Nitsch Engineering

September 22, 2021

NOTICE OF INTENT

Under the *Wetlands Protection Act* (M.G.L. c. 131, §40),
the *Rivers Protection Act* (M.G.L. c. 256, Acts of 1996)
and their Regulations (310 CMR 10.00),

For:
65 NORTHERN AVE /88 SEAPORT BLVD
BLOCK D BOSTON SEAPORT
Boston, Massachusetts 02210

Prepared for:

SEAPORT D TITLE HOLDER LLC
c/o WS Development
33 Boylston Street
Chestnut Hill, MA 02467

Prepared by:

NITSCH ENGINEERING, INC.
2 Center Plaza Suite 430
Boston, MA 02108

Nitsch Project #10684.5

TABLE OF CONTENTS

Section 1 **Notice of Intent Forms**
WPA Form 3 - Notice of Intent
NOI Wetland Fee Transmittal Form
Climate Change Resiliency and Preparedness Checklist
Notice of Intent – Boston NOI Form

Section 2 **Project Narrative**

Section 3 **Stormwater Report (Under separate cover)**
Including the *Long-Term Pollution Prevention Plan and Stormwater Operation and Maintenance Plan* and *Geotechnical Report*

Section 4 **Documentation of Abutter Notification**
Abutter Notification
Affidavit of Service
Certified Abutters List

Section 5 **Supplemental Documents**
Landscaping Site Layout Plan (L-110)
Flood Barrier System

Figures:
Figure 1 – USGS Locus Map
Figure 2 – Aerial Locus Map
Figure 3 – Natural Heritage and Endangered Species Program Map
Figure 4 – FEMA Floodplain Map
Figure 5 – NRCS Soils Map

Plans

C-100 – Civil Notes, Legends, and Abbreviations,
C-200 – Erosion and Sediment Control Plan,
C-300 – Civil Utility Demolition Plan,
C-400 – Site Utility Plan,
C-500 – Site Layout Plan
C-600 – Site Grading Plan
C-700–C-701 Civil Details (2 Sheets)

SECTION 1

NOTICE OF INTENT FORMS

WPA Form 3 - Notice of Intent
NOI Wetland Fee Transmittal Form
Climate Change Resiliency and Preparedness Checklist

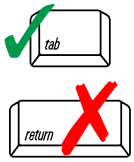
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

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

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



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

A. General Information

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

65 Northern Avenue/88 Seaport Boulevard — a. Street Address
Boston — b. City/Town
02210 — c. Zip Code

Latitude and Longitude:
42.352 — d. Latitude
-71.046 — e. Longitude

Ward 06 — f. Assessors Map/Plat Number
0602641080, 0602641000, & 0602641020 — g. Parcel /Lot Number

2. Applicant:

Amy — a. First Name
Prange — b. Last Name
Seaport D Title Holder LLC — c. Organization
33 Boylston Street #3000 — d. Street Address
Chestnut Hill — e. City/Town
MA — f. State
02467 — g. Zip Code
857-205-1737 — h. Phone Number
i. Fax Number
Amy.Prange@wsdevelopment.com — j. Email Address

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

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

4. Representative (if any):

John — a. First Name
Schmid — b. Last Name
Nitsch Engineering, Inc. — c. Company
2 Center Plaza, Suite 430 — d. Street Address
Boston — e. City/Town
MA — f. State
02108 — g. Zip Code
617-338-0063 — h. Phone Number
617-338-6472 — i. Fax Number
jschmid@nitscheng.com — j. Email address

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

$1,050 — a. Total Fee Paid
$512.50 — b. State Fee Paid
$1,500.00 (maximum per BCC) — c. City/Town Fee Paid

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Boston
City/Town

A. General Information (continued)

6. General Project Description:

The Project includes the demolition of a parking lot and associated pavement, and utilities and the construction of a new building, an underground parking garage, proposed sidewalks, and associated improvements.

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

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

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

1. ☐ Yes ☒ No

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

2. Limited Project Type

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

8. Property recorded at the Registry of Deeds for:

a. County	b. Certificate # (if registered land)
Suffolk	
c. Book	d. Page Number
55221	237

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

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

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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Boston
City/Town

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

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

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Bank	1. linear feet	2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ☐ Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☐ Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced
f. ☐ Riverfront Area	1. Name of Waterway (if available) - **specify coastal or inland**	

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☐ 200 ft. - All other projects

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

4. Proposed alteration of the Riverfront Area:

a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

5. Has an alternatives analysis been done and is it attached to this NOI? ☐ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☐ Yes ☐ No

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

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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Boston
City/Town

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

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

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

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☐ Land Under the Ocean	1. square feet 2. cubic yards dredged	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☐ Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. ☐ Coastal Dunes	1. square feet	2. cubic yards dune nourishment

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
f. ☐ Coastal Banks	1. linear feet	
g. ☐ Rocky Intertidal Shores	1. square feet	
h. ☐ Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. ☐ Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. ☐ Land Containing Shellfish	1. square feet	
k. ☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 1. cubic yards dredged	
l. ☒ Land Subject to Coastal Storm Flowage	5009 1. square feet	

4. ☐ Restoration/Enhancement

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

a. square feet of BVW

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings

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

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

C. Other Applicable Standards and Requirements

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

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

a. ☐ Yes ☒ No

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

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

07/08/2021
b. Date of map

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

c. Submit Supplemental Information for Endangered Species Review*

1. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area _____ percentage/acreage

(b) outside Resource Area _____ percentage/acreage

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

2. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

(a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) ☐ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Boston
City/Town

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

(c) ☐ MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/mesa/mesa_fee_schedule.htm). Make check payable to "Commonwealth of Massachusetts - NHESP" and ***mail to NHESP*** at above address

*Projects altering **10 or more acres** of land, also submit:*

(d) ☐ Vegetation cover type map of site

(e) ☐ Project plans showing Priority & Estimated Habitat boundaries

(f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/mesa/mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing.
a. NHESP Tracking # _____ b. Date submitted to NHESP _____

3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

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

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

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

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

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

North Shore - Hull to New Hampshire border:

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

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

Provided by MassDEP:

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Boston
City/Town

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

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

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

   a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.

   b. ACEC

5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

   a. ☐ Yes ☒ No

6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?

   a. ☐ Yes ☒ No

7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

   a. ☒ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

      1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)

      2. ☒ A portion of the site constitutes redevelopment

      3. ☐ Proprietary BMPs are included in the Stormwater Management System.

   b. ☐ No. Check why the project is exempt:

      1. ☐ Single-family house

      2. ☐ Emergency road repair

      3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

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

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

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

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

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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

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City/Town

D. Additional Information (cont'd)

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

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

Civil Notes, Legend & Abbreviations, Erosion and Sed. Control Plan, Civil Utility Demolition Plan, Site Utility Plan, Site Layout Plan, Site Grading Plan, and Civil Details (2 Sheets),

Nitsch Engineering	John Schmid, PE
b. Prepared By	c. Signed and Stamped by
September 21, 2021	1="20'
d. Final Revision Date	e. Scale

Stormwater Report	September 21,2021
f. Additional Plan or Document Title	g. Date

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. ☒ Attach NOI Wetland Fee Transmittal Form

9. ☒ Attach Stormwater Report, if needed.

E. Fees

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

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

0066909	9/16/2021
2. Municipal Check Number	3. Check date
0066911	9/16/2021
4. State Check Number	5. Check date
Nitsch Engineering	
6. Payor name on check: First Name	7. Payor name on check: Last Name

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

Provided by MassDEP:

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Boston
City/Town

F. Signatures and Submittal Requirements

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

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

DocuSigned by:
Amy Prange
1. Signature of Applicant

9/21/2021
2. Date

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

9/21/2021
6. Date

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

For MassDEP:
One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:
If the applicant has checked the “yes” box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

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

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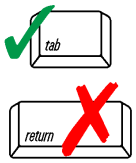

A. Applicant Information

1. Location of Project:

65 Northern Avenue/88 Seaport Boulevard	Boston
a. Street Address	b. City/Town
	$512.50
c. Check number	d. Fee amount

2. Applicant Mailing Address:

Amy		Prange
a. First Name		b. Last Name
Seaport D Title Holder LLC		
c. Organization		
33 Boylston Street, #3000		
d. Mailing Address		
Chestnut Hill	MA	02467
e. City/Town	f. State	g. Zip Code
857-205-1737		Amy.Prange@wsdevelopment.com
h. Phone Number	i. Fax Number	j. Email Address

3. Property Owner (if different):

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

B. Fees

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

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

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

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

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

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

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

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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

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

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 3 - Building and Site	1	$1,050	$1,050

Step 5/Total Project Fee: $1,050

Step 6/Fee Payments:

Total Project Fee:	$1,050 a. Total Fee from Step 5
State share of filing Fee:	$512.50 b. 1/2 Total Fee **less $**12.50
City/Town share of filling Fee:	$1,500 (maximum per BCC)

C. Submittal Requirements

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

Department of Environmental Protection
Box 4062
Boston, MA 02211

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

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

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

a. Street Address	b. City/Town	c. Zip Code
88 Seaport Boulevard	BOSTON	02210

f. Assessors Map/Plat Number	g. Parcel /Lot Number
WARD 06	Property ID: 0602641080

2. Applicant

a. First Name	b. Last Name	c. Company
AMY	PRANGE	SEAPORT L-5 TITLE HOLDER LLC

d. Mailing Address: 33 BOYLSTON STREET, SUITE 3000

e. City/Town	f. State	g. Zip Code
CHESTNUT HILL	MA	02467

h. Phone Number	i. Fax Number	j. Email address
857-205-1737		amy.prange@wsdevelopment.com

3. Property Owner

a. First Name	b. Last Name	c. Company
AMY	PRANGE	SEAPORT L-5 TITLE HOLDER LLC

d. Mailing Address: 33 BOYLSTON STREET, SUITE 3000

e. City/Town	f. State	g. Zip Code
CHESTNUT HILL	MA	02467

h. Phone Number	i. Fax Number	j. Email address
857-205-1737		amy.prange@wsdevelopment.com

❑ Check if more than one owner

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

4. Representative (if any)

a. First Name	b. Last Name	c. Company
JOHN	SCHMID	NITSCH ENGINEERING, INC.

d. Mailing Address: 2 CENTER PLAZA, SUITE 430

e. City/Town	f. State	g. Zip Code
BOSTON	MA	02108

h. Phone Number	i. Fax Number	j. Email address
617-338-0063	617-338-6472	JSCHMID@NITSCHENG.COM

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

This project includes the demolition of a parking lot and associated pavement, landscaping, and utilities and the construction of a new building at surface level, underground parking garage, proposed sidewalks, and associated improvements, which are partially located within jurisdictional resource areas.

7. Project Type Checklist

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

8. Property recorded at the Registry of Deeds

Suffolk a. County	237 b. Page Number
55221 c. Book	 d. Certificate # (if registered land)

9. Total Fee Paid

$1,050 a. Total Fee Paid	$512.50 b. State Fee Paid	$1,500 (maximum per BCC) c. City Fee Paid

B. BUFFER ZONE & RESOURCE AREA IMPACTS

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

☐ Yes ☒ No

1. Coastal Resource Areas

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?

BOSTON CIVIC DESIGN COMMISSION (COMPLETE AUGUST 2017)

ARTICLE 80B LARGE PROJECT REVIEW, NOTICE OF PROJECT CHANGE (COMPLETE NOVEMBER 2017)

ARTICLE 80C REVIEW - AMENDED AND RESTATED DEVELOPMENT PLAN FOR PDA NO. 78 (COMPLETE DECEMBER 2017)

MAP AMENDMENT APPROVED BY BZC (COMPLETE DECEMBER 2017)

MEPA CERTIFICATE (COMPLETE JUNE 2018)

FAA HEIGHT RESTRICTION NOTICE (COMPLETE JUNE 2021)

ARTICLE 37 PRELIMINARY SUBMISSION (COMPLETE JUNE 2021)

BPDA DESIGN REVIEW (ONGOING)

AIR POLLUTION CONTROL COMMISSION (COMPLETE AUGUST 2021)

TRANSPORTATION ACCESS PLAN AGREEMENT (COMPLETE AUGUST 2021)

BWSC SITE PLAN APPROVAL (ONGOING)

CONSERVATION COMMISSION (ONGOING)

CONSTRUCTION MANAGEMENT PLAN, BTD REVIEW (Q1 2022)

PUBLIC IMPROVEMENT COMMISSION (Q1 2022)

ISD BUILDING PERMIT APPLICATION (Q1 2022)

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.

DocuSigned by:
Amy Prange
Signature of Applicant — 10/7/2021 — Date

Signature of Property Owner (if different) — Date

Signature of Representative (if any) — 10/7/2021 — Date

INSTRUCTIONS FOR COMPLETING THE EXTENSION FORM

Due to the ongoing public health crisis caused by COVID-19, Governor Baker signed Chapter 53 of the Acts of 2020 in April 2020 which allowed local permitting authorities to postpone processing permit applications and conduct meetings remotely without dire legal consequences while Governor Baker's March 10, 2020 COVID-19 state of emergency is in effect.

On November 17, 2020, Governor Baker signed Chapter 201 of the Acts of 2020, which ends the tolling of most timelines, including those for holding a public hearing for new filings; issuing a permit after the closure of a hearing; and holding a hearing on any application that was continued due to COVID-19. The normal regulatory timelines are back in effect as of December 1, 2020.

The Boston Conservation Commission has continued and will continue to accept applications, review project, and issue its final decisions within a timely manner throughout the state of emergency. However, there may be a need to extend the review of an application or the issuance of a final decision given the changing nature of the crisis. The Boston Conservation Commission is hereby requiring all submitted applications to include a completed Boston Extension Form acknowledging that there may be a delay in the review of the application and the issuance of a final decision.

Please complete the Boston Extension Form below and include it in your submission.

City of Boston
Environment

City of Boston
Mayor Martin J. Walsh

EXTENSION FORM

The undersigned hereby allows the **Boston Conservation Commission** an extension of time, beyond the statutory limit, to review an application or issue a final decision under the Massachusetts Wetlands Protection Act, M.G.L. Chapter 131, Section 40, and the Boston Wetlands Ordinance, Boston City Code, Ordinances, Chapter 7-1.4d during the state of emergency declared by the Governor on March 10, 2020.

Applicant:

a. First Name	b. Last Name	c. Company
John	Schmid	Nitsch Engineering, Inc.

2 Center Plaza, Suite 430
d. Mailing Address

e. City/Town	f. State	g. Zip Code
Boston	MA	02108

h. Phone Number	i. Fax Number	j. Email address
617-338-0063	617-338-6472	jschmid@nitscheng.com

Signature of Applicant — Date: 09/21/2021

Property Owner (if different):

a. First Name	b. Last Name	c. Company
Amy	Prange	WS Development

33 Boylston Street, Suite 3000
d. Mailing Address

e. City/Town	f. State	g. Zip Code
Chestnut Hill	MA	02467

h. Phone Number	i. Fax Number	j. Email address
857-205-1737		amy.prange@wsdevelopment.com

DocuSigned by: Amy Prange 94788D29F4D94BC...
Signature of Property Owner (if different) — Date: 9/21/2021

Applications will only be accepted when submitted with a properly executed Extension Form.

Boston Planning & Development Agency
Climate Resiliency Report Summary

Submitted: 06/11/2021 14:10:34

A.1 - Project Information

Project Name:	Seaport Block D, 88 Seaport Boulevard			
Project Address:	88 Seaport Boulevard, Boston, MA			
Filing Type:	Initial (PNF, EPNF, NPC or other substantial filing)			
Filing Contact:	Yanni Tsipis	WS Development	Yanni.Tsipis@wsdevelopment.com	6176463180
Is MEPA approval required?	Yes	MEPA date:	06/15/2018	

A.2 - Project Team

Owner / Developer:	WS Development
Architect:	OMA/Jacobs
Engineer:	WSP
Sustainability / LEED:	The Green Engineer
Permitting:	Nitsch Engineering
Construction Management:	John Moriarty & Associates

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Lab/Office
List the First Floor Uses:	Retail/Reception
List any Critical Site Infrastructure and or Building Uses:	Emergency generator and flood mitigation systems for utility services

Site and Building:

Site Area (SF):	50620	Building Area (SF):	499400
Building Height (Ft):	270	Building Height (Stories):	18
Existing Site Elevation – Low (Ft BCB):	15.64	Existing Site Elevation – High (Ft BCB):	18.57
Proposed Site Elevation – Low (Ft BCB):	16.6	Proposed Site Elevation – High (Ft BCB):	19.25
Proposed First Floor Elevation (Ft BCB):	17.95	Below grade spaces/levels (#):	3

Article 37 Green Building:

LEED Version - Rating System:	LEEDv4	LEED Certification:	Yes
Proposed LEED rating:	Gold	Proposed LEED point score (Pts.):	70

Boston Planning & Development Agency
Climate Resiliency Report Summary

boston planning & development agency

Building Envelope:

When reporting R values, differentiate between R discontinuous and R continuous. For example, use "R13" to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

Roof:	R40 c.i.	Exposed Floor :	R25 c.i.
Foundation Wall:	R8 c.i.	Slab Edge (at or below grade):	R1.9 c.i.

Vertical Above-grade Assemblies (%'s are of total vertical area and together should total 100%):

Area of Opaque Curtain Wall & Spandrel Assembly:	1.7	Wall & Spandrel Assembly Value:	0.061
Area of Framed & Insulated / Standard Wall:	40.3	Wall Value:	R16
Area of Vision Window:	57.9	Window Glazing Assembly Value:	0.238
		Window Glazing SHGC:	0.4
Area of Doors:	0.1	Door Assembly Value :	0.5

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined	eQuest energy modeling software built on DOE-2 simulation engine was utilized to determine the energy loads and performance.		
Annual Electric (kWh):	10525549	Peak Electric (kW):	1850.4
Annual Heating (MMbtu/hr):	17159	Peak Heating (MMbtu):	11.6
Annual Cooling (Tons/hr):	321653	Peak Cooling (Tons):	1782.25
Energy Use - Below ASHRAE 90.1 - 2013 (%):	35.2	Have the local utilities reviewed the building energy performance?:	No
Energy Use - Below Mass. Code (%):	28.4	Energy Use Intensity (kBtu/SF):	83.5

Back-up / Emergency Power System

Electrical Generation Output (kW):	1000	Number of Power Units:	1
System Type (kW):	Combustion Engine	Fuel Source:	Diesel

Emergency and Critical System Loads (in the event of a service interruption)

Electric (kW):	800	Heating (MMbtu/hr):	0.1706
		Cooling (Tons/hr):	120

B – Greenhouse Gas Reduction and Net Zero / Net Positive Carbon Building Performance

Boston Planning & Development Agency
Climate Resiliency Report Summary

Reducing greenhouse gas emissions is critical to avoiding more extreme climate change conditions. To achieve the City's goal of carbon-neutrality by 2050 the performance of new buildings will need to progressively improve to carbon net zero and net positive.

B.1 – GHG Emissions - Design Conditions

For this filing - Annual Building GHG Emissions (Tons): 4455

For this filing - describe how building energy performance has been integrated into project planning, design, and engineering and any supporting analysis or modeling:

Energy modeling will be utilized throughout the process of the design. The design options will be analyzed for energy savings and energy cost savings at 50% DD, and 100% CD.

Describe building specific passive energy efficiency measures including orientation, massing, building envelop, and systems:

The project will include high-efficiency building envelope, which in the case of this building is anticipated to combine high performance glazing and improved exterior wall system. The building exceeds the envelope performance backstop.

Describe building specific active energy efficiency measures including high performance equipment, controls, fixtures, and systems:

HVAC equipment will be designed to maximize efficiency and exceed code standard. The design will include standard VAV in lab zones and fan-powered box driven chilled beams in office zones, served by air source heat pump chillers. Air source heat pump chillers will be incorporated to reduce GHG emissions and maximize heat recovery of the condenser water system. Domestic hot water will be provided by electric storage water heaters. High performance fixtures such as LED will be installed throughout the project. Occupancy sensors will be applied throughout the building. Lighting controls will enable controllability and energy savings.
Furthermore, the design team will continue to evaluate energy efficiency measures (EEMs) for possible inclusion in select portions of the Project. The C406 EEMs will include increased HVAC Efficiency (C406.2), reduced lighting power density (C406.3), and enhanced lighting controls (C406.4). The thermal envelope performance exceeds the envelope backstop by 3% and includes triple glazing. Whole building energy modeling was used for a preliminary analysis of possible EEMs.

Describe building specific load reduction strategies including on-site renewable energy, clean energy, and storage systems:

The project will include sensible glycol energy recovery system for lab exhaust to pre-heat the OA and enthalpy type energy recovery for ventilation system serving office space. Project will also include heat shift chillers to capture waste heat to preheat/heat the building hot water system simultaneously.

Describe any area or district scale emission reduction strategies including renewable energy, central energy plants, distributed energy systems, and smart grid infrastructure:

Building is stand-alone

Describe any energy efficiency assistance or support provided or to be provided to the project:

An energy charette was conducted on May 14th, 2021, with Eversource and National Grid. Utility incentives will be pursued.

B.2 - GHG Reduction - Adaptation Strategies

Describe how the building and its systems will evolve to further reduce GHG emissions and achieve annual carbon net zero and net positive performance (e.g. added efficiency measures, renewable energy, energy storage, etc.) and the timeline for meeting that goal (by 2050):

The project has done a comprehensive study of low carbon design options including space heating and domestic water electrification using air-to-water heat pumps and air source heat pump water heating as part of the Carbon Neutral Building Assessment. Currently the project will include heat shift chillers to capture waste heat to preheat/heat the building hot water system and electric water heating for the office uses. Additional space for future incorporation for all electric air-to-water heat pump chillers will be coordinated to replace the gas boilers at end of life.

C - Extreme Heat Events

Annual average temperature in Boston increased by about 2˚F in the past hundred years and will continue to rise due to climate change. By the end of the century, the average annual temperature could be 56° (compared to 46° now) and the number of days above 90° (currently about 10 a year) could rise to 90.

C.1 – Extreme Heat - Design Conditions

Temperature Range - Low (Deg.):	7	Temperature Range - High (Deg.):	100
Annual Heating Degree Days:	5541	Annual Cooling Degree Days	2897

What Extreme Heat Event characteristics will be / have been used for project planning

Days - Above 90° (#):	9	Days - Above 100° (#):	5
Number of Heatwaves / Year (#):	3	Average Duration of Heatwave (Days):	3

Describe all building and site measures to reduce heat-island effect at the site and in the surrounding area:

At the street level, the Proponent aims to reduce the heat island effect using light-colored paving materials and new landscaping that will cover the open space on site. All roof areas will be dedicated to high albedo cool roofs.

C.2 - Extreme Heat – Adaptation Strategies

Describe how the building and its systems will be adapted to efficiently manage future higher average temperatures, higher extreme temperatures, additional annual heatwaves, and longer heatwaves:

Incorporation of reflective roof materials will reduce heat island effect in the Project vicinity. The building will include high performance heating, cooling, and ventilation, lighting controls, building system controls, healthy/resilient materials,

and energy recovery. The Proponent's design team will run the HVAC load calculations to make sure that building systems can maintain safe indoor temperatures during heat wave conditions.

Describe all mechanical and non-mechanical strategies that will support building functionality and use during extended interruptions of utility services and infrastructure including proposed and future adaptations:

A high-performance façade with triple glazing will allow for reduced cooling loads in the summer and heat loss in the winter. A low lighting power density along with occupancy sensors, and lighting controls will also reduce tenant loads. While there is not roof space currently available due to the lab program, at minimum the project will be PV ready. The building will be provided with an emergency generator sized for life safety systems.

D - Extreme Precipitation Events

From 1958 to 2010, there was a 70 percent increase in the amount of precipitation that fell on the days with the heaviest precipitation. Currently, the 10-Year, 24-Hour Design Storm precipitation level is 5.25". There is a significant probability that this will increase to at least 6" by the end of the century. Additionally, fewer, larger storms are likely to be accompanied by more frequent droughts.

D.1 – Extreme Precipitation - Design Conditions

What is the project design precipitation level? (In. / 24 Hours)	5.5

Describe all building and site measures for reducing storm water run-off:

The site will retain a stormwater runoff depth equal to at least 1.25-inches of rainfall times the total impervious area of project site in line with BWSC and City Smart Utility policies.

D.2 - Extreme Precipitation - Adaptation Strategies

Describe how site and building systems will be adapted to efficiently accommodate future more significant rain events (e.g. rainwater harvesting, on-site storm water retention, bio swales, green roofs):

All building runoff will be collected on-site in a rainwater re-use tank located within the building for collecting and re-using stormwater runoff. Critical building systems are located above the flood elevation. Primary electrical utility service conduits are water-tight. Backflow prevention included for the stormwater system consistent with plumbing code requirements.

E – Sea Level Rise and Storms

Boston Planning & Development Agency
Climate Resiliency Report Summary

boston planning & development agency

Under any plausible greenhouse gas emissions scenario, the sea level in Boston will continue to rise throughout the century. This will increase the number of buildings in Boston susceptible to coastal flooding and the likely frequency of flooding for those already in the floodplain.

Is any portion of the site in a FEMA Special Flood Hazard Area?	Yes	What Zone:	AE
What is the current FEMA SFHA Zone Base Flood Elevation for the site (Ft BCB)?			16.46
Is any portion of the site in the BPDA Sea Level Rise Flood Hazard Area (see SLR-FHA online map)?	Yes		

If you answered YES to either of the above questions, please complete the following questions.
Otherwise you have completed the questionnaire; thank you!

E.1 – Sea Level Rise and Storms – Design Conditions

Proposed projects should identify immediate and future adaptation strategies for managing the flooding scenario represented by the Sea Level Rise Flood Hazard Area (SLR-FHA), which includes 3.2' of sea level rise above 2013 tide levels, an additional 2.5" to account for subsidence, and the 1% Annual Chance Flood. After using the SLR-FHA to identify a project's Sea Level Rise Base Flood Elevation, proponents should calculate the Sea Level Rise Design Flood Elevation by adding 12" of freeboard for buildings, and 24" of freeboard for critical facilities and infrastructure and any ground floor residential units.

What is the Sea Level Rise - Base Flood Elevation for the site (Ft BCB)?	19.5		
What is the Sea Level Rise - Design Flood Elevation for the site (Ft BCB)?	20.5 Ft BCB; 21.5 Ft BCB (For Critical Infrastructure)	First Floor Elevation (Ft BCB):	17.95
What are the Site Elevations at Building (Ft BCB)?	17.5-19.25	What is the Accessible Route Elevation (Ft BCB)?	17.95

Describe site design strategies for adapting to sea level rise including building access during flood events, elevated site areas, hard and soft barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Flood mitigation systems (barriers and doors) have been incorporated where appropriate to protect critical areas including the building entrances, and underground garage. Other utility infrastructure including the electrical service switch, all critical electrical infrastructure, fire pump room, fire command station will all be located on the second level or higher, well above the projected sea level rise flood events.

Describe how the proposed Building Design Flood Elevation will be achieved including dry / wet flood proofing, critical systems protection, utility service protection, temporary flood barriers, waste and drain water back flow prevention, etc.:

Flood mitigation systems (barriers and doors) have been incorporated where appropriate to protect critical areas including the building entrances and underground

garage. Other utility infrastructure including the electrical service switch, all critical electrical infrastructure, fire pump room, fire command station will all be located on the second level or higher, well above the projected sea level rise flood events.
Backflow prevention included for the stormwater system and sanitary system consistent with plumbing code requirements.

Describe how occupants might shelter in place during a flooding event including any emergency power, water, and waste water provisions and the expected availability of any such measures:

The building will be provided with an emergency generator, and flood mitigation systems are included for all utility services.

Describe any strategies that would support rapid recovery after a weather event:

The building will be provided with an emergency generator sized for life safety systems.

E.2 – Sea Level Rise and Storms – Adaptation Strategies

Describe future site design and or infrastructure adaptation strategies for responding to sea level rise including future elevating of site areas and access routes, barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Flood mitigation systems (barriers and doors) are provided at the building entrances. All critical utility infrastructure, other than the gas meter, is elevated above the sea level rise BFE.

Describe future building adaptation strategies for raising the Sea Level Rise Design Flood Elevation and further protecting critical systems, including permanent and temporary measures:

The BPDA SLR Base Flood Elevation is 19.5 BCB. The project will be providing 1 ft of freeboard for non-critical uses: DFE of 20.5' BCB & 2 ft of freeboard for critical uses: DFE of 21.5 BCB.

Thank you for completing the Boston Climate Change Checklist!

For questions or comments about this checklist or Climate Change best practices, please contact:
John.Dalzell@boston.gov

SECTION 2

PROJECT NARRATIVE

PROJECT NARRATIVE CONTENTS

1.0 EXECUTIVE SUMMARY 1
2.0 EXISTING CONDITIONS 1
2.1 Existing Site Description 1
2.2 Existing Utility Infrastructure 2
Sanitary Sewer 2
Water (Domestic and Fire Protection) 2
Stormwater Management 2
Natural Gas 2
Electrical/Telephone/Cable 2
2.3 Soils 2
2.4 Environmental Considerations 3
FEMA Flood Zone 3
Water Supply Protection Area 3
Wetland Resource Areas 3
Natural Heritage and Endangered Species Program 3
3.0 PROPOSED CONDITIONS 4
3.1 Overview of Proposed Work 4
3.2 Utilities 4
Sanitary Sewer 4
Water (Domestic and Fire Protection) 4
Stormwater Management 4
Gas 5
Electric and Telecommunications 5
3.3 Resilient Building Design & Infrastructure 5
3.4 Snow Removal 5
4.0 WETLAND RESOURCE AREA IMPACTS 6
5.0 PROPOSED MITIGATION MEASURES 7
5.1 Construction Period Erosion and Sedimentation Controls 7
5.2 Post-Construction Stormwater Management 7
5.3 Long-Term Pollution Prevention 7
5.4 Climate Change Resilience 8
5.5 Alternative Analysis 9
6.0 INTERESTS OF THE WETLANDS PROTECTION ACT 12
7.0 CONCLUSION 13

1.0 EXECUTIVE SUMMARY

On behalf of the Applicant, Seaport D Title Holder LLC, Nitsch Engineering is filing the enclosed Notice of Intent (NOI) with the City of Boston Conservation Commission for the demolition of a parking lot and associated pavement, and utilities and the construction of a new building at surface level, underground parking garage, proposed sidewalks, and associated improvements, which are partially located within jurisdictional resource areas. The purpose of this NOI Application is to receive an Order of Conditions from the City of Boston Conservation Commission approving the proposed project under the *Wetlands Protection Act* (M.G.L. c. 131, §40), the *Rivers Protection Act* (M.G.L. c. 256, Acts of 1996) and their Regulations (310 CMR 10.00), and the *Wetlands Protection and Climate Adaptation* (City of Boston Municipal Code, Chapter 7-1.4).

The Project site is approximately 60,820 square feet, or 1.40 acres, located at 65 Northern Avenue /88 Seaport Boulevard in the South Boston Waterfront area of Boston, Massachusetts. The site is situated with Seaport Boulevard to the south, Fan Pier Boulevard to the west, Northern Avenue to the north, and the proposed Pier Street to the east.

The existing site currently has a commercial parking area that is currently still in operation, and completely impervious.

The Applicant is proposing the removal of the parking lot, associated barriers and minor site improvements, and the construction of a new building with an underground parking garage, new sidewalks, and associated utilities. The proposed building will take up ±34,175 square feet at the ground floor of the site and the underground parking garage will occupy ± 47,381 square feet. The building will contain retail space on the lower floors and commercial office space on the remaining floors.

A portion of the proposed work will take place within Land Subject to Coastal Storm Flowage.

The proposed site improvements within jurisdictional Wetland Resource Areas include:

- Sidewalk, utilities, and building within 5,009 square feet of Land Subject to Coastal Storm Flowage

The Project includes several mitigation measures to offset the impacts to the Land Subject to Coastal Storm Flowage. The proposed stormwater management system will prevent polluted waters from being discharged untreated. The stormwater management system has been designed in accordance with the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Management Standards. The proposed mitigation measures are further discussed in the Stormwater Report, included as Attachment C.

2.0 EXISTING CONDITIONS

2.1 Existing Site Description

The Project site is approximately 60,820 square feet, or 1.40 acres, located at 65 Northern Avenue /88 Seaport Boulevard in the South Boston Waterfront area of Boston, Massachusetts. The site is situated with Seaport Boulevard to the south, Fan Pier Boulevard to the west, Northern Avenue to the north, and the proposed Pier Street to the east.

The existing site currently has a commercial parking area that is currently still in operation, and completely impervious.

2.2 Existing Utility Infrastructure

Sanitary Sewer

There are no existing utilities located on-site. There is an existing 15-inch BWSC sewer main in Northern Avenue.

The Project proposes three (3)~ new 6-inch and two (2)~4-inch sewer services to connect to the existing 15-inch sewer main in Northern Avenue.

Water (Domestic and Fire Protection)

There are no existing utilities located on the site. There are two existing 12-inch BWSC water mains in Northern Avenue (SL 12 DICL 1999 and SH 12 DICL 1999). There is an existing BWSC hydrant (H127) adjacent to the site on Seaport Boulevard.

At the new building on 65 Northern Avenue /88 Seaport Boulevard, the Project proposes a new 6-inch domestic water service from the 12-inch southern low water main in Northern Avenue, and a new 8-inch fire protection services from the 12-inch southern high water main in Northern Avenue.

Stormwater Management

The existing site is nearly 100% impervious and currently a parking lot. The surface runoff is collected by catch basins and untreated directed to the main in Northern Avenue untreated. There is an existing 36-inch BWSC storm drain in Northern Avenue that flows west.

Natural Gas

There is no existing natural gas infrastructure located on-site. The 6” stubbed gas main the site will connect to is located in Northern Avenue.

Electrical/Telephone/Cable

There are existing teldata and electrical conduits on the site; it’s unclear where these may connect, based on available record plans. Proposed services will connect to the infrastructure located in Northern Avenue.

2.3 Soils

NRCS Soil Designations

The Soil Classification Summary (Table 1) outlines the Natural Resources Conservation Services (NRCS) designation of the soil series at the Site. The soils within the Project Site are classified within two categories (Figure 5).

Table 1. Soil Classification Summary

Soil Unit	Soil Series	Hydrologic Soil Group
603	Urban land, wet substratum, 0 to 3 percent slopes	---
655	Udorthents, wet substratum	---

On-Site Soil Investigations

Preliminary subsurface explorations were conducted by Haley and Aldrich at the site. The investigations consisted of a series of borings and geoprobes in May 2021.

The geotechnical memo can be found in Appendix E.

2.4 Environmental Considerations

FEMA Flood Zone

Based on the Flood Insurance Rate Map (FIRM), Community Panel Number 25025C0081J, dated March 16, 2016, a portion of the site is located within Zone AE (Elevation 10 NAVD88, Elevation 16.46 BCB). (Areas of minimal flooding). Refer to Figure 4 – FEMA Floodplain Map. This portion of the site in the 100-year flood zone is classified as Land Subject to Coastal Storm Flowage.

Additional Flood Zone Considerations

The Applicant is incorporating methods to address sea level rise and flood resistance into the building and site design. (See Section 3.3 Building Design & Infrastructure later in this document.)

Water Supply Protection Area

The site is not located within a Water Supply Protection Area.

Wetland Resource Areas

There are no wetland resource areas located within the vicinity of the project. As a portion of the project site is located within a Flood Zone, the following jurisdictional area applies:

- Land Subject to Coastal Storm Flowage

Natural Heritage and Endangered Species Program

A review of the 14th Edition of the Massachusetts Natural Heritage Atlas prepared by the Natural Heritage and Endangered Species Program (NHESP), dated July 8, 2021, indicates that the site is NOT located within a Priority Habitat of Rare Species or an Estimated Habitat of Rare Wildlife (Figure 3).

3.0 PROPOSED CONDITIONS

3.1 Overview of Proposed Work

Seaport D Title Holder LLC is proposing the removal of the parking lot, and associated barriers and minor site improvements, and the construction of a new building with an underground parking garage, new sidewalks, and associated utilities. The proposed building will take up ±34,175 square feet at the ground floor of the site and the underground parking garage will occupy ± 47,381 square feet. The building will contain retail space on the lower floors and commercial office space on the remaining floors. The project includes utility work, including new drain lines, sewer lines, water lines, fire services, electrical duct banks, and a gas service.

The proposed project will maintain on-site impervious area (from the original condition), as outlined in Table 2.

Table 2. Proposed land use change for 65 Northern Avenue /88 Seaport Boulevard (in square feet)

Land Use	Existing	Proposed	Change
Building Area	0	34,175	+34,175
Site Impervious Area	34,175	0 (Garage below entire site)	-34,175
Grass/Plantings	0	0	0
Total	34,175	34,175	+0

3.2 Utilities

All proposed utility connections to the building will connect to infrastructure currently existing in the public rights-of-way within Northern Avenue.

Sanitary Sewer

The Project proposes three (3)~ new 6-inch and two (2)~ 4-inch sewer services to connect to the existing 15-inch sewer main in Northern Avenue.

Water (Domestic and Fire Protection)

At the new building on 88 Seaport Boulevard, the Project proposes a new 6-inch domestic water service from the 12-inch southern low water main in Northern Avenue, and a new 8-inch fire protection services from the 12-inch southern high water main in Northern Avenue.

Stormwater Management

To meet the 1.25” storage requirement, stormwater around the site will be collected via roof drains and trench drains in pier street after which it will flow to a 48,000 Gallon Stormwater Retention tank which will then be pumped to groundwater recharge wells located in Northern Avenue. The proposed stormwater recharge system is sized to treat the stormwater volume equal to one-inch (1.25”) depth of stormwater over site impervious area as required by the Boston Water & Sewer Commission. Similar to other private ways in Seaport Square, Fan Pier Boulevard and portions of Pier Street will sheet water to the public ways but the tank inside the building is sized to cover the volume of both

private ways. The overflow from this system will connect to newly constructed 30" drain main in Northern Avenue constructed as part of this project.

Gas

The 8" stubbed gas main the site will connect to is located in Northern Avenue.

Electric and Telecommunications

Electrical and telecommunication services for the project will be fed from existing infrastructure in Seaport Boulevard.

3.3 Resilient Building Design & Infrastructure

In accordance with Climate Ready Boston, the BPDA's initiative to address climate change, and the Conservation Commission's regulations, the project team integrated resilient concepts into the design of the proposed 65 Northern Avenue /88 Seaport Boulevard building. The design incorporates best practices related to climate preparedness and offers solutions that respond to the impacts of climate related events.

3.4 Snow Removal

On the existing site, snow is moved to the edge of the parking area. Snow is not removed from the property.

The proposed snow management plan will continue the existing practices with the following specific requirements:

- During typical snow plowing operations, snow shall be pushed to designated snow removal areas.
- Snow shall not be stockpiled in wetland resource areas or drainage system components.
- In severe conditions where snow cannot be stockpiled on site, the snow shall be removed from the site and properly disposed of in accordance with DEP Guideline BRP601-01.
- Deicing chemicals shall be stored in a locked room inside the building and shall be used at exterior stairs and walkways.
- Before winter begins, the property owner and the contractor shall review snow plowing, deicing, and stockpiling procedures. Areas designated for stockpiling should be cleaned of any debris.

4.0 WETLAND RESOURCE AREA IMPACTS

The impact of the proposed project on wetland resources was limited to the maximum extent practicable. However, due to the proximity of the site to the Boston Harbor, the proposed work is within Land Subject to Coastal Storm Flowage. Table 3 provides a summary of the wetland resource areas impacted by the proposed project.

Table 3. Wetland Resource Area Impacts

Resource Area	Proposed Impact Areas
Land Subject to Coastal Storm Flowage	5,009 SF

The proposed site improvements within Land Subject to Coastal Storm Flowage include:

- Building, sidewalk, and utility work

Erosion and sediment control barriers will be placed along the perimeter of the site to protect the Land Subject to Coastal Storm Flowage as indicated on the site plans.

5.0 PROPOSED MITIGATION MEASURES

5.1 Construction Period Erosion and Sedimentation Controls

Erosion and sedimentation controls are proposed to reduce the construction-related impact of the proposed project on adjacent wetland resource areas. Control measures will include, but are not limited to, minimizing land disturbance, providing temporary stabilization and covers, installing perimeter controls (silt fence and straw wattles/bales), constructing temporary sediment basins, and providing stormwater inlet protection (silt sack, straw wattles/bales). The contractor will be required to do inspections of all controls regularly to ensure that the controls are working properly. The contractor shall clean and reinstall any control that needs to be cleaned or replaced. Additionally, the contractor will clean/flush the entire stormwater management system prior to final acceptance by the owner.

The proposed project will disturb more than one acre of land, which requires the filing of a National Pollutant Discharge Elimination System (NPDES) Stormwater Construction General Permit. To apply for coverage under this General Permit, a Notice of Intent will be submitted to the U.S. Environmental Protection Agency prior to the commencement of construction by the Contractor. The NPDES Notice of Intent requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) for construction activities, which will be submitted to the Conservation Commission and the DEP prior to construction by the Contractor. The SWPPP is a detailed erosion and sediment control plan that indicates the structural and non-structural erosion and sediment controls that will be employed, as appropriate, to control erosion on the construction site. A draft of the SWPPP will be provided prior to construction.

5.2 Post-Construction Stormwater Management

There will be a closed drainage system to collect the runoff from the roof and proposed roadway from the proposed project. The runoff from the roof and site will be collected in a rainwater recharge system, and all runoff eventually discharges to a closed drainage system that will drain to Boston Harbor. The overall site is designed to improve water quality. For more information on the stormwater management system, refer to the Stormwater Report included in Attachment C.

5.3 Long-Term Pollution Prevention

A Long-Term Pollution Prevention Plan has been prepared in compliance with the Standards 4 and 9 of the 2008 Massachusetts Department of Environmental Protection (MassDEP) Stormwater Management Standards, which require provisions for the following:

- Good Housekeeping
- Storing materials and waste products inside or under cover
- Vehicle washing
- Routine inspections of stormwater best management practices
- Spill prevention and response
- Maintenance of lawns, gardens, and other landscaped areas
- Storage and used of fertilizers, herbicides, and pesticides
- Pet waste management
- Operation and management of septic systems
- Proper management of deicing chemicals and snow

The project Owner has reviewed and agreed to implement the management practices outlined in the Plan and proactively conduct operations at 65 Northern Avenue /88 Seaport Boulevard in an environmentally responsible manner.

5.4 Climate Change Resilience

The proposed project improvements consider climate change in multiple ways including sea level rise, heat island effect and plantings, and stormwater runoff impacts.

The Boston Planning and Development Agency has determined a Sea Level Rise Base Flood Elevation (SLR-BFE) of 19.5 ft (BCB) for the 88 Seaport parcel which is above the FEMA flood elevation of 16.46 BCB. The proposed building's use requires 1-foot of freeboard above SLR-BFE for the design flood elevation which would be 20.50 BCB for this site. The building's proposed first floor elevation is 17.95 Boston City Base (BCB) which is above the current FEMA flood elevation. The building's main electrical room and transformer vault are located on the third floor above elevation SLF DFE at elevation 49.83 BCB. The air handling and condensing units are located on the 17th floor above elevation SLR DFE at elevation 243.1 BCB.

The existing site is 98 percent impervious, with 100 percent covered by asphalt pavement. Vegetative cover, consisting of street trees and some plantings will increase in the proposed condition from 2 percent of the site to 15%.

Following the USGBC criteria for non-roof, urban heat island reduction, this project is proposing three measures:

- Installation of approximately 30 new street trees on the abutting public and private ways will provide shade over paving areas on the site within 10 years of planting. Plants will be in place at the time of occupancy permit and do not include artificial turf.
- Use of paving materials with a three-year aged solar reflectance (SR) value of at least 0.28.

Across the site, measures have been taken to use either paving material with solar reflectance (SR) values as defined by the USGBC and use canopy trees to shade much of the site. The primary axis to the building's front door is on Seaport Boulevard. Street trees are proposed within the abutting public and private ways to partially shade the building entrances

As climate change progresses, storm events will intensify, and the possibility of flooding will increase. The proposed site provides stormwater mitigation measures including storage tanks and underground infiltration systems. The tank and chambers provide storage volume and allow stormwater to infiltrate into the ground instead of discharging to the storm sewers. The proposed best management practices in addition to the reduction in impervious area will decrease the peak stormwater runoff rates and volumes from the site.

Stormwater runoff from paved surfaces has the potential to be hot and damaging to the receiving waters. The proposed infiltration practices are sized to detain the first 1.25-inch of runoff from the impervious areas of the site which will allow water to cool and infiltrate instead of being discharged directly into the Harbor. The reduction in paved and impervious surfaces will also help with the temperature of the stormwater runoff from the site.

5.5 Alternative Analysis

Alternative 1: No Build
Description: The existing parking lot is to remain, and no site improvements are proposed.

1. *Protection of public or private water supply and quality*
   The existing site provides no stormwater quality treatment and would be considered a Land Use with Higher Potential Pollutant Loading were it to be constructed today. There is limited protection of the Boston Harbor in the no build condition because untreated stormwater runoff is discharged.
2. *Protection of the public and private groundwater supply and quality*
   The majority of the "No Build" site is impervious area that does not allow for any infiltration.
3. *Short term and long term coastal and stormwater flood control*
   The "no build" site does not have any stormwater runoff best management practices. There is no mitigation before it is discharged into the harbor.
4. *Erosion and Sedimentation Control*
   The no build condition contains loose sediment and debris onsite that could be washed offsite and into the City drainage system. The pavement is in poor condition and could cause additional sedimentation into the City drainage system and eventually the Harbor.
5. *Storm damage prevention, including coastal storm flowage*
   There are no mitigation measures in place to prevent storm damage in minor storm events or storm events where coastal storm flowage impacts the site. There are no best management practices onsite to capture and mitigate stormwater runoff and there are no protections for the existing building from coastal storm flowage.
6. *Protection of surface water supply and quality, including water pollution control*
   The existing site provides no stormwater quality treatment and would be considered a Land Use with Higher Potential Pollutant Loading were it to be constructed today. There is limited protection of the Boston Harbor in the no build condition because untreated stormwater runoff is discharged.
7. *Flood conveyance and storage*
   There are no existing systems in place for flood conveyance or storage.
8. *Protection of fisheries, land containing shellfish, wildlife habitat, rare and endangered species and habitat, wetland plant habitat, and recreation.*
   There are no existing best management practices on the site to treat stormwater runoff or to improve the temperature of stormwater runoff from hot asphalt areas.
9. *Protect the health, safety, and welfare of the public and to mitigate impacts of climate change.*
   There is no existing stormwater management system and untreated and unmitigated stormwater runoff is discharged directly into the harbor.

Alternative 2 (Preferred Alternative): Full Build as Proposed in the NOI
Description: The building, Fan Pier Boulevard (Private Way) sidewalk, Pier Street (Private Way), landscaped areas, and stormwater management system built as shown on the Civil Site Plans and Stormwater Report submitted as part of the NOI package.

1. *Protection of public or private water supply and quality*
   The proposed project will contain a stormwater management system that properly treats stormwater runoff prior to it being discharged into the Boston Harbor. The Massachusetts DEP stormwater Treatment Standards will be met by the new project. In addition, there will be a lower level of pollutant loading from the site because the land use will no longer be a Land Use with Higher Potential Pollutant Loading and there will be a decrease in vehicular pavement onsite.
2. *Protection of the public and private groundwater supply and quality*

The proposed project will include infiltration systems that are sized to infiltrate 1.25 inches of runoff from the impervious areas onsite. The stormwater runoff will receive pretreatment prior to being discharged into the infiltration systems per the Massachusetts DEP Stormwater Handbook.

3. *Short term and long term coastal and stormwater flood control.*
   The building will be protected with a removable flood barrier around its perimeter. The barrier will be stored onsite and installed prior to any significant flooding event. The garage entrance will also be protected with flood barriers as a second means of defense during flooding events. As noted above, the proposed project includes the construction of stormwater storage tanks and infiltration systems. The systems in addition to the reduction in impervious area onsite will decrease the peak runoff rates and runoff volumes from the site.
4. *Erosion and Sedimentation Control*
   The project will have erosion and sedimentation control measures in place throughout construction and will meet the EPA Construction General Permit requirements. The site will be required to follow a Long-Term Pollution Prevention Plan after construction is completed. The site will be fully stabilized prior to the erosion and sedimentation control measures being removed.
5. *Storm damage prevention, including coastal storm flowage*
   The building will be protected with a removable flood barrier around its perimeter. The barrier will be stored onsite and installed prior to any significant flooding event. The garage entrance will also be protected with flood barriers as a second means of defense during flooding events. The proposed project includes the construction of stormwater storage tanks and infiltration systems. The systems in addition to the reduction in impervious area onsite will decrease the peak runoff rates and runoff volumes from the site.
6. *Protection of surface water supply and quality, including water pollution control*
   The proposed project will contain a stormwater management system that properly treats stormwater runoff prior to it being discharged into the Boston Harbor. The Massachusetts DEP stormwater Treatment Standards will be met by the new project. In addition, there will be a lower level of pollutant loading from the site because the land use will no longer be a Land Use with Higher Potential Pollutant Loading and there will be a decrease in vehicular pavement onsite.
7. *Flood conveyance and storage*
   There is no additional flood storage volume proposed onsite, however there is stormwater management storage provided onsite. The building will be protected with a removable flood barrier around its perimeter. The barrier will be stored onsite and installed prior to any significant flooding event. The garage entrance will also be protected with flood barriers as a second means of defense during flooding events.
8. *Protection of fisheries, land containing shellfish, wildlife habitat, rare and endangered species and habitat, wetland plant habitat, and recreation*
   The proposed project will contain a stormwater management system that properly treats stormwater runoff prior to it being discharged into the Boston Harbor.
   Stormwater runoff from paved surfaces has the potential to be hot and damaging to the receiving waters. The proposed infiltration practices are sized to detain the first 1.25-inch of runoff from the impervious areas of the site which will allow water to cool and infiltrate instead of being discharged directly into the Harbor. The reduction in paved and impervious surfaces will also help with the temperature of the stormwater runoff from the site.
9. *Protect the health, safety, and welfare of the public and to mitigate impacts of climate change.*
   In addition to the construction of a stormwater management, the project will promote public welfare by mitigating the heat island effects from the site and providing shade trees.

Alterative 3: Building with Additional Parking

Description: The building would be constructed on structural piers with open-air at-grade surface parking and a small entrance lobby at grade. The lobby would provide a stairwell and elevator to the second floor where the main lobby and access to the higher floors would be provided.

This option would result in an increase in pervious area from the "No Build" condition but a decrease in pervious area from the "Alternative 2." This option results in an increase in vehicular impervious area from "Alternative 2."

This option would eliminate active public-facing retail and civic spaces facing surrounding sidewalks and would have a significant negative impact on the pedestrian experience and public realm surrounding the project. This alternative would prioritize motor vehicles over an attractive and active public realm and yield no additional environmental benefit.

1. *Protection of public or private water supply and quality*
   The proposed project will contain a stormwater management system that properly treats stormwater runoff prior to it being discharged into the Boston Harbor. The Massachusetts DEP stormwater Treatment Standards will be met by the new project. In addition, there would be a lower level of pollutant loading from the site because the land use will no longer be a Land Use with Higher Potential Pollutant Loading and there will be a decrease in vehicular pavement onsite from the No Build Condition. There will be more vehicular pavement onsite compared to the Alternative 2.
2. *Protection of the public and private groundwater supply and quality*
   The proposed project will include infiltration systems that are sized to infiltrate 1.25 inches of runoff from the impervious areas onsite. The stormwater runoff will receive pretreatment prior to being discharged into the infiltration systems per the Massachusetts DEP Stormwater Handbook.
3. *Short term and long term coastal and stormwater flood control.*
   The proposed project includes the construction of stormwater storage tanks and infiltration systems. These systems, in addition to the reduction in impervious area onsite, will decrease the peak runoff rates and runoff volumes from the site. There is less of a reduction in impervious area in this scenario compared to Alternative 2.
4. *Erosion and Sedimentation Control*
   The project will have erosion and sedimentation control measures in place throughout construction and will meet the EPA Construction General Permit requirements. The site will be required to follow a Long-Term Pollution Prevention Plan after construction is completed. The site will be fully stabilized prior to the erosion and sedimentation control measures being removed.
5. *Storm damage prevention, including coastal storm flowage*
   The proposed project includes the construction of stormwater storage tanks and infiltration systems. These systems, in addition to the reduction in impervious area onsite, will decrease the peak runoff rates and runoff volumes from the site. There is less of a reduction in impervious area in this scenario compared to Alternative 2. Due to the flood protection measures proposed as part of Alternative 2, this alternative would not provide any greater benefit in this category.
6. *Protection of surface water supply and quality, including water pollution control*
   The proposed project will contain a stormwater management system that properly treats stormwater runoff prior to it being discharged into the Boston Harbor. The Massachusetts DEP stormwater Treatment Standards will be met by the new project. In addition, there will be a lower level of pollutant loading from the site because the land use will no longer be a Land Use with Higher Potential Pollutant Loading and there will be a decrease in vehicular pavement onsite. There is less of a reduction in vehicular impervious area in this scenario compared to Alternative 2. This alternative also contemplates the storage of motor vehicles at grade, which presents greater risk of water pollution than Alternative 2.

7. *Flood conveyance and storage*
   There is no additional flood storage volume proposed onsite, however there is stormwater management storage provided onsite.
8. *Protection of fisheries, land containing shellfish, wildlife habitat, rare and endangered species and habitat, wetland plant habitat, and recreation*
   The proposed project will contain a stormwater management system that properly treats stormwater runoff prior to it being discharged into the Boston Harbor.
   Stormwater runoff from paved surfaces has the potential to be hot and damaging to the receiving waters. The proposed infiltration practices are sized to detain the first 1.25-inch of runoff from the impervious areas of the site which will allow water to cool and infiltrate instead of being discharged directly into the Harbor. The reduction in paved and impervious surfaces will also help with the temperature of the stormwater runoff from the site. There is less of a reduction in impervious area in this scenario compared to Alternative 2.
9. *Protect the health, safety, and welfare of the public and to mitigate impacts of climate change*
   In additional to the construction of a stormwater management system and raising the first floor elevation of the building above the flood plain, the project will promote public welfare by mitigating the heat island effects from the site and providing shade trees. In this alternative, there will be less of a reduction in heat island effect and fewer shade trees provided because there will be more vehicular pavement instead of plaza and landscaped areas.

6.0 INTERESTS OF THE WETLANDS PROTECTION ACT

The Wetlands Protection Act regulates wetland resource areas in order to contribute to the following interests:

- Protection of Public and Private Water Supply
- Protection of Groundwater Supply
- Flood Control
- Storm Damage Prevention
- Prevention of Pollution
- Protection of Land Containing Shellfish
- Protection of Fisheries
- Protection of Wildlife Habitat

By installing stormwater best management practices on the project site, the proposed project will protect the interests of the Wetlands Protection Act, including protection of private/public water supply, protection of groundwater supply, providing flood control, prevention of storm damage, and prevention of pollution.

7.0 CONCLUSION

On behalf of the Applicant, Seaport D Title Holder LLC, Nitsch Engineering is filing the enclosed Notice of Intent (NOI) Application with the City of Boston Conservation Commission for the construction of the new building at 65 Northern Avenue /88 Seaport Boulevard. The proposed project provides numerous mitigation measures including: minimizing the disturbance within resource area boundaries, minimization of earthwork, and improving the stormwater management system to meet the DEP Stormwater Management Standards. This NOI report and associated appendices provide a thorough description of the design details and regulatory compliance in accordance with the pertinent Wetland Statutes and Regulations. The Applicant seeks an Order of Conditions approving the project as proposed.

Nitsch Engineering

NOTICE OF INTENT REPORT – SUPPLEMENT

Complies with Department of Environmental Protection Stormwater Standards
and the City of Boston Wetlands Ordinance

Project Name:	Seaport Square Block D, 88 Seaport Boulevard
Project Location:	65 Northern Ave/ 88 Seaport Blvd Boston, MA
Prepared for:	City of Boston
Nitsch Project #:	#10684.5
Date Prepared:	October 7, 2021

This document has been prepared to supplement the LSFC and Resiliency Components included in the September 22, 2021 Notice of Intent filing.

Full Scope of Work Within the Land Subject to Coastal Storm Flowage (LSCSF) Resource Area

The proposed work includes approximately 5,009 sf of work within Land Subject to Coastal Flooding. This work includes a portion of the building, the public sidewalk, a new private way open to public travel, and utility improvements within Northern Ave.
The full scope of work within the LSCSF includes the following, with anticipated construction methods:

Northern Avenue:

1. Test pit excavations to confirm existing underground utility locations:
    a. Construction means and methods: existing asphalt sawcutting; test pit excavation by mechanical, vacuum, and/or hand to observe existing underground utilities; filling and compaction of hole; and replacement of asphalt paving in kind.

2. Construction of underground storm drain in the asphalt roadway, utility services, below grade recharge wells.
    a. Construction means and methods: existing asphalt sawcutting, shoring, temporary dewatering, utility installation, backfilling and compaction, and installation of permanent finishes.

88 Seaport/ 65 Northern Ave Building:

3. Construction of the building and streetscape improvements, including pervious pavers, street trees, and concrete sidewalks:
    a. Construction means and methods: Installation of erosion control, construction of the support of excavation and installation of temporary dewatering, building construction, and installation of the permanent surface improvement. Removal of the erosion control after the surface conditions are stabilized and not causing erosion or sediment tracking offsite.

Erosion Control and Dust Protection During Construction

The Site Contractor will be responsible for stormwater management of the active construction site. A plan to control construction-related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) is included in the Construction Documents. Prior to the start of work, erosion control protection devices will be installed in existing public way catch basins. As construction operations continue, the Contractor will control dust, potential site erosion, as detailed in the Stormwater Pollution Prevention Plan requirements. No stockpiling will be allowed onsite and street sweeping will be provided as needed during and/or after excavation activities.

Statement on Climate Change Resilience

The proposed project improvements consider climate change in multiple ways including sea level rise, heat island effect and plantings, and stormwater runoff impacts.

Sea Level Rise

The Boston Planning and Development Agency has determined a Sea Level Rise Base Flood Elevation (SLR-BFE) of 19.5 ft (BCB) for the area of improvements and public way. The existing 65 Northern Ave/88 Seaport Blvd Parcel is above the FEMA flood elevation of 16.46 BCB except a low point within the site (15.65 BCB). The site's topography will rise above the 100-year flood plain as part of this development.

The existing Northern Ave public way roadway and sidewalk in the area of improvement are approximately 16.0-17.0 BCB. Proposed Pier Street (Private Way) will be raised to a high point of 19.25, The Project's limit of work on Fan Pier Blvd (Private Way) will be raised to a high point of 18.9. The Project's limit of work on Seaport Blvd will be raised to a high point of 18.6, while matching the newly reconstructed portions of the public way (2018). There are no surface elevation changes within the existing public ways.

Please see Section 5.4 Climate Change Resilience of the NOI for the building's preparation for climate change, noting that the building will have Dry Flood Proofing and will be encompassed with a deployable Aqua Fence during severe storm events.

The proposed improvements will not deter and negatively impact any future sea level rise improvements and can be modified if elevations in the area need to be raised to meet future resilience measures.

Increased Heat Waves and Heat Island Effect

The existing site is impervious asphalt and compacted gravel parking lot with a small vegetative strip along its easterly edge. The site will be replaced with 270-foot building designed to be LEEDv4 Gold, including the installation City of Boston standard gray cement concrete pedestrian walkway.

Following measure to adapt to increased heat waves and reduce heat island impacts the building will have a high performance façade with triple glazing that allows for reduced cooling loads in the summer and heat loss in the winter. The roof's building materials will also have with a three year solar reflectance of at least 0.64

Following the USGBC criteria for non-roof, urban heat island reduction, this project is proposing the use of paving materials with a three-year aged solar reflectance (SR) value of at least 0.28. Gray concrete has a typical SR value of 0.35.

Extreme Precipitation Events, Stormwater Runoff, Changing Precipitation Patterns, Changes in Coastal and Stormwater Flooding As climate change progresses, storm events will intensify, and the possibility of flooding will increase. The proposed improvements do not significantly modify existing elevations in the public way. The proposed improvements will not deter or negatively impact any future potential adaptations for precipitation, flooding and/or stormwater changes.

SECTION 3

Stormwater Report (under separate cover)

Including the Long-Term Pollution Prevention Plan and Stormwater Operation and Maintenance Plan

SECTION 4

DOCUMENTATION OF ABUTTER NOTIFICATION

Abutter Notification
Affidavit of Service
Certified Abutters List

NOTIFICATION TO ABUTTERS
UNDER THE MASSACHUSETTS WETLANDS PROTECTION ACT

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. Seaport D Title Holder LLC has filed a Notice of Intent with the Boston Conservation Commission seeking permission to alter an Area Subject to Protection under the Wetlands Protection Act (General Laws Chapter 131, section 40) and Boston Wetlands Ordinance.

B. The address of the lot where the activity is proposed is 65 Northern Avenue/88 Seaport Boulevard.

C. The project involves the demolition of a parking area and associated pavement, landscaping, and utilities and the construction of a new building, and underground parking garage, sidewalks, and associated improvements.

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 John Schmid, jschmid@nitscheng.com, at Nitsch Engineering, Inc, between the hours of 9 AM to 5 PM, Monday through Friday.

F. In accordance with the Commonwealth of Massachusetts Executive Order Suspending Certain Provisions of the Open Meeting Law, 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, tine, 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.

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.

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. Seaport D Title Holder LLC ha presentado una solicitud a la Comisión de Conservación de Boston pidiendo permiso para modificar una zona sujeta a protección en virtud de la Ley de protección de los humedales (Leyes generales, capítulo 131, sección 40) y la Ordenanza sobre los humedales de Boston.

B. La dirección del lote donde se propone la actividad es 65 Northern Ave. /88 Seaport Blvd.

C. El proyecto implica la demolición de un área de estacionamiento y pavimento, paisajismo y servicios públicos asociados, y la construcción de un nuevo edificio y estacionamiento subterráneo, aceras y mejoras asociadas.

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

E. Se pueden obtener copias del Aviso de Intención a través de John Schmid, jschmid@nitscheng.com, de Nitsch Engineering, Inc, de lunes a viernes, entre las 9 a. m. y las 5 p. m.

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.

AFFIDAVIT OF SERVICE

Under the Massachusetts Wetlands Protection Act

I, John M. Schmid, PE, hereby certify under the pains and penalties that at least one week prior to the public hearing, I gave notification to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, and the DEP guide to Abutter Notification dated September 22, 2021 in connection to the following matter:

Submission of a Notice of Intent to the Boston Conservation Commission for the work associated with the project at 65 Northern Avenue (Future: 88 Seaport Boulevard) in the South Boston Waterfront area of Boston, Massachusetts. The site is situated with Seaport Boulevard to the south, Fan Pier Boulevard to the west, Northern Avenue to the north, and the proposed Pier Street to the east and was filed on September 22, 2021. The Project involves the demolition of a parking area and associated pavement, landscaping, and utilities and the construction of a new building, and underground parking garage, sidewalks, and associated improvements.

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

Name

09/22/2021

Date

Attachment: List of Abutters

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

65 Northern Ave / 88 Seaport Boulevard : List of Abutters

ADDRESSEE	ADDRESS	CITY	STATE	ZIPCODE
C/O BERKSHIRE GROUP	1 BEACON st, STE 2400	BOSTON	MA	2108
C/O MARVIN F POER AND COMPANY ST	3520 PIEDMONT RD NE SUITE 410	ATLANTA	GA	30305
C/O JAMES EBERHART	660 STEAMBOAT RD 3RD FLOOR	GREENWICH	CT	6830
C/O INVESCO ADVISERS INC,	2001 Ross Ave UNIT 3400	DALLAS	TX	75201
MASS BAY TRANSPORTATION AUTHORITY	10 PARK PLAZA RM 5750	BOSTON	MA	2116
C/O ONE MARINA PARK DRIVE LLC	230 PARK AVENUE	NEW YORK	NY	10169
C/O BOSTON INNOVATION CNTR LLC	1 BROADWAY 14TH FLR	CAMBRIDGE	MA	2142
WS SEAPORT K LLC	33 BOYLSTON ST SUITE 3000	CHESTNUT HILL	MA	2467
C/O INVESCO ADVISERS INC	2001 ROSS AVE, UNIT 3400	DALLAS	TX	75201
C/O POSEIDON ENTERPRISES	516 EAST SECOND ST	BOSTON	MA	2127
C/O WS DEVELOPMENT LLC	33 BOYLSTON ST SUITE 3000	CHESTNUT HILL	MA	2467
C/O FALLON ONE MPD LLC	ONE MARINA PARK DRIVE	BOSTON	MA	2210
C/O INVESCO ADVISERS INC	2001 ROSS AVE, UNIT 3400	DALLAS	TX	75201
C/O SNH SEAPORT LLC/TWO NEWTON PL	255 WASHINGTON ST STE 300	NEWTON	MA	2458
C/O HOLD-THYSSEN INC	301 S NEW YORK AV #200	WINTER PARK	FL	32789
C/O HOLD-THYSSEN INC	301 S NEW YORK #200	WINTER PARK	FL	32789
C/O DEIRDRE GEOGHEGAN	33 BOYLSTON ST STE 3000	CHESTNUT HILL	MA	2467
MBTA	10 PARK PLAZA RM 5750	BOSTON	MA	2116
C/O GENERAL MANAGER	99 HIGH ST STE 801	BOSTON	MA	2110
C/O SKANSKA USA COM'L DEVELOP	225 SUMMER ST	BOSTON	MA	2210
THE CHILDREN'S MUSEUM	308 CONGRESS ST	BOSTON	MA	2210
C/O BRA D/B/A BOSTON PLANNING AND DEVELOPMENT AGE	ONE CITY HALL SQ	BOSTON	MA	2201
C/O INVESCO ADVISERS INC	2001 Ross Ave, UNIT 3400	DALLAS	TX	75201
C/O WS BLOCK J LLC	660 STEAMBOAT RD 3RD FLOOR	GREENWICH	CT	6830
C/O GENERAL MANAGER	99 HIGH ST STE 801	BOSTON	MA	2110
C/O MARVIN F POER AND COMPANY	3520 PIEDMONT RD NE SUITE 410	ATLANTA	GA	30305
C/O NAN FUNG LIFE SCIENCE REAL ESTATE LLC	1 LINCOLN ST, UNIT 24TH FL	BOSTON	MA	2111
C/O AUSTIN OCONNOR	311 WASHINGTON ST	BRIGHTON	MA	2135
C/O WS DEVELOPMENT	33 BOYLSTON ST SUITE 3000	CHESTNUT HILL	MA	2467
C/O DEIRDRE GEOGHEGAN	33 BOYLSTON ST SUITE #3000	CHESTNUT HILL	MA	2467
C/O ROAMN CATHOLIC ARCHBISHOP OF BOSTON	66 BROOKS DR	BRAINTREE	MA	2184
C/O CLARION PARTNERS LLC	230 PARK AVE 12TH FLR	NEW YORK	NY	10169
C/O WS DEVELOPMENT	33 BOYLSTON ST STE 3000	CHESTNUT HILL	MA	2467
WS BLOCK J LLC	660 STEAMBOAT RD 3RD FLOOR	GREENWICH	CT	6830
C/O HERSHA HOSPITALITY TRUST	510 WALNUT ST 9TH FL	PHILADELPHIA	PA	19106
C/O THE FALLON COMPANY	ONE MARINA PARK DR	BOSTON	MA	2210
C/O THE DAILY CATCH SEAPORT	2 NORTHERN AVE	BOSTON	MA	2210
City of Boston	12 NORTHERN AV	BOSTON	MA	2110
City of Boston	64 SLEEPER ST	BOSTON	MA	2210

Date: January 18th, 2021

Certificate of Accurate Translation+Proofreading

Translated document: Technical / Engineering Expert Translation	
Translation+Proofreading date: January 18th, 2021	Project #: 7922461
Source Language: English	Target Language: Spanish (Latin-America)

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Please find the translation attached.

Yours Sincerely,
One Hour Translation

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SECTION 5

SUPPLEMENTAL DOCUMENTS

Landscaping Site Layout Plan (L-110)
Flood Barrier System

LEGEND

- PROPERTY LINE
- BUILDING FOOTPRINT LINE
- BLOCK D SITE PROJECT BOUNDARY
- BOULDER
- TRASH &RECYCLE RECEPTACLES
- STREET LIGHT POLE (TEMPORARY LOCATIONS TO BE COORDINATED WITH CIVIL)
- BENCH
- SHADE TREES
- SHRUB
- PLANTING BED
- BUILDING ENTRY

NORTHERN AVE.

