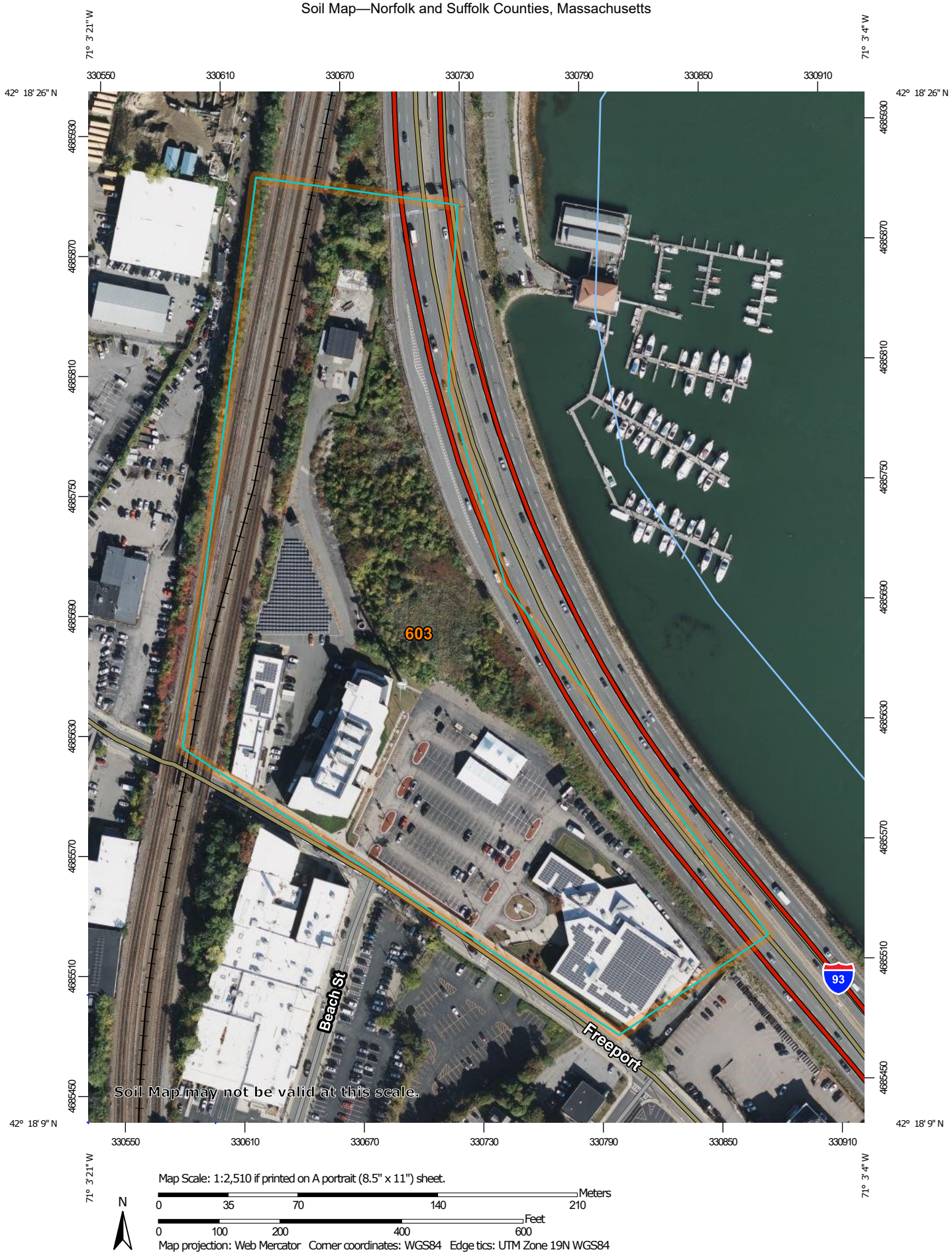
STANDARD 9: LONG-TERM OPERATION AND MAINTENANCE PLAN

A long-term Operations and Maintenance Plan has been provided in Appendix E.

STANDARD 10: NO ILLICIT DISCHARGES

No illicit discharges shall be made. See Appendix G for the illicit discharge compliance statement.

Appendix A:
Soil Information



Map Scale: 1:2,510 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

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

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

Date(s) aerial images were photographed: Aug 13, 2020—Oct 18, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
603	Urban land, wet substratum, 0 to 3 percent slopes	14.9	100.0%
Totals for Area of Interest		**14.9**	**100.0%**

Appendix B:
Pre-Construction Hydrology

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	Massachusetts
Location	
Longitude	71.054 degrees West
Latitude	42.305 degrees North
Elevation	0 feet
Date/Time	Mon, 19 Apr 2021 10:32:15 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.54	0.70	0.88	1.11	**1yr**	0.76	1.05	1.29	1.65	2.11	2.72	3.01	**1yr**	2.41	2.89	3.33	3.99	4.70	**1yr**
2yr	0.36	0.55	0.68	0.90	1.13	1.42	**2yr**	0.97	1.30	1.64	2.07	2.59	3.26	3.63	**2yr**	2.89	3.49	4.00	4.74	5.38	**2yr**
5yr	0.43	0.66	0.83	1.11	1.42	1.81	**5yr**	1.23	1.64	2.10	2.64	3.29	4.11	4.60	**5yr**	3.64	4.43	5.05	6.01	6.72	**5yr**
10yr	0.48	0.76	0.96	1.30	1.69	2.17	**10yr**	1.46	1.95	2.52	3.17	3.95	4.90	5.52	**10yr**	4.34	5.30	6.04	7.18	7.96	**10yr**
25yr	0.58	0.92	1.17	1.61	2.13	2.75	**25yr**	1.84	2.45	3.21	4.04	5.01	6.19	7.01	**25yr**	5.48	6.74	7.65	9.10	9.95	**25yr**
50yr	0.65	1.05	1.35	1.89	2.55	3.32	**50yr**	2.20	2.92	3.88	4.87	6.02	7.38	8.40	**50yr**	6.53	8.08	9.15	10.89	11.79	**50yr**
100yr	0.75	1.22	1.57	2.23	3.04	3.98	**100yr**	2.62	3.48	4.67	5.85	7.22	8.81	10.08	**100yr**	7.80	9.70	10.95	13.04	13.98	**100yr**
200yr	0.87	1.41	1.83	2.63	3.63	4.79	**200yr**	3.14	4.14	5.62	7.04	8.66	10.52	12.11	**200yr**	9.31	11.64	13.10	15.62	16.59	**200yr**
500yr	1.06	1.74	2.27	3.29	4.61	6.10	**500yr**	3.98	5.22	7.17	8.97	11.01	13.31	15.43	**500yr**	11.78	14.83	16.63	19.84	20.80	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.25	0.38	0.47	0.63	0.77	0.88	**1yr**	0.67	0.86	1.12	1.42	1.82	2.53	2.64	**1yr**	2.24	2.54	2.91	3.43	4.39	**1yr**
2yr	0.34	0.52	0.64	0.87	1.07	1.28	**2yr**	0.93	1.25	1.47	1.95	2.54	3.18	3.52	**2yr**	2.81	3.38	3.87	4.61	5.24	**2yr**
5yr	0.39	0.61	0.75	1.03	1.32	1.54	**5yr**	1.14	1.50	1.75	2.29	2.94	3.82	4.25	**5yr**	3.38	4.09	4.69	5.60	6.29	**5yr**
10yr	0.44	0.68	0.84	1.17	1.51	1.77	**10yr**	1.31	1.73	2.00	2.57	3.30	4.40	4.90	**10yr**	3.90	4.71	5.42	6.47	7.19	**10yr**

HOWARD STEIN HUDSON
11 Beacon Street, Suite 1010
Boston, MA 02108
www.hshassoc.com

PREPARED FOR:

256 FREEPORT STREET
BOSTON, MA

REVISIONS:

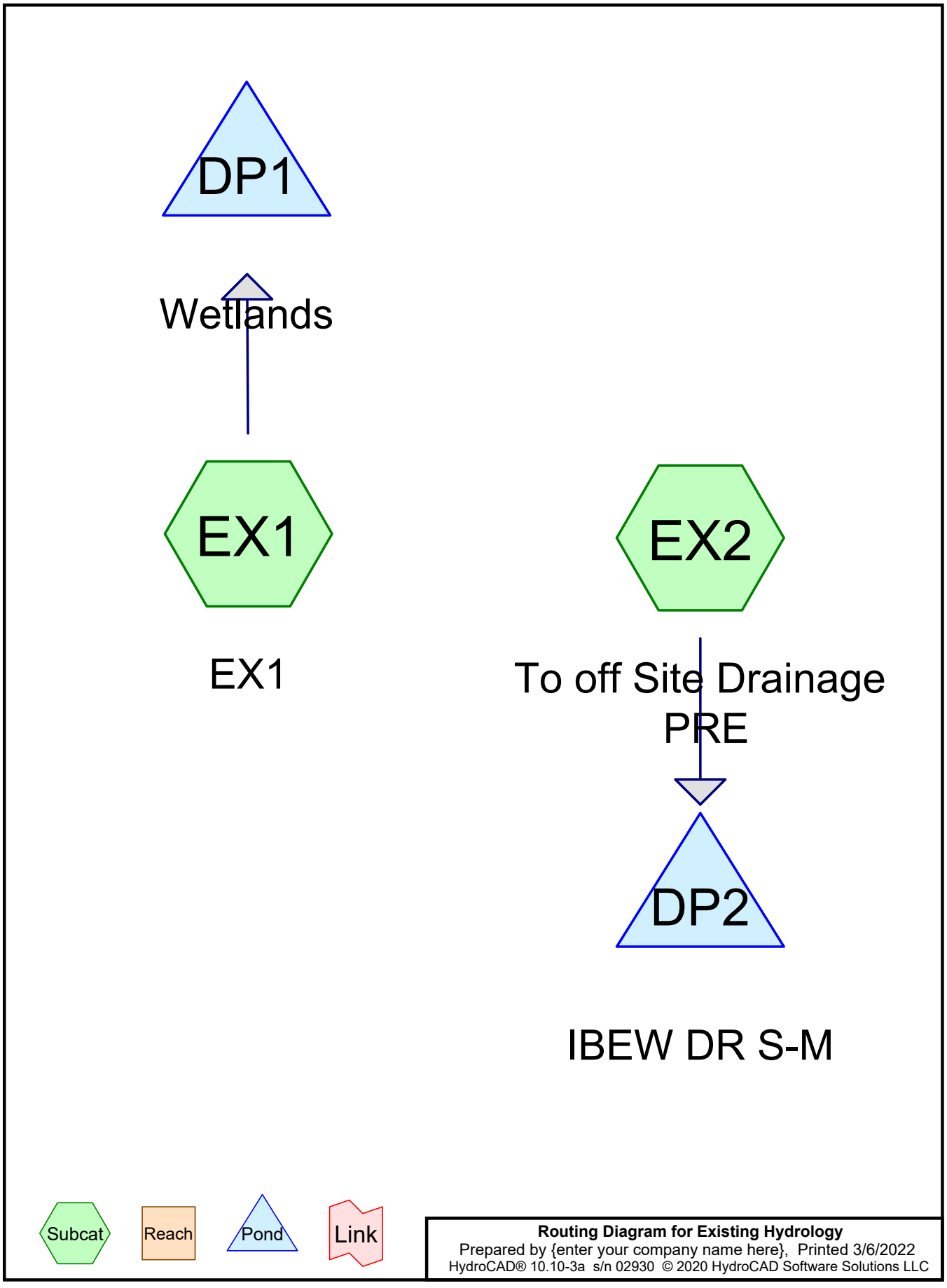
NO	BY	DATE	DESCRIPTION

NOT FOR CONSTRUCTION

EXISTING HYDROLOGY

DATE:	3/06/22
PROJECT NUMBER:	19059
DESIGNED BY:	RJM
DRAWN BY:	RJM
CHECKED BY:	JD

FIG 1


DP1
Wetlands
EX1
EX1
EX2
To off Site Drainage
PRE
DP2
IBEW DR S-M
Subcat
Reach
Pond
Link
Routing Diagram for Existing Hydrology
Prepared by {enter your company name here}, Printed 3/6/2022
HydroCAD® 10.10-3a s/n 02930 © 2020 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 yr	Type III 24-hr		Default	24.00	1	3.26	2
2	10 yr	Type III 24-hr		Default	24.00	1	4.90	2
3	100 yr	Type III 24-hr		Default	24.00	1	8.81	2
4	Custom	Type III 24-hr		Default	24.00	1	6.70	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.128	96	Gravel surface, HSG C (EX2)
0.157	98	Paved parking, HSG C (EX2)
2.589	73	Woods, Fair, HSG C (EX1, EX2)
2.874	**75**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
2.874	HSG C	EX1, EX2
0.000	HSG D	
0.000	Other	
2.874		**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	0.000	0.128	0.000	0.000	0.128	Gravel surface	EX2
0.000	0.000	0.157	0.000	0.000	0.157	Paved parking	EX2
0.000	0.000	2.589	0.000	0.000	2.589	Woods, Fair	EX1, EX2
0.000	**0.000**	**2.874**	**0.000**	**0.000**	**2.874**	**TOTAL AREA**	

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

SubcatchmentEX1: EX1 Runoff Area=102,960 sf 0.00% Impervious Runoff Depth>1.02"
Flow Length=237' Tc=21.4 min CN=73 Runoff=1.73 cfs 0.200 af

SubcatchmentEX2: To off Site Drainage Runoff Area=22,250 sf 30.83% Impervious Runoff Depth>1.89"
Flow Length=110' Tc=4.4 min CN=86 Runoff=1.17 cfs 0.080 af

Pond DP1: Wetlands Peak Elev=14.05' Storage=8,711 cf Inflow=1.73 cfs 0.200 af
Outflow=0.00 cfs 0.000 af

Pond DP2: IBEW DR S-M Inflow=1.17 cfs 0.080 af
Primary=1.17 cfs 0.080 af

Total Runoff Area = 2.874 ac Runoff Volume = 0.280 af Average Runoff Depth = 1.17"
94.52% Pervious = 2.717 ac 5.48% Impervious = 0.157 ac

Summary for Subcatchment EX1: EX1

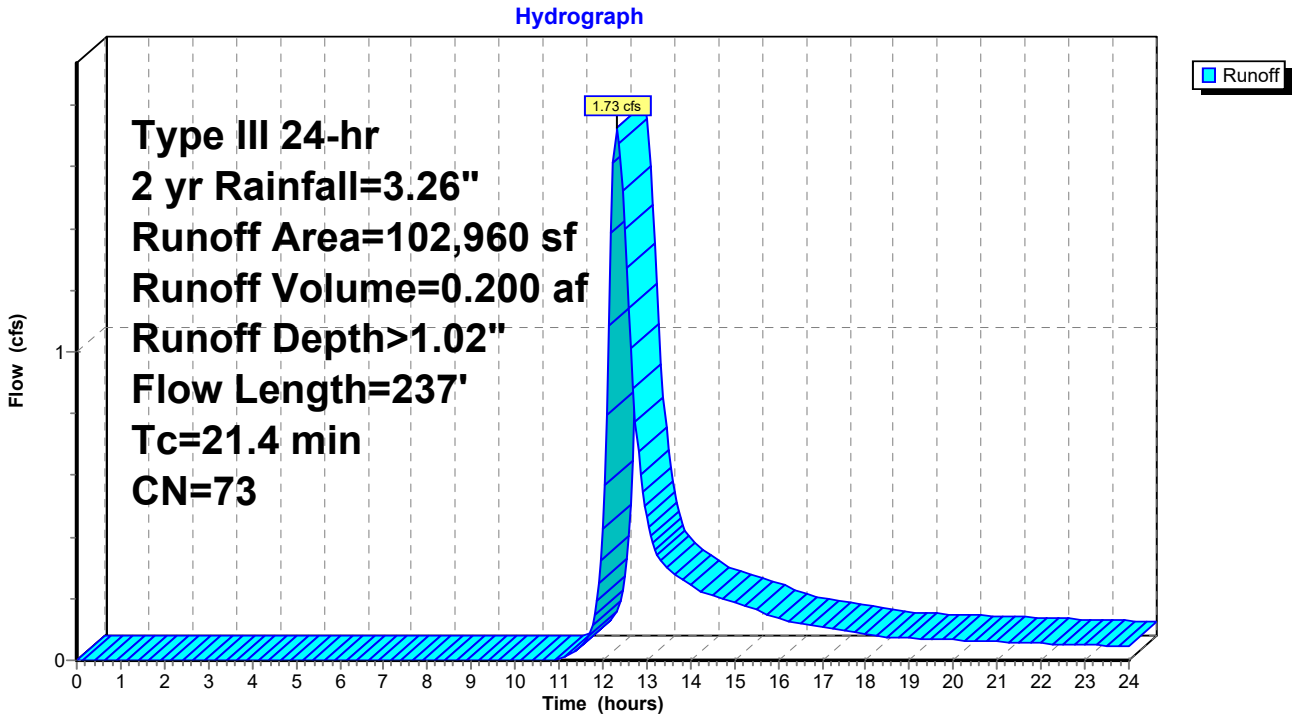
Runoff = 1.73 cfs @ 12.32 hrs, Volume= 0.200 af, Depth> 1.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.26"

Area (sf)	CN	Description
102,960	73	Woods, Fair, HSG C
102,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	50	0.0740	0.07		**Sheet Flow, Sheet Flow** Woods: Dense underbrush n= 0.800 P2= 3.26"
0.7	33	0.0240	0.77		**Shallow Concentrated Flow, Shallow Concentrated** Woodland Kv= 5.0 fps
0.4	28	0.0700	1.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.7	126	0.0030	0.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.4	237	Total			

Subcatchment EX1: EX1



Summary for Subcatchment EX2: To off Site Drainage PRE

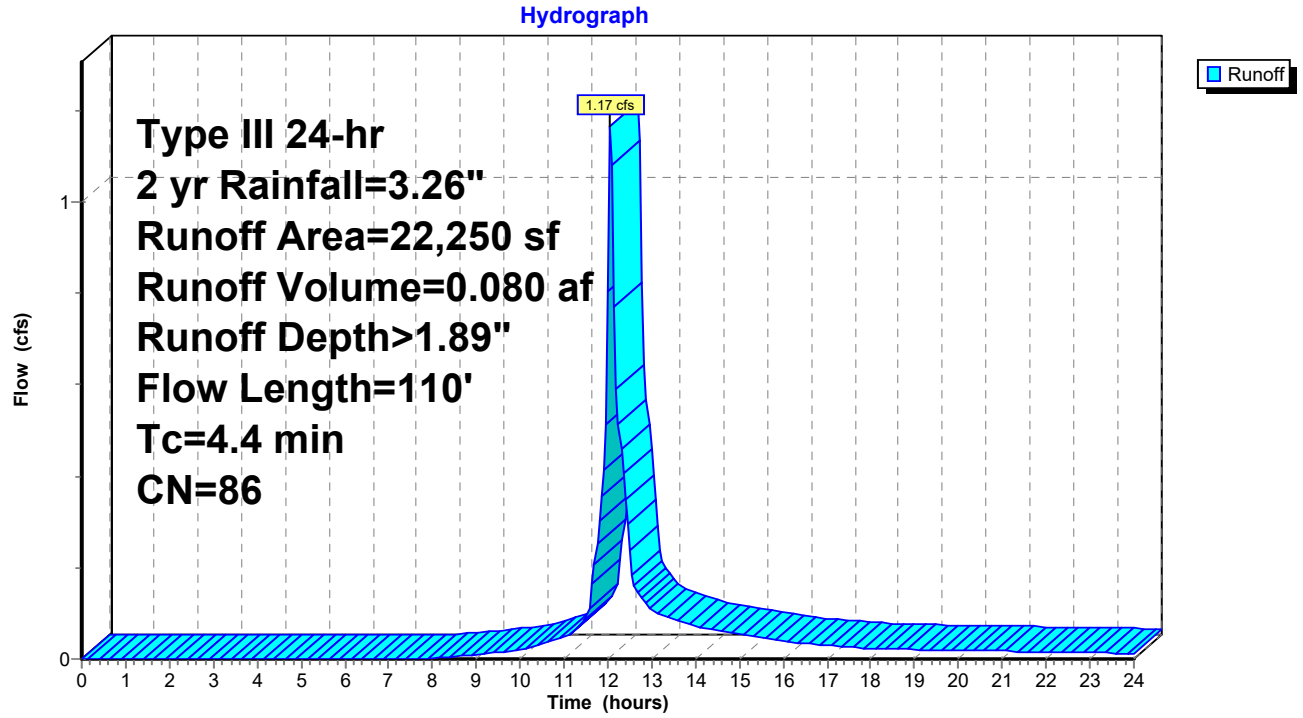
Runoff = 1.17 cfs @ 12.07 hrs, Volume= 0.080 af, Depth> 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 yr Rainfall=3.26"

Area (sf)	CN	Description
6,860	98	Paved parking, HSG C
5,555	96	Gravel surface, HSG C
9,835	73	Woods, Fair, HSG C
22,250	86	Weighted Average
15,390		69.17% Pervious Area
6,860		30.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.1800	0.07		**Sheet Flow, Sheet Flow** Woods: Dense underbrush n= 0.800 P2= 3.26"
0.6	30	0.0300	0.87		**Shallow Concentrated Flow, Shallow Concentrated** Woodland Kv= 5.0 fps
0.1	15	0.0180	2.16		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	50	0.0180	2.72		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.4	110	Total			

Subcatchment EX2: To off Site Drainage PRE



Summary for Pond DP1: Wetlands

Inflow Area = 2.364 ac, 0.00% Impervious, Inflow Depth > 1.02" for 2 yr event
Inflow = 1.73 cfs @ 12.32 hrs, Volume= 0.200 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

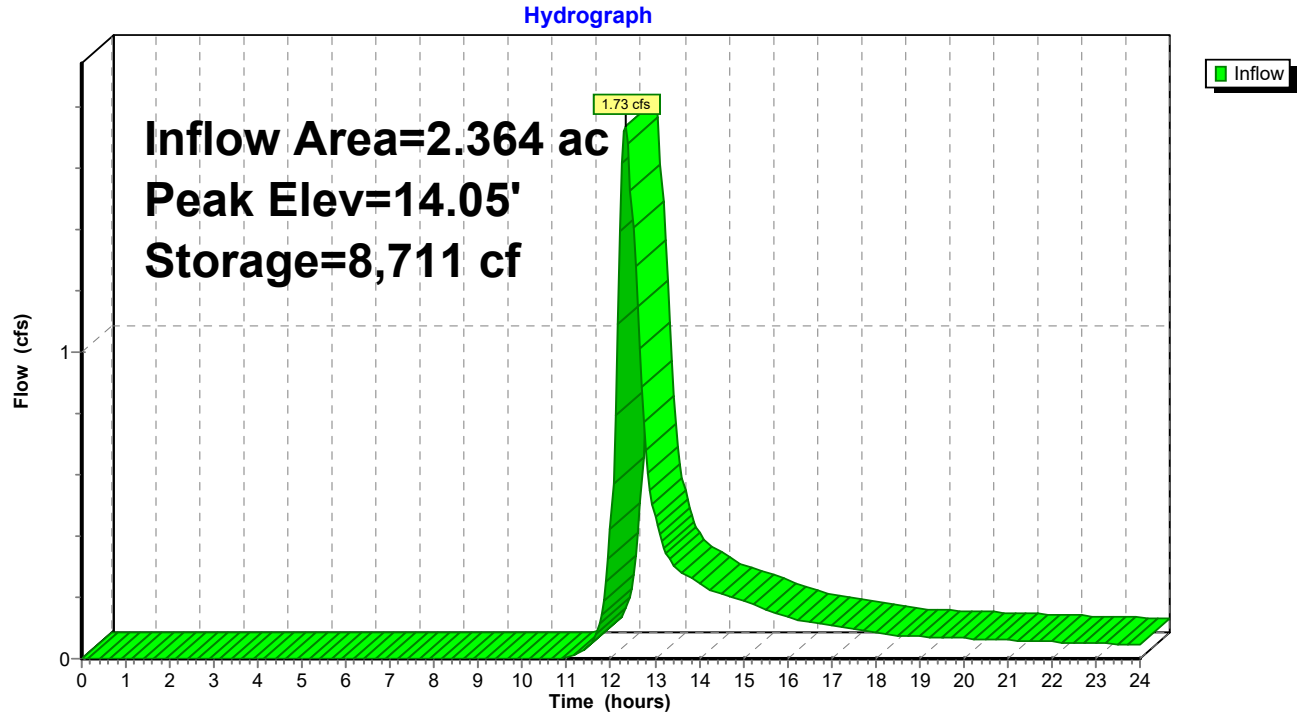
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 14.05' @ 24.00 hrs Surf.Area= 34,056 sf Storage= 8,711 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	13.75'	50,175 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.75	23,495	0	0
14.00	33,076	7,071	7,071
15.00	53,131	43,104	50,175

Pond DP1: Wetlands

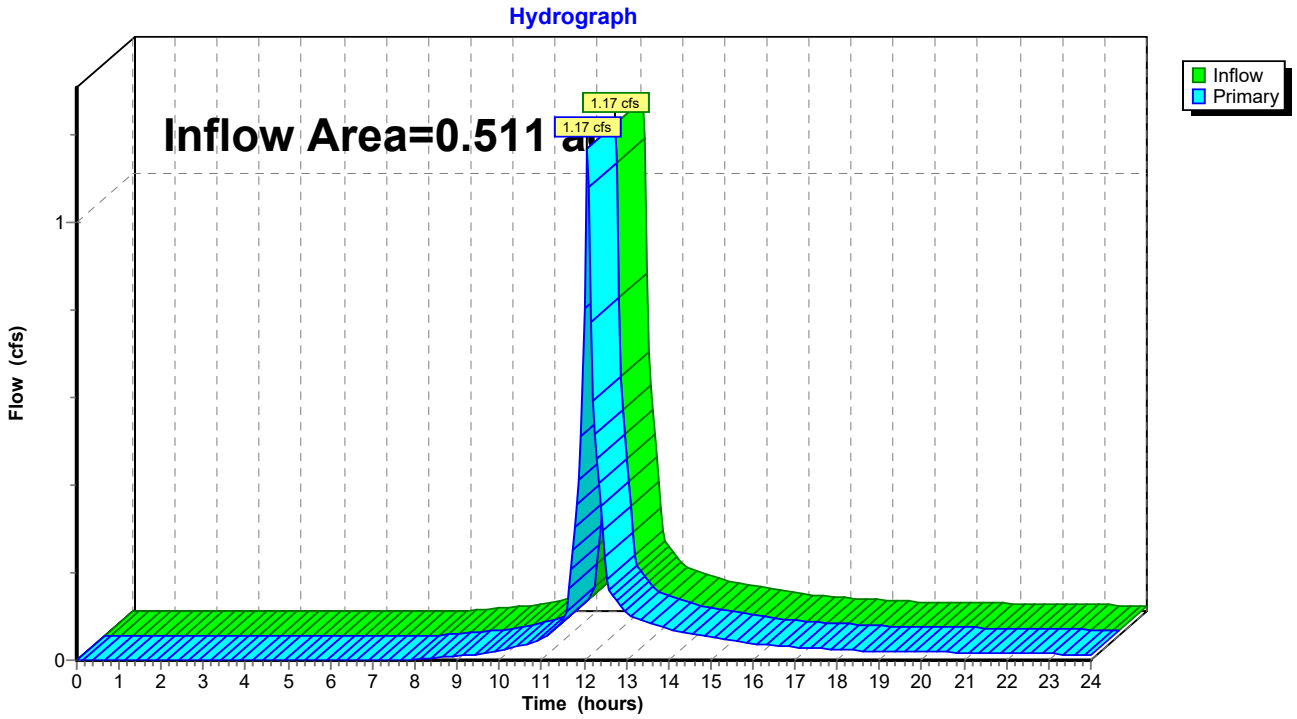


Summary for Pond DP2: IBEW DR S-M

Inflow Area = 0.511 ac, 30.83% Impervious, Inflow Depth > 1.89" for 2 yr event
Inflow = 1.17 cfs @ 12.07 hrs, Volume= 0.080 af
Primary = 1.17 cfs @ 12.07 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min

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

Pond DP2: IBEW DR S-M



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

Subcatchment EX1: EX1 Runoff Area=102,960 sf 0.00% Impervious Runoff Depth>2.19"
Flow Length=237' Tc=21.4 min CN=73 Runoff=3.94 cfs 0.432 af

Subcatchment EX2: To off Site Drainage Runoff Area=22,250 sf 30.83% Impervious Runoff Depth>3.37"
Flow Length=110' Tc=4.4 min CN=86 Runoff=2.06 cfs 0.144 af

Pond DP1: Wetlands Peak Elev=14.32' Storage=18,801 cf Inflow=3.94 cfs 0.432 af
Outflow=0.00 cfs 0.000 af

Pond DP2: IBEW DR S-M Inflow=2.06 cfs 0.144 af
Primary=2.06 cfs 0.144 af

Total Runoff Area = 2.874 ac Runoff Volume = 0.575 af Average Runoff Depth = 2.40"
94.52% Pervious = 2.717 ac 5.48% Impervious = 0.157 ac

Summary for Subcatchment EX1: EX1

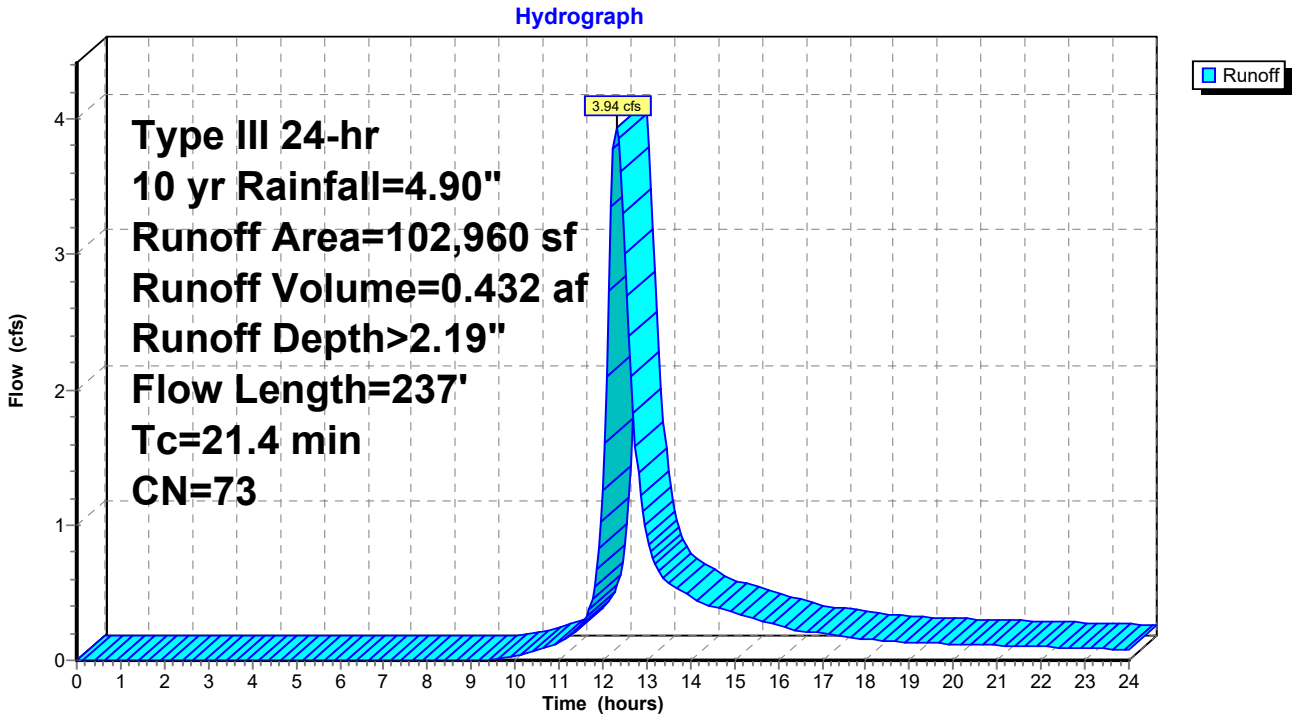
Runoff = 3.94 cfs @ 12.31 hrs, Volume= 0.432 af, Depth> 2.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=4.90"

Area (sf)	CN	Description
102,960	73	Woods, Fair, HSG C
102,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	50	0.0740	0.07		**Sheet Flow, Sheet Flow** Woods: Dense underbrush n= 0.800 P2= 3.26"
0.7	33	0.0240	0.77		**Shallow Concentrated Flow, Shallow Concentrated** Woodland Kv= 5.0 fps
0.4	28	0.0700	1.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.7	126	0.0030	0.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.4	237	Total			

Subcatchment EX1: EX1



Summary for Subcatchment EX2: To off Site Drainage PRE

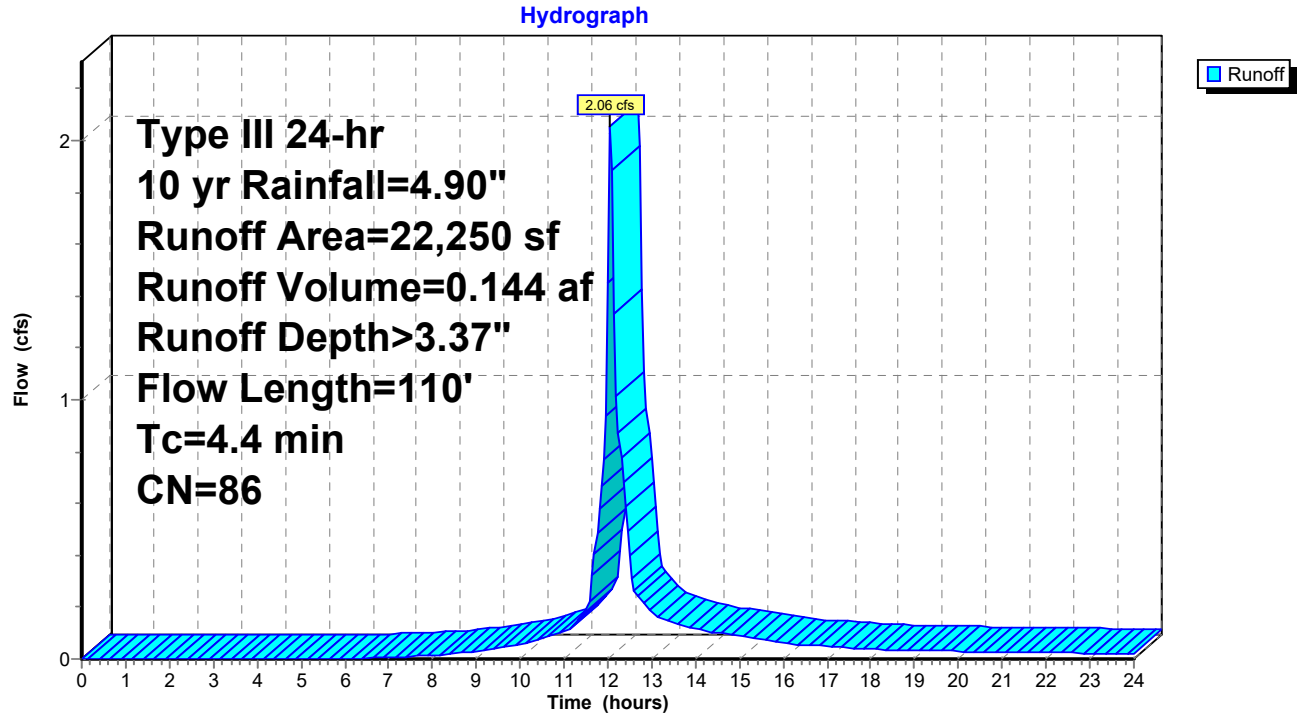
Runoff = 2.06 cfs @ 12.07 hrs, Volume= 0.144 af, Depth> 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr Rainfall=4.90"

Area (sf)	CN	Description
6,860	98	Paved parking, HSG C
5,555	96	Gravel surface, HSG C
9,835	73	Woods, Fair, HSG C
22,250	86	Weighted Average
15,390		69.17% Pervious Area
6,860		30.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.1800	0.07		**Sheet Flow, Sheet Flow** Woods: Dense underbrush n= 0.800 P2= 3.26"
0.6	30	0.0300	0.87		**Shallow Concentrated Flow, Shallow Concentrated** Woodland Kv= 5.0 fps
0.1	15	0.0180	2.16		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	50	0.0180	2.72		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.4	110	Total			

Subcatchment EX2: To off Site Drainage PRE



Summary for Pond DP1: Wetlands

Inflow Area = 2.364 ac, 0.00% Impervious, Inflow Depth > 2.19" for 10 yr event
Inflow = 3.94 cfs @ 12.31 hrs, Volume= 0.432 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

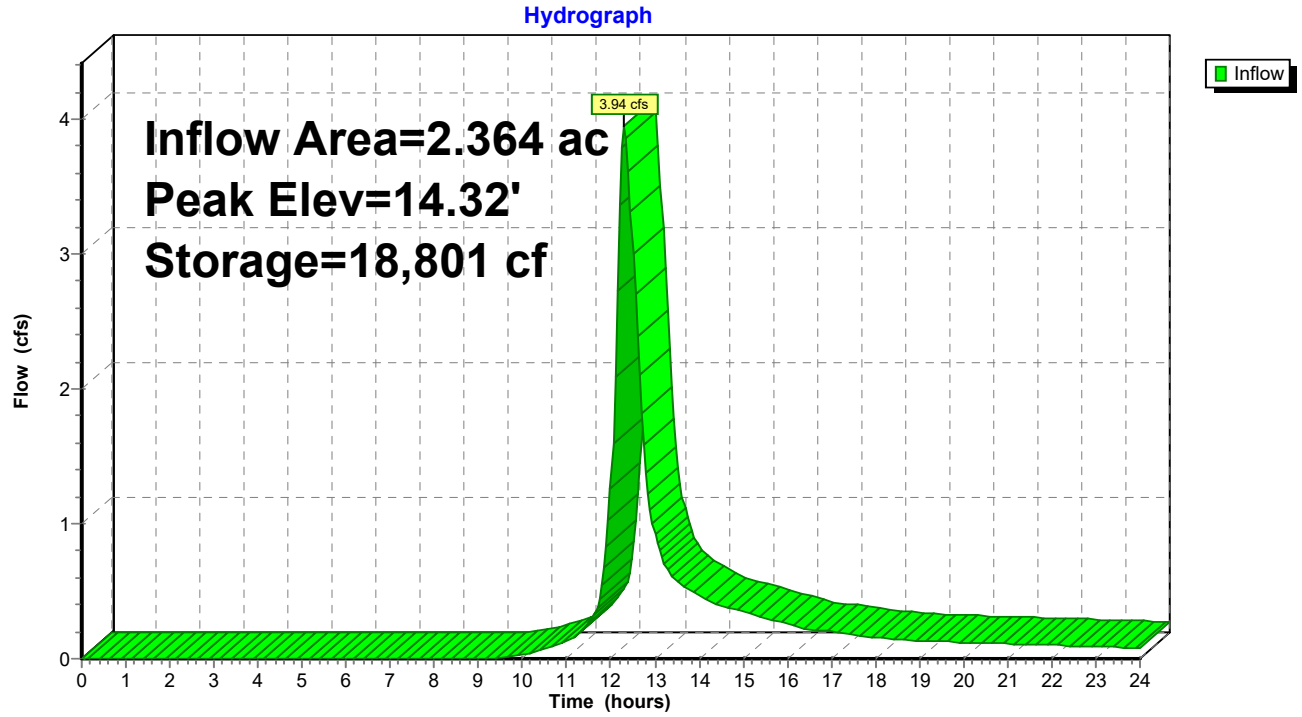
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 14.32' @ 24.00 hrs Surf.Area= 39,554 sf Storage= 18,801 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	13.75'	50,175 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.75	23,495	0	0
14.00	33,076	7,071	7,071
15.00	53,131	43,104	50,175

Pond DP1: Wetlands

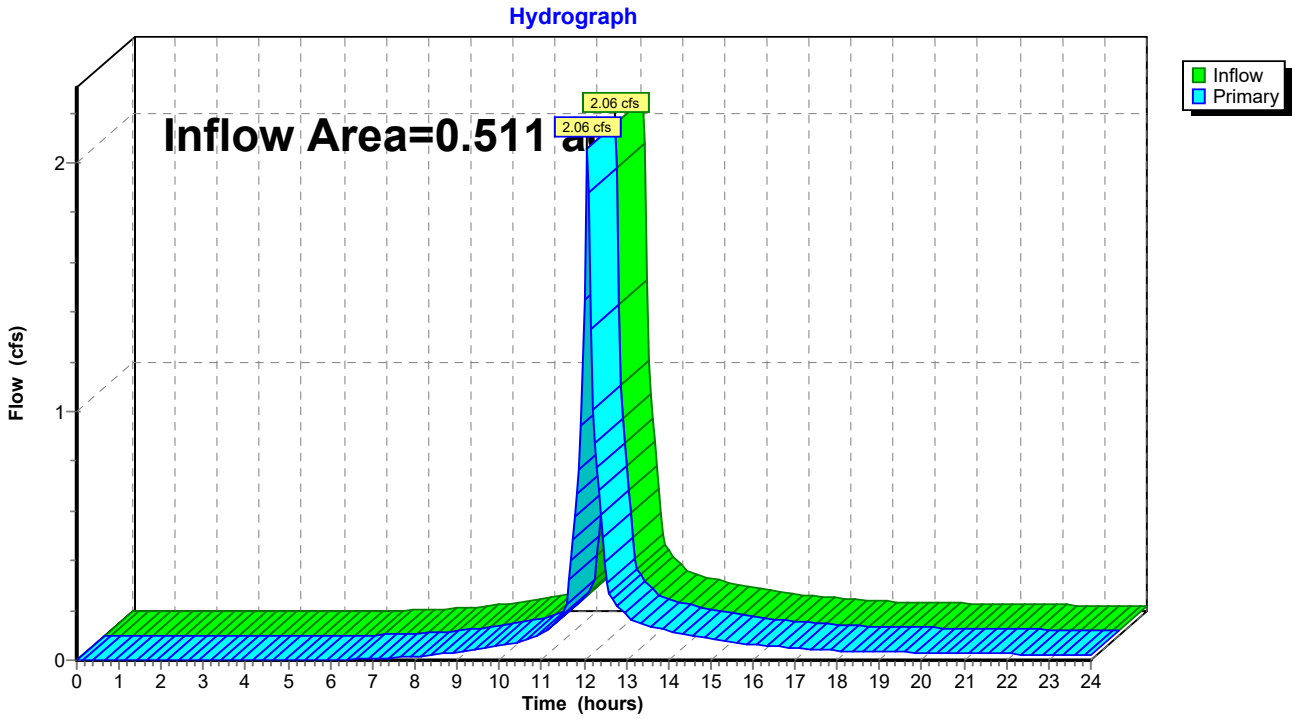


Summary for Pond DP2: IBEW DR S-M

Inflow Area = 0.511 ac, 30.83% Impervious, Inflow Depth > 3.37" for 10 yr event
Inflow = 2.06 cfs @ 12.07 hrs, Volume= 0.144 af
Primary = 2.06 cfs @ 12.07 hrs, Volume= 0.144 af, Atten= 0%, Lag= 0.0 min

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

Pond DP2: IBEW DR S-M



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

Subcatchment EX1: EX1 Runoff Area=102,960 sf 0.00% Impervious Runoff Depth>5.51"
Flow Length=237' Tc=21.4 min CN=73 Runoff=10.00 cfs 1.086 af

Subcatchment EX2: To off Site Drainage Runoff Area=22,250 sf 30.83% Impervious Runoff Depth>7.12"
Flow Length=110' Tc=4.4 min CN=86 Runoff=4.19 cfs 0.303 af

Pond DP1: Wetlands Peak Elev=14.95' Storage=47,285 cf Inflow=10.00 cfs 1.086 af
Outflow=0.00 cfs 0.000 af

Pond DP2: IBEW DR S-M Inflow=4.19 cfs 0.303 af
Primary=4.19 cfs 0.303 af

Total Runoff Area = 2.874 ac Runoff Volume = 1.389 af Average Runoff Depth = 5.80"
94.52% Pervious = 2.717 ac 5.48% Impervious = 0.157 ac

Summary for Subcatchment EX1: EX1

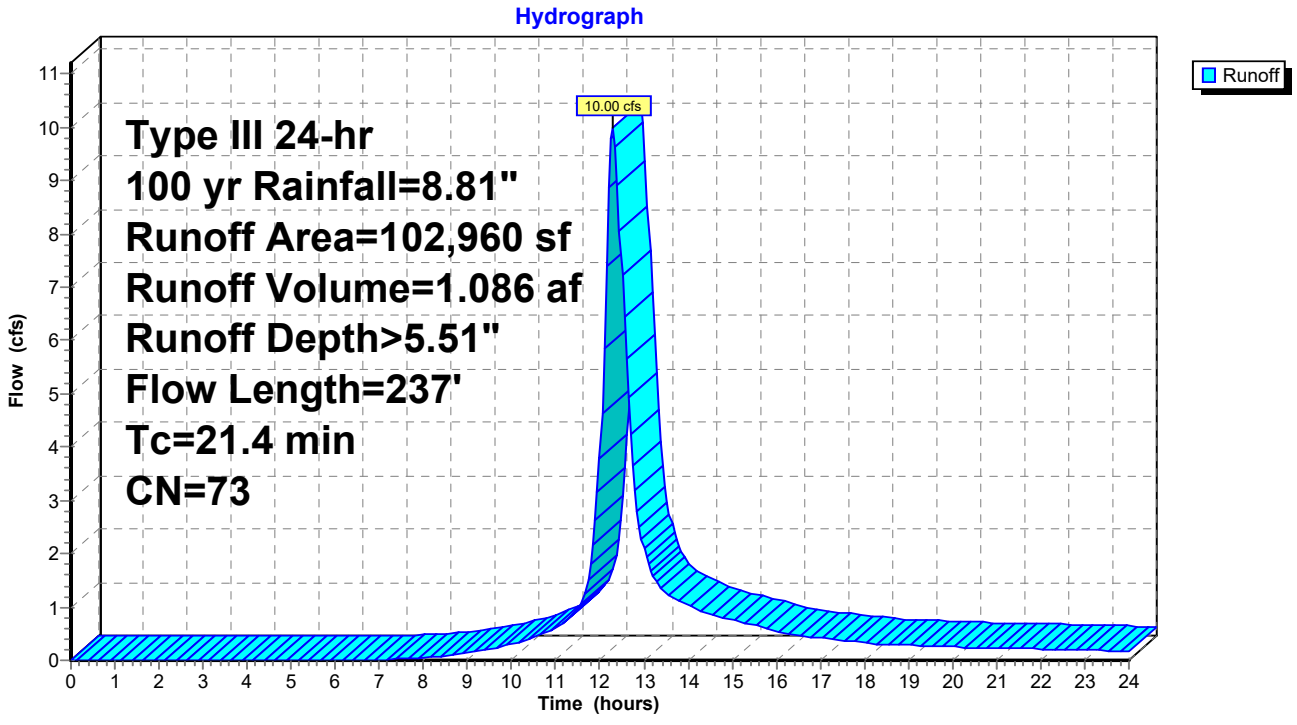
Runoff = 10.00 cfs @ 12.29 hrs, Volume= 1.086 af, Depth> 5.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 yr Rainfall=8.81"

Area (sf)	CN	Description
102,960	73	Woods, Fair, HSG C
102,960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	50	0.0740	0.07		**Sheet Flow, Sheet Flow** Woods: Dense underbrush n= 0.800 P2= 3.26"
0.7	33	0.0240	0.77		**Shallow Concentrated Flow, Shallow Concentrated** Woodland Kv= 5.0 fps
0.4	28	0.0700	1.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.7	126	0.0030	0.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.4	237	Total			

Subcatchment EX1: EX1



Summary for Subcatchment EX2: To off Site Drainage PRE

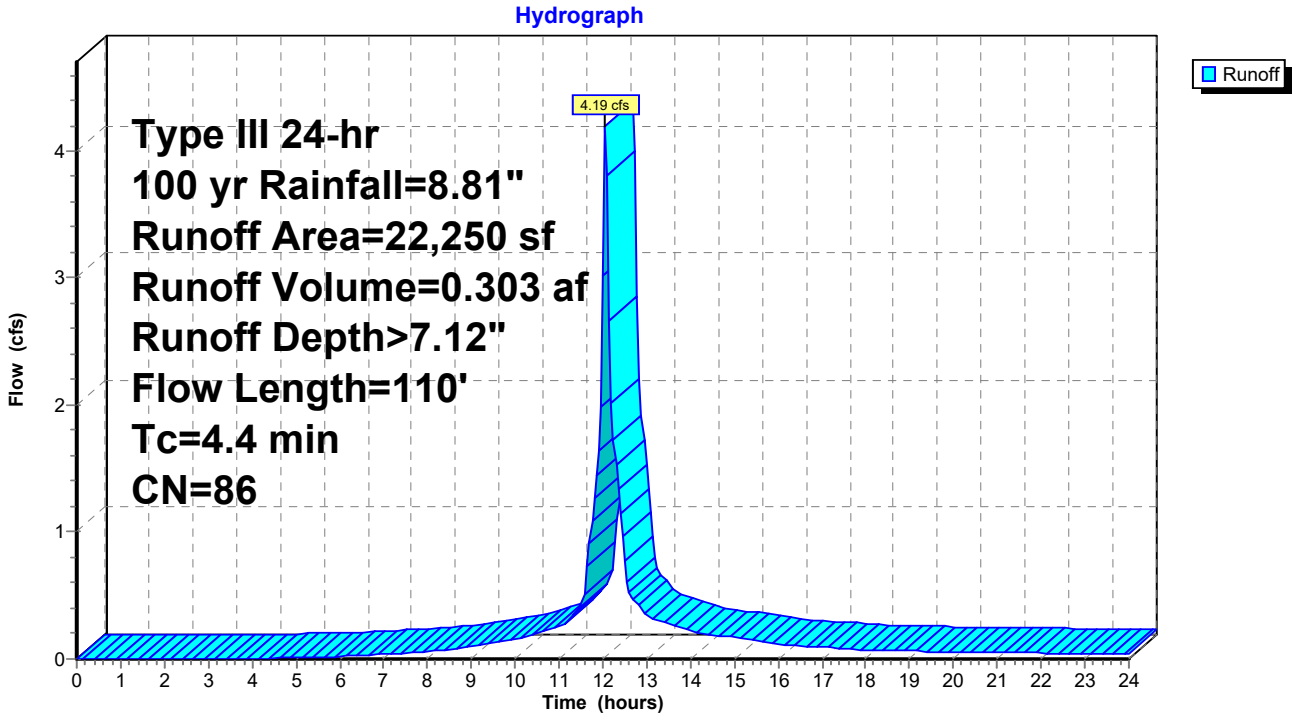
Runoff = 4.19 cfs @ 12.06 hrs, Volume= 0.303 af, Depth> 7.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 yr Rainfall=8.81"

Area (sf)	CN	Description
6,860	98	Paved parking, HSG C
5,555	96	Gravel surface, HSG C
9,835	73	Woods, Fair, HSG C
22,250	86	Weighted Average
15,390		69.17% Pervious Area
6,860		30.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	15	0.1800	0.07		**Sheet Flow, Sheet Flow** Woods: Dense underbrush n= 0.800 P2= 3.26"
0.6	30	0.0300	0.87		**Shallow Concentrated Flow, Shallow Concentrated** Woodland Kv= 5.0 fps
0.1	15	0.0180	2.16		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	50	0.0180	2.72		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.4	110	Total			

Subcatchment EX2: To off Site Drainage PRE



Summary for Pond DP1: Wetlands

Inflow Area = 2.364 ac, 0.00% Impervious, Inflow Depth > 5.51" for 100 yr event
Inflow = 10.00 cfs @ 12.29 hrs, Volume= 1.086 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

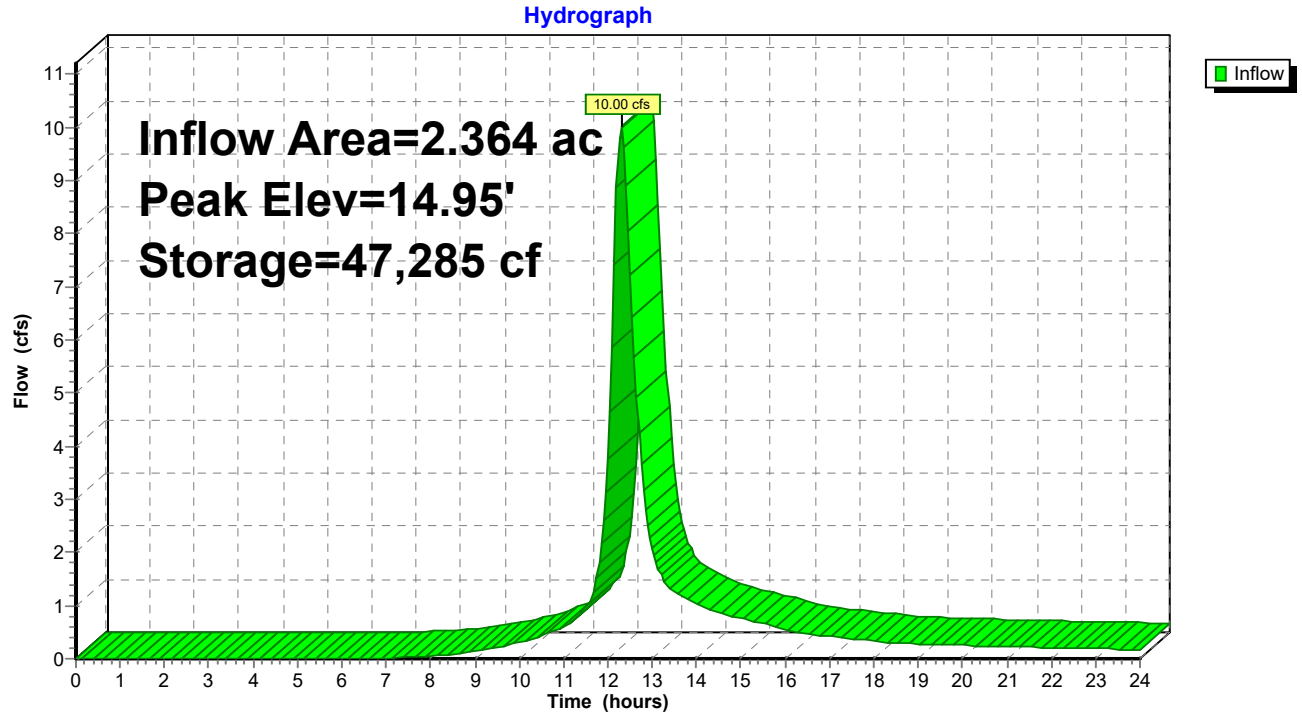
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 14.95' @ 24.00 hrs Surf.Area= 52,029 sf Storage= 47,285 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	13.75'	50,175 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.75	23,495	0	0
14.00	33,076	7,071	7,071
15.00	53,131	43,104	50,175

Pond DP1: Wetlands

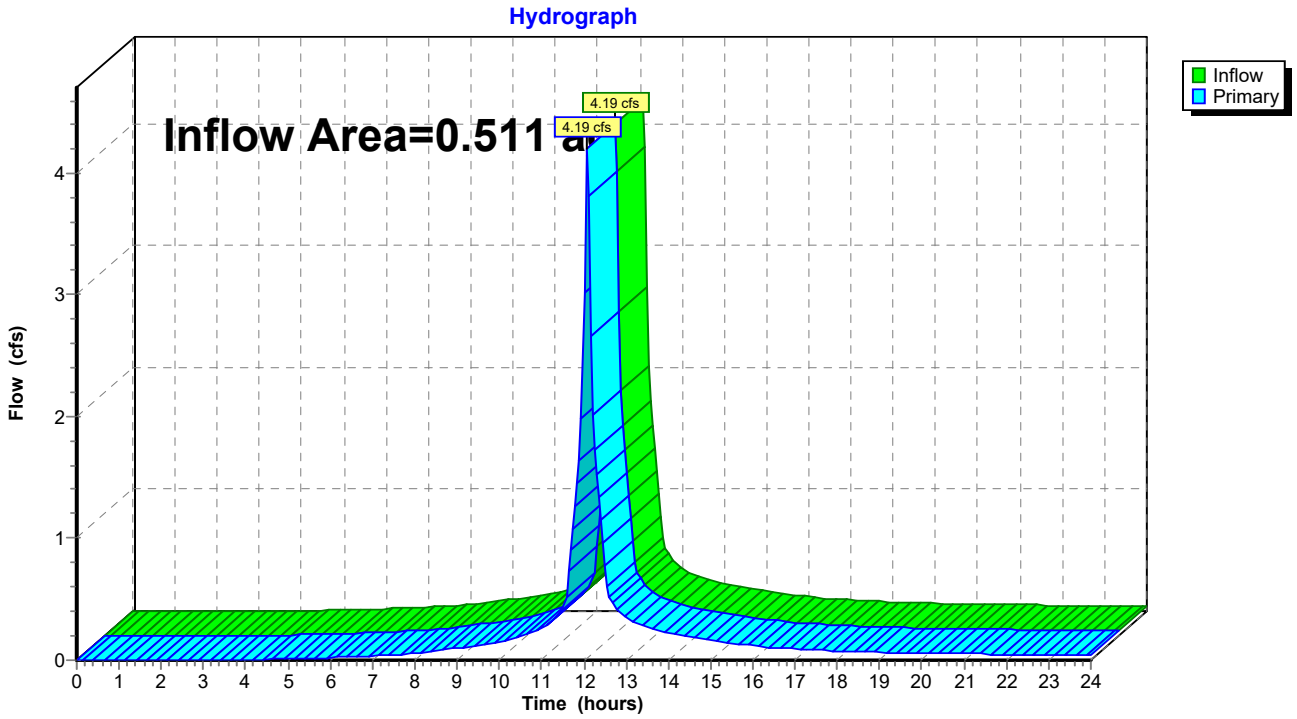


Summary for Pond DP2: IBEW DR S-M

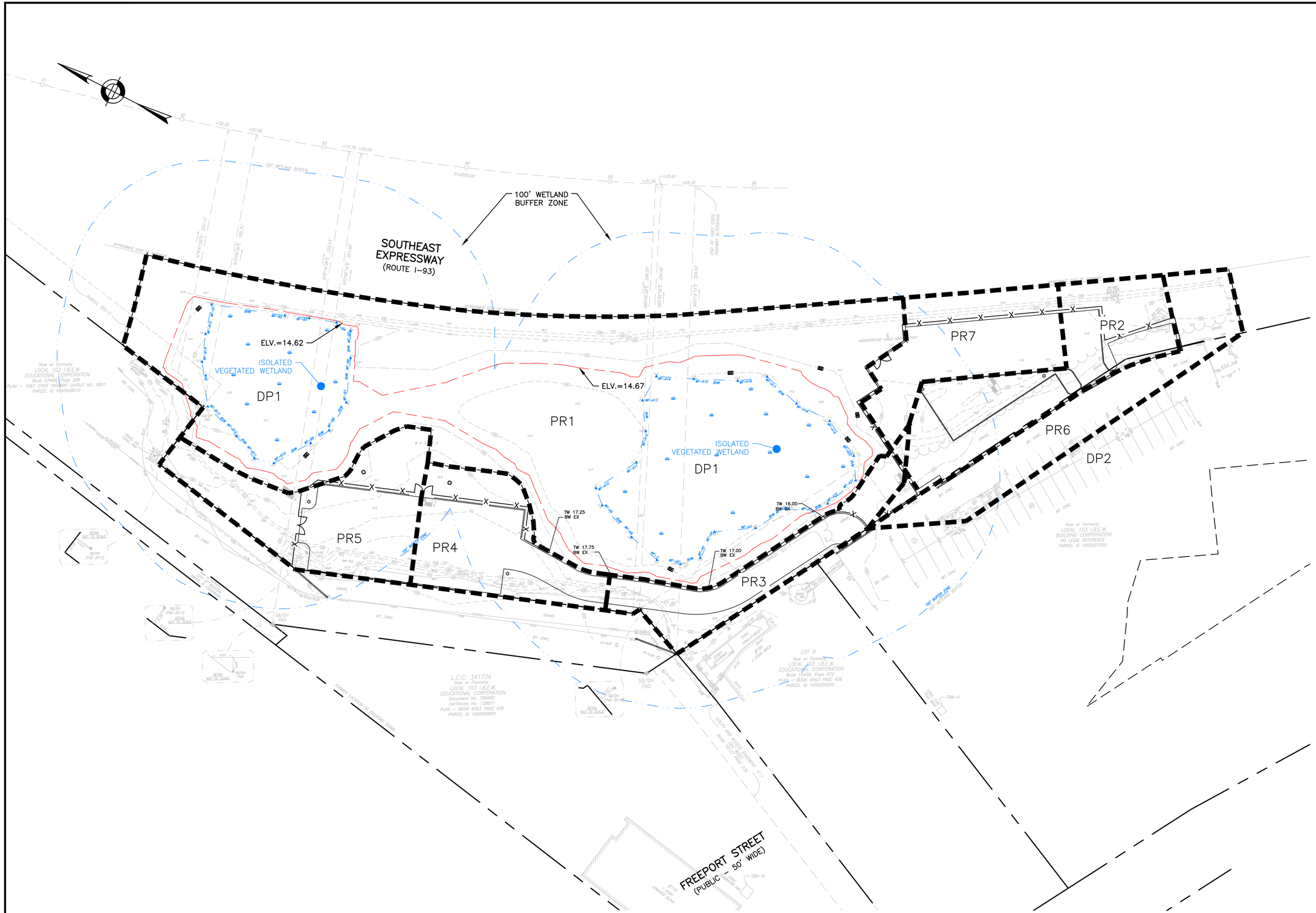
Inflow Area = 0.511 ac, 30.83% Impervious, Inflow Depth > 7.12" for 100 yr event
Inflow = 4.19 cfs @ 12.06 hrs, Volume= 0.303 af
Primary = 4.19 cfs @ 12.06 hrs, Volume= 0.303 af, Atten= 0%, Lag= 0.0 min

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

Pond DP2: IBEW DR S-M



Appendix C:
Post-Construction Hydrology



HOWARD STEIN HUDSON
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PREPARED FOR:

256 FREEPORT STREET
BOSTON, MA

REVISIONS:

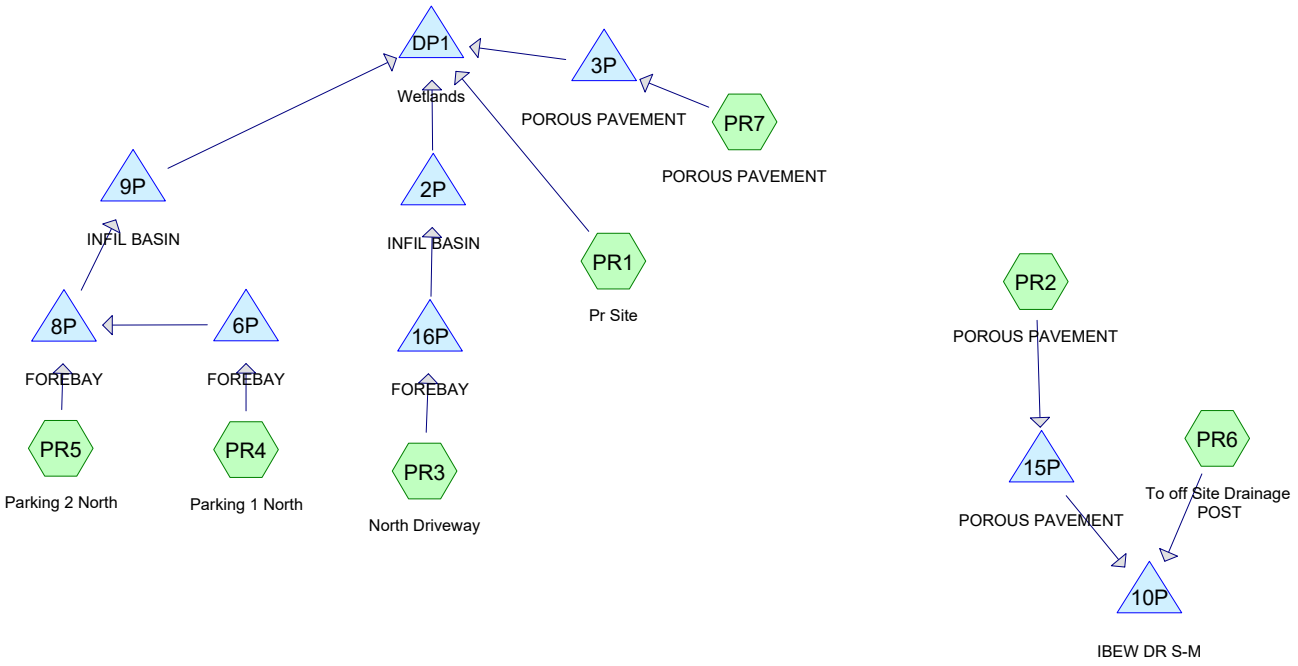
NO	BY	DATE	DESCRIPTION

NOT FOR CONSTRUCTION

PROPOSED HYDROLOGY

DATE:	3/22/22
PROJECT NUMBER:	19059
DESIGNED BY:	RJM
DRAWN BY:	RJM
CHECKED BY:	JD

FIG 2



Subcat Reach Pond Link

Routing Diagram for Proposed Hydrology

Prepared by {enter your company name here}, Printed 3/21/2022

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2 yr	Type III 24-hr		Default	24.00	1	3.26	2
2	10 yr	Type III 24-hr		Default	24.00	1	4.90	2
3	100 yr	Type III 24-hr		Default	24.00	1	8.81	2
4	Custom	Type III 24-hr		Default	24.00	1	6.70	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.169	74	>75% Grass cover, Good, HSG C (PR1, PR2, PR3, PR4, PR5, PR6, PR7)
0.705	98	Paved parking, HSG C (PR2, PR3, PR4, PR5, PR6, PR7)
2.874	**80**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
2.874	HSG C	PR1, PR2, PR3, PR4, PR5, PR6, PR7
0.000	HSG D	
0.000	Other	
2.874		**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	0.000	2.169	0.000	0.000	2.169	>75% Grass cover, Good	PR1, PR2, PR3, PR4, PR5, PR6, PR7
0.000	0.000	0.705	0.000	0.000	0.705	Paved parking	PR2, PR3, PR4, PR5, PR6, PR7
0.000	**0.000**	**2.874**	**0.000**	**0.000**	**2.874**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	3P	15.45	14.75	137.0	0.0051	0.013	6.0	0.0	0.0
2	15P	15.45	14.75	137.0	0.0051	0.010	6.0	0.0	0.0

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 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 PR1: Pr Site Runoff Area=72,210 sf 0.00% Impervious Runoff Depth=1.08"
Flow Length=237' Tc=21.4 min CN=74 Runoff=1.30 cfs 0.149 af

Subcatchment PR2: POROUS PAVEMENT Runoff Area=10,879 sf 39.68% Impervious Runoff Depth>1.64"
Tc=480.0 min CN=84 Runoff=0.05 cfs 0.034 af

Subcatchment PR3: North Driveway Runoff Area=6,564 sf 50.94% Impervious Runoff Depth=1.89"
Tc=5.0 min CN=86 Runoff=0.35 cfs 0.024 af

Subcatchment PR4: Parking 1 North Runoff Area=8,250 sf 65.64% Impervious Runoff Depth=2.22"
Tc=5.0 min CN=90 Runoff=0.51 cfs 0.035 af

Subcatchment PR5: Parking 2 North Runoff Area=10,520 sf 43.20% Impervious Runoff Depth=1.73"
Tc=5.0 min CN=84 Runoff=0.51 cfs 0.035 af

Subcatchment PR6: To off Site Drainage Runoff Area=8,722 sf 74.16% Impervious Runoff Depth=2.41"
Tc=5.0 min CN=92 Runoff=0.57 cfs 0.040 af

Subcatchment PR7: POROUS PAVEMENT Runoff Area=8,043 sf 82.33% Impervious Runoff Depth>2.49"
Tc=480.0 min CN=94 Runoff=0.05 cfs 0.038 af

Pond 2P: INFIL BASIN Peak Elev=14.81' Storage=226 cf Inflow=0.34 cfs 0.017 af
Discarded=0.00 cfs 0.005 af Primary=0.16 cfs 0.009 af Outflow=0.16 cfs 0.014 af

Pond 3P: POROUS PAVEMENT Peak Elev=15.31' Storage=419 cf Inflow=0.05 cfs 0.038 af
Discarded=0.03 cfs 0.036 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.036 af

Pond 6P: FOREBAY Peak Elev=15.76' Storage=660 cf Inflow=0.51 cfs 0.035 af
Discarded=0.01 cfs 0.012 af Primary=0.19 cfs 0.013 af Outflow=0.20 cfs 0.025 af

Pond 8P: FOREBAY Peak Elev=15.55' Storage=443 cf Inflow=0.51 cfs 0.048 af
Discarded=0.01 cfs 0.009 af Primary=0.41 cfs 0.033 af Outflow=0.41 cfs 0.042 af

Pond 9P: INFIL BASIN Peak Elev=15.01' Storage=1,035 cf Inflow=0.41 cfs 0.033 af
Discarded=0.01 cfs 0.019 af Primary=0.02 cfs 0.002 af Outflow=0.03 cfs 0.021 af

Pond 10P: IBEW DR S-M Inflow=0.57 cfs 0.040 af
Primary=0.57 cfs 0.040 af

Pond 15P: POROUS PAVEMENT Peak Elev=14.96' Storage=29 cf Inflow=0.05 cfs 0.034 af
Discarded=0.04 cfs 0.034 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.034 af

Pond 16P: FOREBAY Peak Elev=14.95' Storage=200 cf Inflow=0.35 cfs 0.024 af
Discarded=0.00 cfs 0.004 af Primary=0.34 cfs 0.017 af Outflow=0.34 cfs 0.021 af

Pond DP1: Wetlands Peak Elev=14.00' Storage=6,950 cf Inflow=1.44 cfs 0.160 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 2.874 ac Runoff Volume = 0.355 af Average Runoff Depth = 1.48"
75.47% Pervious = 2.169 ac 24.53% Impervious = 0.705 ac

Summary for Subcatchment PR1: Pr Site

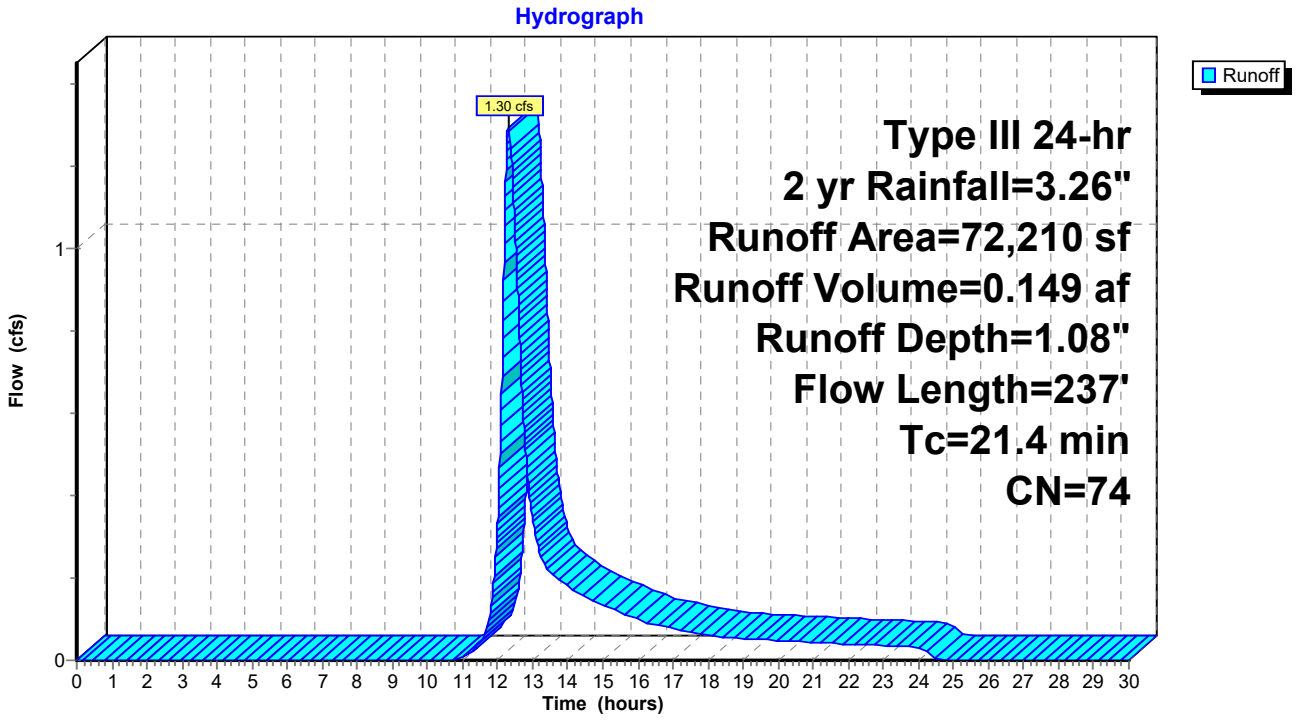
Runoff = 1.30 cfs @ 12.32 hrs, Volume= 0.149 af, Depth= 1.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.26"

Area (sf)	CN	Description
72,210	74	>75% Grass cover, Good, HSG C
72,210		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	50	0.0740	0.07		**Sheet Flow, Sheet Flow** Woods: Dense underbrush n= 0.800 P2= 3.26"
0.7	33	0.0240	0.77		**Shallow Concentrated Flow, Shallow Concentrated** Woodland Kv= 5.0 fps
0.4	28	0.0700	1.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.7	126	0.0030	0.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.4	237	Total			

Subcatchment PR1: Pr Site



Summary for Subcatchment PR2: POROUS PAVEMENT

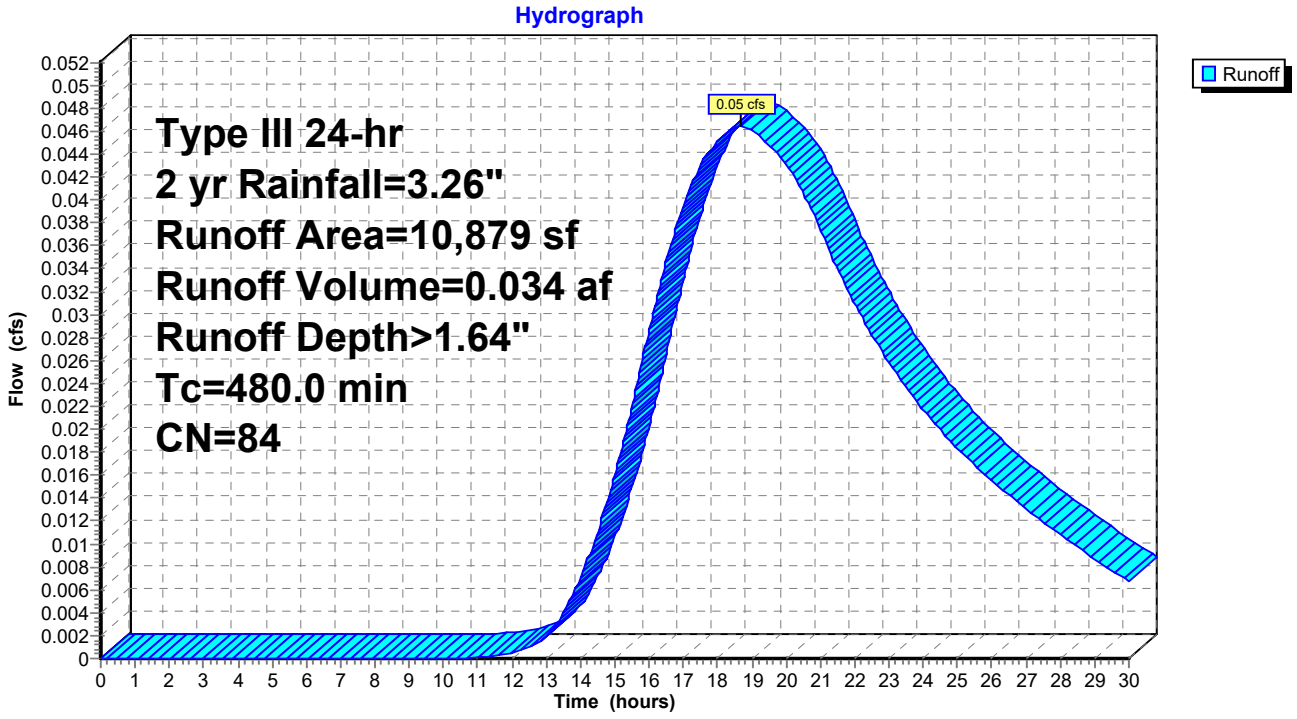
Runoff = 0.05 cfs @ 18.67 hrs, Volume= 0.034 af, Depth> 1.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.26"

Area (sf)	CN	Description
4,317	98	Paved parking, HSG C
6,562	74	>75% Grass cover, Good, HSG C
10,879	84	Weighted Average
6,562		60.32% Pervious Area
4,317		39.68% Impervious Area

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

Subcatchment PR2: POROUS PAVEMENT



Summary for Subcatchment PR3: North Driveway

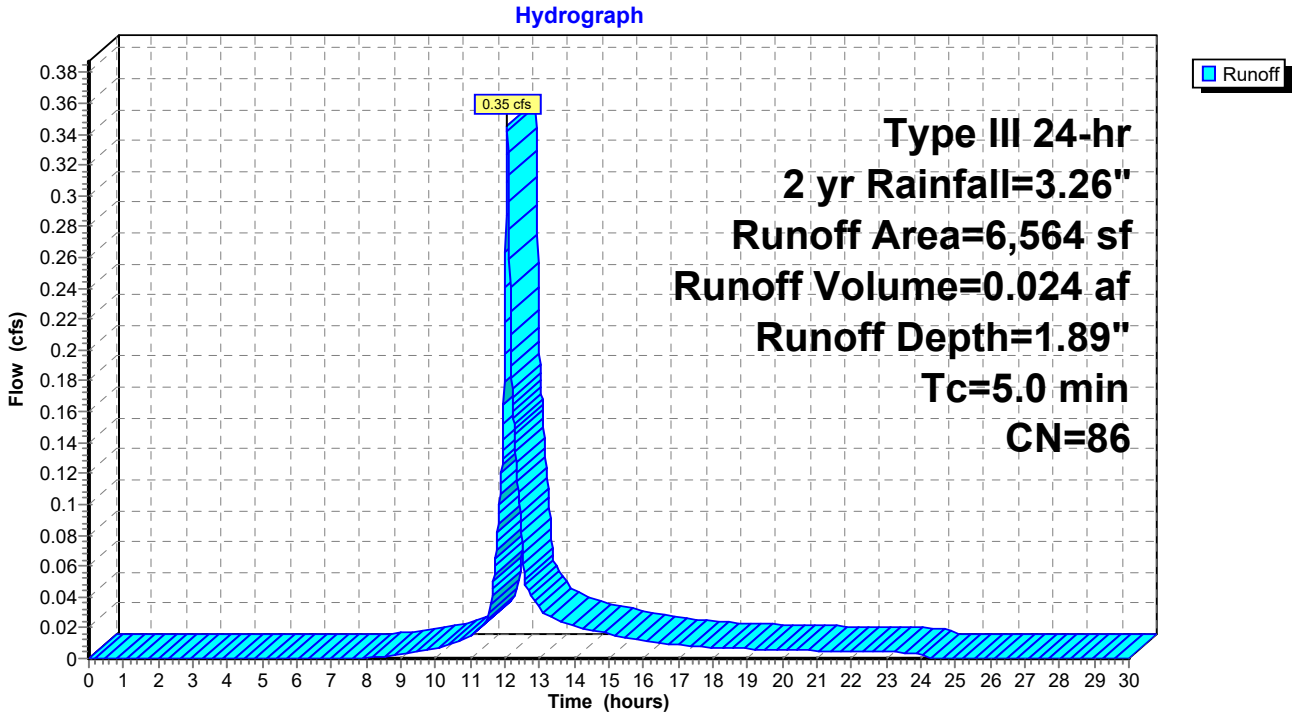
Runoff = 0.35 cfs @ 12.07 hrs, Volume= 0.024 af, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.26"