FAN PIER BLVD.

PIER ST.

BLOCK D

BUILDING SHOWN FOR ILLUSTRATIVE PURPOSE ONLY - SEE ARCH DRAWINGS

DISTRICT HALL

BUILDING SHOWN FOR ILLUSTRATIVE PURPOSE ONLY - SEE ARCH DRAWINGS

RECLAIMED COBBLE STONE PAVER

STREET LIGHT POLE (TEMPORARY LOCATIONS TO BE COORDINATED WITH CIVIL)

SITTING BOULDER

PLANTER BED WITH METAL EDGE CURB

STREET BENCHS

BUILDING GARAGE WALL BELOW GRADE, S.A.D.

PROPOSED MBTA HEADHOUSE OUTLINE BELOW GRADE, SEE MBTA DRAWING SET

MBTA

MBTA

TRASH RECEPTACLE

C.I.P. CONC. PAVEMENT

CONC. UNIT PAVER

CONC. PAVER

STONE PAVER

BIKE RACKS

STREET LIGHT POLE (TEMPORARY LOCATIONS TO BE COORDINATED WITH CIVIL)

STREET BENCHS

EXISTING TUNNEL WALL, S.C.D AND MBTA DRAWING SET

SEAPORT BLVD.

WSDEVELOPMENT

PROJECT
88 SEAPORT
BLOCK D BOSTON SEAPORT

CLIENT
WS DEVELOPMENT ASSOCIATES LLC
33 BOYLSTON STREET #3000
CHESTNUT HILL, MA 02467
PH: 617.232.8900

DESIGN ARCHITECT
OMA*AMO ARCHITECTURE PC
180 VARICK STREET, SUITE 1328
NEW YORK, NY 10014
PH: 212.337.0770 FX: 212.337.0771

ARCHITECT OF RECORD
JACOBS
ONE BROADWAY, 10TH FLOOR
CAMBRIDGE, MA 02142
PH: 617.491.6450 FX: 617.491.7104

STRUCTURAL ENGINEER
McNAMARA SALVIA
101 FEDERAL STREET, 11TH FLOOR
BOSTON, MA 02110
PH: 617.737.0040

MEP ENGINEERS
WSP PARSONS BRINCKERHOFF
88 BLACK FALCON AVE., SUITE 210
BOSTON, MA 02210
PH: 617.210.1600 FX: 617.210.1800

EXTERIOR ENVELOPE ENGINEER
THORNTON TOMASETTI
51 MADISON AVENUE
NEW YORK, NY 10010
PH: 917.661.7800 FX: 917.661.7801

LIGHTING DESIGNER
DOTDASH
1500 BROADWAY, 6TH FLOOR
NEW YORK, NY 10036
PH: 212.204.4000

GEOTECHNICAL ENGINEER
HALEY ALDRICH
465 MEDFORD STREET SUITE 2200
BOSTON, MA 02129
PH: 617.886.7400 FX: 617.886.7600

CIVIL ENGINEER
NITSCH ENGINEERING
2 CENTER PLAZA, SUITE 430
BOSTON, MA 02108
PH: 617.338.0063 FX: 617.338.6472

VERTICAL TRANSPORTATION
FACADE ACCESS
LERCH BATES
303 WYMAN STREET SUITE 351
WALTHAM, MA 02451
PH: 617.532.2020 FX: 888.819.5540

CODE CONSULTANT
JENSEN HUGHES
1661 WORCHESTER ROAD., SUITE 501
FRAMINGHAM, MA 01701
PH: 508.620.8900 FX: 508.620.0908

ACOUSTICS
ACENTECH
33 MOULTON STREET
CAMBRIDGE, MA 02138
PH: 617.499.8086

SUSTAINABILITY
THE GREEN ENGINEER
23 BRADFORD STREET, 1ST FLOOR
CONCORD, MA 01742
PH: 978.369.8978

LANDSCAPE ARCHITECT
JAMES CORNER FIELD OPERATIONS
475 10TH AVE #9
NEW YORK, NY 10018
PH: 212.433.1450

NO.	ISSUE DATE	COMMENTS
01	05/28/2021	100% SCHEMATIC DESIGN

NORTHERN AVENUE
FAN PIER BOULEVARD
PIER STREET
SEAPORT BOULEVARD

KEY PLAN

NOT FOR BID
NOT FOR CONSTRUCTION

STAMP		
20010099-2	48"X36"	JCFO
PROJ. NO.	FORMAT	DRAWN BY

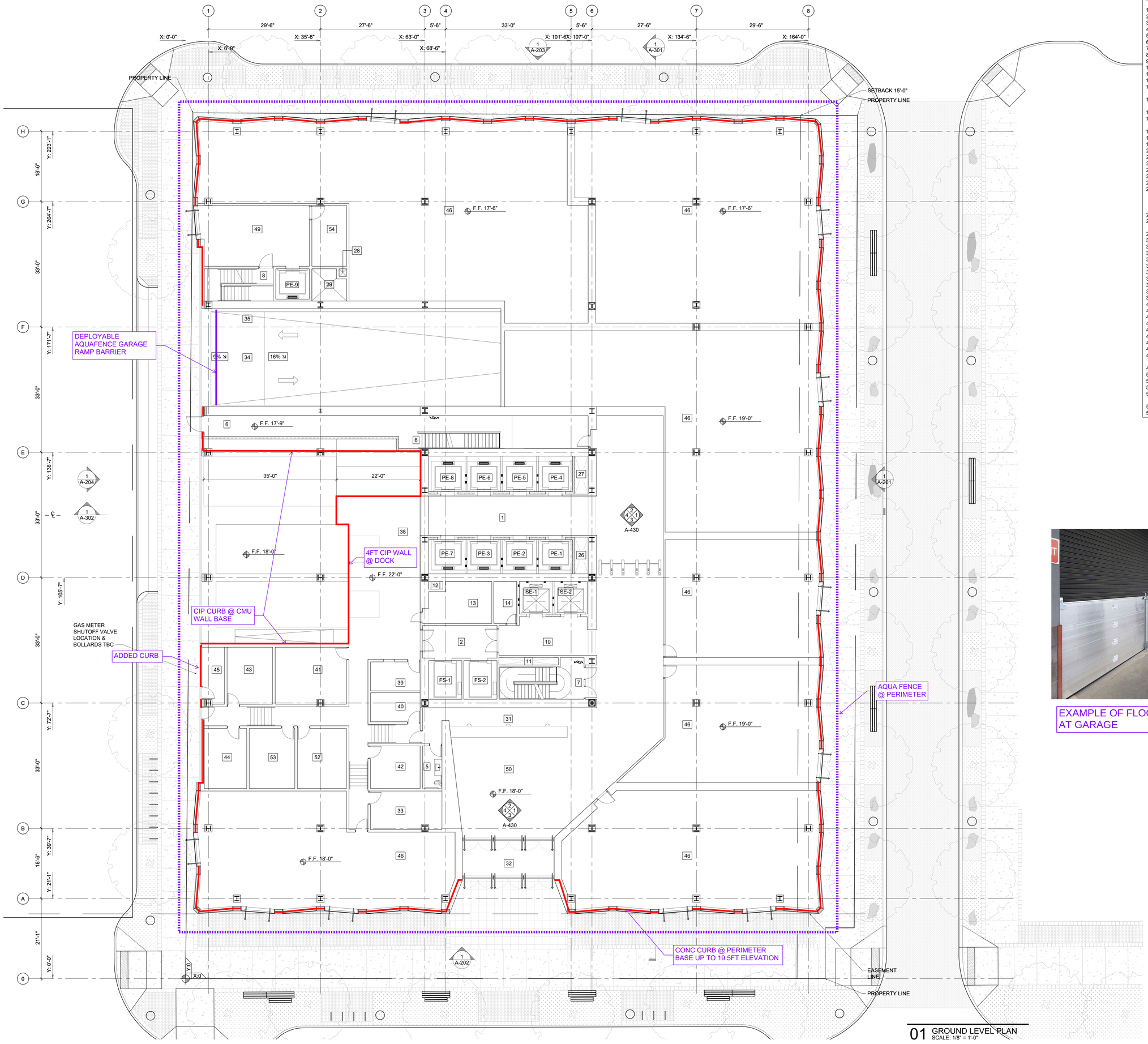
SCALE: 1" = 10' DATE: 05/28/2021

SITE LAYOUT PLAN

DRAWING TITLE

L-110

DRAWING NUMBER



01 GROUND LEVEL PLAN
SCALE: 1/8" = 1'-0"

EXAMPLE OF FLOOD BARRIER AT GARAGE

KEY NOTES GROUND LEVEL 01

1. OFFICE ELEVATOR LOBBY
2. FIRE SERVICE LOBBY
3. RESTROOM W
4. RESTROOM M
5. WC
6. EGRESS STAIR 1
7. EGRESS STAIR 2
8. ACCESS STAIR 3
9. DRINKING FOUNTAINS
10. GARAGE ELEVATOR LOBBY
11. STAIR PRESS RISER
12. LAB WASTE SHAFT
13. NORMAL POWER ELECTRIC ROOM
14. EMERGENCY ELECTRIC ROOM 2 HOURS
15. STORAGE
16. FUTURE TENANT LAB EXHAUST SHAFT
17. JANITOR CLOSET
18. IDF ROOM
19. LAB SUPPLY RISER
20. LAB EXHAUST
21. HOT WATER PIPING
22. CHILLED WATER PIPING
23. MECHANICAL SHAFT
24. MECHANICAL SHAFT
25. LAB WASTE
26. EXPRESS SHAFT FOR GAS, FUEL OIL, PLUMBING VENTS & SUPPLY DUCTS RISERS FOR ELEV. LOBBY
27. KITCHEN GREASE DUCT
28. CONCRETE-ENCASED CONDUIT BANK
29. GARAGE EXHAUST
30. ELEVATOR MACHINE ROOM
31. INFORMATION DESK
32. VESTIBULE
33. ELECTRICAL
34. PARKING ENTRANCE RAMP
35. BIKE ENTRANCE RAMP
36. LOADING DOCK BAY
37. TRASH COMPACTOR BAY
38. LOADING DOCK STAGING
39. DOCK OFFICE
40. SECURITY OFFICE
41. COLD TRASH STORAGE
42. MAIL & PACKAGE ROOM
43. FIRE PUMP ROOM
44. FUEL OIL ROOM
45. GAS METER ROOM
46. RETAIL
47. CURB CUT
48. PERFORATED ROLL DOWN DOOR
49. CIVIC ENTRY VESTIBULE
50. OFFICE ENTRY LOBBY
51. MECHANICAL SHAFT
52. CHEMICAL STORAGE ROOM
53. SPECIAL WASTE NEUTRALIZATION ROOM
54. ELEVATOR MACHINE ROOM
55. OCCUPIABLE AREA

WSDEVELOPMENT

PROJECT
88 SEAPORT
BLOCK D BOSTON SEAPORT

CLIENT
WS DEVELOPMENT ASSOCIATES LLC
33 BOYLSTON STREET #3000
CHESTNUT HILL, MA 02467
PH: 617.232.8900

DESIGN ARCHITECT
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ARCHITECT OF RECORD
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EXTERIOR ENVELOPE ENGINEER
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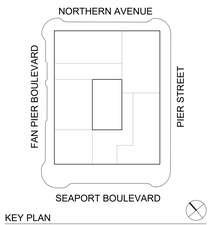
SUSTAINABILITY
THE GREEN ENGINEER
23 BRADFORD STREET, 1ST FLOOR
CONCORD, MA 01742
PH: 978.369.8978

NO.	ISSUE DATE	COMMENTS
02	07/02/2021	BLDG HEIGHT ADJUSTMENT
01	05/28/2021	100% SCHEMATIC DESIGN



KEY PLAN

NOT FOR BID
NOT FOR CONSTRUCTION

STAMP

20010099-2	48"X36"	OMA
PROJ. NO.	FORMAT	DRAWN BY

SCALE: 1/8"=1'-0" DATE: 07/02/2021

LEVEL 01 PLAN

DRAWING TITLE

A-101

DRAWING NUMBER

FIGURES

Figure 1 – USGS Locus Map
Figure 2 – Aerial Locus Map
Figure 3 – Natural Heritage and Endangered Species Program Map
Figure 4 – FEMA Floodplain Map
Figure 5 – NRCS Soils Map

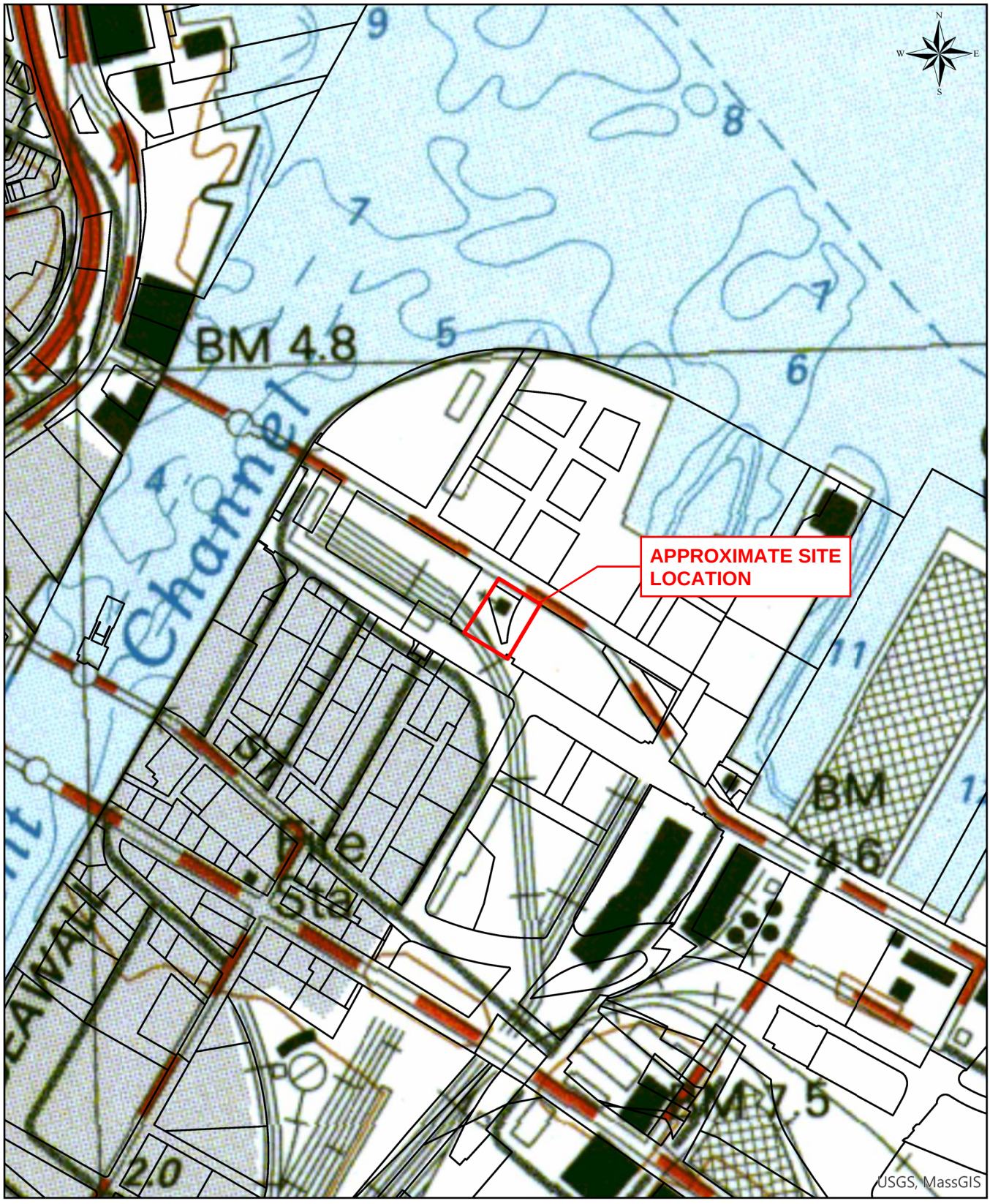


Figure 1: USGS Locus Map
Seaport Parcel D
65 Northern Avenue/88 Seaport Boulevard
Boston, MA

0 250 500 1,000 Feet

Data Source: MassGIS
Nitsch Project #10684.5

Nitsch Engineering

Figure 2: Aerial Locus Map
Seaport Parcel D
65 Northern Avenue/88 Seaport Boulevard
Boston, MA

0 250 500 Feet

Data Source: MassGIS
Nitsch Project #10684.5

Nitsch Engineering

Figure 3: NHESP
Seaport Parcel D
65 Northern Avenue/88 Seaport Boulevard
Boston, MA

0 250 500 Feet

Data Source: MassGIS
Nitsch Project #10684.5

Nitsch Engineering

National Flood Hazard Layer FIRMette

FEMA

71°3'4"W 42°21'22"N

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

1:6,000

71°2'26"W 42°20'55"N

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

Legend

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

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

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

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

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

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

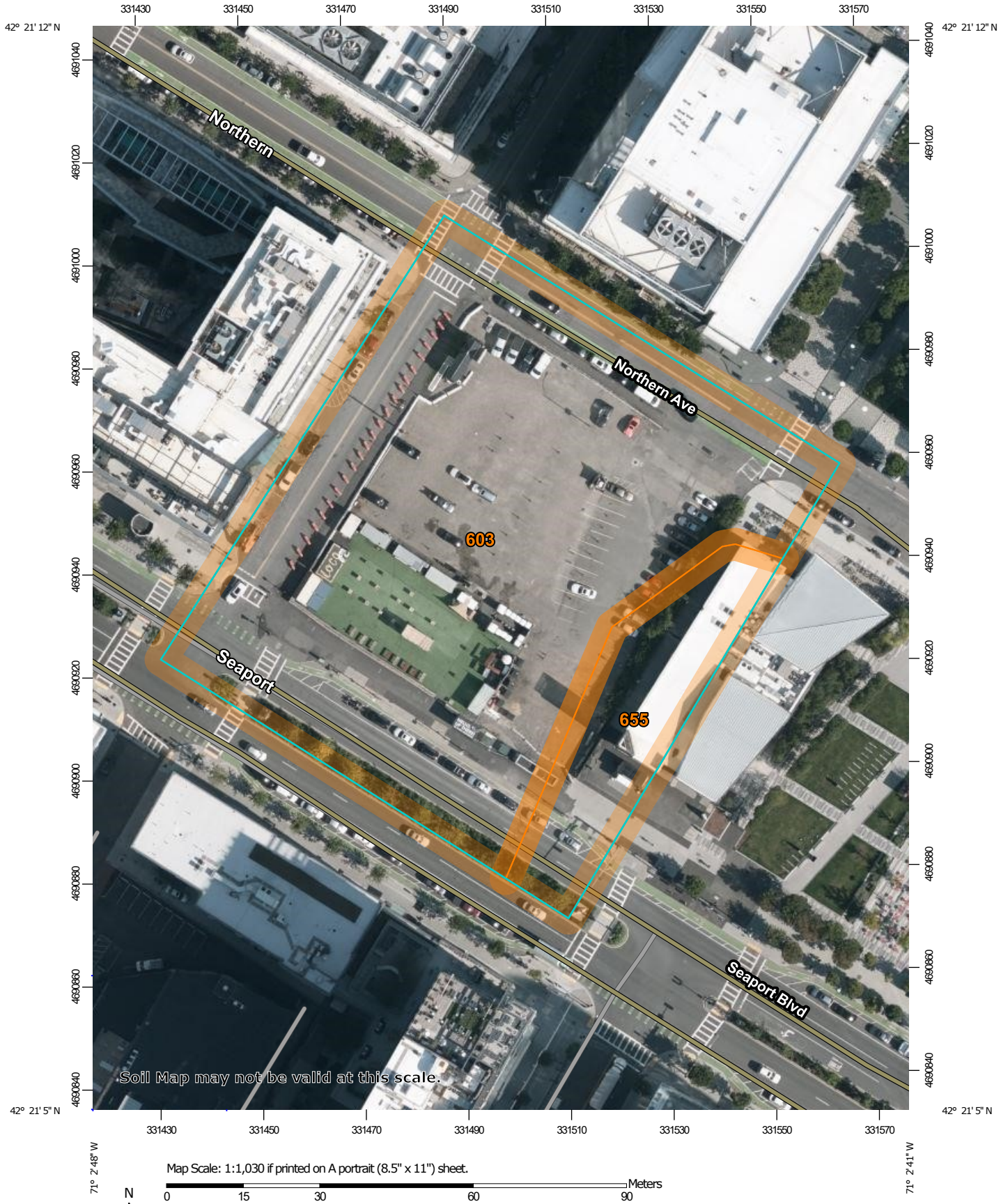
N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/8/2021 at 5:21 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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



Map Scale: 1:1,030 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

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 16, Jun 11, 2020

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

Date(s) aerial images were photographed: Sep 11, 2019—Oct 5, 2019

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	2.0	85.4%
655	Udorthents, wet substratum	0.3	14.6%
Totals for Area of Interest		**2.4**	**100.0%**

Nitsch Engineering

September 21, 2021

STORMWATER REPORT
FOR NOTICE OF INTENT

For:
65 NORTHERN AVE /88 SEAPORT BLVD
BLOCK D BOSTON SEAPORT
Boston, Massachusetts 02210

Prepared for:

SEAPORT D TITLE HOLDER LLC
c/o WS Development
33 Boylston Street
Chestnut Hill, MA 02467

Prepared by:

NITSCH ENGINEERING, INC.
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Nitsch Project #10684.5

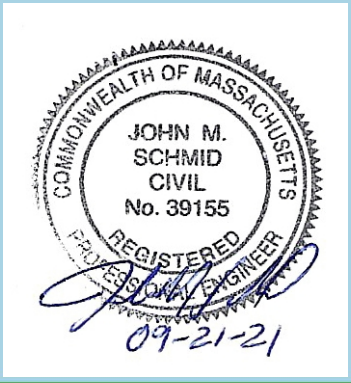


TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 EXISTING CONDITIONS 1

2.1 Existing Drainage Infrastructure 1

2.2 Soils 1

2.3 Wetland Resource Areas 1

2.4 FEMA Flood Zone 2

3.0 PROPOSED CONDITIONS 2

3.1 Project Description 2

3.2 Stormwater Management System 2

4.0 STORMWATER MANAGEMENT ANALYSIS 3

4.1 Methodology 3

4.2 HydroCAD Version 10.00 3

4.3 Precipitation Data 3

4.4 Existing Hydrologic Conditions 3

4.5 Proposed Hydrologic Conditions 3

5.0 MASSDEP STORMWATER MANAGEMENT STANDARDS 4

Standard 1: No New Untreated Discharges 4

Standard 2: Peak Rate Attenuation 4

Standard 3: Groundwater Recharge 4

Standard 5: Land Uses with Higher Potential Pollutant Loads 4

Standard 6: Critical Areas 5

Standard 7: Redevelopments 5

Standard 8: Construction Period Pollution Prevention and Sedimentation Control 5

Standard 9: Operation and Maintenance Plan 5

Standard 10: Prohibition of Illicit Discharges 5

6.0 TOTAL MAXIMUM DAILY LOAD 5

7.0 CONCLUSION 6

APPENDICES

Appendix A Pre-Development Conditions – HydroCAD Calculations
Appendix B Post-Development Conditions – HydroCAD Calculations
Appendix C Long-Term Pollution Prevention and Stormwater Operation and Maintenance Plan
Appendix D MassDEP Checklist for Stormwater Report and Illicit Discharge Compliance Statement
Appendix E Geotechnical Memorandum (under separate cover)

1.0 INTRODUCTION

Nitsch Engineering prepared this Stormwater Report to support the Notice of Intent (NOI) associated with the proposed project located at 65 Northern Avenue /88 Seaport Boulevard in the seaport area of Boston, Massachusetts. The proposed project includes the demolition of a parking area and associated pavement, utilities and the construction of a new building, and underground parking garage, sidewalks, and associated improvements. The Project includes a stormwater management system, which has been designed in accordance with the Massachusetts Department of Environmental Protection (DEP) Stormwater Management Standards and the Boston Water and Sewer Commission Regulations.

2.0 EXISTING CONDITIONS

The Project site is approximately 60,820 square feet, or 1.40 acres, located at 65 Northern Avenue /88 Seaport Boulevard in the South Boston Waterfront area of Boston, Massachusetts. The site is situated with Seaport Boulevard to the south, Fan Pier Boulevard to the west, Northern Avenue to the north, and the proposed Pier Street to the east.

The existing site currently has a commercial parking area that is currently still in operation, and completely impervious.

2.1 Existing Drainage Infrastructure

The existing site is nearly 100% impervious and currently a parking lot. The surface runoff is collected by catch basins and directed to the main in Northern Avenue. There is an existing 36-inch BWSC storm drain in Northern Avenue that flows west.

2.2 Soils

NRCS Soil Designations

The Soil Classification Summary (Table 1) outlines the Natural Resources Conservation Services (NRCS) designation of the soil series at the Site. The soils within the Project Site are classified within two categories (Figure 5).

Table 1. Soil Classification Summary

Soil Unit	Soil Series	Hydrologic Soil Group
603	Urban land, wet substratum, 0 to 3 percent slopes	---
655	Udorthents, wet substratum	---

On-Site Soil Investigations

Preliminary subsurface explorations were conducted by Haley and Aldrich at the site. The investigations consisted of a series of borings and geoprobes in May 2021.

The geotechnical memo can be found in Appendix E.

2.3 Wetland Resource Areas

There are no wetland resource areas located within the vicinity of the project. As a portion of the project site is located within a Flood Zone, the following jurisdictional area applies:

- Land Subject to Coastal Storm Flowage

2.4 FEMA Flood Zone

Based on the Flood Insurance Rate Map (FIRM), Community Panel Number 25025C0081J, dated March 16, 2016, a portion of the site is located within Zone AE (Elevation 10 NAVD88, Elevation 16.46 BCB). (Areas of minimal flooding). Refer to Figure 4 – FEMA Floodplain Map. This portion of the site in the 100-year flood zone is classified as Land Subject to Coastal Storm Flowage.

3.0 PROPOSED CONDITIONS

3.1 Project Description

Seaport D Title Holder LLC is proposing the removal of the parking lot, and associated barriers and minor site improvements, and the construction of a new building with an underground parking garage, new sidewalks, and associated utilities. The proposed building will take up ±34,175 square feet at the ground floor of the site and the underground parking garage will occupy ± 47,381 square feet. The building will contain retail space on the lower floors and commercial office space on the remaining floors. The project includes utility work, including new drain lines, sewer lines, water lines, fire services, electrical ductbanks, and a gas service.

The proposed project will maintain on-site impervious area (from the original condition), as outlined in Table 2.

Table 2. Proposed land use change for 65 Northern Avenue /**88 Seaport (in square feet)**

Land Use	Existing	Proposed	Change
Building Area	0	34,175	+34,175
Site Impervious Area	34,175	0 (Garage below entire site)	-34,175
Grass/Plantings	0	0	0
Total	34,175	34,175	+0

3.2 Stormwater Management System

To meet the 1.25” storage requirement, stormwater around the site will be collected via roof drains after which it will flow, a 48,000 Gallon Stormwater Retention tank which will then be pumped to groundwater recharge wells located in Northern Avenue. The proposed stormwater recharge system is sized to treat the stormwater volume equal to one-inch (1.25”) depth of stormwater over site impervious area as required by the Boston Water & Sewer Commission. Similar to other private ways Seaport Square Fan Pier Boulevard and Pier Street will sheet water to the public ways but the tank inside the building is sized to cover the volume of both private ways. The overflow from this system will connect to newly constructed 30” drain main in Northern Avenue constructed as part of this project.

4.0 STORMWATER MANAGEMENT ANALYSIS

4.1 Methodology

Nitsch Engineering completed a hydrologic analysis of the existing project site utilizing Soil Conservation Service (SCS) Runoff Curve Number (CN) methodology. The SCS method calculates the rate at which the runoff reaches the design point considering several factors: the slope and flow lengths of the subcatchment area, the soil type of the subcatchment area, and the type of surface cover in the subcatchment area. HydroCAD Version 10.00 computer modeling software was used in conjunction with the SCS method to determine the peak rates of runoff for the 2-, 10-, and 100-year, 24-hour storm events. The proposed project site is being analyzed with the same methodology.

The project site will drain to one design point. For each subcatchment area, SCS Runoff Curve Numbers (CNs) were selected by using the cover type and hydrologic soil group of each area. The peak runoff rates for the 2-, 10-, and 100-year 24-hour storm events were then determined by inputting the drainage areas, CNs, and Tc paths into HydroCAD.

4.2 HydroCAD Version 10.00

The HydroCAD computer program uses SCS and TR-20 methods to model drainage systems. TR-20 (Technical Release 20) was developed by the Soil Conservation Service to estimate runoff and peak discharges in small watersheds. TR-20 is generally accepted by engineers and reviewing authorities as the standard method for estimating runoff and peak discharges.

HydroCAD Version 10.00 uses up to four types of components to analyze the hydrology of a given site: subcatchments, reaches, basins, and links. Subcatchments are areas of land that produce surface runoff. The area, weighted CN, and T_c characterize each individual subcatchment area. Reaches are generally uniform streams, channels, or pipes that convey water from one point to another. A basin is any impoundment that fills with water from one or more sources and empties via an outlet structure. Links are used to introduce hydrographs into a project from another source or to provide a junction for more than one hydrograph within a project.

The time span for the model was set for 0-48 hours to prevent truncation of the hydrograph.

4.3 Precipitation Data

Nitsch Engineering, Inc. used National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Volume 10 Precipitation Data to estimate the rainfall for the 2-year, 10-year, 25-year and 100-year 24-hour storms. The rainfall values for Boston that will be used are as follows:

Precipitation Data

Storm Event	24-Hour Rainfall
2-year	3.22 in
10-year	5.50 in
25-year	6.25 in
100-year	8.05 in

4.4 Existing Hydrologic Conditions

The existing site drains to a closed drainage system which eventually connects to the Boston Harbor.

4.5 Proposed Hydrologic Conditions

The proposed site maintains impervious area and is expected to reduce the proposed peak rates of runoff from the project site for the existing rates for the 2-, 10-, and 100-year, 24-hour storm events.

The existing and proposed peak discharge rate calculations for the 2-, 10-, and 100-year, 24-hour storm events are provided in Appendix A and Appendix B, respectively.

Table 2: Peak Rates of Runoff (cfs)

	2-Year	10-year	25-year	100-year
Existing	4.12	7.10	8.07	10.41
Proposed	1.29	3.79	5.85	10.37

Table 3: Runoff Volume (cf)

	2-Year	10-year	25-year	100-year
Existing	13,852	24,176	27,530	35,632
Proposed	7,015	17,163	20,517	28,532

5.0 MassDEP Stormwater Management Standards

The proposed project was designed to meet the MassDEP Stormwater Management Standards as summarized below:

Standard 1: No New Untreated Discharges

The proposed project will not discharge any new untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

Standard 2: Peak Rate Attenuation

The proposed site is expected to reduce the proposed peak rates of runoff for the existing rates for the 2-, 10-, 25-, and 100-year, 24-hour storm events. The existing and proposed peak discharge rate calculations for the 2-, 10-, 25-, and 100-year, 24-hour storm events are provided in Appendix A and Appendix B, respectively.

Standard 3: Groundwater Recharge

The 65 Northern Avenue / 88 Seaport Boulevard project is required to comply with this standard to the maximum extent practicable. The rainwater recharge tank will capture more than 1.25-inches of runoff from the building and associated site area.

Standard 4: Water Quality Treatment

The proposed project will be predominantly roof area on what was previously an existing bituminous concrete parking lot. Roof runoff is generally cleaner than pavement runoff. A rainwater recharge tank is also proposed for the Project, which will provide treatment for runoff by reduction in runoff. Therefore, the proposed project is expected to increase the quality of runoff entering the closed drainage system that eventually drains to Boston Harbor.

Source control and pollution prevention measures, such as proper snow management, and stabilization of eroded surfaces, are included in the Long-Term Pollution Prevention Plan and Operation and Maintenance Plan provided in Appendix C.

Standard 5: Land Uses with Higher Potential Pollutant Loads

The proposed project site does not contain any land uses with higher potential pollutant loads. Therefore, this standard is not applicable.

Standard 6: Critical Areas

The proposed project is not located near any critical areas. Therefore, this standard is not applicable.

Standard 7: Redevelopments

The 65 Northern Avenue /88 Seaport project is located on a previously developed site and does not result in an increase in impervious area. Therefore, the project is considered a redevelopment under the DEP Stormwater Management Standards.

A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. A redevelopment project must comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

Standard 8: Construction Period Pollution Prevention and Sedimentation Control

A plan to control construction-related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) will be developed and implemented during the Notice of Intent permitting process.

Since the proposed project will disturb more than one (1) acre of land, a Notice of Intent will be submitted to the Environmental Protection Agency (EPA) for coverage under the National Pollution Discharge Elimination System (NPDES) Construction General Permit. As part of this application the Applicant is required to prepare a Stormwater Pollution Prevention Plan (SWPPP) and implement the measures in the SWPPP. The SWPPP, which is to be kept on site, includes erosion and sediment controls (stabilization practices and structural practices), temporary and permanent stormwater management measures, Contractor inspection schedules and reporting of all SWPPP features, materials management, waste disposal, off-site vehicle tracking, spill prevention and response, sanitation, and non-stormwater discharges.

Standard 9: Operation and Maintenance Plan

A post-construction operation and maintenance plan has been prepared and will be implemented to ensure that stormwater management systems function as designed. Source control and stormwater BMP operation requirements are summarized in the Long-Term Pollution Prevention Plan and Operation and Maintenance Plan provided in Appendix C.

Standard 10: Prohibition of Illicit Discharges

There will be no illicit discharges to the stormwater management system associated with this project.

6.0 TOTAL MAXIMUM DAILY LOAD

The project site discharges into a closed drainage system that eventually drains to Boston Harbor. A Draft Pathogen TMDL for the Boston Harbor Watershed (excluding the Neponset River sub-basin) was issued by DEP and the Environmental Protection Agency (EPA).

The TMDL identifies stormwater runoff as a source of bacteria. The proposed project includes a rainwater recharge system which is sized to store 1.25 inches of runoff over the impervious area being directed to it. Therefore, it is anticipated that the bacteria load from the proposed project site will be less than the existing load, and the project will comply with the requirements of the TMDL.

7.0 CONCLUSION

In conclusion, the proposed 65 Northern Avenue /88 Seaport project will reduce peak runoff rates and improve the water quality of stormwater being discharged from the Project Site. The project has been designed in accordance with the MassDEP Stormwater Management Standards.

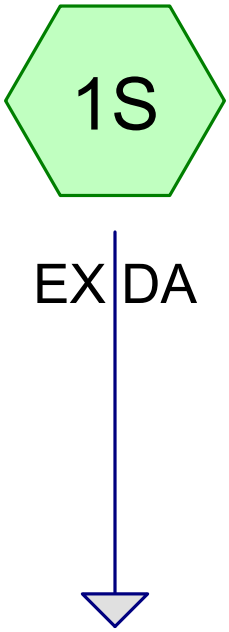
APPENDICES

Appendix A Existing Conditions – HydroCAD Calculations
Appendix B Proposed Conditions – HydroCAD Calculations
Appendix C Long-Term Pollution Prevention and Stormwater Operation and Maintenance Plan
Appendix D MassDEP Checklist for Stormwater Report and Illicit Discharge Compliance Statement
Appendix E Geotechnical Memorandum

APPENDIX A

Existing Conditions – HydroCAD Calculations

EX



Subcat Reach Pond Link

Routing Diagram for 10684.5 HydroCAD
Prepared by Nitsch Engineering, Printed 9/8/2021

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1.25"	NOAA 24-hr	D	Default	24.00	1	1.25	2
2	2 Year Atlas 14	NOAA 24-hr	D	Default	24.00	1	3.22	2
3	5 Year Atlas 14	NOAA 24-hr	D	Default	24.00	1	4.25	2
4	10 Year Boston Storm BPDA	NOAA 24-hr	D	Default	24.00	1	5.50	2
5	25 Year Atlas 14	NOAA 24-hr	D	Default	24.00	1	6.25	2
6	100 Year Atlas 14	NOAA 24-hr	D	Default	24.00	1	8.05	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.396	98	Paved parking, HSG C (1S)
1.396	**98**	**TOTAL AREA**

Soil Listing (selected nodes)

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

Ground Covers (selected 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	1.396	0.000	0.000	1.396	Paved parking	1S
0.000	**0.000**	**1.396**	**0.000**	**0.000**	**1.396**	**TOTAL AREA**	

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

Subcatchment1S: EX DA Runoff Area=60,820 sf 100.00% Impervious Runoff Depth>0.96"
Tc=6.0 min CN=98 Runoff=1.52 cfs 0.112 af

Reach 4R: EX DP Inflow=1.52 cfs 0.112 af
Outflow=1.52 cfs 0.112 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.112 af Average Runoff Depth = 0.96"
0.00% Pervious = 0.000 ac 100.00% Impervious = 1.396 ac

Summary for Subcatchment 1S: EX DA

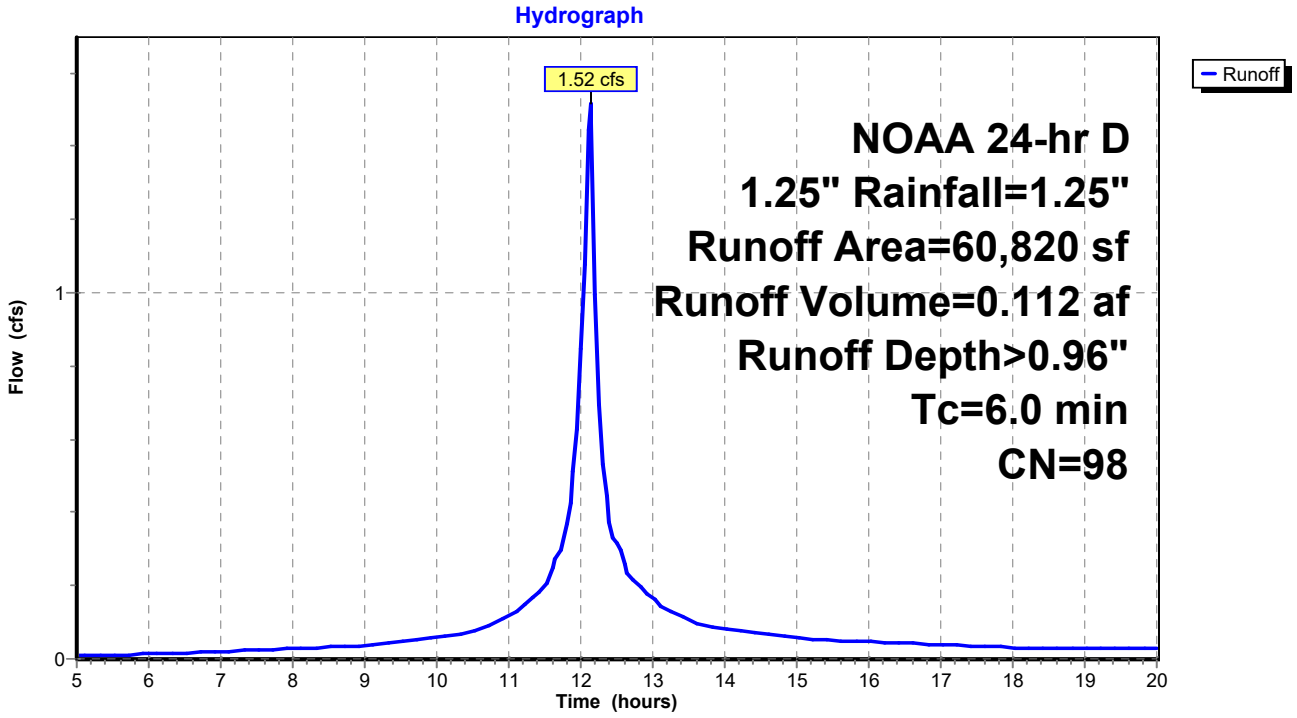
Runoff = 1.52 cfs @ 12.13 hrs, Volume= 0.112 af, Depth> 0.96"
Routed to Reach 4R : EX DP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 1.25" Rainfall=1.25"

Area (sf)	CN	Description
60,820	98	Paved parking, HSG C
60,820		100.00% Impervious Area

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

Subcatchment 1S: EX DA



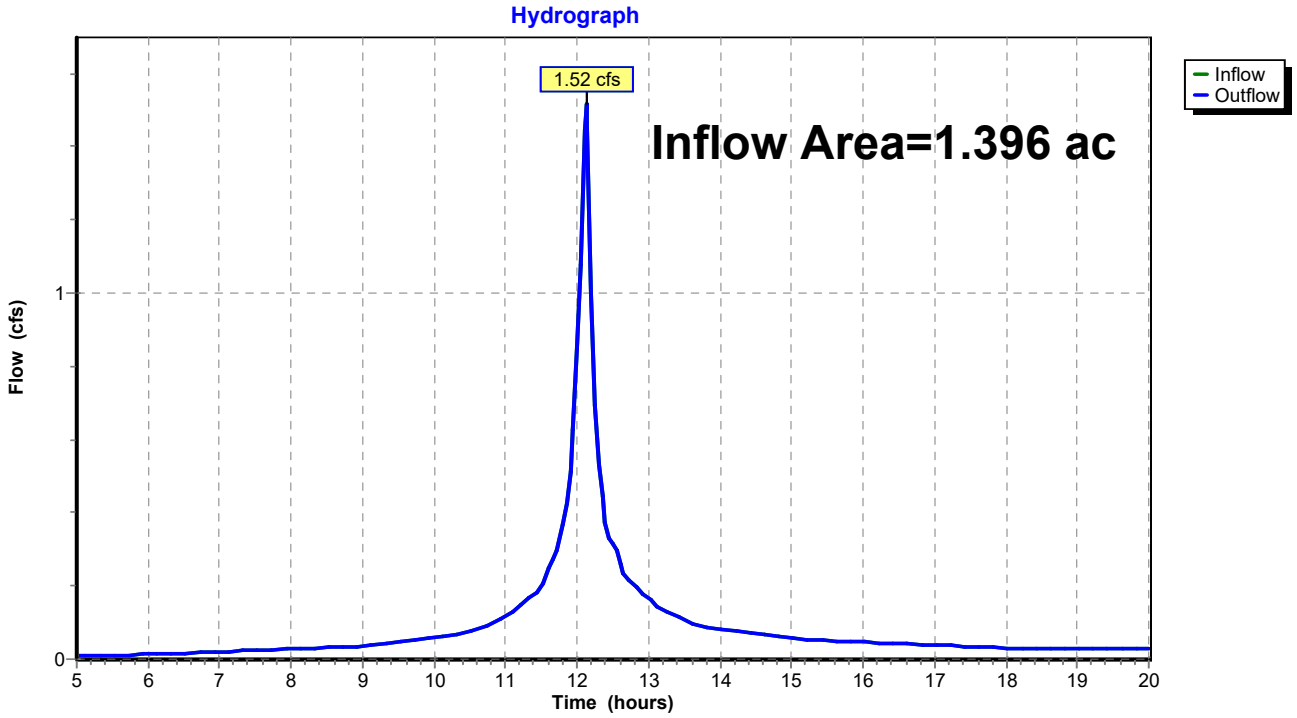
Summary for Reach 4R: EX DP

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

Inflow Area = 1.396 ac,100.00% Impervious, Inflow Depth > 0.96" for 1.25" event
Inflow = 1.52 cfs @ 12.13 hrs, Volume= 0.112 af
Outflow = 1.52 cfs @ 12.13 hrs, Volume= 0.112 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 4R: EX DP



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

Subcatchment1S: EX DA Runoff Area=60,820 sf 100.00% Impervious Runoff Depth>2.74"
Tc=6.0 min CN=98 Runoff=4.12 cfs 0.318 af

Reach 4R: EX DP Inflow=4.12 cfs 0.318 af
Outflow=4.12 cfs 0.318 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.318 af Average Runoff Depth = 2.74"
0.00% Pervious = 0.000 ac 100.00% Impervious = 1.396 ac

Summary for Subcatchment 1S: EX DA

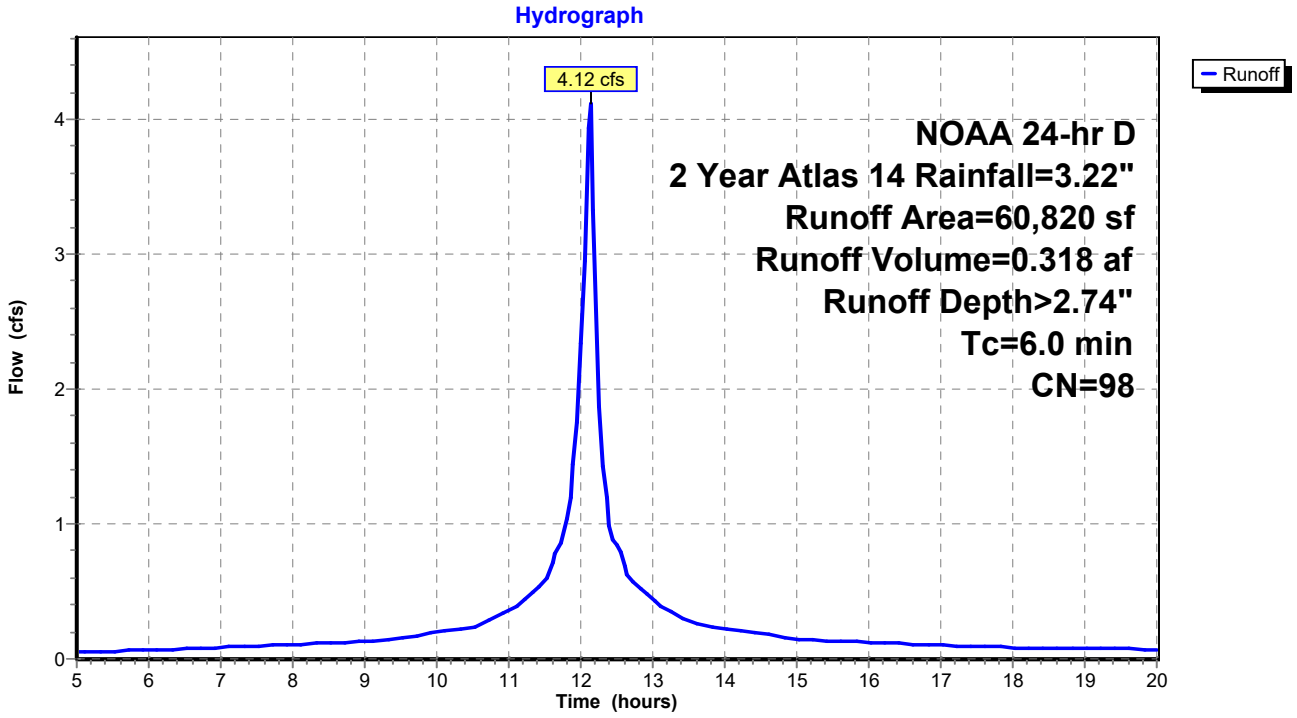
Runoff = 4.12 cfs @ 12.13 hrs, Volume= 0.318 af, Depth> 2.74"
Routed to Reach 4R : EX DP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2 Year Atlas 14 Rainfall=3.22"

Area (sf)	CN	Description
60,820	98	Paved parking, HSG C
60,820		100.00% Impervious Area

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

Subcatchment 1S: EX DA

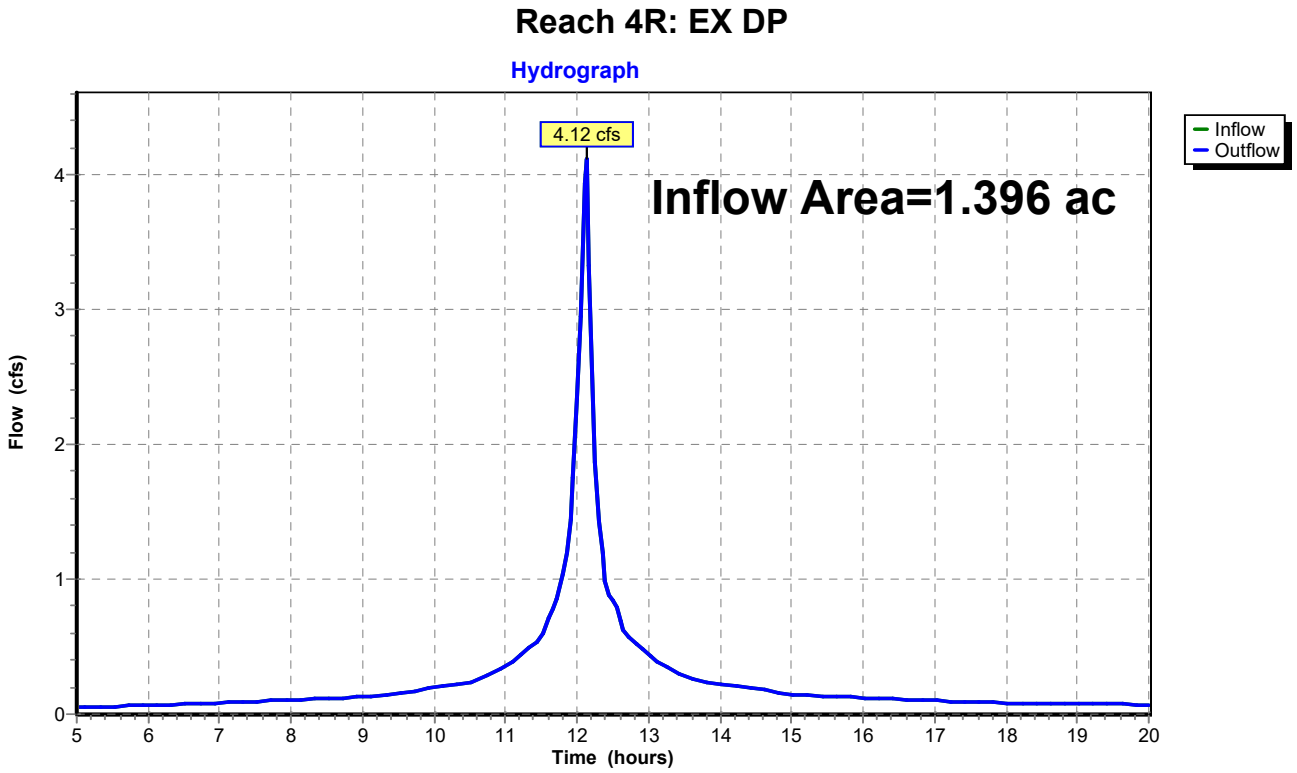


Summary for Reach 4R: EX DP

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

Inflow Area = 1.396 ac,100.00% Impervious, Inflow Depth > 2.74" for 2 Year Atlas 14 event
Inflow = 4.12 cfs @ 12.13 hrs, Volume= 0.318 af
Outflow = 4.12 cfs @ 12.13 hrs, Volume= 0.318 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



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

Subcatchment1S: EX DA Runoff Area=60,820 sf 100.00% Impervious Runoff Depth>3.66"
Tc=6.0 min CN=98 Runoff=5.47 cfs 0.425 af

Reach 4R: EX DP Inflow=5.47 cfs 0.425 af
Outflow=5.47 cfs 0.425 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.425 af Average Runoff Depth = 3.66"
0.00% Pervious = 0.000 ac 100.00% Impervious = 1.396 ac

Summary for Subcatchment 1S: EX DA

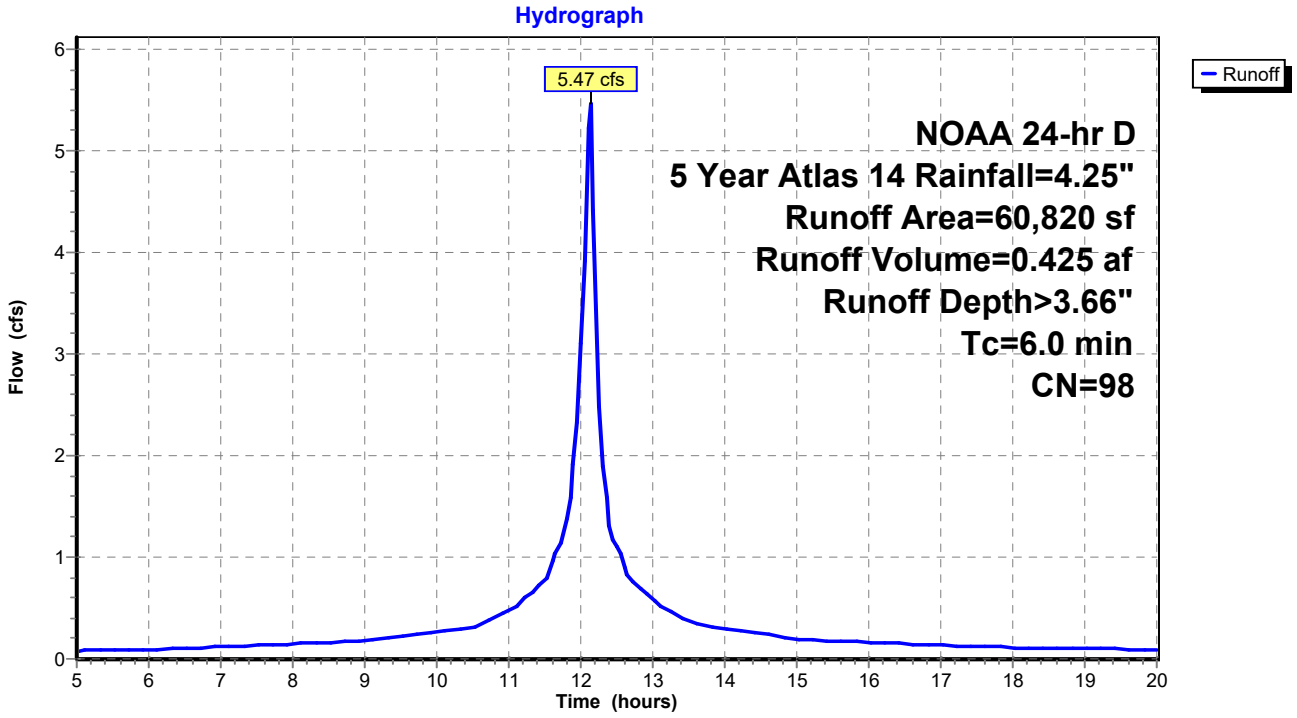
Runoff = 5.47 cfs @ 12.13 hrs, Volume= 0.425 af, Depth> 3.66"
Routed to Reach 4R : EX DP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 5 Year Atlas 14 Rainfall=4.25"

Area (sf)	CN	Description
60,820	98	Paved parking, HSG C
60,820		100.00% Impervious Area

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

Subcatchment 1S: EX DA



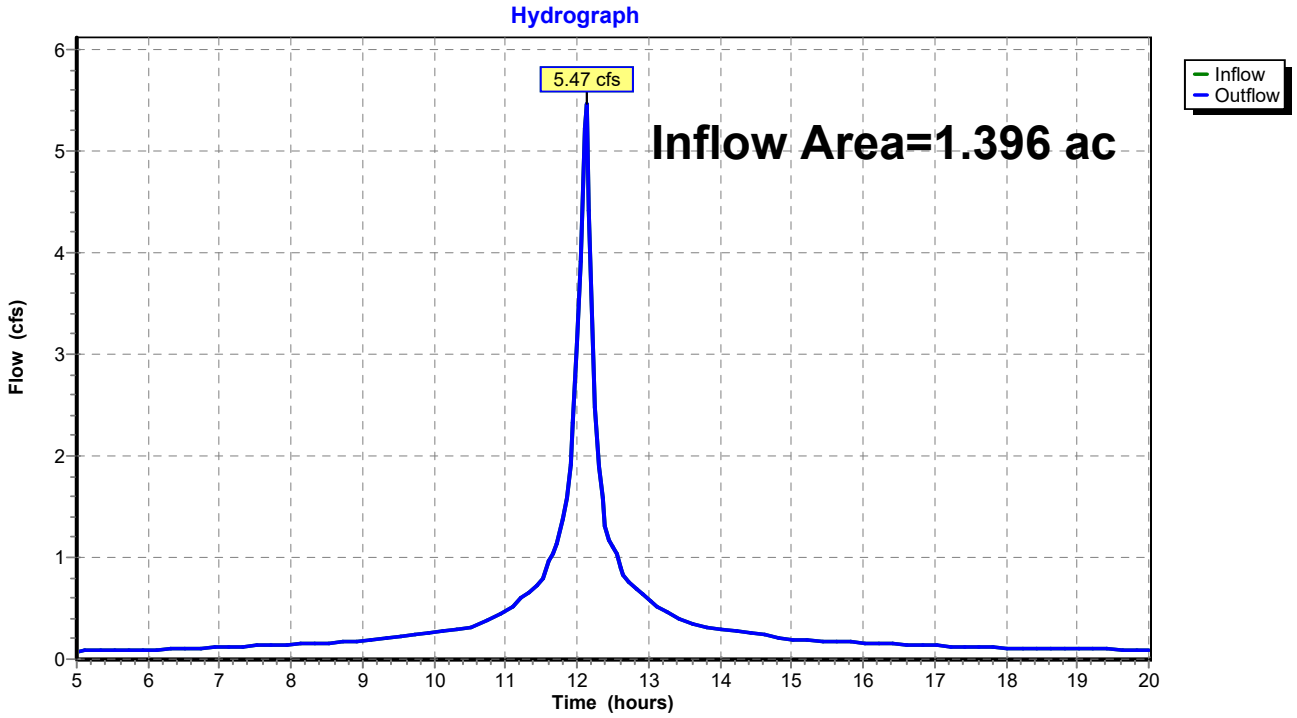
Summary for Reach 4R: EX DP

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

Inflow Area = 1.396 ac,100.00% Impervious, Inflow Depth > 3.66" for 5 Year Atlas 14 event
Inflow = 5.47 cfs @ 12.13 hrs, Volume= 0.425 af
Outflow = 5.47 cfs @ 12.13 hrs, Volume= 0.425 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 4R: EX DP



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

Subcatchment1S: EX DA Runoff Area=60,820 sf 100.00% Impervious Runoff Depth>4.77"
Tc=6.0 min CN=98 Runoff=7.10 cfs 0.555 af

Reach 4R: EX DP Inflow=7.10 cfs 0.555 af
Outflow=7.10 cfs 0.555 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.555 af Average Runoff Depth = 4.77"
0.00% Pervious = 0.000 ac 100.00% Impervious = 1.396 ac

Summary for Subcatchment 1S: EX DA

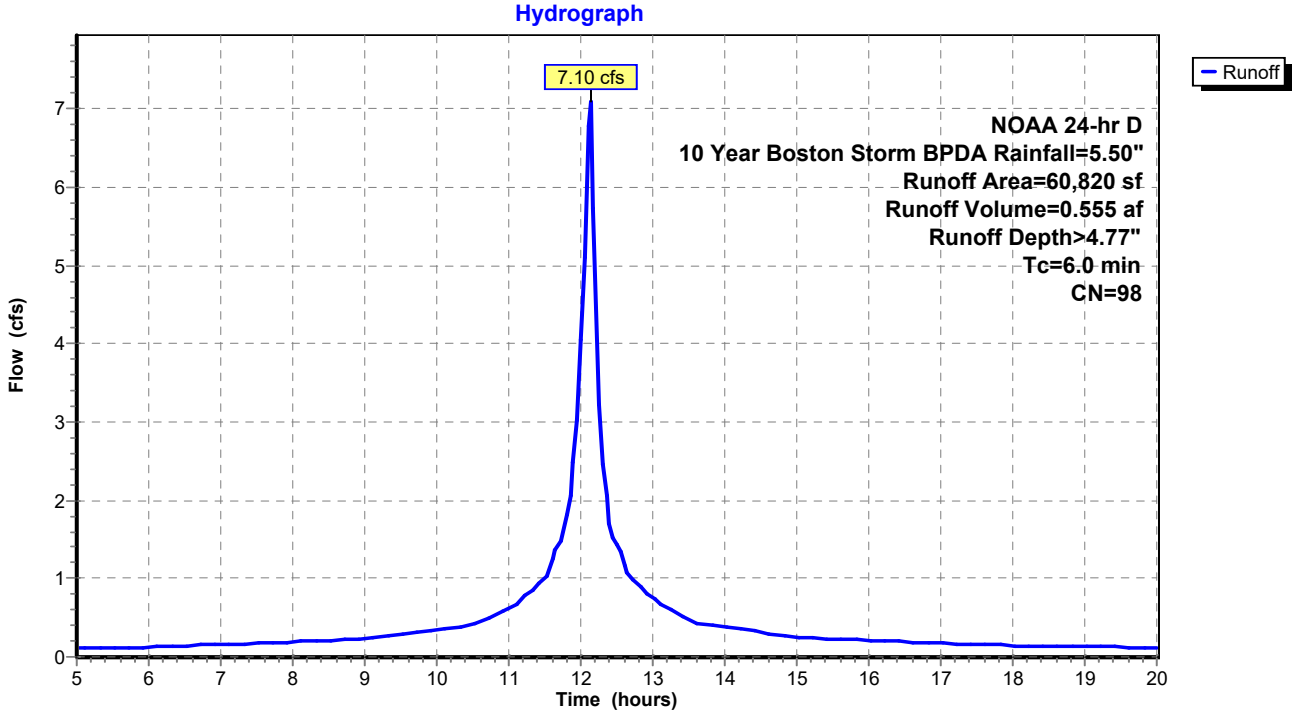
Runoff = 7.10 cfs @ 12.13 hrs, Volume= 0.555 af, Depth> 4.77"
Routed to Reach 4R : EX DP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10 Year Boston Storm BPDA Rainfall=5.50"

Area (sf)	CN	Description
60,820	98	Paved parking, HSG C
60,820		100.00% Impervious Area

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

Subcatchment 1S: EX DA



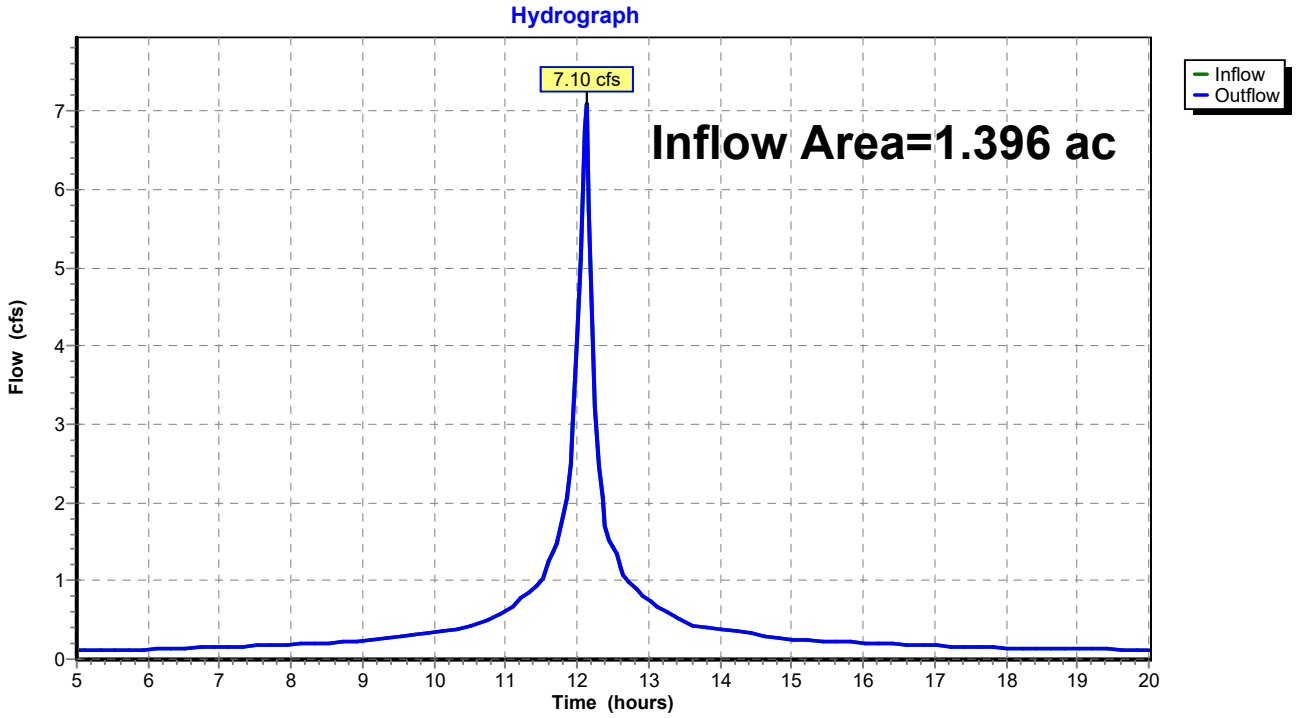
Summary for Reach 4R: EX DP

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

Inflow Area = 1.396 ac,100.00% Impervious, Inflow Depth > 4.77" for 10 Year Boston Storm BPDA event
Inflow = 7.10 cfs @ 12.13 hrs, Volume= 0.555 af
Outflow = 7.10 cfs @ 12.13 hrs, Volume= 0.555 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 4R: EX DP



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

Subcatchment1S: EX DA Runoff Area=60,820 sf 100.00% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=98 Runoff=8.07 cfs 0.632 af

Reach 4R: EX DP Inflow=8.07 cfs 0.632 af
Outflow=8.07 cfs 0.632 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.632 af Average Runoff Depth = 5.44"
0.00% Pervious = 0.000 ac 100.00% Impervious = 1.396 ac

Summary for Subcatchment 1S: EX DA

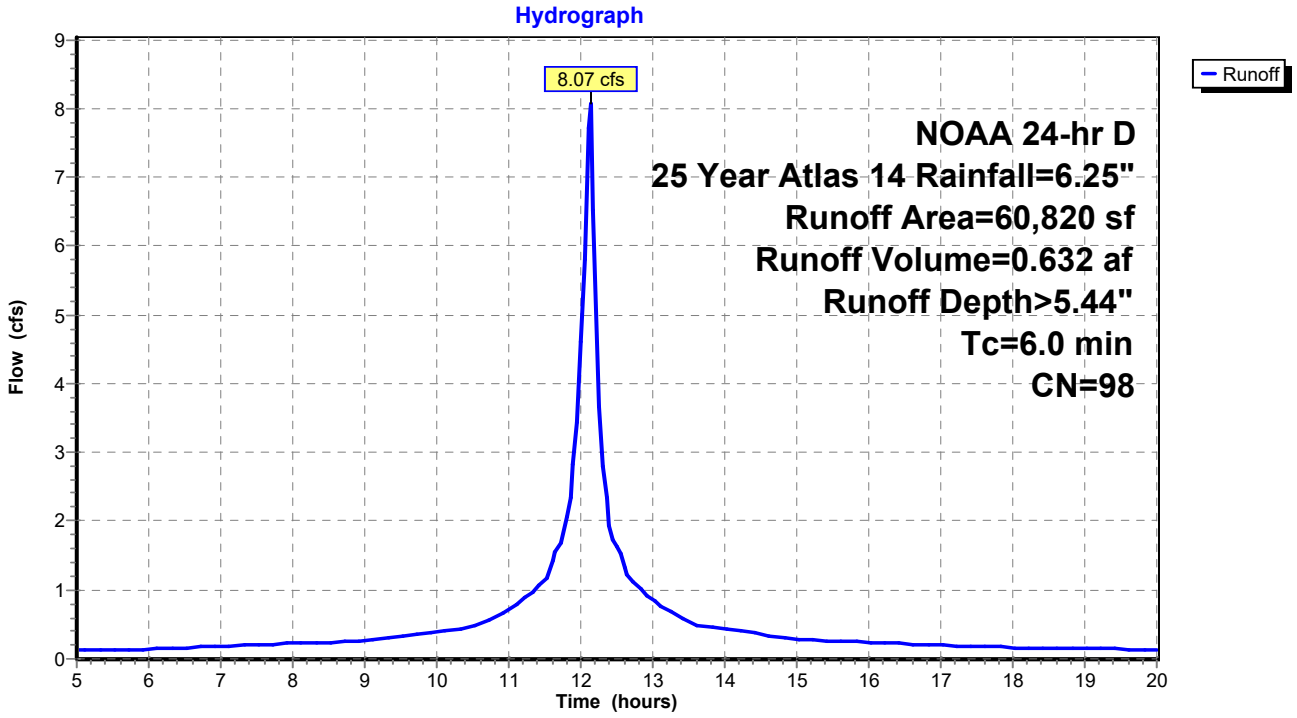
Runoff = 8.07 cfs @ 12.13 hrs, Volume= 0.632 af, Depth> 5.44"
Routed to Reach 4R : EX DP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25 Year Atlas 14 Rainfall=6.25"