Area (sf)	CN	Description
3,344	98	Paved parking, HSG C
3,220	74	>75% Grass cover, Good, HSG C
6,564	86	Weighted Average
3,220		49.06% Pervious Area
3,344		50.94% Impervious Area

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

Subcatchment PR3: North Driveway



Summary for Subcatchment PR4: Parking 1 North

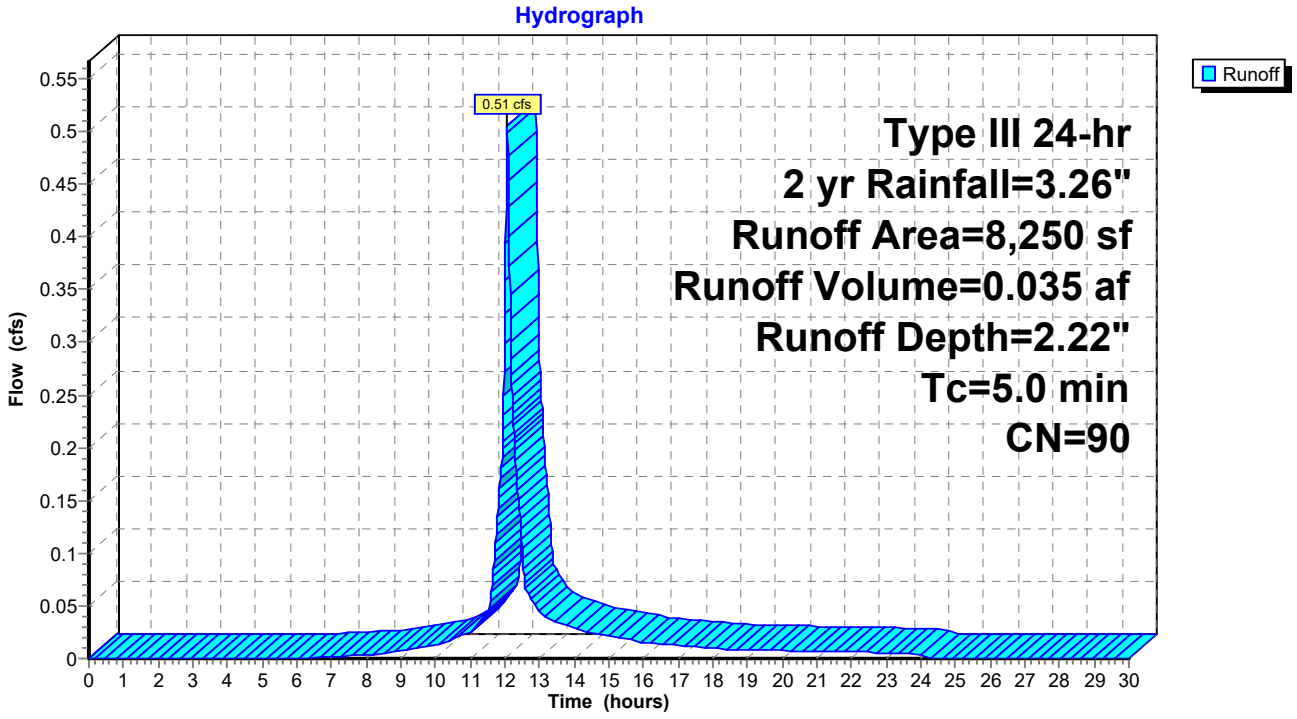
Runoff = 0.51 cfs @ 12.07 hrs, Volume= 0.035 af, Depth= 2.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.26"

Area (sf)	CN	Description
5,415	98	Paved parking, HSG C
2,835	74	>75% Grass cover, Good, HSG C
8,250	90	Weighted Average
2,835		34.36% Pervious Area
5,415		65.64% Impervious Area

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

Subcatchment PR4: Parking 1 North



Summary for Subcatchment PR5: Parking 2 North

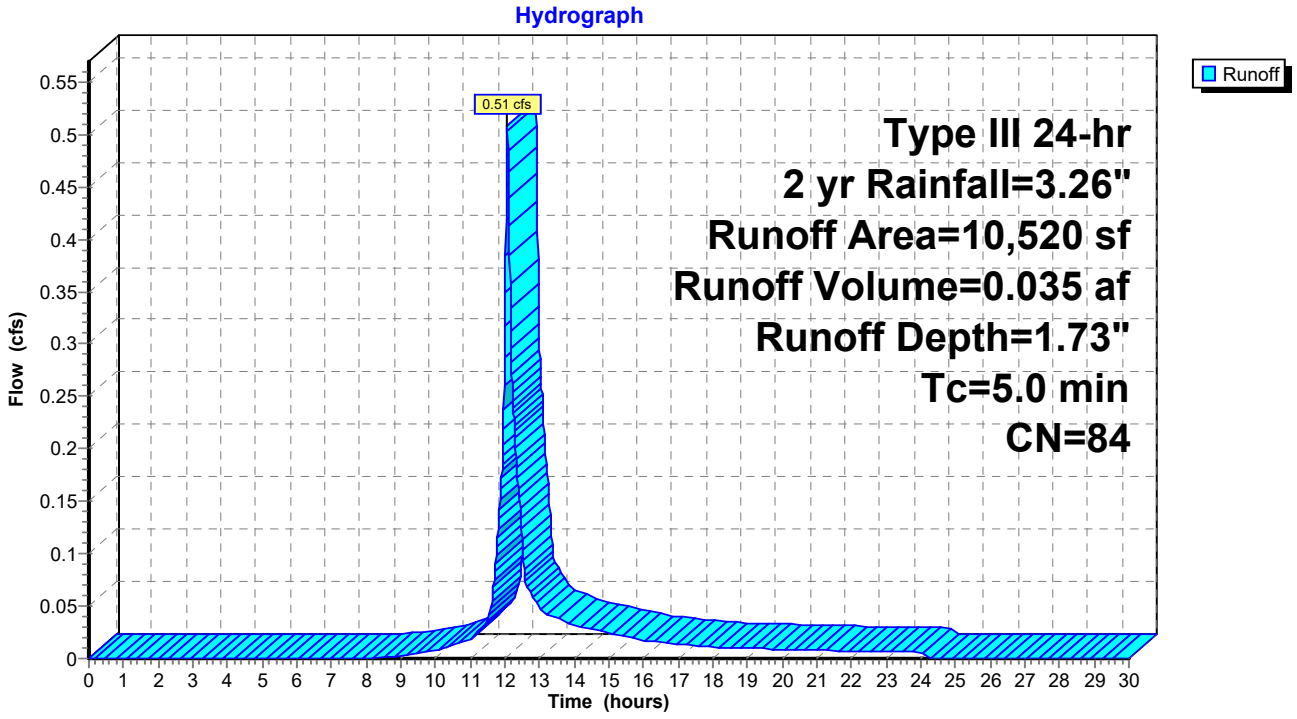
Runoff = 0.51 cfs @ 12.08 hrs, Volume= 0.035 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.26"

Area (sf)	CN	Description
4,545	98	Paved parking, HSG C
5,975	74	>75% Grass cover, Good, HSG C
10,520	84	Weighted Average
5,975		56.80% Pervious Area
4,545		43.20% Impervious Area

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

Subcatchment PR5: Parking 2 North



Summary for Subcatchment PR6: To off Site Drainage POST

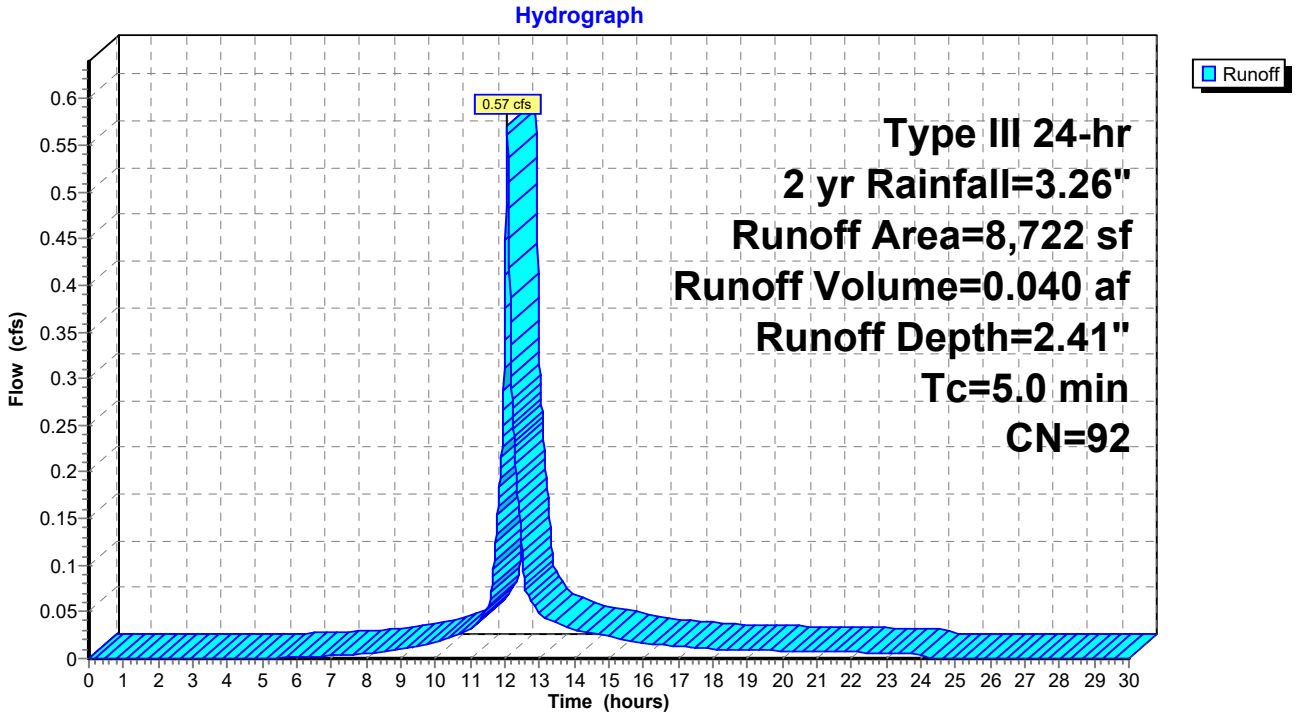
Runoff = 0.57 cfs @ 12.07 hrs, Volume= 0.040 af, Depth= 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.26"

Area (sf)	CN	Description
6,468	98	Paved parking, HSG C
2,254	74	>75% Grass cover, Good, HSG C
8,722	92	Weighted Average
2,254		25.84% Pervious Area
6,468		74.16% Impervious Area

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

Subcatchment PR6: To off Site Drainage POST



Summary for Subcatchment PR7: POROUS PAVEMENT

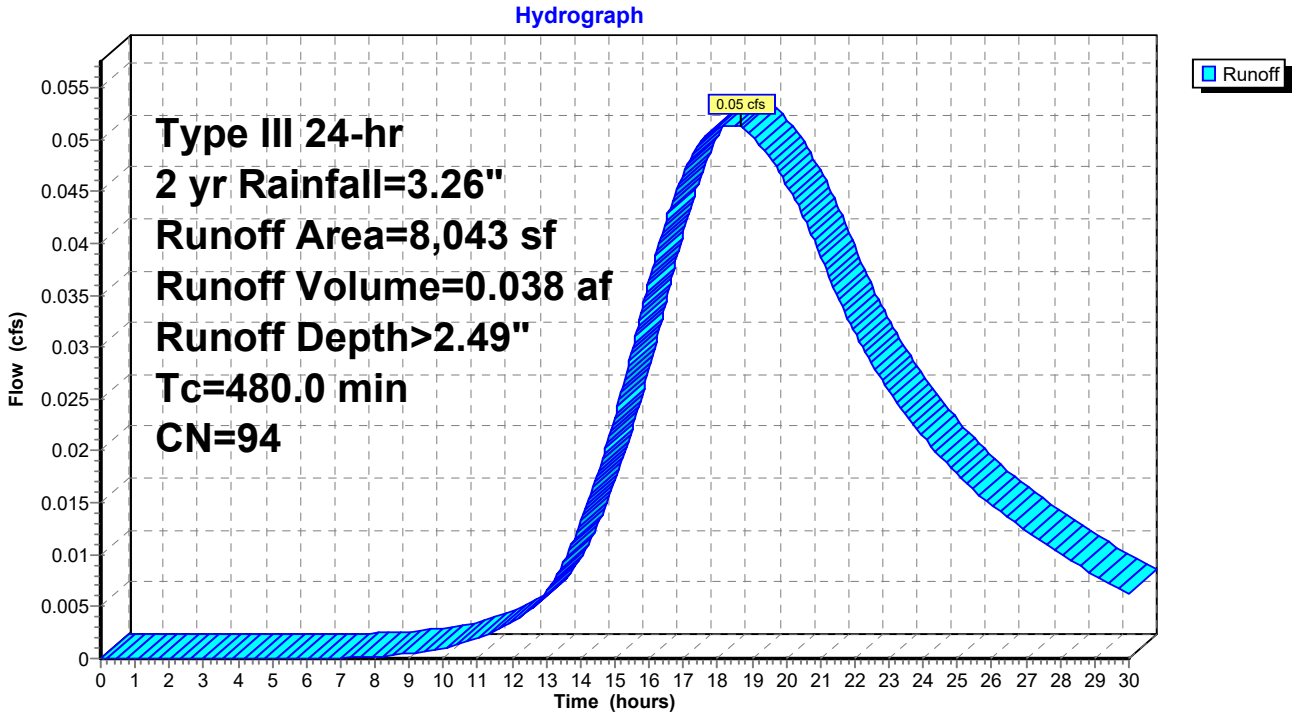
Runoff = 0.05 cfs @ 18.66 hrs, Volume= 0.038 af, Depth> 2.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.26"

Area (sf)	CN	Description
6,622	98	Paved parking, HSG C
1,421	74	>75% Grass cover, Good, HSG C
8,043	94	Weighted Average
1,421		17.67% Pervious Area
6,622		82.33% Impervious Area

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

Subcatchment PR7: POROUS PAVEMENT



Summary for Pond 2P: INFIL BASIN

Inflow Area = 0.151 ac, 50.94% Impervious, Inflow Depth = 1.32" for 2 yr event
Inflow = 0.34 cfs @ 12.09 hrs, Volume= 0.017 af
Outflow = 0.16 cfs @ 12.25 hrs, Volume= 0.014 af, Atten= 52%, Lag= 9.7 min
Discarded = 0.00 cfs @ 12.25 hrs, Volume= 0.005 af
Primary = 0.16 cfs @ 12.25 hrs, Volume= 0.009 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 14.81' @ 12.25 hrs Surf.Area= 335 sf Storage= 226 cf

Plug-Flow detention time= 191.3 min calculated for 0.014 af (83% of inflow)
Center-of-Mass det. time= 135.5 min (954.7 - 819.3)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	294 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

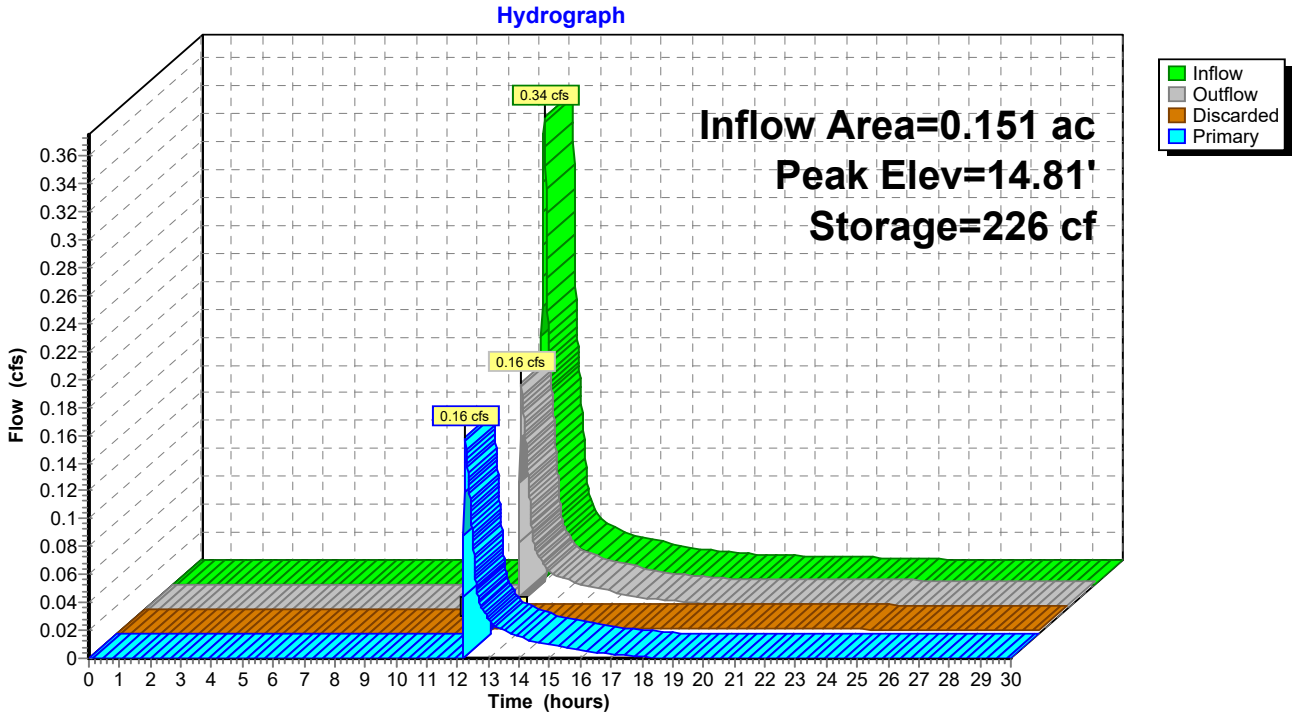
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.00	230	0	0	230
14.75	323	206	206	333
15.00	375	87	294	387

Device	Routing	Invert	Outlet Devices
#1	Primary	14.75'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	14.00'	**0.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.00 cfs @ 12.25 hrs HW=14.81' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.16 cfs @ 12.25 hrs HW=14.81' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.16 cfs @ 0.68 fps)

Pond 2P: INFIL BASIN



Summary for Pond 3P: POROUS PAVEMENT

Inflow Area = 0.185 ac, 82.33% Impervious, Inflow Depth > 2.49" for 2 yr event
Inflow = 0.05 cfs @ 18.66 hrs, Volume= 0.038 af
Outflow = 0.03 cfs @ 22.46 hrs, Volume= 0.036 af, Atten= 44%, Lag= 227.9 min
Discarded = 0.03 cfs @ 22.46 hrs, Volume= 0.036 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 15.31' @ 22.46 hrs Surf.Area= 3,872 sf Storage= 419 cf

Plug-Flow detention time= 144.6 min calculated for 0.036 af (95% of inflow)
Center-of-Mass det. time= 115.7 min (1,311.9 - 1,196.2)

Volume	Invert	Avail.Storage	Storage Description
#1	14.95'	1,220 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 4,066 cf Overall x 30.0% Voids

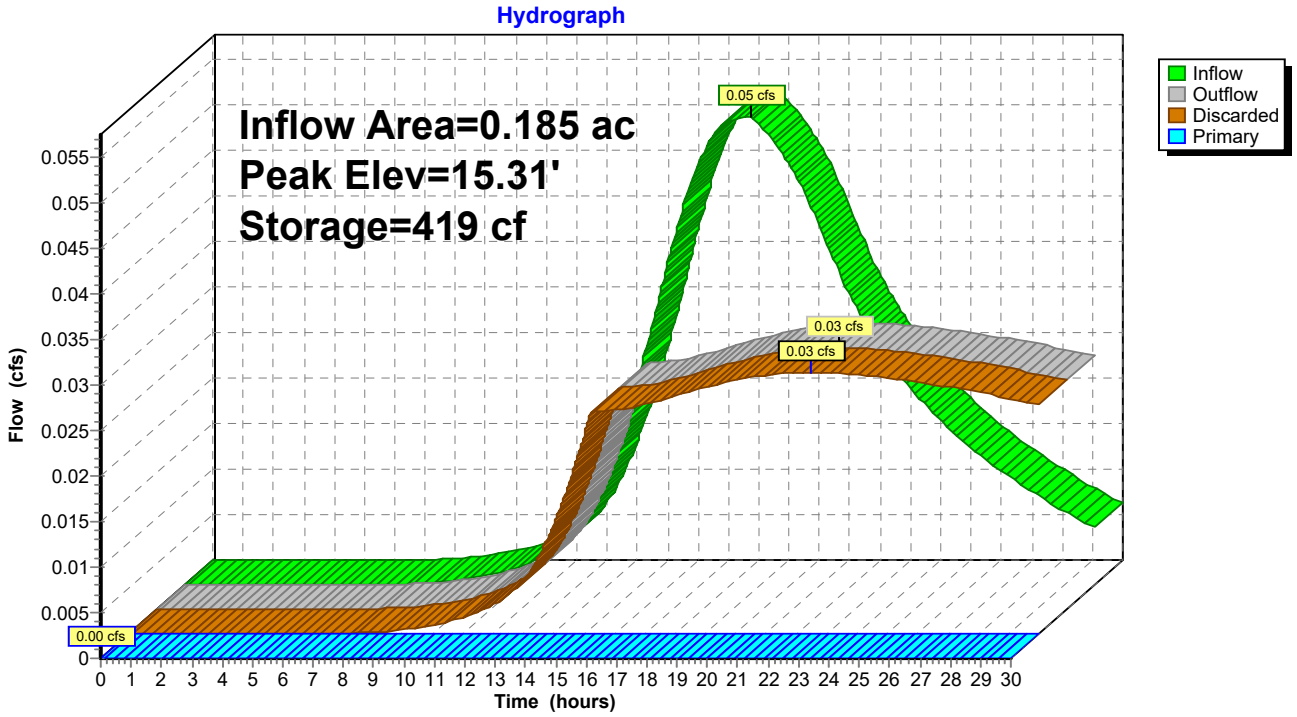
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.95	3,872	0	0
16.00	3,872	4,066	4,066

Device	Routing	Invert	Outlet Devices
#1	Primary	15.45'	**6.0" Round Culvert** L= 137.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 15.45' / 14.75' S= 0.0051 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.20 sf
#2	Discarded	14.95'	**0.270 in/hr Exfiltration over Surface area below 15.45'** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.03 cfs @ 22.46 hrs HW=15.31' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.95' (Free Discharge)
↑—**1=Culvert** (Controls 0.00 cfs)

Pond 3P: POROUS PAVEMENT



Summary for Pond 6P: FOREBAY

Inflow Area = 0.189 ac, 65.64% Impervious, Inflow Depth = 2.22" for 2 yr event
Inflow = 0.51 cfs @ 12.07 hrs, Volume= 0.035 af
Outflow = 0.20 cfs @ 12.28 hrs, Volume= 0.025 af, Atten= 60%, Lag= 12.7 min
Discarded = 0.01 cfs @ 12.28 hrs, Volume= 0.012 af
Primary = 0.19 cfs @ 12.28 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 15.76' @ 12.28 hrs Surf.Area= 867 sf Storage= 660 cf

Plug-Flow detention time= 276.7 min calculated for 0.025 af (71% of inflow)
Center-of-Mass det. time= 184.4 min (989.6 - 805.3)

Volume	Invert	Avail.Storage	Storage Description
#1	14.75'	879 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

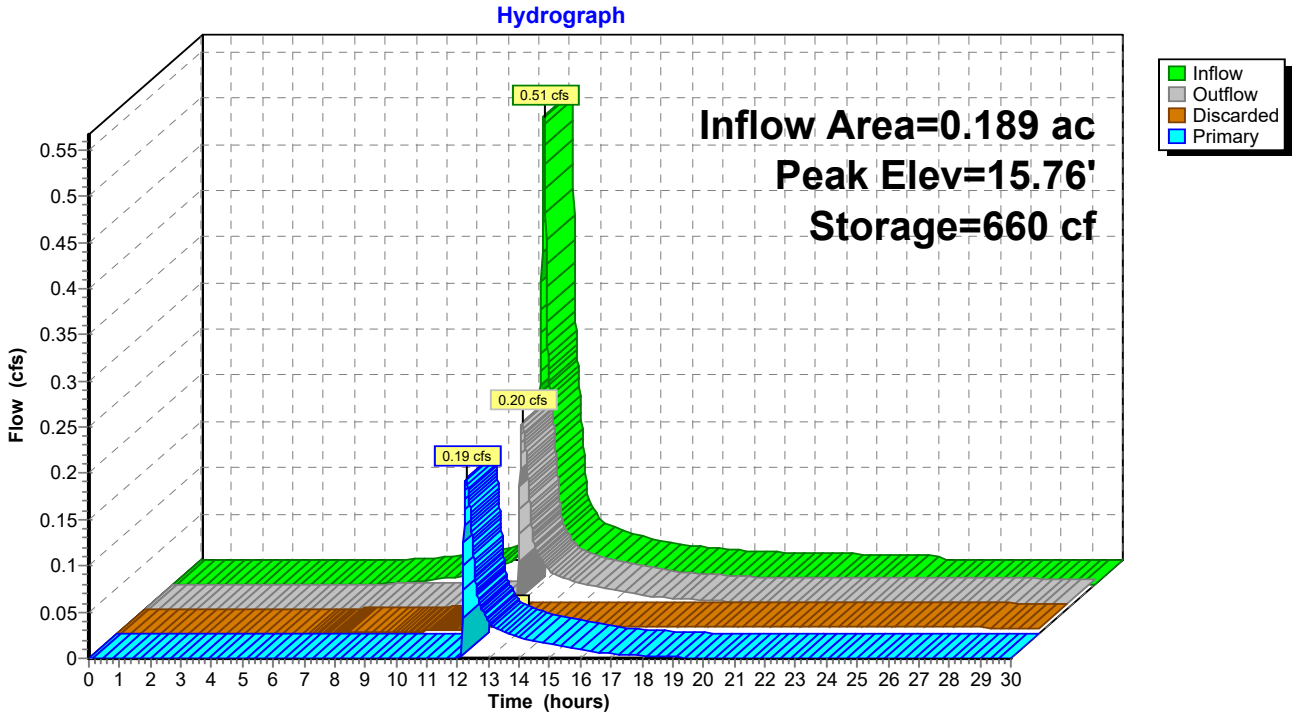
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.75	250	0	0	250
15.00	604	104	104	604
16.00	960	775	879	974

Device	Routing	Invert	Outlet Devices
#1	Primary	15.70'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	14.75'	**0.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.01 cfs @ 12.28 hrs HW=15.76' (Free Discharge)
↑**2=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.19 cfs @ 12.28 hrs HW=15.76' (Free Discharge)
↑**1=Orifice/Grate** (Weir Controls 0.19 cfs @ 0.80 fps)

Pond 6P: FOREBAY



Summary for Pond 8P: FOREBAY

Inflow Area = 0.431 ac, 53.06% Impervious, Inflow Depth = 1.33" for 2 yr event
Inflow = 0.51 cfs @ 12.08 hrs, Volume= 0.048 af
Outflow = 0.41 cfs @ 12.28 hrs, Volume= 0.042 af, Atten= 19%, Lag= 12.2 min
Discarded = 0.01 cfs @ 12.28 hrs, Volume= 0.009 af
Primary = 0.41 cfs @ 12.28 hrs, Volume= 0.033 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 15.55' @ 12.28 hrs Surf.Area= 722 sf Storage= 443 cf

Plug-Flow detention time= 129.1 min calculated for 0.042 af (87% of inflow)
Center-of-Mass det. time= 78.1 min (901.2 - 823.1)

Volume	Invert	Avail.Storage	Storage Description
#1	14.75'	806 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

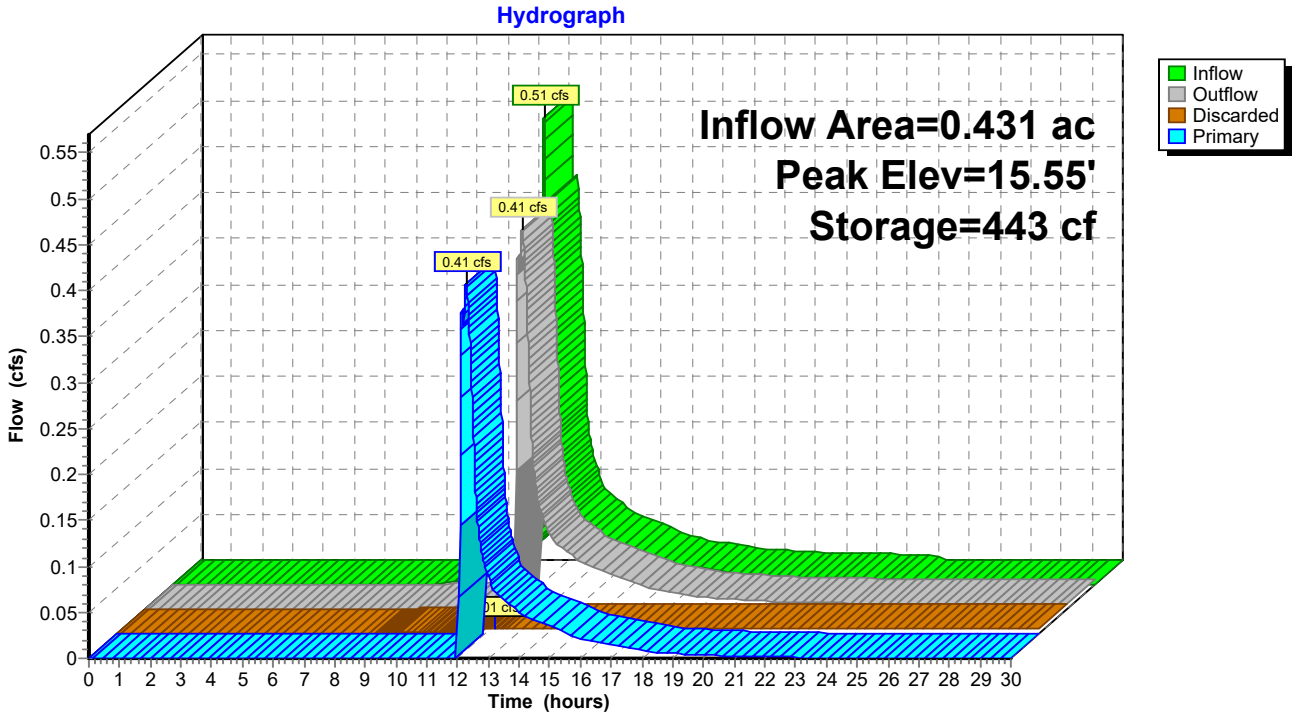
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.75	250	0	0	250
15.00	542	97	97	543
16.00	890	709	806	903

Device	Routing	Invert	Outlet Devices
#1	Primary	15.45'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	14.75'	**0.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.01 cfs @ 12.28 hrs HW=15.55' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.41 cfs @ 12.28 hrs HW=15.55' (Free Discharge)
↑—**1=Orifice/Grate** (Weir Controls 0.41 cfs @ 1.03 fps)

Pond 8P: FOREBAY



Summary for Pond 9P: INFIL BASIN

Inflow Area = 0.431 ac, 53.06% Impervious, Inflow Depth = 0.92" for 2 yr event
Inflow = 0.41 cfs @ 12.28 hrs, Volume= 0.033 af
Outflow = 0.03 cfs @ 15.26 hrs, Volume= 0.021 af, Atten= 92%, Lag= 178.6 min
Discarded = 0.01 cfs @ 15.26 hrs, Volume= 0.019 af
Primary = 0.02 cfs @ 15.26 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 15.01' @ 15.26 hrs Surf.Area= 1,351 sf Storage= 1,035 cf

Plug-Flow detention time= 464.7 min calculated for 0.021 af (62% of inflow)
Center-of-Mass det. time= 395.3 min (1,215.4 - 820.1)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	1,843 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

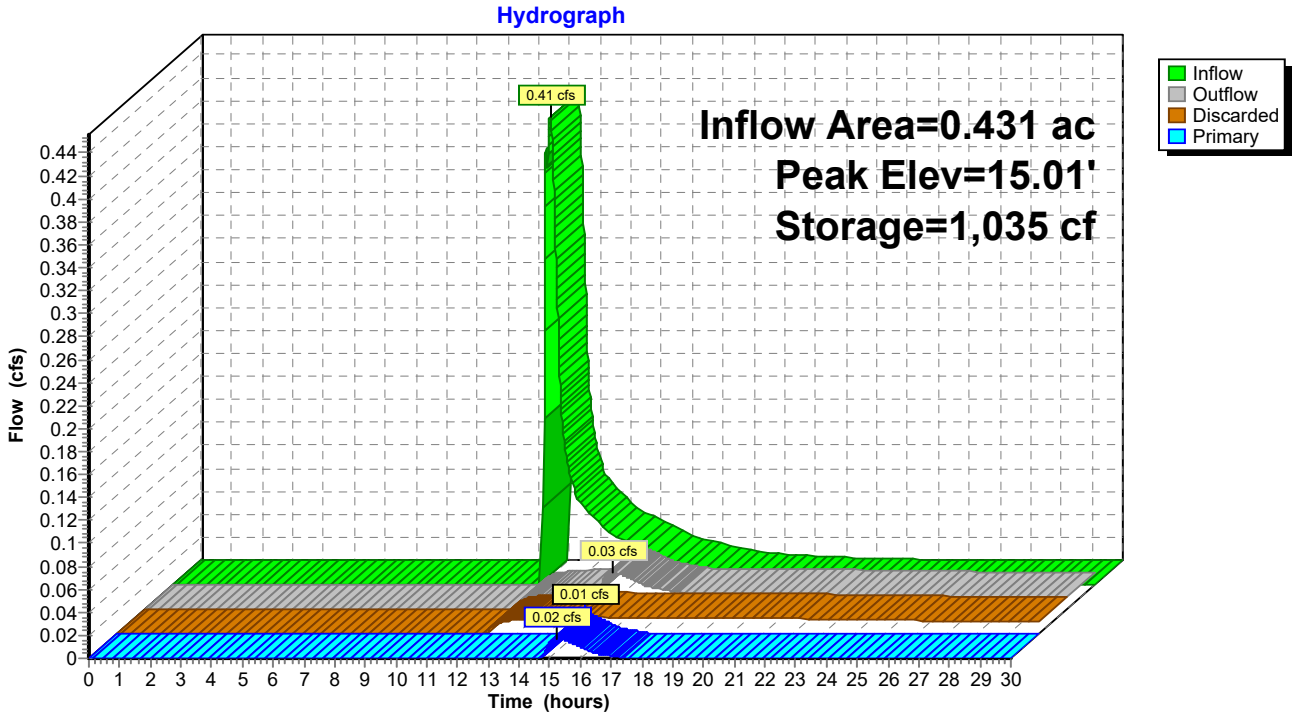
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.00	731	0	0	731
15.00	1,337	1,019	1,019	1,347
15.50	1,979	824	1,843	1,993

Device	Routing	Invert	Outlet Devices
#1	Primary	15.00'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	14.00'	**0.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.01 cfs @ 15.26 hrs HW=15.01' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.01 cfs @ 15.26 hrs HW=15.01' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.31 fps)

Pond 9P: INFIL BASIN



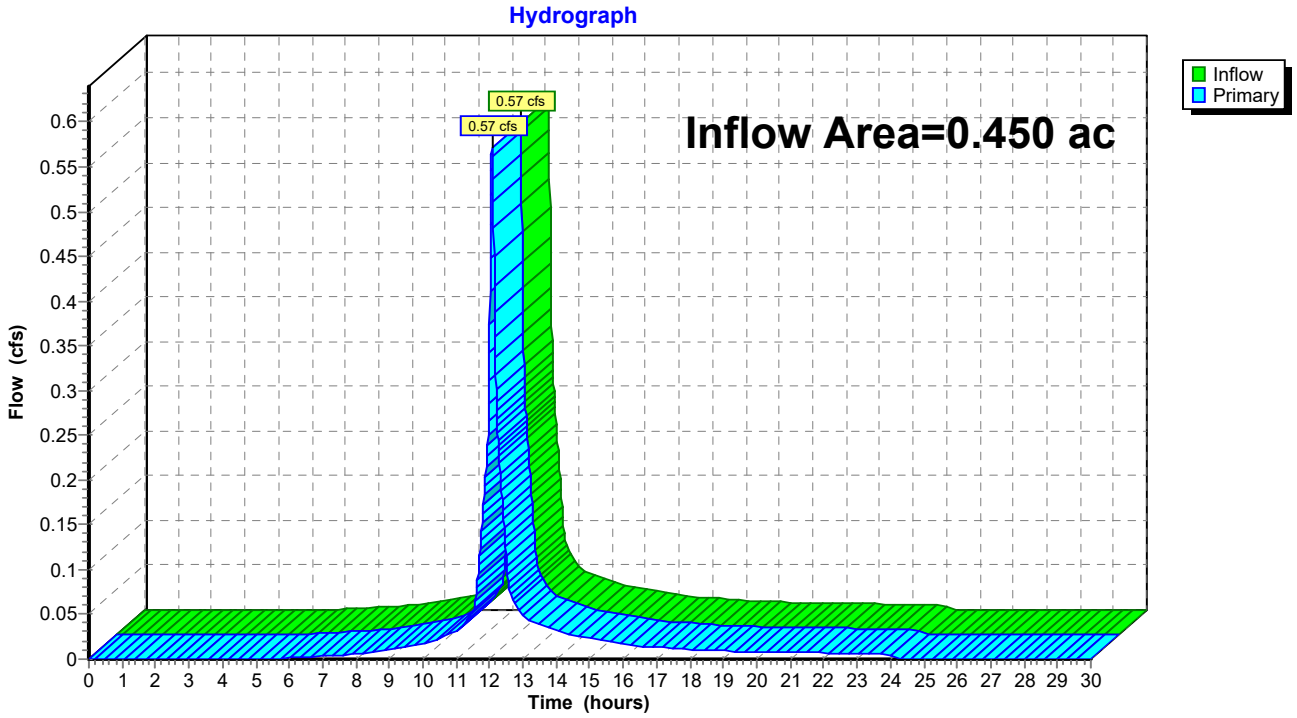
Summary for Pond 10P: IBEW DR S-M

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

Inflow Area = 0.450 ac, 55.02% Impervious, Inflow Depth = 1.07" for 2 yr event
Inflow = 0.57 cfs @ 12.07 hrs, Volume= 0.040 af
Primary = 0.57 cfs @ 12.07 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond 10P: IBEW DR S-M



Summary for Pond 15P: POROUS PAVEMENT

Inflow Area = 0.250 ac, 39.68% Impervious, Inflow Depth > 1.64" for 2 yr event
Inflow = 0.05 cfs @ 18.67 hrs, Volume= 0.034 af
Outflow = 0.04 cfs @ 19.64 hrs, Volume= 0.034 af, Atten= 4%, Lag= 58.1 min
Discarded = 0.04 cfs @ 19.64 hrs, Volume= 0.034 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 14.96' @ 19.64 hrs Surf.Area= 7,067 sf Storage= 29 cf

Plug-Flow detention time= 8.5 min calculated for 0.034 af (100% of inflow)
Center-of-Mass det. time= 7.2 min (1,240.4 - 1,233.2)

Volume	Invert	Avail.Storage	Storage Description
#1	14.95'	2,120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 7,067 cf Overall x 30.0% Voids

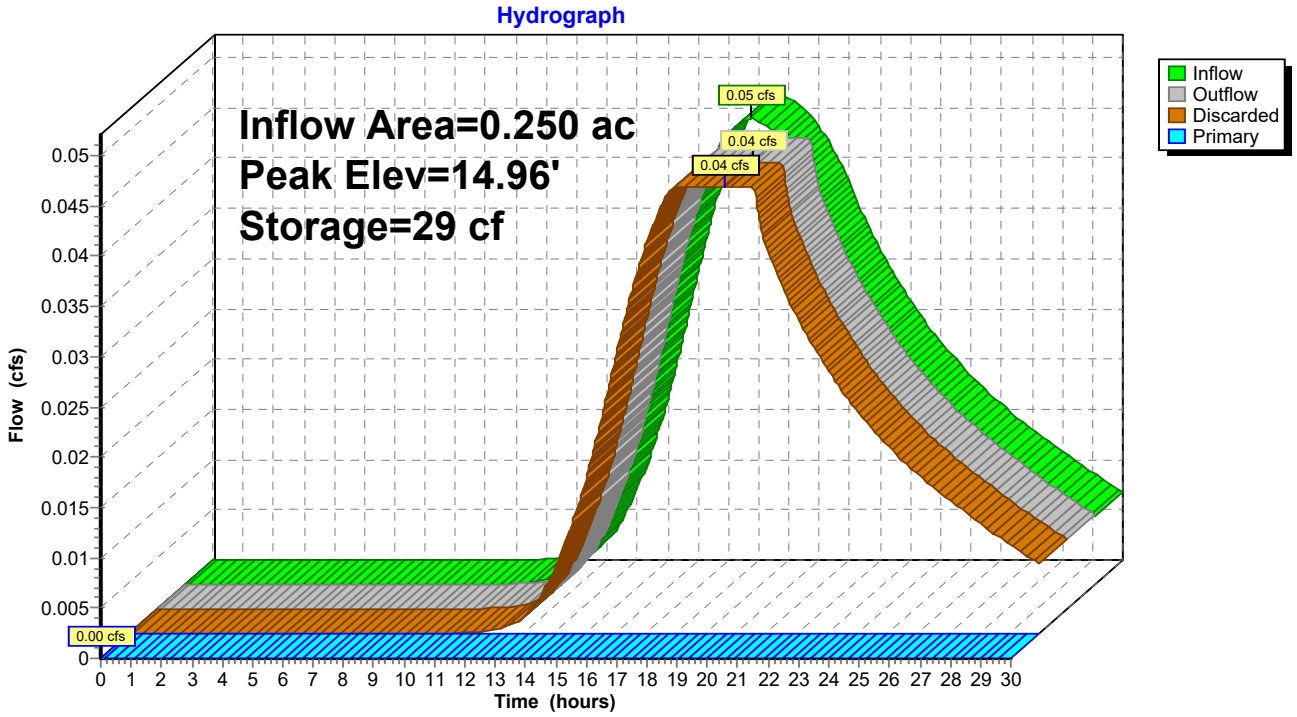
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.95	7,067	0	0
15.95	7,067	7,067	7,067

Device	Routing	Invert	Outlet Devices
#1	Primary	15.45'	**6.0" Round Culvert** L= 137.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 15.45' / 14.75' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Discarded	14.95'	**0.270 in/hr Exfiltration over Surface area below 15.45'** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.04 cfs @ 19.64 hrs HW=14.96' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.95' (Free Discharge)
↑—**1=Culvert** (Controls 0.00 cfs)

Pond 15P: POROUS PAVEMENT



Summary for Pond 16P: FOREBAY

Inflow Area = 0.151 ac, 50.94% Impervious, Inflow Depth = 1.89" for 2 yr event
Inflow = 0.35 cfs @ 12.07 hrs, Volume= 0.024 af
Outflow = 0.34 cfs @ 12.09 hrs, Volume= 0.021 af, Atten= 2%, Lag= 1.0 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 0.004 af
Primary = 0.34 cfs @ 12.09 hrs, Volume= 0.017 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 14.95' @ 12.09 hrs Surf.Area= 291 sf Storage= 200 cf

Plug-Flow detention time= 130.4 min calculated for 0.021 af (88% of inflow)
Center-of-Mass det. time= 76.0 min (896.8 - 820.8)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	216 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

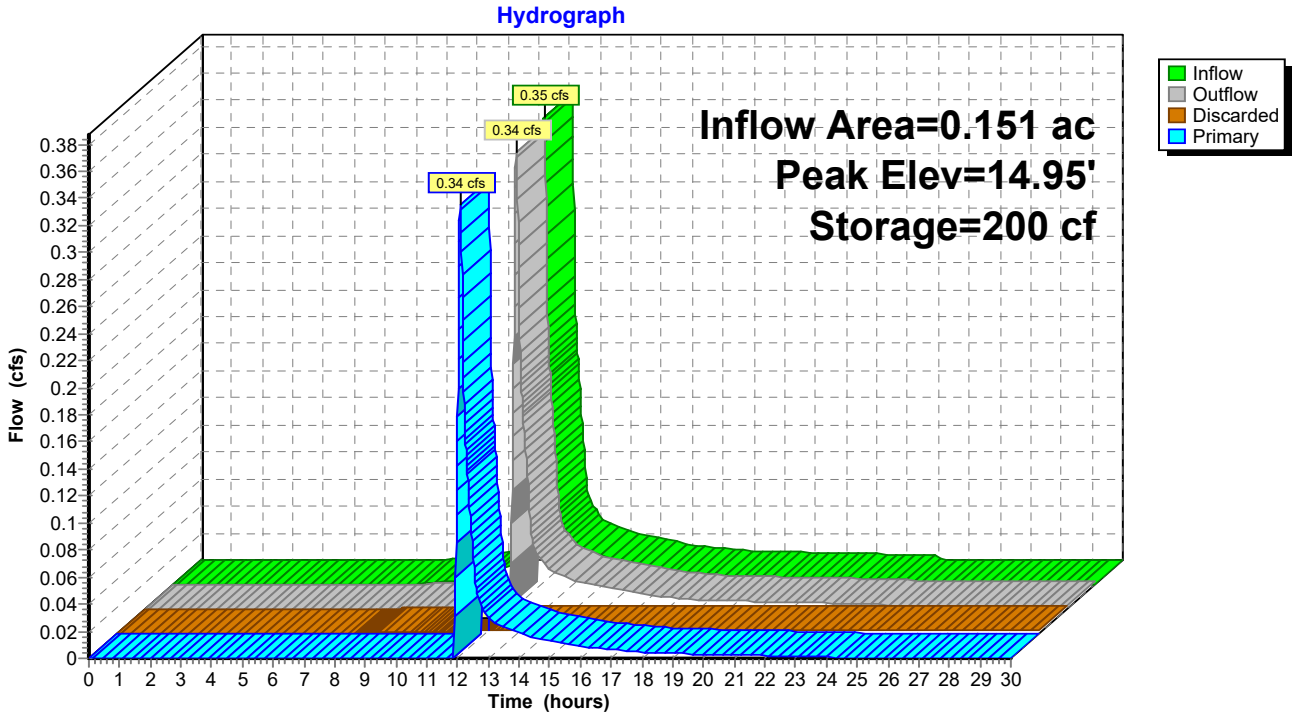
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.00	141	0	0	141
15.00	301	216	216	309

Device	Routing	Invert	Outlet Devices
#1	Primary	14.85'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	14.00'	**0.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=14.95' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.33 cfs @ 12.09 hrs HW=14.95' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.33 cfs @ 0.87 fps)

Pond 16P: FOREBAY



Summary for Pond DP1: Wetlands

Inflow Area = 2.424 ac, 18.87% Impervious, Inflow Depth = 0.79" for 2 yr event
Inflow = 1.44 cfs @ 12.30 hrs, Volume= 0.160 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

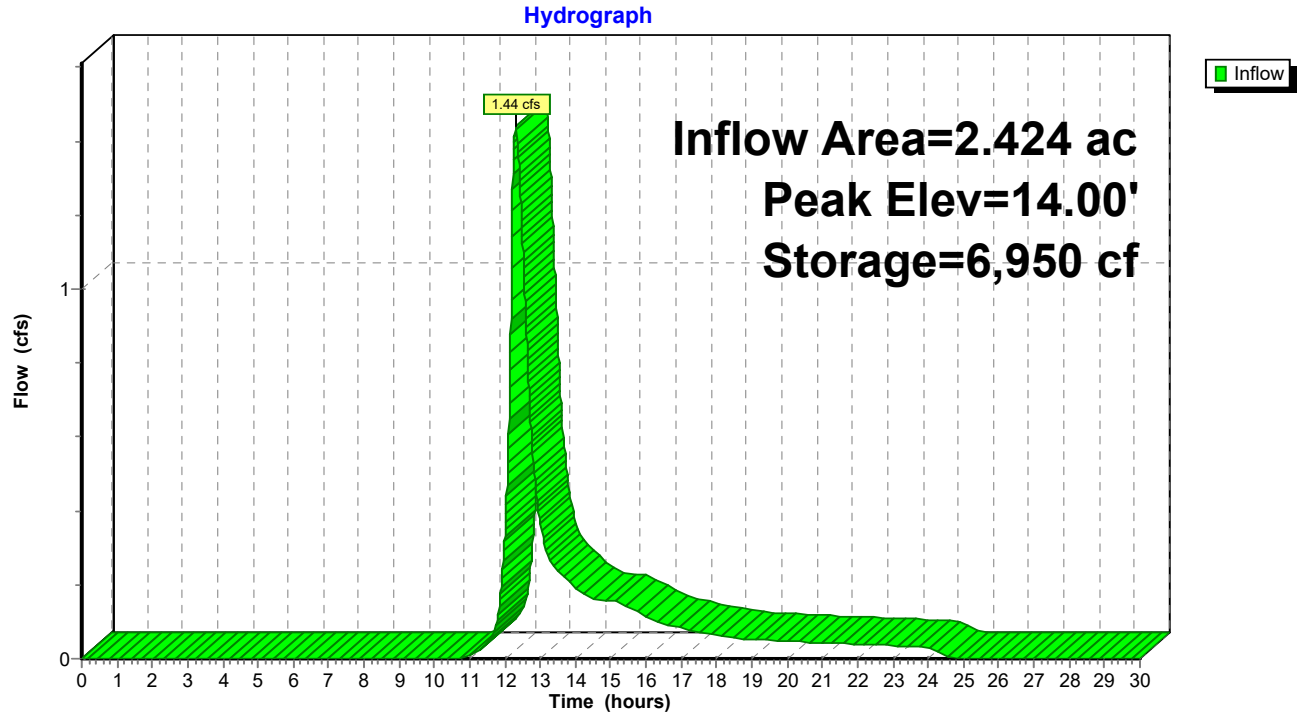
Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 14.00' @ 25.21 hrs Surf.Area= 32,935 sf Storage= 6,950 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	13.75'	50,175 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.75	23,495	0	0
14.00	33,076	7,071	7,071
15.00	53,131	43,104	50,175

Pond DP1: Wetlands



Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 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 PR1: Pr Site Runoff Area=72,210 sf 0.00% Impervious Runoff Depth=2.28"
Flow Length=237' Tc=21.4 min CN=74 Runoff=2.89 cfs 0.316 af

Subcatchment PR2: POROUS PAVEMENT Runoff Area=10,879 sf 39.68% Impervious Runoff Depth>3.03"
Tc=480.0 min CN=84 Runoff=0.09 cfs 0.063 af

Subcatchment PR3: North Driveway Runoff Area=6,564 sf 50.94% Impervious Runoff Depth=3.37"
Tc=5.0 min CN=86 Runoff=0.61 cfs 0.042 af

Subcatchment PR4: Parking 1 North Runoff Area=8,250 sf 65.64% Impervious Runoff Depth=3.78"
Tc=5.0 min CN=90 Runoff=0.84 cfs 0.060 af

Subcatchment PR5: Parking 2 North Runoff Area=10,520 sf 43.20% Impervious Runoff Depth=3.18"
Tc=5.0 min CN=84 Runoff=0.93 cfs 0.064 af

Subcatchment PR6: To off Site Drainage Runoff Area=8,722 sf 74.16% Impervious Runoff Depth=3.99"
Tc=5.0 min CN=92 Runoff=0.92 cfs 0.067 af

Subcatchment PR7: POROUS PAVEMENT Runoff Area=8,043 sf 82.33% Impervious Runoff Depth>4.04"
Tc=480.0 min CN=94 Runoff=0.08 cfs 0.062 af

Pond 2P: INFIL BASIN Peak Elev=14.89' Storage=253 cf Inflow=0.60 cfs 0.035 af
Discarded=0.00 cfs 0.005 af Primary=0.58 cfs 0.027 af Outflow=0.59 cfs 0.032 af

Pond 3P: POROUS PAVEMENT Peak Elev=15.58' Storage=737 cf Inflow=0.08 cfs 0.062 af
Discarded=0.03 cfs 0.042 af Primary=0.04 cfs 0.011 af Outflow=0.07 cfs 0.053 af

Pond 6P: FOREBAY Peak Elev=15.85' Storage=740 cf Inflow=0.84 cfs 0.060 af
Discarded=0.01 cfs 0.013 af Primary=0.77 cfs 0.036 af Outflow=0.78 cfs 0.049 af

Pond 8P: FOREBAY Peak Elev=15.70' Storage=553 cf Inflow=1.66 cfs 0.100 af
Discarded=0.01 cfs 0.010 af Primary=1.60 cfs 0.085 af Outflow=1.61 cfs 0.094 af

Pond 9P: INFIL BASIN Peak Elev=15.16' Storage=1,254 cf Inflow=1.60 cfs 0.085 af
Discarded=0.02 cfs 0.021 af Primary=0.75 cfs 0.049 af Outflow=0.76 cfs 0.069 af

Pond 10P: IBEW DR S-M Inflow=0.92 cfs 0.067 af
Primary=0.92 cfs 0.067 af

Pond 15P: POROUS PAVEMENT Peak Elev=15.24' Storage=610 cf Inflow=0.09 cfs 0.063 af
Discarded=0.05 cfs 0.062 af Primary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.062 af

Pond 16P: FOREBAY Peak Elev=14.99' Storage=213 cf Inflow=0.61 cfs 0.042 af
Discarded=0.00 cfs 0.005 af Primary=0.60 cfs 0.035 af Outflow=0.60 cfs 0.040 af

Pond DP1: Wetlands Peak Elev=14.29' Storage=17,482 cf Inflow=3.89 cfs 0.401 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 2.874 ac Runoff Volume = 0.673 af Average Runoff Depth = 2.81"
75.47% Pervious = 2.169 ac 24.53% Impervious = 0.705 ac

Summary for Subcatchment PR1: Pr Site

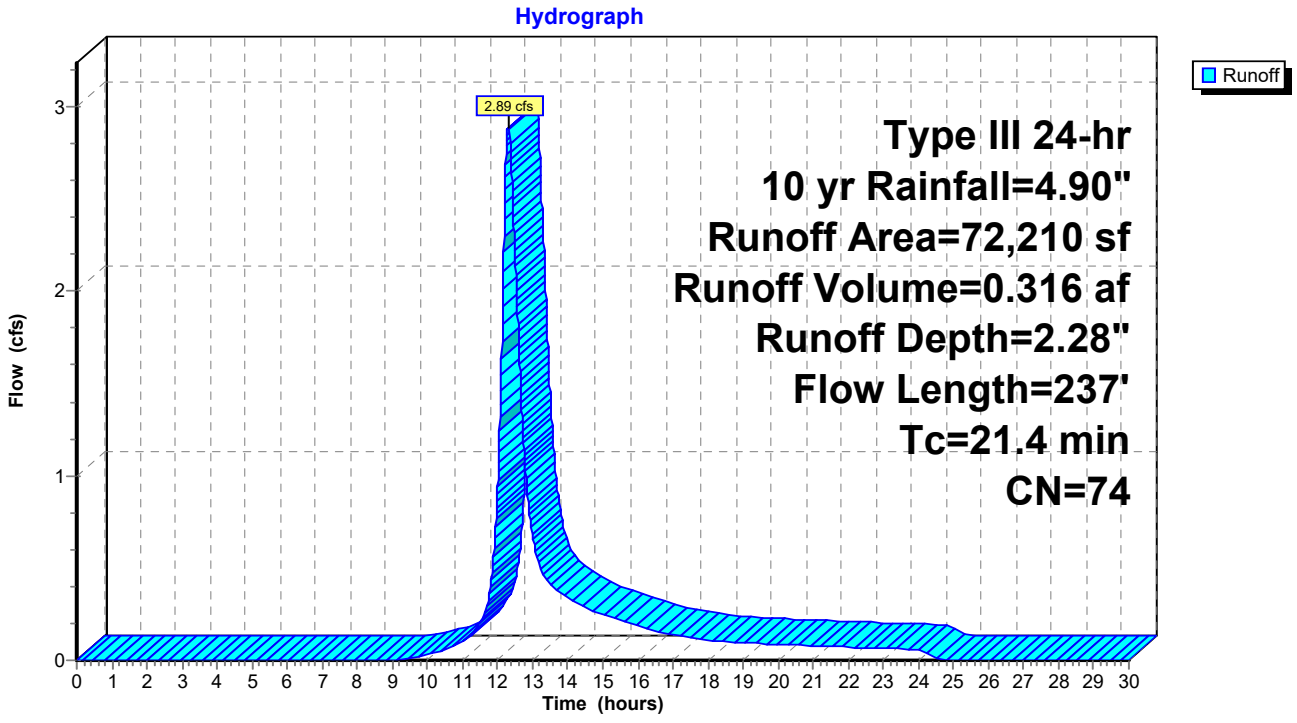
Runoff = 2.89 cfs @ 12.30 hrs, Volume= 0.316 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.90"

Area (sf)	CN	Description
72,210	74	>75% Grass cover, Good, HSG C
72,210		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	50	0.0740	0.07		**Sheet Flow, Sheet Flow** Woods: Dense underbrush n= 0.800 P2= 3.26"
0.7	33	0.0240	0.77		**Shallow Concentrated Flow, Shallow Concentrated** Woodland Kv= 5.0 fps
0.4	28	0.0700	1.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.7	126	0.0030	0.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.4	237	Total			

Subcatchment PR1: Pr Site



Summary for Subcatchment PR2: POROUS PAVEMENT

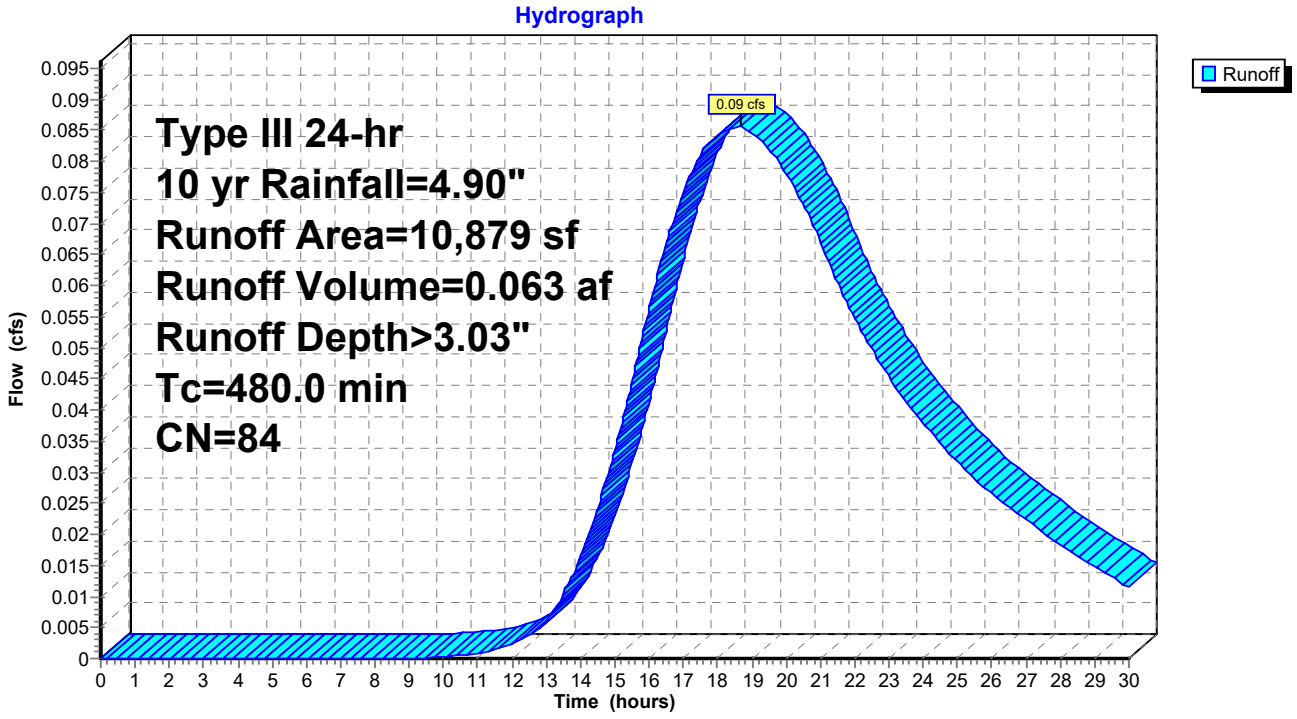
Runoff = 0.09 cfs @ 18.66 hrs, Volume= 0.063 af, Depth> 3.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.90"

Area (sf)	CN	Description
4,317	98	Paved parking, HSG C
6,562	74	>75% Grass cover, Good, HSG C
10,879	84	Weighted Average
6,562		60.32% Pervious Area
4,317		39.68% Impervious Area

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

Subcatchment PR2: POROUS PAVEMENT



Summary for Subcatchment PR3: North Driveway

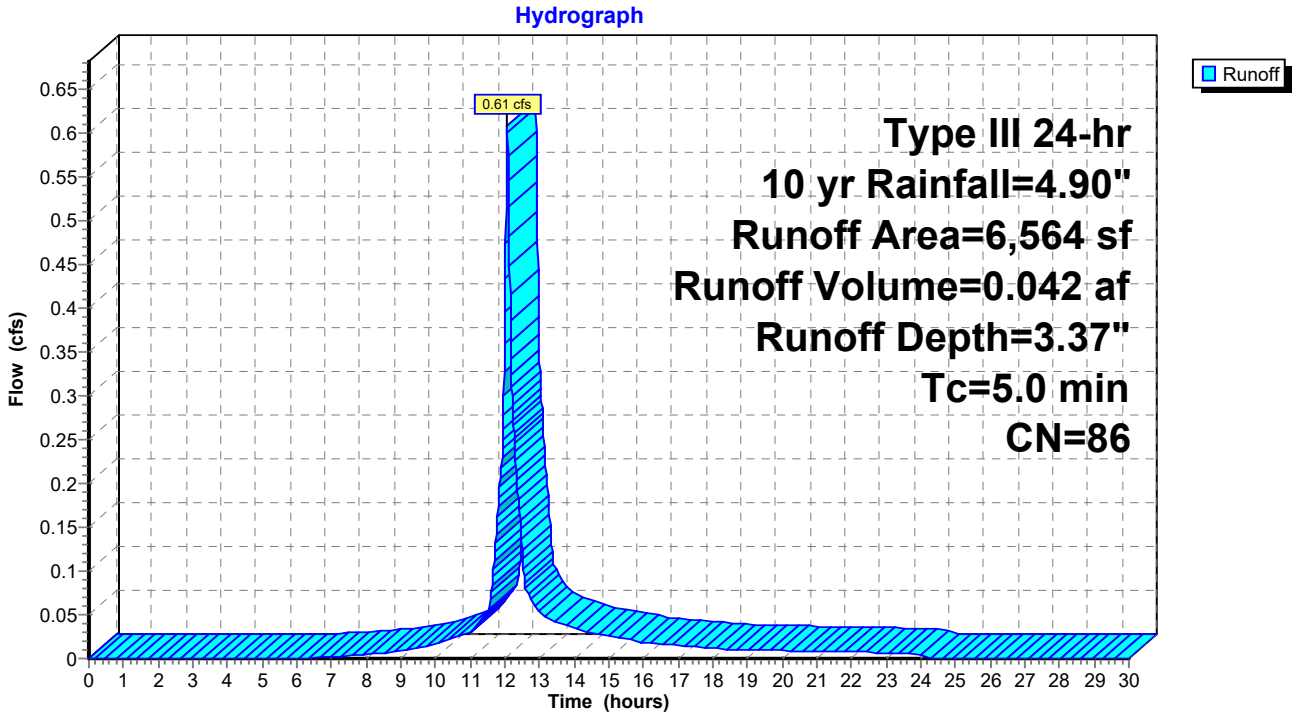
Runoff = 0.61 cfs @ 12.07 hrs, Volume= 0.042 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.90"

Area (sf)	CN	Description
3,344	98	Paved parking, HSG C
3,220	74	>75% Grass cover, Good, HSG C
6,564	86	Weighted Average
3,220		49.06% Pervious Area
3,344		50.94% Impervious Area

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

Subcatchment PR3: North Driveway



Summary for Subcatchment PR4: Parking 1 North

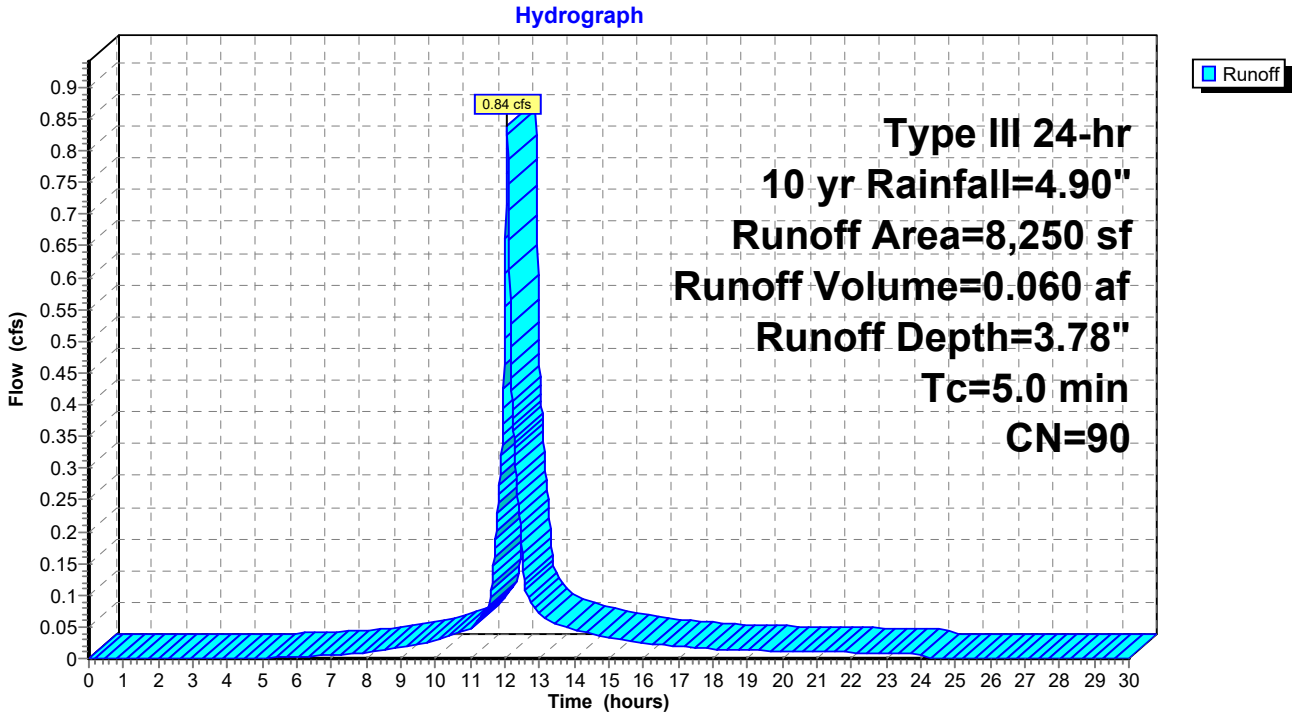
Runoff = 0.84 cfs @ 12.07 hrs, Volume= 0.060 af, Depth= 3.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.90"

Area (sf)	CN	Description
5,415	98	Paved parking, HSG C
2,835	74	>75% Grass cover, Good, HSG C
8,250	90	Weighted Average
2,835		34.36% Pervious Area
5,415		65.64% Impervious Area

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

Subcatchment PR4: Parking 1 North



Summary for Subcatchment PR5: Parking 2 North

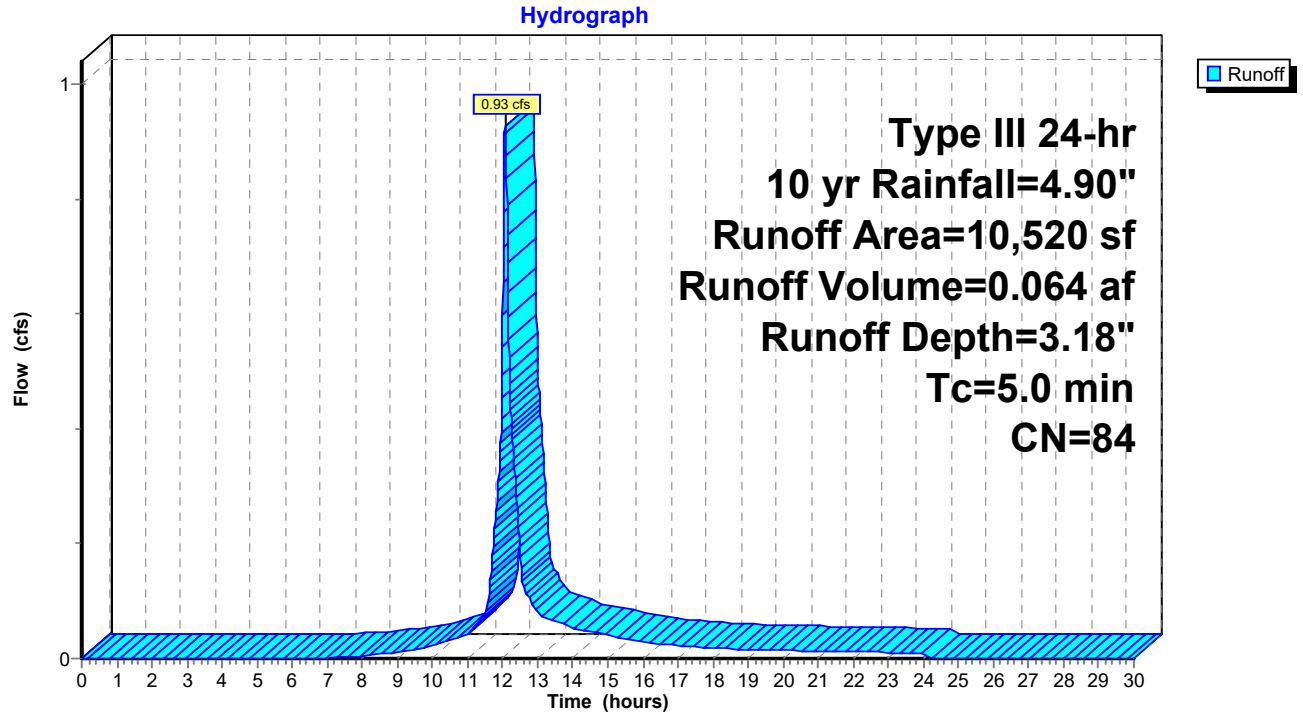
Runoff = 0.93 cfs @ 12.07 hrs, Volume= 0.064 af, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.90"

Area (sf)	CN	Description
4,545	98	Paved parking, HSG C
5,975	74	>75% Grass cover, Good, HSG C
10,520	84	Weighted Average
5,975		56.80% Pervious Area
4,545		43.20% Impervious Area

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

Subcatchment PR5: Parking 2 North



Summary for Subcatchment PR6: To off Site Drainage POST

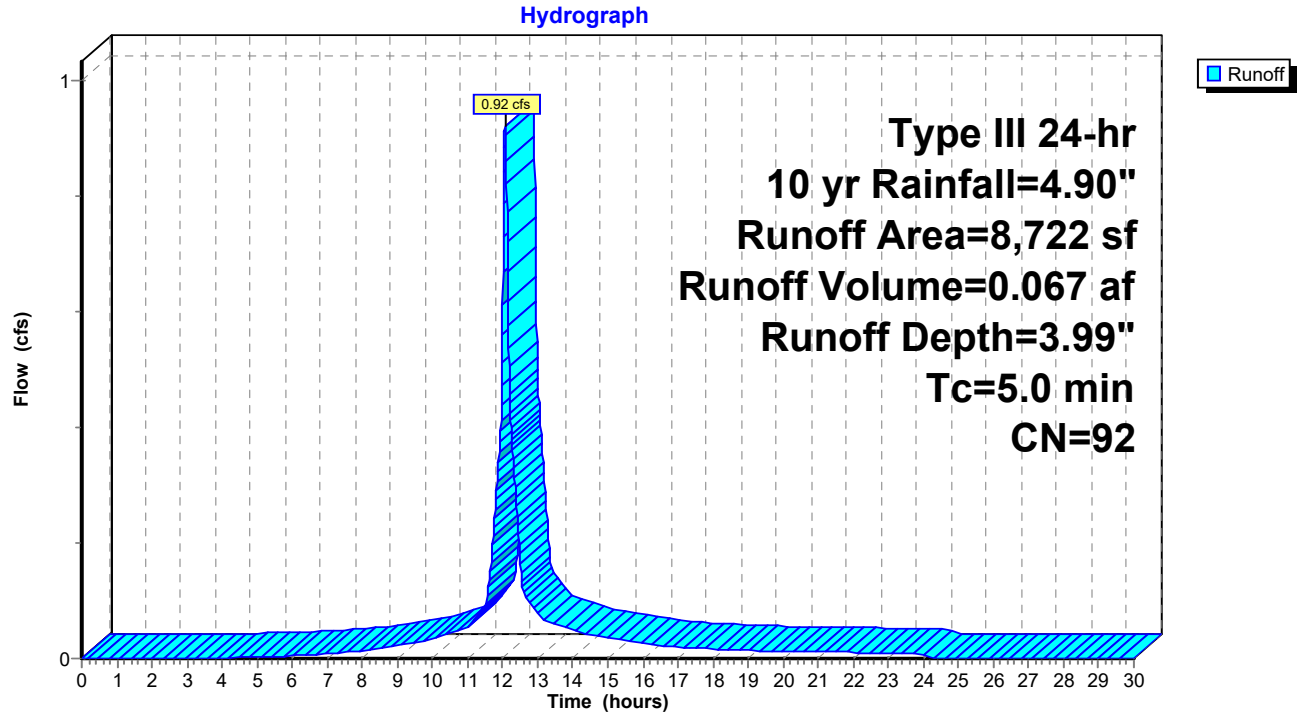
Runoff = 0.92 cfs @ 12.07 hrs, Volume= 0.067 af, Depth= 3.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.90"

Area (sf)	CN	Description
6,468	98	Paved parking, HSG C
2,254	74	>75% Grass cover, Good, HSG C
8,722	92	Weighted Average
2,254		25.84% Pervious Area
6,468		74.16% Impervious Area

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

Subcatchment PR6: To off Site Drainage POST



Summary for Subcatchment PR7: POROUS PAVEMENT

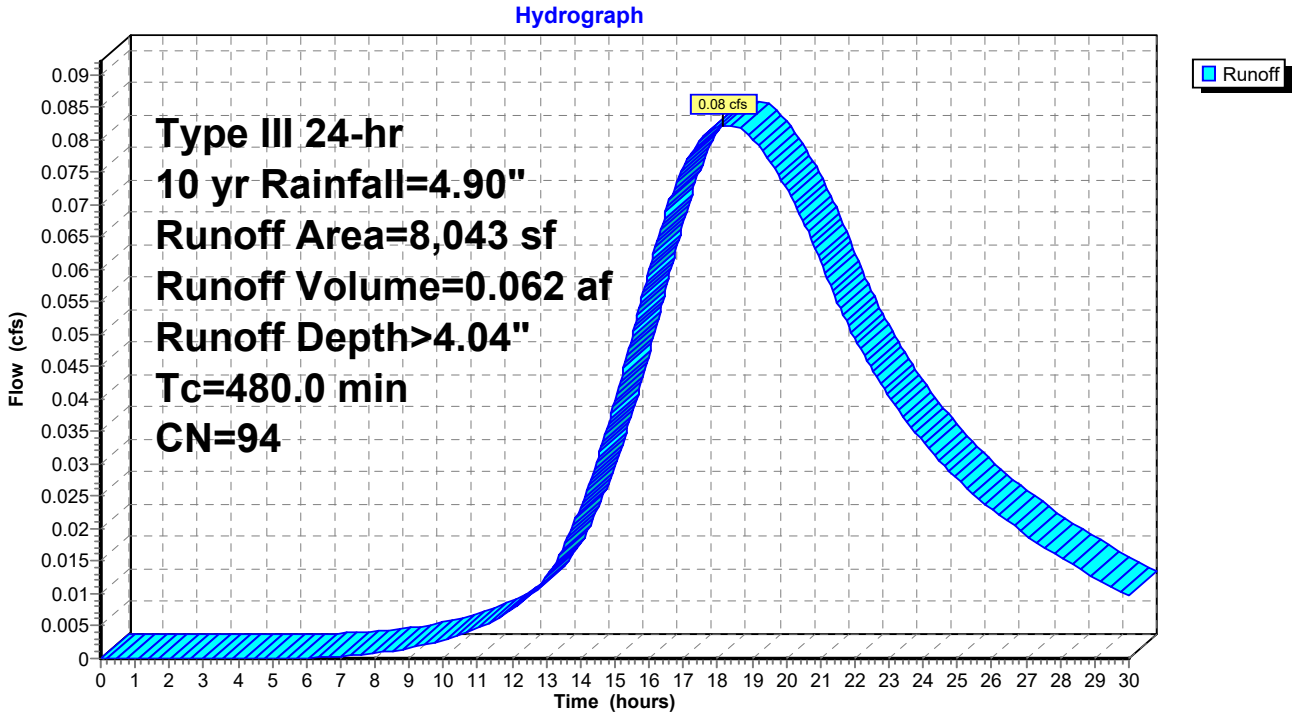
Runoff = 0.08 cfs @ 18.14 hrs, Volume= 0.062 af, Depth> 4.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 yr Rainfall=4.90"

Area (sf)	CN	Description
6,622	98	Paved parking, HSG C
1,421	74	>75% Grass cover, Good, HSG C
8,043	94	Weighted Average
1,421		17.67% Pervious Area
6,622		82.33% Impervious Area

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

Subcatchment PR7: POROUS PAVEMENT



Summary for Pond 2P: INFIL BASIN

[79] Warning: Submerged Pond 16P Primary device # 1 by 0.04'

Inflow Area = 0.151 ac, 50.94% Impervious, Inflow Depth = 2.77" for 10 yr event
Inflow = 0.60 cfs @ 12.09 hrs, Volume= 0.035 af
Outflow = 0.59 cfs @ 12.10 hrs, Volume= 0.032 af, Atten= 2%, Lag= 1.0 min
Discarded = 0.00 cfs @ 12.10 hrs, Volume= 0.005 af
Primary = 0.58 cfs @ 12.10 hrs, Volume= 0.027 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 14.89' @ 12.10 hrs Surf.Area= 351 sf Storage= 253 cf