Area (sf)	CN	Description
60,820	98	Paved parking, HSG C
60,820		100.00% Impervious Area

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

Subcatchment 1S: EX DA



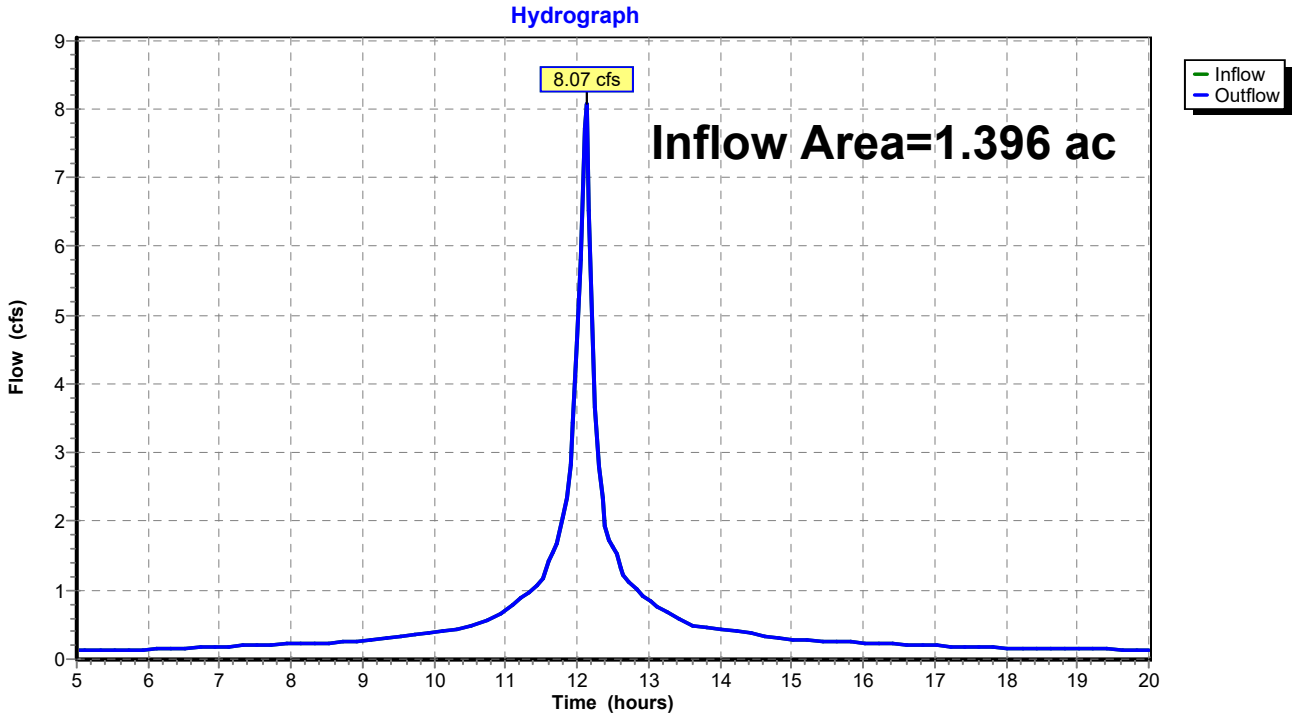
Summary for Reach 4R: EX DP

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

Inflow Area = 1.396 ac,100.00% Impervious, Inflow Depth > 5.44" for 25 Year Atlas 14 event
Inflow = 8.07 cfs @ 12.13 hrs, Volume= 0.632 af
Outflow = 8.07 cfs @ 12.13 hrs, Volume= 0.632 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 4R: EX DP



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

Subcatchment1S: EX DA Runoff Area=60,820 sf 100.00% Impervious Runoff Depth>7.03"
Tc=6.0 min CN=98 Runoff=10.41 cfs 0.818 af

Reach 4R: EX DP Inflow=10.41 cfs 0.818 af
Outflow=10.41 cfs 0.818 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.818 af Average Runoff Depth = 7.03"
0.00% Pervious = 0.000 ac 100.00% Impervious = 1.396 ac

Summary for Subcatchment 1S: EX DA

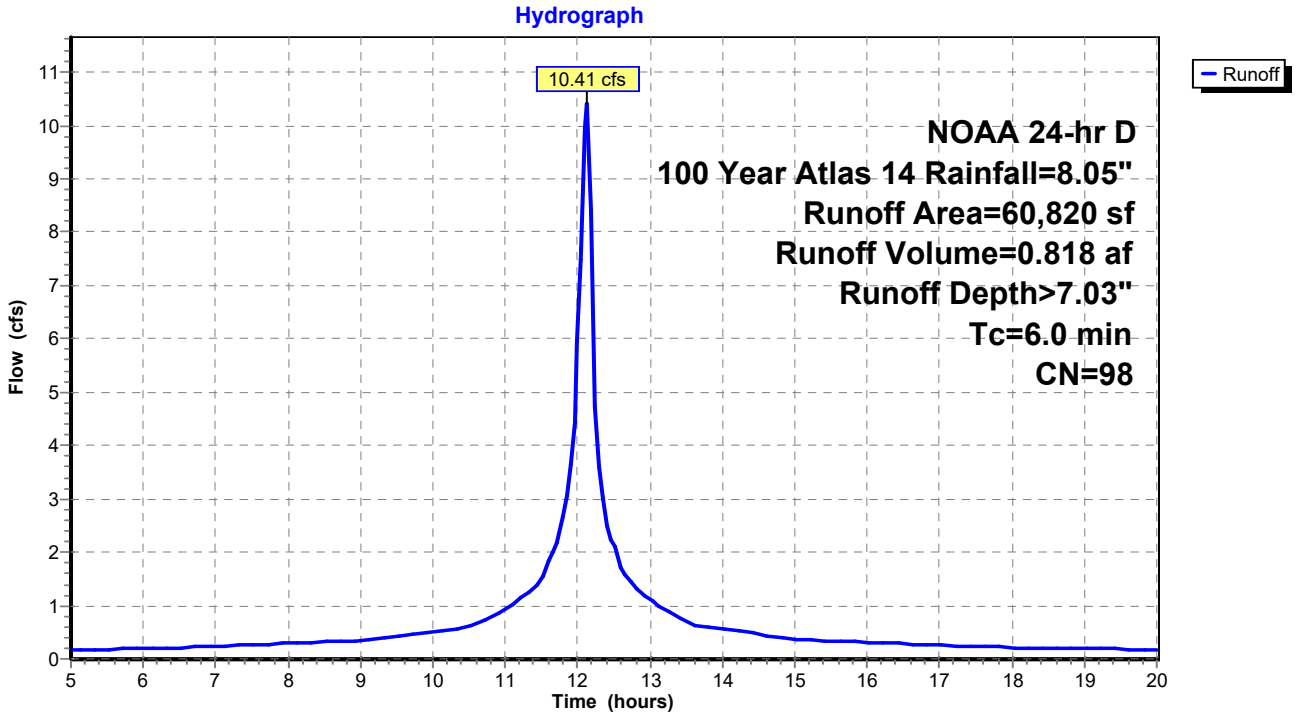
Runoff = 10.41 cfs @ 12.13 hrs, Volume= 0.818 af, Depth> 7.03"
Routed to Reach 4R : EX DP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100 Year Atlas 14 Rainfall=8.05"

Area (sf)	CN	Description
60,820	98	Paved parking, HSG C
60,820		100.00% Impervious Area

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

Subcatchment 1S: EX DA



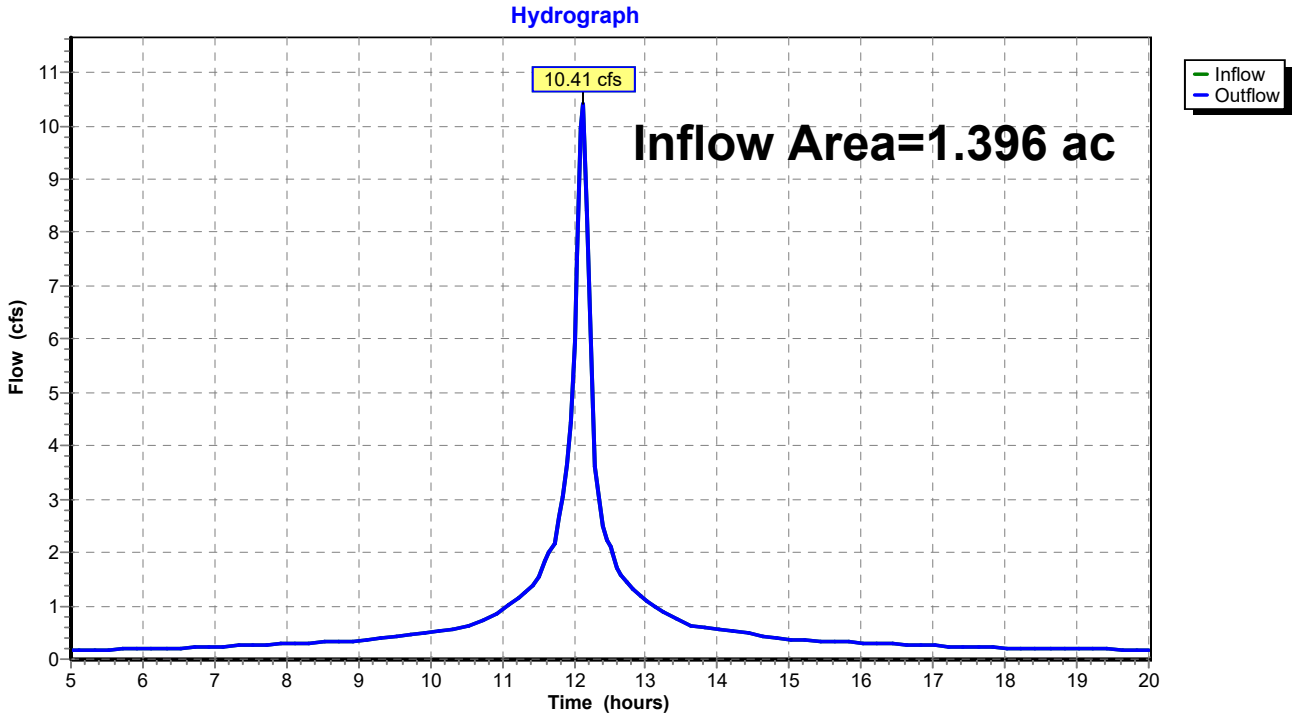
Summary for Reach 4R: EX DP

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

Inflow Area = 1.396 ac,100.00% Impervious, Inflow Depth > 7.03" for 100 Year Atlas 14 event
Inflow = 10.41 cfs @ 12.13 hrs, Volume= 0.818 af
Outflow = 10.41 cfs @ 12.13 hrs, Volume= 0.818 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

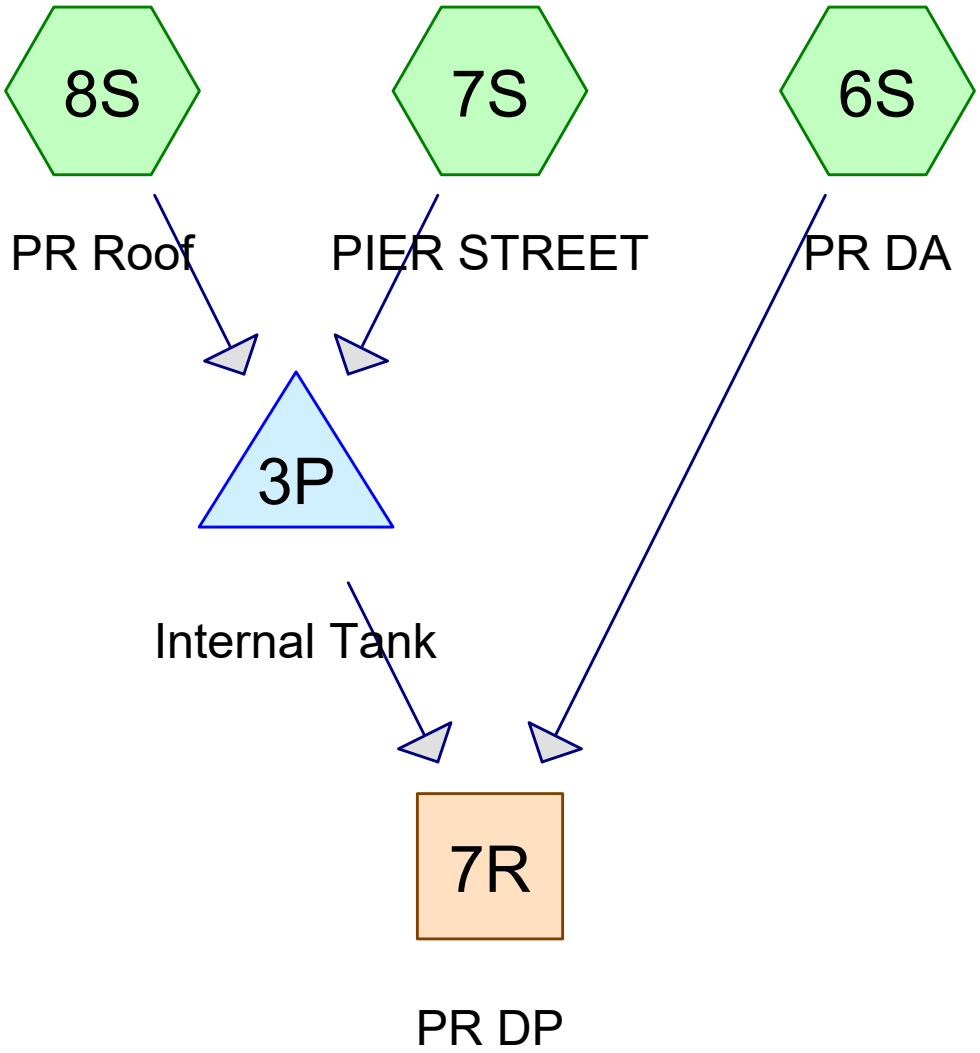
Reach 4R: EX DP



APPENDIX B

Proposed Conditions – HydroCAD Calculations

PR



Subcat Reach Pond Link

Routing Diagram for 10684.5 HydroCAD
Prepared by Nitsch Engineering, Printed 9/8/2021

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1.25"	NOAA 24-hr	D	Default	24.00	1	1.25	2
2	2 Year Atlas 14	NOAA 24-hr	D	Default	24.00	1	3.22	2
3	5 Year Atlas 14	NOAA 24-hr	D	Default	24.00	1	4.25	2
4	10 Year Boston Storm BPDA	NOAA 24-hr	D	Default	24.00	1	5.50	2
5	25 Year Atlas 14	NOAA 24-hr	D	Default	24.00	1	6.25	2
6	100 Year Atlas 14	NOAA 24-hr	D	Default	24.00	1	8.05	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.612	98	Paved parking, HSG C (6S, 7S)
0.785	98	Roofs, HSG C (8S)
1.396	**98**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
1.396	HSG C	6S, 7S, 8S
0.000	HSG D	
0.000	Other	
1.396		**TOTAL AREA**

Ground Covers (selected 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	0.612	0.000	0.000	0.612	Paved parking	6S, 7S
0.000	0.000	0.785	0.000	0.000	0.785	Roofs	8S
0.000	**0.000**	**1.396**	**0.000**	**0.000**	**1.396**	**TOTAL AREA**	

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

Subcatchment6S: PR DA Runoff Area=19,104 sf 100.00% Impervious Runoff Depth>0.96"
Tc=6.0 min CN=98 Runoff=0.48 cfs 0.035 af

Subcatchment7S: PIER STREET Runoff Area=7,538 sf 100.00% Impervious Runoff Depth>0.96"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.014 af

Subcatchment8S: PR Roof Runoff Area=34,178 sf 100.00% Impervious Runoff Depth>0.96"
Tc=6.0 min CN=98 Runoff=0.85 cfs 0.063 af

Reach 7R: PR DP Inflow=0.48 cfs 0.035 af
Outflow=0.48 cfs 0.035 af

Pond 3P: Internal Tank Peak Elev=0.52' Storage=3,342 cf Inflow=1.04 cfs 0.077 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.112 af Average Runoff Depth = 0.96"
0.00% Pervious = 0.000 ac 100.00% Impervious = 1.396 ac

Summary for Subcatchment 6S: PR DA

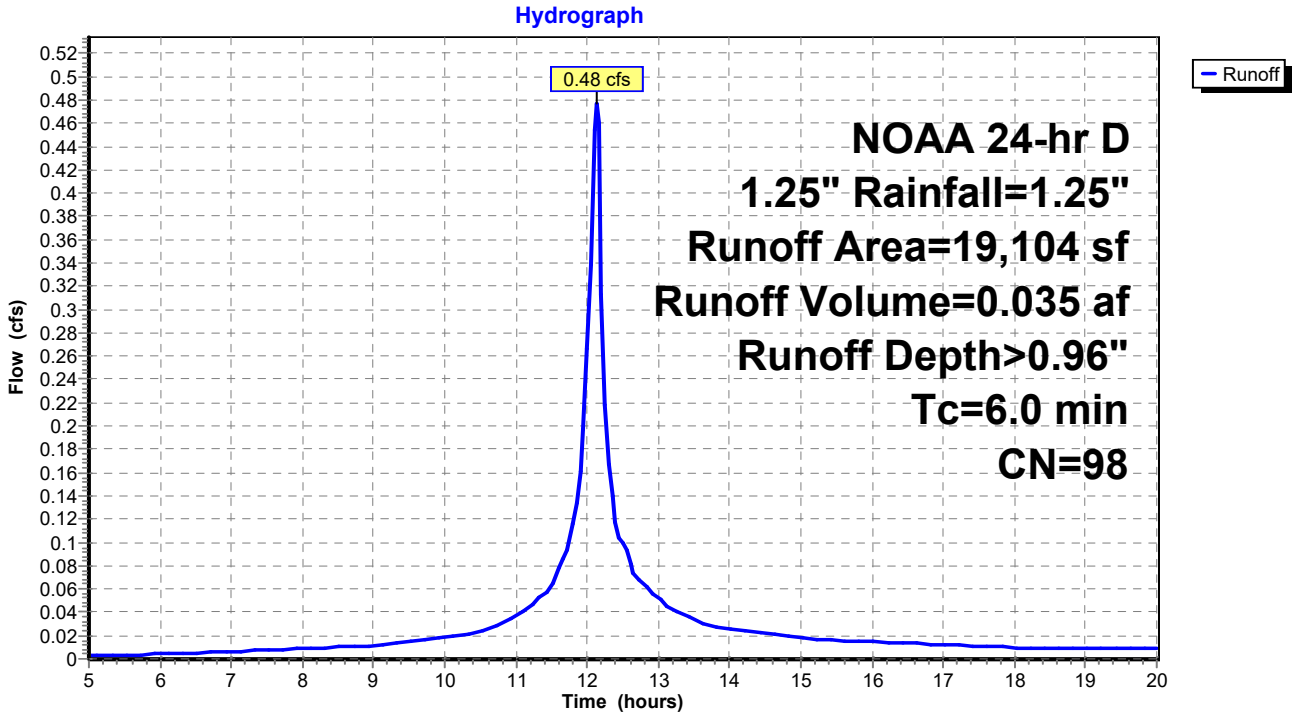
Runoff = 0.48 cfs @ 12.13 hrs, Volume= 0.035 af, Depth> 0.96"
Routed to Reach 7R : PR DP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 1.25" Rainfall=1.25"

Area (sf)	CN	Description
19,104	98	Paved parking, HSG C
19,104		100.00% Impervious Area

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

Subcatchment 6S: PR DA



Summary for Subcatchment 7S: PIER STREET

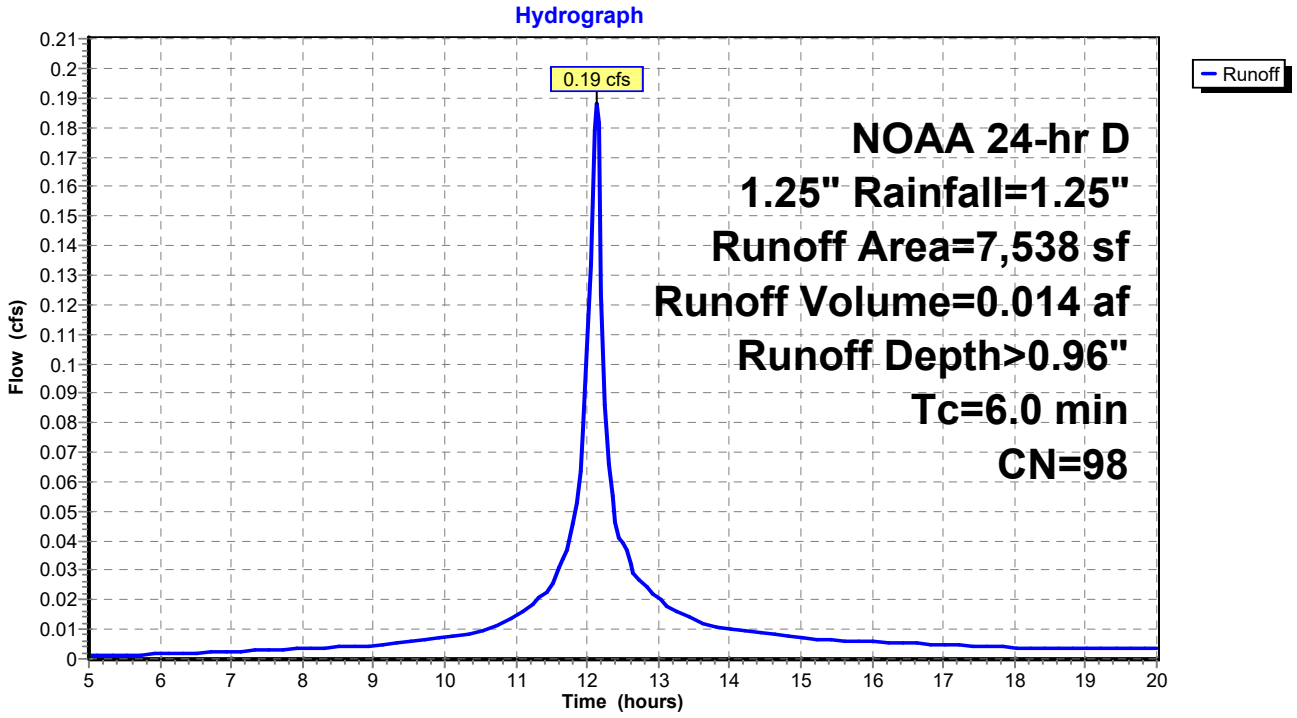
Runoff = 0.19 cfs @ 12.13 hrs, Volume= 0.014 af, Depth> 0.96"
Routed to Pond 3P : Internal Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 1.25" Rainfall=1.25"

Area (sf)	CN	Description
7,538	98	Paved parking, HSG C
7,538		100.00% Impervious Area

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

Subcatchment 7S: PIER STREET



Summary for Subcatchment 8S: PR Roof

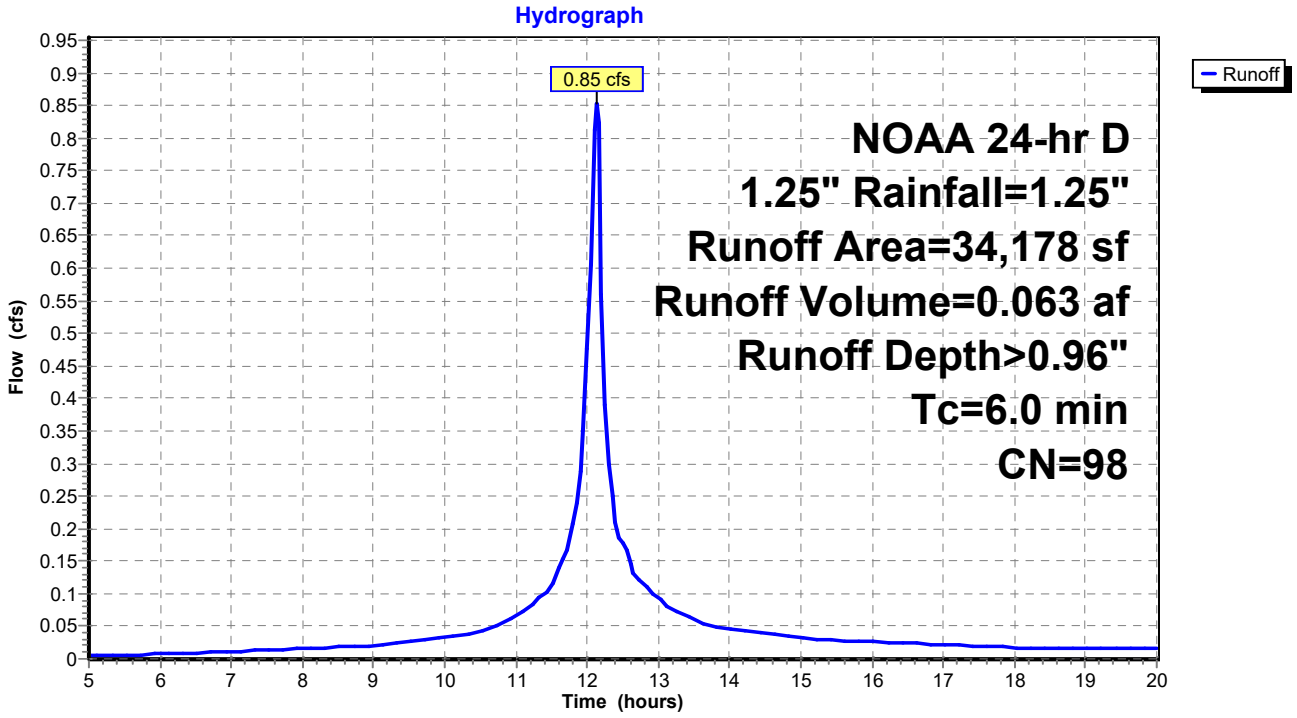
Runoff = 0.85 cfs @ 12.13 hrs, Volume= 0.063 af, Depth> 0.96"
Routed to Pond 3P : Internal Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 1.25" Rainfall=1.25"

Area (sf)	CN	Description
34,178	98	Roofs, HSG C
34,178		100.00% Impervious Area

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

Subcatchment 8S: PR Roof



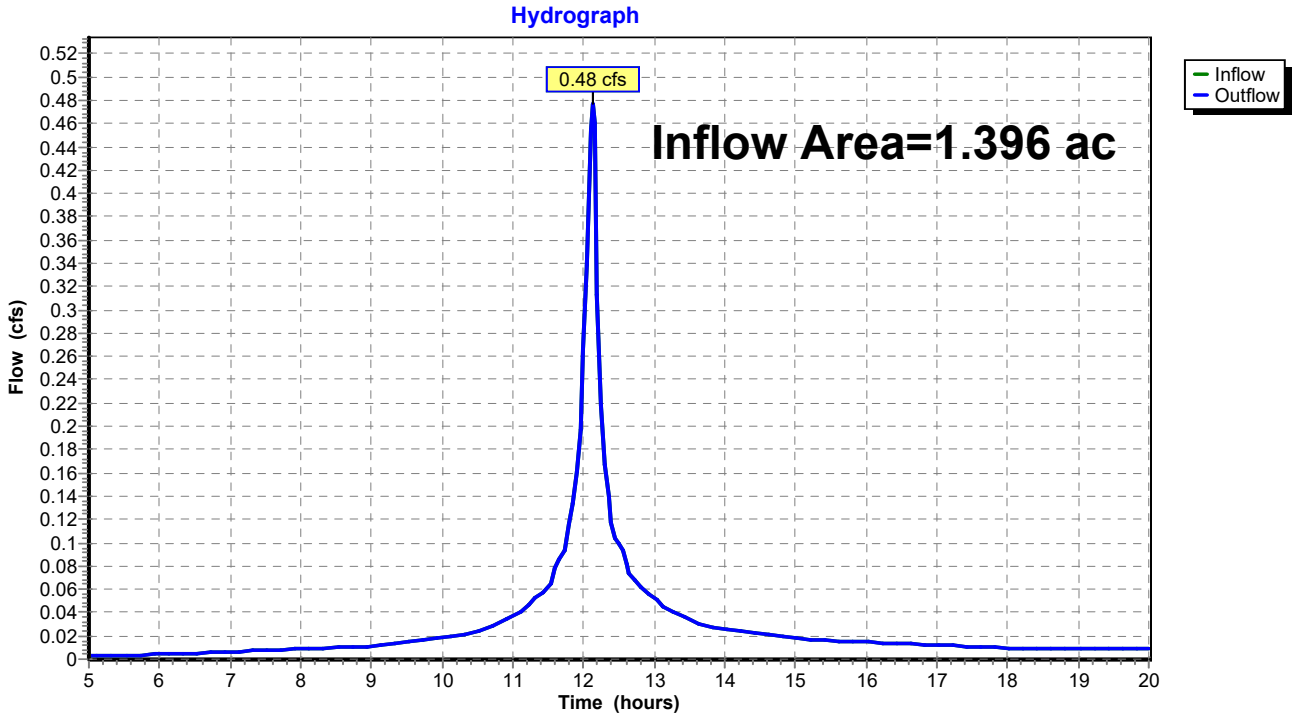
Summary for Reach 7R: PR DP

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

Inflow Area = 1.396 ac,100.00% Impervious, Inflow Depth > 0.30" for 1.25" event
Inflow = 0.48 cfs @ 12.13 hrs, Volume= 0.035 af
Outflow = 0.48 cfs @ 12.13 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 7R: PR DP



Summary for Pond 3P: Internal Tank

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.958 ac,100.00% Impervious, Inflow Depth > 0.96" for 1.25" event
Inflow = 1.04 cfs @ 12.13 hrs, Volume= 0.077 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach 7R : PR DP

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 0.52' @ 20.00 hrs Surf.Area= 6,416 sf Storage= 3,342 cf

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

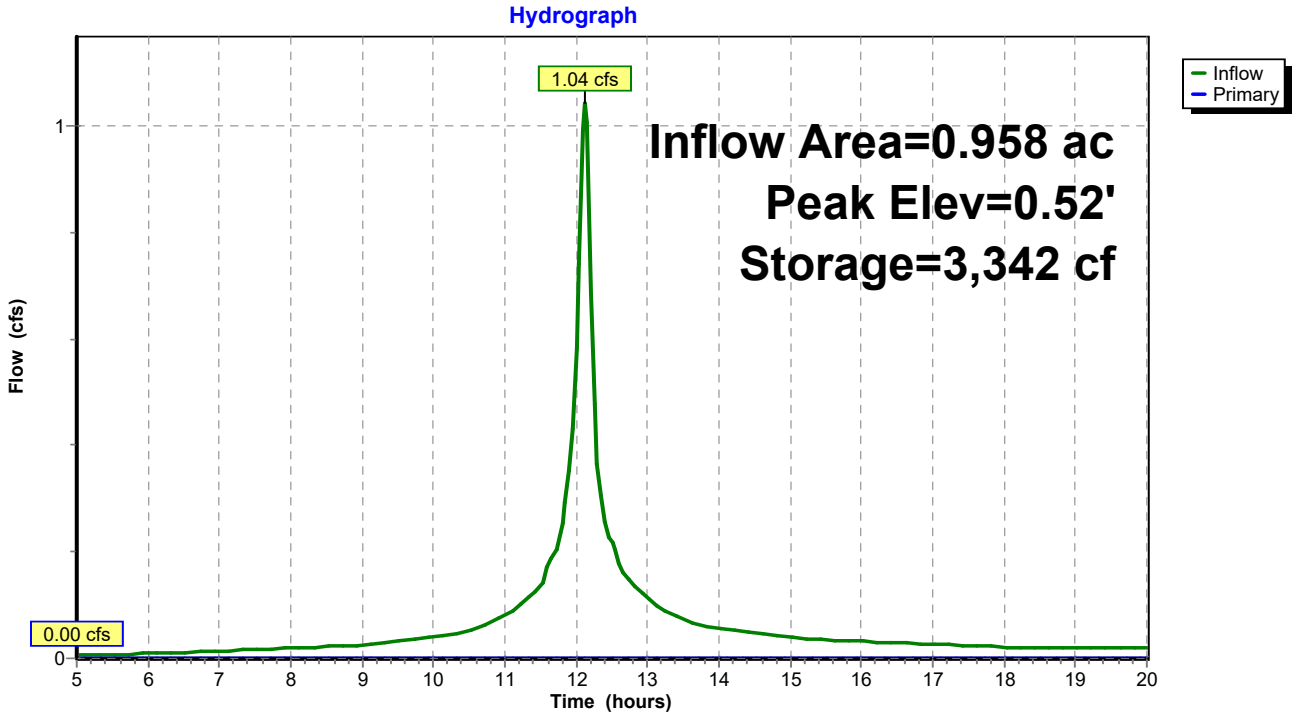
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	9,627 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	6,416	0	0
1.00	6,416	6,416	6,416
2.00	5	3,211	9,627

Device	Routing	Invert	Outlet Devices
#1	Primary	1.00'	**15.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads

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

Pond 3P: Internal Tank



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

Subcatchment6S: PR DA Runoff Area=19,104 sf 100.00% Impervious Runoff Depth>2.74"
Tc=6.0 min CN=98 Runoff=1.29 cfs 0.100 af

Subcatchment7S: PIER STREET Runoff Area=7,538 sf 100.00% Impervious Runoff Depth>2.74"
Tc=6.0 min CN=98 Runoff=0.51 cfs 0.039 af

Subcatchment8S: PR Roof Runoff Area=34,178 sf 100.00% Impervious Runoff Depth>2.74"
Tc=6.0 min CN=98 Runoff=2.32 cfs 0.179 af

Reach 7R: PR DP Inflow=1.29 cfs 0.161 af
Outflow=1.29 cfs 0.161 af

Pond 3P: Internal Tank Peak Elev=1.13' Storage=7,213 cf Inflow=2.83 cfs 0.218 af
Outflow=0.17 cfs 0.061 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.318 af Average Runoff Depth = 2.74"
0.00% Pervious = 0.000 ac 100.00% Impervious = 1.396 ac

Summary for Subcatchment 6S: PR DA

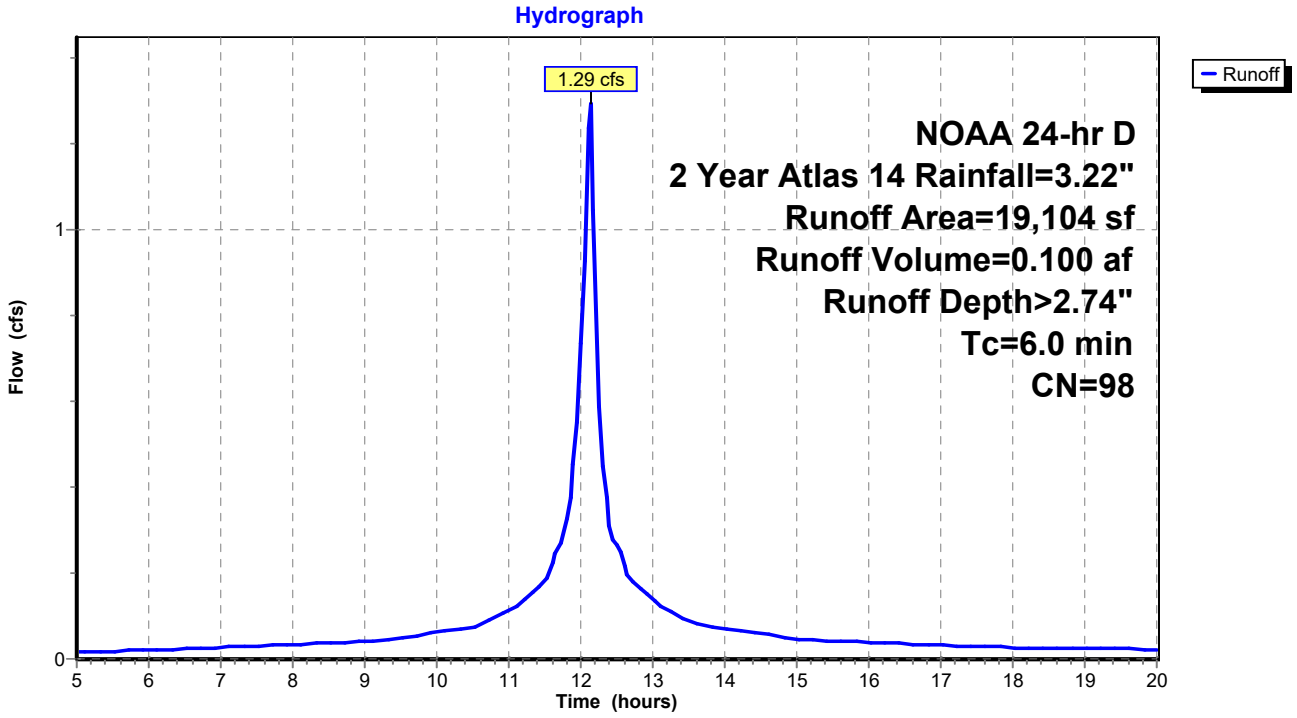
Runoff = 1.29 cfs @ 12.13 hrs, Volume= 0.100 af, Depth> 2.74"
Routed to Reach 7R : PR DP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2 Year Atlas 14 Rainfall=3.22"

Area (sf)	CN	Description
19,104	98	Paved parking, HSG C
19,104		100.00% Impervious Area

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

Subcatchment 6S: PR DA



Summary for Subcatchment 7S: PIER STREET

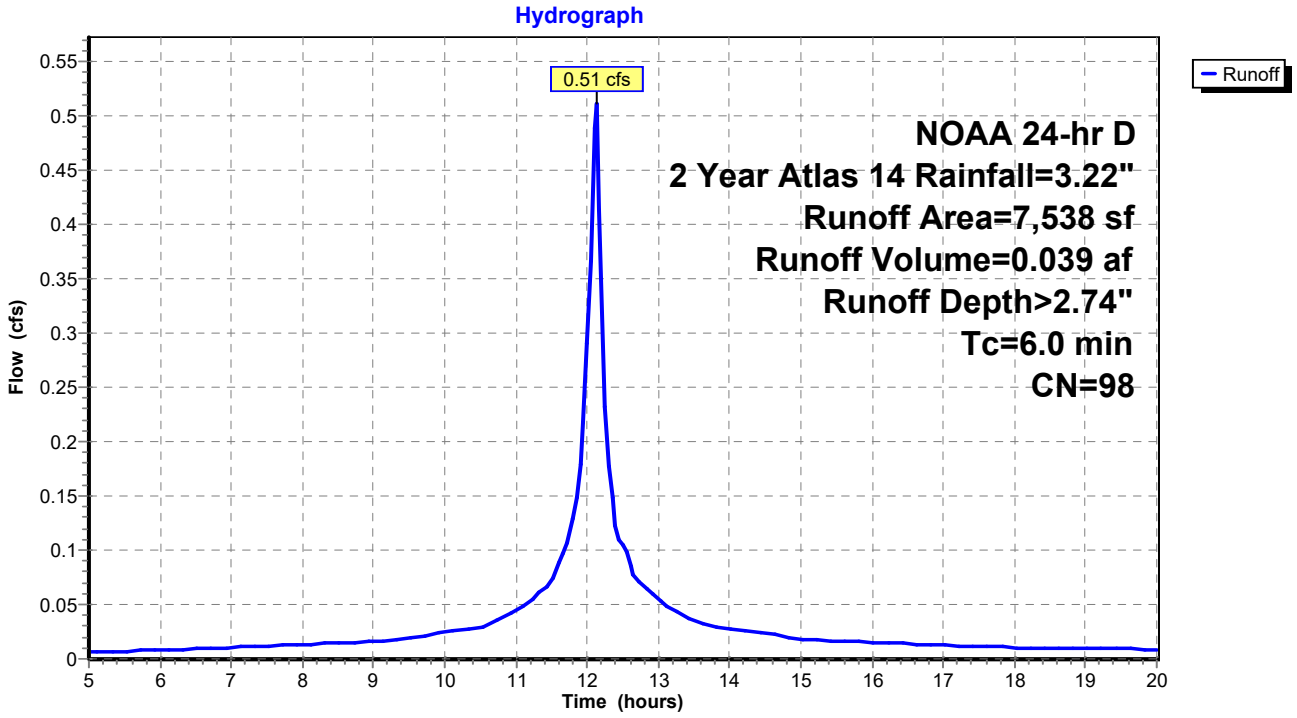
Runoff = 0.51 cfs @ 12.13 hrs, Volume= 0.039 af, Depth> 2.74"
Routed to Pond 3P : Internal Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2 Year Atlas 14 Rainfall=3.22"

Area (sf)	CN	Description
7,538	98	Paved parking, HSG C
7,538		100.00% Impervious Area

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

Subcatchment 7S: PIER STREET



Summary for Subcatchment 8S: PR Roof

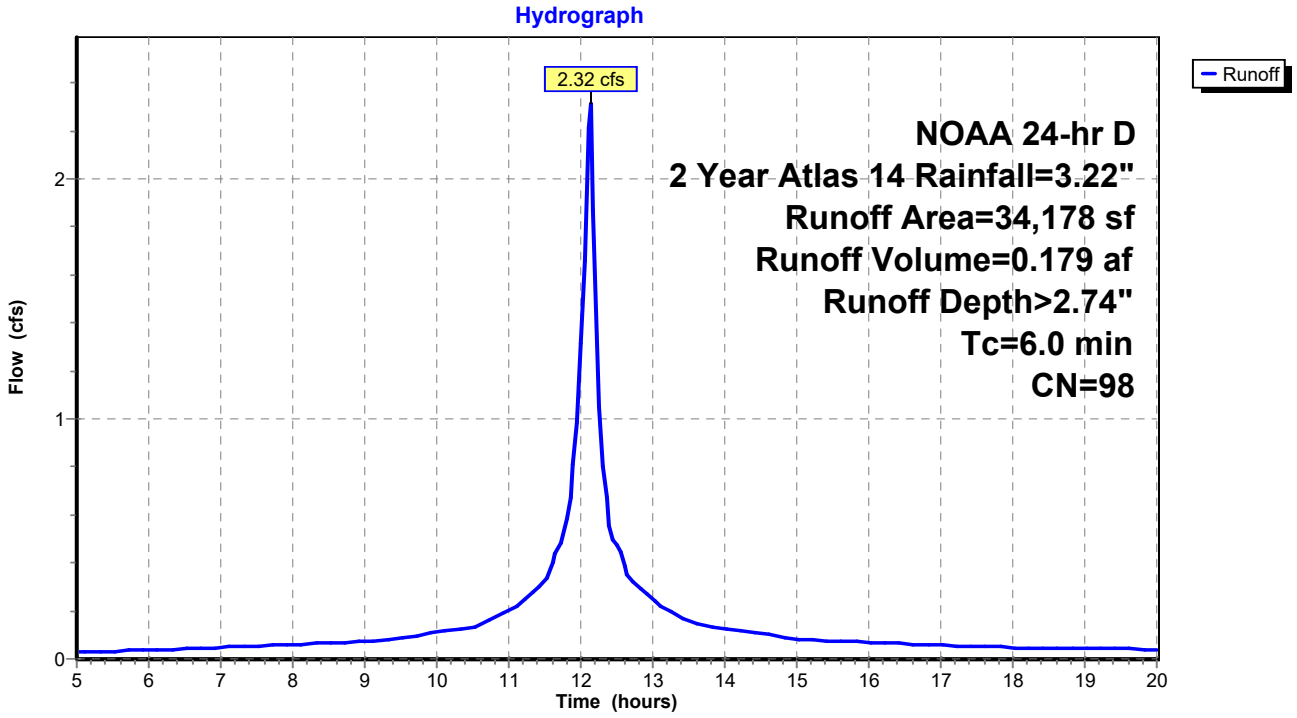
Runoff = 2.32 cfs @ 12.13 hrs, Volume= 0.179 af, Depth> 2.74"
Routed to Pond 3P : Internal Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2 Year Atlas 14 Rainfall=3.22"

Area (sf)	CN	Description
34,178	98	Roofs, HSG C
34,178		100.00% Impervious Area

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

Subcatchment 8S: PR Roof

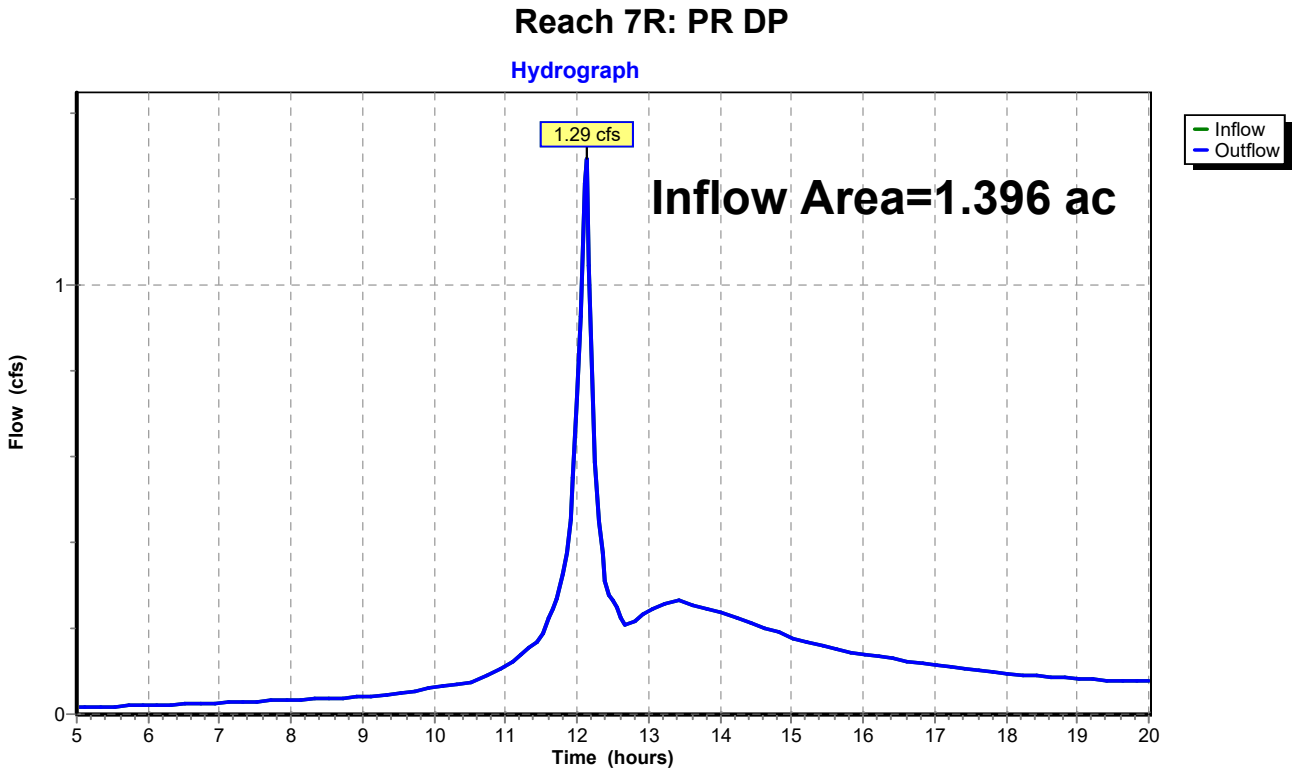


Summary for Reach 7R: PR DP

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

Inflow Area = 1.396 ac,100.00% Impervious, Inflow Depth > 1.38" for 2 Year Atlas 14 event
Inflow = 1.29 cfs @ 12.13 hrs, Volume= 0.161 af
Outflow = 1.29 cfs @ 12.13 hrs, Volume= 0.161 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Summary for Pond 3P: Internal Tank

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.958 ac,100.00% Impervious, Inflow Depth > 2.74" for 2 Year Atlas 14 event
Inflow = 2.83 cfs @ 12.13 hrs, Volume= 0.218 af
Outflow = 0.17 cfs @ 13.61 hrs, Volume= 0.061 af, Atten= 94%, Lag= 89.2 min
Primary = 0.17 cfs @ 13.61 hrs, Volume= 0.061 af
Routed to Reach 7R : PR DP

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1.13' @ 13.61 hrs Surf.Area= 5,563 sf Storage= 7,213 cf

Plug-Flow detention time= 363.6 min calculated for 0.061 af (28% of inflow)
Center-of-Mass det. time= 202.1 min (941.0 - 738.9)

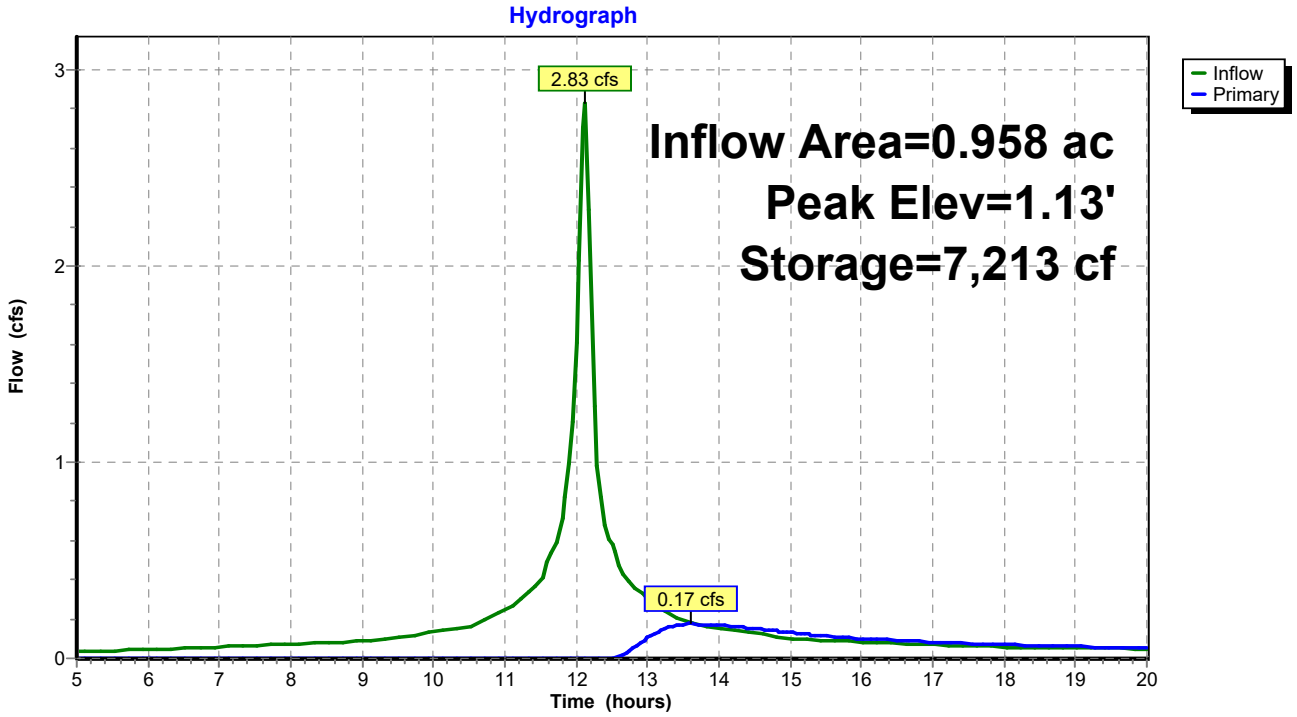
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	9,627 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	6,416	0	0
1.00	6,416	6,416	6,416
2.00	5	3,211	9,627

Device	Routing	Invert	Outlet Devices
#1	Primary	1.00'	**15.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.17 cfs @ 13.61 hrs HW=1.13' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.17 cfs @ 1.24 fps)

Pond 3P: Internal Tank



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

Subcatchment6S: PR DA Runoff Area=19,104 sf 100.00% Impervious Runoff Depth>3.66"
Tc=6.0 min CN=98 Runoff=1.72 cfs 0.134 af

Subcatchment7S: PIER STREET Runoff Area=7,538 sf 100.00% Impervious Runoff Depth>3.66"
Tc=6.0 min CN=98 Runoff=0.68 cfs 0.053 af

Subcatchment8S: PR Roof Runoff Area=34,178 sf 100.00% Impervious Runoff Depth>3.66"
Tc=6.0 min CN=98 Runoff=3.07 cfs 0.239 af

Reach 7R: PR DP Inflow=1.71 cfs 0.266 af
Outflow=1.71 cfs 0.266 af

Pond 3P: Internal Tank Peak Elev=1.28' Storage=7,954 cf Inflow=3.75 cfs 0.292 af
Outflow=0.73 cfs 0.133 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.425 af Average Runoff Depth = 3.66"
0.00% Pervious = 0.000 ac 100.00% Impervious = 1.396 ac

Summary for Subcatchment 6S: PR DA

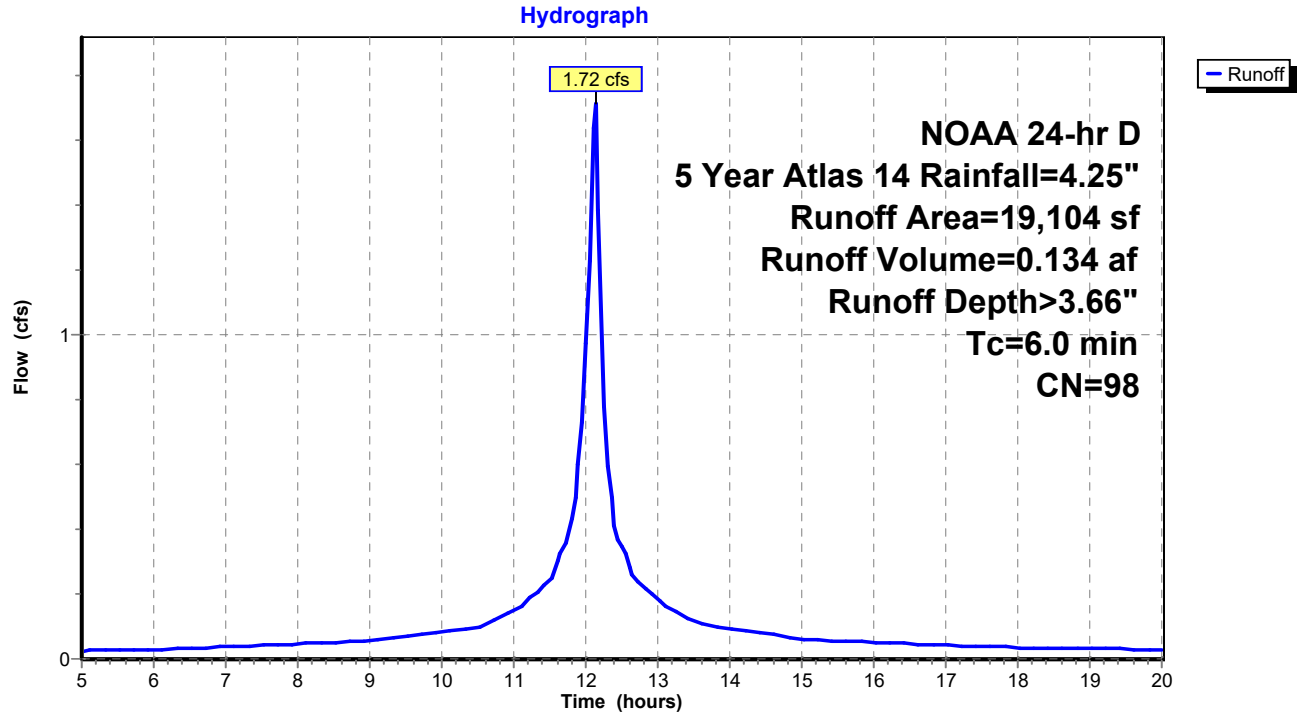
Runoff = 1.72 cfs @ 12.13 hrs, Volume= 0.134 af, Depth> 3.66"
Routed to Reach 7R : PR DP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 5 Year Atlas 14 Rainfall=4.25"

Area (sf)	CN	Description
19,104	98	Paved parking, HSG C
19,104		100.00% Impervious Area

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

Subcatchment 6S: PR DA



Summary for Subcatchment 7S: PIER STREET

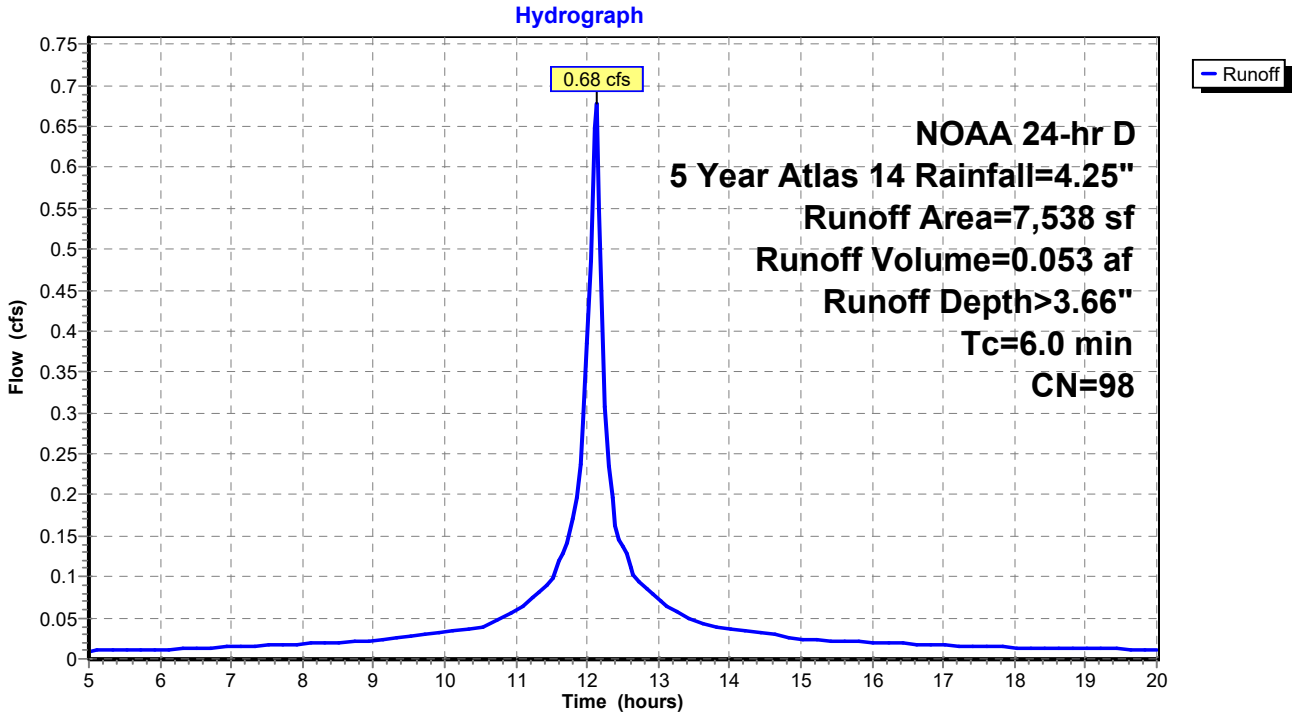
Runoff = 0.68 cfs @ 12.13 hrs, Volume= 0.053 af, Depth> 3.66"
Routed to Pond 3P : Internal Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 5 Year Atlas 14 Rainfall=4.25"

Area (sf)	CN	Description
7,538	98	Paved parking, HSG C
7,538		100.00% Impervious Area

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

Subcatchment 7S: PIER STREET



Summary for Subcatchment 8S: PR Roof

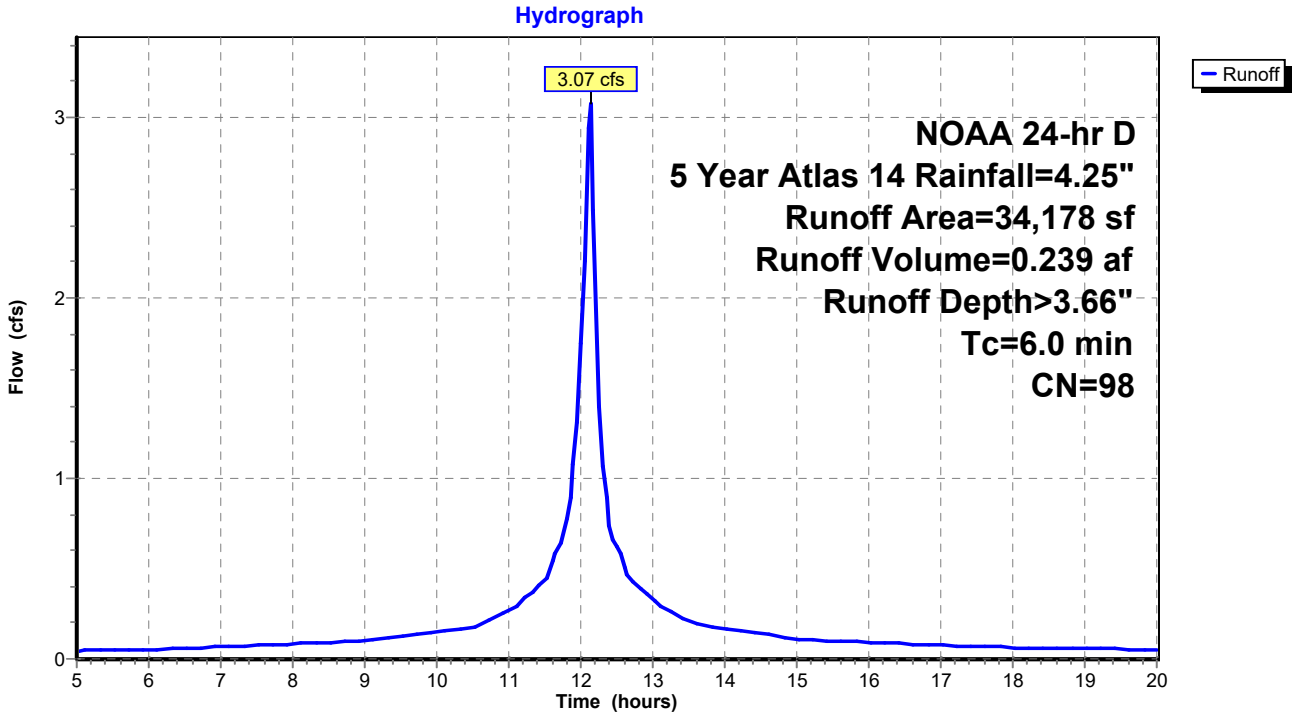
Runoff = 3.07 cfs @ 12.13 hrs, Volume= 0.239 af, Depth> 3.66"
Routed to Pond 3P : Internal Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 5 Year Atlas 14 Rainfall=4.25"

Area (sf)	CN	Description
34,178	98	Roofs, HSG C
34,178		100.00% Impervious Area

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

Subcatchment 8S: PR Roof

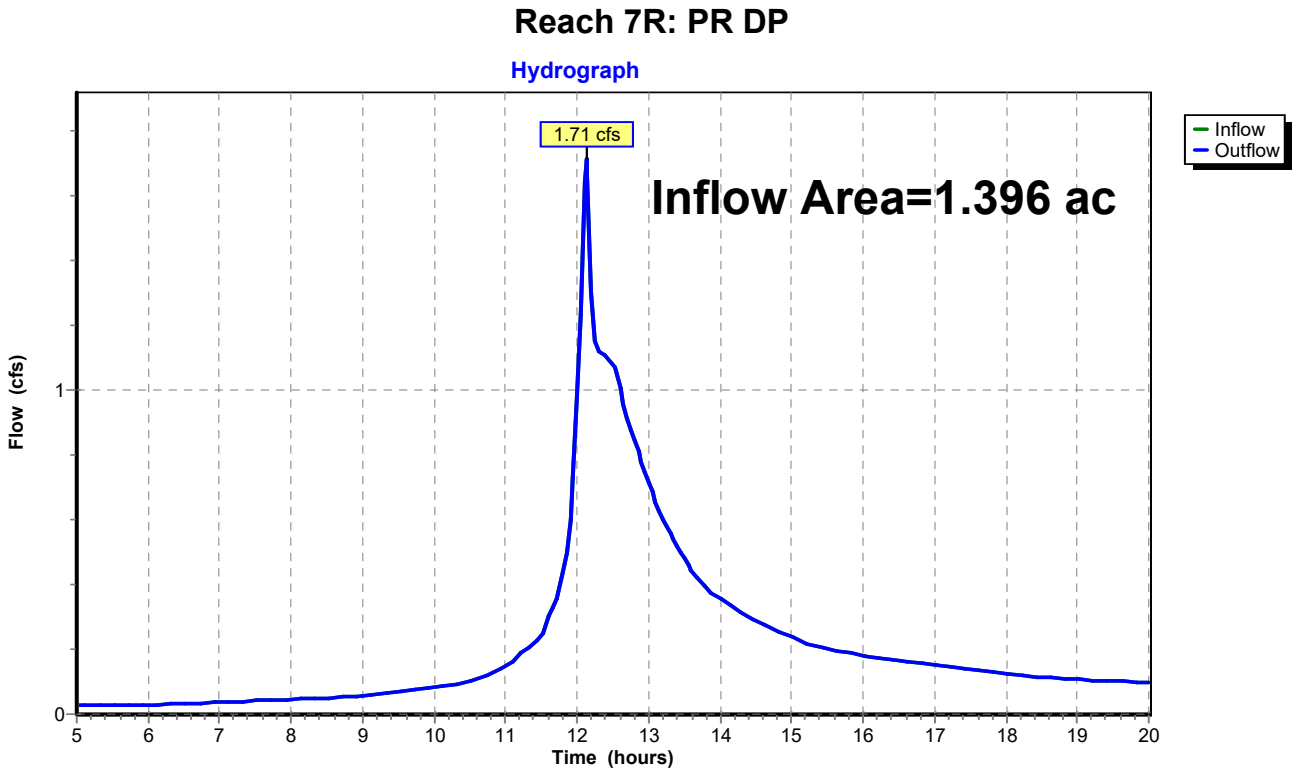


Summary for Reach 7R: PR DP

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

Inflow Area = 1.396 ac,100.00% Impervious, Inflow Depth > 2.29" for 5 Year Atlas 14 event
Inflow = 1.71 cfs @ 12.13 hrs, Volume= 0.266 af
Outflow = 1.71 cfs @ 12.13 hrs, Volume= 0.266 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Summary for Pond 3P: Internal Tank

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.958 ac,100.00% Impervious, Inflow Depth > 3.66" for 5 Year Atlas 14 event
Inflow = 3.75 cfs @ 12.13 hrs, Volume= 0.292 af
Outflow = 0.73 cfs @ 12.53 hrs, Volume= 0.133 af, Atten= 80%, Lag= 24.3 min
Primary = 0.73 cfs @ 12.53 hrs, Volume= 0.133 af
Routed to Reach 7R : PR DP

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1.28' @ 12.53 hrs Surf.Area= 4,631 sf Storage= 7,954 cf

Plug-Flow detention time= 243.1 min calculated for 0.132 af (45% of inflow)
Center-of-Mass det. time= 134.4 min (871.2 - 736.7)