Plug-Flow detention time= 97.3 min calculated for 0.032 af (91% of inflow)
Center-of-Mass det. time= 56.4 min (868.1 - 811.7)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	294 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

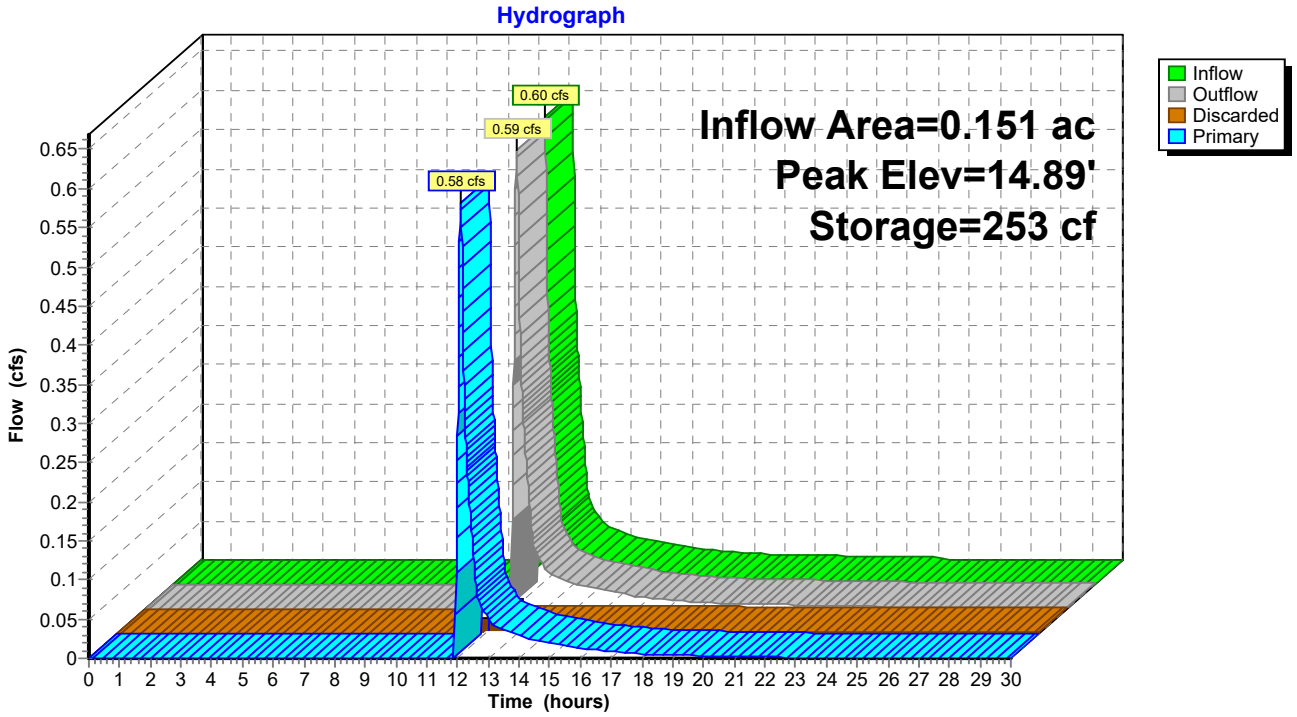
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.00	230	0	0	230
14.75	323	206	206	333
15.00	375	87	294	387

Device	Routing	Invert	Outlet Devices
#1	Primary	14.75'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	14.00'	**0.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.00 cfs @ 12.10 hrs HW=14.89' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.58 cfs @ 12.10 hrs HW=14.89' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.58 cfs @ 1.04 fps)

Pond 2P: INFIL BASIN



Summary for Pond 3P: POROUS PAVEMENT

Inflow Area = 0.185 ac, 82.33% Impervious, Inflow Depth > 4.04" for 10 yr event
Inflow = 0.08 cfs @ 18.14 hrs, Volume= 0.062 af
Outflow = 0.07 cfs @ 20.47 hrs, Volume= 0.053 af, Atten= 18%, Lag= 139.6 min
Discarded = 0.03 cfs @ 20.47 hrs, Volume= 0.042 af
Primary = 0.04 cfs @ 20.47 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 15.58' @ 20.47 hrs Surf.Area= 3,872 sf Storage= 737 cf

Plug-Flow detention time= 175.1 min calculated for 0.053 af (85% of inflow)
Center-of-Mass det. time= 103.0 min (1,287.7 - 1,184.7)

Volume	Invert	Avail.Storage	Storage Description
#1	14.95'	1,220 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 4,066 cf Overall x 30.0% Voids

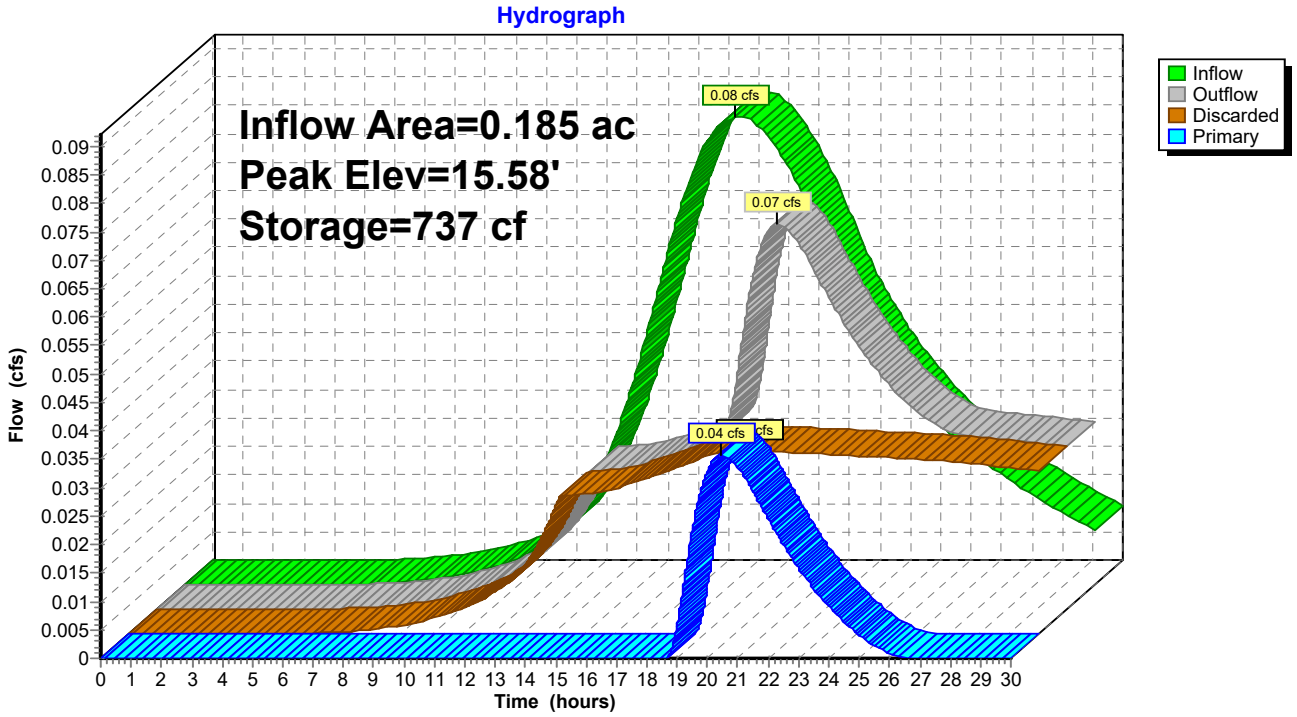
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.95	3,872	0	0
16.00	3,872	4,066	4,066

Device	Routing	Invert	Outlet Devices
#1	Primary	15.45'	**6.0" Round Culvert** L= 137.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 15.45' / 14.75' S= 0.0051 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.20 sf
#2	Discarded	14.95'	**0.270 in/hr Exfiltration over Surface area below 15.45'** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.03 cfs @ 20.47 hrs HW=15.58' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.04 cfs @ 20.47 hrs HW=15.58' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.04 cfs @ 1.25 fps)

Pond 3P: POROUS PAVEMENT



Summary for Pond 6P: FOREBAY

Inflow Area = 0.189 ac, 65.64% Impervious, Inflow Depth = 3.78" for 10 yr event
Inflow = 0.84 cfs @ 12.07 hrs, Volume= 0.060 af
Outflow = 0.78 cfs @ 12.10 hrs, Volume= 0.049 af, Atten= 8%, Lag= 1.9 min
Discarded = 0.01 cfs @ 12.10 hrs, Volume= 0.013 af
Primary = 0.77 cfs @ 12.10 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 15.85' @ 12.10 hrs Surf.Area= 902 sf Storage= 740 cf

Plug-Flow detention time= 172.8 min calculated for 0.049 af (82% of inflow)
Center-of-Mass det. time= 102.3 min (892.8 - 790.5)

Volume	Invert	Avail.Storage	Storage Description
#1	14.75'	879 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

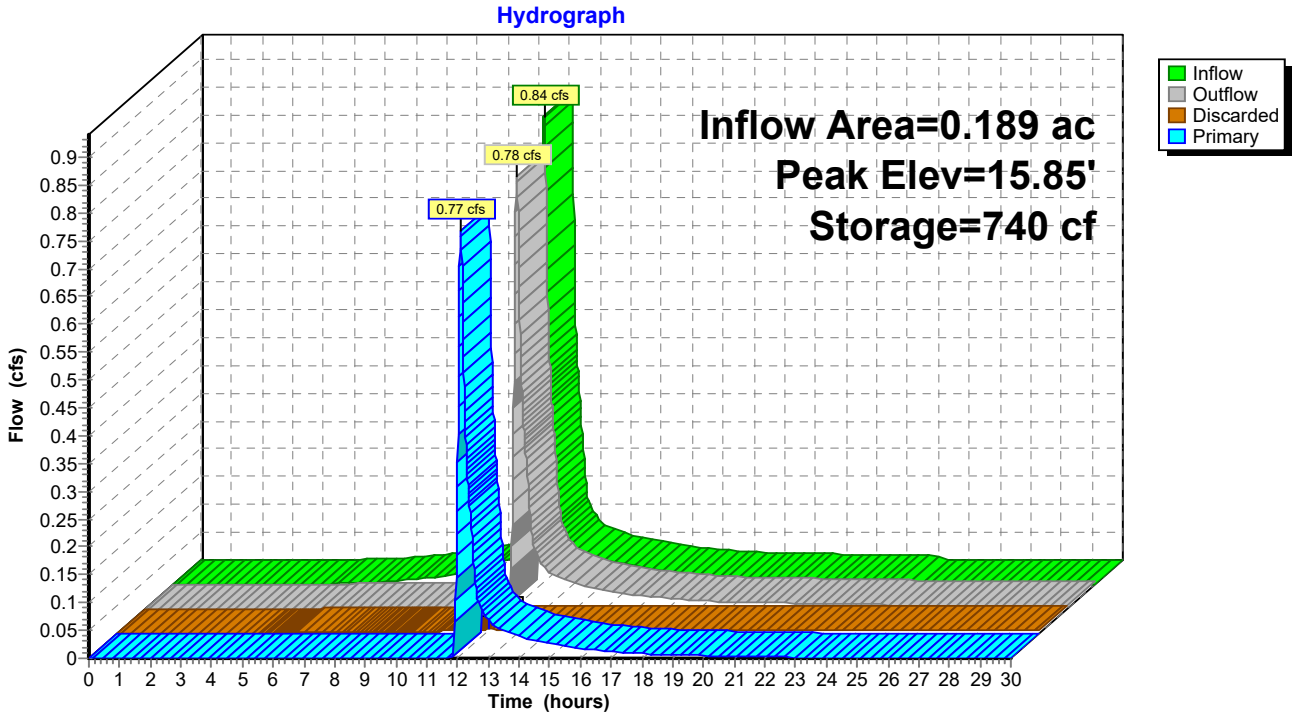
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.75	250	0	0	250
15.00	604	104	104	604
16.00	960	775	879	974

Device	Routing	Invert	Outlet Devices
#1	Primary	15.70'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	14.75'	**0.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.01 cfs @ 12.10 hrs HW=15.85' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.77 cfs @ 12.10 hrs HW=15.85' (Free Discharge)
↑—**1=Orifice/Grate** (Weir Controls 0.77 cfs @ 1.27 fps)

Pond 6P: FOREBAY



Summary for Pond 8P: FOREBAY

Inflow Area = 0.431 ac, 53.06% Impervious, Inflow Depth = 2.79" for 10 yr event
Inflow = 1.66 cfs @ 12.09 hrs, Volume= 0.100 af
Outflow = 1.61 cfs @ 12.11 hrs, Volume= 0.094 af, Atten= 4%, Lag= 1.4 min
Discarded = 0.01 cfs @ 12.11 hrs, Volume= 0.010 af
Primary = 1.60 cfs @ 12.11 hrs, Volume= 0.085 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 15.70' @ 12.11 hrs Surf.Area= 775 sf Storage= 553 cf

Plug-Flow detention time= 70.1 min calculated for 0.094 af (94% of inflow)
Center-of-Mass det. time= 39.9 min (848.0 - 808.0)

Volume	Invert	Avail.Storage	Storage Description
#1	14.75'	806 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

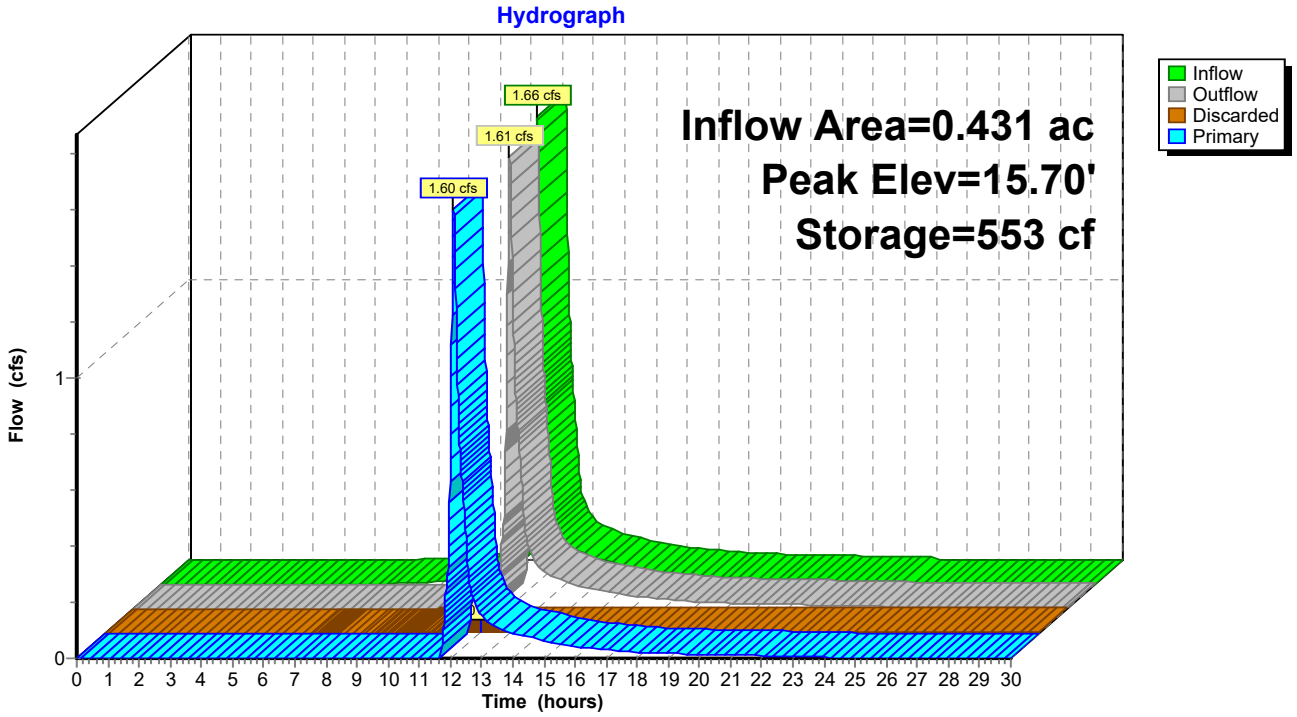
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.75	250	0	0	250
15.00	542	97	97	543
16.00	890	709	806	903

Device	Routing	Invert	Outlet Devices
#1	Primary	15.45'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	14.75'	**0.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.01 cfs @ 12.11 hrs HW=15.70' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=1.60 cfs @ 12.11 hrs HW=15.70' (Free Discharge)
↑—**1=Orifice/Grate** (Weir Controls 1.60 cfs @ 1.62 fps)

Pond 8P: FOREBAY



Summary for Pond 9P: INFIL BASIN

Inflow Area = 0.431 ac, 53.06% Impervious, Inflow Depth = 2.36" for 10 yr event
Inflow = 1.60 cfs @ 12.11 hrs, Volume= 0.085 af
Outflow = 0.76 cfs @ 12.30 hrs, Volume= 0.069 af, Atten= 52%, Lag= 11.5 min
Discarded = 0.02 cfs @ 12.30 hrs, Volume= 0.021 af
Primary = 0.75 cfs @ 12.30 hrs, Volume= 0.049 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 15.16' @ 12.30 hrs Surf.Area= 1,534 sf Storage= 1,254 cf

Plug-Flow detention time= 177.0 min calculated for 0.069 af (82% of inflow)
Center-of-Mass det. time= 120.9 min (933.6 - 812.7)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	1,843 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

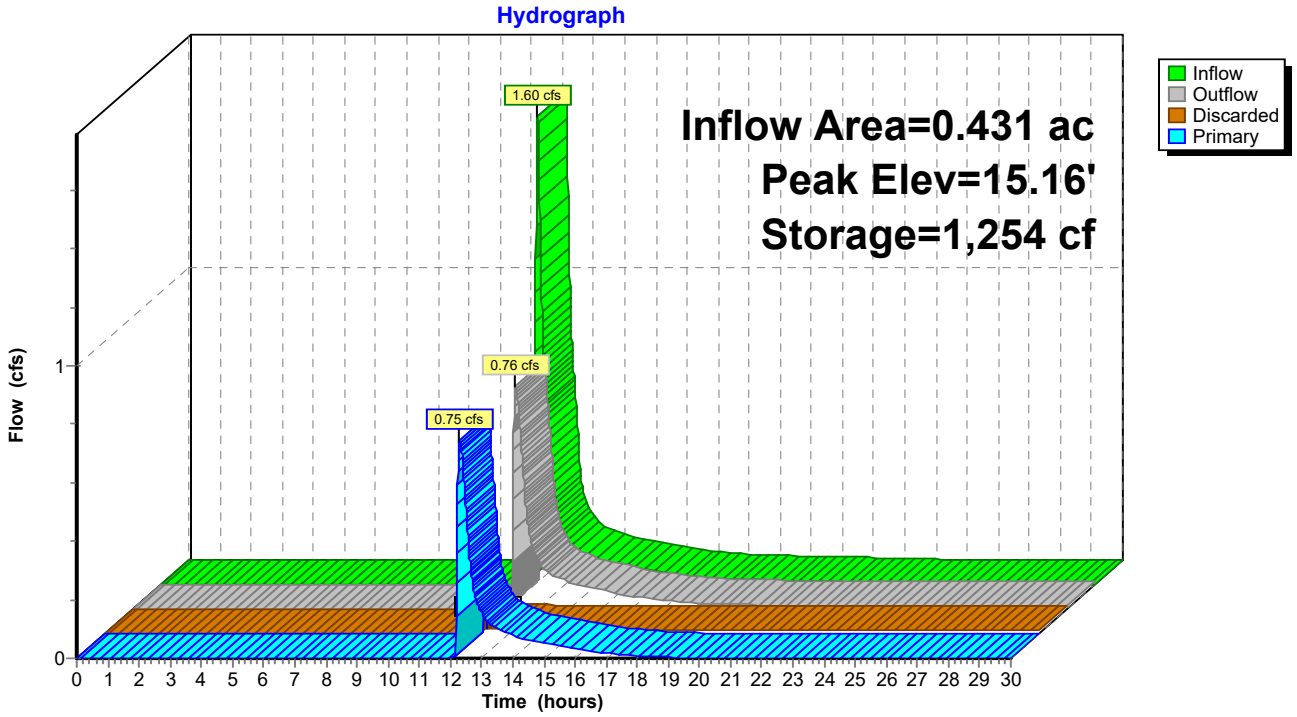
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.00	731	0	0	731
15.00	1,337	1,019	1,019	1,347
15.50	1,979	824	1,843	1,993

Device	Routing	Invert	Outlet Devices
#1	Primary	15.00'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	14.00'	**0.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.02 cfs @ 12.30 hrs HW=15.16' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.74 cfs @ 12.30 hrs HW=15.16' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.74 cfs @ 1.13 fps)

Pond 9P: INFIL BASIN



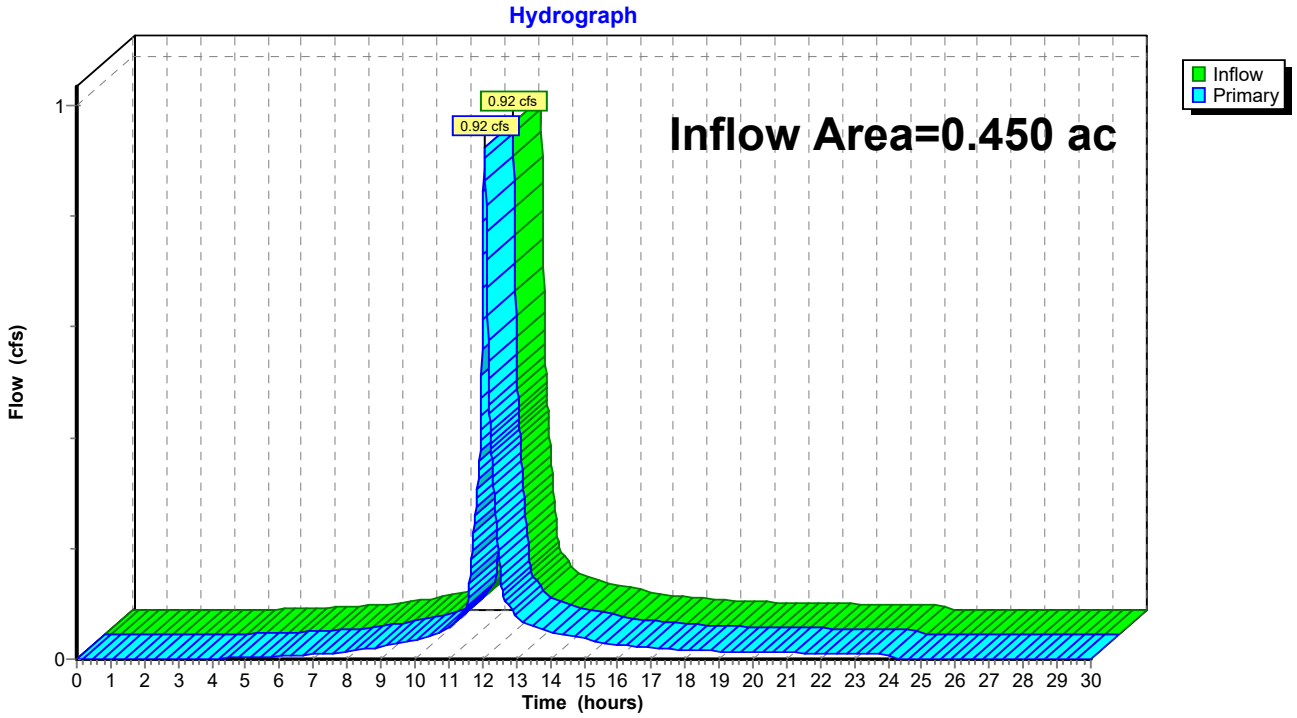
Summary for Pond 10P: IBEW DR S-M

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

Inflow Area = 0.450 ac, 55.02% Impervious, Inflow Depth = 1.78" for 10 yr event
Inflow = 0.92 cfs @ 12.07 hrs, Volume= 0.067 af
Primary = 0.92 cfs @ 12.07 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond 10P: IBEW DR S-M



Summary for Pond 15P: POROUS PAVEMENT

Inflow Area = 0.250 ac, 39.68% Impervious, Inflow Depth > 3.03" for 10 yr event
Inflow = 0.09 cfs @ 18.66 hrs, Volume= 0.063 af
Outflow = 0.05 cfs @ 22.40 hrs, Volume= 0.062 af, Atten= 41%, Lag= 224.3 min
Discarded = 0.05 cfs @ 22.40 hrs, Volume= 0.062 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 15.24' @ 22.40 hrs Surf.Area= 7,067 sf Storage= 610 cf

Plug-Flow detention time= 118.6 min calculated for 0.062 af (99% of inflow)
Center-of-Mass det. time= 111.2 min (1,329.5 - 1,218.4)

Volume	Invert	Avail.Storage	Storage Description
#1	14.95'	2,120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 7,067 cf Overall x 30.0% Voids

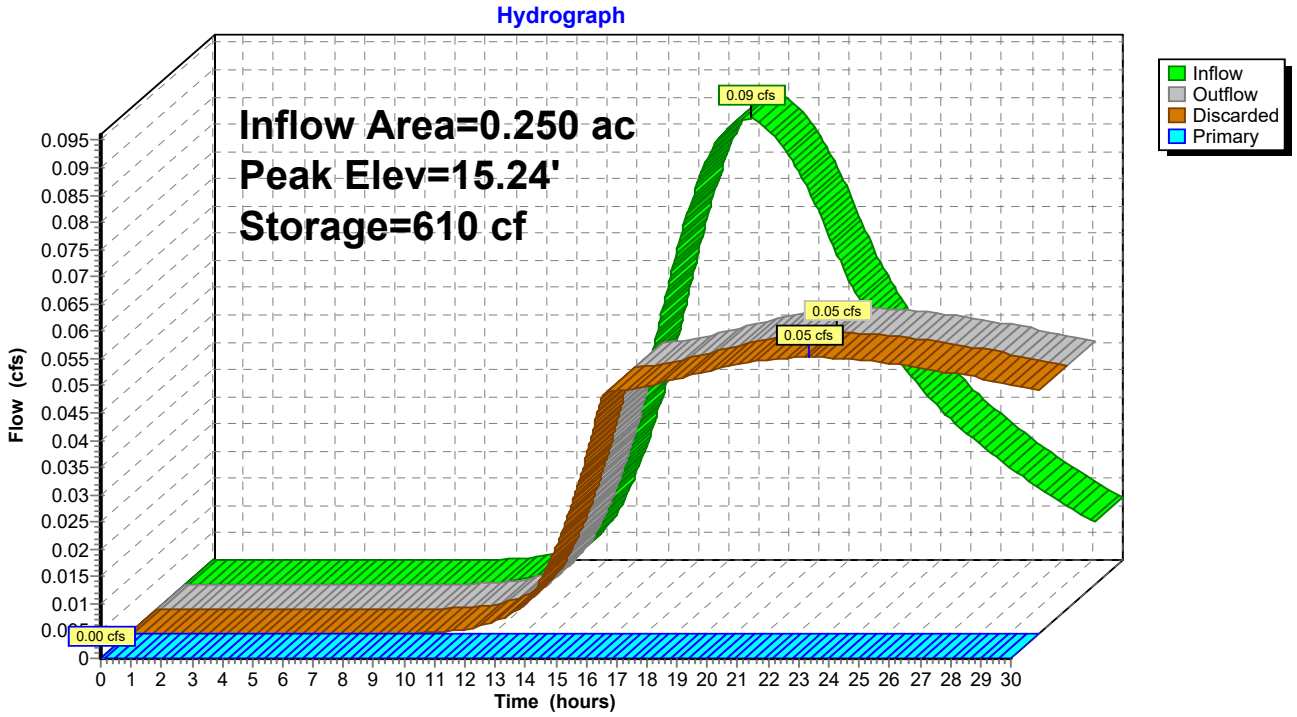
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.95	7,067	0	0
15.95	7,067	7,067	7,067

Device	Routing	Invert	Outlet Devices
#1	Primary	15.45'	**6.0" Round Culvert** L= 137.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 15.45' / 14.75' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Discarded	14.95'	**0.270 in/hr Exfiltration over Surface area below 15.45'** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.05 cfs @ 22.40 hrs HW=15.24' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.95' (Free Discharge)
↑—**1=Culvert** (Controls 0.00 cfs)

Pond 15P: POROUS PAVEMENT



Summary for Pond 16P: FOREBAY

Inflow Area = 0.151 ac, 50.94% Impervious, Inflow Depth = 3.37" for 10 yr event
Inflow = 0.61 cfs @ 12.07 hrs, Volume= 0.042 af
Outflow = 0.60 cfs @ 12.09 hrs, Volume= 0.040 af, Atten= 2%, Lag= 0.8 min
Discarded = 0.00 cfs @ 12.09 hrs, Volume= 0.005 af
Primary = 0.60 cfs @ 12.09 hrs, Volume= 0.035 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 14.99' @ 12.09 hrs Surf.Area= 299 sf Storage= 213 cf

Plug-Flow detention time= 81.7 min calculated for 0.040 af (93% of inflow)
Center-of-Mass det. time= 47.2 min (851.5 - 804.3)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	216 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

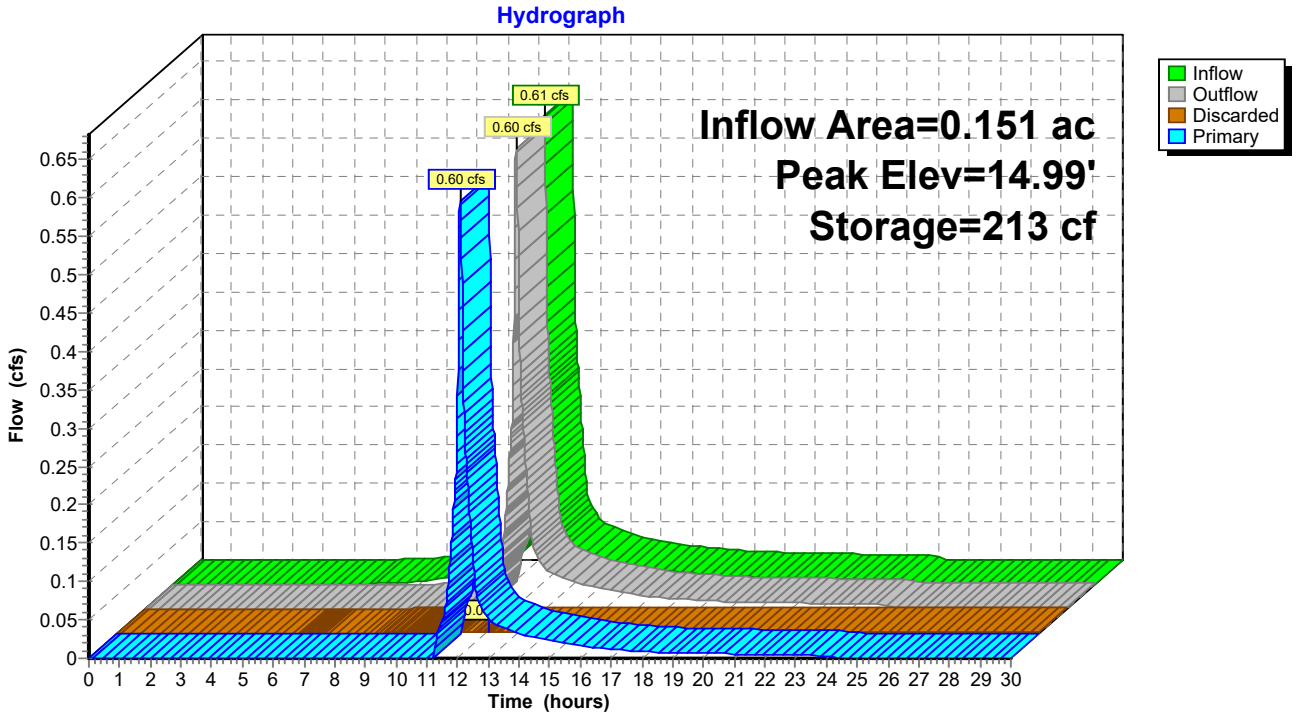
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.00	141	0	0	141
15.00	301	216	216	309

Device	Routing	Invert	Outlet Devices
#1	Primary	14.85'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	14.00'	**0.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.00 cfs @ 12.09 hrs HW=14.99' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.60 cfs @ 12.09 hrs HW=14.99' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.60 cfs @ 1.05 fps)

Pond 16P: FOREBAY



Summary for Pond DP1: Wetlands

Inflow Area = 2.424 ac, 18.87% Impervious, Inflow Depth = 1.99" for 10 yr event
Inflow = 3.89 cfs @ 12.29 hrs, Volume= 0.401 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

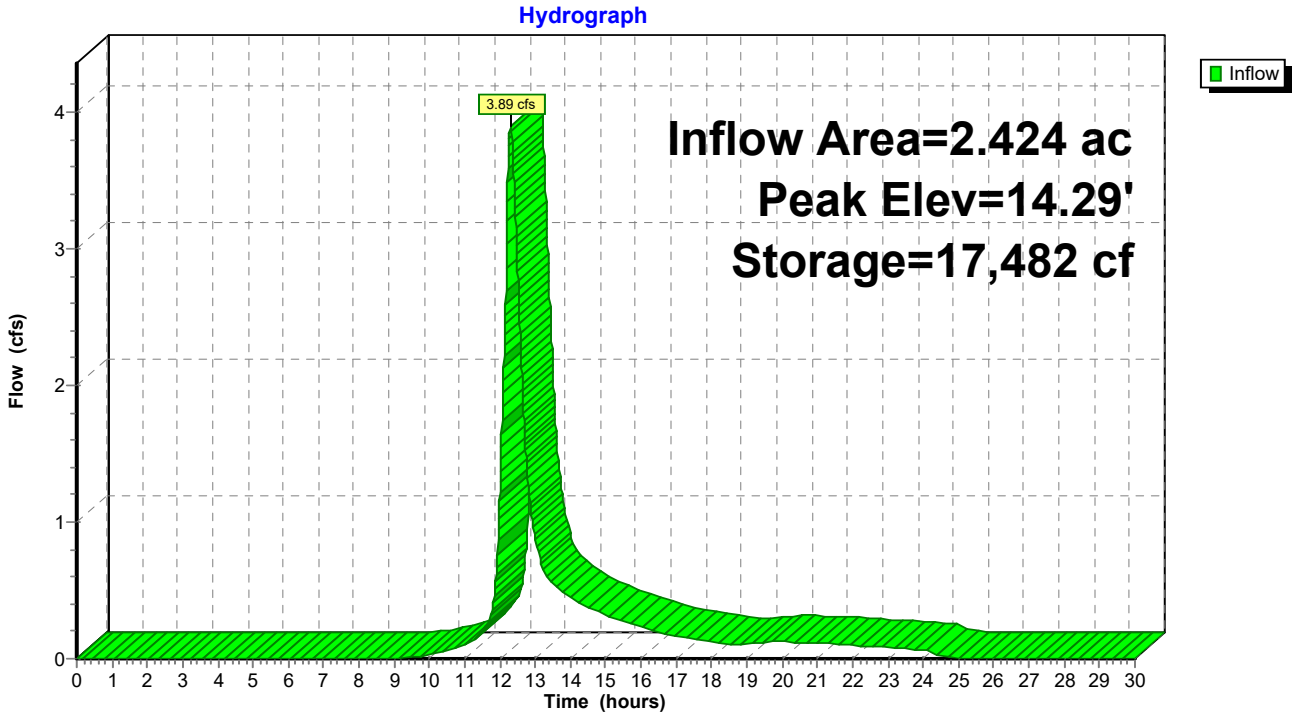
Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 14.29' @ 26.78 hrs Surf.Area= 38,879 sf Storage= 17,482 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	13.75'	50,175 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.75	23,495	0	0
14.00	33,076	7,071	7,071
15.00	53,131	43,104	50,175

Pond DP1: Wetlands



Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 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 PR1: Pr Site Runoff Area=72,210 sf 0.00% Impervious Runoff Depth=5.66"
Flow Length=237' Tc=21.4 min CN=74 Runoff=7.19 cfs 0.781 af

Subcatchment PR2: POROUS PAVEMENT Runoff Area=10,879 sf 39.68% Impervious Runoff Depth>6.58"
Tc=480.0 min CN=84 Runoff=0.18 cfs 0.137 af

Subcatchment PR3: North Driveway Runoff Area=6,564 sf 50.94% Impervious Runoff Depth=7.12"
Tc=5.0 min CN=86 Runoff=1.24 cfs 0.089 af

Subcatchment PR4: Parking 1 North Runoff Area=8,250 sf 65.64% Impervious Runoff Depth=7.60"
Tc=5.0 min CN=90 Runoff=1.63 cfs 0.120 af

Subcatchment PR5: Parking 2 North Runoff Area=10,520 sf 43.20% Impervious Runoff Depth=6.88"
Tc=5.0 min CN=84 Runoff=1.94 cfs 0.138 af

Subcatchment PR6: To off Site Drainage Runoff Area=8,722 sf 74.16% Impervious Runoff Depth=7.85"
Tc=5.0 min CN=92 Runoff=1.75 cfs 0.131 af

Subcatchment PR7: POROUS PAVEMENT Runoff Area=8,043 sf 82.33% Impervious Runoff Depth>7.78"
Tc=480.0 min CN=94 Runoff=0.16 cfs 0.120 af

Pond 2P: INFIL BASIN Peak Elev=14.98' Storage=285 cf Inflow=1.24 cfs 0.081 af
Discarded=0.00 cfs 0.006 af Primary=1.22 cfs 0.072 af Outflow=1.22 cfs 0.078 af

Pond 3P: POROUS PAVEMENT Peak Elev=15.70' Storage=874 cf Inflow=0.16 cfs 0.120 af
Discarded=0.03 cfs 0.049 af Primary=0.12 cfs 0.058 af Outflow=0.15 cfs 0.106 af

Pond 6P: FOREBAY Peak Elev=15.94' Storage=821 cf Inflow=1.63 cfs 0.120 af
Discarded=0.01 cfs 0.014 af Primary=1.53 cfs 0.095 af Outflow=1.54 cfs 0.109 af

Pond 8P: FOREBAY Peak Elev=15.88' Storage=705 cf Inflow=3.43 cfs 0.234 af
Discarded=0.01 cfs 0.011 af Primary=3.17 cfs 0.217 af Outflow=3.18 cfs 0.228 af

Pond 9P: INFIL BASIN Peak Elev=15.40' Storage=1,655 cf Inflow=3.17 cfs 0.217 af
Discarded=0.02 cfs 0.023 af Primary=2.97 cfs 0.177 af Outflow=3.00 cfs 0.200 af

Pond 10P: IBEW DR S-M Inflow=1.75 cfs 0.169 af
Primary=1.75 cfs 0.169 af

Pond 15P: POROUS PAVEMENT Peak Elev=15.66' Storage=1,496 cf Inflow=0.18 cfs 0.137 af
Discarded=0.06 cfs 0.078 af Primary=0.10 cfs 0.038 af Outflow=0.16 cfs 0.116 af

Pond 16P: FOREBAY Peak Elev=15.08' Storage=216 cf Inflow=1.24 cfs 0.089 af
Discarded=0.00 cfs 0.005 af Primary=1.24 cfs 0.081 af Outflow=1.24 cfs 0.087 af

Pond DP1: Wetlands Peak Elev=14.95' Storage=47,400 cf Inflow=9.78 cfs 1.088 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 2.874 ac Runoff Volume = 1.517 af Average Runoff Depth = 6.33"
75.47% Pervious = 2.169 ac 24.53% Impervious = 0.705 ac

Summary for Subcatchment PR1: Pr Site

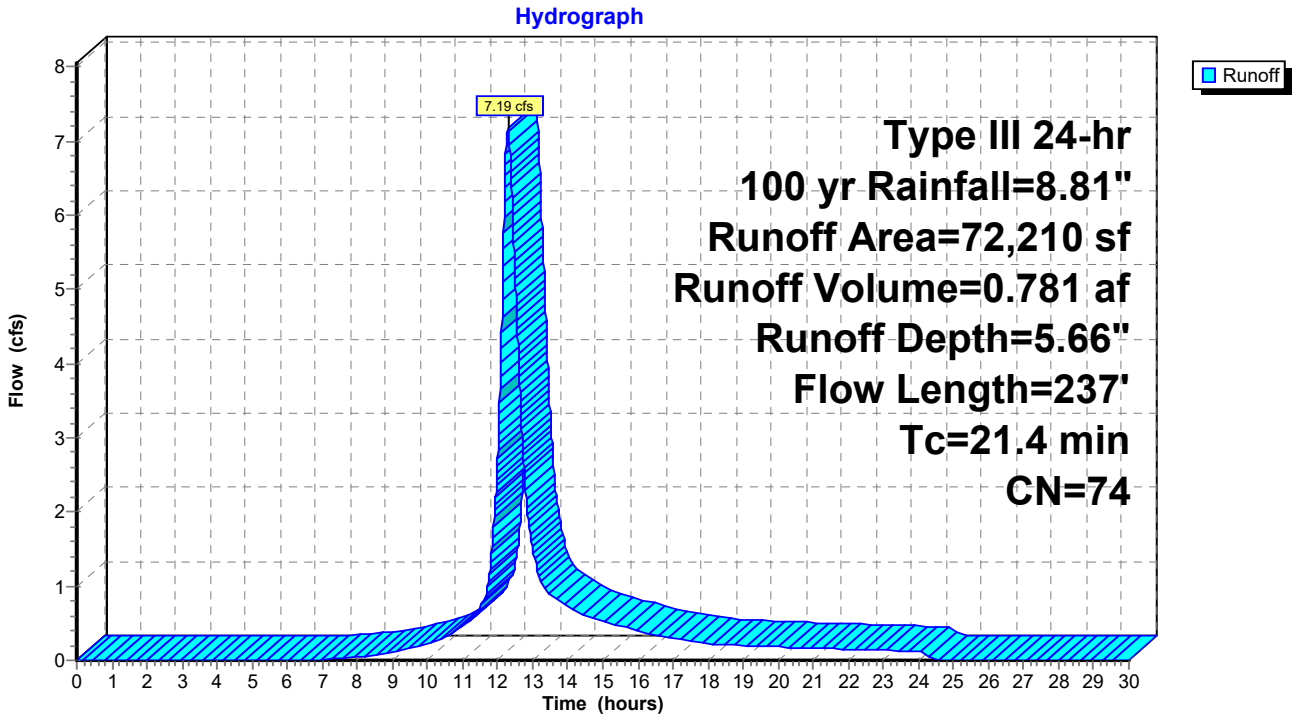
Runoff = 7.19 cfs @ 12.29 hrs, Volume= 0.781 af, Depth= 5.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.81"

Area (sf)	CN	Description
72,210	74	>75% Grass cover, Good, HSG C
72,210		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	50	0.0740	0.07		**Sheet Flow, Sheet Flow** Woods: Dense underbrush n= 0.800 P2= 3.26"
0.7	33	0.0240	0.77		**Shallow Concentrated Flow, Shallow Concentrated** Woodland Kv= 5.0 fps
0.4	28	0.0700	1.32		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.7	126	0.0030	0.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.4	237	Total			

Subcatchment PR1: Pr Site



Summary for Subcatchment PR2: POROUS PAVEMENT

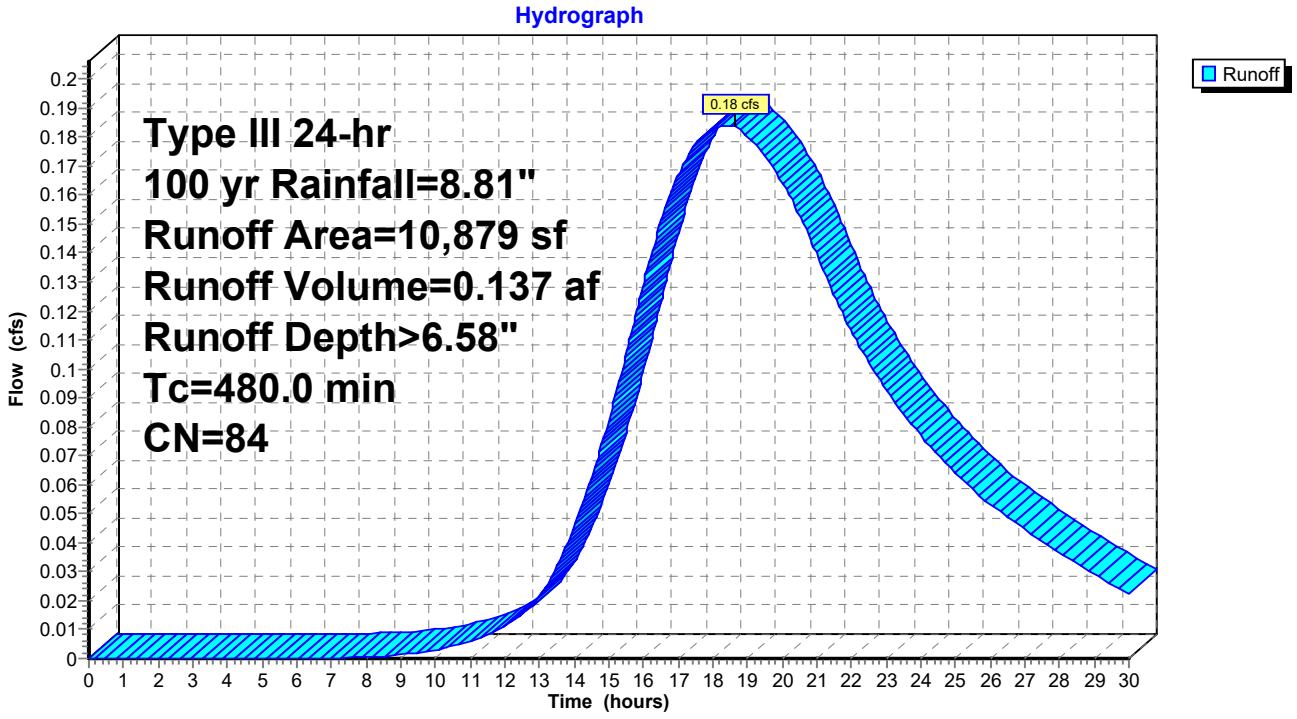
Runoff = 0.18 cfs @ 18.66 hrs, Volume= 0.137 af, Depth> 6.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.81"

Area (sf)	CN	Description
4,317	98	Paved parking, HSG C
6,562	74	>75% Grass cover, Good, HSG C
10,879	84	Weighted Average
6,562		60.32% Pervious Area
4,317		39.68% Impervious Area

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

Subcatchment PR2: POROUS PAVEMENT



Summary for Subcatchment PR3: North Driveway

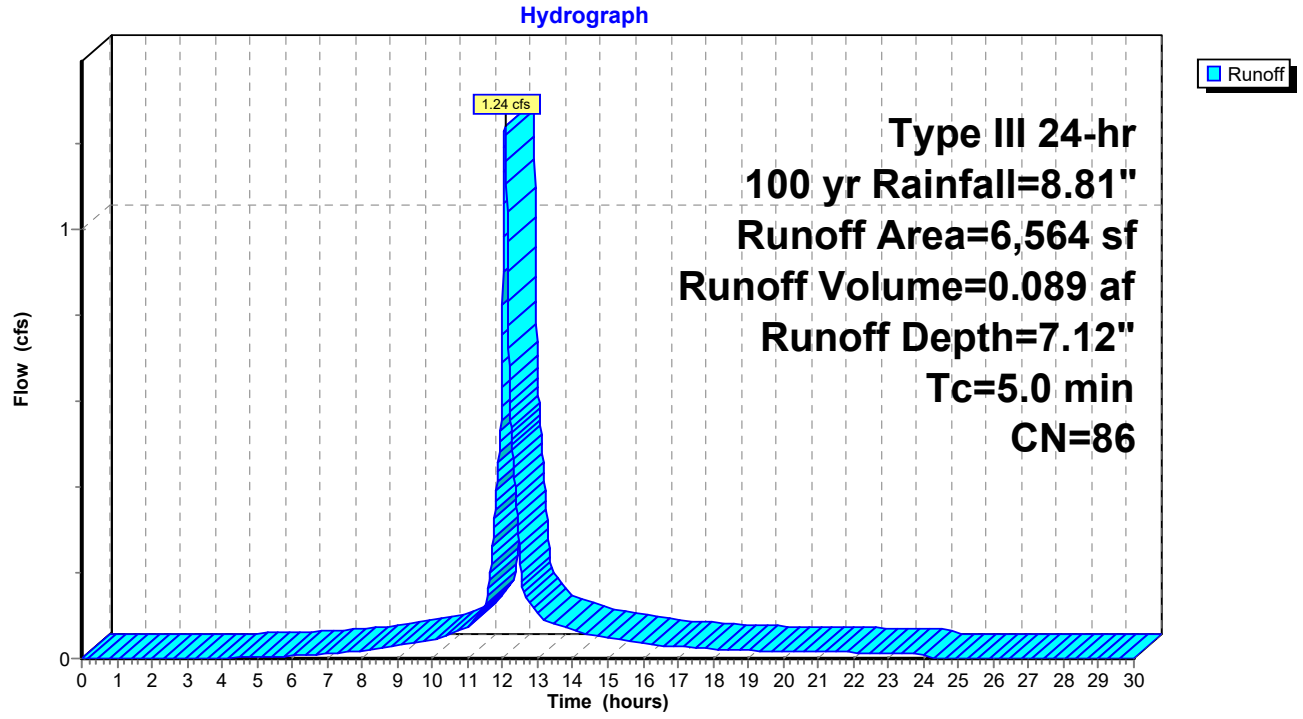
Runoff = 1.24 cfs @ 12.07 hrs, Volume= 0.089 af, Depth= 7.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.81"

Area (sf)	CN	Description
3,344	98	Paved parking, HSG C
3,220	74	>75% Grass cover, Good, HSG C
6,564	86	Weighted Average
3,220		49.06% Pervious Area
3,344		50.94% Impervious Area

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

Subcatchment PR3: North Driveway



Summary for Subcatchment PR4: Parking 1 North

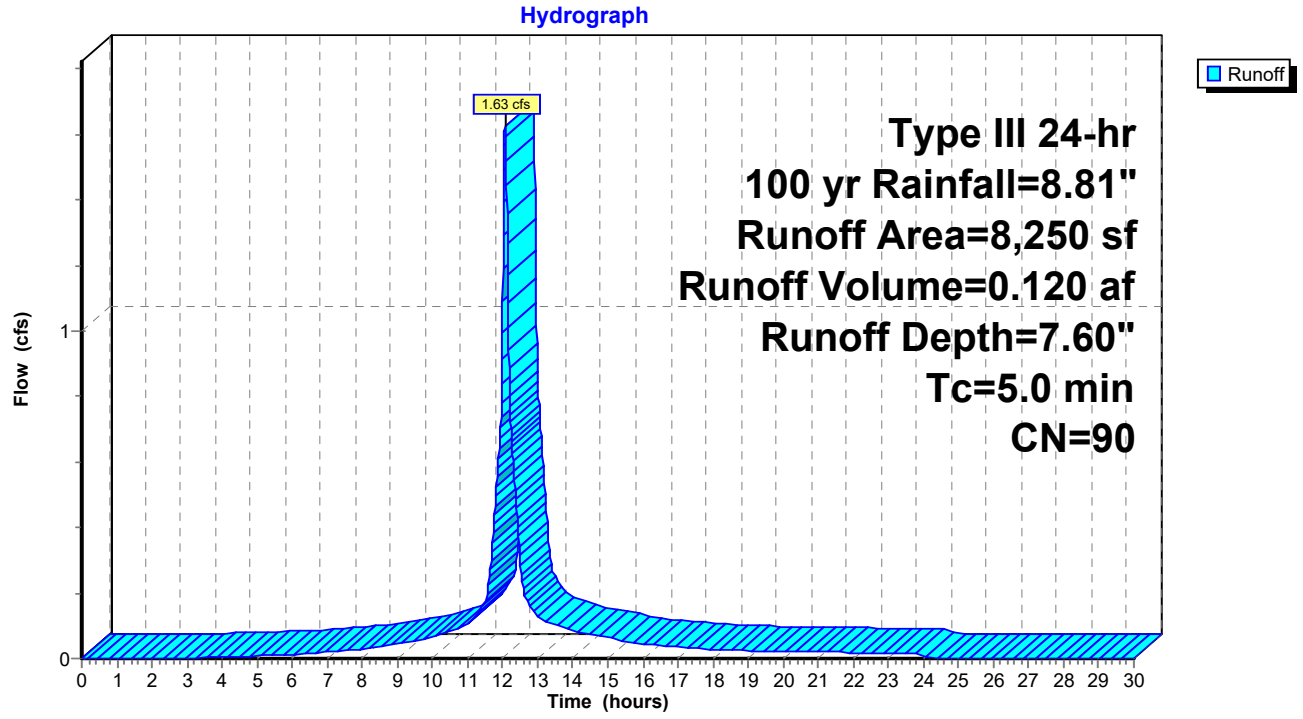
Runoff = 1.63 cfs @ 12.07 hrs, Volume= 0.120 af, Depth= 7.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.81"

Area (sf)	CN	Description
5,415	98	Paved parking, HSG C
2,835	74	>75% Grass cover, Good, HSG C
8,250	90	Weighted Average
2,835		34.36% Pervious Area
5,415		65.64% Impervious Area

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

Subcatchment PR4: Parking 1 North



Summary for Subcatchment PR5: Parking 2 North

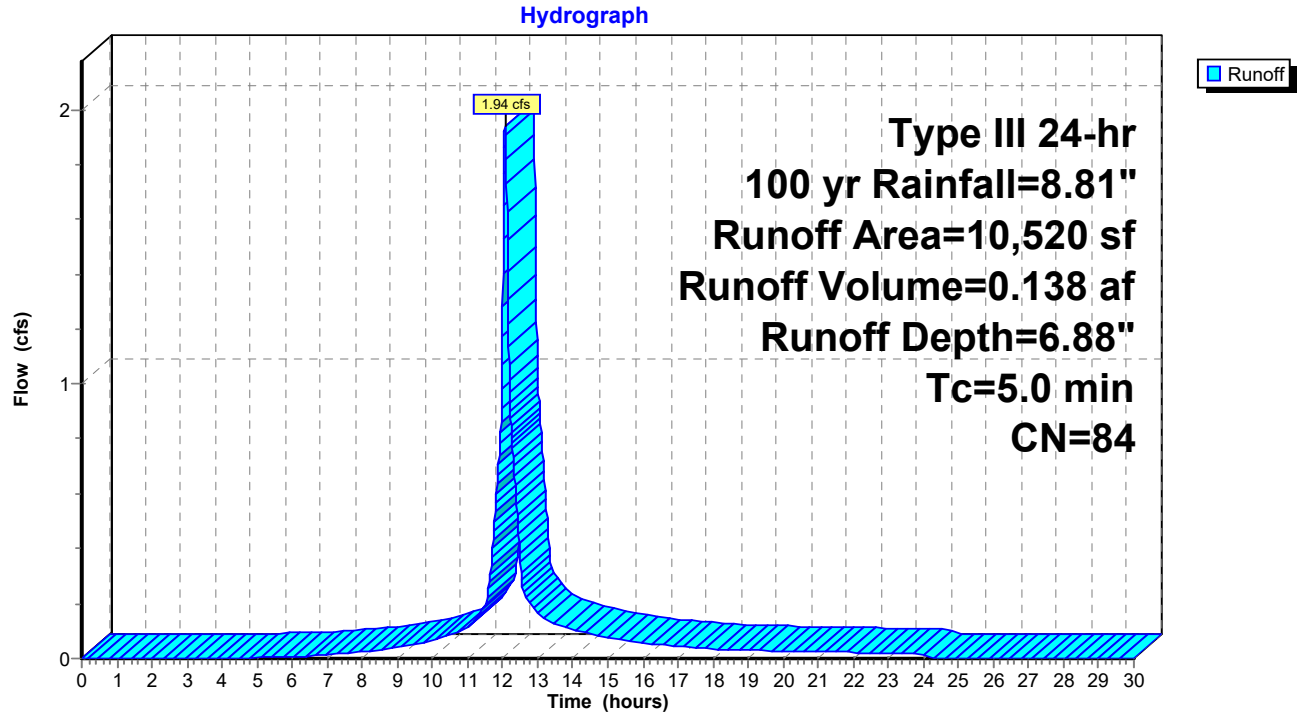
Runoff = 1.94 cfs @ 12.07 hrs, Volume= 0.138 af, Depth= 6.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.81"

Area (sf)	CN	Description
4,545	98	Paved parking, HSG C
5,975	74	>75% Grass cover, Good, HSG C
10,520	84	Weighted Average
5,975		56.80% Pervious Area
4,545		43.20% Impervious Area

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

Subcatchment PR5: Parking 2 North



Summary for Subcatchment PR6: To off Site Drainage POST

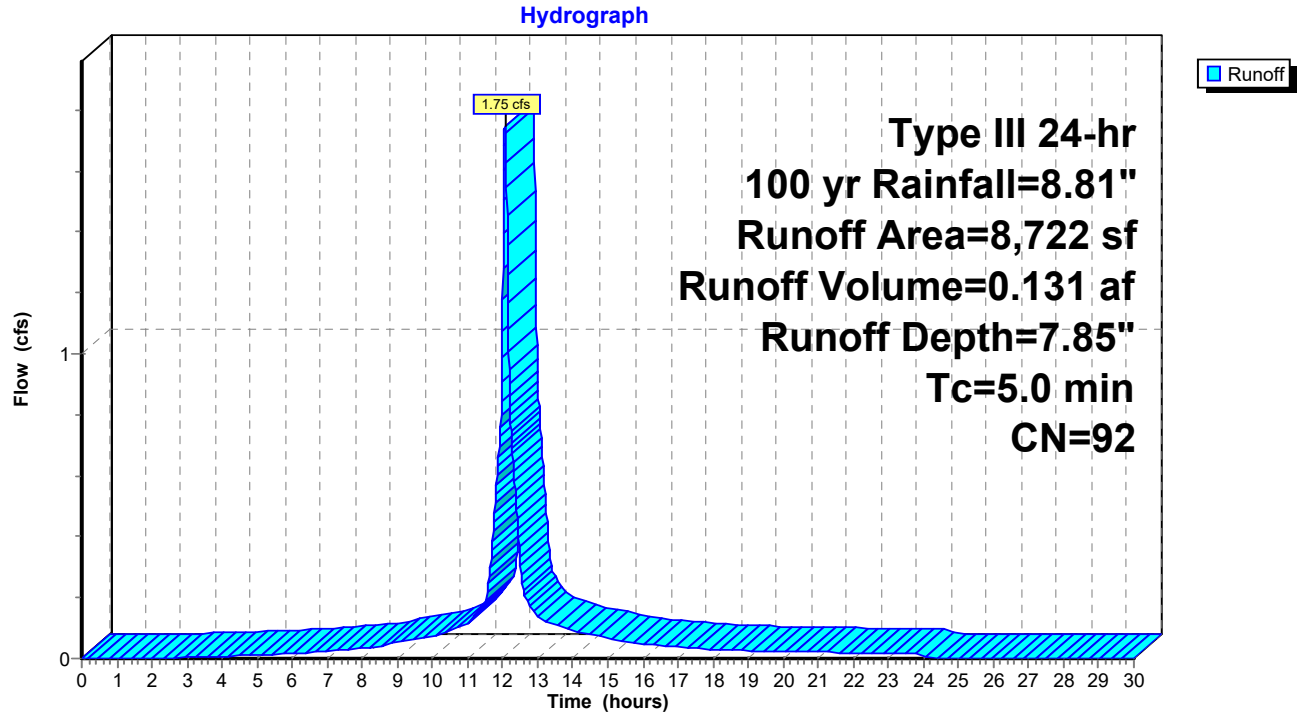
Runoff = 1.75 cfs @ 12.07 hrs, Volume= 0.131 af, Depth= 7.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.81"

Area (sf)	CN	Description
6,468	98	Paved parking, HSG C
2,254	74	>75% Grass cover, Good, HSG C
8,722	92	Weighted Average
2,254		25.84% Pervious Area
6,468		74.16% Impervious Area

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

Subcatchment PR6: To off Site Drainage POST



Summary for Subcatchment PR7: POROUS PAVEMENT

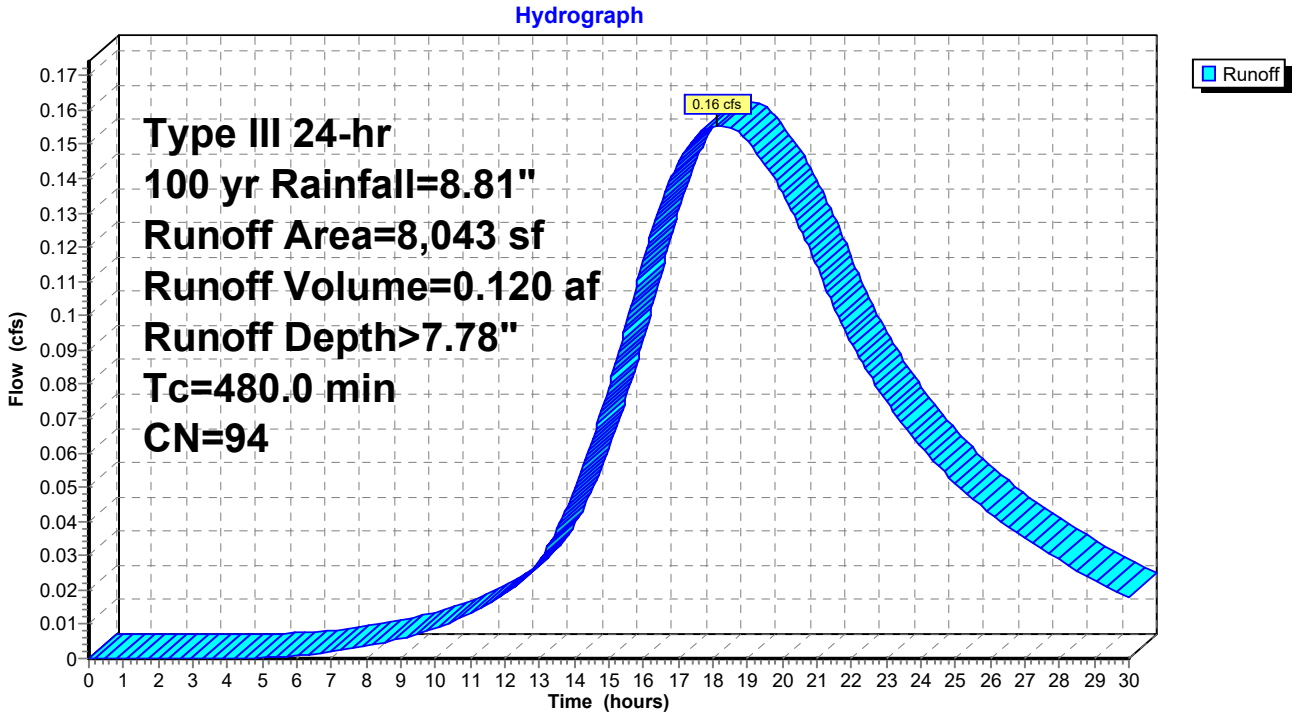
Runoff = 0.16 cfs @ 18.14 hrs, Volume= 0.120 af, Depth> 7.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 yr Rainfall=8.81"

Area (sf)	CN	Description
6,622	98	Paved parking, HSG C
1,421	74	>75% Grass cover, Good, HSG C
8,043	94	Weighted Average
1,421		17.67% Pervious Area
6,622		82.33% Impervious Area

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

Subcatchment PR7: POROUS PAVEMENT



Summary for Pond 2P: INFIL BASIN

[79] Warning: Submerged Pond 16P Primary device # 1 by 0.13'

Inflow Area = 0.151 ac, 50.94% Impervious, Inflow Depth = 6.47" for 100 yr event
Inflow = 1.24 cfs @ 12.08 hrs, Volume= 0.081 af
Outflow = 1.22 cfs @ 12.08 hrs, Volume= 0.078 af, Atten= 2%, Lag= 0.4 min
Discarded = 0.00 cfs @ 12.08 hrs, Volume= 0.006 af
Primary = 1.22 cfs @ 12.08 hrs, Volume= 0.072 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 14.98' @ 12.08 hrs Surf.Area= 370 sf Storage= 285 cf

Plug-Flow detention time= 51.8 min calculated for 0.078 af (96% of inflow)
Center-of-Mass det. time= 29.3 min (824.1 - 794.7)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	294 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

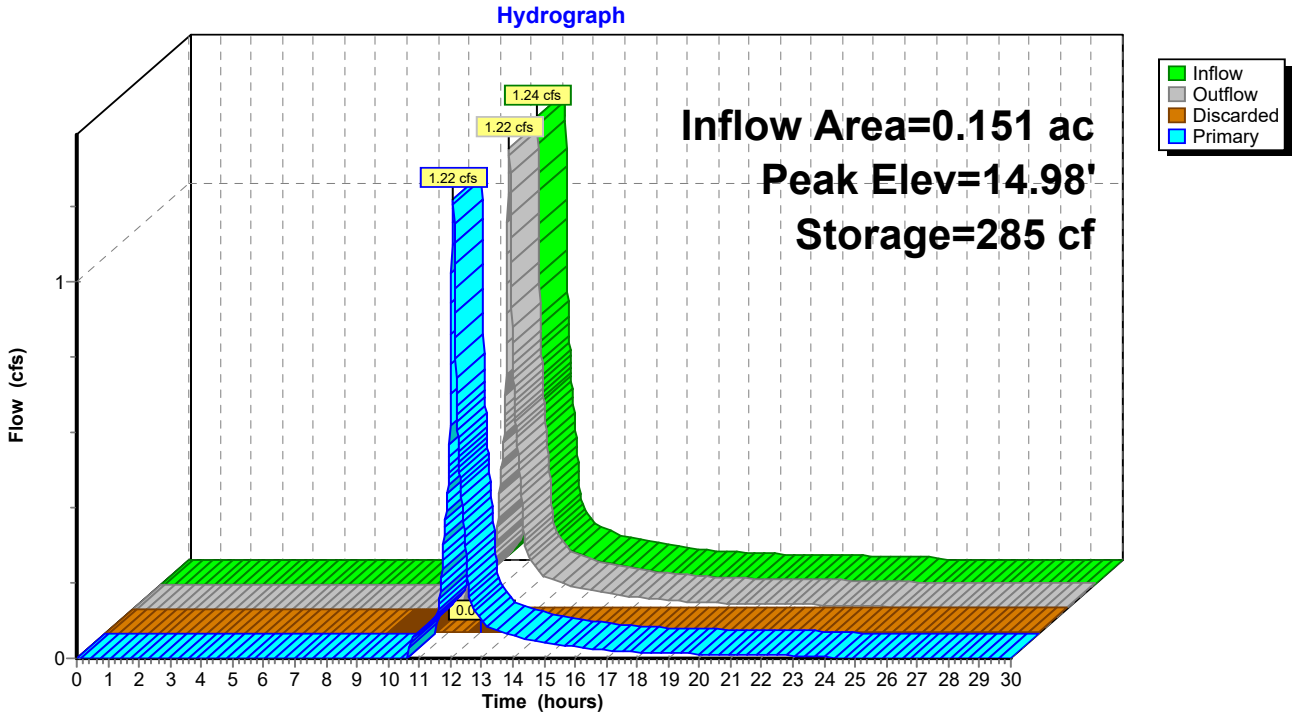
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.00	230	0	0	230
14.75	323	206	206	333
15.00	375	87	294	387

Device	Routing	Invert	Outlet Devices
#1	Primary	14.75'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	14.00'	**0.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=14.98' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.21 cfs @ 12.08 hrs HW=14.98' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 1.21 cfs @ 1.34 fps)

Pond 2P: INFIL BASIN



Summary for Pond 3P: POROUS PAVEMENT

Inflow Area = 0.185 ac, 82.33% Impervious, Inflow Depth > 7.78" for 100 yr event
Inflow = 0.16 cfs @ 18.14 hrs, Volume= 0.120 af
Outflow = 0.15 cfs @ 18.73 hrs, Volume= 0.106 af, Atten= 1%, Lag= 35.8 min
Discarded = 0.03 cfs @ 18.73 hrs, Volume= 0.049 af
Primary = 0.12 cfs @ 18.73 hrs, Volume= 0.058 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 15.70' @ 18.73 hrs Surf.Area= 3,872 sf Storage= 874 cf

Plug-Flow detention time= 119.5 min calculated for 0.106 af (89% of inflow)
Center-of-Mass det. time= 62.9 min (1,233.5 - 1,170.6)

Volume	Invert	Avail.Storage	Storage Description
#1	14.95'	1,220 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 4,066 cf Overall x 30.0% Voids

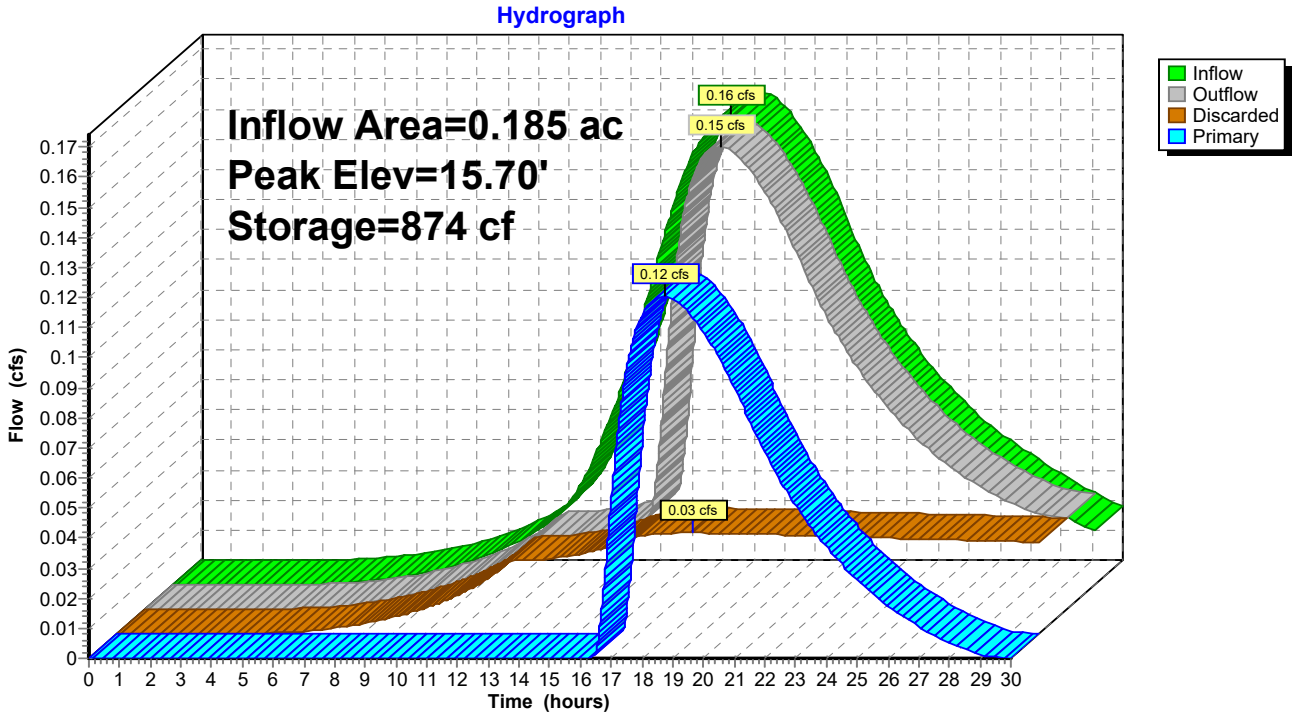
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.95	3,872	0	0
16.00	3,872	4,066	4,066

Device	Routing	Invert	Outlet Devices
#1	Primary	15.45'	**6.0" Round Culvert** L= 137.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 15.45' / 14.75' S= 0.0051 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.20 sf
#2	Discarded	14.95'	**0.270 in/hr Exfiltration over Surface area below 15.45'** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.03 cfs @ 18.73 hrs HW=15.70' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.12 cfs @ 18.73 hrs HW=15.70' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.12 cfs @ 1.77 fps)

Pond 3P: POROUS PAVEMENT



Summary for Pond 6P: FOREBAY

Inflow Area = 0.189 ac, 65.64% Impervious, Inflow Depth = 7.60" for 100 yr event
Inflow = 1.63 cfs @ 12.07 hrs, Volume= 0.120 af
Outflow = 1.54 cfs @ 12.10 hrs, Volume= 0.109 af, Atten= 5%, Lag= 1.5 min
Discarded = 0.01 cfs @ 12.10 hrs, Volume= 0.014 af
Primary = 1.53 cfs @ 12.10 hrs, Volume= 0.095 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 15.94' @ 12.10 hrs Surf.Area= 936 sf Storage= 821 cf

Plug-Flow detention time= 106.5 min calculated for 0.109 af (91% of inflow)
Center-of-Mass det. time= 61.6 min (833.8 - 772.2)

Volume	Invert	Avail.Storage	Storage Description
#1	14.75'	879 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

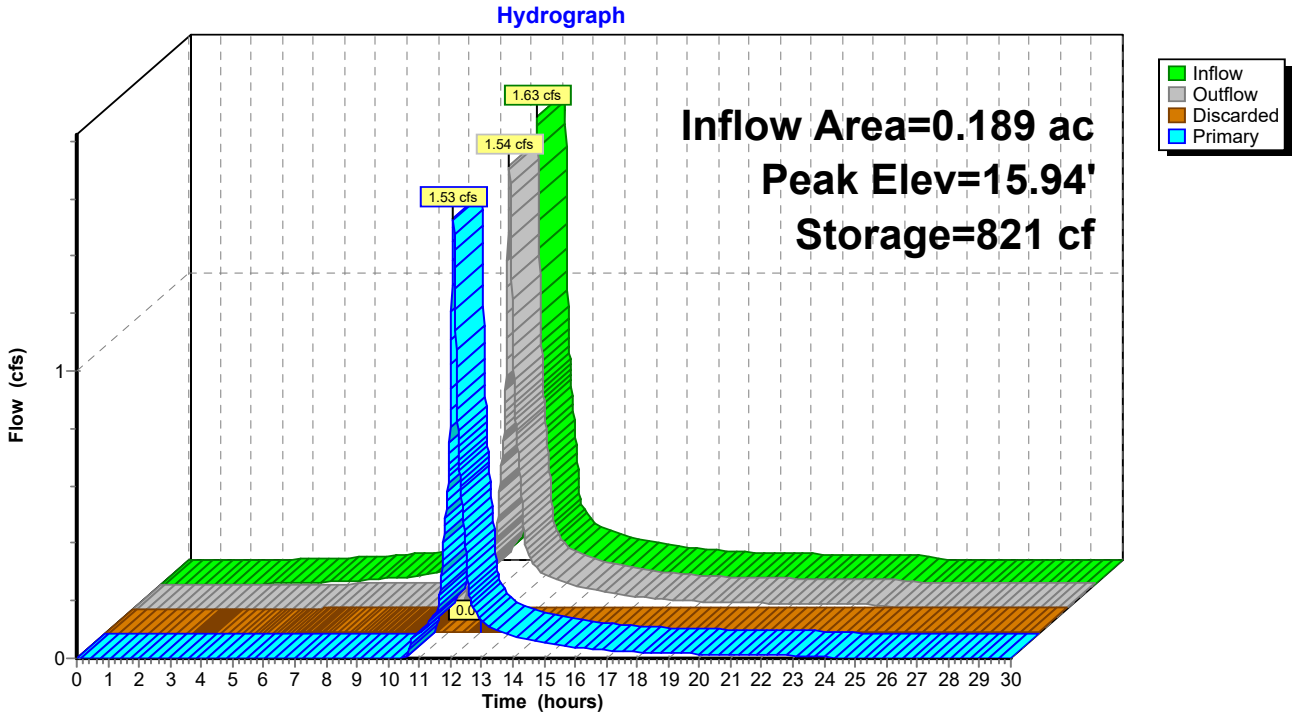
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.75	250	0	0	250
15.00	604	104	104	604
16.00	960	775	879	974

Device	Routing	Invert	Outlet Devices
#1	Primary	15.70'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	14.75'	**0.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.01 cfs @ 12.10 hrs HW=15.94' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=1.53 cfs @ 12.10 hrs HW=15.94' (Free Discharge)
↑—**1=Orifice/Grate** (Weir Controls 1.53 cfs @ 1.60 fps)

Pond 6P: FOREBAY



Summary for Pond 8P: FOREBAY

[79] Warning: Submerged Pond 6P Primary device # 1 by 0.18'

Inflow Area = 0.431 ac, 53.06% Impervious, Inflow Depth = 6.51" for 100 yr event
Inflow = 3.43 cfs @ 12.08 hrs, Volume= 0.234 af
Outflow = 3.18 cfs @ 12.11 hrs, Volume= 0.228 af, Atten= 7%, Lag= 2.0 min
Discarded = 0.01 cfs @ 12.11 hrs, Volume= 0.011 af
Primary = 3.17 cfs @ 12.11 hrs, Volume= 0.217 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 15.88' @ 12.11 hrs Surf.Area= 845 sf Storage= 705 cf

Plug-Flow detention time= 37.7 min calculated for 0.228 af (97% of inflow)
Center-of-Mass det. time= 22.4 min (814.6 - 792.2)

Volume	Invert	Avail.Storage	Storage Description
#1	14.75'	806 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

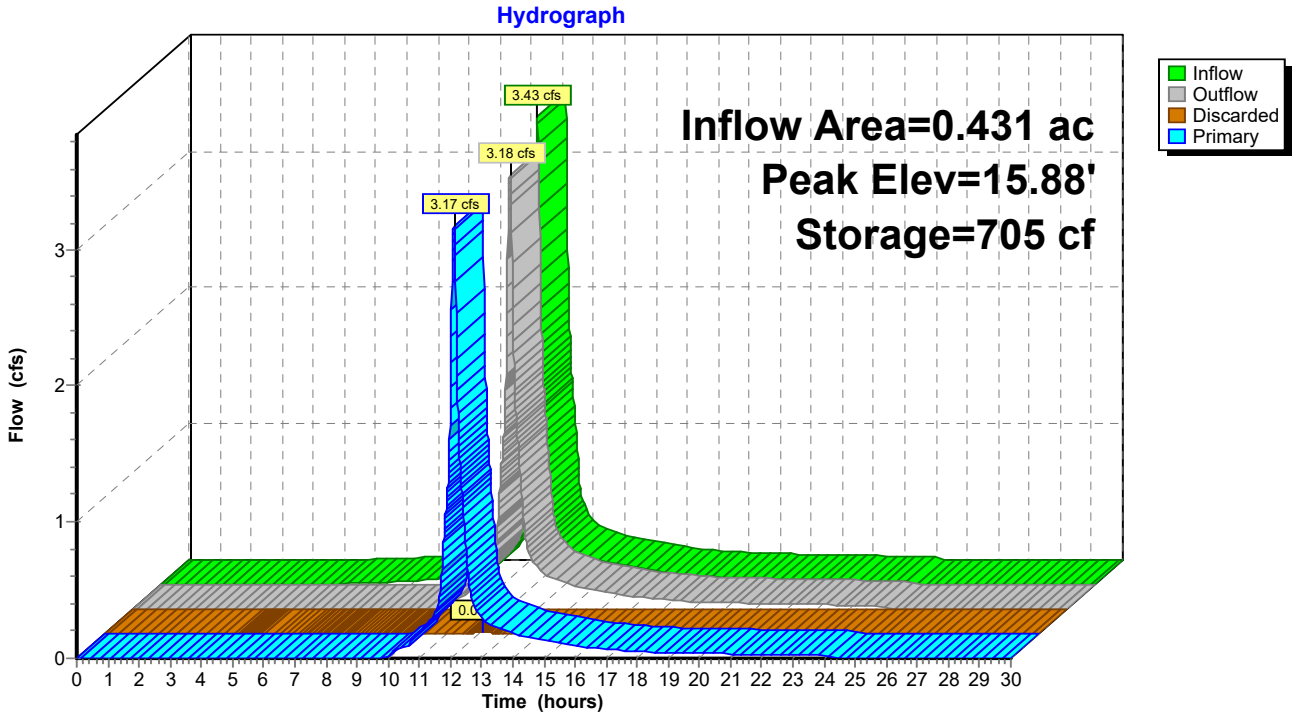
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.75	250	0	0	250
15.00	542	97	97	543
16.00	890	709	806	903