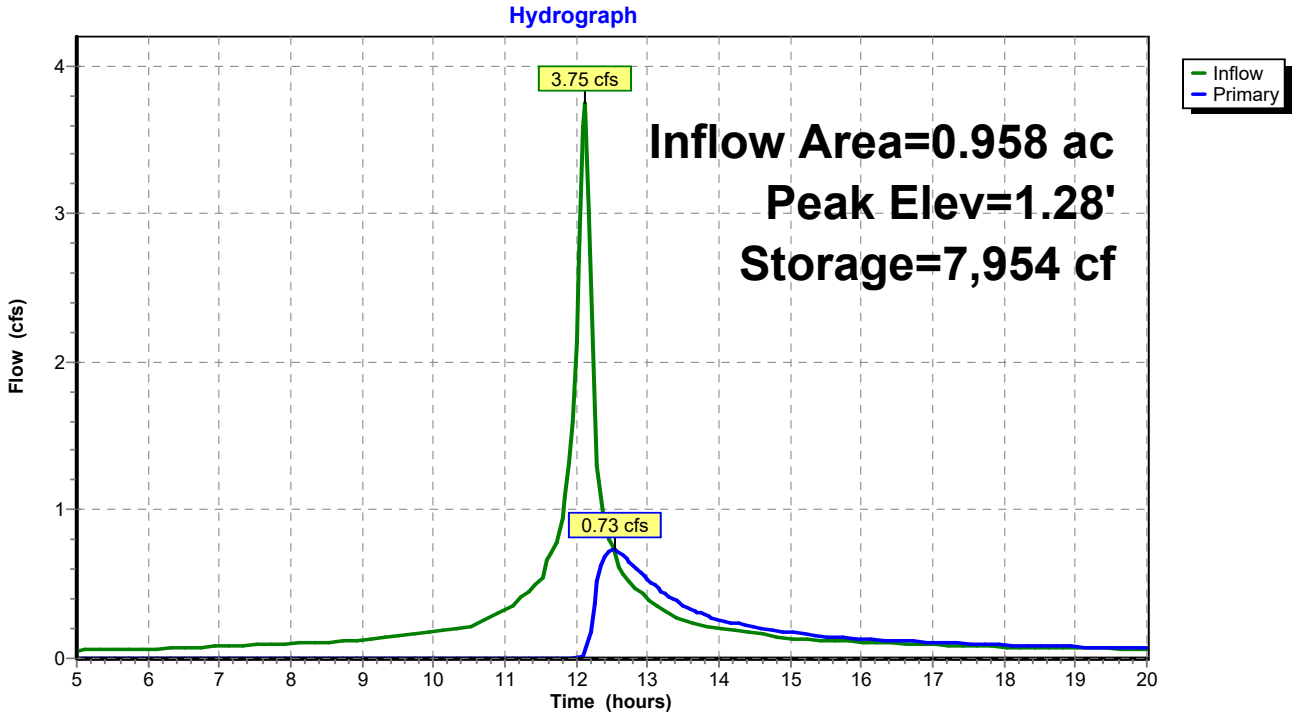
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	9,627 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	6,416	0	0
1.00	6,416	6,416	6,416
2.00	5	3,211	9,627

Device	Routing	Invert	Outlet Devices
#1	Primary	1.00'	**15.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.73 cfs @ 12.53 hrs HW=1.28' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.73 cfs @ 1.80 fps)

Pond 3P: Internal Tank



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

Subcatchment6S: PR DA Runoff Area=19,104 sf 100.00% Impervious Runoff Depth>4.77"
Tc=6.0 min CN=98 Runoff=2.23 cfs 0.174 af

Subcatchment7S: PIER STREET Runoff Area=7,538 sf 100.00% Impervious Runoff Depth>4.77"
Tc=6.0 min CN=98 Runoff=0.88 cfs 0.069 af

Subcatchment8S: PR Roof Runoff Area=34,178 sf 100.00% Impervious Runoff Depth>4.77"
Tc=6.0 min CN=98 Runoff=3.99 cfs 0.312 af

Reach 7R: PR DP Inflow=3.79 cfs 0.394 af
Outflow=3.79 cfs 0.394 af

Pond 3P: Internal Tank Peak Elev=1.53' Storage=8,921 cf Inflow=4.87 cfs 0.381 af
Outflow=2.47 cfs 0.220 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.555 af Average Runoff Depth = 4.77"
0.00% Pervious = 0.000 ac 100.00% Impervious = 1.396 ac

Summary for Subcatchment 6S: PR DA

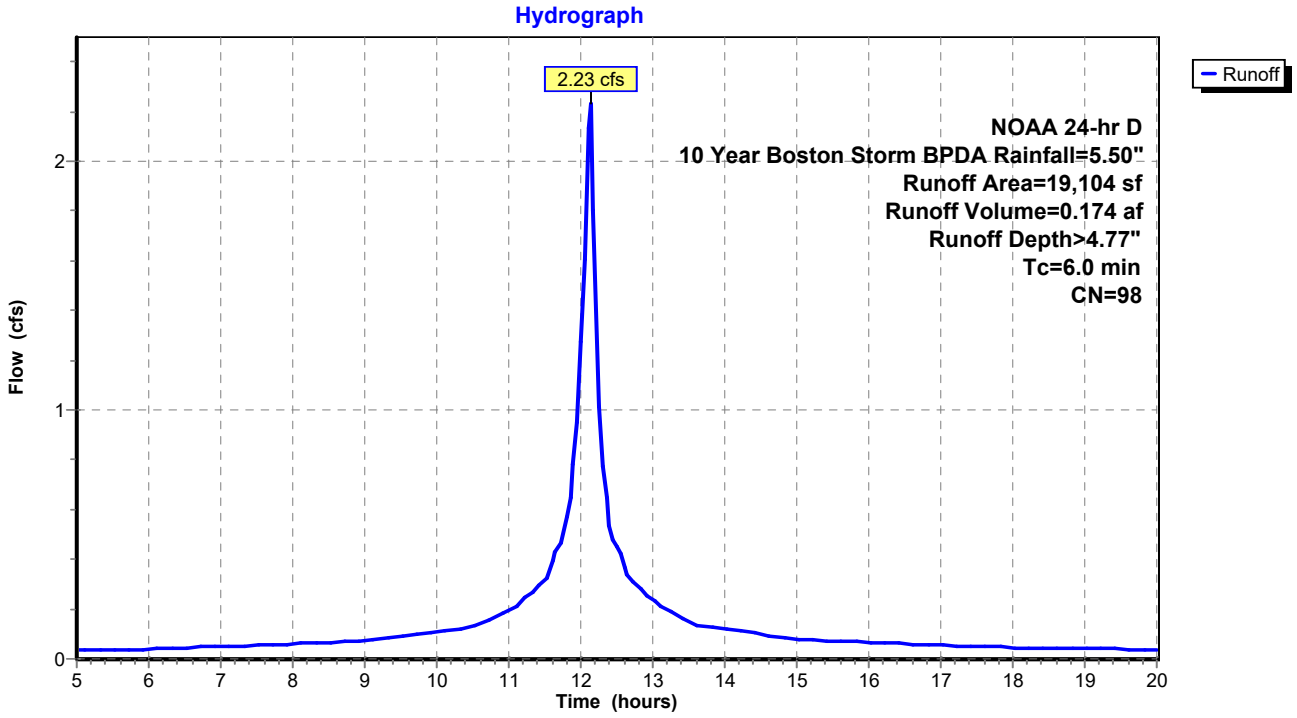
Runoff = 2.23 cfs @ 12.13 hrs, Volume= 0.174 af, Depth> 4.77"
Routed to Reach 7R : PR DP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10 Year Boston Storm BPDA Rainfall=5.50"

Area (sf)	CN	Description
19,104	98	Paved parking, HSG C
19,104		100.00% Impervious Area

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

Subcatchment 6S: PR DA



Summary for Subcatchment 7S: PIER STREET

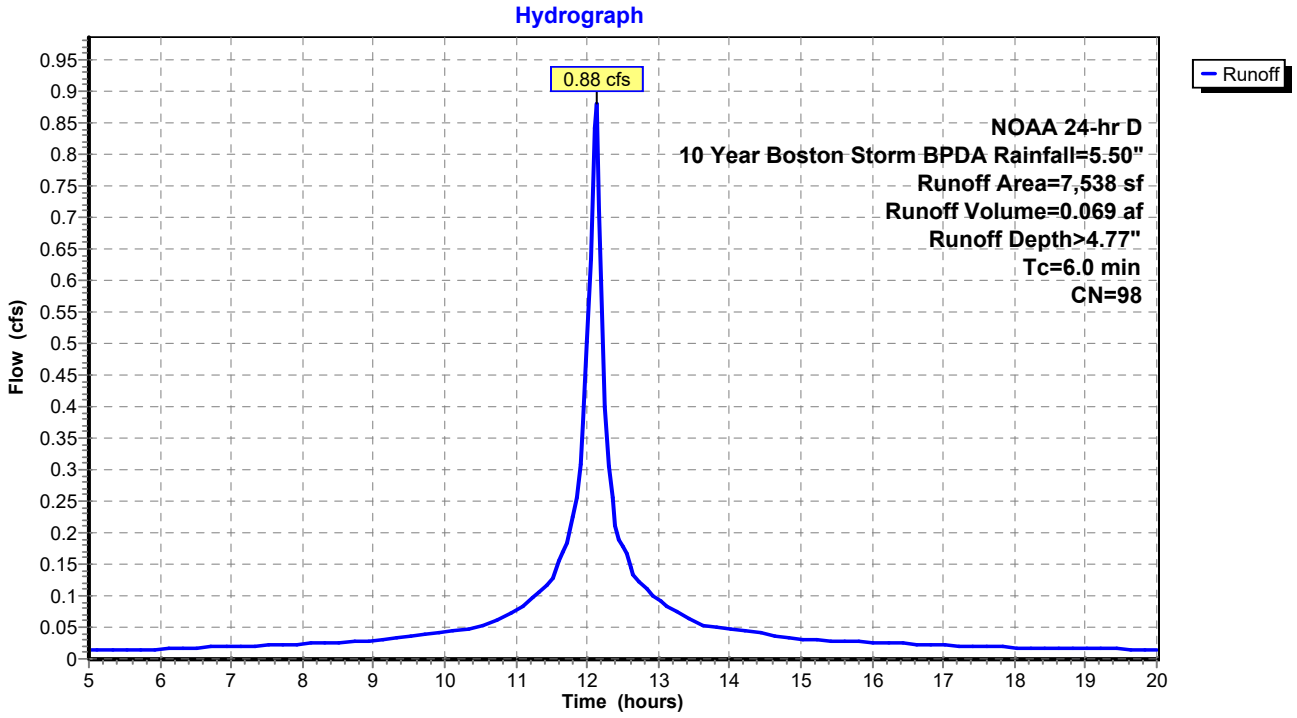
Runoff = 0.88 cfs @ 12.13 hrs, Volume= 0.069 af, Depth> 4.77"
Routed to Pond 3P : Internal Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10 Year Boston Storm BPDA Rainfall=5.50"

Area (sf)	CN	Description
7,538	98	Paved parking, HSG C
7,538		100.00% Impervious Area

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

Subcatchment 7S: PIER STREET



Summary for Subcatchment 8S: PR Roof

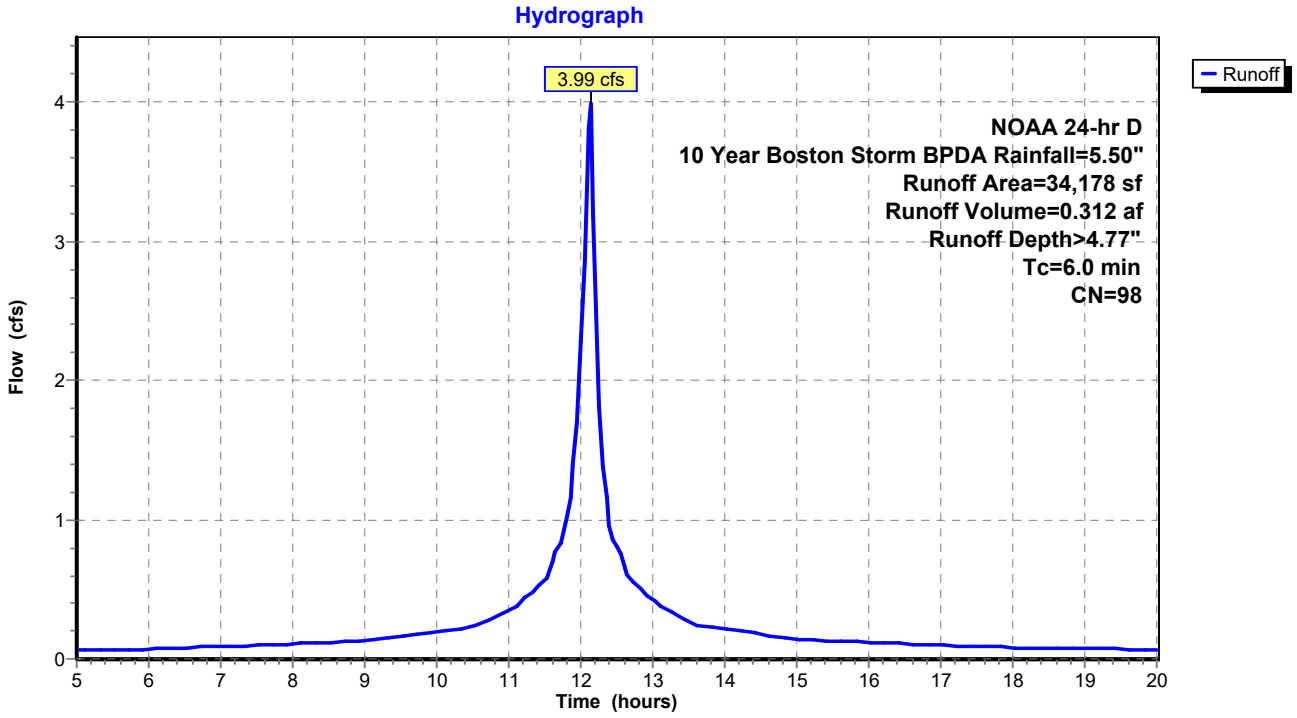
Runoff = 3.99 cfs @ 12.13 hrs, Volume= 0.312 af, Depth> 4.77"
Routed to Pond 3P : Internal Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10 Year Boston Storm BPDA Rainfall=5.50"

Area (sf)	CN	Description
34,178	98	Roofs, HSG C
34,178		100.00% Impervious Area

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

Subcatchment 8S: PR Roof



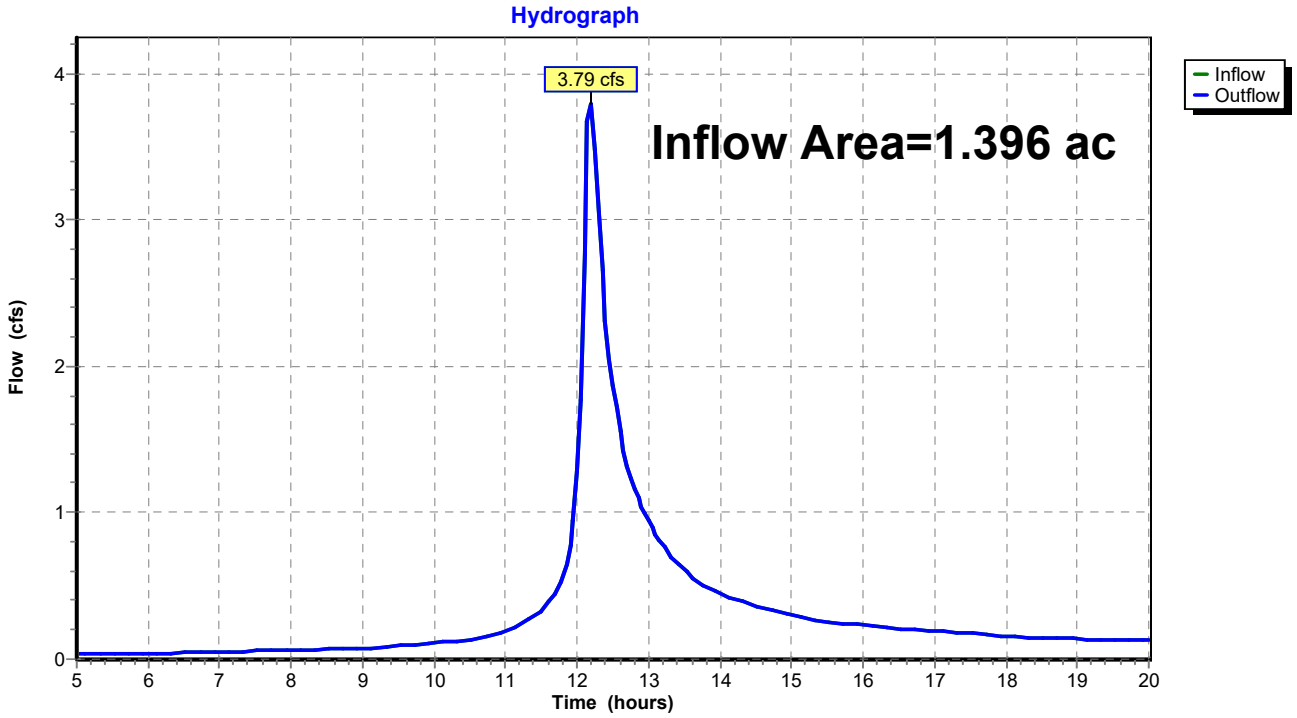
Summary for Reach 7R: PR DP

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

Inflow Area = 1.396 ac,100.00% Impervious, Inflow Depth > 3.39" for 10 Year Boston Storm BPDA event
Inflow = 3.79 cfs @ 12.19 hrs, Volume= 0.394 af
Outflow = 3.79 cfs @ 12.19 hrs, Volume= 0.394 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 7R: PR DP



Summary for Pond 3P: Internal Tank

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.958 ac,100.00% Impervious, Inflow Depth > 4.77" for 10 Year Boston Storm BPDA event
Inflow = 4.87 cfs @ 12.13 hrs, Volume= 0.381 af
Outflow = 2.47 cfs @ 12.25 hrs, Volume= 0.220 af, Atten= 49%, Lag= 7.2 min
Primary = 2.47 cfs @ 12.25 hrs, Volume= 0.220 af
Routed to Reach 7R : PR DP

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1.53' @ 12.25 hrs Surf.Area= 3,007 sf Storage= 8,921 cf

Plug-Flow detention time= 192.7 min calculated for 0.220 af (58% of inflow)
Center-of-Mass det. time= 104.4 min (839.7 - 735.3)

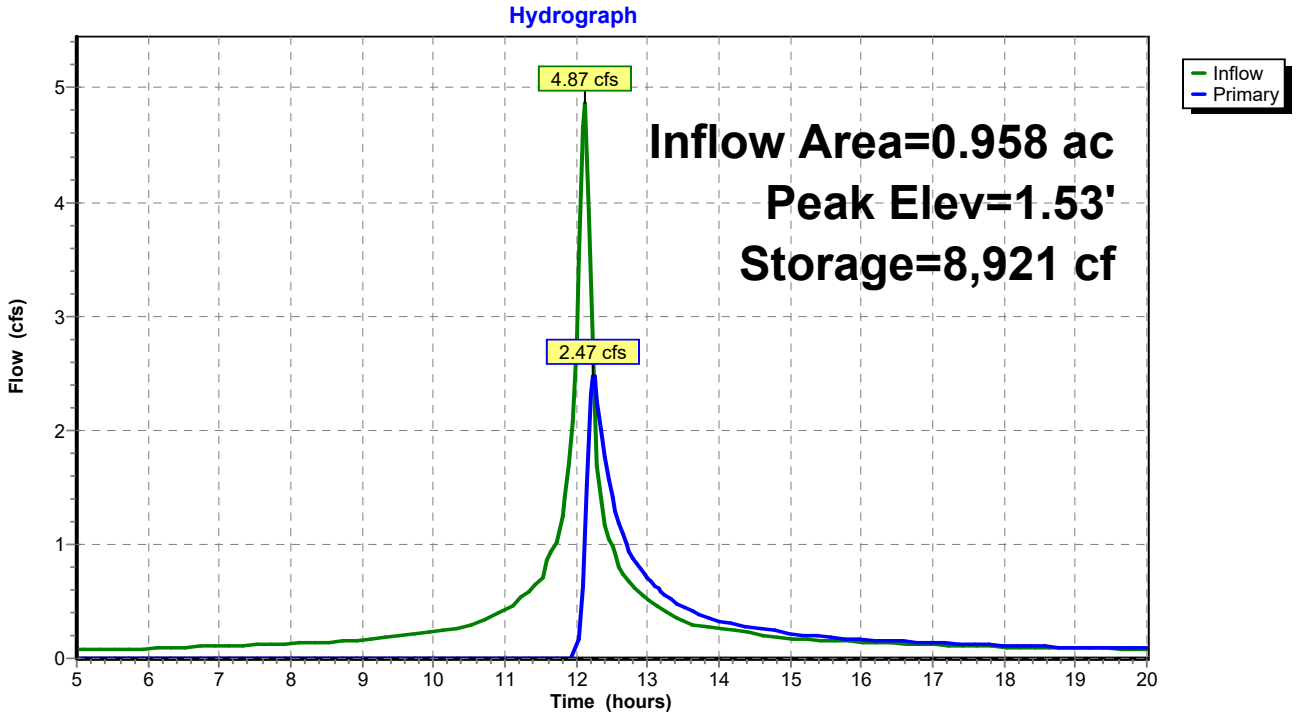
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	9,627 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	6,416	0	0
1.00	6,416	6,416	6,416
2.00	5	3,211	9,627

Device	Routing	Invert	Outlet Devices
#1	Primary	1.00'	**15.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.46 cfs @ 12.25 hrs HW=1.53' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 2.46 cfs @ 2.48 fps)

Pond 3P: Internal Tank



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

Subcatchment6S: PR DA Runoff Area=19,104 sf 100.00% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=98 Runoff=2.54 cfs 0.199 af

Subcatchment7S: PIER STREET Runoff Area=7,538 sf 100.00% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=98 Runoff=1.00 cfs 0.078 af

Subcatchment8S: PR Roof Runoff Area=34,178 sf 100.00% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=98 Runoff=4.54 cfs 0.355 af

Reach 7R: PR DP Inflow=5.85 cfs 0.471 af
Outflow=5.85 cfs 0.471 af

Pond 3P: Internal Tank Peak Elev=1.69' Storage=9,321 cf Inflow=5.54 cfs 0.434 af
Outflow=3.95 cfs 0.272 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.632 af Average Runoff Depth = 5.44"
0.00% Pervious = 0.000 ac 100.00% Impervious = 1.396 ac

Summary for Subcatchment 6S: PR DA

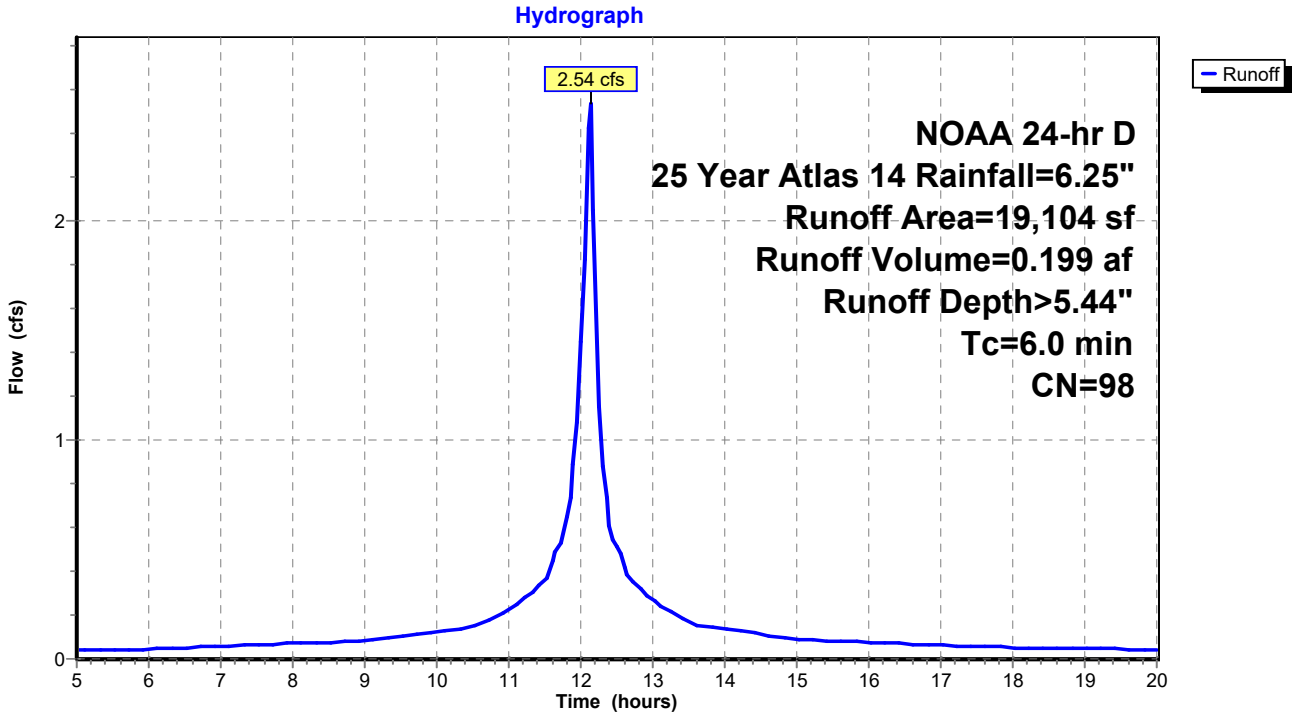
Runoff = 2.54 cfs @ 12.13 hrs, Volume= 0.199 af, Depth> 5.44"
Routed to Reach 7R : PR DP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25 Year Atlas 14 Rainfall=6.25"

Area (sf)	CN	Description
19,104	98	Paved parking, HSG C
19,104		100.00% Impervious Area

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

Subcatchment 6S: PR DA



Summary for Subcatchment 7S: PIER STREET

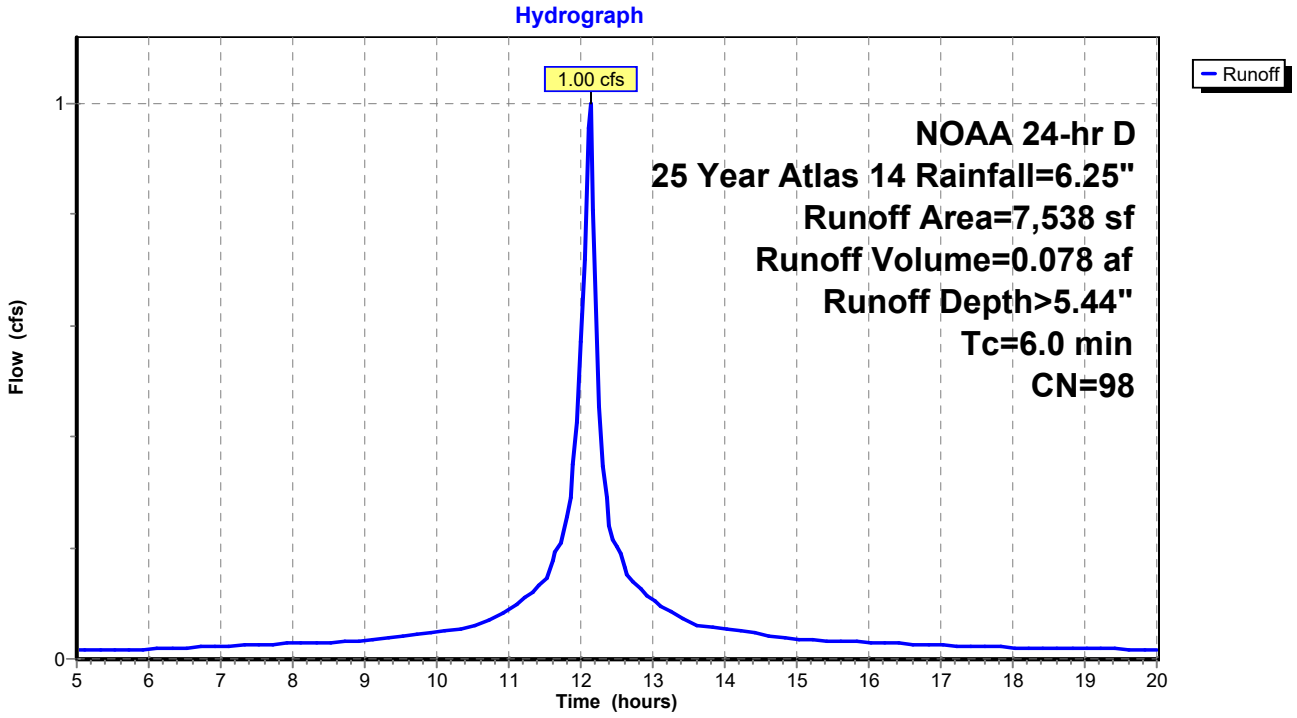
Runoff = 1.00 cfs @ 12.13 hrs, Volume= 0.078 af, Depth> 5.44"
Routed to Pond 3P : Internal Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25 Year Atlas 14 Rainfall=6.25"

Area (sf)	CN	Description
7,538	98	Paved parking, HSG C
7,538		100.00% Impervious Area

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

Subcatchment 7S: PIER STREET



Summary for Subcatchment 8S: PR Roof

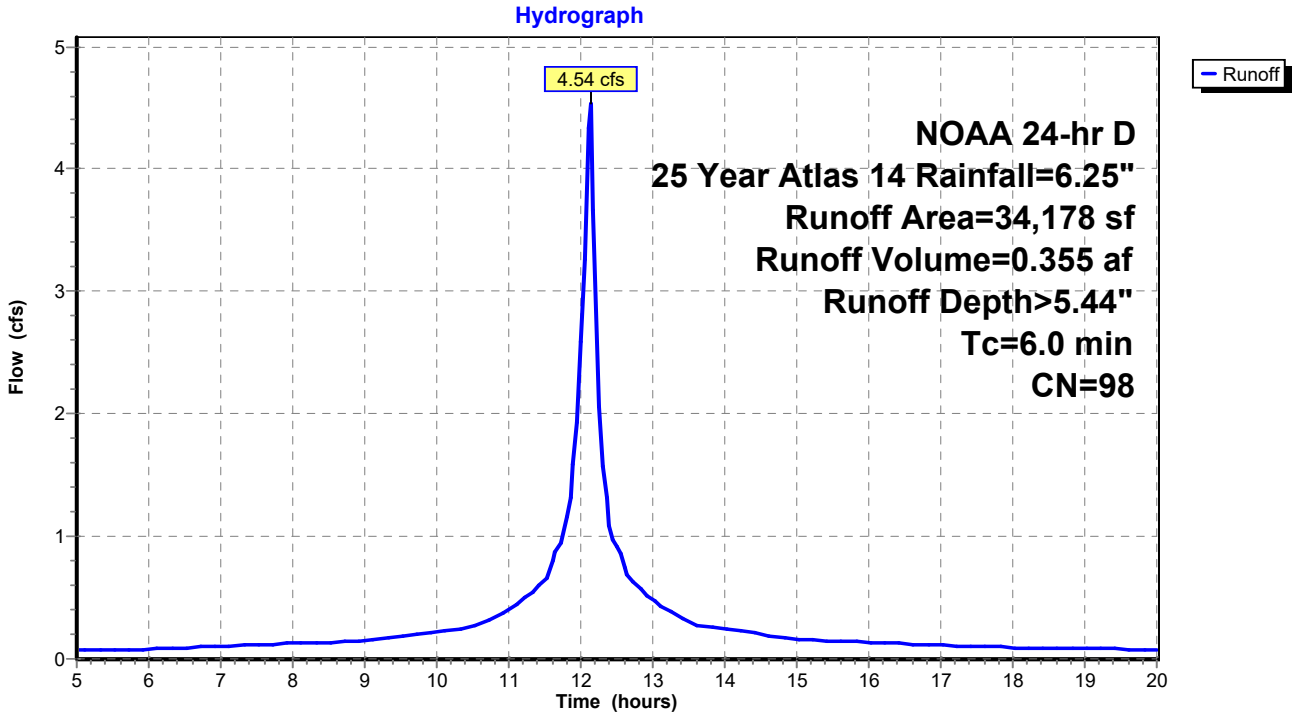
Runoff = 4.54 cfs @ 12.13 hrs, Volume= 0.355 af, Depth> 5.44"
Routed to Pond 3P : Internal Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25 Year Atlas 14 Rainfall=6.25"

Area (sf)	CN	Description
34,178	98	Roofs, HSG C
34,178		100.00% Impervious Area

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

Subcatchment 8S: PR Roof

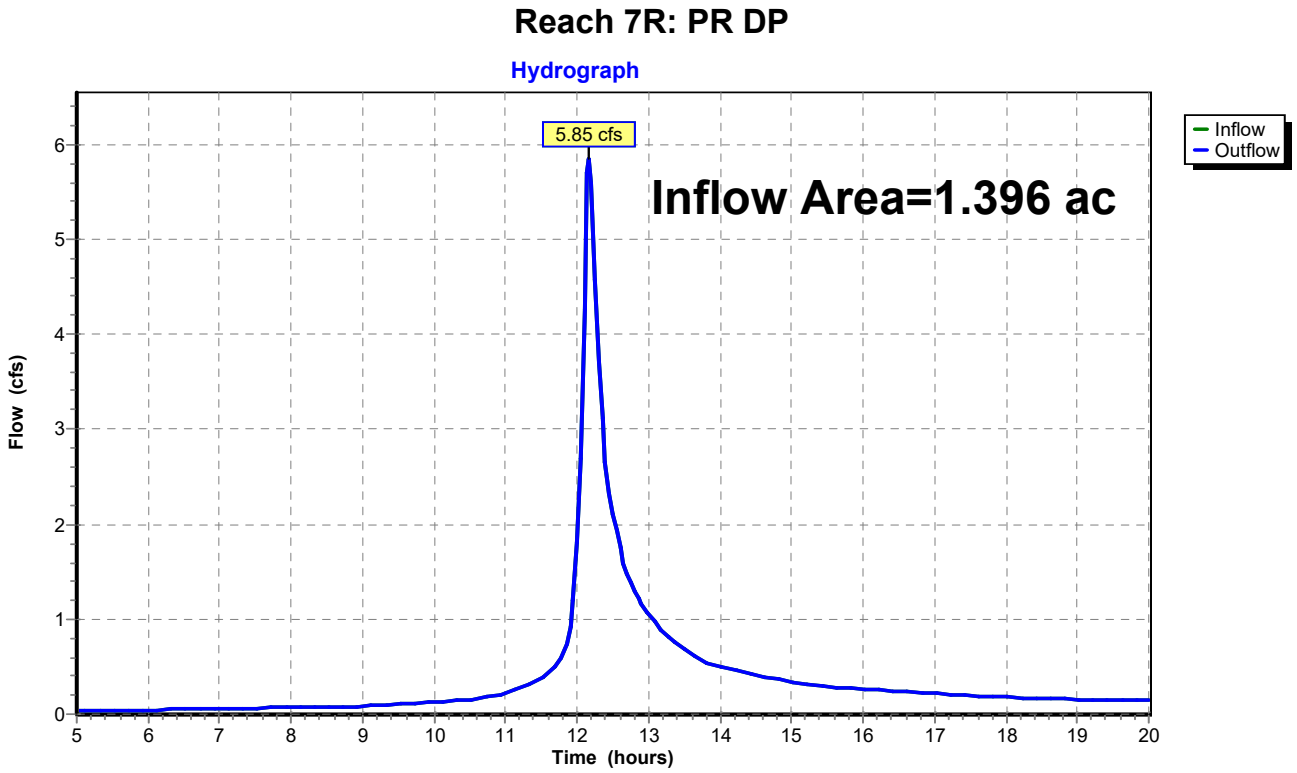


Summary for Reach 7R: PR DP

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

Inflow Area = 1.396 ac,100.00% Impervious, Inflow Depth > 4.05" for 25 Year Atlas 14 event
Inflow = 5.85 cfs @ 12.17 hrs, Volume= 0.471 af
Outflow = 5.85 cfs @ 12.17 hrs, Volume= 0.471 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Summary for Pond 3P: Internal Tank

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.958 ac,100.00% Impervious, Inflow Depth > 5.44" for 25 Year Atlas 14 event
Inflow = 5.54 cfs @ 12.13 hrs, Volume= 0.434 af
Outflow = 3.95 cfs @ 12.20 hrs, Volume= 0.272 af, Atten= 29%, Lag= 4.7 min
Primary = 3.95 cfs @ 12.20 hrs, Volume= 0.272 af
Routed to Reach 7R : PR DP

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1.69' @ 12.20 hrs Surf.Area= 1,981 sf Storage= 9,321 cf

Plug-Flow detention time= 175.0 min calculated for 0.271 af (63% of inflow)
Center-of-Mass det. time= 94.5 min (829.2 - 734.8)

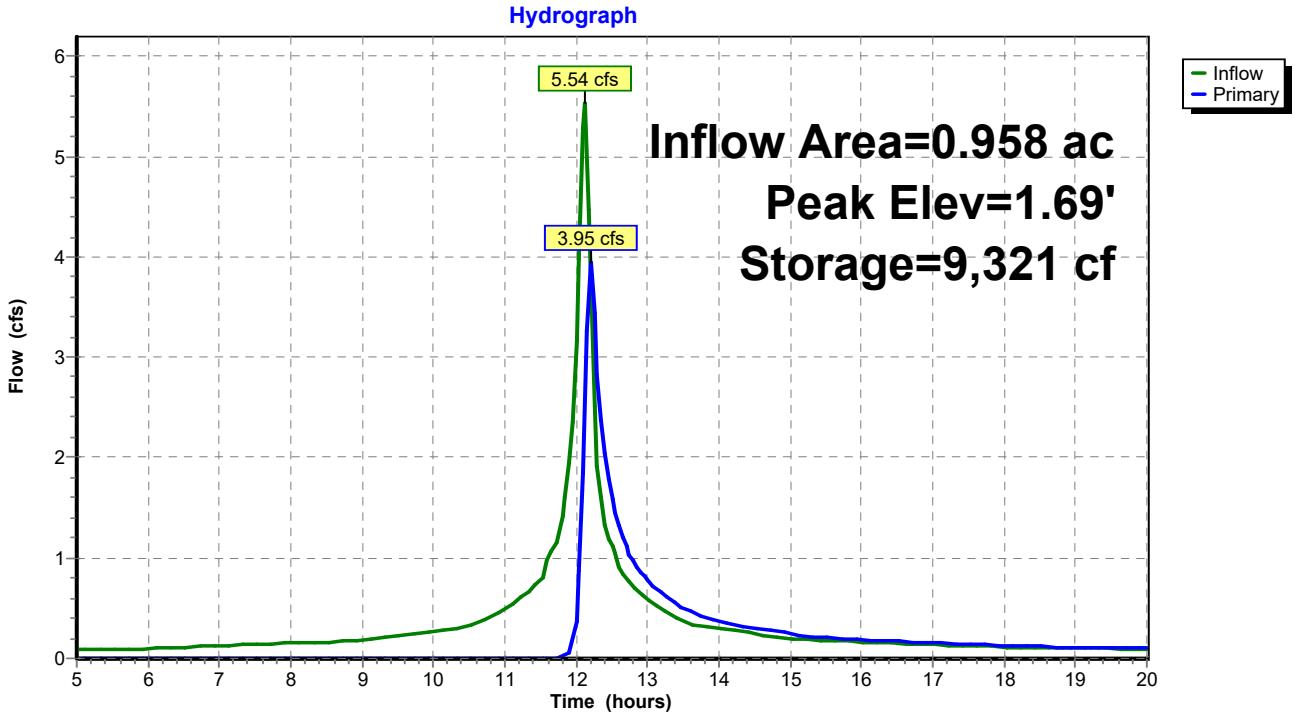
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	9,627 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	6,416	0	0
1.00	6,416	6,416	6,416
2.00	5	3,211	9,627

Device	Routing	Invert	Outlet Devices
#1	Primary	1.00'	**15.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.91 cfs @ 12.20 hrs HW=1.69' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 3.91 cfs @ 2.82 fps)

Pond 3P: Internal Tank



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

Subcatchment6S: PR DA Runoff Area=19,104 sf 100.00% Impervious Runoff Depth>7.03"
Tc=6.0 min CN=98 Runoff=3.27 cfs 0.257 af

Subcatchment7S: PIER STREET Runoff Area=7,538 sf 100.00% Impervious Runoff Depth>7.03"
Tc=6.0 min CN=98 Runoff=1.29 cfs 0.101 af

Subcatchment8S: PR Roof Runoff Area=34,178 sf 100.00% Impervious Runoff Depth>7.03"
Tc=6.0 min CN=98 Runoff=5.85 cfs 0.460 af

Reach 7R: PR DP Inflow=10.37 cfs 0.655 af
Outflow=10.37 cfs 0.655 af

Pond 3P: Internal Tank Peak Elev=2.00' Storage=9,627 cf Inflow=7.14 cfs 0.561 af
Outflow=7.21 cfs 0.398 af

Total Runoff Area = 1.396 ac Runoff Volume = 0.818 af Average Runoff Depth = 7.03"
0.00% Pervious = 0.000 ac 100.00% Impervious = 1.396 ac

Summary for Subcatchment 6S: PR DA

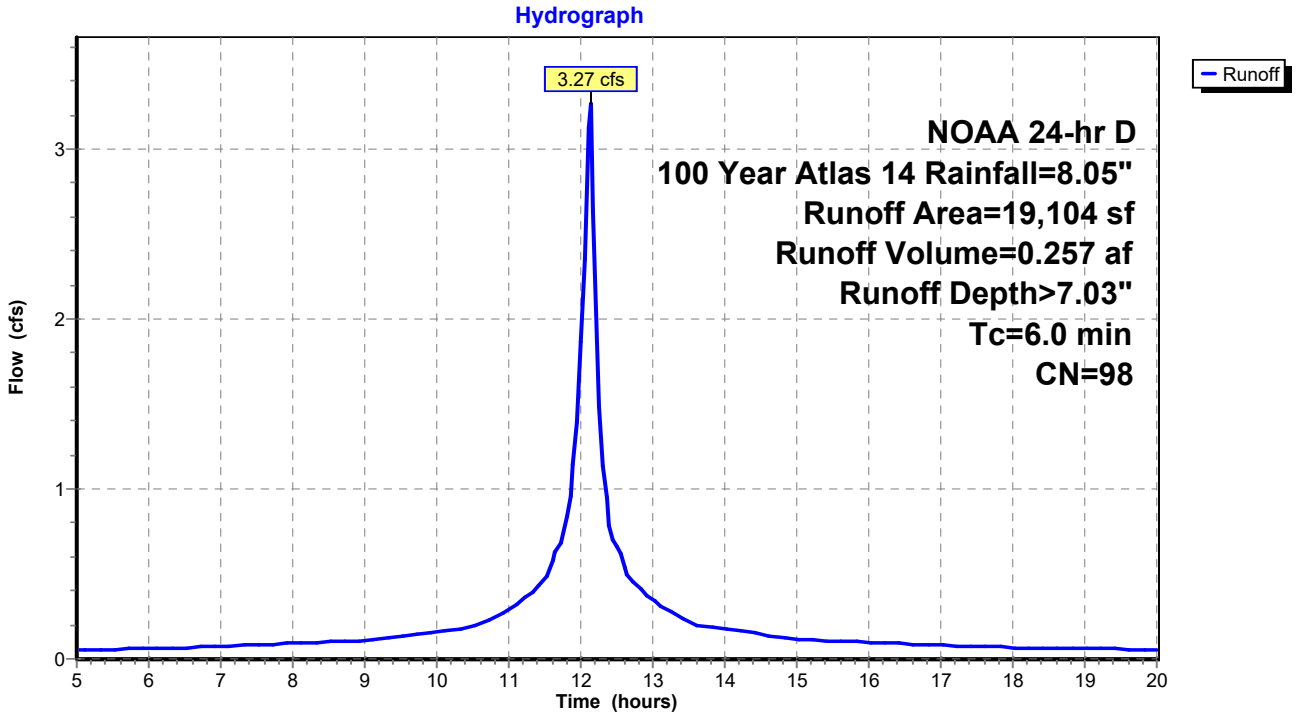
Runoff = 3.27 cfs @ 12.13 hrs, Volume= 0.257 af, Depth> 7.03"
Routed to Reach 7R : PR DP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100 Year Atlas 14 Rainfall=8.05"

Area (sf)	CN	Description
19,104	98	Paved parking, HSG C
19,104		100.00% Impervious Area

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

Subcatchment 6S: PR DA



Summary for Subcatchment 7S: PIER STREET

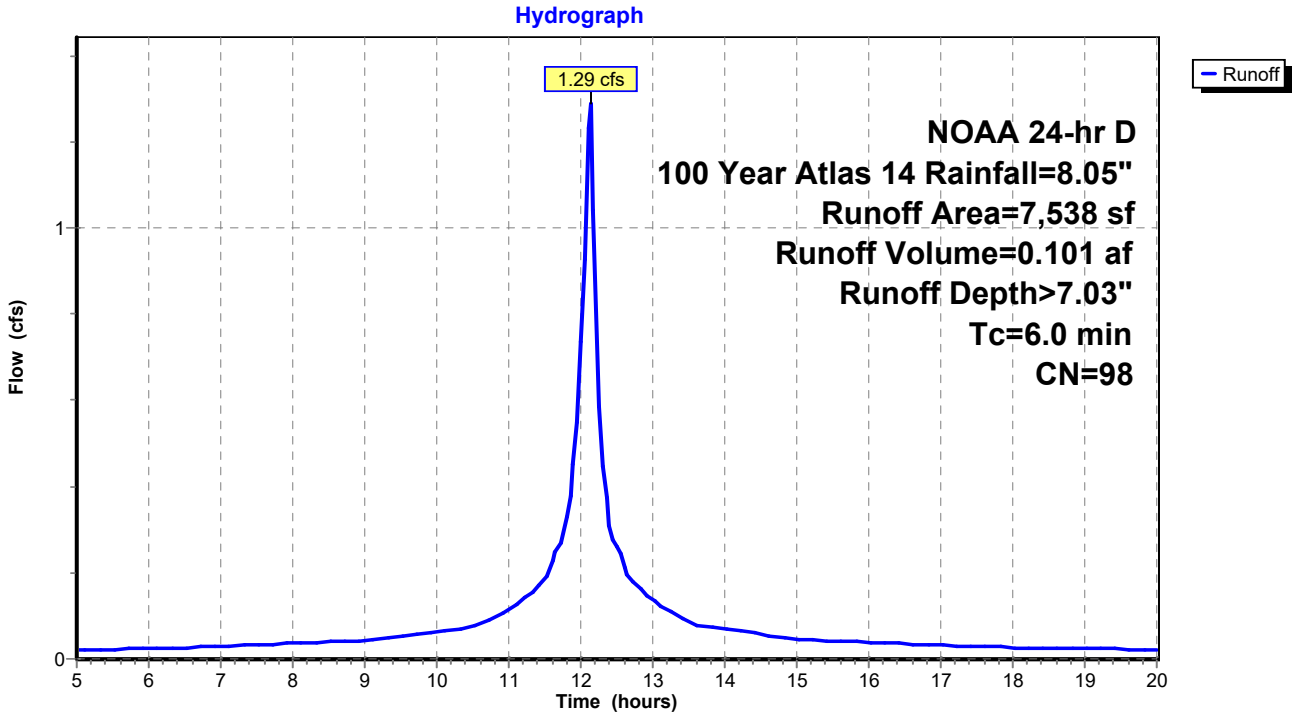
Runoff = 1.29 cfs @ 12.13 hrs, Volume= 0.101 af, Depth> 7.03"
Routed to Pond 3P : Internal Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100 Year Atlas 14 Rainfall=8.05"

Area (sf)	CN	Description
7,538	98	Paved parking, HSG C
7,538		100.00% Impervious Area

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

Subcatchment 7S: PIER STREET



Summary for Subcatchment 8S: PR Roof

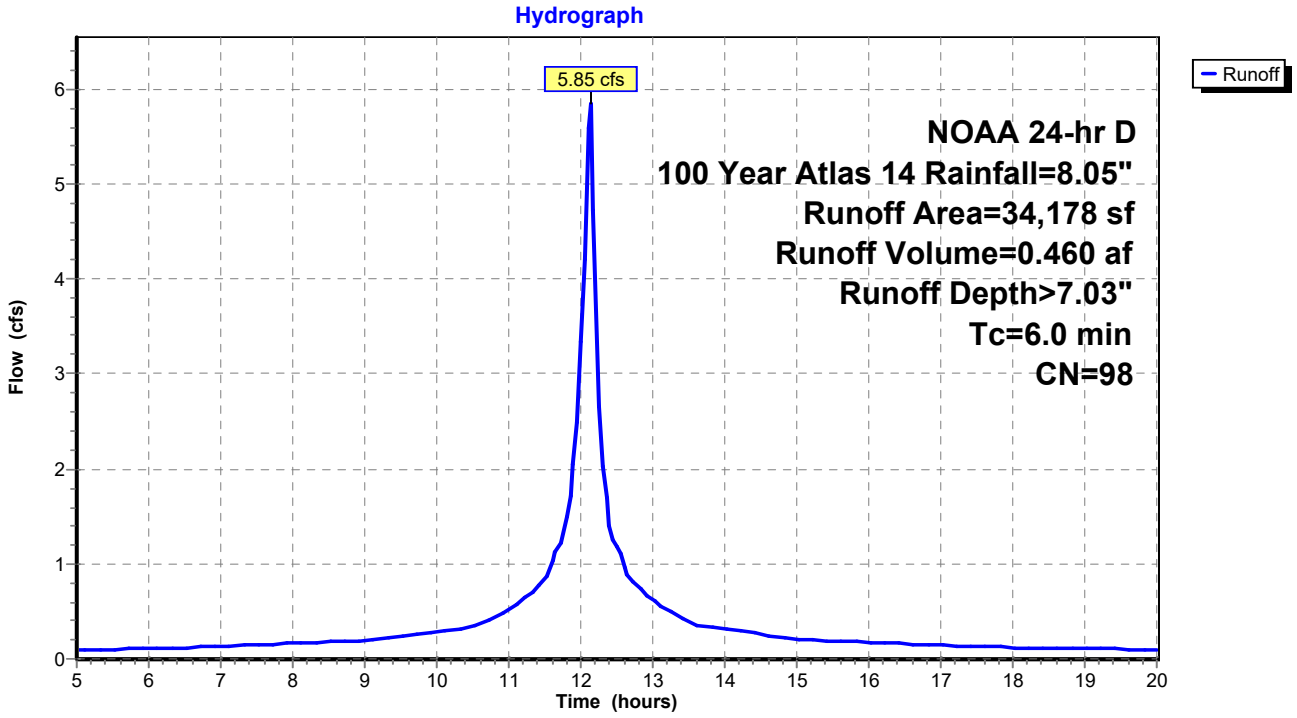
Runoff = 5.85 cfs @ 12.13 hrs, Volume= 0.460 af, Depth> 7.03"
Routed to Pond 3P : Internal Tank

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100 Year Atlas 14 Rainfall=8.05"

Area (sf)	CN	Description
34,178	98	Roofs, HSG C
34,178		100.00% Impervious Area

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

Subcatchment 8S: PR Roof



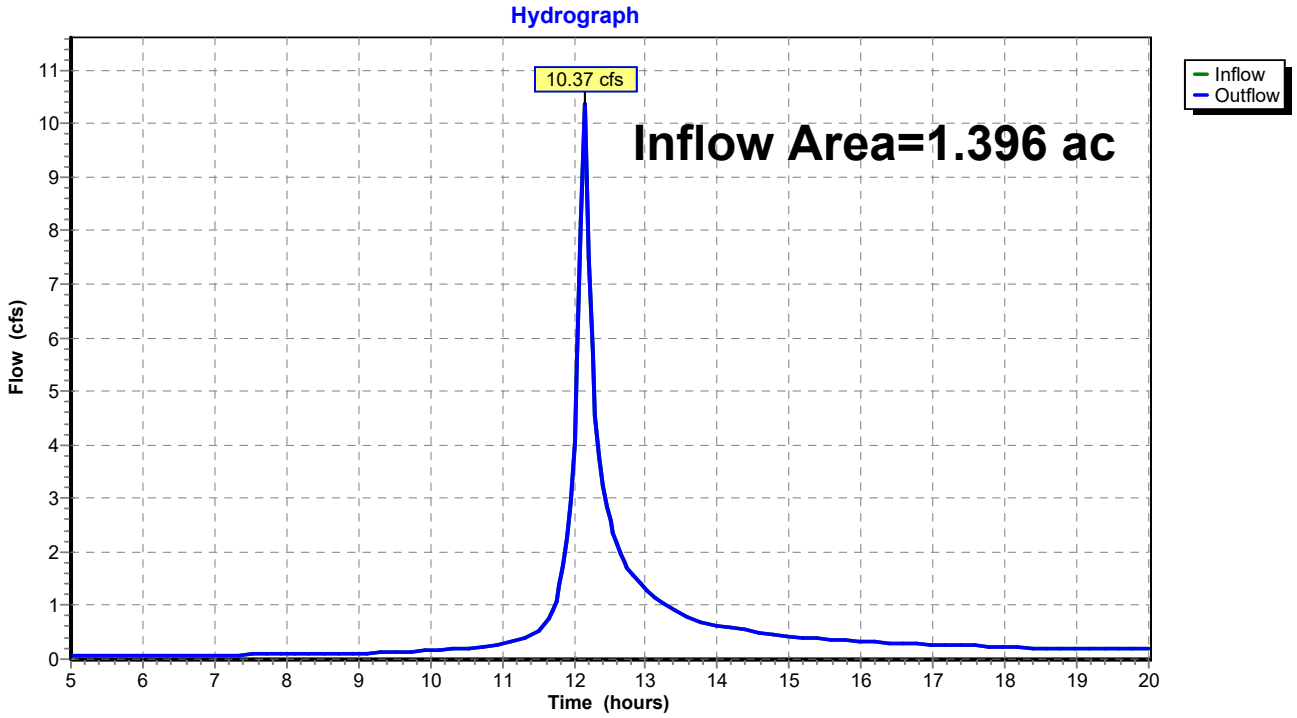
Summary for Reach 7R: PR DP

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

Inflow Area = 1.396 ac,100.00% Impervious, Inflow Depth > 5.63" for 100 Year Atlas 14 event
Inflow = 10.37 cfs @ 12.15 hrs, Volume= 0.655 af
Outflow = 10.37 cfs @ 12.15 hrs, Volume= 0.655 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 7R: PR DP



Summary for Pond 3P: Internal Tank

[82] Warning: Early inflow requires earlier time span
[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.958 ac,100.00% Impervious, Inflow Depth > 7.03" for 100 Year Atlas 14 event
Inflow = 7.14 cfs @ 12.13 hrs, Volume= 0.561 af
Outflow = 7.21 cfs @ 12.15 hrs, Volume= 0.398 af, Atten= 0%, Lag= 1.6 min
Primary = 7.21 cfs @ 12.15 hrs, Volume= 0.398 af
Routed to Reach 7R : PR DP

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 2.00' @ 12.15 hrs Surf.Area= 5 sf Storage= 9,627 cf

Plug-Flow detention time= 149.8 min calculated for 0.397 af (71% of inflow)
Center-of-Mass det. time= 80.1 min (814.0 - 733.9)

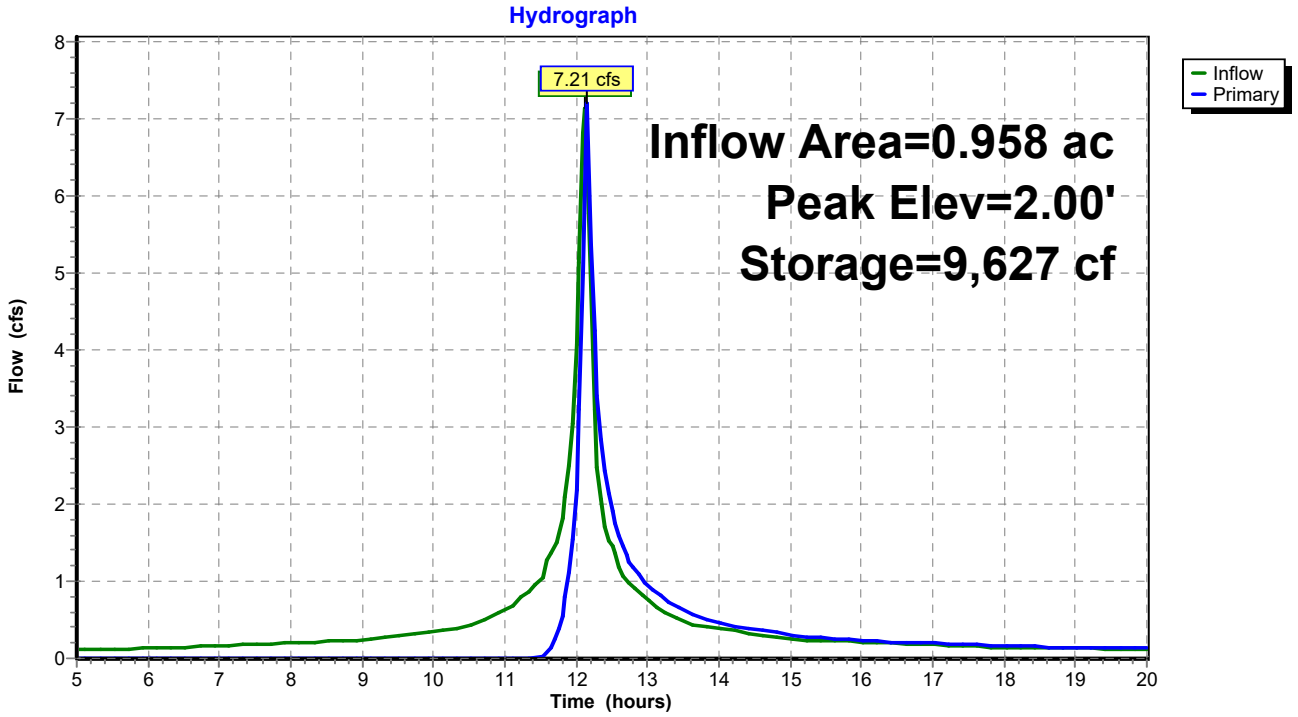
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	9,627 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	6,416	0	0
1.00	6,416	6,416	6,416
2.00	5	3,211	9,627

Device	Routing	Invert	Outlet Devices
#1	Primary	1.00'	**15.0" Vert. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.12 cfs @ 12.15 hrs HW=2.00' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 7.12 cfs @ 3.40 fps)

Pond 3P: Internal Tank



APPENDIX C

Long-Term Pollution Prevention and Stormwater Operation and Maintenance Plan

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

65 Northern Avenue/ 88 Seaport Boulevard Boston, MA

TABLE OF CONTENTS

1.0 LONG-TERM POLLUTION PREVENTION PLAN 3

1.1 Storage of Hazardous Materials 3

1.2 Storage of Waste Products 3

1.3 Spill Prevention and Response 3

1.4 Minimize Soil Erosion 3

1.5 Maintenance of Lawns, Gardens, and other Landscaped Areas 3

1.6 Management of Deicing Chemicals and Snow 4

1.7 Coordination with other Permits and Requirements 4

2.0 STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENANCE PLAN 5

2.1 Introduction 5

2.2 Stormwater Operation and Maintenance Requirements 5

Trench Drain 5

2.3 Street Sweeping 5

2.4 Repair of the Stormwater Management System 5

STORMWATER MANAGEMENT SYSTEM INSPECTION FORM 6

INTRODUCTION

The purpose of this document is to specify the pollution prevention measures and stormwater management system operation and maintenance for the 88 Seaport Boulevard site. The Responsible Party indicated below shall implement the management practices outlined in this document and proactively conduct operations at the project site in an environmentally responsible manner. Compliance with this Manual does not in any way dismiss the responsible party, owner, property manager, or occupants from compliance with other applicable federal, state or local laws.

Responsible Party: Seaport D Title Holder LLC
33 Boylston Street
Chestnut Hill, MA 02467

This Document has been prepared in compliance with Standards 4 and 9 of the 2008 Massachusetts Department of Environmental Protection (MassDEP) Stormwater Management Standards, which state:

Standard 4:
The Long Term Pollution Prevention Plan shall include the proper procedures for the following:

- Good housekeeping
- Storing materials and waste products inside or under cover
- Vehicle washing
- Routine inspections of stormwater best management practices
- Spill prevention and response
- Maintenance of lawns, gardens, and other landscaped areas
- Pet waste management
- Operation and management of septic systems
- Proper management of deicing chemicals and snow

Standard 9:
The Long-Term Operation and Maintenance Plan shall at a minimum include:

- Stormwater management system(s) owner(s)
- The party or parties responsible for operation and maintenance, including how future property owners shall be notified of the presence of the stormwater management system and the requirement for operation and maintenance
- The routine and non-routine maintenance tasks to be undertaken after construction is complete and a schedule for implementing those tasks
- A plan that is drawn to scale and shows the location of all stormwater BMPs in each treatment train along with the discharge point
- A description of public safety features
- An estimated operations and maintenance budget

1.0 LONG-TERM POLLUTION PREVENTION PLAN

The Responsible Party shall implement the following good housekeeping procedures at the project site to reduce the possibility of accidental releases and to reduce safety hazards.

1.1 Storage of Hazardous Materials

To prevent leaks and spills, keep hazardous materials and waste products under cover or inside. Use drip pans or spill containment systems to prevent chemicals from entering the drainage system. Inspect storage areas for materials and waste products at least once per year to determine amount and type of the material on site, and if the material requires disposal.

Securely store liquid petroleum products and other liquid chemicals in federally- and state-approved containers. Restrict access to maintenance personnel and administrators.

1.2 Storage of Waste Products

Collect and store all waste materials in securely lidded dumpster(s) or other secure containers as applicable to the material. Keep dumpster lids closed and the areas around them clean. Do not fill the dumpsters with liquid waste or hose them out. Sweep areas around the dumpster regularly and put the debris in the garbage, instead of sweeping or hosing it into the parking lot. Legally dispose of collected waste on a regular basis.

Segregate liquid wastes, including motor oil, antifreeze, solvents, and lubricants, from solid waste and recycle through hazardous waste disposal companies, whenever possible. Separate oil filters, batteries, tires, and metal filings from grinding and polishing metal parts from common trash items and recycle. These items are not trash and are illegal to dump. Contact a hazardous waste hauler for proper disposal to a hazardous waste collection center.

1.3 Spill Prevention and Response

Implement spill response procedures for releases of significant materials such as fuels, oils, or chemical materials onto the ground or other area that could reasonably be expected to discharge to surface or groundwater.

- For minor spills, keep fifty (50) gallon spill control kits and Speedy Dry at all shop and work areas.
- Immediately contact applicable Federal, State, and local agencies for reportable quantities as required by law.
- Immediately perform applicable containment and cleanup procedures following a spill release.
- Promptly remove and dispose of all material collected during the response in accordance with Federal, State and local requirements. A licensed emergency response contractor may be required to assist in cleanup of releases depending on the amount of the release, and the ability of the Contractor to perform the required response.
- Reportable quantities of chemicals, fuels, or oils are established under the Clean Water Act and enforced through Massachusetts Department of Environmental Protection (DEP).

1.4 Minimize Soil Erosion

Soil erosion facilitates mechanical transport of nutrients, pathogens, and organic matter to surface water bodies. Repair all areas where erosion is occurring throughout the project site. Stabilize bare soil with riprap, seed, mulch, or vegetation.

1.5 Maintenance of Lawns, Gardens, and other Landscaped Areas

Pesticides and fertilizers shall not be used in the landscaped areas associated with the project site and shall not be stored on-site. Dumping of brush or leaves or other materials or debris is not permitted in any Resource Area. Grass clippings, pruned branches and any other landscaped waste should be disposed of or composted in an appropriate location.

1.6 Management of Deicing Chemicals and Snow

The qualified contractor selected for snow plowing and deicing shall be made fully aware of the requirements of this section.

No road salt (sodium chloride) shall be stored on-site. The use of magnesium chloride de-icing product with a 0.5 to 1.0 percent sodium chloride mix for snow and ice treatment is permitted. The product shall be stored in a locked room inside the building and shall be used at exterior stairs and walkways. The snow plow contractor shall adhere to these magnesium chloride use and storage requirements.

During typical snow plowing operations, snow shall be pushed to the designated snow removal areas. Snow shall not be stockpiled in wetland resource areas or the 100-foot Buffer Zone or catch basins. In severe conditions where snow cannot be stockpiled on site, the snow shall be removed from the site and properly disposed of in accordance with DEP Guideline BRP601-01.

Use of sand is permitted only for roadways.

Before winter begins, the property owner and the contractor shall review snow plowing, deicing, and stockpiling procedures. Areas designated for stockpiling should be cleaned of any debris. Street and parking lot sweeping should be followed in accordance with the Operation and Maintenance Plan.

1.7 Coordination with other Permits and Requirements

Certain conditions of other approvals affecting the long term management of the property shall be considered part of this Long Term Pollution Prevention Plan. The Owner shall become familiar with those documents and comply with the guidelines set forth in those documents.

2.0 STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENANCE PLAN

2.1 Introduction

This Operation and Maintenance Plan (O&M Plan) for the 88 Seaport Boulevard site is required under Standard 9 of the 2008 MassDEP Stormwater Handbook to provide best management practices for implementing maintenance activities for the stormwater management system in a manner that minimizes impacts to wetland resource areas.

The Owner shall implement this O&M Plan and proactively conduct operations at the site in an environmentally responsible manner. Compliance with this O&M Plan does not in any way dismiss the Owner from compliance with other applicable Federal, State or local laws.

Routine maintenance during construction and post-development phases of the project, as defined in the Operation and Maintenance Plan, shall be permitted without amendment to the Order of Conditions. A continuing condition in the Certificate of Compliance shall ensure that maintenance can be performed without triggering further filings under the Wetlands Protection Act.

All stormwater best management practices (BMPs) shall be operated and maintained in accordance with the design plans and the Operation and Maintenance Plan approved by the issuing authority. The Owner shall:

a. Maintain an operation and maintenance log for the last three years, including inspections, repairs, replacement and disposal (for disposal the log shall indicate the type of material and the disposal location). This is a rolling log in which the responsible party records all operation and maintenance activities for the past three years.

b. Make this log available to MassDEP and the Conservation Commissions upon request; and

c. Allow members and agents of the MassDEP and the Conservation Commissions to enter and inspect the premises to evaluate and ensure that the Owner complies with the Operation and Maintenance requirements for each BMP.

2.2 Stormwater Operation and Maintenance Requirements

Inspect and maintain the stormwater management system as directed below. Repairs to any component of the system shall be made as soon as possible to prevent any potential pollutants (including silt) from entering the resource areas.

Trench Drain

Inspect area drains at least once per month and remove debris from the grate. Clean out accumulated sediments at least once per year and more frequently as necessary ..

2.3 Street Sweeping

Perform street sweeping at least twice per year, whenever there is significant debris present on roads and parking lots. Street sweeping shall occur in the spring and fall. Sweepings must be handled and disposed of properly according to the Boston Conservation Commission.

2.4 Repair of the Stormwater Management System

The stormwater management system shall be maintained. The repair of any component of the system shall be made as soon as possible to prevent any potential pollutants including silt from entering the resource areas or the existing closed drainage system.

STORMWATER MANAGEMENT SYSTEM INSPECTION FORM

65 Northern Avenue / 88 Seaport Boulevard **Inspected by:_____**
Boston, MA **Date:_____**

Component	Status/Inspection	Action Taken
Trench Drain		
General site conditions – evidence of erosion, etc.		

APPENDIX D

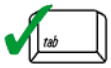
MassDEP Checklist for Stormwater Report and Illicit Discharge Compliance Statement

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.

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[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.

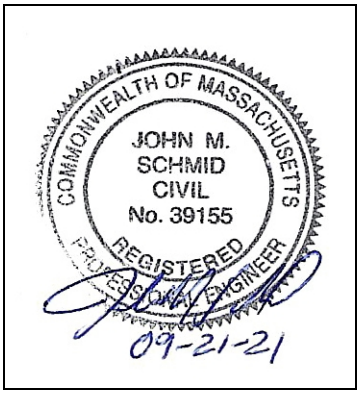
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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



09/21/2021

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): Rainwater recharge system

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 E

Geotechnical Memorandum

HALEY & ALDRICH, INC.
465 Medford St.
Suite 2200
Boston, MA 02129
617.886.7400

MEMORANDUM

28 May 2021
File No. 0201286-000

TO: Seaport D Title Holder LLC
c/o WS Development
Amy Prange, Dan Sullivan

FROM: Haley & Aldrich, Inc.
Marya E. Gorczyca, Heather B. Scranton, Lysandra L. Reed

SUBJECT: Schematic Design Geotechnical Recommendations
Seaport Parcel D
88 Seaport Boulevard
South Boston, Massachusetts

This memorandum summarizes schematic design level geotechnical recommendations and construction considerations for project design and cost estimating for Seaport Parcel D in South Boston, Massachusetts (the "site"). The recommendations included herein are based on compilation and review of readily available subsurface information from the surrounding area and the recently completed Cone Penetrometer Testing (CPT) program at the project site. Recommendations are also based on our understanding of the proposed project from drawings and information provided by the design team.

We understand that a mixed-use building is planned on the Seaport Parcel D and will include 17 above-grade floors and 3 levels of below-grade parking with connection to the existing Parcel C parking garage to the west. A connection to a future garage will be designed at the P1 level east foundation wall. The lowest level garage slab is planned to be at elevation (El.) -18.5.

Elevation Datum

Elevations in this memorandum are in feet and refer to the Boston City Base datum (BCB), which is 5.65 ft below the National Geodetic Vertical Datum of 1929 (NGVD), wherein El. 0.0 BCB is equivalent to El. 5.65 NGVD. In addition, the Boston City Base Datum is 94.35 ft greater than Central Artery Tunnel Datum (CA/T), where El. 0.0 BCB is equivalent to El. 94.35 ft CA/T.