Device	Routing	Invert	Outlet Devices
#1	Primary	15.45'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Discarded	14.75'	**0.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.01 cfs @ 12.11 hrs HW=15.88' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=3.17 cfs @ 12.11 hrs HW=15.88' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 3.17 cfs @ 3.17 fps)

Pond 8P: FOREBAY



Summary for Pond 9P: INFIL BASIN

Inflow Area = 0.431 ac, 53.06% Impervious, Inflow Depth = 6.04" for 100 yr event
Inflow = 3.17 cfs @ 12.11 hrs, Volume= 0.217 af
Outflow = 3.00 cfs @ 12.16 hrs, Volume= 0.200 af, Atten= 6%, Lag= 2.5 min
Discarded = 0.02 cfs @ 12.16 hrs, Volume= 0.023 af
Primary = 2.97 cfs @ 12.16 hrs, Volume= 0.177 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 15.40' @ 12.16 hrs Surf.Area= 1,843 sf Storage= 1,655 cf

Plug-Flow detention time= 83.5 min calculated for 0.200 af (92% of inflow)
Center-of-Mass det. time= 46.5 min (847.4 - 800.9)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	1,843 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

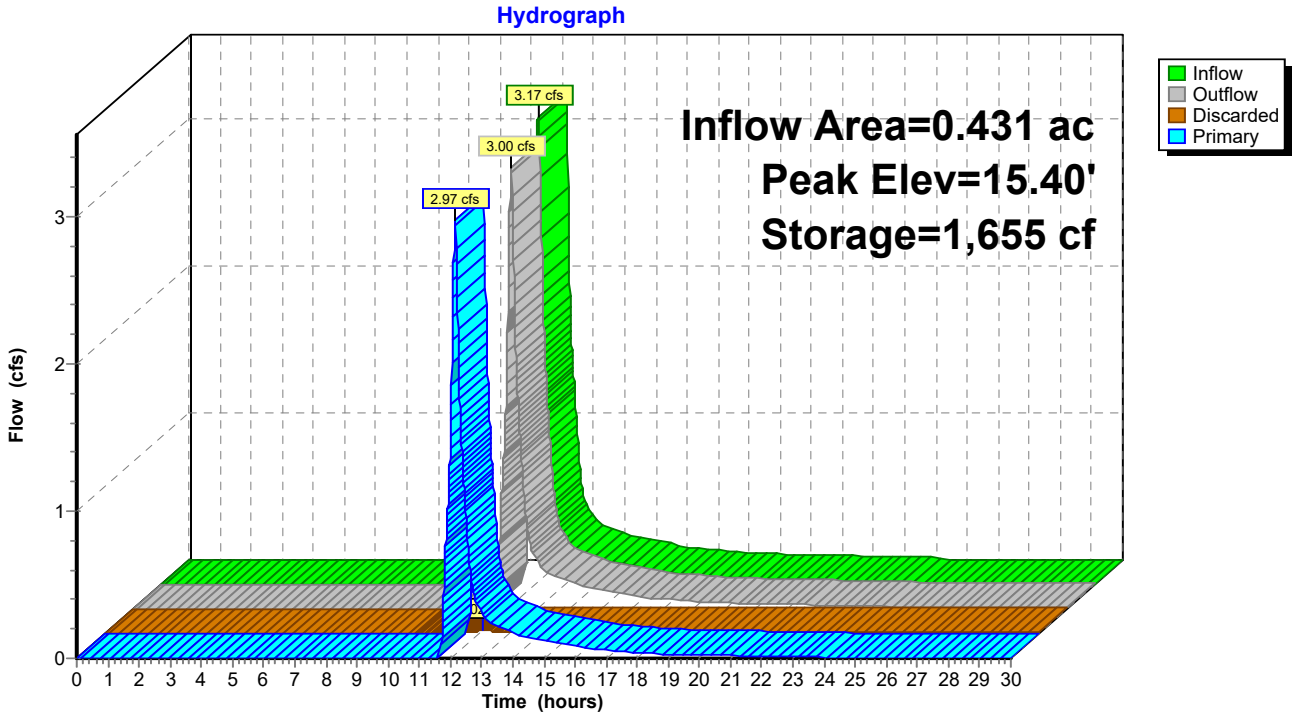
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.00	731	0	0	731
15.00	1,337	1,019	1,019	1,347
15.50	1,979	824	1,843	1,993

Device	Routing	Invert	Outlet Devices
#1	Primary	15.00'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	14.00'	**0.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.02 cfs @ 12.16 hrs HW=15.40' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=2.97 cfs @ 12.16 hrs HW=15.40' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 2.97 cfs @ 1.85 fps)

Pond 9P: INFIL BASIN



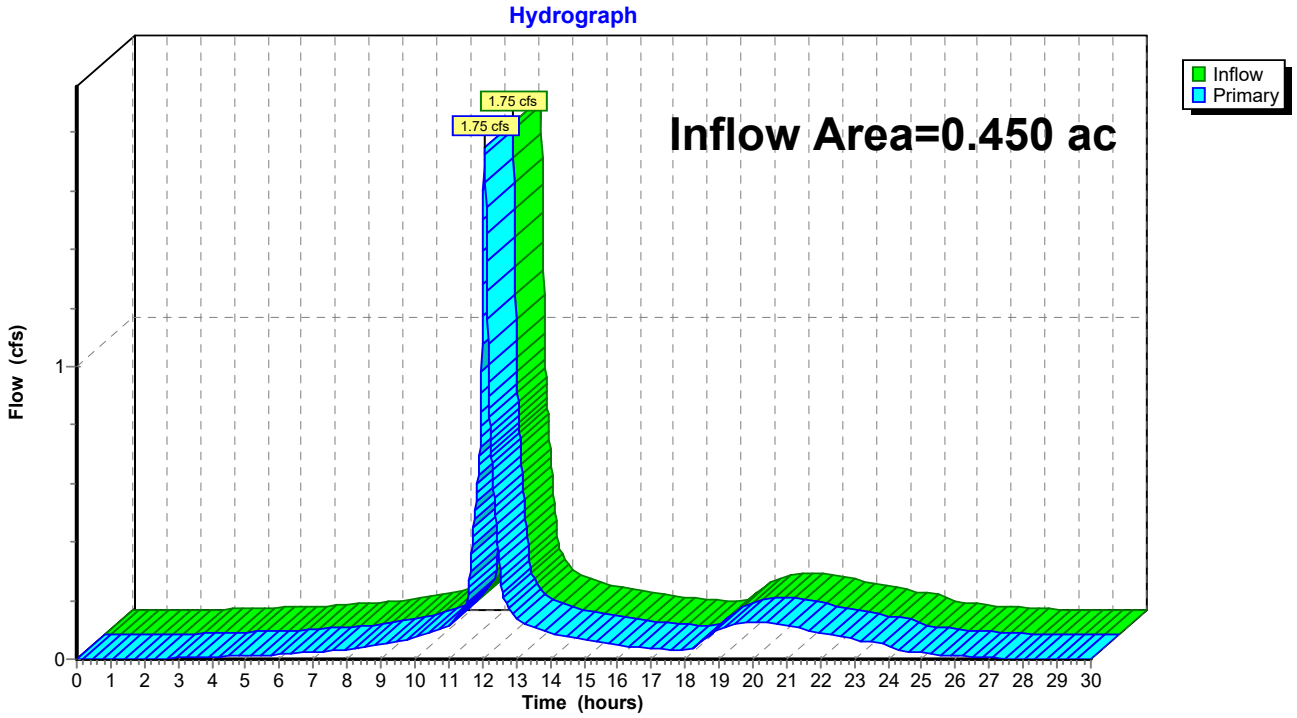
Summary for Pond 10P: IBEW DR S-M

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

Inflow Area = 0.450 ac, 55.02% Impervious, Inflow Depth = 4.51" for 100 yr event
Inflow = 1.75 cfs @ 12.07 hrs, Volume= 0.169 af
Primary = 1.75 cfs @ 12.07 hrs, Volume= 0.169 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond 10P: IBEW DR S-M



Summary for Pond 15P: POROUS PAVEMENT

Inflow Area = 0.250 ac, 39.68% Impervious, Inflow Depth > 6.58" for 100 yr event
Inflow = 0.18 cfs @ 18.66 hrs, Volume= 0.137 af
Outflow = 0.16 cfs @ 20.03 hrs, Volume= 0.116 af, Atten= 11%, Lag= 82.6 min
Discarded = 0.06 cfs @ 20.03 hrs, Volume= 0.078 af
Primary = 0.10 cfs @ 20.03 hrs, Volume= 0.038 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 15.66' @ 20.03 hrs Surf.Area= 7,067 sf Storage= 1,496 cf

Plug-Flow detention time= 163.6 min calculated for 0.116 af (85% of inflow)
Center-of-Mass det. time= 92.4 min (1,291.6 - 1,199.2)

Volume	Invert	Avail.Storage	Storage Description
#1	14.95'	2,120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 7,067 cf Overall x 30.0% Voids

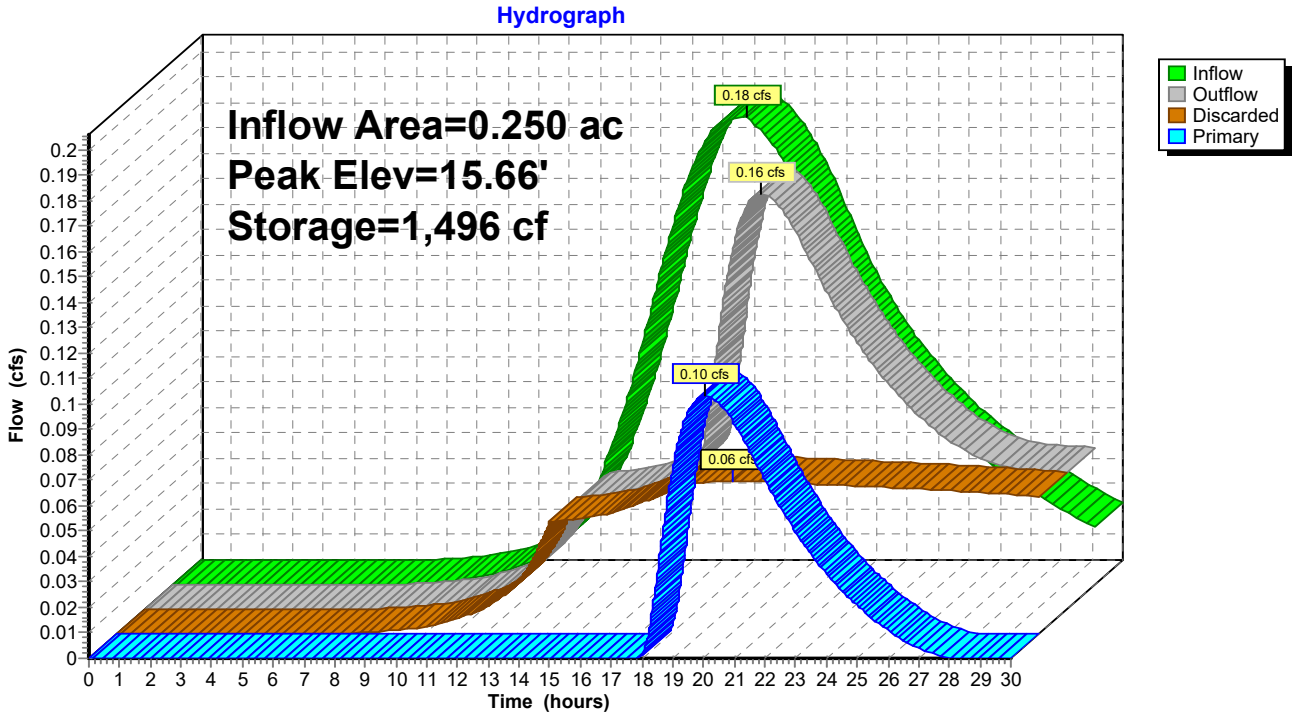
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.95	7,067	0	0
15.95	7,067	7,067	7,067

Device	Routing	Invert	Outlet Devices
#1	Primary	15.45'	**6.0" Round Culvert** L= 137.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 15.45' / 14.75' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Discarded	14.95'	**0.270 in/hr Exfiltration over Surface area below 15.45'** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.06 cfs @ 20.03 hrs HW=15.66' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.06 cfs)

Primary OutFlow Max=0.10 cfs @ 20.03 hrs HW=15.66' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.10 cfs @ 2.01 fps)

Pond 15P: POROUS PAVEMENT



Summary for Pond 16P: FOREBAY

[93] Warning: Storage range exceeded by 0.08'
[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.151 ac, 50.94% Impervious, Inflow Depth = 7.12" for 100 yr event
Inflow = 1.24 cfs @ 12.07 hrs, Volume= 0.089 af
Outflow = 1.24 cfs @ 12.08 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.3 min
Discarded = 0.00 cfs @ 12.08 hrs, Volume= 0.005 af
Primary = 1.24 cfs @ 12.08 hrs, Volume= 0.081 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 15.08' @ 12.08 hrs Surf.Area= 301 sf Storage= 216 cf

Plug-Flow detention time= 46.5 min calculated for 0.087 af (97% of inflow)
Center-of-Mass det. time= 28.1 min (811.8 - 783.7)

Volume	Invert	Avail.Storage	Storage Description
#1	14.00'	216 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

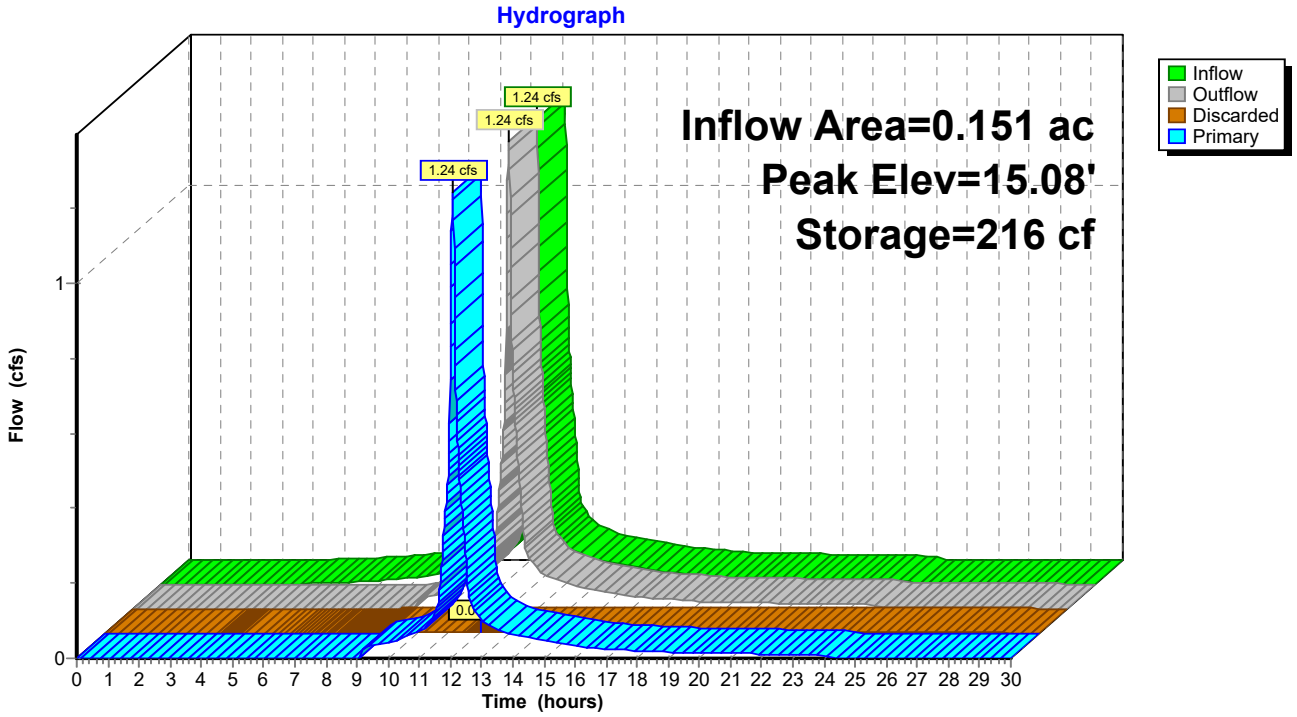
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
14.00	141	0	0	141
15.00	301	216	216	309

Device	Routing	Invert	Outlet Devices
#1	Primary	14.85'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	14.00'	**0.270 in/hr Exfiltration over Wetted area** Conductivity to Groundwater Elevation = 13.00'

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=15.08' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=1.24 cfs @ 12.08 hrs HW=15.08' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 1.24 cfs @ 1.35 fps)

Pond 16P: FOREBAY



Summary for Pond DP1: Wetlands

[81] Warning: Exceeded Pond 2P by 0.40' @ 29.99 hrs
[79] Warning: Submerged Pond 3P Primary device # 1 OUTLET by 0.20'

Inflow Area = 2.424 ac, 18.87% Impervious, Inflow Depth = 5.39" for 100 yr event
Inflow = 9.78 cfs @ 12.22 hrs, Volume= 1.088 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

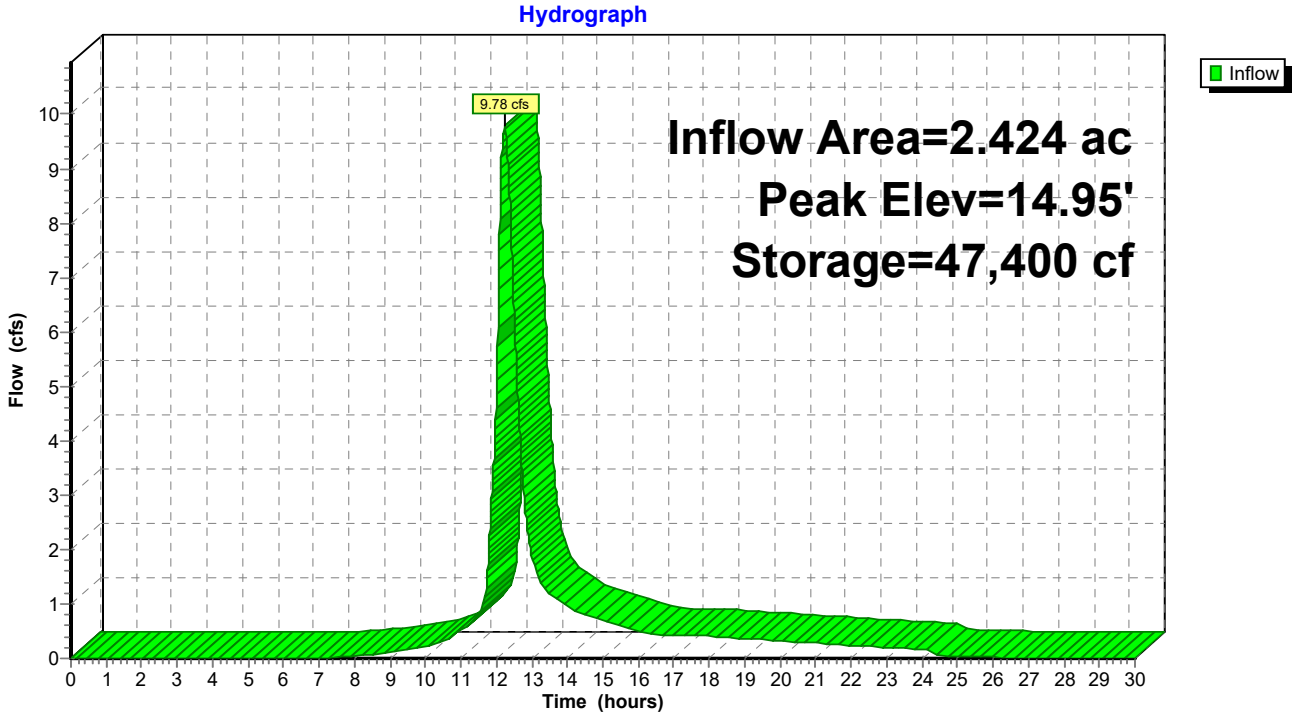
Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 14.95' @ 29.86 hrs Surf.Area= 52,073 sf Storage= 47,400 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	13.75'	50,175 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.75	23,495	0	0
14.00	33,076	7,071	7,071
15.00	53,131	43,104	50,175

Pond DP1: Wetlands



Appendix D:
Water Quality Calculations

Table 1 Required Recharge Volume
Turnpike Road
As shown in Vol 3. Chapter 1 Page 15 of the Massachusetts Stormwater Handbook
Required Recharge Volume determined by the following equation:

$R_v = F \times A_{imp}$ where:

R_v	Required Recharge Volume
F	Target Depth Factor
A_{imp}	Impervious Area

Given:
NRCS Hydrologic Soil Type - C
Target Depth Factor = 0.25 inch

Subcatchment	A_{imp} $ft.^2$	A_{imp} acre	F inch	R_v acre-ft	R_v $ft.^3$
PR2	7,067	0.16	0.25	0.0034	147
PR3	3,344	0.08	0.25	0.0016	70
PR4 and PR5	9,960	0.23	0.25	0.0048	208
PR7	3,872	0.09	0.25	0.0019	81
TOTAL	24,243				

Table 2 Simple Dynamic Method for Recharge
Turnpike Road
As shown in Vol 3. Chapter 1 Page 19 of the Massachusetts Stormwater Handbook
Using the following equations
$A = R_v / (D+KT)$
$V = A \times D$
where

R_v	Required Recharge Volume
A	Minimum Req'd surface area of the bottom of the infiltration structure
V	Storage Volume
D	depth of the infiltration facility
K	Rawls rate for saturated hydraulic conductivity
T	allowable drawdown

Use

k=	0.27	in/hr	C-Soils
T	2	hours	

P5

Subcatchment	Rv $ft.^3$	D ft	A $ft.^2$	$V_{Required}$ $ft.^3$	BMP	$V_{provided}$ $ft.^3$	$V_{provided} > V_{req}$ Yes/No
PR2	147	1.00	140.89	140.89	Porous Pavement	1,060	Yes
PR3	70	0.75	87.63	65.72	Infiltration Basin	206	Yes
PR4 and PR5	208	1.00	198.56	198.56	Infiltration Basin	1,019	Yes
PR7	81	1.00	77.19	77.19	Porous Pavement	580	Yes

Table 3 Drawdown
Turnpike Road

Using the following equations
$Time_{drawdown} = R_v/(K^* Bottom\ Area)$
As shown in Vol 3. Chapter 1 Page 25 of the Massachusetts Stormwater Handbook

$Time_{drawdown}$	Drawdown time for Infiltration BMP, must be < 72 hours
R_v	Required Recharge Volume
Bottom area	Bottom Area of Recharge Structure
K	Rawls rate for saturated hydraulic conductivity
k=	0.27 in/hr C -Soils

Subcatchment	R_v $ft.^3$	Bottom Area $ft.^2$	$Time_{drawdown}$ hours	$Time_{drawdown}$ < 72 hours Yes/No
PR2	147	7067	0.93	Yes
PR3	70	323	9.59	Yes
PR4 and PR5	208	1337	6.90	Yes
PR7	81	3872	0.93	Yes

Table 4 Water Quality Volume

Turnpike Road

As shown in Vol 3. Chapter 1 Page 32 of the Massachusetts Stormwater Handbook

$V_{WQ} = (D_{WQ}/12 \text{ in/ft})*(A_{imp}*43{,}560 \text{ ft.}^2/\text{acre})$

where

V_{WQ}	Water Quality Volume
D_{WQ}	Water Quality Depth
A_{imp}	Impervious Area

D_{WQ} 0.5 in

Subcatchment	A_{imp}	A_{imp}	V_{WQ}	$V_{provided}$ *	$V_{provided} > V_{req}$
	ft.^{2}	acre	ft.^{3}	ft.^{3}	Yes/No
PR2	7,067	0.16	294.46	1,060	Yes
PR3	3,344	0.08	139.33	206	Yes
PR4 and PR5	9,960	0.23	415.00	1,019	Yes
PR7	3,872	0.09	161.33	580	Yes

*Volume taken from HydroCAD model

TSS Removal Worksheet

As shown in Vol 3. Chapter 1 Page 34 of the Massachusetts Stormwater Handbook

Treatment Train 1

A BMP	B TSS Removal Rate	C Starting TSS Load*	D Amount Removed (BxC)	E Remaining Load (C-D)
Porous Pavement	80%	1.00	0.80	0.20
	Total TSS Removal =		**0.80**	

Treatment Train 2

A BMP	B TSS Removal Rate	C Starting TSS Load*	D Amount Removed (BxC)	E Remaining Load (C-D)
Infiltration Basin	80%	1.00	0.80	0.20
	Total TSS Removal =		**0.80**	

Appendix E:
Operation and Maintenance Plan (Under Separate Cover)

256 Freeport Street
Stormwater Management System

Operation and Maintenance Plan (O&M)

March 2022

This Stormwater Management System Operation and Maintenance Plan provides for the inspection and maintenance of structural Best Management Practices (BMPs) and for measures to prevent pollution of rainwater associated with the 256 Freeport Street project in Dorchester, MA.

This document has been prepared in accordance with the requirements of the Stormwater Regulations included in the Massachusetts Wetlands Protection Act Regulations (310 CMR 10).

Responsible Party

IBEW Local 103
256 Freeport Street
Dorchester, MA 02122

The stormwater management system will be maintained properly to assure its continued performance, as follows.

1. Sediment Forebays
    - Inspect every 6 months and after every major storm event
    - Remove any debris that may clog system.
    - Remove sediment if depth reaches 3 inches.
    - Removal of dead vegetation and leaves

2. Infiltration Basins
    - Inspect every 6 months and after every major storm event
    - Remove any debris that may clog system.
    - Remove sediment if depth reaches 3 inches.
    - Removal of dead vegetation and leaves

3. Drain Outlets
    - Inspect every 6 months and after every major storm event
    - Remove any debris that may clog system.
    - Remove sediment if depth reaches 3 inches.
    - Removal of dead vegetation and leaves

4. Poroous Pavement
    - Inspect every 6 months and after every major storm event
    - Remove any debris that may clog system.

Maintenance of these components will be conducted in accordance with the Mass DEP Stormwater Policy Manual as noted in the attached Operation and Maintenance table summarizing the pertinent inspection and maintenance activities. The Mass DEP Stormwater Policy Manual is available at the following web-site:

http://www.mass.gov/eea/agencies/massdep/water/regulations/massachusetts-stormwater-handbook.html

Practices for Long Term Pollution Prevention

Litter Pick-up
The Owner will conduct litter pick-up from the stormwater management facilities in conjunction with routine maintenance activities.

Routine Inspection and Maintenance of Stormwater BMPs
The Owner will conduct inspection and maintenance of the stormwater management practices in accordance with the guidelines discussed above.

Maintenance of Landscaped Areas
The Owner shall minimize use of fertilizers, herbicides, and pesticides for the maintenance of facilities covered by this plan.

Prohibition of Illicit Discharges
The DEP Stormwater Management Standards prohibit illicit discharges to the storm water management system. Illicit discharges are discharges that do not entirely consist of stormwater, except for certain specified non-stormwater discharges.

Discharges from the following activities are not considered illicit discharges:

firefighting
water line flushing
landscape irrigation
uncontaminated groundwater
potable water sources
water used to clean residential buildings without detergents
foundation drains
footing drains
individual resident car washing
flows from riparian habitats and wetlands
dechlorinated water from swimming pools
water used for street washing
air conditioning condensation

There are no known or proposed illicit connections associated with this project.

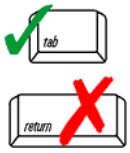
Appendix F:
Checklist for Stormwater Report

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

Checklist for Stormwater Report

A. Introduction

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



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

The Stormwater Report must include:

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

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

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

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

---

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

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

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

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

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

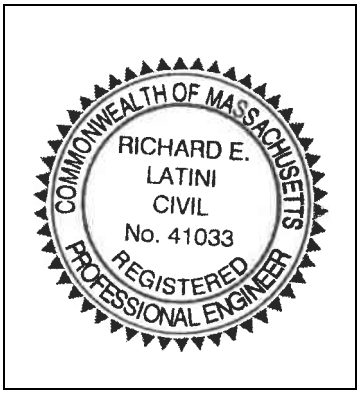
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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

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

Registered Professional Engineer's Certification

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

Registered Professional Engineer Block and Signature



Signature and Date

Checklist

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

☐ New development

☒ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

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

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

Standard 1: No New Untreated Discharges

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

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

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

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

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

Standard 3: Recharge

☐ Soil Analysis provided.

☒ Required Recharge Volume calculation provided.

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

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

☐ Static ☒ Simple Dynamic ☐ Dynamic Field[1]

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

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

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

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

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

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

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

---

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

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

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

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

Standard 4: Water Quality

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

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

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

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

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

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

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

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

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

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

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

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

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

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

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

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

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

☐ All exposure has been eliminated.

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

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

Standard 6: Critical Areas

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

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

Checklist for Stormwater Report

Checklist (continued)

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

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

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

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

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

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

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

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

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

Checklist for Stormwater Report

Checklist (continued)

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

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

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

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

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

Standard 9: Operation and Maintenance Plan

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

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

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

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

Standard 10: Prohibition of Illicit Discharges

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

☒ An Illicit Discharge Compliance Statement is attached;

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

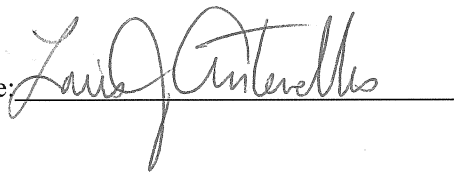
Appendix G:
Illicit Discharge Compliance Statement

Illicit Discharge Compliance Statement

To the best of my knowledge, belief and information the stormwater management system servicing the 256 Freeport Street project in Boston, MA will not receive illicit discharges, including wastewater discharges or stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, or hazardous substances.

There are no known or proposed illicit connections associated with this project. If a potential illicit discharge to the facilities covered by this plan is detected (e.g. dry weather flows at any pipe outlet, evidence of contamination of surface water discharge by non-stormwater sources), the Boston Department of Public Works shall be notified for assistance in determining the nature and source of the discharge.

The stormwater management and conveyance systems are shown on the plans entitled "Grading and Drainage Plan" prepared by Howard Stein Hudson and include with the Notice of Intent submittal.

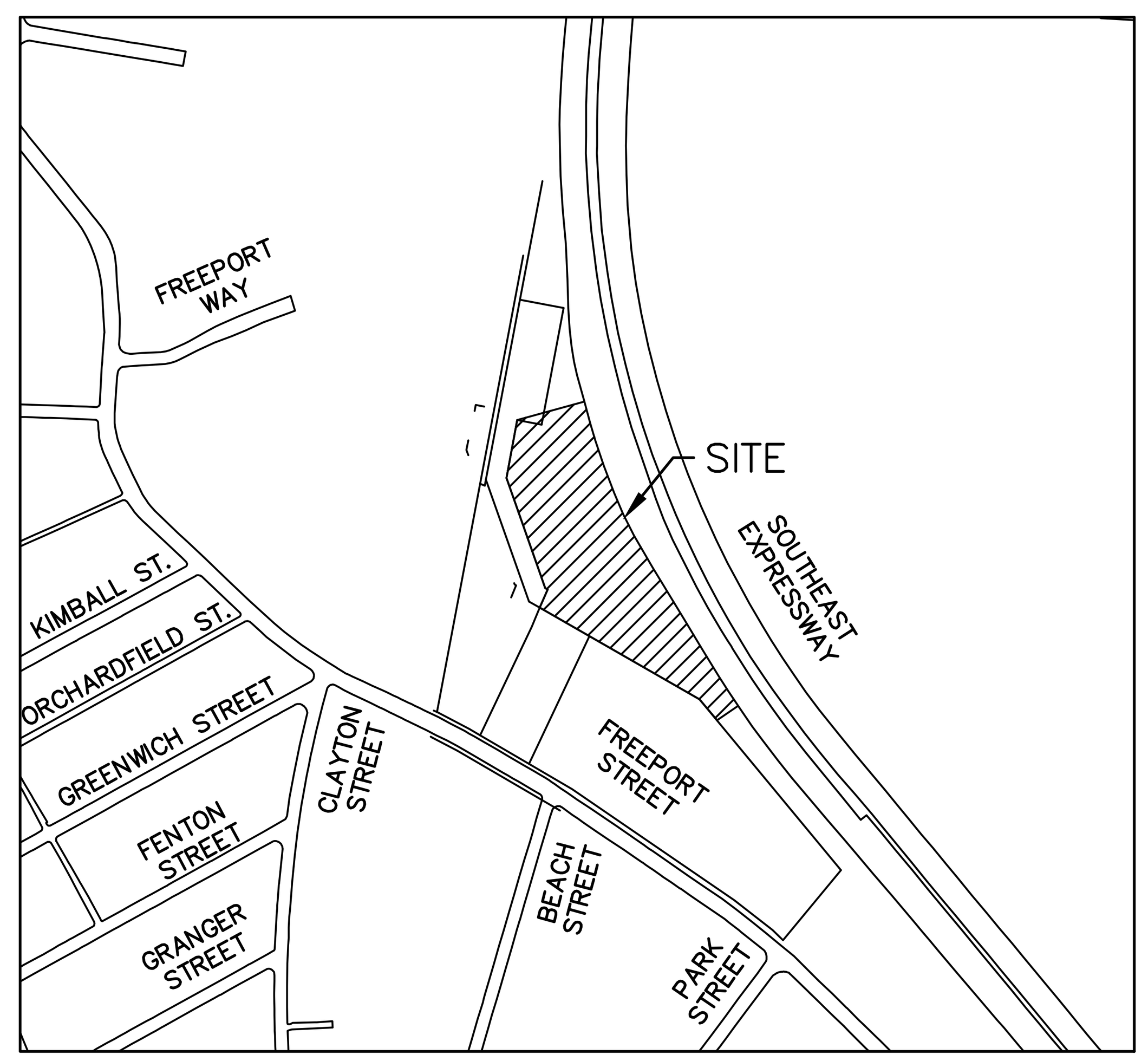
Signature: 

Appendix H:
Proposed Plans (under Separate Cover)

NOTICE OF INTENT DRAWINGS
256 FREEPORT STREET
DORCHESTER, MA.