Site and Subsurface Conditions

Site Conditions

The approximately 48,000-square-foot parcel (Figure 1) is located at 88 Seaport Avenue within the Seaport Square Development and is currently an open lot with concrete or asphalt pavement or crushed stone at the ground surface. The former Chapel of Our Lady of Good Voyage was demolished in 2017. The site is currently occupied by an outdoor beer garden and restaurant operation. Existing site grades are approximately El. 16.5 to 18 BCB.

The site is bordered by Northern Avenue to the north, District Hall, a one-level innovation center, to the east, Seaport Boulevard to the South, and One Seaport Square (Parcels B + C) to the west. The MBTA Silver Line Courthouse Station and an emergency egress structure is present below Seaport Boulevard near the southern property line. Refer to a following section for additional description of adjacent structures.

Numerous utilities are present below the streets along the north and south sides of the property, notably a new 30-inch-diameter high-pressure water line below Northern Avenue.

The site consists of filled land and was originally used as railroad yards for freight transport. Historic drawings indicate several rail spurs on the property; for example, those included in the Sanborn Map from 1888 (Appendix A). A short segment of exposed rail is visible at the ground surface in the northeast corner of the site. In addition, the 1888 Sanborn Map shows the limits of “Dock No. 1” and “Dock No. 2” that extended from the harbor into the current limits of the Parcel D site. These docks were filled around 1969 to 1970, and former seawalls buried in-place may still be present. The docks (or “slips”) and old seawalls are depicted in subsurface profiles obtained from a Haley & Aldrich report for the Fan Pier Development; the profiles are included in Appendix B. Buried bulkhead walls used during initial filling to create the land for the railyards may also be present below-grade. Buried wood piles, granite blocks, stone rubble, and other debris was encountered to El. -20+/- during either pre-trenching and/or slurry wall construction in the northeast corner of adjacent Parcel C.

The former Chapel of Our Lady of Good Voyage was supported on wood piles below cast-in-place concrete grade beams and pile caps, as indicated in historic foundation plans dated April 1952 that were prepared by John A. McPherson A.I.A. (Appendix C). We understand from WS Development that when the chapel was demolished, the wood piles were left in-place and the area was backfilled with crushed concrete (demolition debris).

Foundations of Adjacent Structures

We understand the adjacent structure foundation conditions are as follows:

- <u>One Seaport Square:</u> One Seaport Square (Parcels B + C) is supported on a combination of mat foundations under the tower core areas and shallow footing foundations bearing in the Marine Clay soils underlying the site. The lowest level slab of the 3-level below grade garage adjacent to

Parcel D is at approximate El. -18 to El. -18.3 BCB. The bottom of footing elevations range from El. -20 to -24 along the column line below Fan Pier Boulevard closest to Parcel D. The garage foundation wall is a 30-inch-thick concrete diaphragm (slurry) wall with a blockout panel at the P1 level for future connection to Parcel D. The bottom of the wall is typically at El. -38 along the west side of Parcel D.

- District Hall: District Hall is located to the east and is supported on 20-ton design capacity treated timber piles approximately 38-ft-long bearing in friction in the Marine Clay. The pile tip elevations range from El. -22 to -24 BCB. The closest line of piles is approximately 10 ft east of the Parcel D property line. A foundation plan (Drawing S-101) for District Hall dated 10 April 2012 prepared by McNamara Salvia, Inc. is included in Appendix D.
- MBTA Silver Line: The MBTA Silver Line Courthouse Station is located below Seaport Boulevard south of the site. The station was constructed with a 4-ft-thick slurry wall extending to El. -38 to El. -65 depending on the location. An emergency egress is located in the Seaport Avenue sidewalk area north of the station limits. The above-grade portion of the egress will be demolished; however, the below-grade structure will remain in place. A new head house for station access is planned to be constructed east of Pier Street and south of District Hall and will be constructed to similar depths of the station.
- One Marina Park Drive/Fan Pier: Other structures requiring consideration of potential impacts of below-grade construction include the One Marina Park Drive office building located across Northern Avenue north of the site. The building has a multi-level below-grade parking garage and is supported on mat foundations in the Marine Clay, at a depth of approximately 35 ft below-grade.

Subsurface Soil, Bedrock, and Groundwater Conditions

The following summary of subsurface conditions is based on review of information from readily available sources including logs of test borings completed at adjacent properties and construction records. Cone Penetrometer Testing (CPT) was also performed at the site in April 2021. The data and results from the CPT testing are summarized in the memorandum titled, *Cone Penetrometer Testing (CPT) Exploration Results, Seaport Parcel D, 88 Seaport Boulevard* dated 28 May 2021 and included in Appendix E.

Refer to Figure 1 for locations of subsurface explorations at or near the site and Figures 2 and 3 for idealized subsurface profiles through the site.

Strata Description	Elevation of Top of Stratum (ft, BCB)	Range in Thickness (ft)
Miscellaneous Fill	16.5 to 18	4 to 6
Cohesive Fill	11 to 13	10 to 16
Organic Deposits	-3 to 1	0 to 7
Marine Deposits (Sand/Silt)	-10 to -3	10 to 28
Marine Deposits (Clay)	-35 to -8	98 to 108

Strata Description	Elevation of Top of Stratum (ft, BCB)	Range in Thickness (ft)
Glacial Till	-125 to -91	4 to 25
Bedrock	-150 to -119	-

Additional subsurface explorations for the Parcel D project are planned following Schematic Design in the fall when the site is accessible. The program will include geotechnical and soil pre-characterization explorations to define specific conditions within the proposed building footprint.

Groundwater levels at the site are expected to be encountered within 10 ft below the ground surface. Groundwater levels were reported to be between El. 8.5 to El. 13.0 at nearby Seaport Parcels.

Surface Flooding

A portion of the Parcel D site adjacent to Parcel F falls is within a Federal Emergency Management Agency (FEMA) flood zone designated as "AE" having a Base Flood Elevation (BFE) of El. 16.46, as reported on Flood Insurance Rate Map (FIRM) 25025C0081J dated 16 March 2016. FEMA insurance maps use historical data to establish flood elevations and do not include future projections of sea level rise, increased storm frequency, nor other potential future climate impacts.

Foundation Design Recommendations

Refer to Table 1 "Summary of Below-Grade Design and Pricing Guidelines, Seaport Parcel D" for specific foundation design recommendations.

Column Loading and Contact Pressures

Preliminary column loads along the north and south foundation wall were provided by McNamara/Salvia, Inc. on 4 May 2021 for progress/internal design team coordination purposes.

- Column loads (dead load + live load) range between:
  - North foundation wall: 97 to 161 kips including an additional approximate 8 k/lf line load on the foundation wall; and
  - South foundation wall: 304 to 392 kips including an additional approximate 5.5 k/ft line load on the foundation wall.
- Contact pressures at the lowest foundation level are generally up to 4,000 psf, with local areas beneath the proposed building core generally up to 5,000 psf, with maximum value of about 5,300 psf depending on loading condition.

Column Support

In general, the near surface fill and organic soils are not considered suitable for foundation support. Excavation to depths of approximately 43 to 45 ft are anticipated for construction of the three below-grade parking levels. The Marine Clay Deposits anticipated at subgrade level are considered suitable foundation-bearing soils for support of the structure on footings or a mat foundation. The perimeter foundation walls are assumed to consist of reinforced concrete diaphragm walls (slurry walls).

To support permanent column and line loads along the southern slurry wall, the southern slurry wall should be assumed to be designed for an embedment of 20 ft below the bottom of excavation. A minimum of 15 ft of embedment is considered adequate for support of column loads on the east and south walls. Additional embedment may be required for the temporary design of the support of excavation system.

Lowest Level Garage Floor Slab

The lowest level garage floor slab can be designed as a relieved, soil-supported slab-on-grade. A hydrostatic pressure relief system and perimeter groundwater cut-off will be required.

Seismic Design

Seismic Site Classification D should be used.

Groundwater Control and Waterproofing

A sub-slab pressure relief system will be required below the lowest level garage floor slab with a perimeter groundwater cut-off wall to limit seepage into the under-slab drainage system. The recommended design groundwater elevation and sub-slab pressure relief system is described in Table 1.

The perimeter cut-off can be achieved with the temporary excavation support system for the three-level garage. At a minimum, an embedment depth of 15 ft below the bottom of the excavation should be assumed for groundwater cut-off. Grouting and waterproofing details will need to be developed for interfaces between the proposed Parcel D slurry wall and the existing Parcel B/C slurry wall.

Construction Considerations

Refer to Table 1 “Summary of Below-Grade Design and Pricing Guidelines, Seaport Parcel D” for specific construction considerations.

Temporary Earth Support

It is currently planned to use a concrete diaphragm (slurry) wall on the north, east, and south sides of the Parcel D garage as the temporary earth support and permanent foundation wall. The existing Parcel B/C slurry wall on the west side will be utilized as part of the excavation support system. Any loads

transferred into the Parcel B/C slurry wall and the garage floor slabs will need to be evaluated at each stage of the excavation, bracing installation, and bracing removal. Loads on the B/C garage slabs will need to be within allowable structural load capacities and coordinated with the Structural Engineer.

For schematic design cost estimating it should be assumed that a minimum of two (2) levels of lateral bracing will be required. Use of tiebacks/soil anchors are not considered feasible, except along Northern Avenue (north side of excavation), due to adjacent structure conditions. However, site geometry, below-grade utilities, and other constraints will need to be further considered. This is particularly applicable along the southeastern corner where protection of utilities may be required during construction and along the eastern side of the site which is within 10 ft of the District Hall building edge. Refer to Figures 4 through 6 “Concept Level Bracing Layouts” for feasible conceptual level brace options (A and B) and Figure 7 for a section through the Parcel B/C garage and a summary of assumed construction sequence.

The outside face of the foundation wall should be on or inside the property line. A license agreement from the City of Boston Public Improvement Commission (PIC) will be required for any portion of the temporary earth support system extending into the public way. As a minimum, a PIC permit is expected to be required for temporary guide wall construction. Depending on the depth to the top of the slurry wall (cap beam height), a soldier pile and lagging wall may also be required beyond the slurry wall alignment.

Obstructions

Pre-trenching will be required to remove obstructions along the alignment of the support of excavation system. Test pits should be undertaken during future design phases in areas along the limits of the historic docks and/or adjacent to the existing MBTA Silver Line tunnel to identify existing subsurface conditions and potential constraints (e.g., utilities, below-grade structures, etc.).

Environmental Soil Management

Chemical testing of soil for determination of environmental quality and requirements for off-site disposal has not been undertaken at this time. Based on environmental quality of fill soils encountered during construction at nearby Seaport Square parcels, it should be assumed that elevated levels of chemical constituents will be present in fill soils requiring special handling and disposal. Guidelines for preliminary cost estimating are provided in the attached Table 1. Descriptions of the soil Group Classifications are included in Appendix F.

Evaluation of Impacts to Adjacent Structures

The depth of excavation, building foundation loads, bottom of foundation elevations, and other design elements will need to consider minimizing off-site impacts. Given that the planned lowest garage level at Parcel D is at the same/similar elevation as the lowest garage slab at Parcel B/C, the design bottom elevation of foundation elevations for Parcel D should be designed to match the existing Parcel B/C foundations to limit impacts to the existing foundations.

The planned eastern slurry wall alignment adjacent to District Hall is within close proximity to existing foundations. The project should consider adjusting the location of the eastern slurry wall to reduce potential impacts.

Low impact foundation construction methodology such as slurry wall and mat/footing construction will minimize potential construction-related impacts. However, Contractor means and methods will need to consider protecting the adjacent structures and utilities from movement during the Parcel D basement excavation. An instrumentation and monitoring program will be developed during subsequent design phases and include performance criteria related to protection of existing structures and design of support of excavation system.

Impacts to the adjacent MBTA silver line structure are not anticipated for the proposed structural systems and below-grade parking garage. However, a license agreement, force account, and review by the MBTA is expected to be required for the project due to proximity.

Attachments:

Table 1 – Summary of Below-Grade Design and Pricing Guidelines

Figure 1 – Site and Existing Subsurface Exploration Location Plan
Figure 2 – Subsurface Profile A-A (West-East)
Figure 3 – Subsurface Profile B-B (North- South)
Figure 4 – Concept Level Bracing Layout – Scheme A
Figure 5 – Concept Level Bracing Layout – Scheme B
Figure 6 – Concept Level Bracing Layout – Scheme B – Tieback Limits
Figure 7 – Section Through Existing Parcel B+C / D Slurry Wall

Appendix A – Sanborn Map from 1888
Appendix B – Site and Subsurface Exploration Location Plan and Subsurface Profiles A-A and G-G from the Haley & Aldrich, Inc. report dated March 1968 and titled, “Phase 1 Geotechnical Data Report, Fan Pier Development”
Appendix C – Our Lady of Good Voyage Drawing Nos. 1 and 3, dated April 1952 and prepared by John A. McPherson A.I.A.
Appendix D – District Hall, Progress Foundation Plan, Drawing S-101 and S-102, dated 10 April 2012 and prepared by McNamara/Salvia, Inc.
Appendix E – Haley & Aldrich Memorandum titled, “Cone Penetrometer Testing (CPT) Exploration Results, Seaport Parcel D, 88 Seaport Boulevard” dated 28 May 2021.
Appendix F – Soil Pre-characterization Group Classification System Descriptions

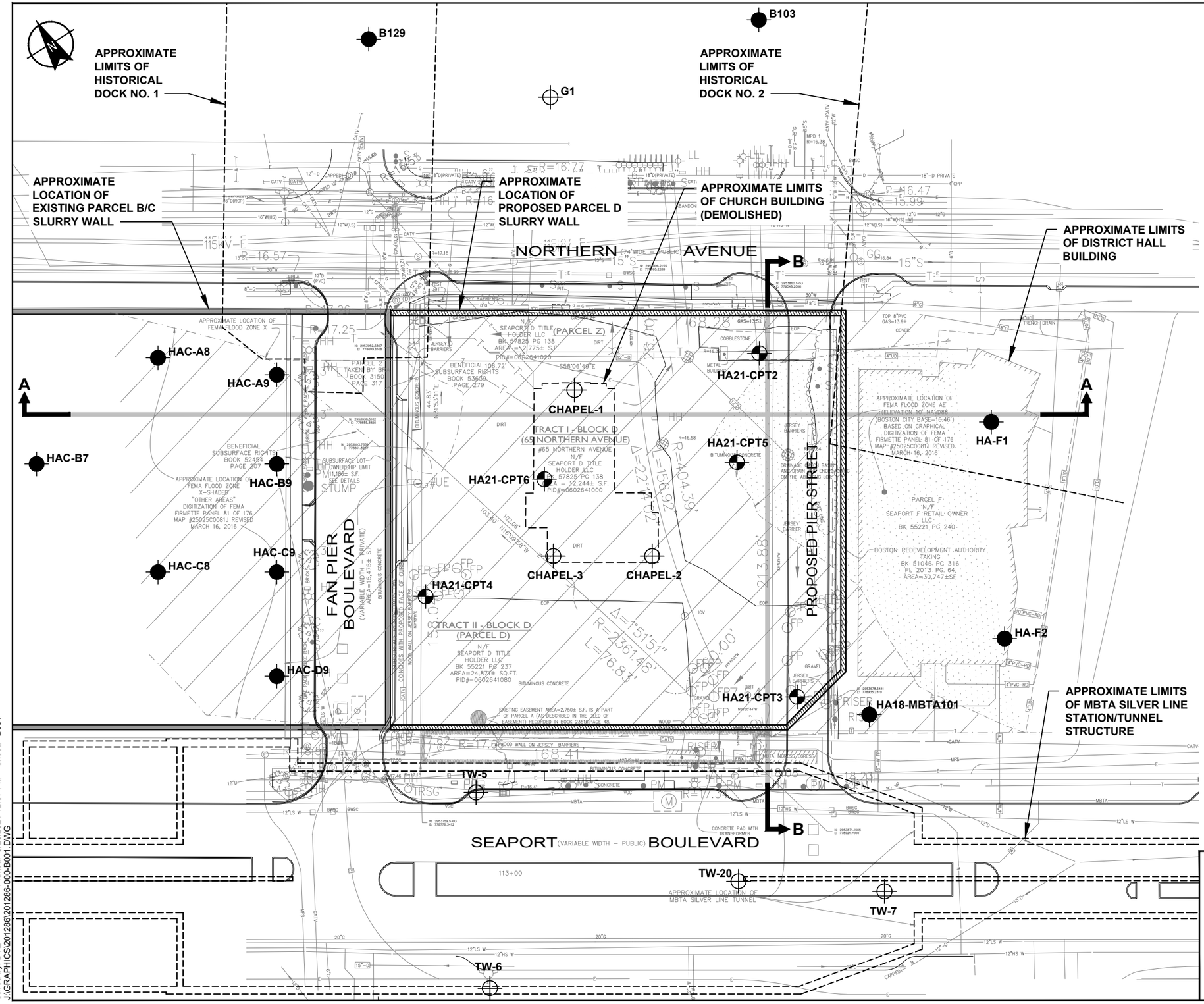
TABLE

TABLE I
SUMMARY OF BELOW-GRADE DESIGN AND PRICING GUIDELINES
Seaport Parcel D
88 Seaport Boulevard
South Boston, Massachusetts

H&A File No. 0201286-000
Date: 28 May 2021

PARCEL D GARAGE DESCRIPTION:	Plan Area = 48,000 sq. ft., 3 Levels Parking: P1 slab = El. 2.0, P2 slab = El. -8.5, P3 slab = El. -18.5, elevations refer to Boston City Base (BCB) datum
SUBSURFACE CONDITIONS:	- Assumed Existing Ground Surface El. 18 (Boston City Base) - Thickness unsuitable Fill/Cohesive Fill and organic Soils 25 ft. - Depth to top of rock , assume 150 ft. - Design Groundwater Level El. 13 BCB
PERMANENT FOUNDATION SYSTEM	
Foundation Support	Assumed 60 in. thick concrete Mat Foundation, increased mat thickness below the core.
Foundation Wall	North, east, and south: Assumed 30 in. thick concrete diaphragm (slurry) wall on all north, east, and south walls. Design blockout panels along east wall at P1 level for connection to future structure. West: Existing 30-in. thick concrete diaphragm (slurry) wall at Parcel C garage east wall; existing blockout for garage connection at P1 level.
Permanent Groundwater Control	Hydrostatic pressure relief below mat slab (network of geocomposite drainage) connected to a 6-inch thick underslab drainage system (3/4-inch crushed stone and network of 4-in. dia. perf. pipe) over concrete mat. Perforated pipe laid directly on top of mat foundation.
TEMPORARY BELOW GRADE CONSTRUCTION ITEMS	
Lowest Slab El./Depth	P3 El. -18.5 ft /depth 36.5 ft
Excavation El./Depth	El. -24.75 ft to El. -26.6 /depth 42.75 to 44.6 ft
Hydrostatic Head (ft.)	28.5 ft
Temporary Support of Excavation (SOE)	Braced 30 in. thick concrete diaphragm (slurry) wall
Preliminary Bottom of Earth Support Wall Criteria	Minimum 15 ft. below bottom of excavation for groundwater cut-off or deeper if needed for support of excavation design or 20 ft below bottom of excavation for support of perimeter column loads on the south wall.
Estimated Bottom of Wall El. (total height)	Approximately El. -39.75 (57.75 ft.) typ. assumed for north and east slurry wall. Approximatley El. -44.75 (62.75 ft) typ. assumed for south wall to support perimeter column and line loads on foundation wall.
Lateral Bracing	Refer to Figures 4 to 7 - Concept Level Bracing Layouts and Section, for lateral bracing options. 2 levels of bracing Braces can be used to transfer loads into B/C garage slabs; however, brace loads will need to be within allowable permanent loading on B/C slabs and coordinated with the Structural Engineer. Existing slurry wall will also need to be evaluated at at each stage of bracing installation, bracing removal, and excavation stages.
Temporary Construction Dewatering	Sumps and pumps
Pretrenching/Obstruction Removal	Along slurry wall alignment. Test pits to define conditions at the northeast and southeast corners.
Special measures for Protection of Adjacent Structures	Protection of completed adjacent B/C foundations and garage. Protection of existing utilities below Northern Avenue and Seaport Boulevard. Coordination with utilities and existing vault in southeast corner of site. Protection of existing District Hall building adjacent to SOE installation and excavation.
ENVIRONMENTAL SOIL MANANGEMENT	
Soil Management (Transport and Disposal)	Assume unit costs and soil characterization type percentages for D to be similar to Parcel B/C for cost estimating. Assume slurry wall spoils transported to unlined landfill due to physical properties. Refer to Appendix F for Group Classification descriptions: 40% Group I-1/I-2 Non-Reportable Naturally-Deposited Soils 10% Group I-3 Non-Reportable Urban Fill (Below RCS-1) 20% Group I-3A Non-Reportable Cohesive Fill and Organic Soils (Below RCS-1) 15% Group I-3B Non-Reportable Fill, Cohesive Fill, Organic Soils and Naturally Deposited Soils below RCS-1, exceeding facility specific acceptance criteria for Group I facilities (assume to be transported to unlined landfill for pricing/bidding purposes) 3% Group I-4 Foundation Slurry Spoils (assume to be transported to unlined landfill for pricing/bidding purposes) 10% Group II-1 In-State, Unlined Landfill 2% Group II-5 Regional Disposal
OFF SITE IMPACTS/ ADJACENT STRUCTURES	
Parcel B/C	Supported on footings/mat P3 slab at El. -18 to El. -18.4 ft
Parcel F/District Hall	Supported on 20-ton capacity treated timber piles, tip El. -22 to -24 ft
MBTA Silver Line Courthouse Station	Tunnel walls 4 ft thick, station bottom of wall El. -38 ft Slurry wall extending to El. -65 ft

FIGURES



LEGEND

HA21-CPT2	DESIGNATION AND APPROXIMATE LOCATION OF CONE PENETRATION TEST PERFORMED BY CONETEC FOR THE PARCEL D PROJECT ON 15 APRIL 2021 UNDER THE TECHNICAL OBSERVATION OF HALEY & ALRICH, INC.
HAC-B9	DESIGNATION AND APPROXIMATE LOCATION OF HISTORIC BORING COMPLETED UNDER THE TECHNICAL OBSERVATION OF HALEY & ALDRICH, INC.
TW-20	DESIGNATION AND APPROXIMATE LOCATION OF HISTORIC BORING COMPLETED BY OTHERS
A A	DESIGNATION AND APPROXIMATE LOCATION OF SUBSURFACE PROFILE

NOTES

1. BASE PLAN TAKEN FROM AN ELECTRONIC FILE TITLED "14137_ALTA_D1.DWG", PREPARED BY NITSCH ENGINEERING, DATED 30 OCTOBER 2020.
2. HORIZONTAL COORDINATES REFER TO NORTH AMERICAN DATUM OF 1983 (NAD 83).
3. ELEVATIONS REFER TO BOSTON CITY BASE (BCB).
4. LIMITS OF PREVIOUS CHURCH BUILDING TAKEN FROM AN ELECTRONIC FILE TITLED, "10684.2_TOPO1_RevB_011617.dwg" PREPARED BY ROBERT G. MILES, PLS AND DATED 21 DECEMBER 2016.
5. LIMITS OF PROPOSED STREETS TAKEN FROM ELECTRONIC FILE TITLED, "10684.5 District hall planning-C-2" PREPARED BY NITSCH ENGINEERING, DATED 1 APRIL 2021.
6. LIMITS OF EXISTING PARCEL B+C SLURRY WALL AND PROPOSED PARCEL D SLURRY WALL TAKEN FROM ELECTRONIC FILE TITLED, "2021-05-04_88_Seaport_Parking Plans_w-Valet-REV-DESMAN-P1-P2-P3" PREPARED BY DESMAN DESIGN MANAGEMENT, DATED 4 MAY 2021.
7. APPROXIMATE LIMITS OF HISTORICAL DOCK NO. 1 AND DOCK NO. 2 ESTIMATED FROM SANBORN INSURANCE MAP DATED 1888.

0 50 100
SCALE IN FEET

HALEY ALDRICH

SEAPORT PARCEL D
88 SEAPORT BOULEVARD
BOSTON, MASSACHUSETTS

SITE AND SUBSURFACE EXPLORATION LOCATION PLAN

SCALE: AS SHOWN
MAY 2021

FIGURE 1

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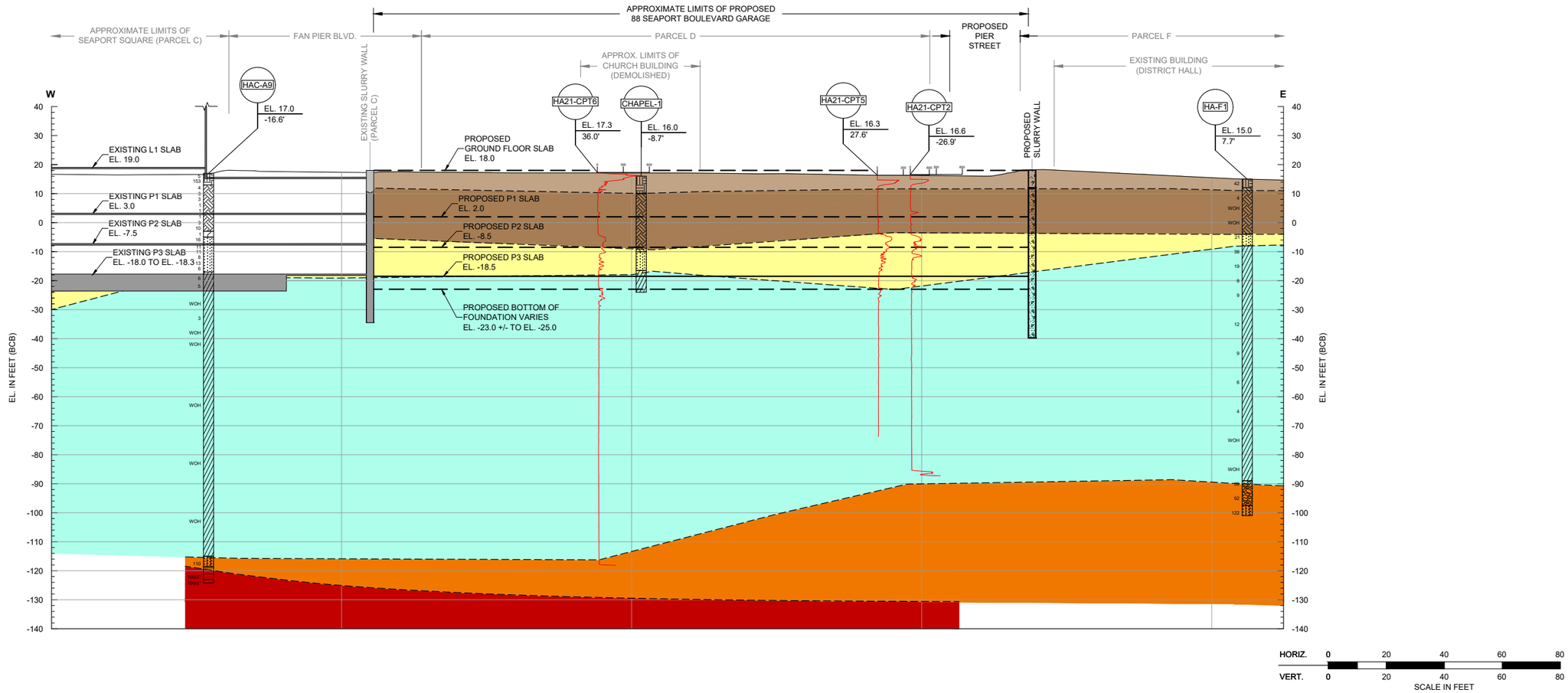
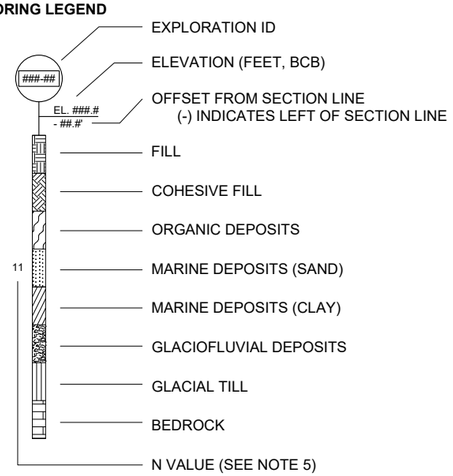
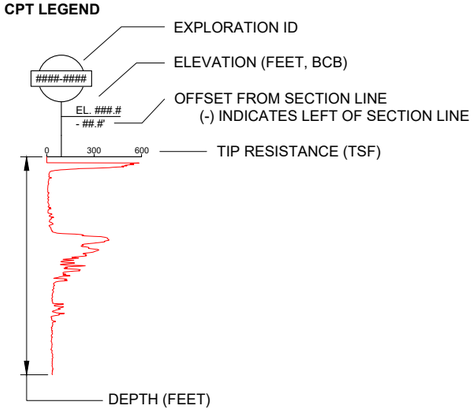
J:\GRAPHICS\201286\201286-000-B001.DWG



BORING LEGEND



CPT LEGEND



GEOLOGIC LEGEND

- FILL
- COHESIVE FILL
- ORGANIC DEPOSITS
- MARINE DEPOSITS (SAND)
- MARINE DEPOSITS (CLAY)
- GLACIAL DEPOSITS (INCLUDING GLACIOFLUVIAL AND GLACIAL TILL DEPOSITS)
- BEDROCK

LEGEND

- EXISTING GROUND SURFACE
- INTERPRETED GEOLOGIC STRATA BREAK

NOTES

1. REFER TO FIGURE 1 FOR PLAN LOCATION OF BORINGS, SUBSURFACE PROFILE LOCATIONS, AND GENERAL EXISTING CONDITIONS.
2. OFFSET DISTANCES INDICATED ARE MEASURED FROM THE PLAN LOCATION OF THE PROFILE LINE, PERPENDICULAR TO THE LINE.
3. SUBSURFACE PROFILES DEPICT THE GENERAL GEOLOGIC CONDITIONS AT THE SITE AND ARE BASED ON INTERPRETATION OF DATA ENCOUNTERED IN THE EXPLORATIONS. LINES REPRESENTING INTERFACES BETWEEN STRATA ON THE PROFILE ARE BASED UPON INTERPOLATION BETWEEN ADJACENT BORINGS.
4. ELEVATIONS ARE IN FEET AND REFERENCE THE BOSTON CITY BASE (BCB) VERTICAL DATUM.
5. THE STANDARD PENETRATION RESISTANCE, "N", IS DEFINED AS THE NUMBER OF BLOWS OF A 140-LB HAMMER FALLING A VERTICAL DISTANCE OF 30 INCHES REQUIRED TO DRIVE A 2-INCH O.D. 1-3/8-INCH I.D. SPLIT-SPOON SAMPLER 12 INCHES.

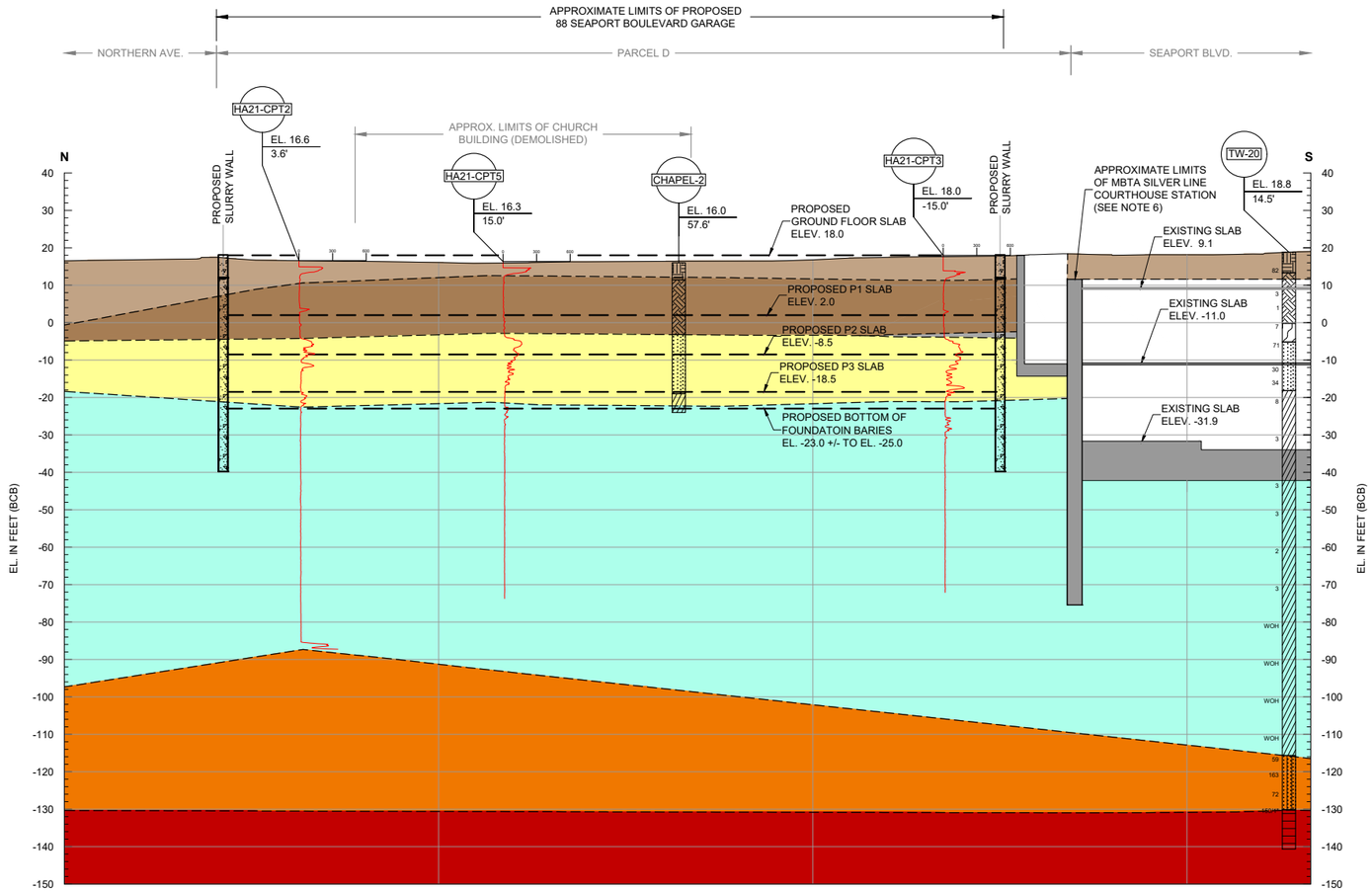
HALEY ALDRICH

SEAPORT PARCEL D
88 SEAPORT BOULEVARD
BOSTON, MASSACHUSETTS

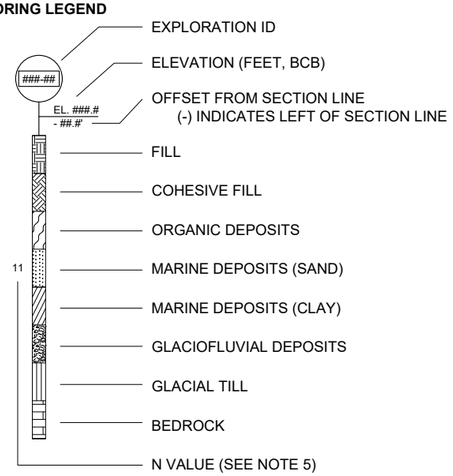
SUBSURFACE PROFILE A-A (WEST-EAST)

SCALE: AS SHOWN
MAY 2021

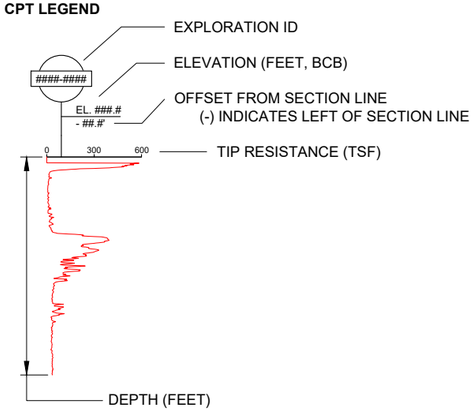
FIGURE 2



BORING LEGEND



CPT LEGEND



GEOLOGIC LEGEND

- FILL
- COHESIVE FILL
- ORGANIC DEPOSITS
- MARINE DEPOSITS (SAND)
- MARINE DEPOSITS (CLAY)
- GLACIAL DEPOSITS (INCLUDING GLACIOFLUVIAL AND GLACIAL TILL DEPOSITS)
- BEDROCK

LEGEND

- EXISTING GROUND SURFACE
- INTERPRETED GEOLOGIC STRATA BREAK

NOTES

1. REFER TO FIGURE 1 FOR PLAN LOCATION OF BORINGS, SUBSURFACE PROFILE LOCATIONS, AND GENERAL EXISTING CONDITIONS.
2. OFFSET DISTANCES INDICATED ARE MEASURED FROM THE PLAN LOCATION OF THE PROFILE LINE, PERPENDICULAR TO THE LINE.
3. SUBSURFACE PROFILES DEPICT THE GENERAL GEOLOGIC CONDITIONS AT THE SITE AND ARE BASED ON INTERPRETATION OF DATA ENCOUNTERED IN THE EXPLORATIONS. LINES REPRESENTING INTERFACES BETWEEN STRATA ON THE PROFILE ARE BASED UPON INTERPOLATION BETWEEN ADJACENT BORINGS.
4. ELEVATIONS ARE IN FEET AND REFERENCE THE BOSTON CITY BASE (BCB) VERTICAL DATUM.
5. THE STANDARD PENETRATION RESISTANCE, "N", IS DEFINED AS THE NUMBER OF BLOWS OF A 140-LB HAMMER FALLING A VERTICAL DISTANCE OF 30 INCHES REQUIRED TO DRIVE A 2-INCH O.D. 1-3/8-INCH I.D. SPLIT-SPOON SAMPLER 12 INCHES.
6. MBTA SILVER LINE TAKEN FROM SECTION DRAWING TITLED "TYPICAL TUNNEL SECTION, BUILDING SECTION AT MBTA COURTHOUSE STATION" DATED 12 MAY 2021, PREPARED BY JACOBS.

HALEY ALDRICH

SEAPORT PARCEL D
88 SEAPORT BOULEVARD
BOSTON, MASSACHUSETTS

SUBSURFACE PROFILE B-B (NORTH-SOUTH)

SCALE: AS SHOWN
MAY 2021

FIGURE 3

ONE SEAPORT
SQUARE PARCEL B/C
(EXISTING GARAGE)

DISTRICT HALL
PARCEL F
(EXISTING BUILDING)

EXTEND SLURRY WALL AS REQUIRED AND DESIGN FUTURE CONNECTION AND WATERPROOFING.

EXTERNAL WALE (TYP.) DRILLING AND GROUTING REQUIRED TO PROVIDE CONNECTION OF EXTERNAL WALE TO SLURRY WALL.

PIN-PILE (TYP.)

EXTERNAL WALE (TYP.)

1
FIG-4

FUTURE CONNECTION AND WATERPROOFING WILL NEED TO BE DESIGNED FOR TIE-IN OF EXISTING B/C SLURRY WALL TO PROPOSED PARCEL D SLURRY WALL AT TWO LOCATIONS (N+S)

MBTA SILVERLINE COURTHOUSE STATION LOCATION NOT SHOWN

NOTES
1. CONCEPTUAL LEVEL BRACING SCHEME SHOWN FOR SCHEMATIC DESIGN; THE SYSTEM HAS NOT BEEN DESIGNED AND IS NOT TO BE USED FOR CONSTRUCTION.

2. BASE PLAN DRAWING FOR GARAGE LAYOUT PREPARED BY DESMAN DESIGN MANAGEMENT. DRAWING PROVIDED IN PDF FORMAT AND RECEIVED ELECTRONICALLY ON 18 MAY 2021.

3. LOCATION OF EXISTING SLURRY WALL TO BE VERIFIED IN FIELD PRIOR TO CONTRACTOR SOE DESIGN.

4. COLUMN LOCATIONS SHOWN ON NORTH AND SOUTH WALLS WERE PROVIDED TO HALEY & ALDRICH BY MCNAMARA SALVIA (M/S) ON 20 MAY 2021.

5. DIMENSIONS INDICATE ESTIMATED PANEL LENGTHS FOR PURPOSES OF CONCEPTUAL BRACING LAYOUT. SLURRY WALL PANEL CONSTRAINTS ALONG THE NORTH AND SOUTH WALLS CONSIST OF MAXIMUM PANEL LENGTHS BETWEEN 20 FT - 24 FT AND PRELIMINARY STRUCTURAL CRITERIA FROM M/S THAT THE DISTANCE FROM PANEL JOINT TO CENTER OF COLUMN MUST BE BETWEEN 10 FT - 12 FT. ASSUME MAXIMUM PANEL LENGTH IS LESS THAN OR EQUAL TO 25 FT ON EAST WALL.

LEGEND:
- PROPOSED SLURRY WALL
- EXISTING SLURRY WALL
- INTERNAL BRACING
- EXTERNAL WALE

HALEY ALDRICH

SEAPORT PARCEL D
88 SEAPORT BOULEVARD
SOUTH BOSTON, MASSACHUSETTS

CONCEPT LEVEL BRACING LAYOUT - SCHEME A

SCALE: AS SHOWN
MAY 2021

FIGURE 4

Level P1 - Parking Layout and Count

88 Seaport
Boston, MA

May 4, 2021

DESMAN Design Management

ONE SEAPORT SQUARE PARCEL B/C (EXISTING GARAGE)

EXTEND SLURRY WALL AS REQUIRED AND DESIGN FUTURE CONNECTION AND WATERPROOFING.

DISTRICT HALL PARCEL F (EXISTING BUILDING)

EXTERNAL WALE (TYP.) DRILLING AND GROUTING REQUIRED TO PROVIDE CONNECTION OF EXTERNAL WALE TO SLURRY WALL.

PIN-PILE (TYP.)

EXTERNAL WALE (TYP.)

1 FIG-4

FUTURE CONNECTION AND WATERPROOFING WILL NEED TO BE DESIGNED FOR TIE-IN OF EXISTING B/C SLURRY WALL TO PROPOSED PARCEL D SLURRY WALL AT TWO LOCATIONS (N+S)

MBTA SILVERLINE COURTHOUSE STATION LOCATION NOT SHOWN

NOTES
1. CONCEPTUAL LEVEL BRACING SCHEME SHOWN FOR SCHEMATIC DESIGN; THE SYSTEM HAS NOT BEEN DESIGNED AND IS NOT TO BE USED FOR CONSTRUCTION.

2. BASE PLAN DRAWING FOR GARAGE LAYOUT PREPARED BY DESMAN DESIGN MANAGEMENT. DRAWING PROVIDED IN PDF FORMAT AND RECEIVED ELECTRONICALLY ON 18 MAY 2021.

3. LOCATION OF EXISTING SLURRY WALL TO BE VERIFIED IN FIELD PRIOR TO CONTRACTOR SOE DESIGN.

4. COLUMN LOCATIONS SHOWN ON NORTH AND SOUTH WALLS WERE PROVIDED TO HALEY & ALDRICH BY MCNAMARA SALVIA (M/S) ON 20 MAY 2021.

5. DIMENSIONS INDICATE ESTIMATED PANEL LENGTHS FOR PURPOSES OF CONCEPTUAL BRACING LAYOUT. SLURRY WALL PANEL CONSTRAINTS ALONG THE NORTH AND SOUTH WALLS CONSIST OF MAXIMUM PANEL LENGTHS BETWEEN 20 FT - 24 FT AND PRELIMINARY STRUCTURAL CRITERIA FROM M/S THAT THE DISTANCE FROM PANEL JOINT TO CENTER OF COLUMN MUST BE BETWEEN 10 FT - 12 FT. ASSUME MAXIMUM PANEL LENGTH IS LESS THAN OR EQUAL TO 25 FT ON EAST WALL.

LEGEND:
- PROPOSED SLURRY WALL
- EXISTING SLURRY WALL
- INTERNAL BRACING
- EXTERNAL WALE

HALEY ALDRICH

SEAPORT PARCEL D
88 SEAPORT BOULEVARD
SOUTH BOSTON, MASSACHUSETTS

CONCEPT LEVEL BRACING LAYOUT - SCHEME B

SCALE: AS SHOWN
MAY 2021

FIGURE 5

Level P1 - Parking Layout and Count

88 Seaport
Boston, MA

May 4, 2021

DESMAN Design Management

ONE SEAPORT SQUARE PARCEL B/C (EXISTING GARAGE)

DISTRICT HALL PARCEL F (EXISTING BUILDING)

EXTEND SLURRY WALL AS REQUIRED AND DESIGN FUTURE CONNECTION AND WATERPROOFING.

TIEBACKS

EXTERNAL WALE (TYP.) DRILLING AND GROUTING REQUIRED TO PROVIDE CONNECTION OF EXTERNAL WALE TO SLURRY WALL.

PIN-PILE (TYP.)

FUTURE CONNECTION AND WATERPROOFING WILL NEED TO BE DESIGNED FOR TIE-IN OF EXISTING B/C SLURRY WALL TO PROPOSED PARCEL D SLURRY WALL AT TWO LOCATIONS (N+S)

MBTA SILVERLINE COURTHOUSE STATION LOCATION NOT SHOWN

NOTES
1. CONCEPTUAL LEVEL BRACING SCHEME SHOWN FOR SCHEMATIC DESIGN; THE SYSTEM HAS NOT BEEN DESIGNED AND IS NOT TO BE USED FOR CONSTRUCTION.

2. BASE PLAN DRAWING FOR GARAGE LAYOUT PREPARED BY DESMAN DESIGN MANAGEMENT. DRAWING PROVIDED IN PDF FORMAT AND RECEIVED ELECTRONICALLY ON 18 MAY 2021.

3. LOCATION OF EXISTING SLURRY WALL TO BE VERIFIED IN FIELD PRIOR TO CONTRACTOR SOE DESIGN.

4. COLUMN LOCATIONS SHOWN ON NORTH AND SOUTH WALLS WERE PROVIDED TO HALEY & ALDRICH BY MCNAMARA SALVIA (M/S) ON 20 MAY 2021.

5. DIMENSIONS INDICATE ESTIMATED PANEL LENGTHS FOR PURPOSES OF CONCEPTUAL BRACING LAYOUT. SLURRY WALL PANEL CONSTRAINTS ALONG THE NORTH AND SOUTH WALLS CONSIST OF MAXIMUM PANEL LENGTHS BETWEEN 20 FT - 24 FT AND PRELIMINARY STRUCTURAL CRITERIA FROM M/S THAT THE DISTANCE FROM PANEL JOINT TO CENTER OF COLUMN MUST BE BETWEEN 10 FT - 12 FT. ASSUME MAXIMUM PANEL LENGTH IS LESS THAN OR EQUAL TO 25 FT ON EAST WALL.

5. TIEBACKS TO BE INSTALLED USING INTERNAL FLUSH DUPLEX METHODS.

LEGEND:
- PROPOSED SLURRY WALL
- EXISTING SLURRY WALL
- INTERNAL BRACING
- EXTERNAL WALE

HALEY ALDRICH

SEAPORT PARCEL D
88 SEAPORT BOULEVARD
SOUTH BOSTON, MASSACHUSETTS

CONCEPT LEVEL BRACING LAYOUT - SCHEME C

SCALE: AS SHOWN
MAY 2021

FIGURE 6

Level P1 Parking Layout and Count

88 Seaport
Boston, MA

May 4, 2021

DESMAN Design Management

Client: PARCEL D TITLEHOLDER LLC
Project: SEAPORT PARCEL D

Project No.: 0201286-001
Date: 5/25/21
Computed By: PT

NOTES:

1. BRACING LOCATIONS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY; ACTUAL BRACING HAS NOT BEEN DESIGNED.

2. BRACING LOADS TRANSFERRED INTO PARCEL B+C GARAGE FLOOR SLABS SHALL BE BELOW STRUCTURAL DESIGN CRITERIA TO BE DEFINED BY STRUCTURAL ENGINEER AND SHALL BE COORDINATED WITH STRUCTURAL ENGINEER AND SUBJECT TO REVIEW AND APPROVAL.

3. SUPPORT OF EXCAVATION DESIGNER NEEDS TO EVALUATE BRACING LOAD ON EXISTING SLURRY WALL. EXISTING SLURRY WALL WILL NEED TO ALSO BE EVAULATED AT EACH STAGE OF BRACING INSTALLATION, BRACING REMOVAL, AND EXCAVATION STAGES.

4. PROPOSED EXCAVATION AND BRACING INSTALLATION SEQUENCE:
- EXCAVATE 2 FT BELOW BRACE LEVEL 1.
- INSTALL BRACE LEVEL 1
- EXCAVATE 2 FT BELOW BRACE LEVEL 2.
- INSTALL BRACE LEVEL 2.
- EXCAVATE TO BOE.
- PLACE P3 MAT.
- REMOVE BRACE LEVEL 2.
- INSTALL P2 AND P1 SLABS.
- REMOVE BRACE LEVEL 1.

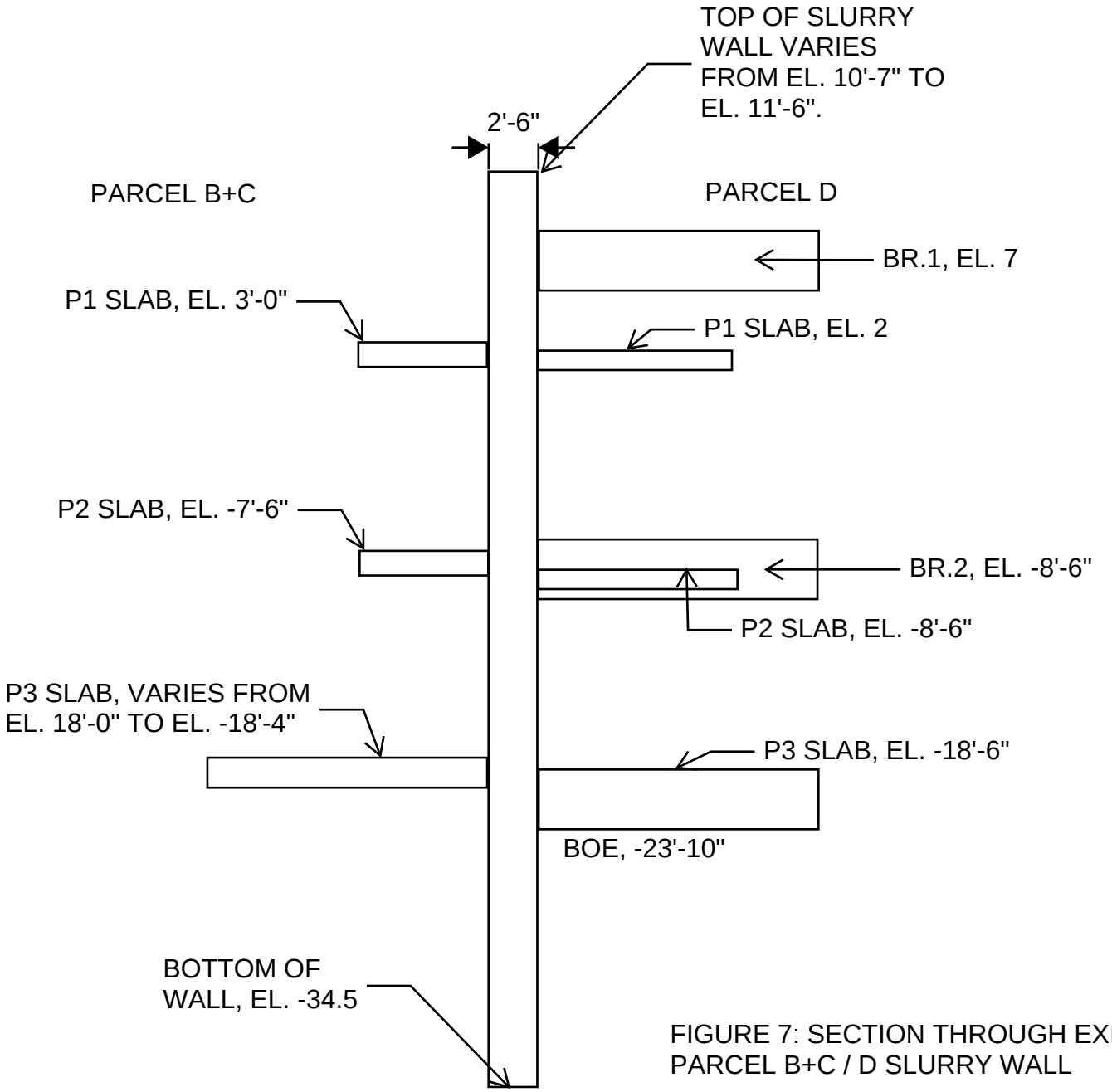
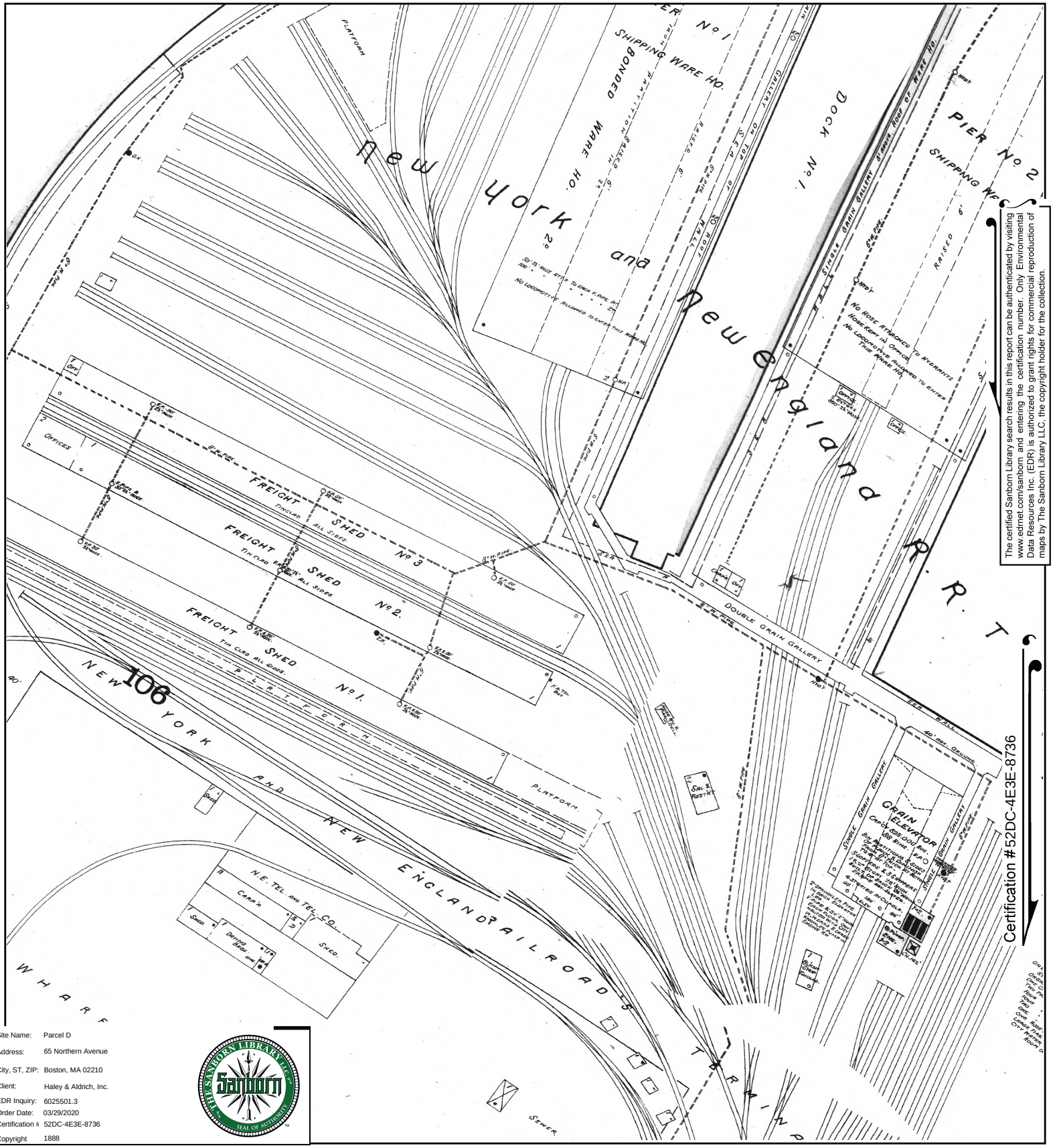


FIGURE 7: SECTION THROUGH EXISTING PARCEL B+C / D SLURRY WALL

APPENDIX A

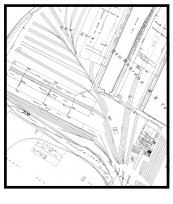
Sanborn Map from 1888

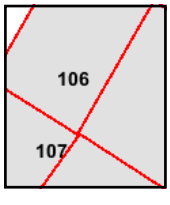


Certification #52DC-4E3E-8736

Site Name:	Parcel D
Address:	65 Northern Avenue
City, ST, ZIP:	Boston, MA 02210
Client:	Haley & Aldrich, Inc.
EDR Inquiry:	6025501.3
Order Date:	03/29/2020
Certification #:	52DC-4E3E-8736
Copyright	1888

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.





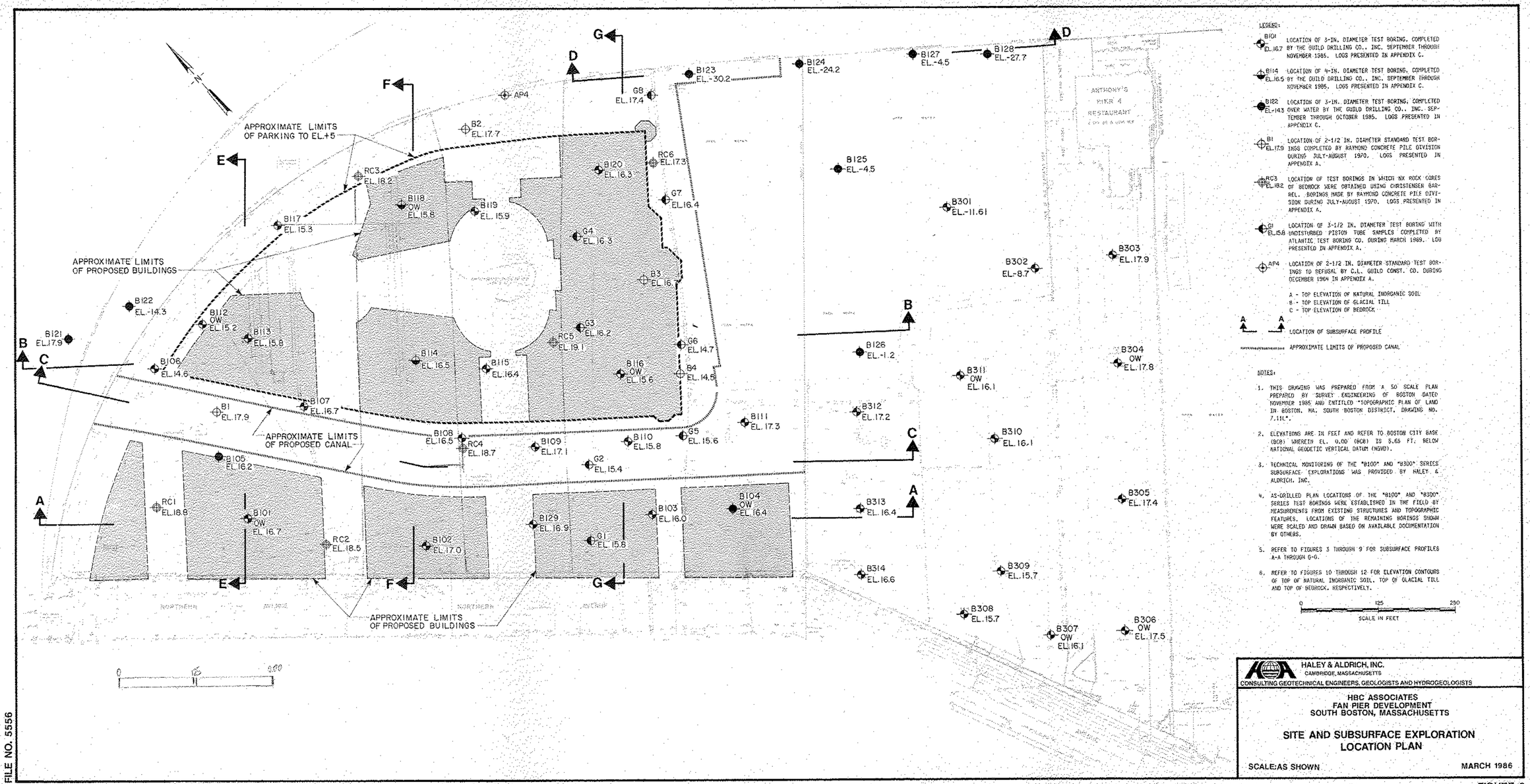
Volume 4, Sheet 107
Volume 4, Sheet 107
Volume 4, Sheet 106
Volume 4, Sheet 106

0 Feet 150 300 600

N

APPENDIX B

Site and Subsurface Exploration Location Plan and Subsurface Profiles A-A and G-G



LEGEND:

- B101 EL.16.7 — LOCATION OF 3-IN. DIAMETER TEST BORING, COMPLETED BY THE GUILD DRILLING CO., INC. SEPTEMBER THROUGH NOVEMBER 1985. LOGS PRESENTED IN APPENDIX C.
- B114 EL.16.5 — LOCATION OF 4-IN. DIAMETER TEST BORING, COMPLETED BY THE GUILD DRILLING CO., INC. SEPTEMBER THROUGH NOVEMBER 1985. LOGS PRESENTED IN APPENDIX C.
- B122 EL.-14.3 — LOCATION OF 3-IN. DIAMETER TEST BORING, COMPLETED OVER WATER BY THE GUILD DRILLING CO., INC. SEPTEMBER THROUGH OCTOBER 1985. LOGS PRESENTED IN APPENDIX C.
- B1 EL.17.9 — LOCATION OF 2-1/2 IN. DIAMETER STANDARD TEST BORINGS COMPLETED BY RAYMOND CONCRETE PILE DIVISION DURING JULY-AUGUST 1970. LOGS PRESENTED IN APPENDIX A.
- RC3 EL.18.2 — LOCATION OF TEST BORINGS IN WHICH NX ROCK CORES OF BEDROCK WERE OBTAINED USING CHRISTENSEN BARREL. BORINGS MADE BY RAYMOND CONCRETE PILE DIVISION DURING JULY-AUGUST 1970. LOGS PRESENTED IN APPENDIX A.
- G1 EL.15.8 — LOCATION OF 3-1/2 IN. DIAMETER TEST BORING WITH UNDISTURBED PISTON TUBE SAMPLES COMPLETED BY ATLANTIC TEST BORING CO. DURING MARCH 1989. LOG PRESENTED IN APPENDIX A.
- AP4 — LOCATION OF 2-1/2 IN. DIAMETER STANDARD TEST BORINGS TO REFUSAL BY C.L. GUILD CONST. CO. DURING DECEMBER 1964 IN APPENDIX A.

A - TOP ELEVATION OF NATURAL INORGANIC SOIL
B - TOP ELEVATION OF GLACIAL TILL
C - TOP ELEVATION OF BEDROCK

A — A — LOCATION OF SUBSURFACE PROFILE

APPROXIMATE LIMITS OF PROPOSED CANAL

NOTES:

1. THIS DRAWING WAS PREPARED FROM A 50 SCALE PLAN PREPARED BY SURVEY ENGINEERING OF BOSTON DATED NOVEMBER 1985 AND ENTITLED "TOPOGRAPHIC PLAN OF LAND IN BOSTON, MA. SOUTH BOSTON DISTRICT, DRAWING NO. 7.11L".
2. ELEVATIONS ARE IN FEET AND REFER TO BOSTON CITY BASE (BCB) WHEREIN EL. 0.00 (BCB) IS 5.65 FT. BELOW NATIONAL GEODETIC VERTICAL DATUM (NGVD).
3. TECHNICAL MONITORING OF THE "B100" AND "B300" SERIES SUBSURFACE EXPLORATIONS WAS PROVIDED BY HALEY & ALDRICH, INC.
4. AS-DRILLED PLAN LOCATIONS OF THE "B100" AND "B300" SERIES TEST BORINGS WERE ESTABLISHED IN THE FIELD BY MEASUREMENTS FROM EXISTING STRUCTURES AND TOPOGRAPHIC FEATURES. LOCATIONS OF THE REMAINING BORINGS SHOWN WERE SCALED AND DRAWN BASED ON AVAILABLE DOCUMENTATION BY OTHERS.
5. REFER TO FIGURES 3 THROUGH 9 FOR SUBSURFACE PROFILES A-A THROUGH G-G.
6. REFER TO FIGURES 10 THROUGH 12 FOR ELEVATION CONTOURS OF TOP OF NATURAL INORGANIC SOIL, TOP OF GLACIAL TILL AND TOP OF BEDROCK, RESPECTIVELY.

0 125 250
SCALE IN FEET

HALEY & ALDRICH, INC.
CAMBRIDGE, MASSACHUSETTS
CONSULTING GEOTECHNICAL ENGINEERS, GEOLOGISTS AND HYDROGEOLOGISTS

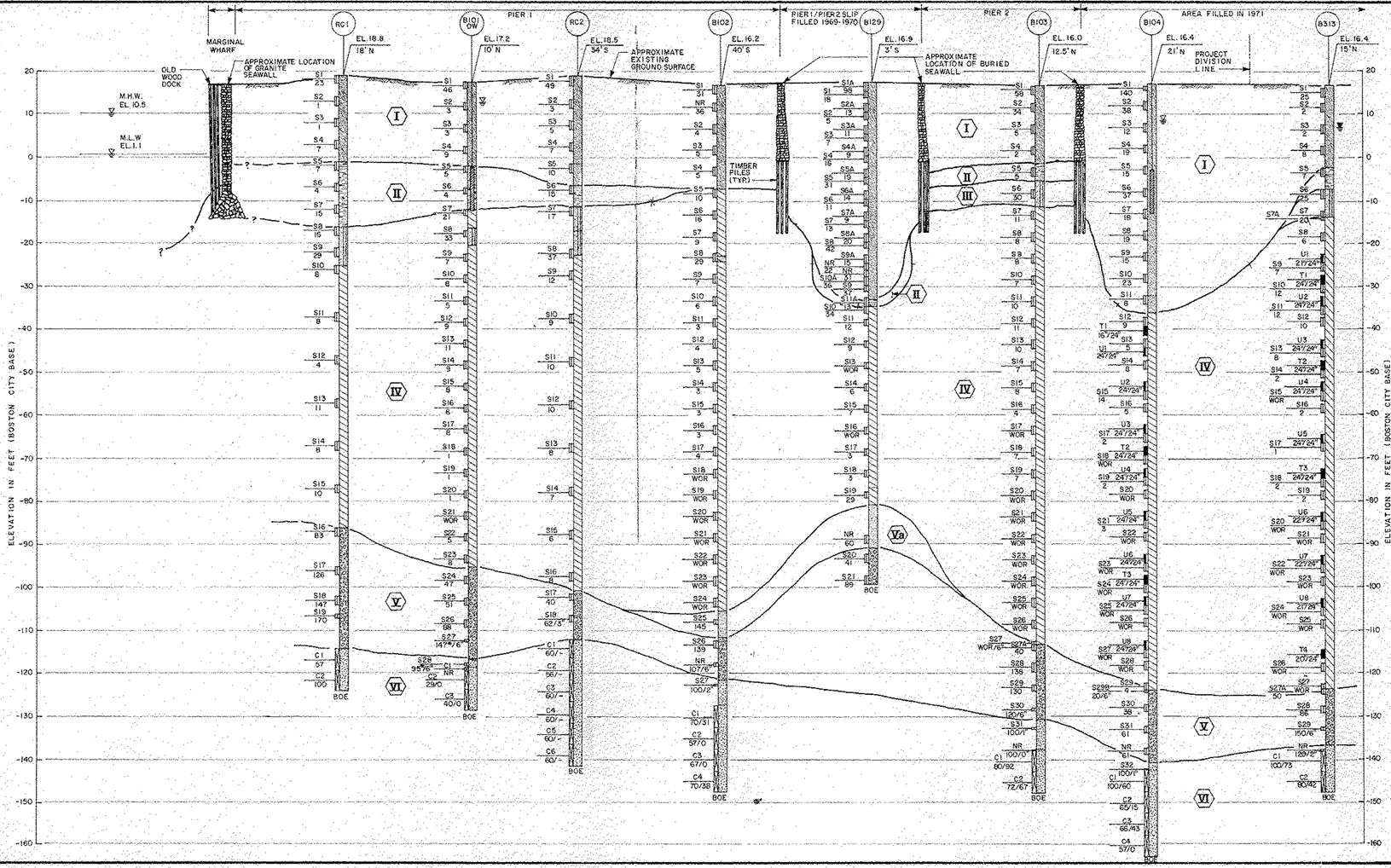
HBC ASSOCIATES
FAN PIER DEVELOPMENT
SOUTH BOSTON, MASSACHUSETTS

SITE AND SUBSURFACE EXPLORATION LOCATION PLAN

SCALE: AS SHOWN — MARCH 1986

FILE NO. 5556

FIGURE 2



LEGEND:

- B114 — BORING NUMBER
- EL. 16.5 — GROUND SURFACE ELEVATION
- 15' S — OFFSET OF BORING FROM LINE OF SUBSURFACE PROFILE (SEE NOTES)
- WATER LEVEL OBSERVED IN OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE
- WATER LEVEL OBSERVED IN COMPLETED BOREHOLE
- LOCATION OF OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE
- S10 15 — LOCATION OF 1-3/8 INCH I.D. SPLIT SPOON SAMPLE, OBTAINED BY DRIVING THE SPLIT SPOON SAMPLER WITH A 140- LB. HAMMER. 30-INCH DROP; NUMBERS INDICATE BLOWS PER 12 INCHES OR THE "N" VALUE, UNLESS OTHERWISE NOTED (SEE NOTE 6)

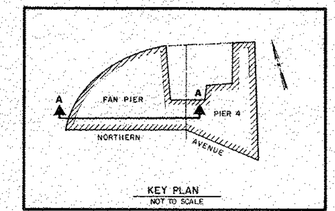
  WOR - WEIGHT OF RODS PER 6 INCHES
  100/3" - 100 BLOWS, 3 INCHES OF PENETRATION
  20+/2" - 20 BLOWS WITH 300 LB. HAMMER, 2 INCHES OF PENETRATION
- S10A 4 — LOCATION OF A 2-INCH I.D. SPLIT SPOON SAMPLE, OBTAINED BY DRIVING THE SPLIT SPOON SAMPLER WITH A 140- LB. HAMMER. 30-INCH DROP. NUMBERS INDICATE BLOWS PER 12 INCHES. UNLESS NOTED OTHERWISE
- T2 22/24 — LOCATION OF A 2-INCH DIAMETER SHELBY PISTON TUBE SAMPLE. SAMPLE RECOVERY 22 INCHES OUT OF 24 INCHES PRESSED
- U2 24/24 — LOCATION OF 3-INCH DIAMETER STATIONARY PISTON TUBE SAMPLE. SAMPLE RECOVERY 24 INCHES OUT OF 24 INCHES
- NR — NO RECOVERY
- C1 75/44 — LOCATION OF 1-5/8-INCH DIAMETER ROCK CORE. NUMBERS INDICATE PERCENT CORE RECOVERY/PERCENT ROD (SEE NOTE 7)
- APPROXIMATE LOCATION OF STRATA CHANGE
- BOE — BOTTOM OF EXPLORATION
- R — REFUSAL

GENERALIZED STRATA DESCRIPTIONS

MAJOR STRATA	SYMBOL	GENERAL DESCRIPTION
I MISCELLANEOUS FILL		LOOSE TO MEDIUM COMPACT UNSORTED MIXTURE OF SAND, GRAVEL, SILT, CLAY, WOOD, BRICK, CINDERS, GLASS, GRANITE BLOCKS, CONCRETE ETC., OCCASIONALLY MIXED WITH ORGANIC SOILS.
II ORGANIC SOILS		SOFT TO VERY SOFT BLACK ORGANIC SILT WITH SHELLS AND BLACK FIBROUS SALT MARSH PEAT TO PEATY ORGANIC SILT.
III NEARSHORE MARINE DEPOSITS		LOOSE TO MEDIUM DENSE BROWN TO BLACK FINE SAND AND SILTY FINE SAND.
IV BOSTON BLUE CLAY		MEDIUM STIFF TO STIFF GRAY SILTY CLAY, TRACE FINE SAND WITH OCCASIONAL LAYERS OF SILT AND SILTY FINE SAND.
Va OUTWASH DEPOSITS		DENSE TO VERY DENSE GRAY MEDIUM TO FINE SAND AND GRAVEL.
V GLACIAL TILL		DENSE TO VERY DENSE, GRAY SILTY COARSE TO FINE SAND, LITTLE GRAVEL, COBBLES AND OCCASIONAL BOULDERS, WITH VARIATIONS TO GRAY CLAYEY SAND OR SANDY SILT, LITTLE GRAVEL, COBBLES AND BOULDERS.
VI BEDROCK		VARIES FROM VERY SOFT, WEATHERED TO MODERATE HARD SOUND, UNALTERED CAMBRIDGE ARGILLITE, MODERATELY TO HIGHLY FRACTURED.

NOTES:

1. ELEVATIONS ARE IN FEET AND REFER TO BOSTON CITY BASE (BCB). EL. 0.0 BCB = EL. -5.65 NATIONAL GEODETIC VERTICAL DATUM (NGVD).
2. LINES REPRESENTING CHANGES IN STRATA ARE BASED UPON INTERPOLATION BETWEEN BORINGS AND MAY NOT REPRESENT ACTUAL SUBSURFACE CONDITIONS.
3. REFER TO APPENDIX C FOR LOGS OF RECENT TEST BORINGS, TO APPENDIX A FOR LOGS OF PREVIOUS TEST BORINGS, AND TO APPENDIX D FOR GROUNDWATER OBSERVATION WELL INSTALLATION AND MONITORING REPORTS.
4. MUDLINE ELEVATIONS INDICATED WERE OBTAINED FROM BATHYMETRIC SURVEYS CONDUCTED BY JASON M. CORTELL ASSOCIATES, WALTHAM, MASSACHUSETTS.
5. OFFSET DISTANCES INDICATED ARE PERPENDICULAR TO THE PLAN LOCATION OF THE SUBSURFACE PROFILE LINE. DIRECTIONS NORTH AND SOUTH ARE ASSUMED TO BE PERPENDICULAR TO THE PROFILE LINE.
6. THE STANDARD PENETRATION RESISTANCE, N, IS DEFINED AS THE NUMBER OF BLOWS OF A 140-LB. HAMMER FALLING FREELY THROUGH A VERTICAL DISTANCE OF 30 INCHES REQUIRED TO DRIVE A 2-INCH O.D., 1-3/8-INCH I.D. SPLIT SPOON SAMPLER 12 INCHES. THE SAMPLER IS NORMALLY DRIVEN 3 (FOR 18-INCH LONG SAMPLER) OR 4 (FOR 24 INCH LONG SAMPLER) SUCCESSIVE 6-INCH INCREMENTS. THE TOTAL NUMBER OF BLOWS REQUIRED TO ADVANCE THE SAMPLER FROM THE 6 TO 18 INCH SAMPLING INTERVAL IS THE STANDARD PENETRATION RESISTANCE, N.
7. ROD REFERS TO ROCK QUALITY DESIGNATION, WHICH IS DEFINED AS THE SUM IN INCHES OF ALL THE PIECES OF ROCK CORE 4 INCHES OR LONGER, DIVIDED BY THE LENGTH IN INCHES OF THE CORE RUN, AND IS EXPRESSED AS A PERCENTAGE.
8. REFER TO FIGURE 2 FOR PLAN LOCATION OF PROFILES.
9. REFER TO REPORT TEXT FOR GENERALIZED STRATA DESCRIPTIONS.
10. REFER TO TEST BORING LOGS FOR DETAILED SOIL DESCRIPTIONS.
11. LOCATION AND GEOMETRY OF BURIED SEAWALLS AND WHARFS ARE APPROXIMATE. THESE LOCATIONS ARE BASED ON AVAILABLE INFORMATION THAT HAS NOT BEEN VERIFIED IN THE EXPLORATION PROGRAM.



KEY PLAN
NOT TO SCALE

0 50 100 200 HORIZ.
0 10 20 40 VERT.
SCALE IN FEET

HALEY & ALDRICH, INC.
CAMBRIDGE, MASSACHUSETTS
CONSULTING GEOTECHNICAL ENGINEERS, GEOLOGISTS AND HYDROGEOLOGISTS

HBC ASSOCIATES
FAN PIER DEVELOPMENT
SOUTH BOSTON, MASSACHUSETTS

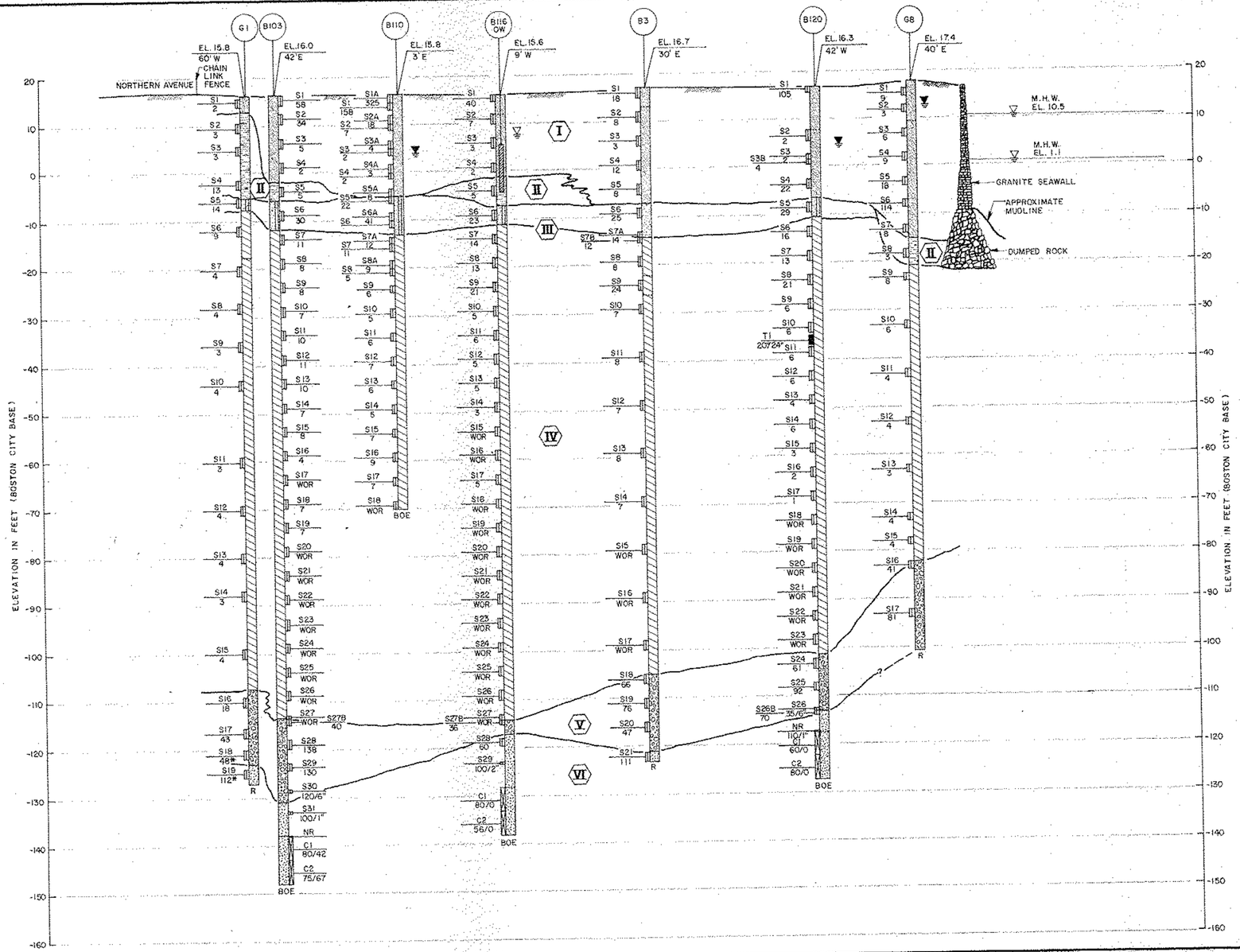
SUBSURFACE PROFILE A-A

SCALE: AS SHOWN

MARCH 1986

FILE NO. 5556

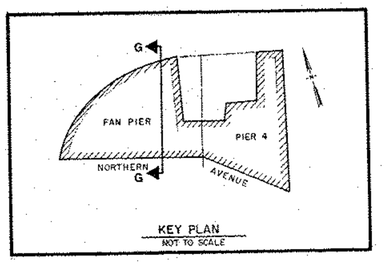
FIGURE 3



GENERALIZED STRATA DESCRIPTIONS

	MAJOR STRATA	SYMBOL	GENERAL DESCRIPTION
I	MISCELLANEOUS FILL		LOOSE TO MEDIUM COMPACT UNSORTED MIXTURE OF SAND, GRAVEL, SILT, CLAY, WOOD, BRICK, CINDERS, GLASS, GRANITE BLOCKS, CONCRETE ETC., OCCASIONALLY MIXED WITH ORGANIC SOILS.
II	ORGANIC SOILS		SOFT TO VERY SOFT BLACK ORGANIC SILT WITH SHELLS AND BLACK FIBROUS SALT MARSH PEAT TO PEATY ORGANIC SILT.
III	NEARSHORE MARINE DEPOSITS		LOOSE TO MEDIUM DENSE BROWN TO BLACK FINE SAND AND SILTY FINE SAND.
IV	BOSTON BLUE CLAY		MEDIUM STIFF TO STIFF GRAY SILTY CLAY, TRACE FINE SAND WITH OCCASIONAL LAYERS OF SILT AND SILTY FINE SAND.
Va	OUTWASH DEPOSITS		DENSE TO VERY DENSE GRAY MEDIUM TO FINE SAND AND GRAVEL.
V	GLACIAL TILL		DENSE TO VERY DENSE, GRAY SILTY COARSE TO FINE SAND, LITTLE GRAVEL, COBBLES AND OCCASIONAL BOULDERS, WITH VARIATIONS TO GRAY CLAYEY SAND OR SANDY SILT, LITTLE GRAVEL, COBBLES AND BOULDERS.
VI	BEDROCK		VARIES FROM VERY SOFT, WEATHERED TO MODERATE HARD SOUND, UNALTERED CAMBRIDGE ARGILLITE, MODERATELY TO HIGHLY FRACTURED.

NOTE:
REFER TO FIGURE 3 FOR LEGEND AND NOTES.



KEY PLAN
NOT TO SCALE

0 50 100 200 HORIZ.
0 10 20 40 VERT.
SCALE IN FEET

HALEY & ALDRICH, INC.
CAMBRIDGE, MASSACHUSETTS
CONSULTING GEOTECHNICAL ENGINEERS, GEOLOGISTS AND HYDROGEOLOGISTS

HBC ASSOCIATES
FAN PIER DEVELOPMENT
SOUTH BOSTON, MASSACHUSETTS

SUBSURFACE PROFILE G-G

SCALE: AS SHOWN

MARCH 1986

FIGURE 9

FILE NO. 5556

APPENDIX C

Our Lady of Good Voyage Drawing Nos. 1 and 3, dated April 1952
Prepared by John A. McPherson AIA

BORING NO. 1
ELEV. 16±

WATER 2.4'		
		HARD SAND AND GRAVEL FILL
6.0'		
		SOFT SILT AND FINE SAND
13.0'		
	4	LOOSE SILTY SAND
20.5'		
	7	YELLOW SAND AND LITTLE CLAY
23.9'		
	10	YELLOW CLAY AND LITTLE SAND
26.1'		
	5	FINE SAND
32.5'		
	5	BLUE CLAY AND LITTLE SAND
40.0'		

BORING NO. 2
ELEV. 16±

WATER 2.2'		
		HARD SAND, GRAVEL AND CINDER FILL
4.6'		
		SOFT SILT AND LITTLE FINE SAND
11.4'		
	4	SILTY SAND
19.2'		
	15	FIRM SHARP SAND
25.0'		
	16	YELLOW SAND AND VERY LITTLE CLAY
29.3'		
	9	YELLOW CLAY AND VEINS OF SAND
	12	
33.5'		
	8	YELLOW SAND AND CLAY
35.0'		
	8	MEDIUM BLUE CLAY
40.0'		

BORING NO. 3
ELEV. 16±

WATER 1.8'		
		CINDERS AND RUBBISH FILL
3.8'		
		SILT, SAND AND LITTLE CLAY FILL
12.7'		
		SILT AND FINE SAND
19.0'		
	6	YELLOW CLAY AND FINE SAND
20.8'		
	7	YELLOW SAND AND LITTLE CLAY
27.0'		
	9	SAND AND LITTLE CLAY
29.9'		
	10	YELLOW CLAY AND FINE SAND
31.8'		
		MEDIUM
	9	BLUE
		CLAY
40.0'		

R.R. LAND

TRACK #15

IRON PIN

90°

100.00'

AVE.

90°

28'±

MON.

653.84'

169.13'

AREA 13365 SQ.FT.

41°-56'-51"

156.60'

156.46'

20.0'

R = 2361.98

ARC = 76.83'

20.00'

BORING NO.2

BORING NO.3

PROPOSED CHAPEL

BORING NO.1

ARC. = 157.07'

CHORD

R = 404.39'

104°-36'-36"

IRON PIN

NORTHERN

470.36'

RADIAL TO 404.39 CURVE

20°-27'-33"

RADIAL TO 2361.98 CURVE

5°-25'-18"

R.R. LAND

TRACK #16

PLOT PLAN

SCALE 1"=20'-0"

REGISTERED ARCHITECT JOHN A. McPHERSON No. 40 BOSTON MASS. COMMONWEALTH OF MASSACHUSETTS

CHAPEL

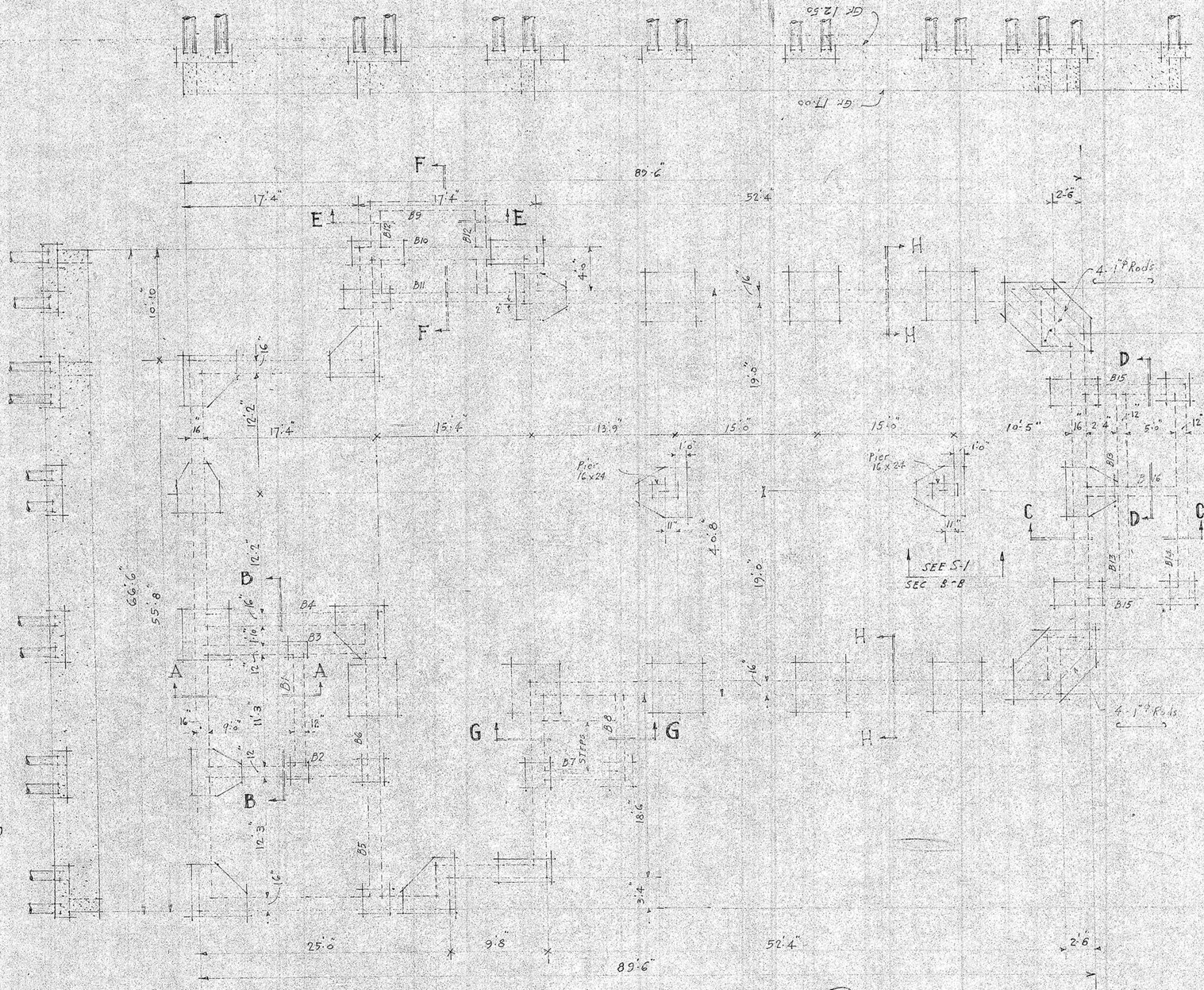
NORTHERN AVE., BOSTON, MASS.

THE MOST REV. RICHARD J. CUSHING, D.D., ARCHBISHOP OF BOSTON

DATE		DR. NO.
APRIL 1, 1952	JOHN A. McPHERSON A.I.A. ARCHITECT 250 HUNTINGTON AVE., BOSTON	1

FOUNDATION · PLAN

SCALE 1/8" = 1'-0"



REAR ELEVATION - GRADE BEAMS

SCALE 1/8" = 1'-0"

FRONT ELEVATION - GRADE BEAMS

SCALE 1/8" = 1'-0"

SIDE ELEVATION - GRADE BEAMS

SCALE 1/8" = 1'-0"

CONCRETE BEAM SCHEDULE

No	Size	REINF Straight	REINF Bent	NOTES
B 1	14 x 54	3-⅞ø	3-⅞ø	
B 2	12 x 54	3-⅞ø Top	3-⅞ø Bot	
B 3	12 x 54	do	do	
B 4	16 x 54	2-1"ø	2-1"ø	6-½" Cl. each end
B 5	12 x 54	2-⅞ø	2-⅞ø	
B 6	12 x 54	do	do	Pier 21 to 23
B 7	12 x 54	2-⅞ø	1-⅞ø	
B 8	12 x 54	2-1"ø	1-1"ø	
B 9	12 x 32	2-⅞ø	1-⅞ø	
B 10	16 x 54	2-⅞ø	2-⅞ø	
B 11	12 x 32	2-1"ø	2-1"ø	
B 12	12 x 32	3-1"ø Top	3-1"ø Bot	
B 13	12 x 16	2-⅞ø	1-⅞ø	Add 2-⅞ø@10 Over B16
B 14	12 x 54	2-⅞ø	2-⅞ø	
B 15	12 x 30	2-⅞ø	2-⅞ø	
B 16	12 x 30	2-⅞ø	2-⅞ø	

Typical Grade Beams for exterior walls and where not otherwise noted shall be 16"x54" 4-⅞ø Bottom ø 2-⅞ø Top
All rods not continuous shall be hooked at ends
Concrete shall be 2500# 28 days
Beams and footing concrete shall be placed monolithic

Shop drawings of all reinforcement shall be submitted to and approved by the Architect and Boston Building Dept. before fabrication.

REGISTERED ARCHITECT JOHN A. McPHERSON NO. 40 BOSTON, MASS. COMMONWEALTH OF MASSACHUSETTS

Rev. 4-12-52

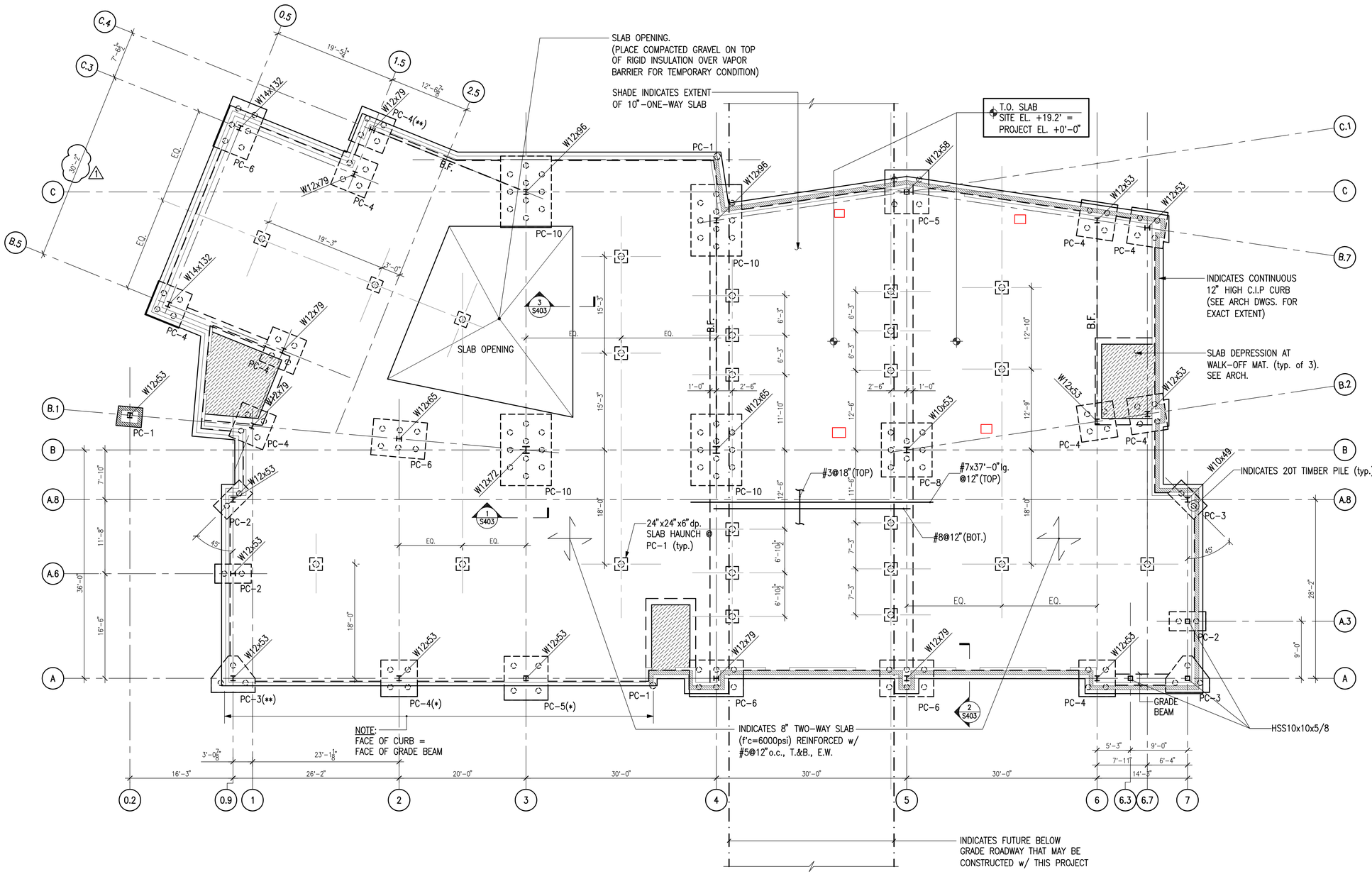
CHAPEL

NORTHERN AVE., BOSTON, MASS.
THE MOST REV. RICHARD J. CUSHING D.D.,
ARCHBISHOP OF BOSTON

DATE		DR. NO.
APRIL 1, 1952	JOHN A. McPHERSON A.I.A. ARCHITECT 250 HUNTINGTON AVE., BOSTON	3

APPENDIX D

District Hall, Progress Foundation Plan, Drawing S-101 and S-102, dated 10 April 2012
Prepared by McNamara/Salvia, Inc.



FOUNDATION PLAN

SCALE: 1/8"=1'–0"

Revision NPS 01/20/11

Interior Finishes 04/27/11

PLAN NOTES:

1.– SEE DWG. S–001 & S–002 FOR GENERAL NOTES.

2.– SEE S–4series FOR TYPICAL CONCRETE DETAILS.

3.– SEE S–5series FOR TYPICAL STEEL DETAILS.

4.– PC–3 – INDICATES COLUMN PILE CAP MARK. SEE DETAILS ON DWG. S–404

5.– T.O. PERIMETER PILE CAP ELEVATION = +17.5', EXCEPT PILE CAPS NOTED (**) = ELEVATION +16.5' & CAPS NOTED (*) = ELEVATION +17.0'

6.– T.O. INTERIOR PILE CAP ELEVATION = +18.0'

5.– FLOOR CONSTRUCTION (where noted): SEE PLAN

6.– (B.F.) – INDICATES BRACED FRAME. SEE S201 FOR ELEVATIONS.

7.– ALL DIMENSIONS SHOWN HAVE BEEN GENERATED BY THE ARCHITECT AND SHOULD BE VERIFIED WITH THE LATEST SET OF ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.

8.– COORDINATE, SUBMIT FOR APPROVAL BY THE STRUCTURAL ENGINEER, AND PROVIDE SLEEVES CAST INTO THE CONCRETE SLAB ALL CONDUIT, FLOOR OUTLET BOXES, BOX–OUTS, ANCHORS AND PIPE SLEEVES, ETC. FOR THE MECHANICAL AND PLUMBING TRADES.

9.– DO NOT USE STRUCTURAL PLANS AS ERECTION DRAWINGS.

10.– SEE ARCHITECTURAL DRAWINGS FOR EDGE OF SLAB AND CURB DIMENSIONS.

H+A
Hacin + Associates Inc. [architecture + design]
112 Shawmut Avenue, Studio 5A, Boston, MA 02118
t. 617.426.0077 f. 617.426.0645 w. hacin.com

BGI
Boston Global Investors
1 Post Office Square Ste. 3150
Boston, MA 02109

McNamara/Salvia, Inc.
Consulting Engineers
160 Federal Street. 5th Floor
Boston, MA 02110 USA
617-737-0040
www.mcsal.com

Revision ⚠
May 25, 2012 [Bulletin 06]

Innovation Center
Parcel F

Core & Shell GMP Set

DRAWING TITLE
FOUNDATION PLAN

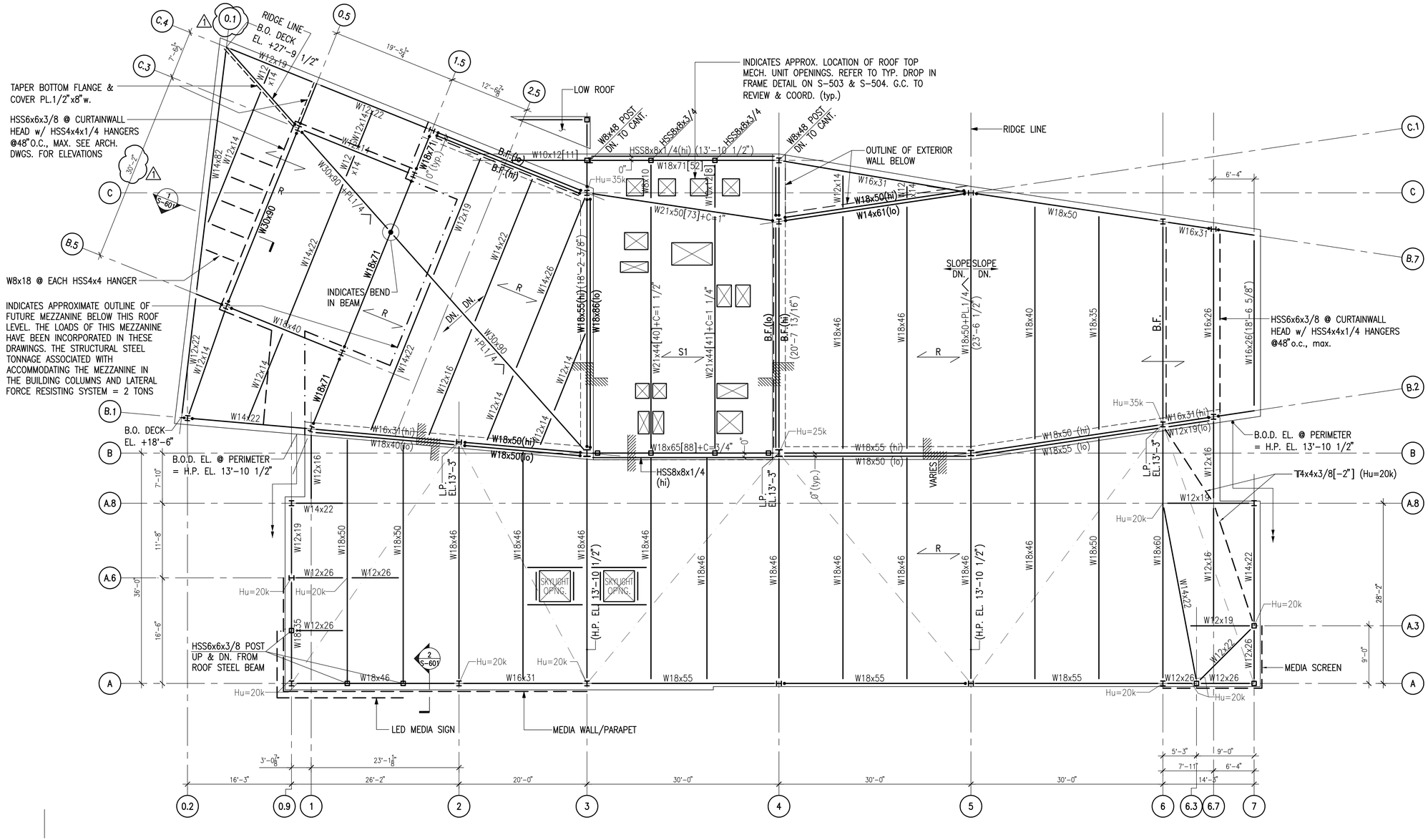
SCALE
1/8" = 1'–0"

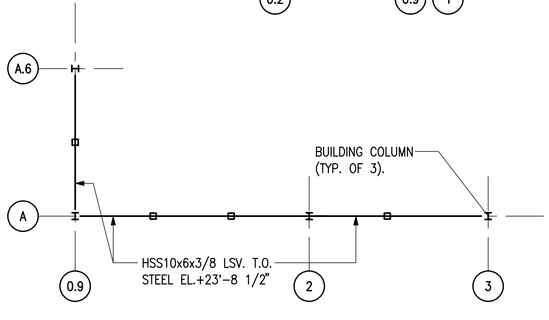
SSK–050212–A

M/S # 11087.00

DATE April 10, 2012

S–101





MEDIA WALL FRAMEWORK

SCALE: 1/8"=1'-0"

ROOF FRAMING PLAN

SCALE: 1/8"=1'-0"

FRAMING PLAN NOTES:

1.– SEE DWG. S-001 & S-002 FOR GENERAL NOTES.

2.– SEE S-4series FOR TYPICAL CONCRETE DETAILS.

3.– SEE S-5series FOR TYPICAL STEEL DETAILS.

4.– FLOOR CONSTRUCTION:

S1 – INDICATES 3"dp. x 18ga. GALVANIZED G90 COMPOSITE METAL FLOOR DECK w/ 4 1/2" NORMAL WEIGHT CONCRETE REINFORCED w/ W.W.F. 6x6-W2.9xW2.9.

R – INDICATES 3"dp. x 18ga. GALVANIZED G90 METAL ROOF DECK.

5.– ( ) – INDICATES TOP OF STEEL ELEVATION.

6.– (B.F.) – INDICATES BRACED FRAME. SEE S201 FOR ELEVATIONS.

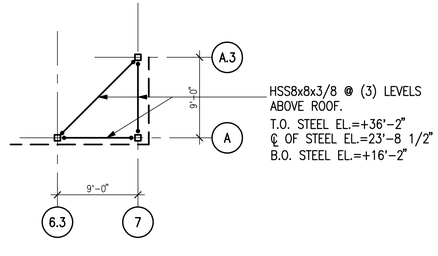
7.– ALL DIMENSIONS SHOWN HAVE BEEN GENERATED BY THE ARCHITECT AND SHOULD BE VERIFIED WITH THE LATEST SET OF ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.

8.– SEE ARCHITECTURAL DRAWINGS FOR ALL OTHER MISCELLANEOUS ROOF OPENINGS NOT SHOWN. SEE DRAWING S-503 & S-504 FOR TYPICAL DETAILS.

9.– SEE S-501 FOR TYPICAL SPRINKLER PIPE PENETRATION DETAIL. (REFER TO FIRE PROTECTION DWGS. FOR LOCATIONS). LOCATIONS THAT DO NOT MEET THE REQUIREMENTS OF S-501 MUST BE SUBMITTED TO THE ENGINEER FOR REVIEW.

10.– DO NOT USE STRUCTURAL PLANS AS ERECTION DRAWINGS.

11.– Hu = ULTIMATE AXIAL (tension or compression) FORCE TO BE PASSED THROUGH THE CONNECTION TO THE MEMBER ON THE OPPOSITE SIDE OF THE SUPPORTING COLUMN, BEAM OR GIRDER.



MEDIA TOWER FRAMEWORK

SCALE: 1/8"=1'-0"

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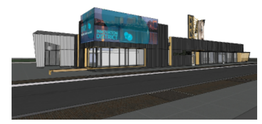


Revision 1
May 25, 2012 [Bulletin 06]

Innovation Center
Parcel F

Core & Shell GMP Set

DRAWING TITLE
ROOF FRAMING PLAN

SCALE
1/8" = 1'-0"

M/S # 11087.00
DATE April 10, 2012

S-102

APPENDIX E

Haley & Aldrich Memorandum
CPT Exploration Results

HALEY & ALDRICH, INC.
465 Medford St.
Suite 2200
Boston, MA 02129
617.886.7400

MEMORANDUM

28 May 2021
File No. 0201286-000

TO: Seaport D Title Holder LLC
c/o WS Development
Amy Prange, Dan Sullivan

FROM: Haley & Aldrich, Inc.
Marya E. Gorczyca, Heather B. Scranton, Lysandra L. Reed

SUBJECT: Cone Penetrometer Testing (CPT) Exploration Results
Seaport Parcel D
88 Seaport Boulevard
South Boston, Massachusetts

This memorandum summarizes the results of the Cone Penetrometer Testing (CPT) subsurface exploration program recently completed at Parcel D in South Boston, Massachusetts (the "site"). The work was performed to obtain geotechnical data for the foundation design.

The Parcel D site is an open lot with concrete or asphalt pavement and crushed stone at the ground surface. The site will be occupied by temporary outdoor restaurant dining and is generally inaccessible for subsurface investigations and sampling through the Fall of 2021. Given the access and schedule limitations, the CPT explorations were performed to obtain site-specific information when the site was accessible. Available data from surrounding sites has been used to supplement and/or evaluate the CPT data presented in this memorandum. The existing information was obtained from the references listed at the end of this memorandum.

CPT EXPLORATION PROGRAM

A total of six (6) CPT explorations were performed by ConeTec of West Berlin, New Jersey at the Parcel D site on 14 April 2021 at the locations shown on Figure 1. A CPT truck rig was used to advance to depths of 90 ft to 135 ft below the existing ground surface. Note that multiple attempts were made at the HA21-CPT01 location, and the probe was unable to advance beyond 0.6 ft due to shallow obstructions. The nature of the below-grade obstruction was not determined. The CPT data are included in the *Presentation of Site Investigation Results* report provided in Appendix A.

LABORATORY TESTING

Geotechnical laboratory testing has been performed for previous developments at adjacent sites, and the results are included in Appendix B.

- Two consolidated undrained triaxial tests were previously performed by GeoTesting Express of Acton, Massachusetts on undisturbed samples of the Marine Clay deposit from the Parcel B/C investigation. The samples were obtained from test borings HAC-A8 and HAC-A9, and the laboratory test data were reported in the referenced Geotechnical Report.
- Fourteen (14) unconsolidated undrained triaxial tests were performed by GZA GeoEnvironmental Inc. of Newton Upper Falls, Massachusetts on undisturbed samples of the Marine Clay deposit from the Transitway Project borings. The samples were obtained from test borings TW-7 and TW-20, and the laboratory test data were reported in the referenced Geotechnical Report by Parsons Brinckerhoff Quade & Douglas, Inc.

The shear strength results from laboratory testing on the adjacent sites are also plotted on Figures 2 to 7.

CLAY SHEAR STRENGTH RESULTS

The CPT exploration results were used by ConeTec to evaluate the shear strength of the Marine Clay deposit based on the following equation:

$$S_u(CPT) = \frac{(q_t - \sigma_{v0})}{N_{KT}}$$

where "q_t" is the tip resistance measured by ConeTec. "σ_{v0}" represents the effective *in situ* overburden stress. Shear strengths were evaluated by ConeTec using an assumed N_{KT} value of 12.5. Values of N_{KT} may vary, and previous published studies of similar test data near the project site recommend an N_{KT} value between 10 to 12. Using a lower N_{KT} value results in higher estimated shear strengths from those shown on the attached plots.

We evaluated the shear strength calculated by ConeTec compared to the referenced laboratory shear strength data and judged the use of an N_{KT} value of 12.5 to be reasonable. Plots of shear strength vs. elevation are presented in Figures 2 through 7.

Attachments:

Figure 1 – Site and Subsurface Exploration Location Plan
Figures 2 to 7 – Results of Geotechnical Testing (Plots of Shear Strength vs. Elevation)
Appendix A – Presentation of Site Investigation Results (Geotechnical CPT Data)
Appendix B – Geotechnical Laboratory Testing Data from Adjacent Sites

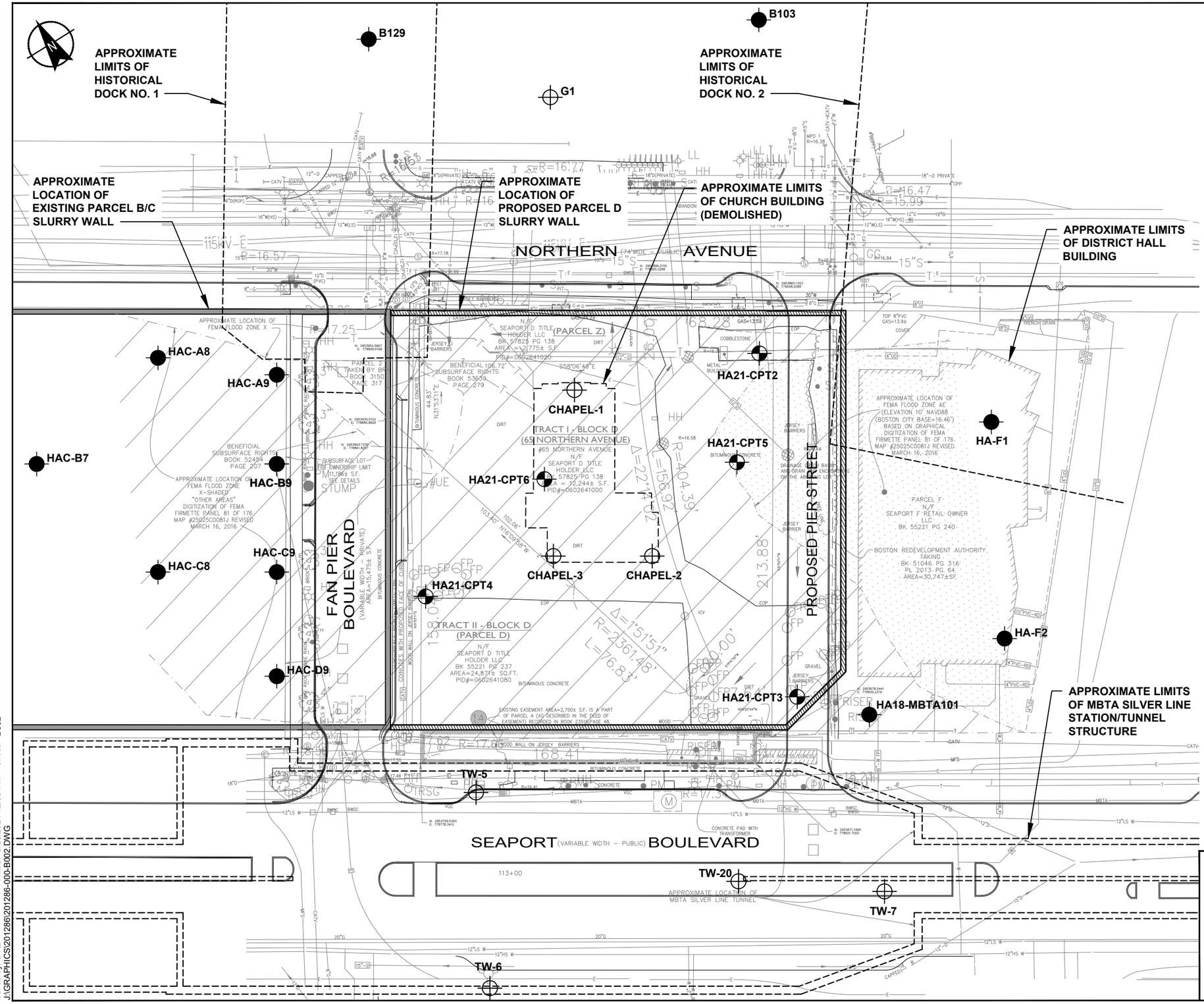
References

1. "Report on Subsurface Investigation and Geotechnical Design Recommendations, Seaport Square Blocks B and C, South Boston, Massachusetts" by Haley & Aldrich Inc., dated 13 September 2013.

2. "Geotechnical Data Report: Sleeper Street to New Congress Street, South Boston Piers Transitway Project" by Parsons Brinckerhoff Quade & Douglas, Inc., dated September 1995.

3. Technical Publication "Special Geotechnical Testing: Central Artery/Tunnel Project in Boston, Massachusetts, Engineering Properties of Boston Blue Clay from Special Testing Program," Proceedings of Sessions of Geo-Congress 98, 18 to 21 October 1998, Boston, Massachusetts.

FIGURES



LEGEND

HA21-CPT2 — DESIGNATION AND APPROXIMATE LOCATION OF CONE PENETRATION TEST PERFORMED BY CONETEC FOR THE PARCEL D PROJECT ON 15 APRIL 2021 UNDER THE TECHNICAL OBSERVATION OF HALEY & ALRICH, INC.

HAC-B9 — DESIGNATION AND APPROXIMATE LOCATION OF HISTORIC BORING COMPLETED UNDER THE TECHNICAL OBSERVATION OF HALEY & ALDRICH, INC.

TW-20 — DESIGNATION AND APPROXIMATE LOCATION OF HISTORIC BORING COMPLETED BY OTHERS

NOTES

1. BASE PLAN TAKEN FROM AN ELECTRONIC FILE TITLED "14137_ALTA_D1.DWG", PREPARED BY NITSCH ENGINEERING, DATED 30 OCTOBER 2020.
2. HORIZONTAL COORDINATES REFER TO NORTH AMERICAN DATUM OF 1983 (NAD 83).
3. ELEVATIONS REFER TO BOSTON CITY BASE (BCB).
4. LIMITS OF PREVIOUS CHURCH BUILDING TAKEN FROM AN ELECTRONIC FILE TITLED, "10684.2_TOPO1_RevB_011617.dwg" PREPARED BY ROBERT G. MILES, PLS AND DATED 21 DECEMBER 2016.
5. LIMITS OF PROPOSED STREETS TAKEN FROM ELECTRONIC FILE TITLED, "10684.5 District hall planning-C-2" PREPARED BY NITSCH ENGINEERING, DATED 1 APRIL 2021.
6. LIMITS OF EXISTING PARCEL B+C SLURRY WALL AND PROPOSED PARCEL D SLURRY WALL TAKEN FROM ELECTRONIC FILE TITLED, "2021-05-04_88_Seaport_Parking Plans_w-Valet-REV-DESMAN-P1-P2-P3" PREPARED BY DESMAN DESIGN MANAGEMENT, DATED 4 MAY 2021.
7. APPROXIMATE LIMITS OF HISTORICAL DOCK NO. 1 AND DOCK NO. 2 ESTIMATED FROM SANBORN INSURANCE MAP DATED 1888.

HALEY ALDRICH

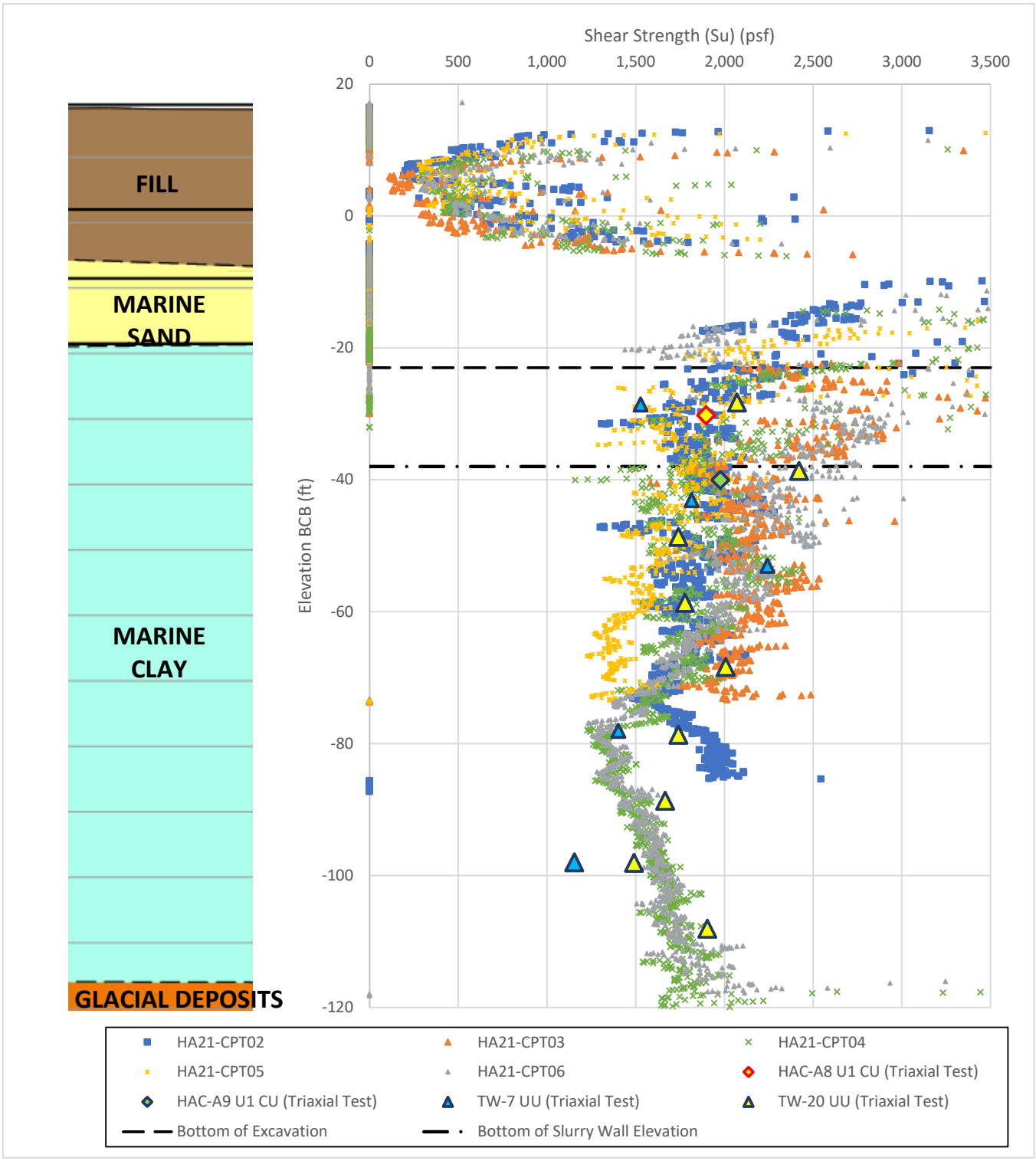
SEAPORT PARCEL D
88 SEAPORT BOULEVARD
BOSTON, MASSACHUSETTS

SITE AND SUBSURFACE EXPLORATION LOCATION PLAN

SCALE: AS SHOWN
MAY 2021

FIGURE 1

Saved by: DTE Printed: 5/28/2021 12:09 PM Sheet: B002
J:\GRAPHICS\201286\201286-000-B002.DWG



NOTES:
1. SHEAR STRENGTH VALUES ESTIMATED FROM CPT RESULTS USING A NKT VALUE OF 12.5.
2. TRAIXIAL TEST PERFORMED ON SOIL SAMPLES COLLECTED DURING PREVIOUS SUBSURFACE INVESTIGATIONS.
3. SUBSURFACE PROFILE INFORMATION SHOWN ON THE LEFT TAKEN FROM SCHEMATIC DESIGN MEMORANDUM BY HALEY & ALDRICH, INC. DATED 28 MAY 2021.

HALEY ALDRICH

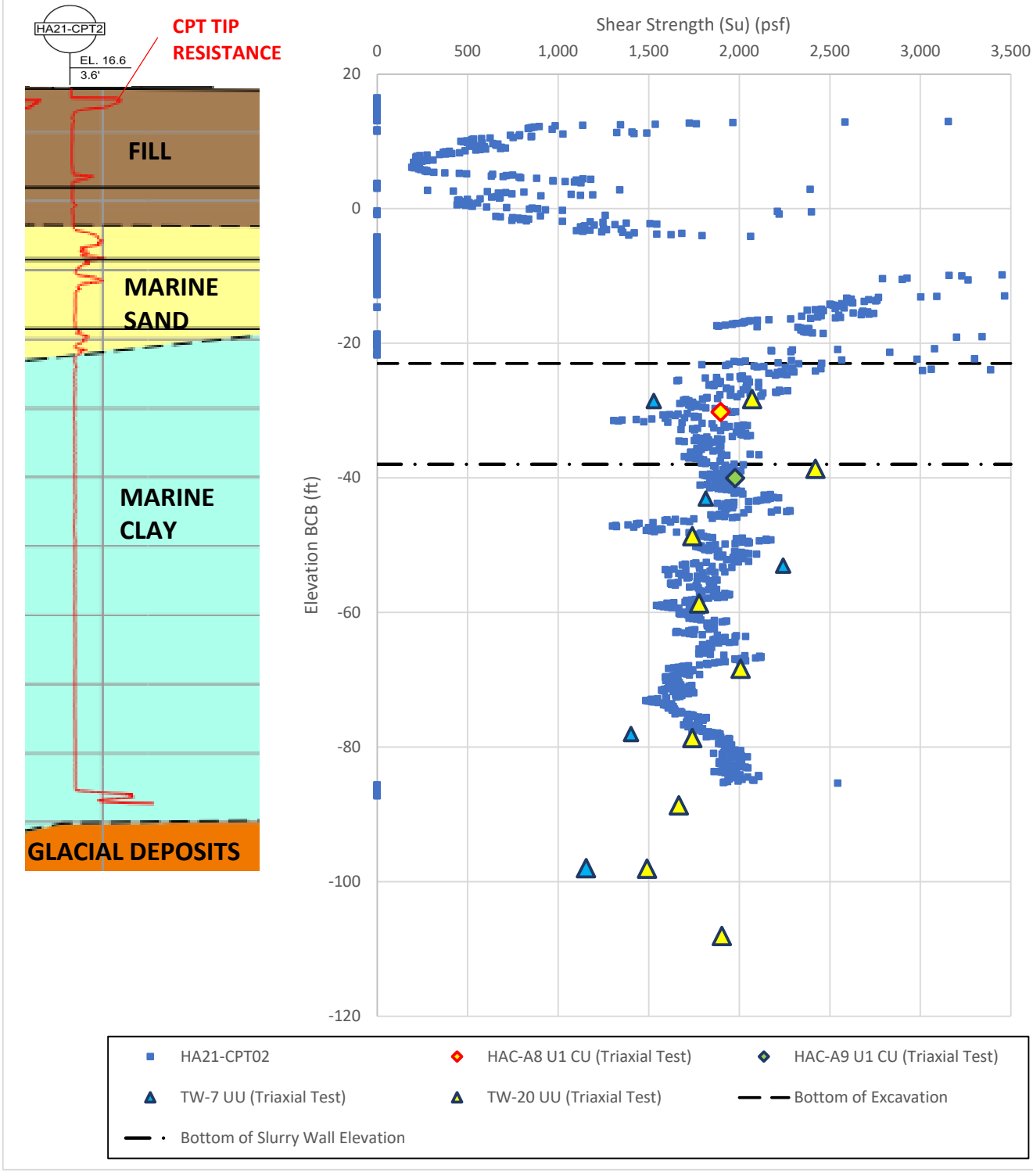
SEAPORT PARCEL D
SOUTH BOSTON, MASSACHUSETTS

RESULTS OF GEOTECHNICAL TESTING (CPT AND TRIAXIAL) ALL DATA

MAY 2021

FIGURE 2

\\haleyaldrich.com\share\CF\Projects\0201286\CPT Investigation\CPT Memo\[2021-0527-HAI-Parcel D-CPT Plots.xlsx]FIG 2



NOTES:
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2. TRAIXIAL TEST PERFORMED ON SOIL SAMPLES COLLECTED DURING PREVIOUS SUBSURFACE INVESTIGATIONS.
3. SUBSURFACE PROFILE INFORMATION SHOWN ON THE LEFT TAKEN FROM SCHEMATIC DESIGN MEMORANDUM BY HALEY & ALDRICH, INC. DATED 28 MAY 2021.
4. CPT TIP RESISTANCE FROM DATA INCLUDED IN CONTECT REPORT

HALEY ALDRICH

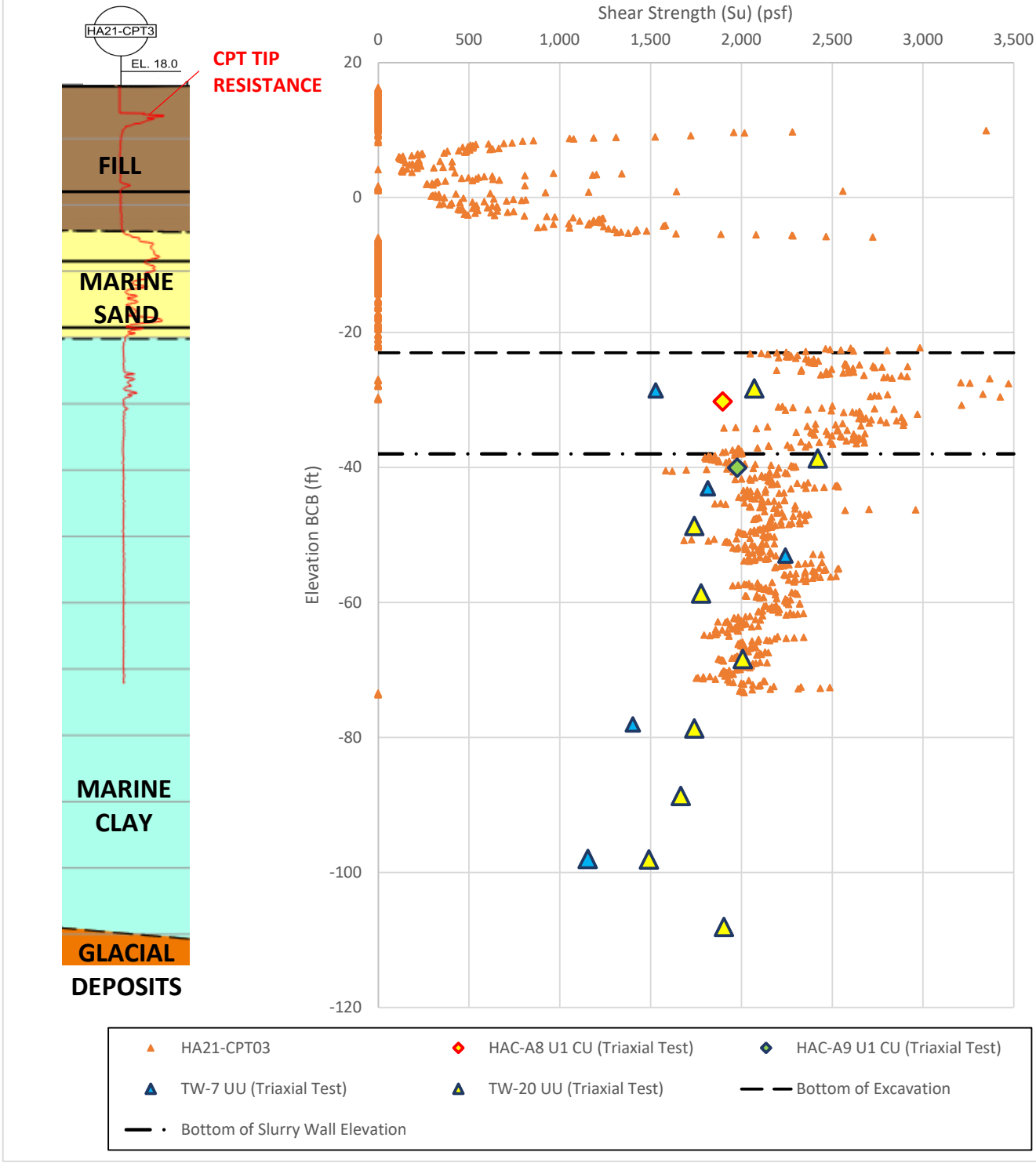
SEAPORT PARCEL D
SOUTH BOSTON, MASSACHUSETTS

RESULTS OF
GEOTECHNICAL TESTING
(CPT AND TRIAXIAL)
HA21-CPT02

MAY 2021

FIGURE 3

\\haleyaldrich.com\share\CF\Projects\0201286\CPT Investigation\CPT Memo\[2021-0527-HAI-Parcel D-CPT Plots.xlsx]FIG 7



NOTES:
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2. TRAIXIAL TEST PERFORMED ON SOIL SAMPLES COLLECTED DURING PREVIOUS SUBSURFACE INVESTIGATIONS.
3. SUBSURFACE PROFILE INFORMATION SHOWN ON THE LEFT TAKEN FROM SCHEMATIC DESIGN MEMORANDUM BY HALEY & ALDRICH, INC. DATED 28 MAY 2021.
4. CPT TIP RESISTANCE FROM DATA INCLUDED IN CONTECT REPORT

HALEY ALDRICH

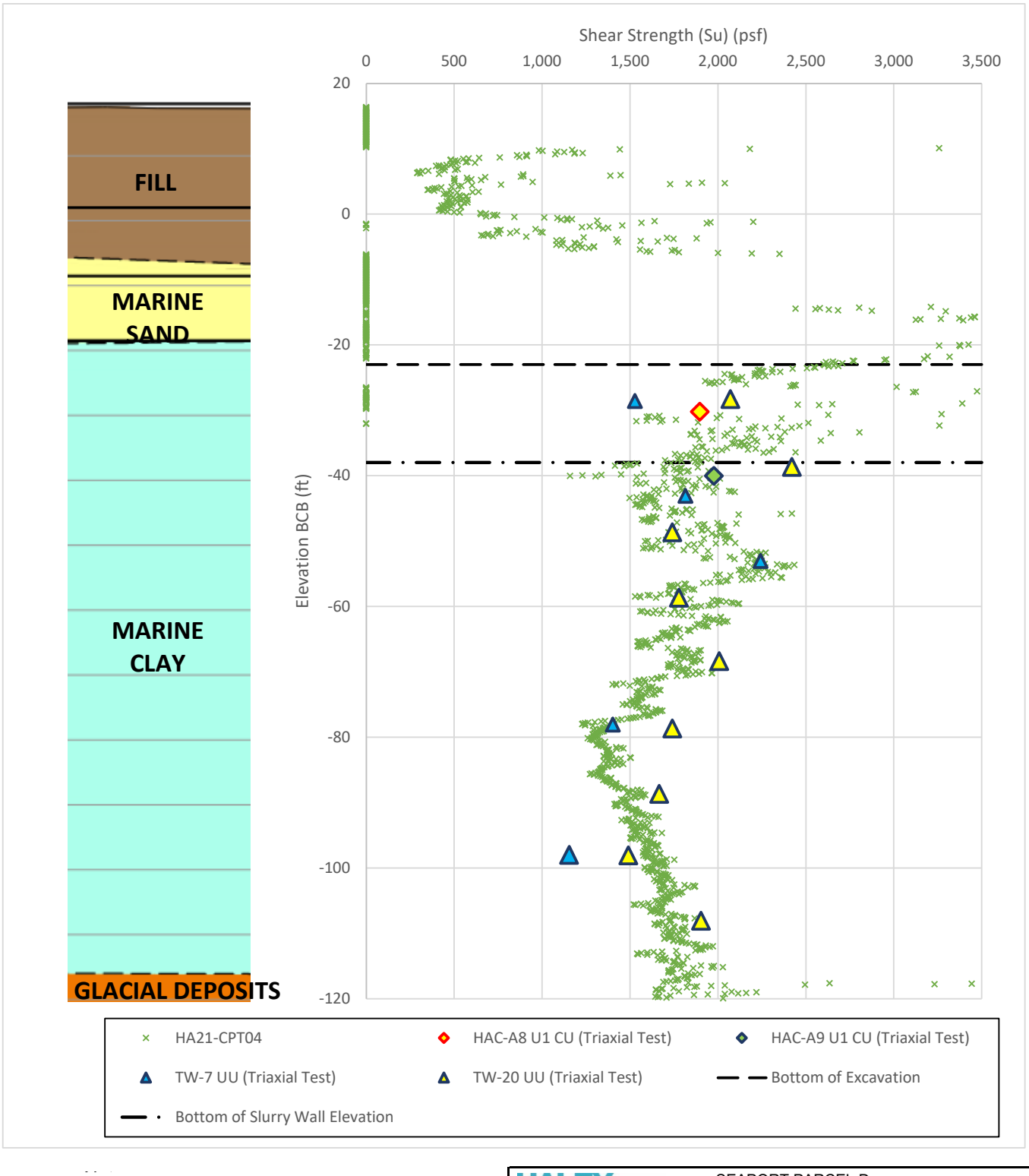
SEAPORT PARCEL D
SOUTH BOSTON, MASSACHUSETTS

RESULTS OF
GEOTECHNICAL TESTING
(CPT AND TRIAXIAL)
HA21-CPT03

MAY 2021

FIGURE 4

\\haleyaldrich.com\share\CF\Projects\0201286\CPT Investigation\CPT Memo\[2021-0527-HAI-Parcel D-CPT Plots.xlsx]FIG 7



NOTES:
1. SHEAR STRENGTH VALUES ESTIMATED FROM CPT RESULTS USING A NKT VALUE OF 12.5.
2. TRAIXIAL TEST PERFORMED ON SOIL SAMPLES COLLECTED DURING PREVIOUS SUBSURFACE INVESTIGATIONS.
3. SUBSURFACE PROFILE INFORMATION SHOWN ON THE LEFT TAKEN FROM SCHEMATIC DESIGN MEMORANDUM BY HALEY & ALDRICH, INC. DATED 28 MAY 2021.