SHEET INDEX

SHEET C0.01	COVER SHEET
SHEET C1.00	SITE PREPARATION PLAN
SHEET C2.00	LAYOUT AND MATERIALS PLAN
SHEET C3.00	GRADING AND DRAINAGE PLAN
SHEET C4.00	DETAIL SHEET
SHEET C4.01	DETAIL SHEET



LOCUS MAP
1"=250'

PARCEL INFORMATION
PARCEL ID 1600008002

HOWARD STEIN HUDSON
114 Turnpike Road, Suite 2C
Chelmsford, MA 01824
www.hshassoc.com

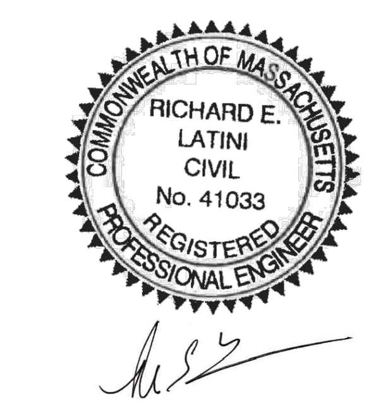
PREPARED FOR:

IBEW LOCAL 103
256 FREEPORT STREET
DORCHESTER, MA 02122

256 FREEPORT STREET
BOSTON, MA

REVISIONS:

NO	BY	DATE	DESCRIPTION



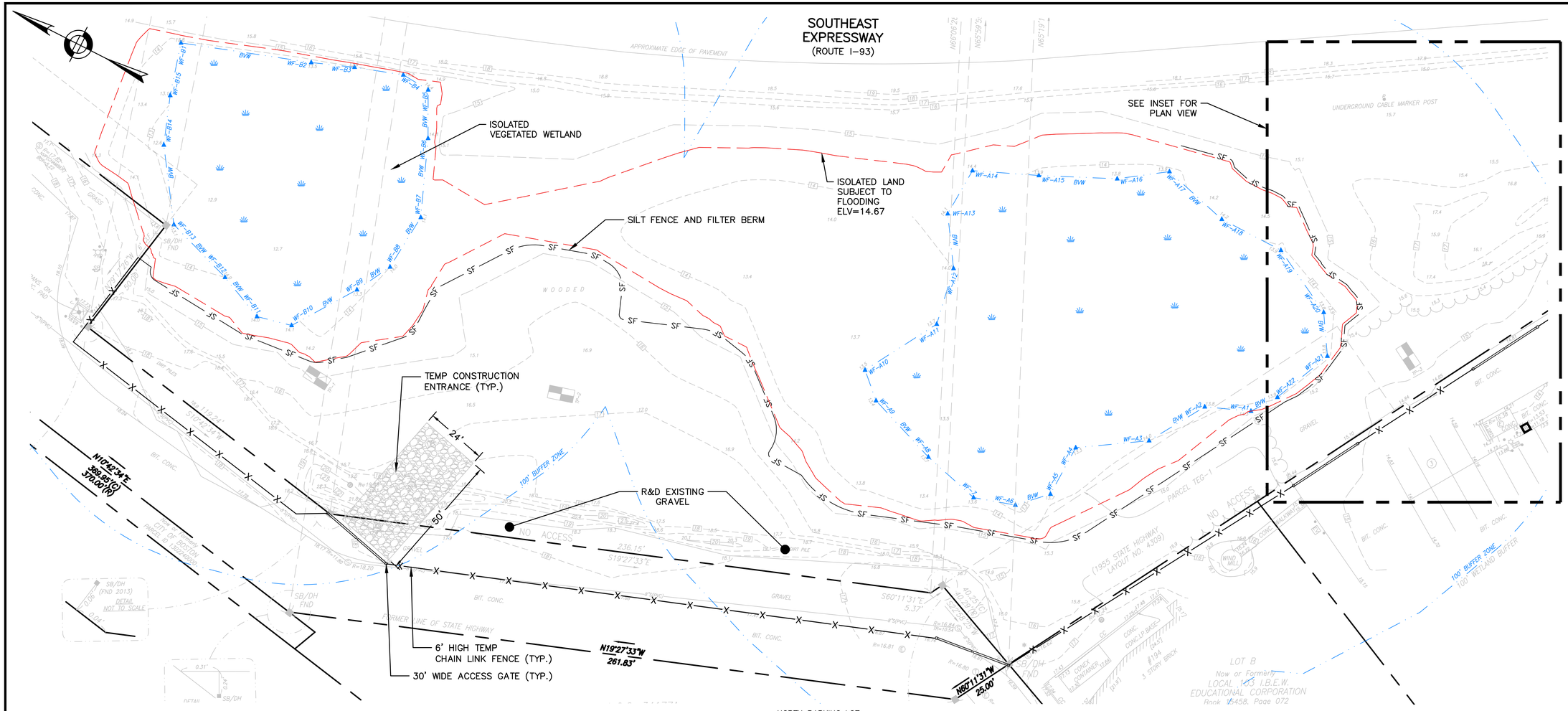
PERMIT SET
NOT FOR CONSTRUCTION

COVER SHEET

DATE:	03/22/22
PROJECT NUMBER:	19059
DESIGNED BY:	RJM
DRAWN BY:	RJM
CHECKED BY:	JD

C0.01

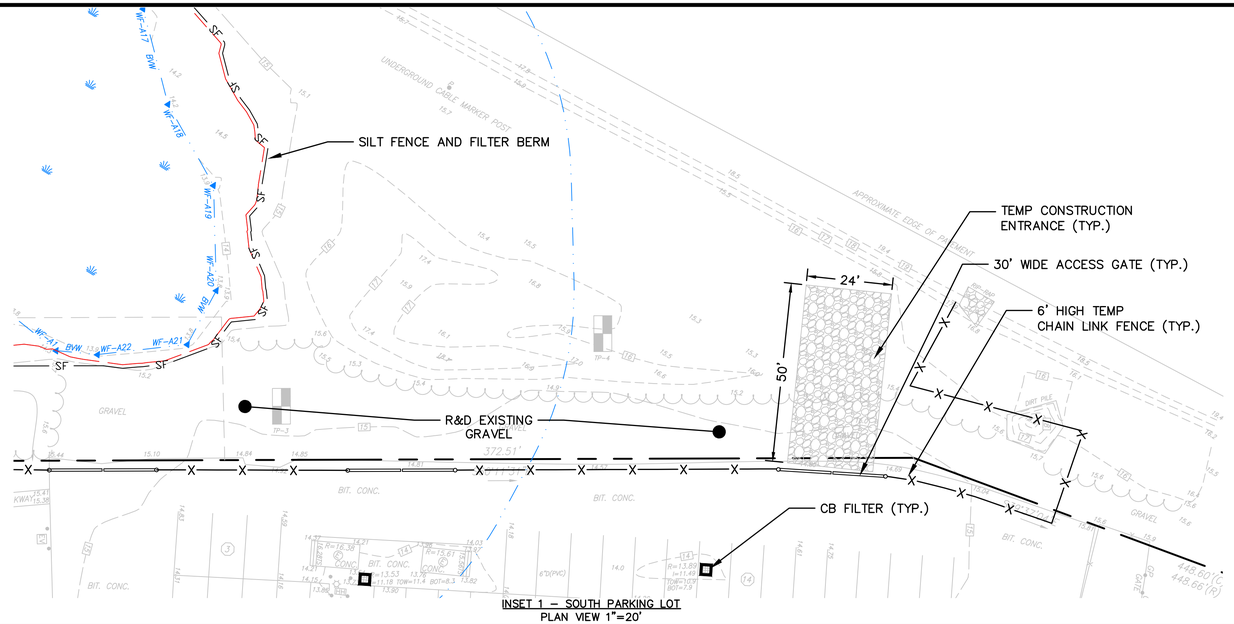
3/22/2022 L:\19059\CUTSHEET\19059 - GRADING AND UTILITIES.dwg
Last Saved by: RMESSENGER
Printed by: Robert Messenger



NORTH PARKING LOT
PLAN VIEW 1"=20'

NOTES:

1. EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED PRIOR TO THE START OF CONSTRUCTION AND MAINTAINED AND UPGRADED AS NECESSARY DURING CONSTRUCTION BY THE CONTRACTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT AND INSTALL ADDITIONAL CONTROL MEASURES AS NEEDED DURING CONSTRUCTION.
2. STABILIZATION OF ALL RE-GRADED AND SOIL STOCKPILE AREAS MUST BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION.
3. SEDIMENT REMOVED FROM EROSION AND SEDIMENT CONTROL DEVICES MUST BE PROPERLY REMOVED AND DISPOSED. ALL DAMAGED CONTROLS MUST BE REMOVED AND REPLACED.
4. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING THE EROSION AND SEDIMENT CONTROL PLAN. THIS INCLUDES THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE CONSTRUCTION SITE OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN, AND NOTIFYING THE PROPER CITY AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING WIND EROSION AND DUST THROUGHOUT THE LIFE OF HIS CONTRACT. DUST CONTROL MAY INCLUDE, BUT IS NOT LIMITED TO, SPRINKLING OF WATER ON EXPOSED SOILS AND STREET SWEEPING ADJACENT ROADWAYS.
6. IF FINAL GRADING IS TO BE DELAYED FOR MORE THAN 21 DAYS AFTER LAND DISTURBANCE ACTIVITIES CEASE, TEMPORARY VEGETATION OR MULCH SHALL BE USED TO STABILIZED SOILS WITHIN 14 DAYS OF THE LAST DISTURBANCE.
7. IF A DISTURBED AREA WILL BE EXPOSED FOR GREATER THAN ONE YEAR, PERMANENT GRASSES OR OTHER APPROVED COVER MUST BE INSTALLED.
8. THE CONTRACTOR MUST KEEP ON-SITE AT ALL TIMES ADDITIONAL COMPOST FILTER TUBES AND/OR SILT FENCE FOR THE INSTALLATION AT THE DIRECTION OF THE ENGINEER OR CONSERVATION COMMISSION TO MITIGATE ANY EMERGENCY CONDITION.
9. THE EROSION AND SEDIMENT CONTROLS AS SHOWN MAY NOT BE PRACTICAL DURING ALL STAGES OF CONSTRUCTION. EARTHWORK ACTIVITY ON-SITE MUST BE DONE IN A MANNER SUCH THAT RUNOFF IS DIRECTED TO A SEDIMENT CONTROL DEVICE OR INFILTRATED TO THE GROUND.
10. DEMOLITION AND CONSTRUCTION DEBRIS MUST BE PROPERLY CONTAINED AND DISPOSED OF.
11. DISPOSAL OF ALL DEMOLISHED MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE HAULED OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.



INSET 1 - SOUTH PARKING LOT
PLAN VIEW 1"=20'

20 0 20 40
SCALE IN FEET

HOWARD STEIN HUDSON
11 Beacon Street, Suite 1010
Boston, MA 02108
www.hshassoc.com

PREPARED FOR:

IBEW LOCAL 103
256 FREEPORT STREET
DORCHESTER, MA 02122

256 FREEPORT STREET
BOSTON, MA

REVISIONS:

NO	BY	DATE	DESCRIPTION

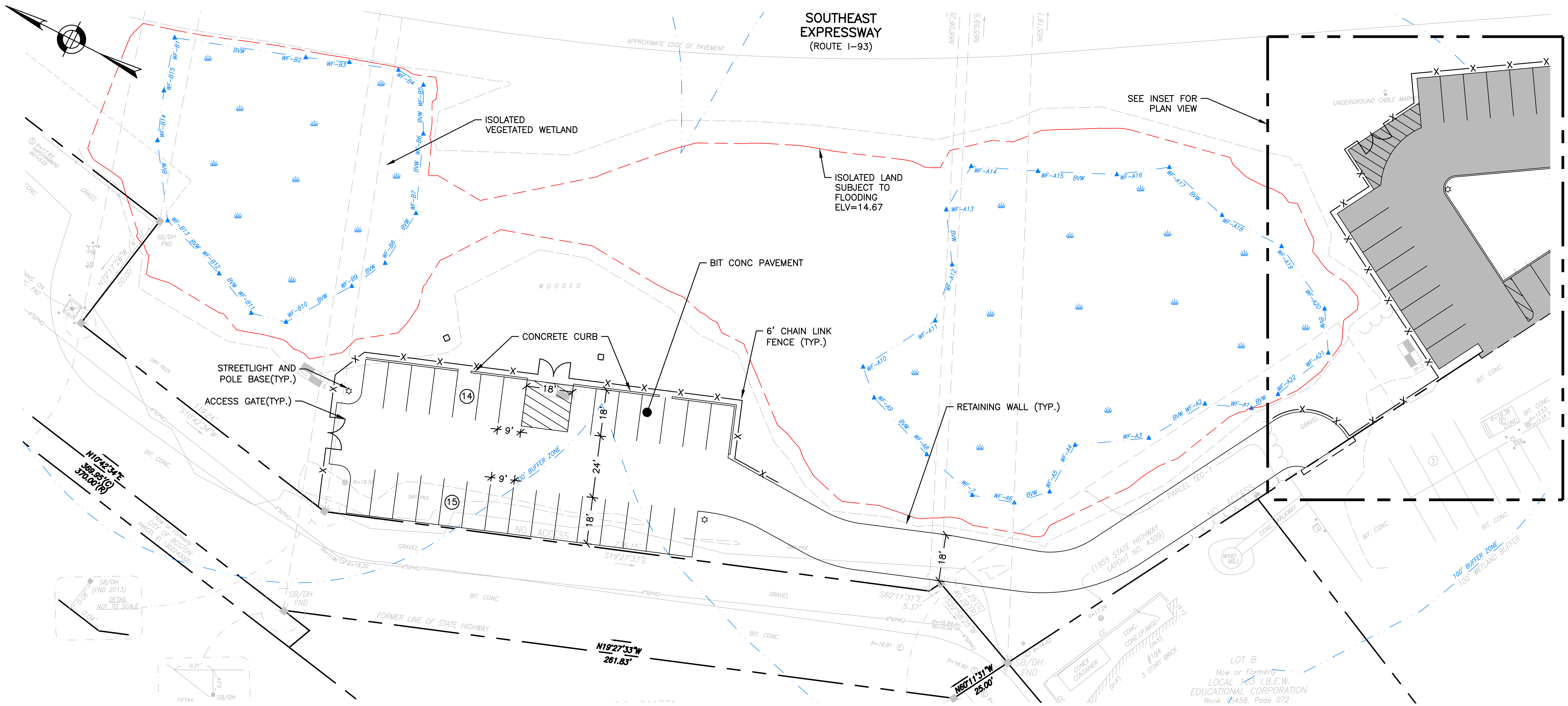
COMMONWEALTH OF MASSACHUSETTS
RICHARD E. LATINI
CIVIL
No. 41033
REGISTERED PROFESSIONAL ENGINEER

PERMIT SET
NOT FOR CONSTRUCTION

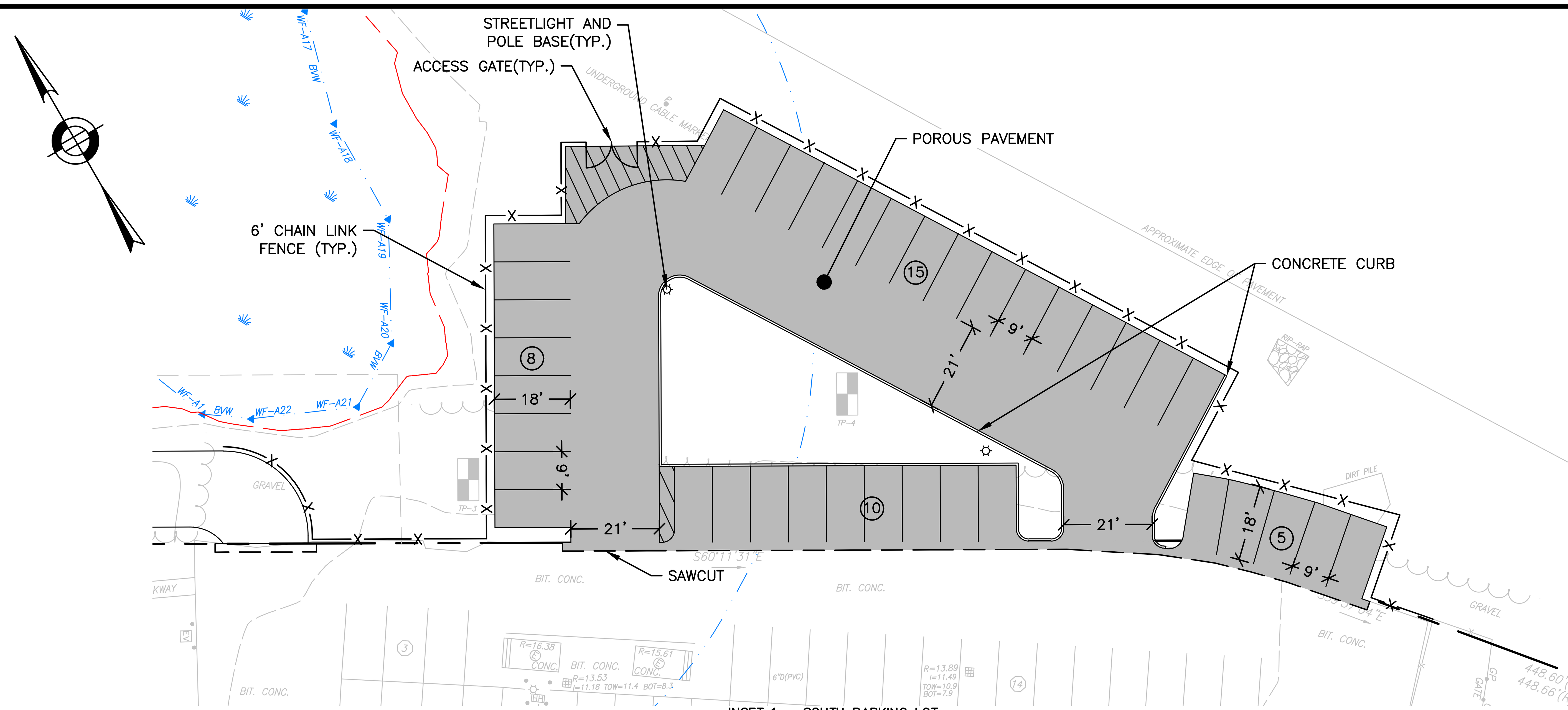
SITE PREPARATION PLAN

DATE:	03/22/22
PROJECT NUMBER:	19059
DESIGNED BY:	RJM
DRAWN BY:	RJM
CHECKED BY:	JD

C1.00



NORTH PARKING LOT
PLAN VIEW 1"=20'



INSET 1 – SOUTH PARKING LOT
PLAN VIEW 1"=20'

NOTES:
1. APPROXIMATELY 67 NEW PARKING SPACES

20 0 20 40
SCALE IN FEET

HOWARD STEIN HUDSON
11 Beacon Street, Suite 1010
Boston, MA 02108
www.hshassoc.com

PREPARED FOR:
IBEW LOCAL 103
256 FREEPORT STREET
DORCHESTER, MA 02122

256 FREEPORT STREET
BOSTON, MA

REVISIONS:

NO	BY	DATE	DESCRIPTION

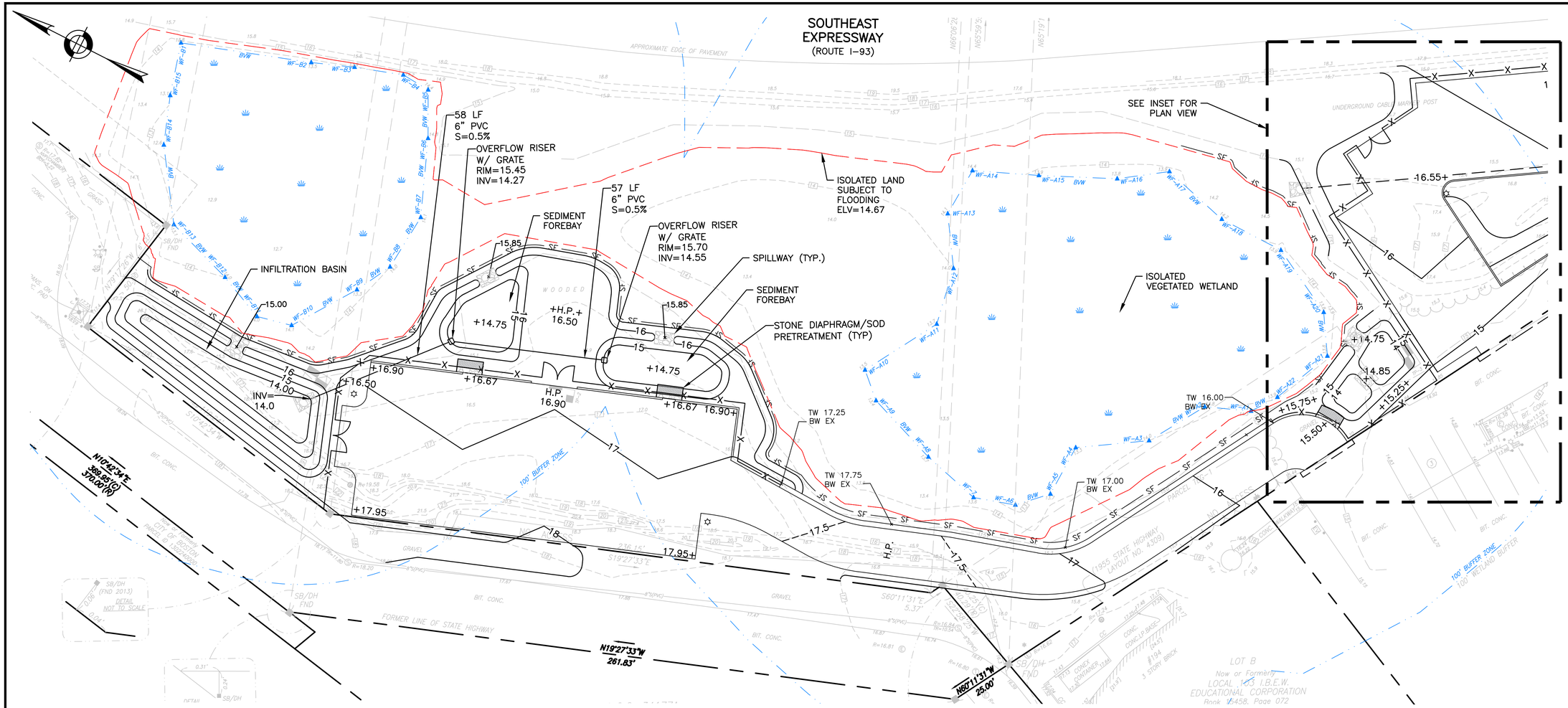
COMMONWEALTH OF MASSACHUSETTS
RICHARD E. LATINI
CIVIL
No. 41033
REGISTERED PROFESSIONAL ENGINEER

PERMIT SET
NOT FOR CONSTRUCTION

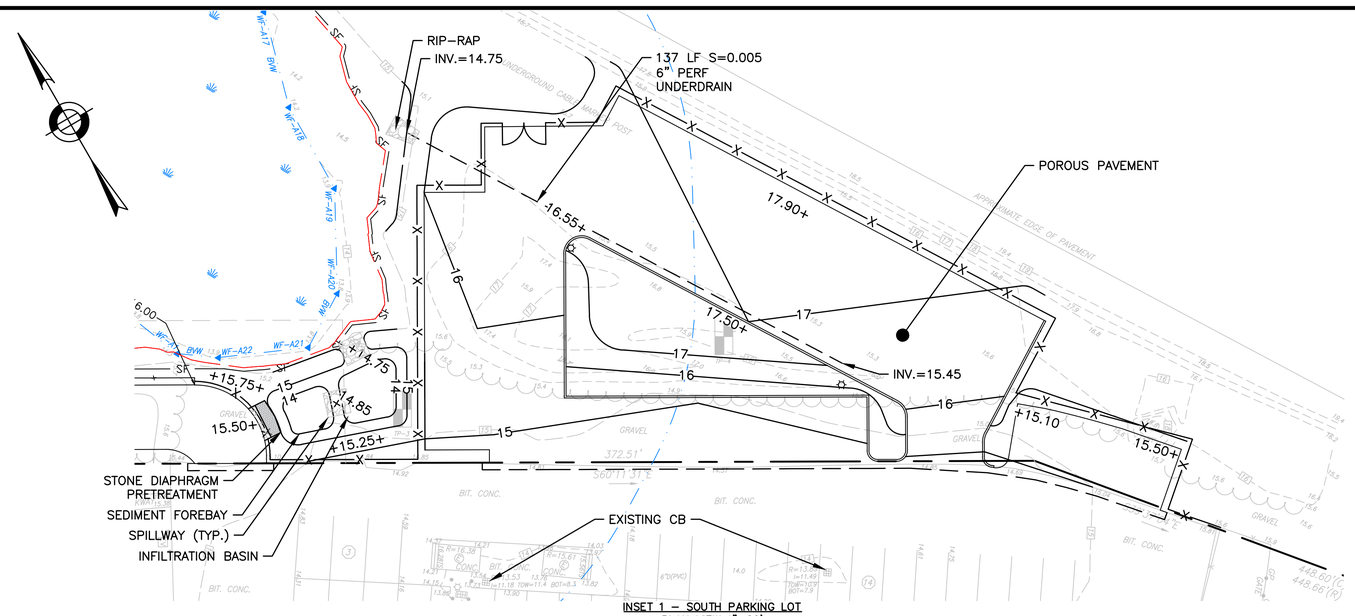
PROPOSED LAYOUT AND MATERIALS PLAN

DATE:	03/22/22
PROJECT NUMBER:	19059
DESIGNED BY:	RJM
DRAWN BY:	RJM
CHECKED BY:	JD

C2.00



NORTH PARKING LOT
PLAN VIEW 1"=20'



INSET 1 – SOUTH PARKING LOT
PLAN VIEW 1"=20'

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Boston, MA 02108
www.hshassoc.com

PREPARED FOR:

IBEW LOCAL 103
256 FREEPORT STREET
DORCHESTER, MA 02122

256 FREEPORT STREET
BOSTON, MA

REVISIONS:

NO	BY	DATE	DESCRIPTION

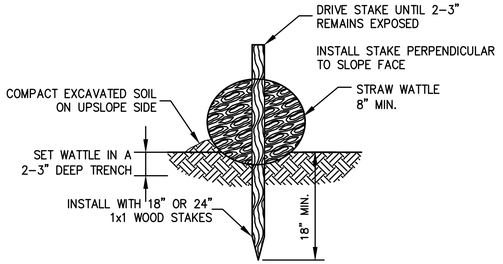
COMMONWEALTH OF MASSACHUSETTS
RICHARD E. LATINI
CIVIL
No. 41033
REGISTERED PROFESSIONAL ENGINEER

PERMIT SET
NOT FOR CONSTRUCTION

PROPOSED GRADING AND DRAINAGE PLAN

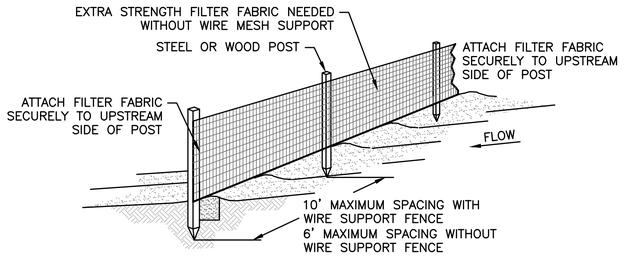
DATE:	03/15/22
PROJECT NUMBER:	19059
DESIGNED BY:	RJM
DRAWN BY:	RJM
CHECKED BY:	JD

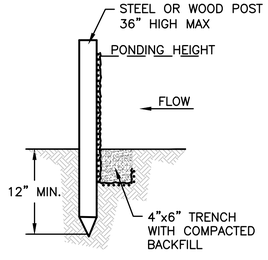
C3.00



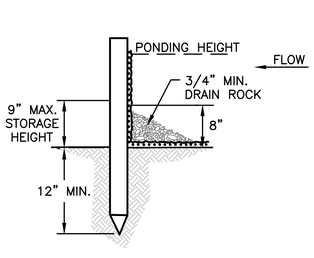
NOTES:
1. BEGIN AT THE LOCATION WHERE THE WATTLE IS TO BE INSTALLED BY EXCAVATING A 2–3"(5–7.5 CM) DEEP X 9"(22.9 CM) WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHOULD BE PLACED UP–SLOPE FROM THE ANCHOR TRENCH.
2. PLACE THE WATTLE IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT SOIL FROM THE EXCAVATED TRENCH AGAINST THE WATTLE ON THE UPHILL SIDE. ADJACENT WATTLES SHOULD TIGHTLY ABUT.
3. SECURE THE WATTLE WITH 18–24" (45.7–61 CM) STAKES EVERY 3–4' (0.9 – 1.2 M) AND WITH A STAKE ON EACH END. (STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE WATTLE LEAVING AT LEAST 2–3" (5–7.5 CM) OF STAKE EXTENDING ABOVE THE WATTLE. STAKES SHOULD BE DRIVEN PERPENDICULAR TO SLOPE FACE.

FILTER BERM
NOT TO SCALE





TRENCH DETAIL

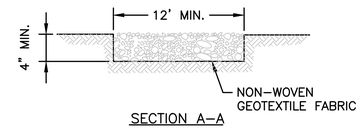


INSTALLATION WITHOUT TRENCHING

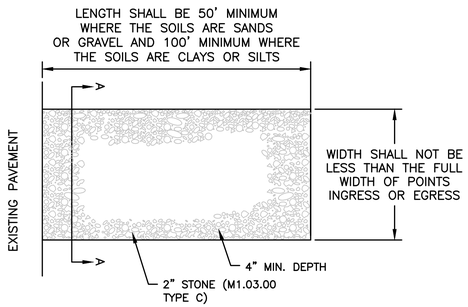
NOTES:

1. EROSION CONTROL BARRIER (HAY BALES, SILT FENCE OR EROSION STOCK) SHALL BE PLACED AROUND ALL MATERIAL STOCKPILE AREAS AND MAINTAINED AT STAGING AREAS TO ASSURE NO SILTATION ONTO PUBLIC OR PRIVATE WAYS OR PROPERTY.

EROSION CONTROL BARRIER
NOT TO SCALE



SECTION A–A

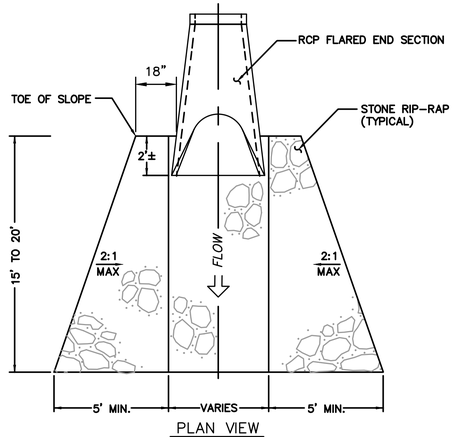


PLAN

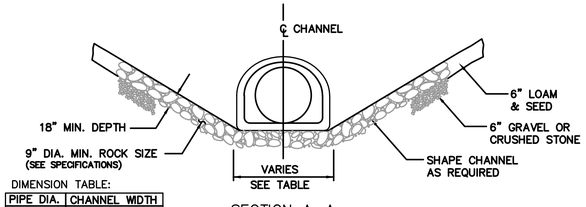
NOTES:

1. INSTALLATION: THE AREA OF THE ENTRANCE SHOULD BE CLEARED OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. THE GRAVEL SHALL BE PLACED TO THE SPECIFIED DIMENSIONS NOTED ABOVE.
2. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENTS ONTO PUBLIC RIGHT–OF–WAYS. THIS WILL REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE, OR ADDITIONAL LENGTH, AS CONDITIONS DEMAND, AND REPAIR, AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT–OF–WAYS MUST BE REMOVED IMMEDIATELY.
3. LOCATION: SEE C1.0 FOR LOCATION OF CONSTRUCTION ENTRANCES.

TEMP CONSTRUCTION ENTRANCE
NOT TO SCALE



PLAN VIEW

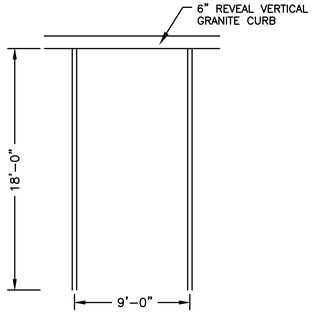


SECTION A–A

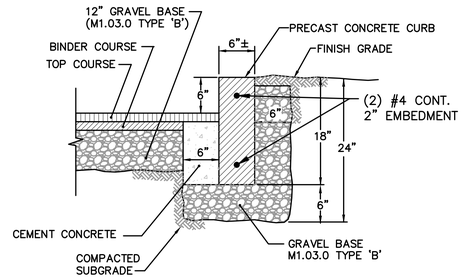
DIMENSION TABLE:

PIPE DIA.	CHANNEL WIDTH
12"	2'–6"
15"	3'–0"
18"	3'–7"
24"	4'–8"

OUTLET EROSION PROTECTION
NOT TO SCALE

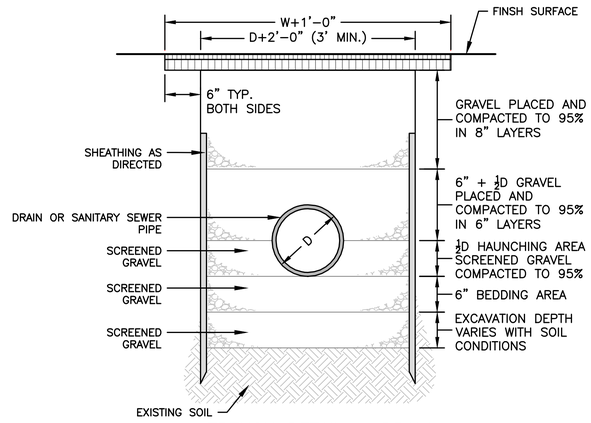


TYPICAL PARKING SPACE
NOT TO SCALE

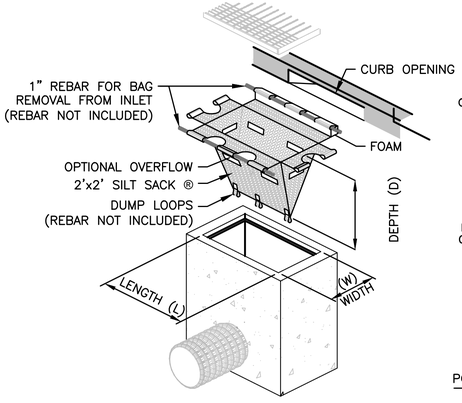


NOTE:
CURBS SHALL BE BACKED UP BY CONCRETE ANCHOR AT ALL JOINTS WHERE NOT ADJACENT TO A SIDEWALK OR OTHER STRUCTURE.

PRECAST CONCRETE CURB
NOT TO SCALE

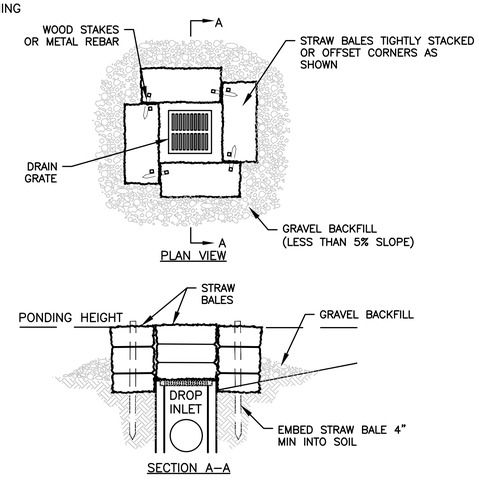


TRENCH DETAIL – DRAIN & SANITARY SEWER
NOT TO SCALE



SIDE VIEW INSTALLED

CATCH BASIN FILTER



SECTION A–A

STRAW BALE & GRAVEL INLET SEDIMENT BARRIER

TEMPORARY INLET PROTECTION
NOT TO SCALE

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PREPARED FOR:

256 FREEPORT STREET
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REVISIONS:

NO	BY	DATE	DESCRIPTION

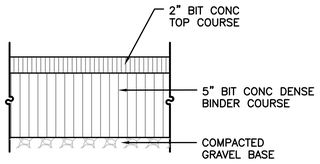
COMMONWEALTH OF MASSACHUSETTS
RICHARD E LATINI
CIVIL
No. 41033
REGISTERED PROFESSIONAL ENGINEER

PERMIT SET
NOT FOR CONSTRUCTION

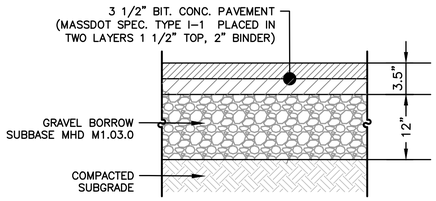
SITE DETAILS 1

DATE:	03/22/22
PROJECT NUMBER:	19059
DESIGNED BY:	RJM
DRAWN BY:	RJM
CHECKED BY:	JD

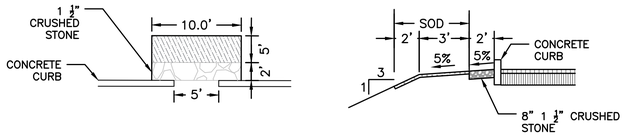
C4.00



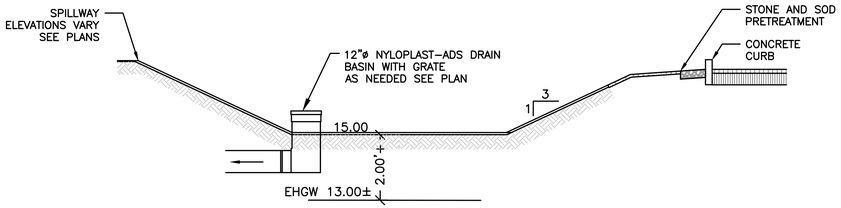
TRENCH PATCH DETAIL
NOT TO SCALE



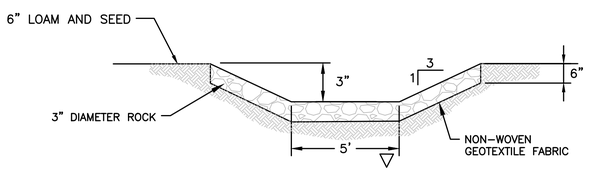
DRIVEWAY & PARKING LOT BIT. CONC. PAVEMENT
NOT TO SCALE



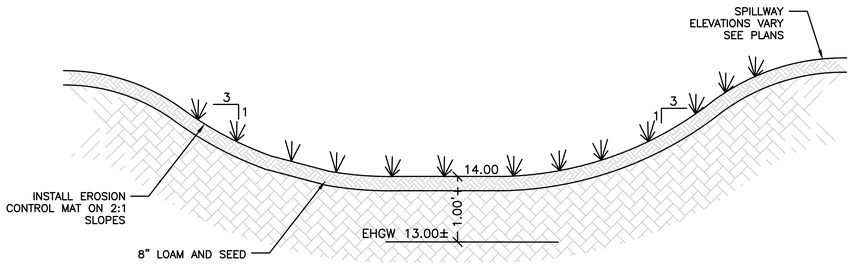
STONE AND SOD PRETREATMENT
NOT TO SCALE



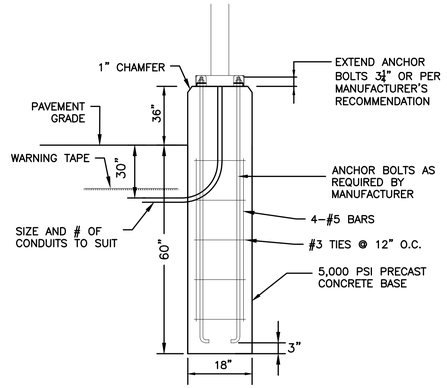
SEDIMENT FOREBAY
NOT TO SCALE

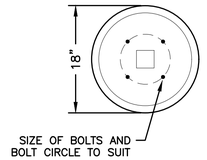


SPILLWAY DETAIL
NOT TO SCALE



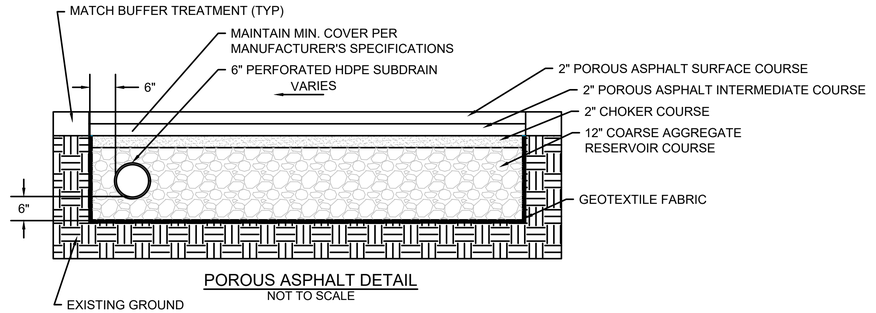
INFILTRATION BASIN DETAIL
NOT TO SCALE



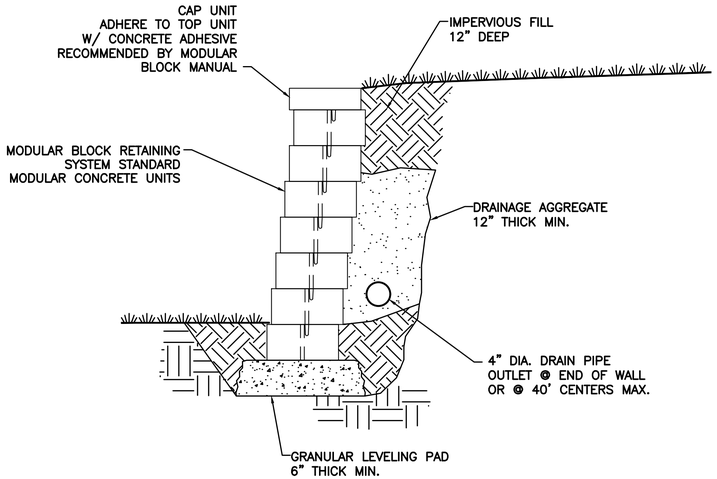


NOTES:
1. ANCHOR BOLTS SHALL BE STAINLESS STEEL OR GALVANIZED.
2. ASTM A-615 GRADE 60 STEEL REINFORCEMENT.
3. LIGHT POLE BASE REVEAL CAN BE REDUCED TO 4 INCHES WHERE LOCATED A MINIMUM 24 INCHES FROM PAVED AREA.
4. BASE SHALL BE INSTALLED ON A PROOF COMPACTED* SUBGRADE CONSISTING OF INORGANIC SOIL.

*PROOF COMPACTION SHALL CONSIST OF A MINIMUM 6 PASSES WITH A VIBRATORY COMPACTOR HAVING A MINIMUM OPERATION WEIGHT OF 500 POUNDS. ALL SOFT OR SPONGY AREAS DETECTED DURING PROOF COMPACTION SHOULD BE REMOVED AND REPLACED WITH COMPACTED GRAVEL OR 3/4" CRUSHED STONE



POROUS ASPHALT DETAIL
NOT TO SCALE



RETAINING WALL SHOWN FOR COORDINATION PURPOSES ONLY. FINAL WALL DESIGN SHALL BE PROVIDED BY OTHERS AND STAMPED BY A PROFESSIONAL ENGINEER.

TYPICAL SECTION-UNREINFORCED RETAINING WALL
MODULAR CONCRETE UNIT (NOT TO SCALE)

HOWARD STEIN HUDSON
11 Beacon Street, Suite 1010
Boston, MA 02108
www.hshassoc.com

PREPARED FOR:

256 FREEPORT STREET
BOSTON, MA

REVISIONS:

NO	BY	DATE	DESCRIPTION

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PERMIT SET
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SITE DETAILS 2

DATE:	03/22/22
PROJECT NUMBER:	19059
DESIGNED BY:	RJM
DRAWN BY:	RJM
CHECKED BY:	JD

C4.01