HALEY ALDRICH

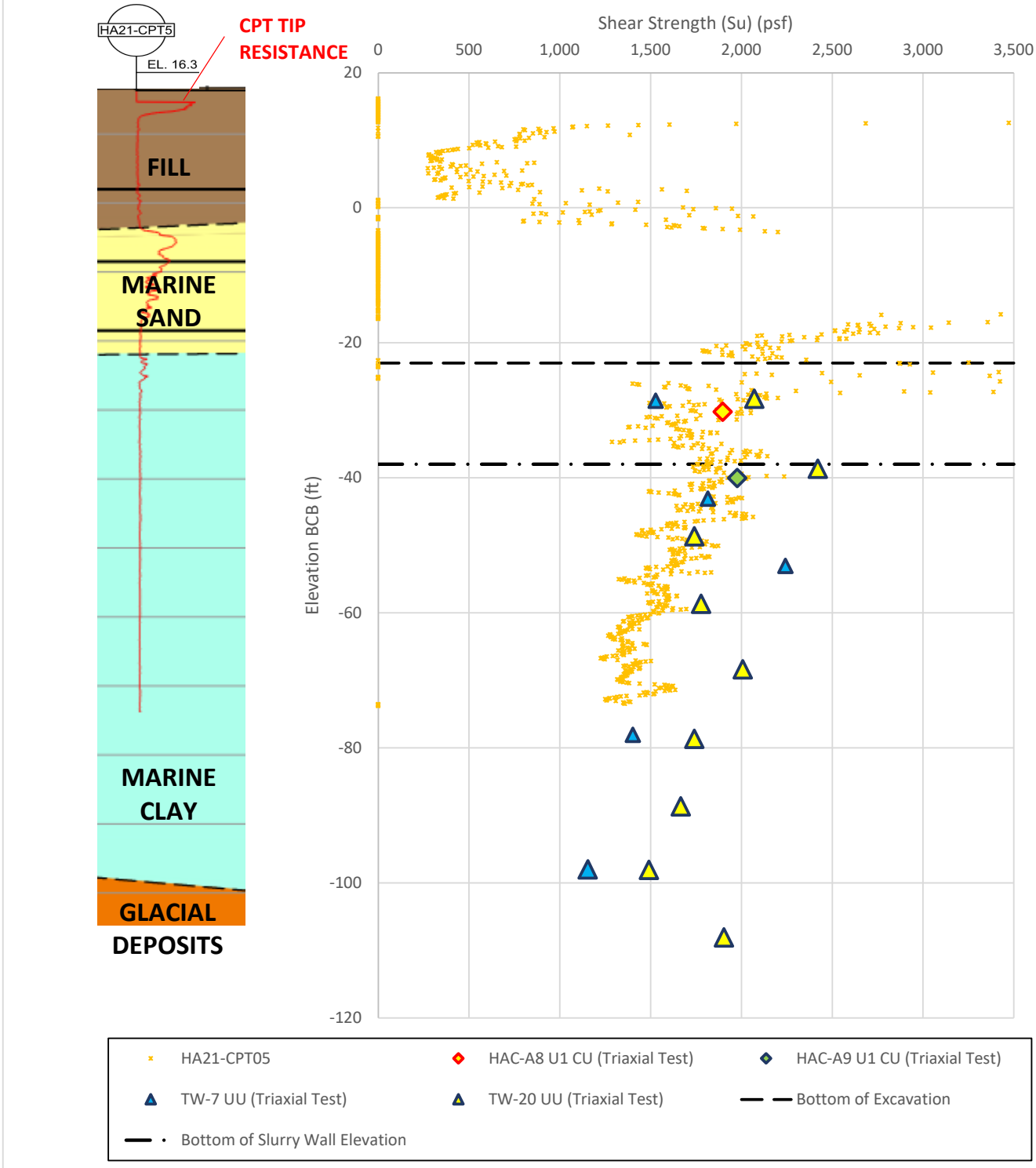
SEAPORT PARCEL D
SOUTH BOSTON, MASSACHUSETTS

RESULTS OF GEOTECHNICAL TESTING (CPT AND TRIAXIAL) HA21-CPT04

MAY 2021

FIGURE 5

\\haleyaldrich.com\share\CF\Projects\0201286\CPT Investigation\CPT Memo\[2021-0527-HAI-Parcel D-CPT Plots.xlsx]FIG 2



NOTES:
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2. TRAIXIAL TEST PERFORMED ON SOIL SAMPLES COLLECTED DURING PREVIOUS SUBSURFACE INVESTIGATIONS.
3. SUBSURFACE PROFILE INFORMATION SHOWN ON THE LEFT TAKEN FROM SCHEMATIC DESIGN MEMORANDUM BY HALEY & ALDRICH, INC. DATED 28 MAY 2021.
4. CPT TIP RESISTANCE FROM DATA INCLUDED IN CONTECT REPORT

HALEY ALDRICH

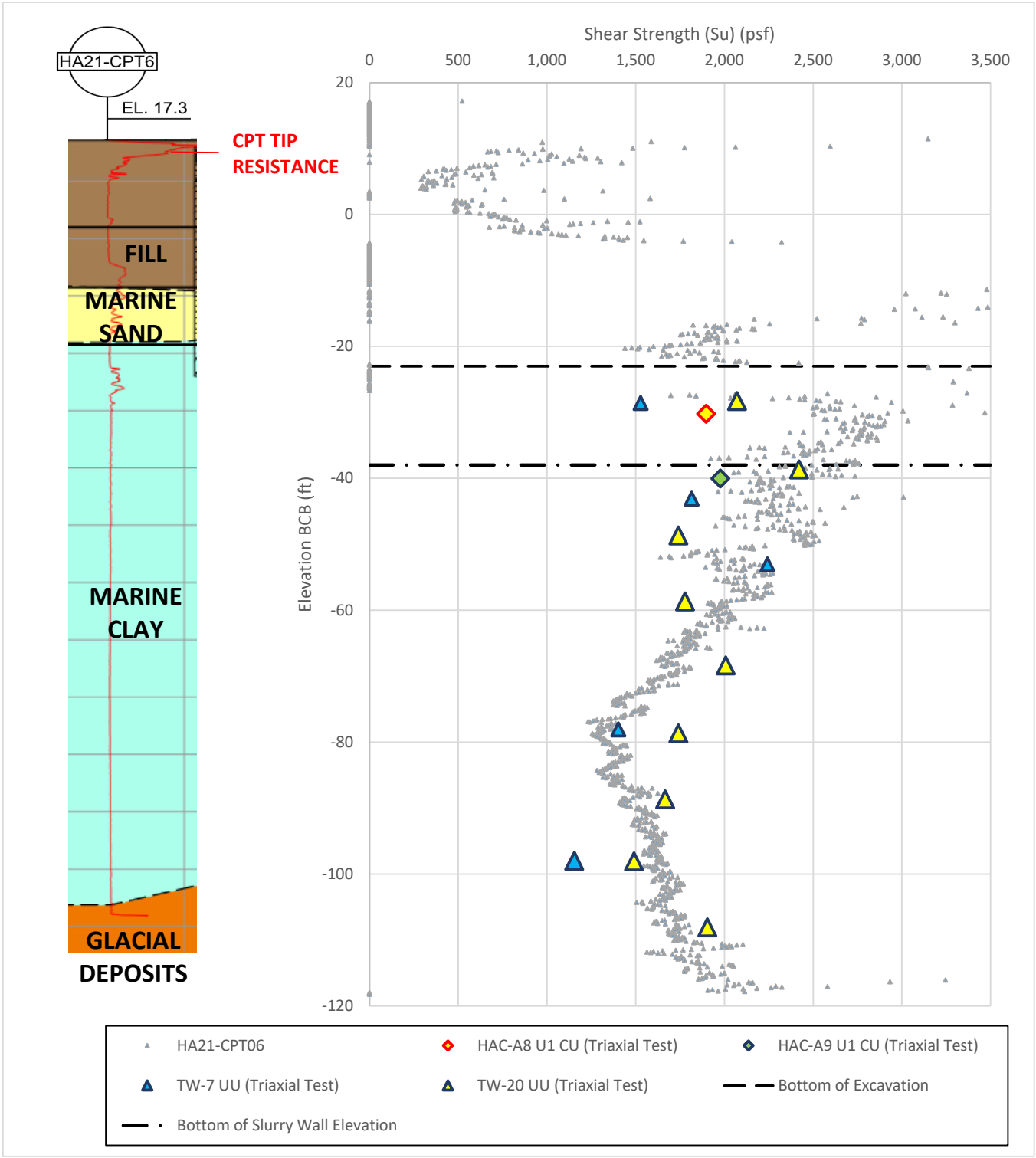
SEAPORT PARCEL D
SOUTH BOSTON, MASSACHUSETTS

RESULTS OF
GEOTECHNICAL TESTING
(CPT AND TRIAXIAL)
HA21-CPT05

MAY 2021

FIGURE 6

\\haleyaldrich.com\share\CF\Projects\0201286\CPT Investigation\CPT Memo\[2021-0527-HAI-Parcel D-CPT Plots.xlsx]FIG 7



NOTES:
1. SHEAR STRENGTH VALUES ESTIMATED FROM CPT RESULTS USING A NKT VALUE OF 12.5.
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3. SUBSURFACE PROFILE INFORMATION SHOWN ON THE LEFT TAKEN FROM SCHEMATIC DESIGN MEMORANDUM BY HALEY & ALDRICH, INC. DATED 28 MAY 2021.
4. CPT TIP RESISTANCE FROM DATA INCLUDED IN CONTECT REPORT

HALEY ALDRICH

SEAPORT PARCEL D
SOUTH BOSTON, MASSACHUSETTS

RESULTS OF
GEOTECHNICAL TESTING
(CPT AND TRIAXIAL)
HA21-CPT06

MAY 2021

FIGURE 7

\\haleyaldrich.com\share\CF\Projects\0201286\CPT Investigation\CPT Memo\[2021-0527-HAI-Parcel D-CPT Plots.xlsx]FIG 7

APPENDIX A

Presentation of Site Investigation Results (Geotechnical CPT Data)

PRESENTATION OF SITE INVESTIGATION RESULTS

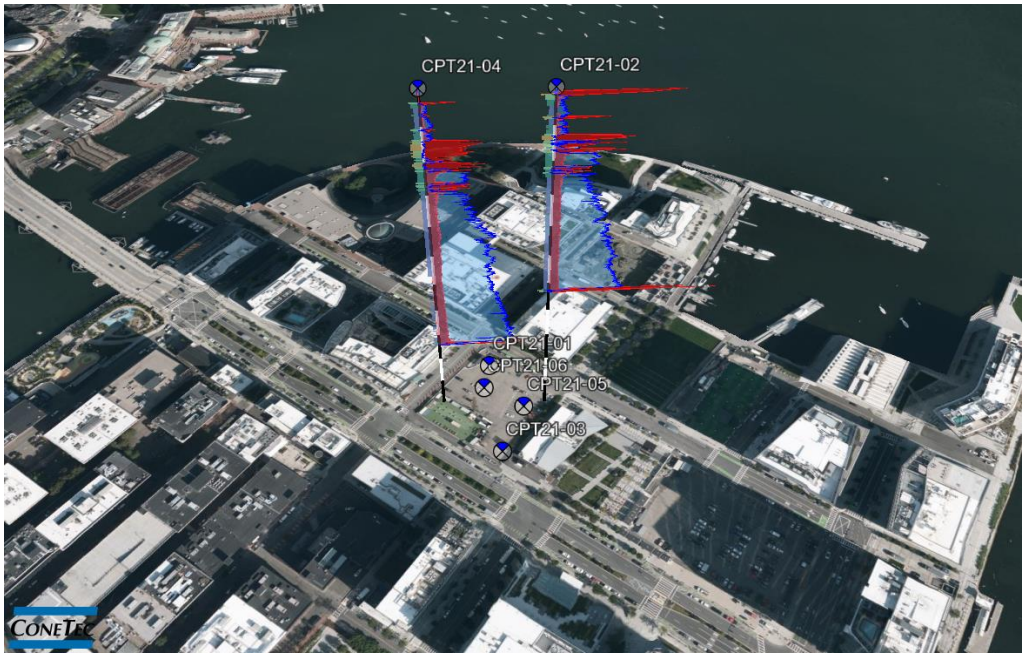
Seaport Square Parcel D
Boston, Massachusetts

Prepared for:

Haley & Aldrich

ConeTec Job No: 21-53-22243

Project Start Date: 14-Apr-2021
Project End Date: 14-Apr-2021
Report Date: 20-Apr-2021



Prepared by:

ConeTec Inc.
436 Commerce Lane, Unit C
West Berlin, NJ 08091

Tel: (856) 767-8600
Toll Free: (800) 504-1116

Email: conetecNJ@conetec.com
www.conetec.com
www.conetecdataservices.com

Introduction

The enclosed report presents the results of a piezocone penetration testing (CPTu or CPT) program carried out for the Seaport Square Parcel D project located in Boston, Massachusetts. The site investigation program was conducted by ConeTec Inc. (ConeTec), under contract to Haley & Aldrich of Boston, Massachusetts.

A total of 6 cone penetration tests were completed at 6 locations. The CPT program was performed to evaluate the subsurface soil conditions. CPT sounding locations were selected and numbered under supervision of Haley & Aldrich personnel (Lysandra Reed).

Project Information

Project	
Client	Haley & Aldrich
Project	Seaport Square Parcel D, Boston, MA
ConeTec project number	21-53-22243

A map from CESIUM including the CPT test locations is presented below.

Rig Description	Deployment System	Test Type
CPT Truck Rig	25 ton truck mounted (twin cylinders)	CPT

Coordinates		
Test Type	Collection Method	EPSG Number
CPT	GPS (GlobalSat MR-350)	32619 (WGS 84 / UTM North)

Cone Penetration Test (CPT)	
Depth reference	Ground surface at the time of the investigation.
Tip and sleeve data offset	0.1 meter. This has been accounted for in the CPT data files.
Pore pressure dissipation (PPD) tests	Four pore pressure dissipation tests were completed primarily to determine the phreatic surface.
Additional plots	Advanced and Soil Behavior Type (SBT) scatter plots are included in the data release package.

Cone Penetrometers Used for this Project						
Cone Description	Cone Number	Cross Sectional Area (cm^2)	Sleeve Area (cm^2)	Tip Capacity (bar)	Sleeve Capacity (bar)	Pore Pressure Capacity (bar)
612:T1500F15U35	612	15	225	1500	15	35
Cone 612 was used for each sounding.						

Calculated Geotechnical Parameters Tables	
Additional information	The Normalized Soil Behavior Type Chart based on Q_{tn} (SBT Qtn) (Robertson, 2009) was used to classify the soil for this project. A detailed set of calculated CPT parameters have been generated and are provided in Excel format files in the release folder. The CPT parameter calculations are based on values of corrected tip resistance (q_t) sleeve friction (f_s) and pore pressure (u_2). Effective stresses are calculated based on unit weights that have been assigned to the individual soil behavior type zones and the assumed equilibrium pore pressure profile. Soils were classified as either drained or undrained based on the Q_{tn} Normalized Soil Behavior Type Chart (Robertson, 2009). Calculations for both drained and undrained parameters were included for materials that classified as silt mixtures (zone 4).

Limitations

This report has been prepared for the exclusive use of Haley & Aldrich (Client) for the project titled "Seaport Square Parcel D, Boston, MA". The report's contents may not be relied upon by any other party without the express written permission of ConeTec. ConeTec has provided site investigation services, prepared the factual data reporting and provided geotechnical parameter calculations consistent with current best practices. No other warranty, expressed or implied, is made.

The information presented in the report document and the accompanying data set pertain to the specific project, site conditions and objectives described to ConeTec by the Client. In order to properly understand the factual data, assumptions and calculations, reference must be made to the documents provided and their accompanying data sets, in their entirety.

Cone penetration tests (CPTu) are conducted using an integrated electronic piezocone penetrometer and data acquisition system manufactured by Adara Systems Ltd., a subsidiary of ConeTec.

ConeTec's piezocone penetrometers are compression type designs in which the tip and friction sleeve load cells are independent and have separate load capacities. The piezocones use strain gauged load cells for tip and sleeve friction and a strain gauged diaphragm type transducer for recording pore pressure. The piezocones also have a platinum resistive temperature device (RTD) for monitoring the temperature of the sensors, an accelerometer type dual axis inclinometer and two geophone sensors for recording seismic signals. All signals are amplified and measured with minimum 16 bit resolution down hole within the cone body, and the signals are sent to the surface using a high bandwidth, error corrected digital interface through a shielded cable.

ConeTec penetrometers are manufactured with various tip, friction and pore pressure capacities in both 10 cm^2 and 15 cm^2 tip base area configurations in order to maximize signal resolution for various soil conditions. The specific piezocone used for each test is described in the CPT summary table presented in the first appendix. The 15 cm^2 penetrometers do not require friction reducers as they have a diameter larger than the deployment rods. The 10 cm^2 piezocones use a friction reducer consisting of a rod adapter extension behind the main cone body with an enlarged cross sectional area (typically 44 mm diameter over a length of 32 mm with tapered leading and trailing edges) located at a distance of 585 mm above the cone tip.

The penetrometers are designed with equal end area friction sleeves, a net end area ratio of 0.8 and cone tips with a 60 degree apex angle.

All ConeTec piezocones can record pore pressure at various locations. Unless otherwise noted, the pore pressure filter is located directly behind the cone tip in the "u_2" position (ASTM Type 2). The filter is 6 mm thick, made of porous plastic (polyethylene) having an average pore size of 125 microns (90-160 microns). The function of the filter is to allow rapid movements of extremely small volumes of water needed to activate the pressure transducer while preventing soil ingress or blockage.

The piezocone penetrometers are manufactured with dimensions, tolerances and sensor characteristics that are in general accordance with the current ASTM D5778 standard. ConeTec's calibration criteria also meet or exceed those of the current ASTM D5778 standard. An illustration of the piezocone penetrometer is presented in Figure CPTu.

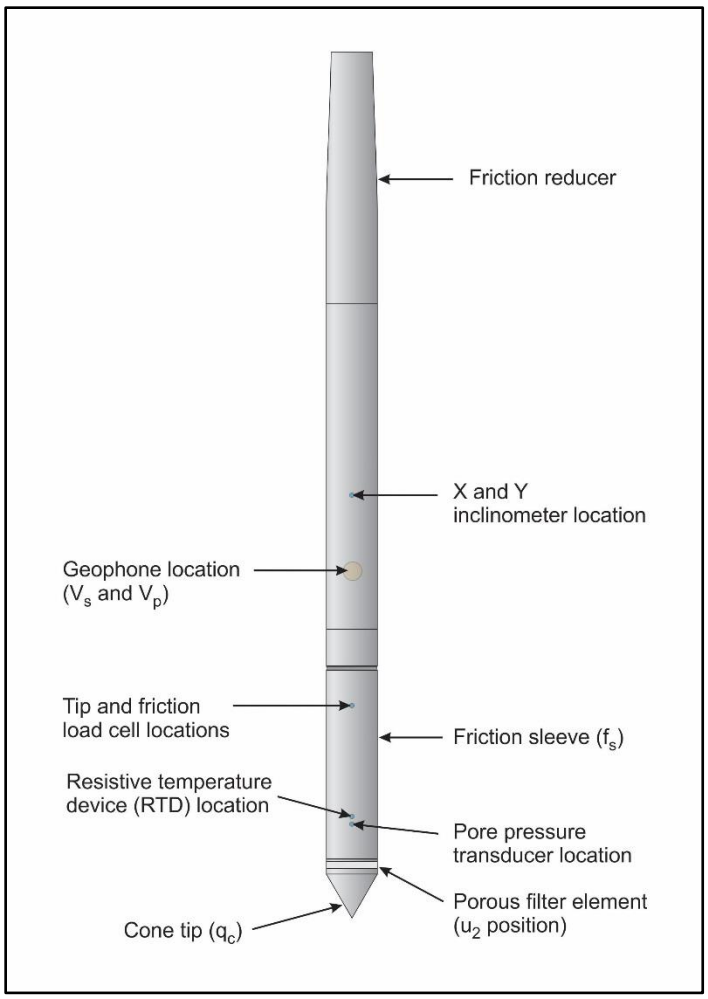


Figure CPTu. Piezocone Penetrometer (15 cm^2)

The ConeTec data acquisition systems consist of a Windows based computer and a signal interface box and power supply. The signal interface combines depth increment signals, seismic trigger signals and the downhole digital data. This combined data is then sent to the Windows based computer for collection and presentation. The data is recorded at fixed depth increments using a depth wheel attached to the push cylinders or by using a spring loaded rubber depth wheel that is held against the cone rods. The typical recording interval is 2.5 cm; custom recording intervals are possible.

The system displays the CPTu data in real time and records the following parameters to a storage media during penetration:

- Depth
- Uncorrected tip resistance (q_c)
- Sleeve friction (f_s)
- Dynamic pore pressure (u)
- Additional sensors such as resistivity, passive gamma, ultra violet induced fluorescence, if applicable

All testing is performed in accordance to ConeTec's CPT operating procedures which are in general accordance with the current ASTM D5778 standard.

Prior to the start of a CPTu sounding a suitable cone is selected, the cone and data acquisition system are powered on, the pore pressure system is saturated with either glycerin or silicone oil and the baseline readings are recorded with the cone hanging freely in a vertical position.

The CPTu is conducted at a steady rate of 2 cm/s, within acceptable tolerances. Typically one meter length rods with an outer diameter of 1.5 inches are added to advance the cone to the sounding termination depth. After cone retraction final baselines are recorded.

Additional information pertaining to ConeTec's cone penetration testing procedures:

- Each filter is saturated in silicone oil under vacuum pressure prior to use
- Baseline readings are compared to previous readings
- Soundings are terminated at the client's target depth or at a depth where an obstruction is encountered, excessive rod flex occurs, excessive inclination occurs, equipment damage is likely to take place, or a dangerous working environment arises
- Differences between initial and final baselines are calculated to ensure zero load offsets have not occurred and to ensure compliance with ASTM standards

The interpretation of piezocone data for this report is based on the corrected tip resistance (q_t), sleeve friction (f_s) and pore water pressure (u). The interpretation of soil type is based on the correlations developed by Robertson et al. (1986) and Robertson (1990, 2009). It should be noted that it is not always possible to accurately identify a soil behavior type based on these parameters. In these situations, experience, judgment and an assessment of other parameters may be used to infer soil behavior type.

The recorded tip resistance (q_c) is the total force acting on the piezocone tip divided by its base area. The tip resistance is corrected for pore pressure effects and termed corrected tip resistance (q_t) according to the following expression presented in Robertson et al. (1986):

$$q_t = q_c + (1\text{-}a) \bullet u_2$$

where: q_t is the corrected tip resistance
q_c is the recorded tip resistance
u_2 is the recorded dynamic pore pressure behind the tip (u_2 position)
a is the Net Area Ratio for the piezocone (0.8 for ConeTec probes)

The sleeve friction (f_s) is the frictional force on the sleeve divided by its surface area. As all ConeTec piezocones have equal end area friction sleeves, pore pressure corrections to the sleeve data are not required.

The dynamic pore pressure (u) is a measure of the pore pressures generated during cone penetration. To record equilibrium pore pressure, the penetration must be stopped to allow the dynamic pore pressures to stabilize. The rate at which this occurs is predominantly a function of the permeability of the soil and the diameter of the cone.

The friction ratio (Rf) is a calculated parameter. It is defined as the ratio of sleeve friction to the tip resistance expressed as a percentage. Generally, saturated cohesive soils have low tip resistance, high friction ratios and generate large excess pore water pressures. Cohesionless soils have higher tip resistances, lower friction ratios and do not generate significant excess pore water pressure.

A summary of the CPTu soundings along with test details and individual plots are provided in the appendices. A set of files with calculated geotechnical parameters were generated for each sounding based on published correlations and are provided in Excel format in the data release folder. Information regarding the methods used is also included in the data release folder.

For additional information on CPTu interpretations and calculated geotechnical parameters, refer to Robertson et al. (1986), Lunne et al. (1997), Robertson (2009), Mayne (2013, 2014) and Mayne and Peuchen (2012).

References

ASTM D5778-12, 2012, "Standard Test Method for Performing Electronic Friction Cone and Piezocone Penetration Testing of Soils", ASTM, West Conshohocken, US.

Lunne, T., Robertson, P.K. and Powell, J. J. M., 1997, “Cone Penetration Testing in Geotechnical Practice”, Blackie Academic and Professional.

Mayne, P.W., 2013, “Evaluating yield stress of soils from laboratory consolidation and in-situ cone penetration tests”, Sound Geotechnical Research to Practice (Holtz Volume) GSP 230, ASCE, Reston/VA: 406-420.

Mayne, P.W. and Peuchen, J., 2012, “Unit weight trends with cone resistance in soft to firm clays”, Geotechnical and Geophysical Site Characterization *4,* Vol. 1 (Proc. ISC-4, Pernambuco), CRC Press, London: 903-910.

Mayne, P.W., 2014, “Interpretation of geotechnical parameters from seismic piezocone tests”, CPT’14 Keynote Address, Las Vegas, NV, May 2014.

Robertson, P.K., Campanella, R.G., Gillespie, D. and Greig, J., 1986, “Use of Piezometer Cone Data”, Proceedings of InSitu 86, ASCE Specialty Conference, Blacksburg, Virginia.

Robertson, P.K., 1990, “Soil Classification Using the Cone Penetration Test”, Canadian Geotechnical Journal, Volume 27: 151-158.

Robertson, P.K., 2009, “Interpretation of cone penetration tests – a unified approach”, Canadian Geotechnical Journal, Volume 46: 1337-1355.

The cone penetration test is halted at specific depths to carry out pore pressure dissipation (PPD) tests, shown in Figure PPD-1. For each dissipation test the cone and rods are decoupled from the rig and the data acquisition system measures and records the variation of the pore pressure (u) with time (t).

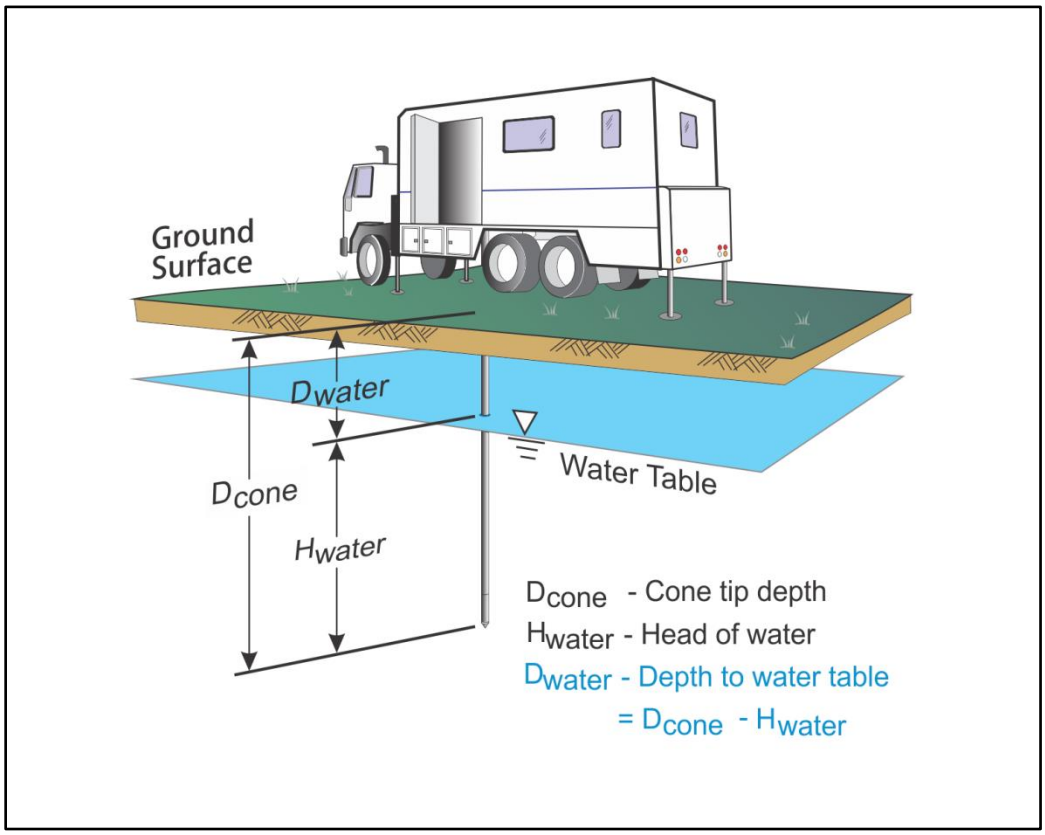


Figure PPD-1. Pore pressure dissipation test setup

Pore pressure dissipation data can be interpreted to provide estimates of ground water conditions, permeability, consolidation characteristics and soil behavior.

The typical shapes of dissipation curves shown in Figure PPD-2 are very useful in assessing soil type, drainage, in situ pore pressure and soil properties. A flat curve that stabilizes quickly is typical of a freely draining sand. Undrained soils such as clays will typically show positive excess pore pressure and have long dissipation times. Dilative soils will often exhibit dynamic pore pressures below equilibrium that then rise over time. Overconsolidated fine-grained soils will often exhibit an initial dilatory response where there is an initial rise in pore pressure before reaching a peak and dissipating.

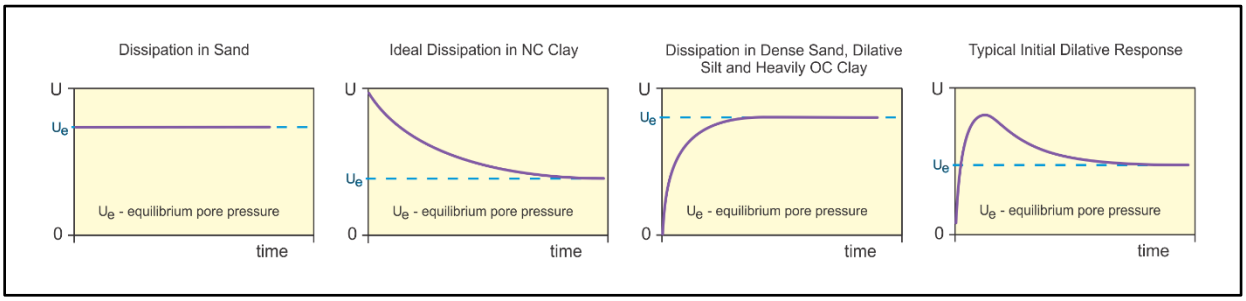


Figure PPD-2. Pore pressure dissipation curve examples

In order to interpret the equilibrium pore pressure (u_{eq}) and the apparent phreatic surface, the pore pressure should be monitored until such time as there is no variation in pore pressure with time as shown for each curve in Figure PPD-2.

In fine grained deposits the point at which 100% of the excess pore pressure has dissipated is known as t_{100}. In some cases this can take an excessive amount of time and it may be impractical to take the dissipation to t_{100}. A theoretical analysis of pore pressure dissipations by Teh and Houlsby (1991) showed that a single curve relating degree of dissipation versus theoretical time factor (T*) may be used to calculate the coefficient of consolidation (c_h) at various degrees of dissipation resulting in the expression for c_h shown below.

$$c_h = \frac{T^* \cdot a^2 \cdot \sqrt{I_r}}{t}$$

Where:

T* is the dimensionless time factor (Table Time Factor)
a is the radius of the cone
I_r is the rigidity index
t is the time at the degree of consolidation

Table Time Factor. T* versus degree of dissipation (Teh and Houlsby (1991))

Degree of Dissipation (%)	20	30	40	50	60	70	80
T* (u_2)	0.038	0.078	0.142	0.245	0.439	0.804	1.60

The coefficient of consolidation is typically analyzed using the time (t_{50}) corresponding to a degree of dissipation of 50% (u_{50}). In order to determine t_{50}, dissipation tests must be taken to a pressure less than u_{50}. The u_{50} value is half way between the initial maximum pore pressure and the equilibrium pore pressure value, known as u_{100}. To estimate u_{50}, both the initial maximum pore pressure and u_{100} must be known or estimated. Other degrees of dissipations may be considered, particularly for extremely long dissipations.

At any specific degree of dissipation the equilibrium pore pressure (u at t_{100}) must be estimated at the depth of interest. The equilibrium value may be determined from one or more sources such as measuring the value directly (u_{100}), estimating it from other dissipations in the same profile, estimating the phreatic surface and assuming hydrostatic conditions, from nearby soundings, from client provided information, from site observations and/or past experience, or from other site instrumentation.

For calculations of c_h (Teh and Houlsby (1991)), t_{50} values are estimated from the corresponding pore pressure dissipation curve and a rigidity index (I_r) is assumed. For curves having an initial dilatory response in which an initial rise in pore pressure occurs before reaching a peak, the relative time from the peak value is used in determining t_{50}. In cases where the time to peak is excessive, t_{50} values are not calculated.

Due to possible inherent uncertainties in estimating I_r, the equilibrium pore pressure and the effect of an initial dilatory response on calculating t_{50}, other methods should be applied to confirm the results for c_h.

Additional published methods for estimating the coefficient of consolidation from a piezocone test are described in Burns and Mayne (1998, 2002), Jones and Van Zyl (1981), Robertson et al. (1992) and Sully et al. (1999).

A summary of the pore pressure dissipation tests and dissipation plots are presented in the relevant appendix.

References

Burns, S.E. and Mayne, P.W., 1998, "Monotonic and dilatory pore pressure decay during piezocone tests", Canadian Geotechnical Journal 26 (4): 1063-1073.

Burns, S.E. and Mayne, P.W., 2002, "Analytical cavity expansion-critical state model cone dissipation in fine-grained soils", Soils & Foundations, Vol. 42(2): 131-137.

Jones, G.A. and Van Zyl, D.J.A., 1981, "The piezometer probe: a useful investigation tool", Proceedings, 10th International Conference on Soil Mechanics and Foundation Engineering, Vol. 3, Stockholm: 489-495.

Robertson, P.K., Sully, J.P., Woeller, D.J., Lunne, T., Powell, J.J.M. and Gillespie, D.G., 1992, "Estimating coefficient of consolidation from piezocone tests", Canadian Geotechnical Journal, 29(4): 551-557.

Sully, J.P., Robertson, P.K., Campanella, R.G. and Woeller, D.J., 1999, "An approach to evaluation of field CPTU dissipation data in overconsolidated fine-grained soils", Canadian Geotechnical Journal, 36(2): 369-381.

Teh, C.I., and Houlsby, G.T., 1991, "An analytical study of the cone penetration test in clay", Geotechnique, 41(1): 17-34.

The appendices listed below are included in the report:

- Cone Penetration Test Summary and Standard Cone Penetration Test Plots
- Advanced Cone Penetration Test Plots with Ic, Su(Nkt), Phi and N1(60)Ic
- Soil Behavior Type (SBT) Scatter Plots
- Pore Pressure Dissipation Summary and Pore Pressure Dissipation Plots

Cone Penetration Test Summary and Standard Cone Penetration Test Plots

CONETEC

Job No:	21-53-22243
Client:	Haley & Aldrich
Project:	Seaport Square Parcel D, Boston, MA
Start Date:	14-Apr-2021
End Date:	14-Apr-2021

CONE PENETRATION TEST SUMMARY

Sounding ID	File Name	Date	Cone	Assumed Phreatic Surface[1] (ft)	Final Depth (ft)	Northing[2] (m)	Easting[2] (m)	Refer to Notation Number
CPT21-01	21-53-22243_CP01	14-Apr-2021	612:T1500F15U35	10.0	0.66	4690975	331499	4
CPT21-02	21-53-22243_CP02	14-Apr-2021	612:T1500F15U35	10.0	103.84	4690954	331535	
CPT21-03	21-53-22243_CP03	14-Apr-2021	612:T1500F15U35	11.4	90.06	4690907	331511	
CPT21-04	21-53-22243_CP04	14-Apr-2021	612:T1500F15U35	12.6	137.88	4690951	331472	
CPT21-05	21-53-22243_CP05	14-Apr-2021	612:T1500F15U35	10.0	90.06	4690942	331523	3
CPT21-06	21-53-22243_CP06	14-Apr-2021	612:T1500F15U35	13.6	135.50	4690956	331497	
Totals	6 soundings				557.98			

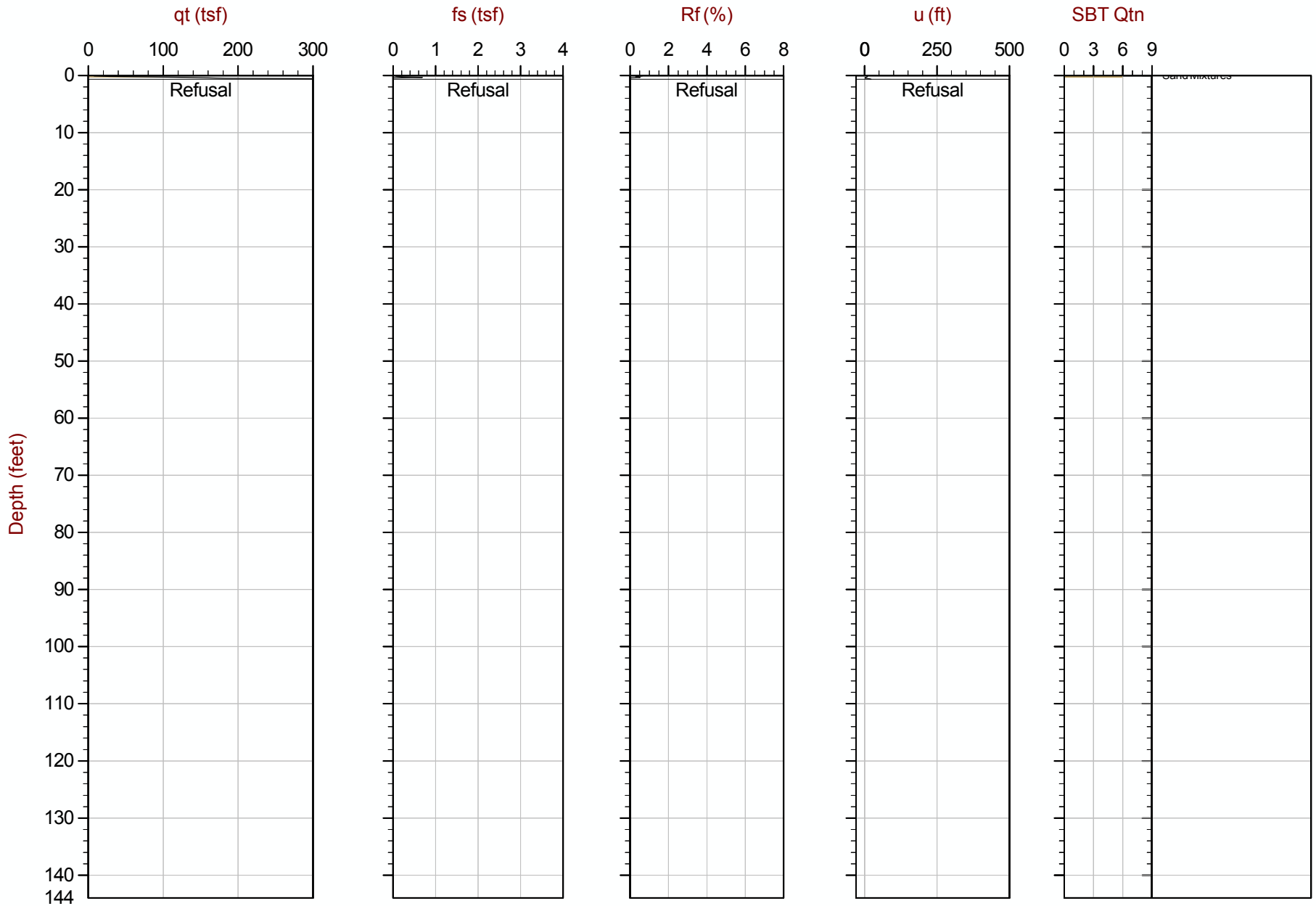
1. The assumed phreatic surface was based on pore pressure dissipation tests. Hydrostatic data was used for the calculated parameters.
2. Coordinates were acquired using a MR-350 GlobalSat GPS Receiver in datum: WGS84 / UTM Zone 19 North.
3. The assumed phreatic surface was estimated from the dynamic pore pressure data.
4. No phreatic surface detected.

CONETEC

Haley & Aldrich

Job No: 21-53-22243
Date: 2021-04-14 09:22
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-01
Cone: EC612



Max Depth: 0.200 m / 0.66 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-53-22243_CP01.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4690975m E: 331499m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

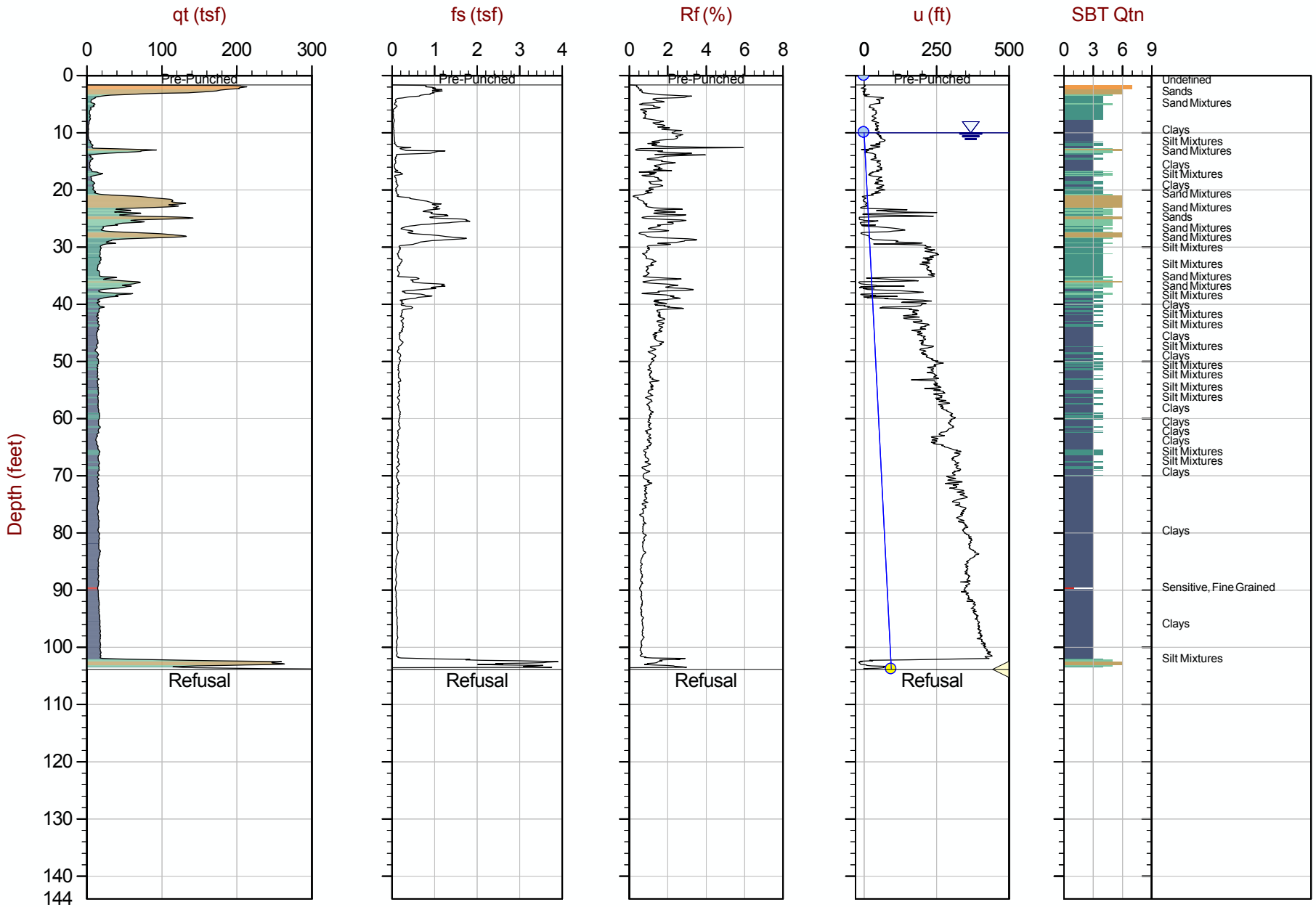
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 21-53-22243
Date: 2021-04-14 11:48
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-02
Cone: EC612



Max Depth: 31.650 m / 103.84 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-53-22243_CP02.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4690954m E: 331535m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

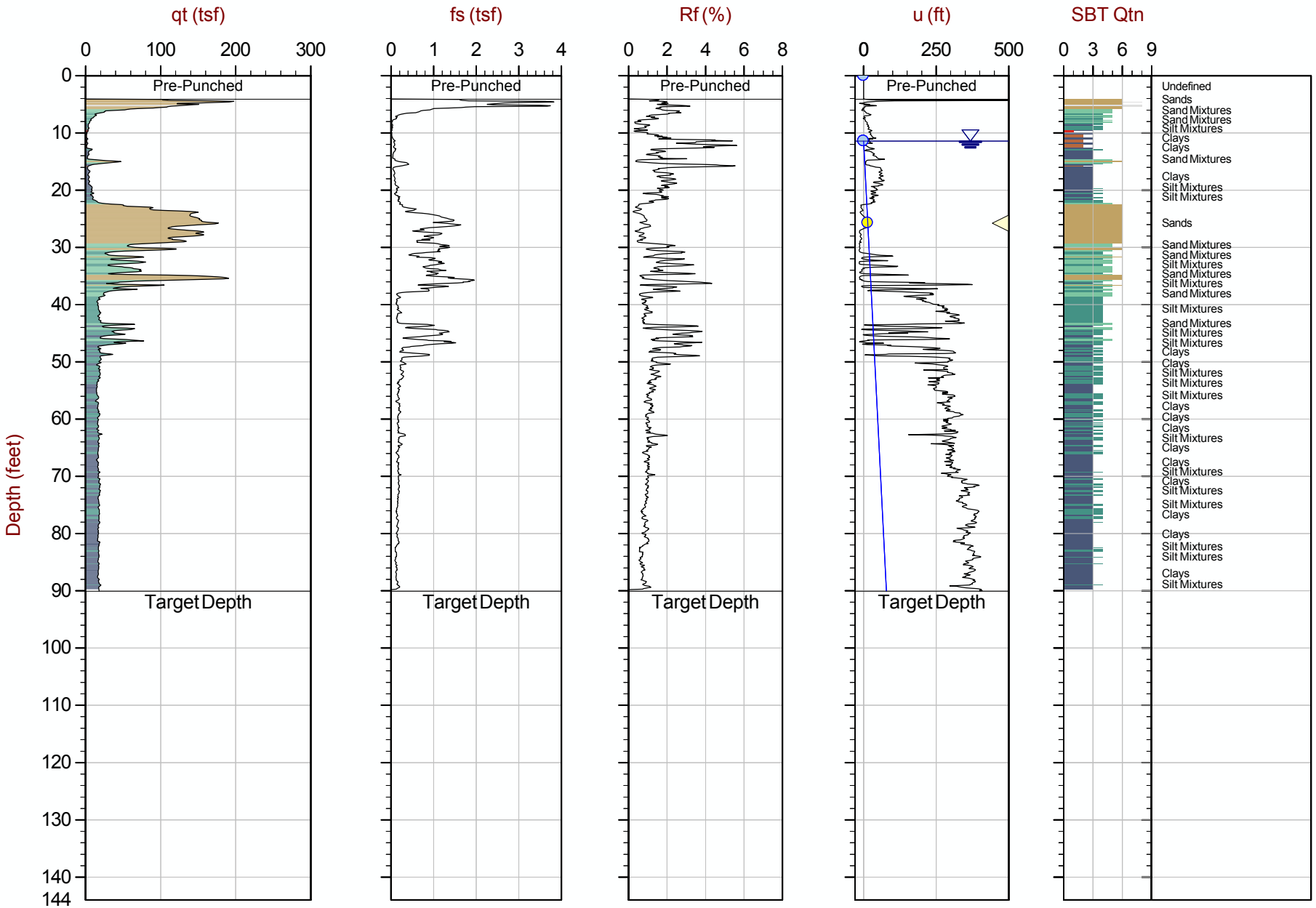
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 21-53-22243
Date: 2021-04-14 01:31
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-03
Cone: EC612



Max Depth: 27.450 m / 90.06 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-53-22243_CP03.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4690907m E: 331511m

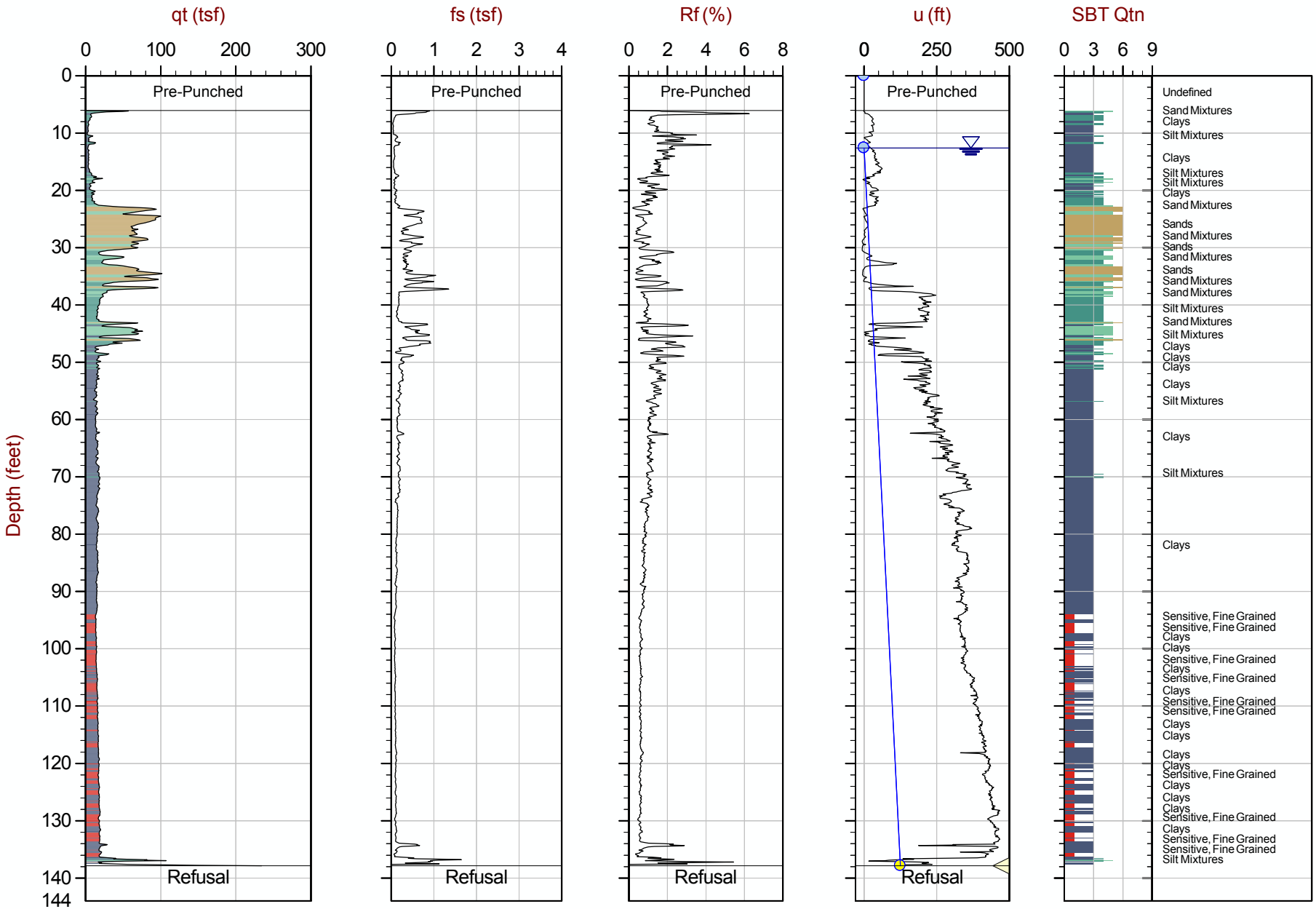
Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

CONETEC

Haley & Aldrich

Job No: 21-53-22243
Date: 2021-04-14 10:24
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-04
Cone: EC612



Max Depth: 42.025 m / 137.88 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-53-22243_CP04.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4690951m E: 331472m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

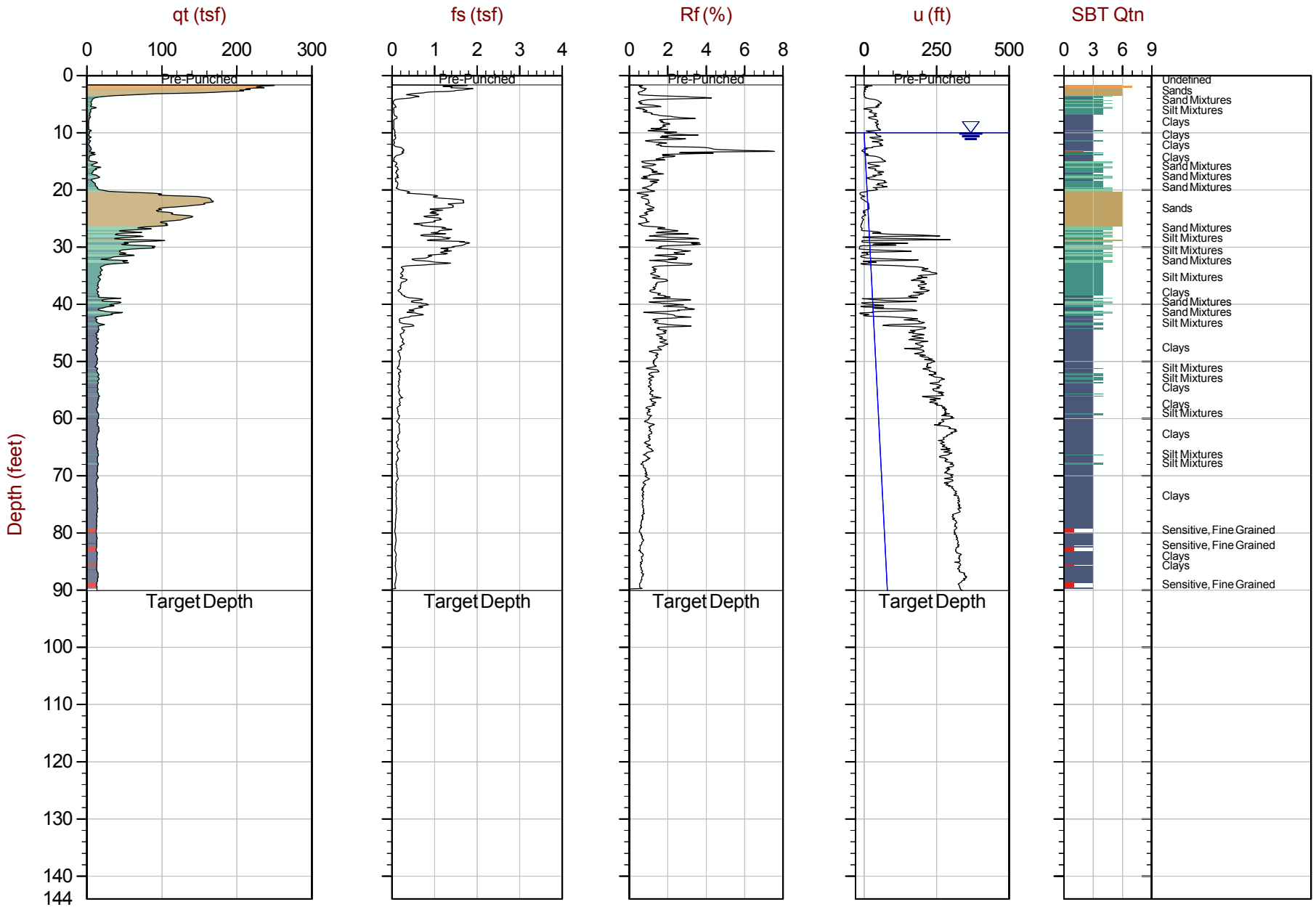
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 21-53-22243
Date: 2021-04-14 02:35
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-05
Cone: EC612



Max Depth: 27.450 m / 90.06 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-53-22243_CP05.COR
Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4690942m E: 331523m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

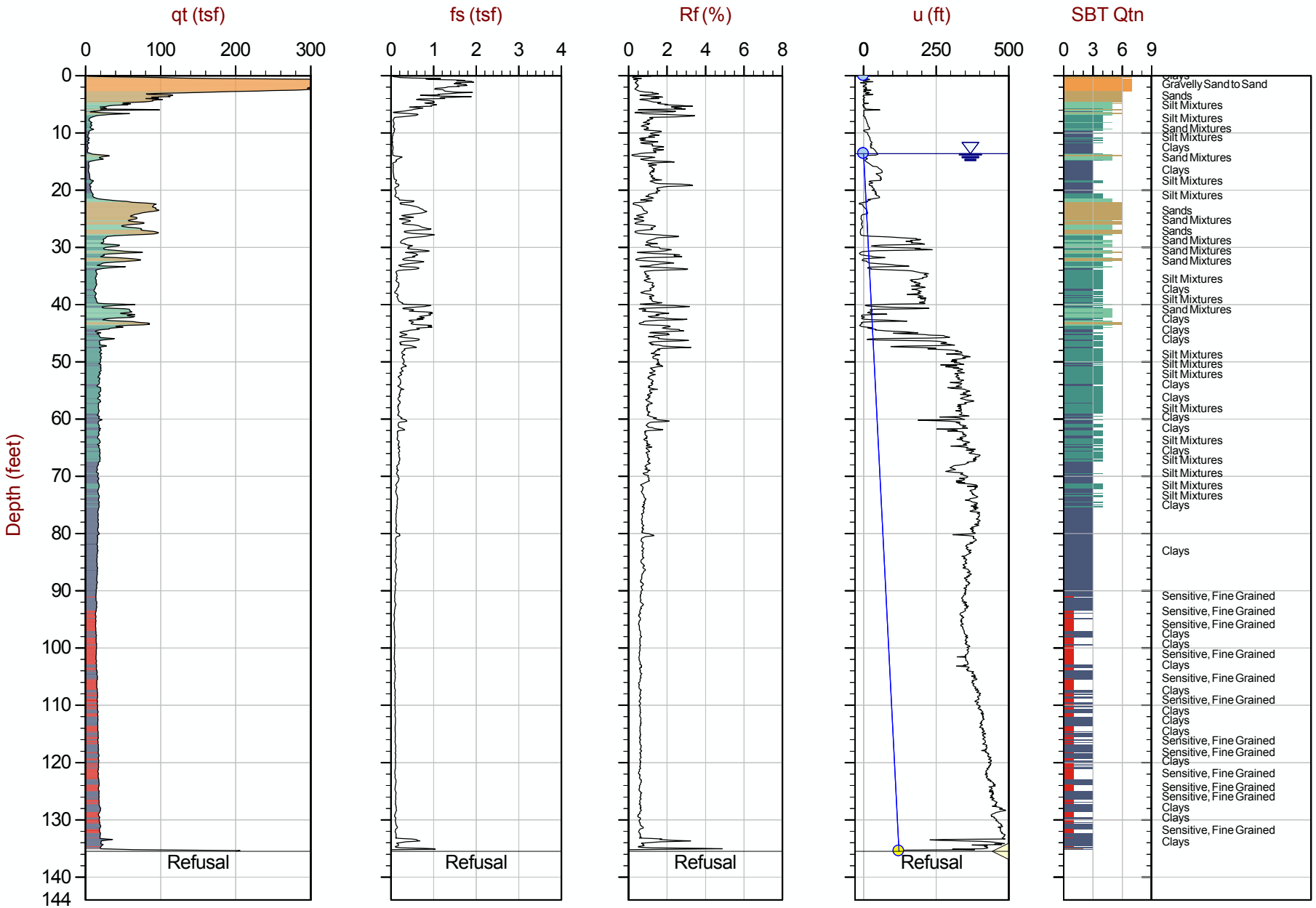
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 21-53-22243
Date: 2021-04-14 07:51
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-06
Cone: EC612



Max Depth: 41.300 m / 135.50 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

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Unit Wt: SBTQtn (PKR2009)

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4690956m E: 331497m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Advanced Cone Penetration Plots with Ic, Su(Nkt), Phi and N1(60)Ic

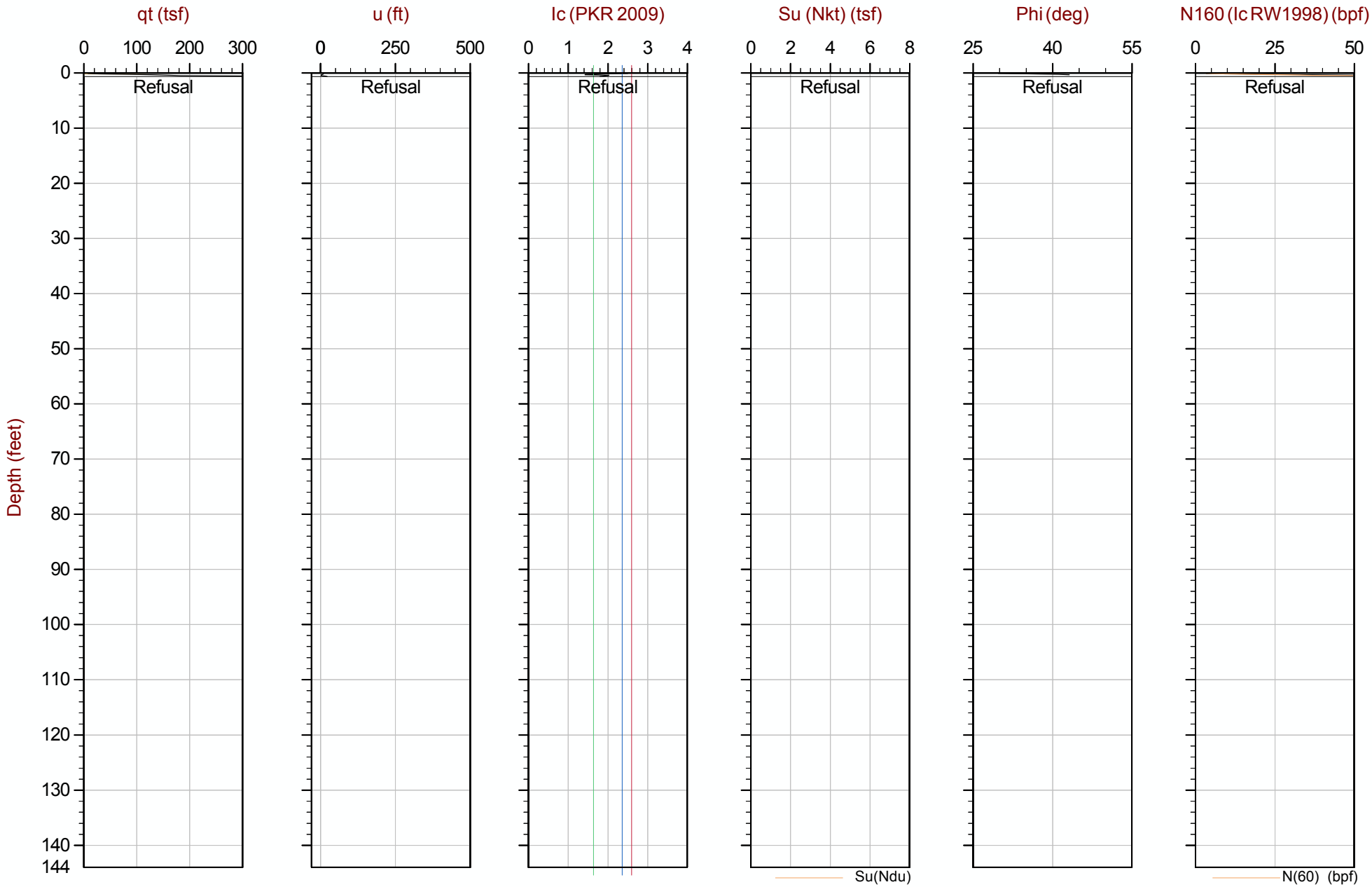
CONETEC

CONETEC

Haley & Aldrich

Job No: 21-53-22243
Date: 2021-04-14 09:22
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-01
Cone: EC612



Max Depth: 0.200 m / 0.66 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-53-22243_CP01.COR
Unit Wt: SBTQtn (PKR2009)
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4690975m E: 331499m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

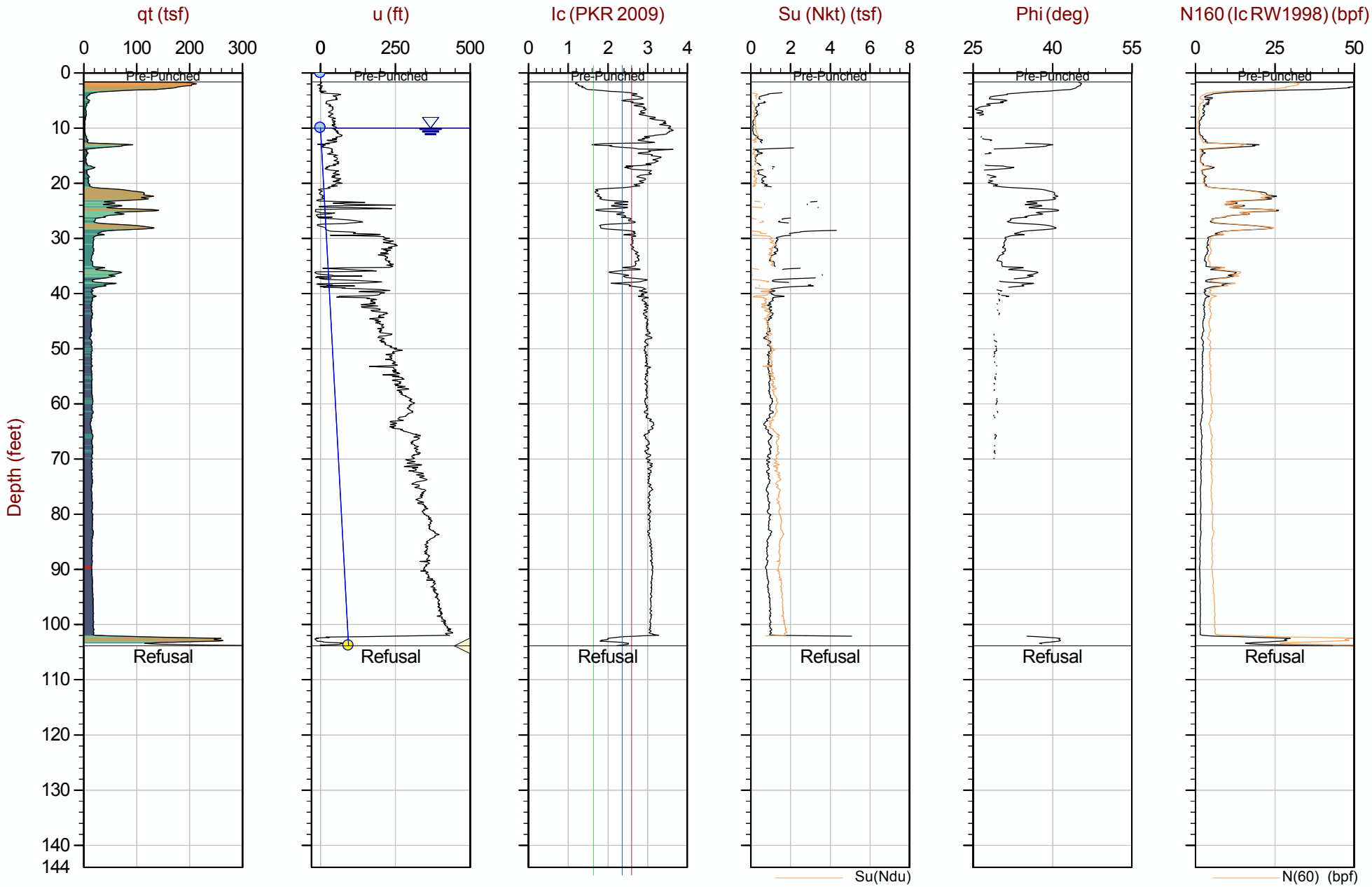
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 21-53-22243
Date: 2021-04-14 11:48
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-02
Cone: EC612



Max Depth: 31.650 m / 103.84 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-53-22243_CP02.COR
Unit Wt: SBTQtn (PKR2009)
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4690954m E: 331535m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

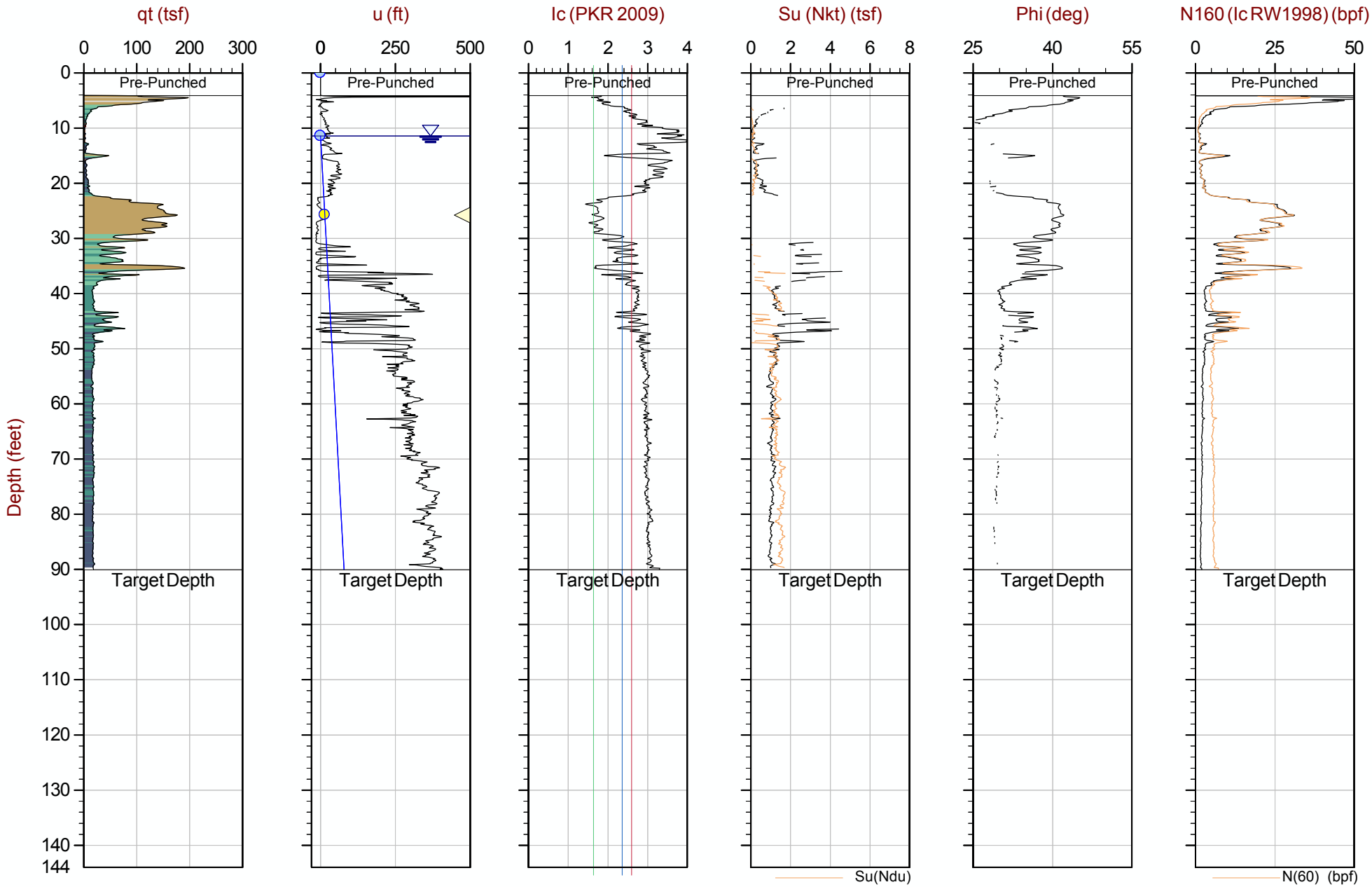
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 21-53-22243
Date: 2021-04-14 01:31
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-03
Cone: EC612



Max Depth: 27.450 m / 90.06 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-53-22243_CP03.COR
Unit Wt: SBTQtn (PKR2009)
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4690907m E: 331511m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

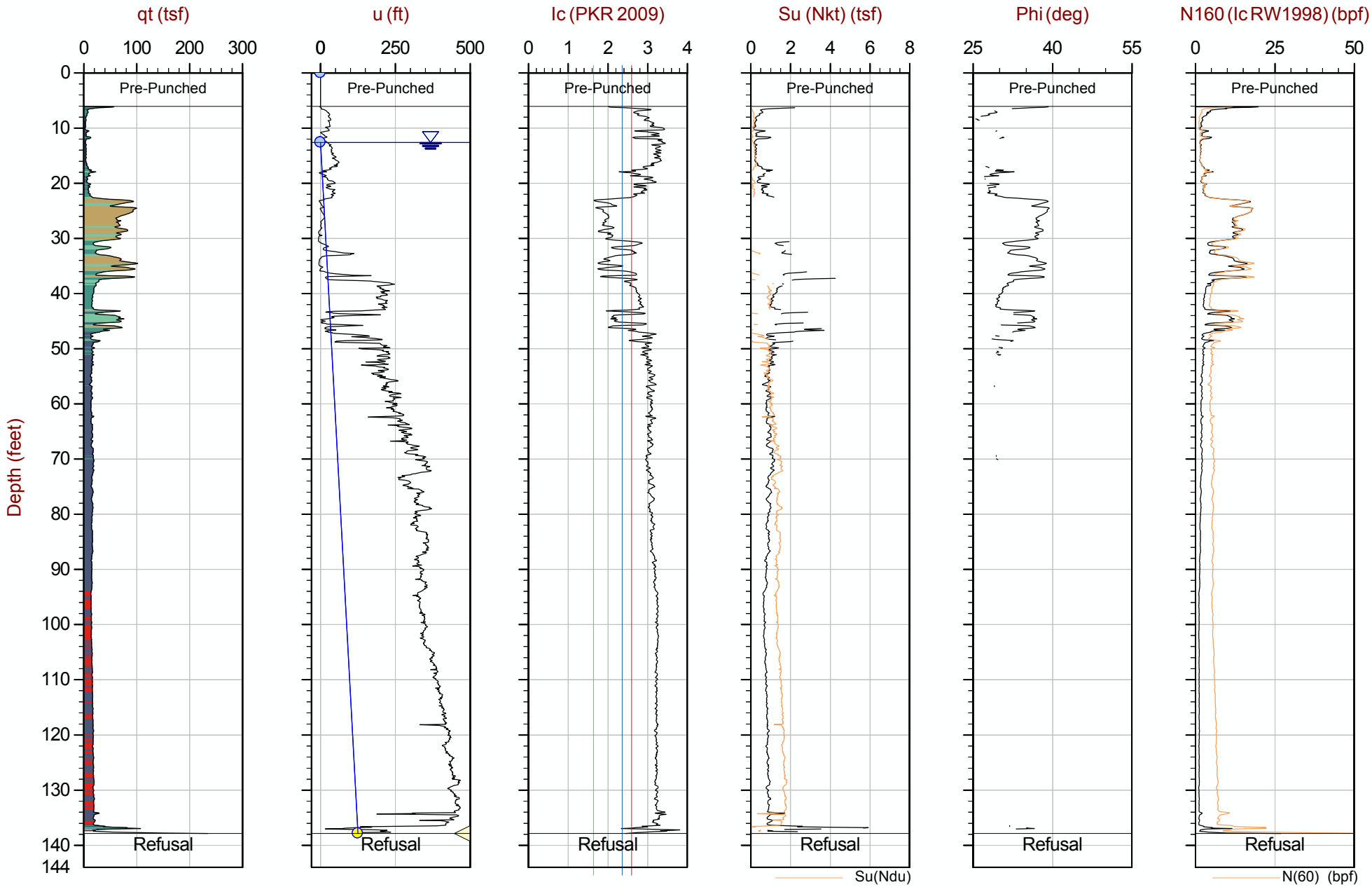
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 21-53-22243
Date: 2021-04-14 10:24
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-04
Cone: EC612



Max Depth: 42.025 m / 137.88 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-53-22243_CP04.COR
Unit Wt: SBTQtn (PKR2009)
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4690951m E: 331472m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

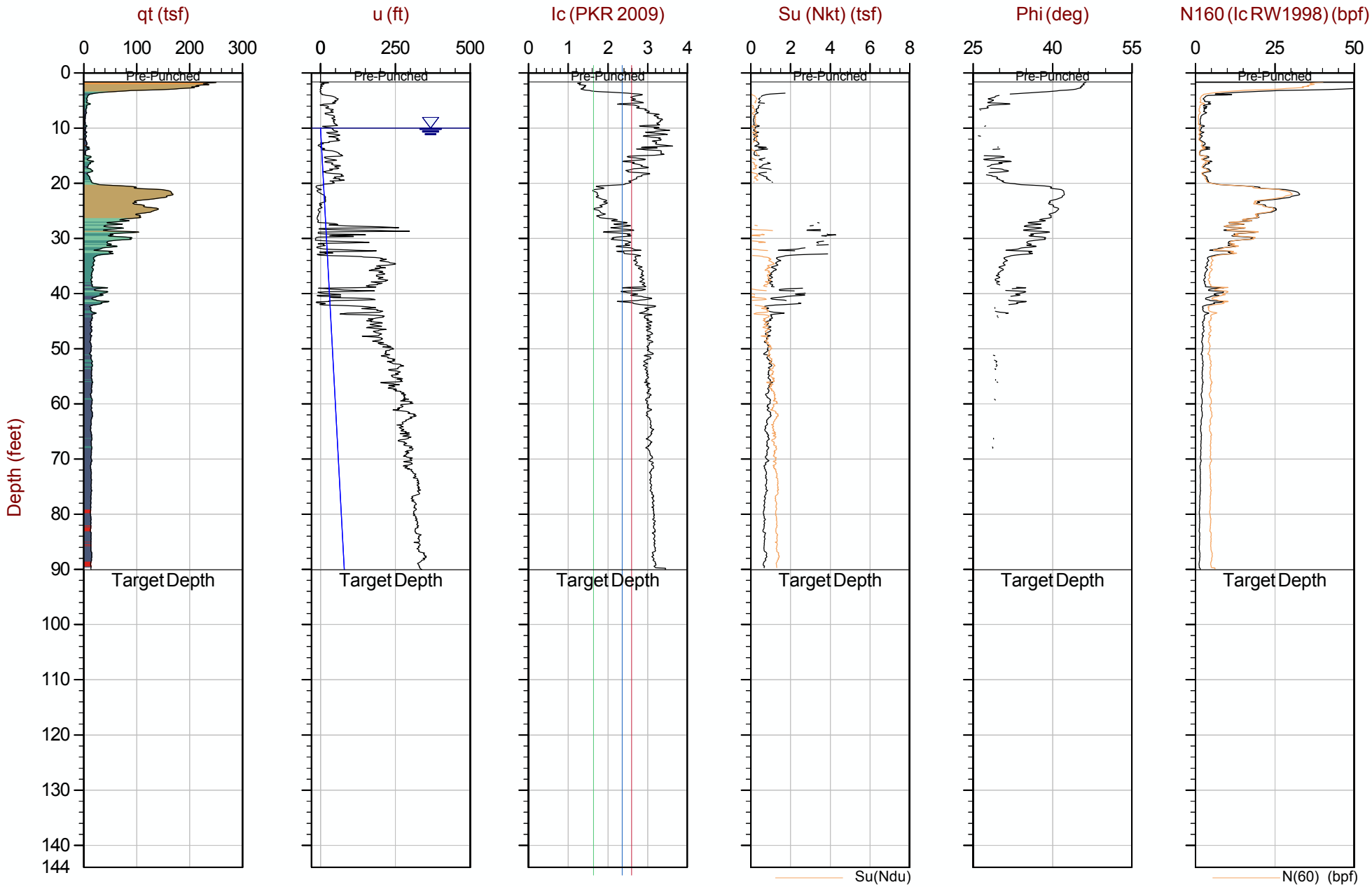
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 21-53-22243
Date: 2021-04-14 02:35
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-05
Cone: EC612



Max Depth: 27.450 m / 90.06 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-53-22243_CP05.COR
Unit Wt: SBTQtn (PKR2009)
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4690942m E: 331523m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

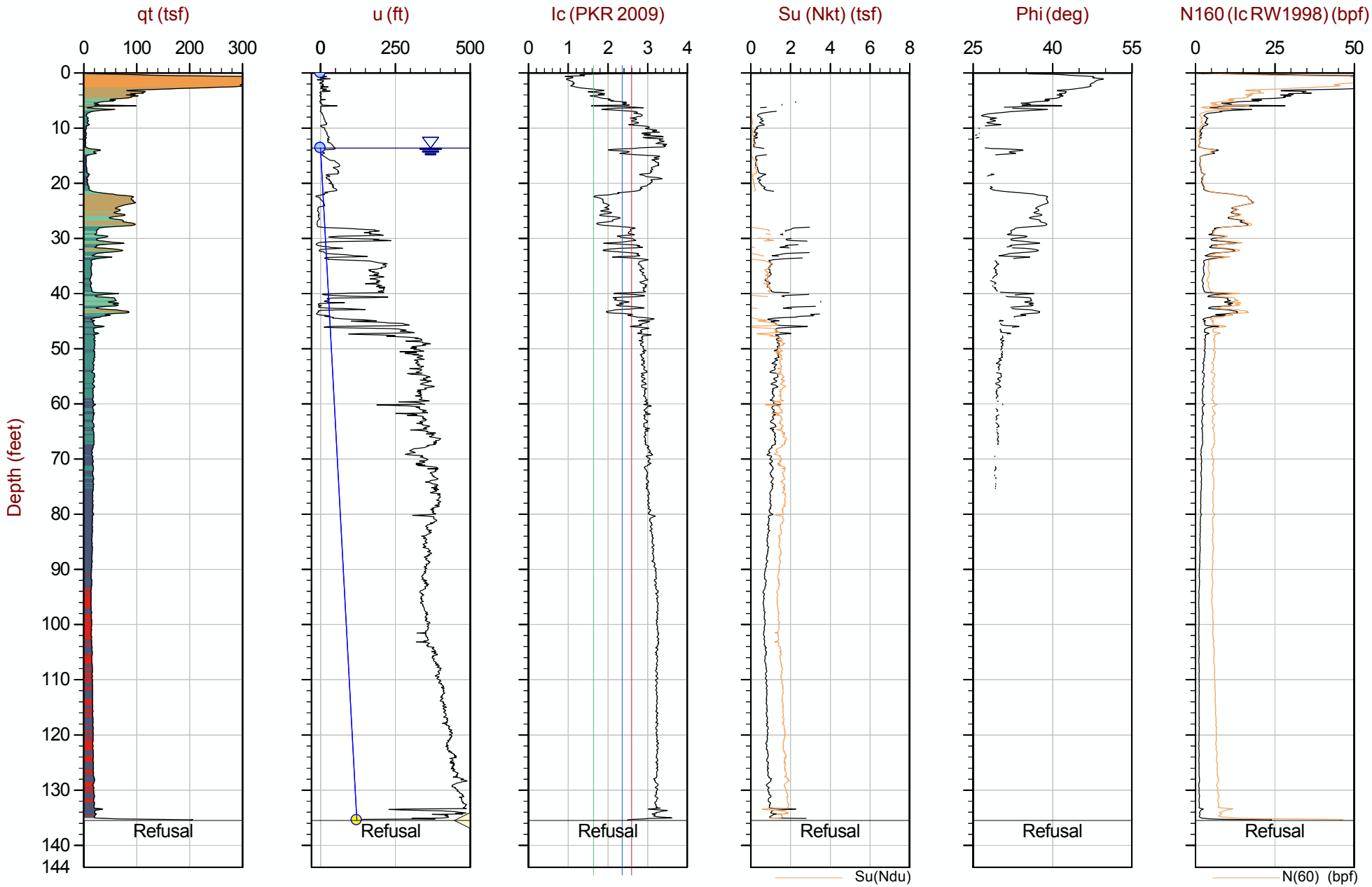
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

Haley & Aldrich

Job No: 21-53-22243
Date: 2021-04-14 07:51
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-06
Cone: EC612



Max Depth: 41.300 m / 135.50 ft
Depth Inc: 0.025 m / 0.082 ft
Avg Int: Every Point

File: 21-53-22243_CP06.COR
Unit Wt: SBTQtn (PKR2009)
Su Nkt/Ndu: 12.5 / 6.0

SBT: Robertson, 2009 and 2010
Coords: UTM Zone 19 N: 4690956m E: 331497m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Soil Behavior Type (SBT) Scatter Plots

CONETEC

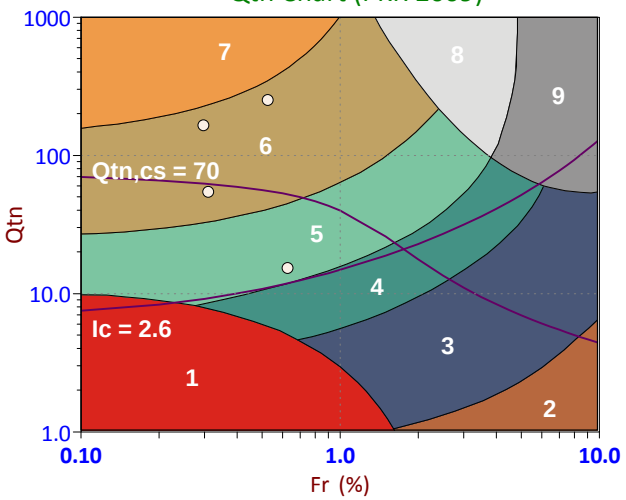
CONETEC

Haley & Aldrich

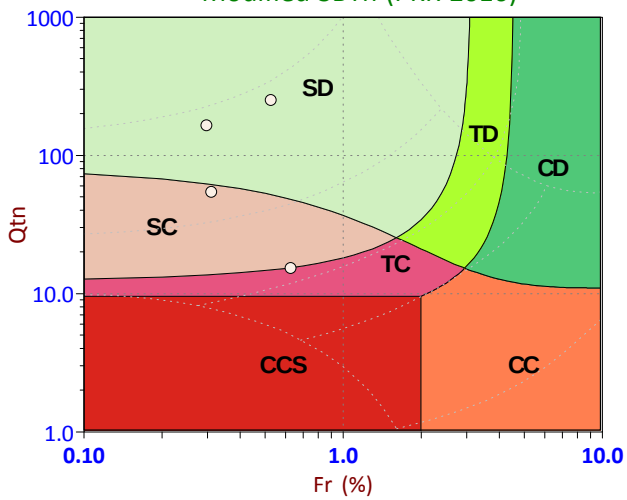
Job No: 21-53-22243
Date: 2021-04-14 09:22
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-01
Cone: EC612

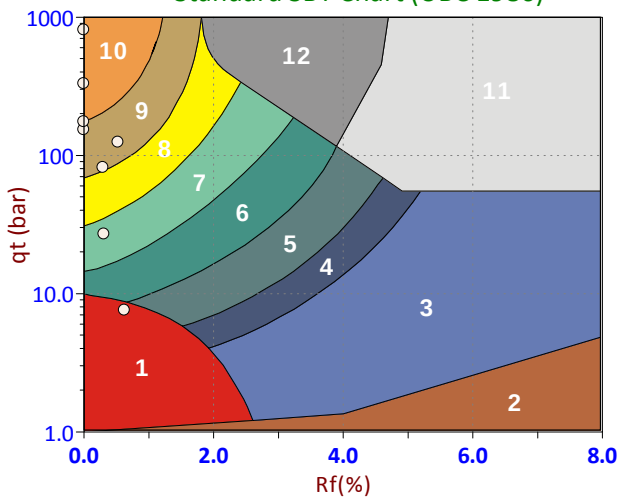
Qtn Chart (PKR 2009)



Modified SBTn (PKR 2016)



Standard SBT Chart (UBC 1986)



Depth Ranges

- >0.0 to 15.0 ft
- >15.0 to 30.0 ft
- >30.0 to 45.0 ft
- >45.0 to 60.0 ft
- >60.0 to 75.0 ft
- >75.0 to 90.0 ft
- >90.0 to 105.0 ft
- >105.0 to 120.0 ft
- >120.0 to 135.0 ft
- >135.0 to 150.0 ft
- >150.0 ft

Legend

- Sensitive, Fine Grained
- Organic Soils
- Clays
- Silt Mixtures
- Sand Mixtures
- Sands
- Gravelly Sand to Sand
- Stiff Sand to Clayey Sand
- Very Stiff Fine Grained

Legend

- CCS (Cont. sensitive clay like)
- CC (Cont. clay like)
- TC (Cont. transitional)
- SC (Cont. sand like)
- CD (Dil. clay like)
- TD (Dil. transitional)
- SD (Dil. sand like)

Legend

- Sensitive Fines
- Organic Soil
- Clay
- Silty Clay
- Clayey Silt
- Silt
- Sandy Silt
- Silty Sand/Sand
- Sand
- Gravelly Sand
- Stiff Fine Grained
- Cemented Sand

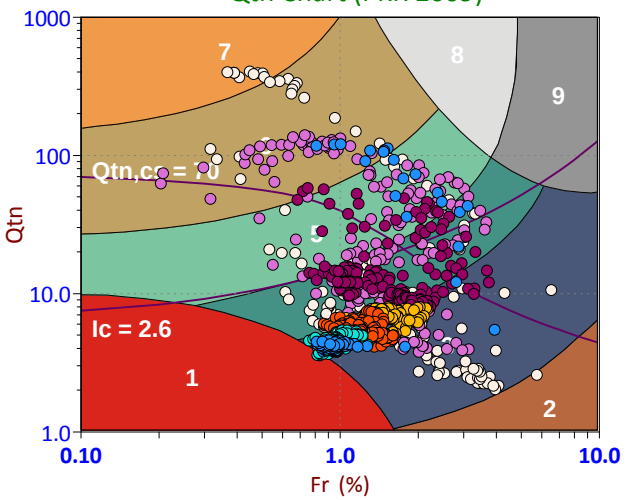
CONETEC

Haley & Aldrich

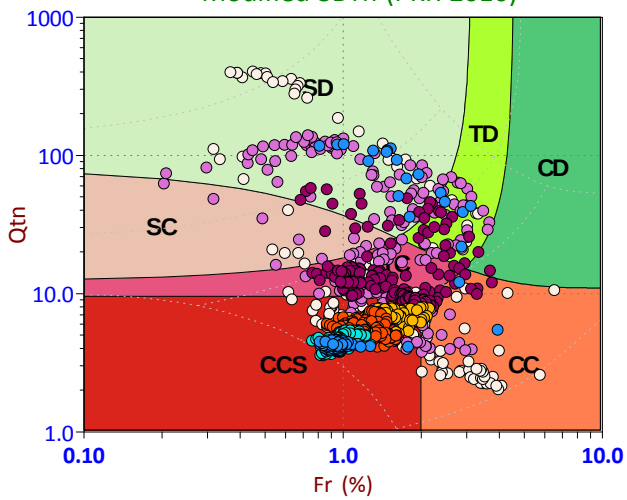
Job No: 21-53-22243
Date: 2021-04-14 11:48
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-02
Cone: EC612

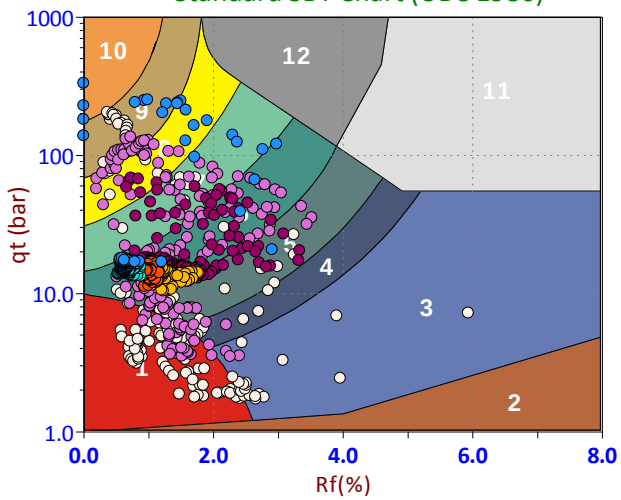
Qtn Chart (PKR 2009)



Modified SBTn (PKR 2016)



Standard SBT Chart (UBC 1986)



Depth Ranges

- >0.0 to 15.0 ft
- >15.0 to 30.0 ft
- >30.0 to 45.0 ft
- >45.0 to 60.0 ft
- >60.0 to 75.0 ft
- >75.0 to 90.0 ft
- >90.0 to 105.0 ft
- >105.0 to 120.0 ft
- >120.0 to 135.0 ft
- >135.0 to 150.0 ft
- >150.0 ft

Legend

- Sensitive, Fine Grained
- Organic Soils
- Clays
- Silt Mixtures
- Sand Mixtures
- Sands
- Gravelly Sand to Sand
- Stiff Sand to Clayey Sand
- Very Stiff Fine Grained

Legend

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Legend

- Sensitive Fines
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- Sandy Silt
- Silty Sand/Sand
- Sand
- Gravelly Sand
- Stiff Fine Grained
- Cemented Sand

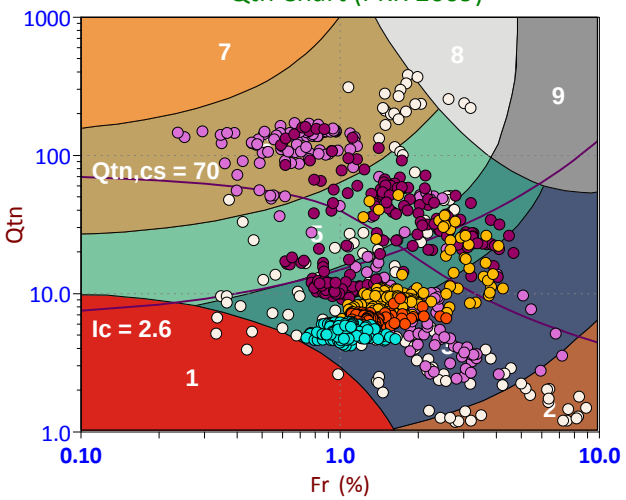
CONETEC

Haley & Aldrich

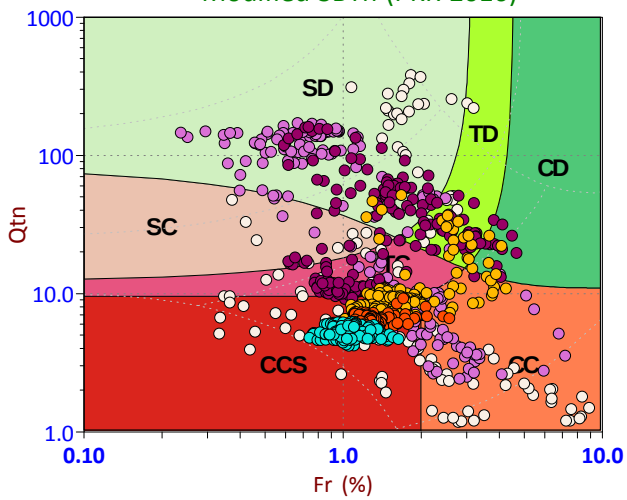
Job No: 21-53-22243
Date: 2021-04-14 01:31
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-03
Cone: EC612

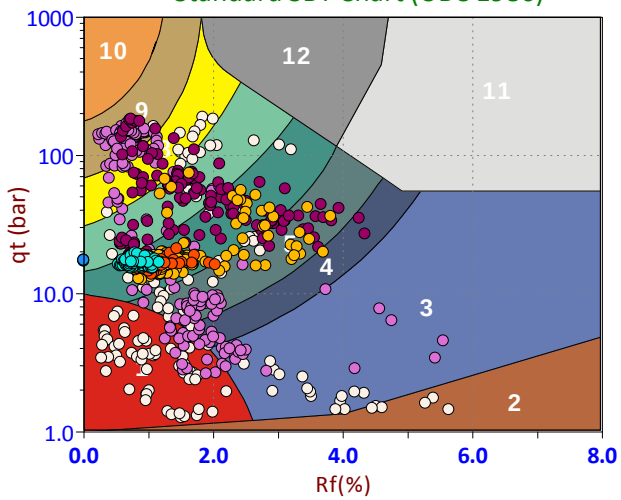
Qtn Chart (PKR 2009)



Modified SBTn (PKR 2016)



Standard SBT Chart (UBC 1986)



Depth Ranges

- >0.0 to 15.0 ft
- >15.0 to 30.0 ft
- >30.0 to 45.0 ft
- >45.0 to 60.0 ft
- >60.0 to 75.0 ft
- >75.0 to 90.0 ft
- >90.0 to 105.0 ft
- >105.0 to 120.0 ft
- >120.0 to 135.0 ft
- >135.0 to 150.0 ft
- >150.0 ft

Legend

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Legend

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- Cemented Sand

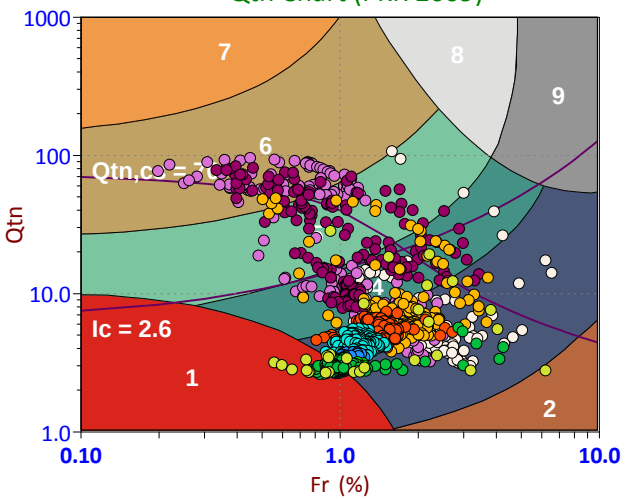
CONETEC

Haley & Aldrich

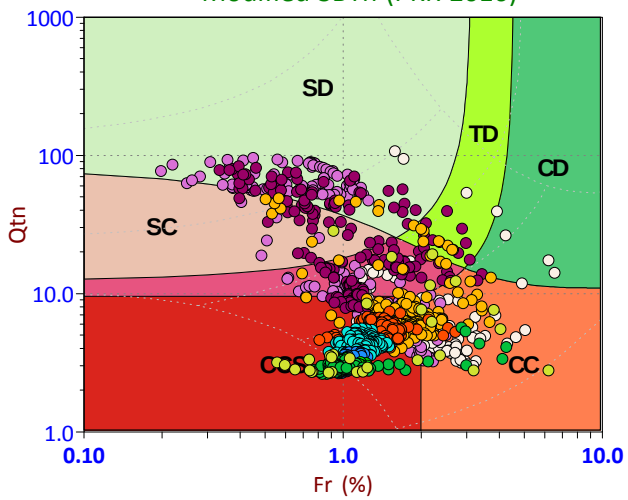
Job No: 21-53-22243
Date: 2021-04-14 10:24
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-04
Cone: EC612

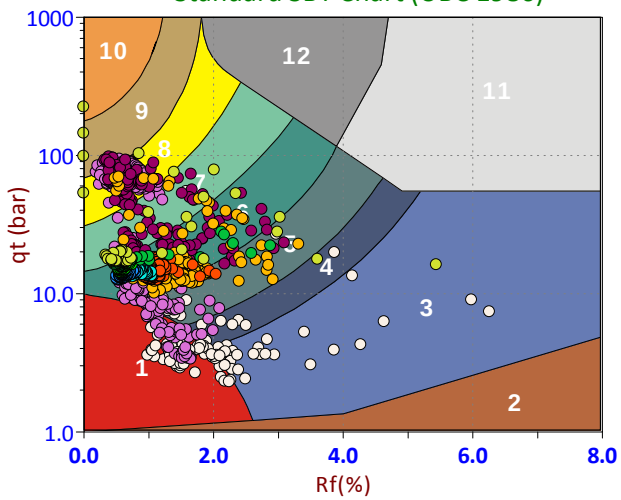
Qtn Chart (PKR 2009)



Modified SBTn (PKR 2016)



Standard SBT Chart (UBC 1986)



Depth Ranges

- >0.0 to 15.0 ft
- >15.0 to 30.0 ft
- >30.0 to 45.0 ft
- >45.0 to 60.0 ft
- >60.0 to 75.0 ft
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- >105.0 to 120.0 ft
- >120.0 to 135.0 ft
- >135.0 to 150.0 ft
- >150.0 ft

Legend

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Legend

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- Stiff Fine Grained
- Cemented Sand

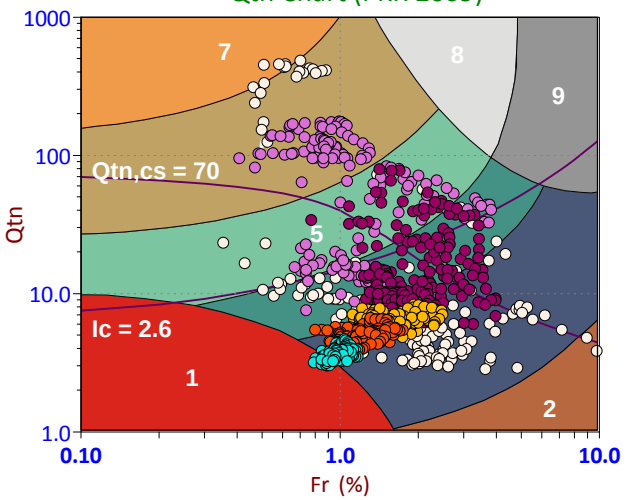
ConeTec

Haley & Aldrich

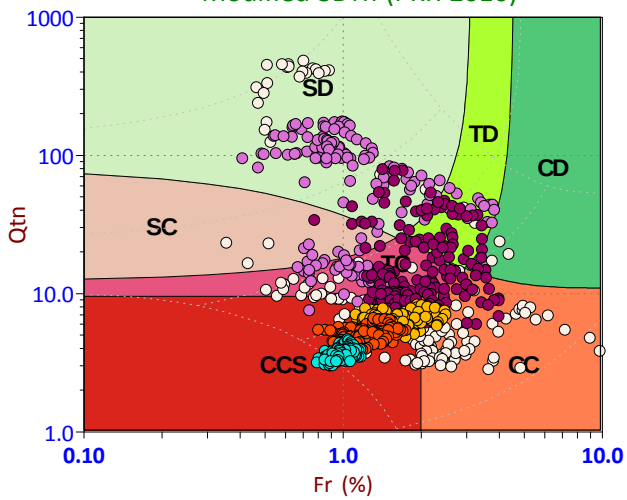
Job No: 21-53-22243
Date: 2021-04-14 02:35
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-05
Cone: EC612

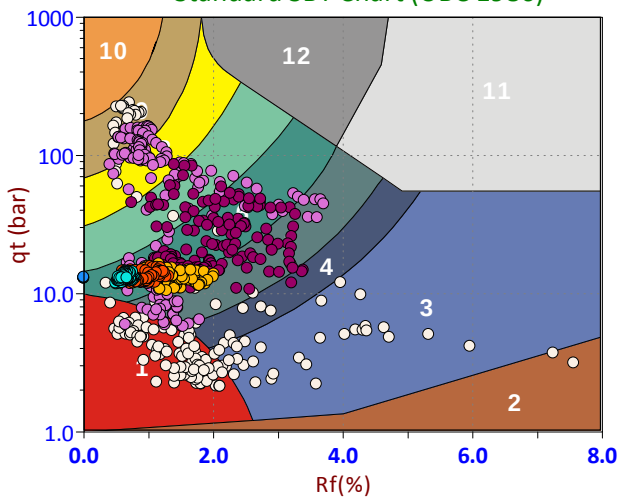
Qtn Chart (PKR 2009)



Modified SBTn (PKR 2016)



Standard SBT Chart (UBC 1986)



Depth Ranges

- >0.0 to 15.0 ft
- >15.0 to 30.0 ft
- >30.0 to 45.0 ft
- >45.0 to 60.0 ft
- >60.0 to 75.0 ft
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- >105.0 to 120.0 ft
- >120.0 to 135.0 ft
- >135.0 to 150.0 ft
- >150.0 ft

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- Silty Sand/Sand
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- Gravelly Sand
- Stiff Fine Grained
- Cemented Sand

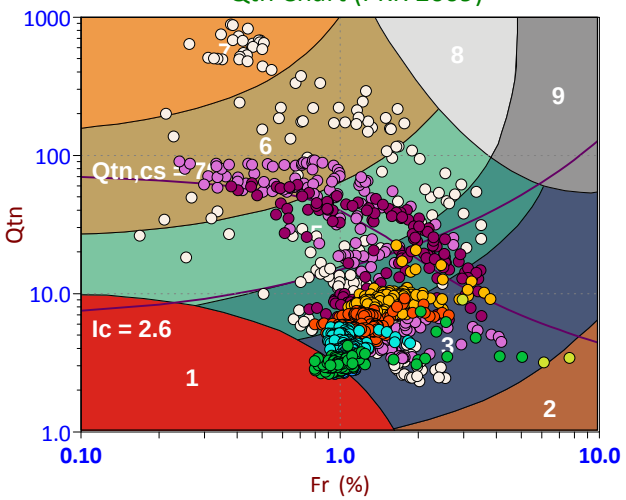
CONETEC

Haley & Aldrich

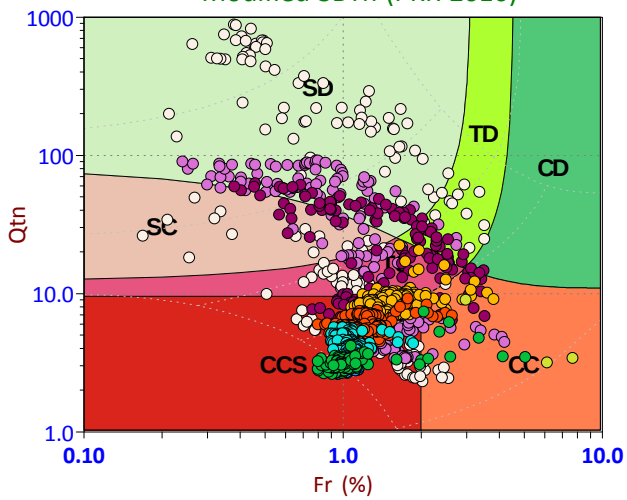
Job No: 21-53-22243
Date: 2021-04-14 07:51
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-06
Cone: EC612

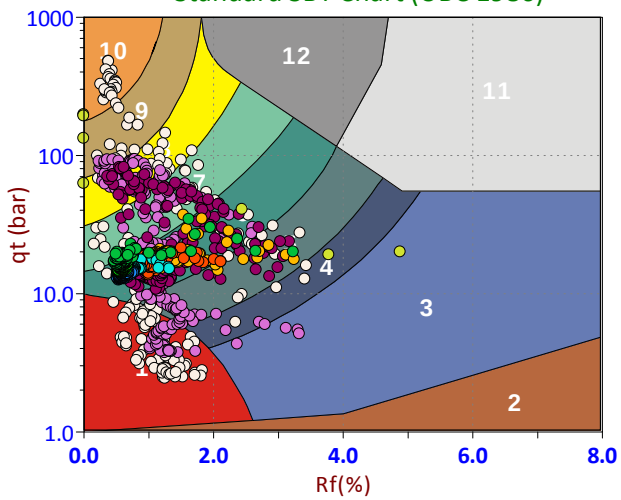
Qtn Chart (PKR 2009)



Modified SBTn (PKR 2016)



Standard SBT Chart (UBC 1986)



Depth Ranges

- >0.0 to 15.0 ft
- >15.0 to 30.0 ft
- >30.0 to 45.0 ft
- >45.0 to 60.0 ft
- >60.0 to 75.0 ft
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- >90.0 to 105.0 ft
- >105.0 to 120.0 ft
- >120.0 to 135.0 ft
- >135.0 to 150.0 ft
- >150.0 ft

Legend

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Legend

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- Gravelly Sand
- Stiff Fine Grained
- Cemented Sand

Pore Pressure Dissipation Summary and Pore Pressure Dissipation Plots

Job No:	21-53-22243
Client:	Haley & Aldrich
Project:	Seaport Square Parcel D, Boston, MA
Start Date:	14-Apr-2021
End Date:	14-Apr-2021

CPTu PORE PRESSURE DISSIPATION SUMMARY

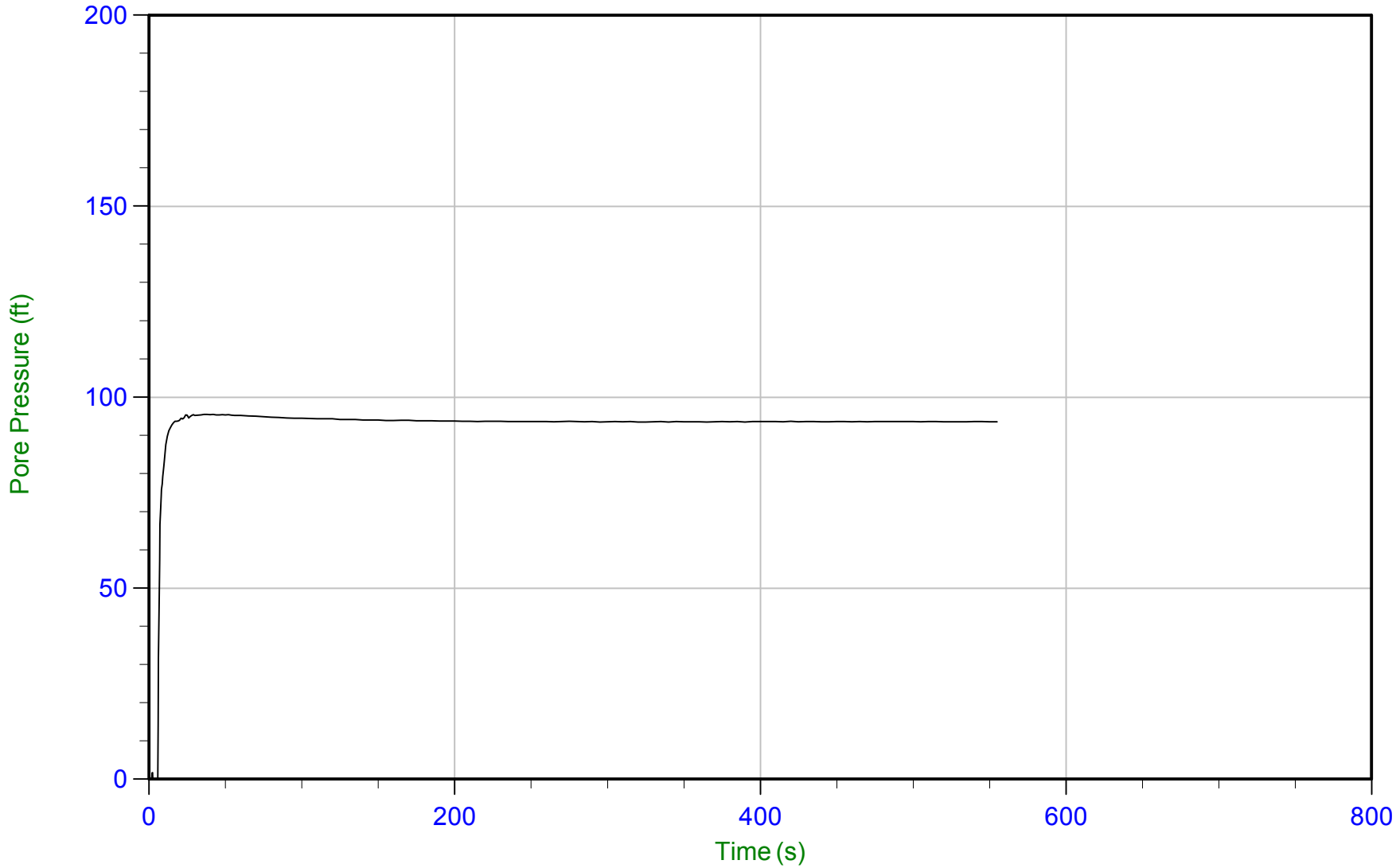
Sounding ID	File Name	Cone Area (cm^2)	Duration (s)	Test Depth (ft)	Estimated Equilibrium Pore Pressure U_{eq} (ft)	Calculated Phreatic Surface (ft)
CPT21-02	21-53-22243_CP02	15	555	103.84	93.8	10.0
CPT21-03	21-53-22243_CP03	15	325	25.75	14.3	11.4
CPT21-04	21-53-22243_CP04	15	395	137.88	125.3	12.6
CPT21-06	21-53-22243_CP06	15	400	135.50	121.9	13.6
Total Duration	4 dissipations		27.9 min			

CONETEC

Haley & Aldrich

Job No: 21-53-22243
Date: 04/14/2021 11:48
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-02
Cone: EC612 Area=15 cm²



Trace Summary:

Filename: 21-53-22243_CP02.ppd2
Depth: 31.650 m / 103.837 ft
Duration: 555.0 s

u Min: -15.4 ft
u Max: 95.5 ft
u Final: 93.6 ft

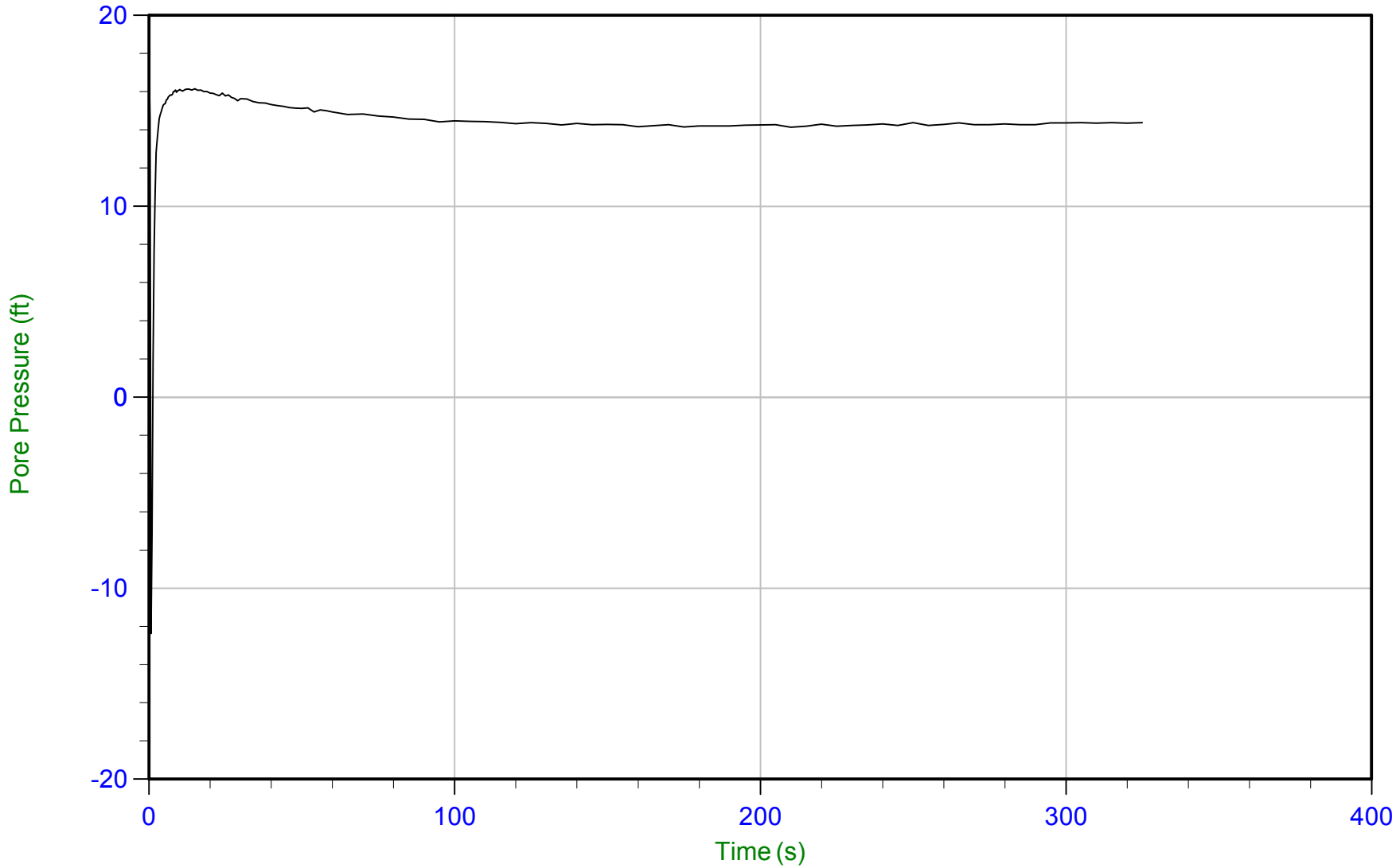
WT: 3.047 m / 9.996 ft
Ueq: 93.8 ft

CONETEC

Haley & Aldrich

Job No: 21-53-22243
Date: 04/14/2021 01:31
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-03
Cone: EC612 Area=15 cm²



Trace Summary:

Filename: 21-53-22243_CP03.ppd2
Depth: 7.850 m / 25.754 ft
Duration: 325.0 s

u Min: -12.4 ft
u Max: 17.7 ft
u Final: 14.4 ft

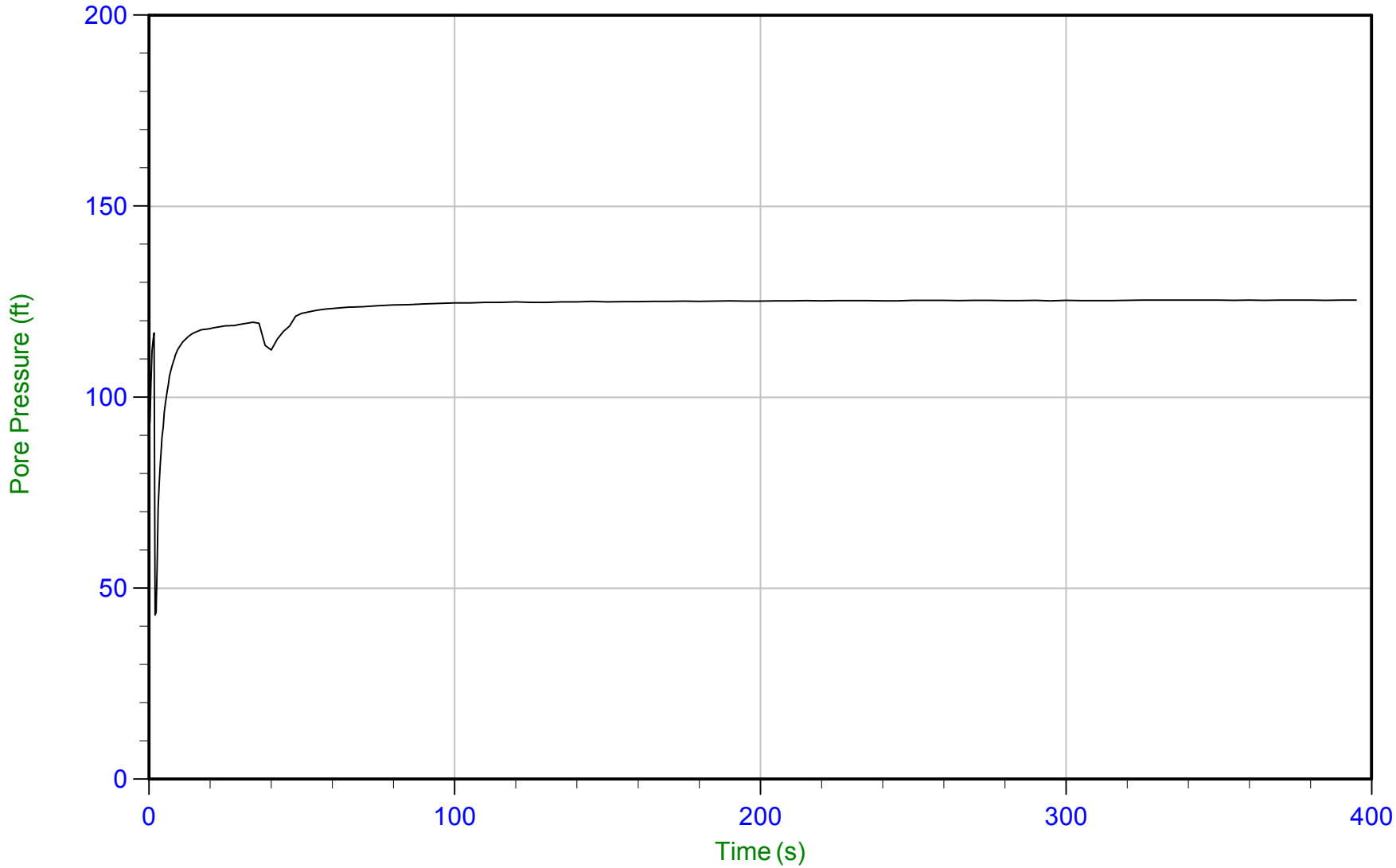
WT: 3.488 m / 11.444 ft
Ueq: 14.3 ft

CONETEC

Haley & Aldrich

Job No: 21-53-22243
Date: 04/14/2021 10:24
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-04
Cone: EC612 Area=15 cm²



Trace Summary:

Filename: 21-53-22243_CP04.ppd2
Depth: 42.025 m / 137.876 ft
Duration: 395.0 s

u Min: 42.9 ft
u Max: 125.5 ft
u Final: 125.5 ft

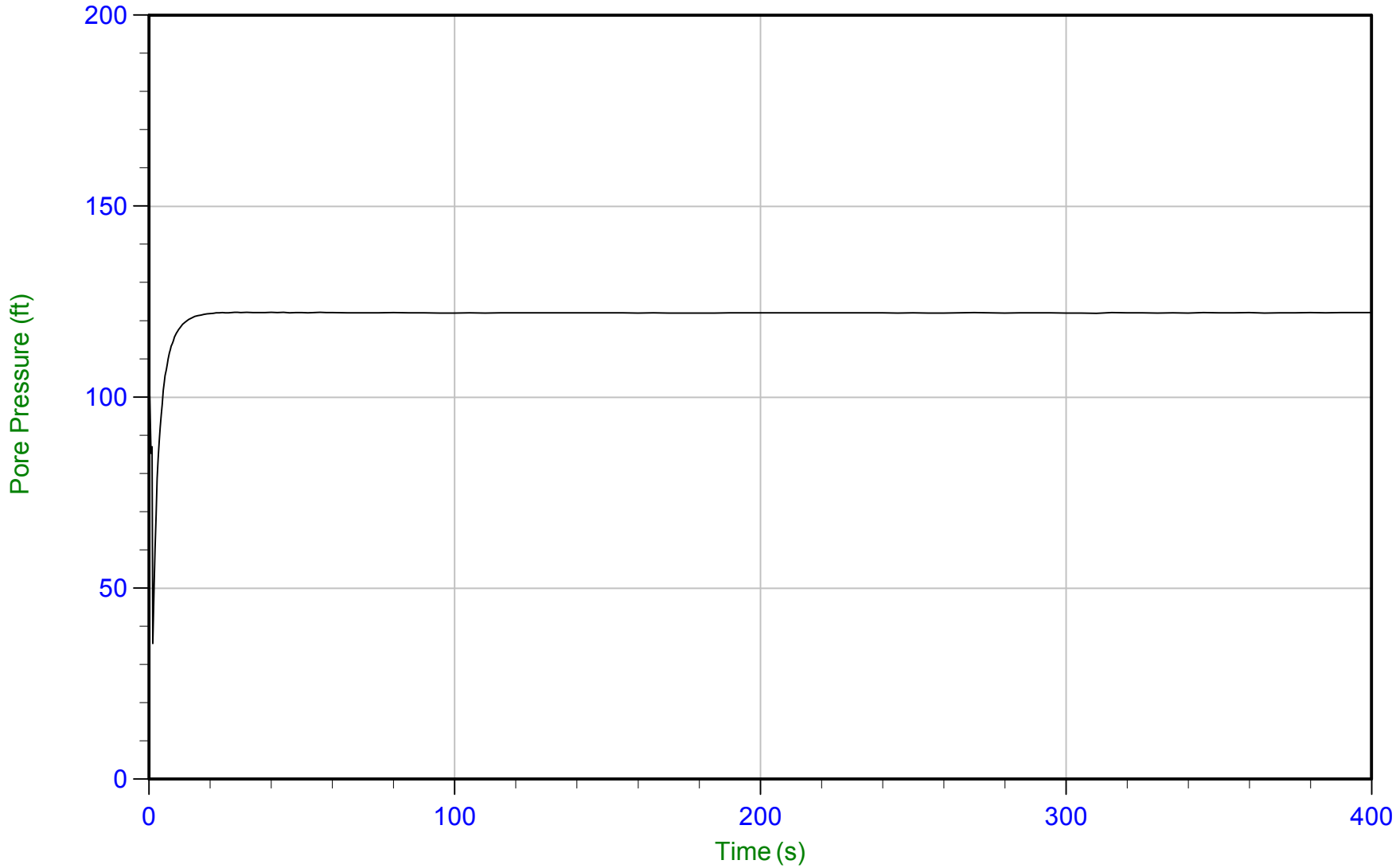
WT: 3.844 m / 12.612 ft
Ueq: 125.3 ft

CONETEC

Haley & Aldrich

Job No: 21-53-22243
Date: 04/14/2021 07:51
Site: Seaport Square Parcel D, Boston, MA

Sounding: CPT21-06
Cone: EC612 Area=15 cm²



Trace Summary:

Filename: 21-53-22243_CP06.ppd2
Depth: 41.300 m / 135.497 ft
Duration: 400.0 s

u Min: 35.5 ft
u Max: 122.2 ft
u Final: 122.1 ft

WT: 4.155 m / 13.630 ft
Ueq: 121.9 ft

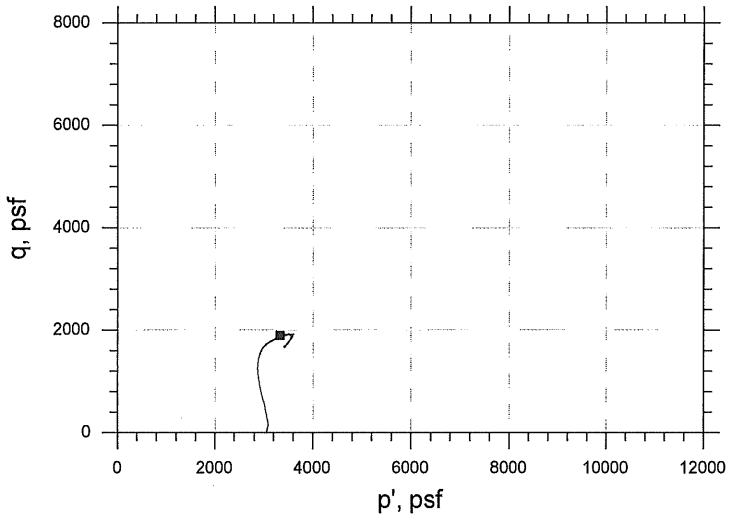
APPENDIX B

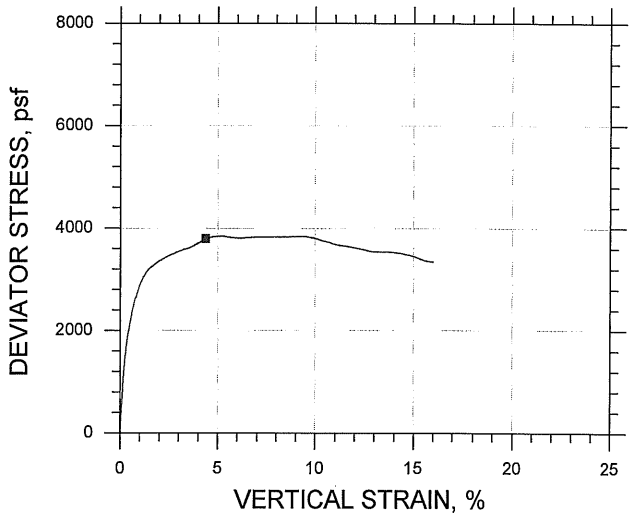
Geotechnical Laboratory Testing Data from Adjacent Sites

GeoTesting EXPRESS

Client: Haley & Aldrich, Inc.	
Project Name: Seaport Parcel B&C	
Project Location: Boston, MA	
Project Number: GTX-300833	
Tested By: md	Checked By: jdt
Boring ID: HAC-A8	
Preparation: intact	
Description: Moist, greenish gray clay	
Classification: Clay	
Group Symbol: CL	
Liquid Limit: 38	Plastic Limit: 18
Plasticity Index: 20	Estimated Specific Gravity: 2.7

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767

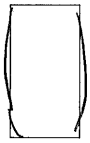




Symbol		■			
Sample ID		U1			
Depth, ft		46-48 ft			
Test Number		CU-2-1			
Initial	Height, in	4.420			
	Diameter, in	2.010			
	Moisture Content (from Cuttings), %	27.3			
	Dry Density, pcf	97.0			
	Saturation (Wet Method), %	99.9			
	Void Ratio	0.738			
Before Shear	Moisture Content, %	25.0			
	Dry Density, pcf	101.			
	Cross-sectional Area (Method A), in²	3.101			
	Saturation, %	100.0			
	Void Ratio	0.676			
	Back Pressure, psf	2.114e+004			
Vertical Effective Consolidation Stress, psf		3041.			
Horizontal Effective Consolidation Stress, psf		3048.			
Vertical Strain after Consolidation, %		0.9629			
Volumetric Strain after Consolidation, %		2.434			
Time to 50% Consolidation, min		3.240			
Shear Strength, psf		1898.			
Strain at Failure, %		4.38			
Strain Rate, %/min		0.01600			
Deviator Stress at Failure, psf		3797.			
Effective Minor Principal Stress at Failure, psf		1436.			
Effective Major Principal Stress at Failure, psf		5233.			
B-Value		0.95			

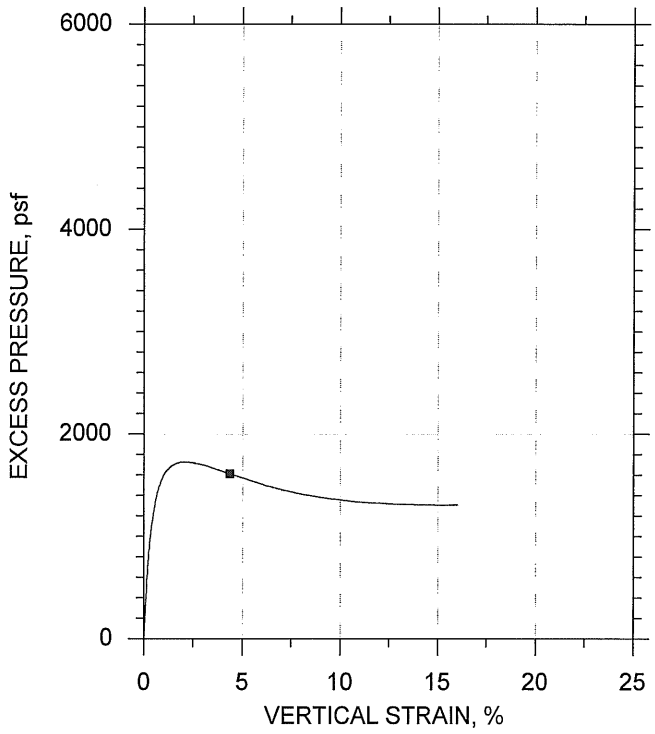
Notes:
- Before Shear Saturation set to 100% for phase calculation.
- Moisture Content determined by ASTM D2216.
- Atterberg Limits determined by ASTM D4318.
- Deviator Stress includes membrane correction.
- Values for c and φ determined from best-fit straight line for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site conditions.

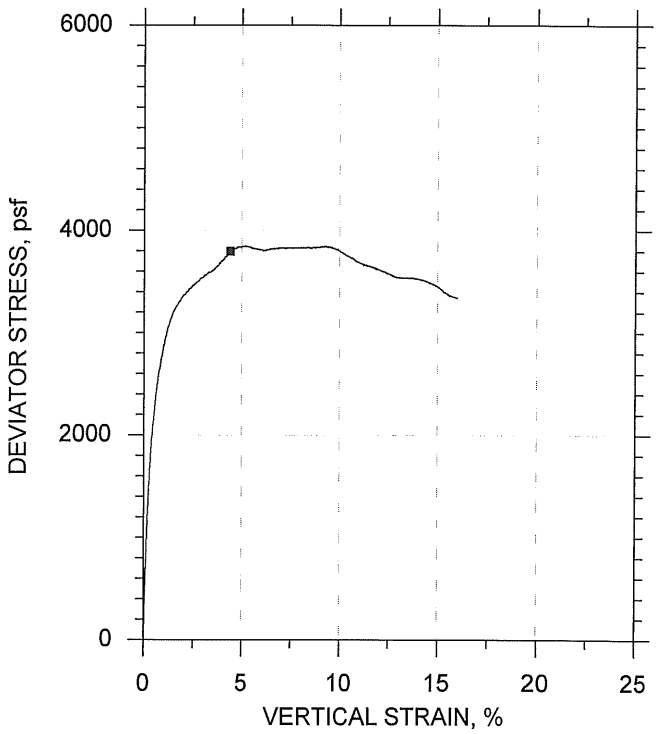
Remarks:

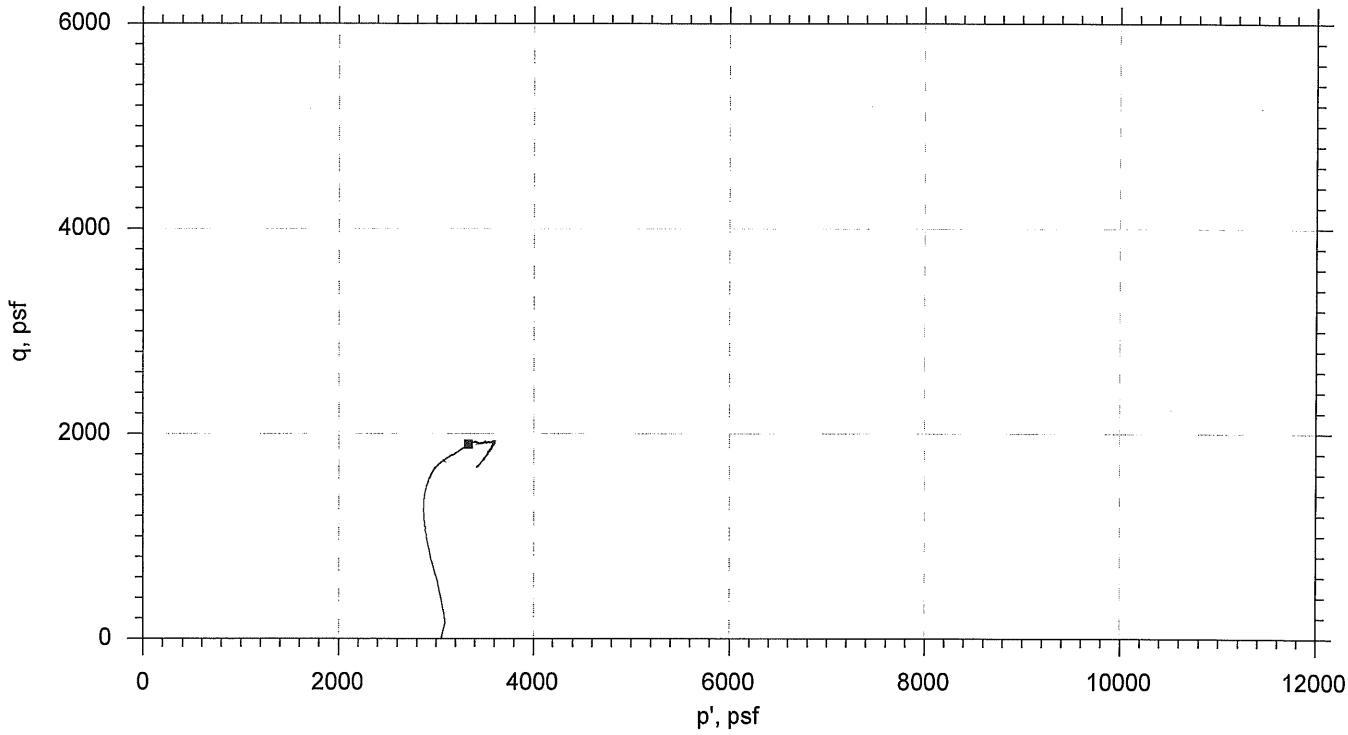


System Q

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
■	U1	CU-2-1	46-48 ft	md	08/12/13	jdt	8/15/13	300833-CU-2-1n.dat

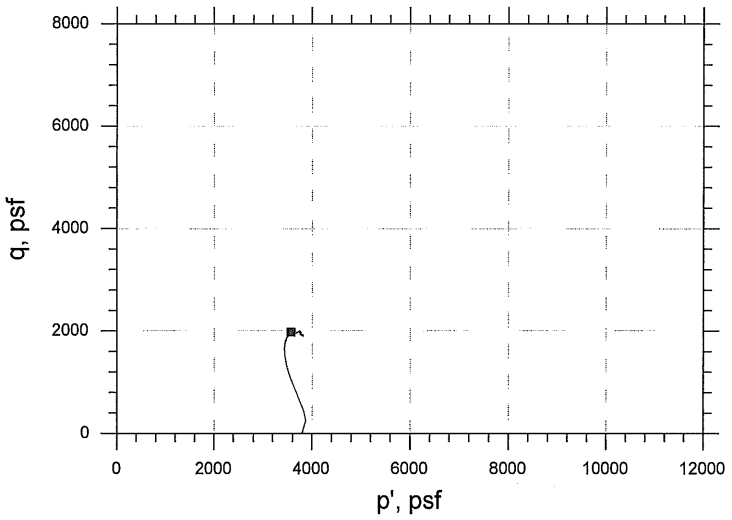
GeoTesting EXPRESS

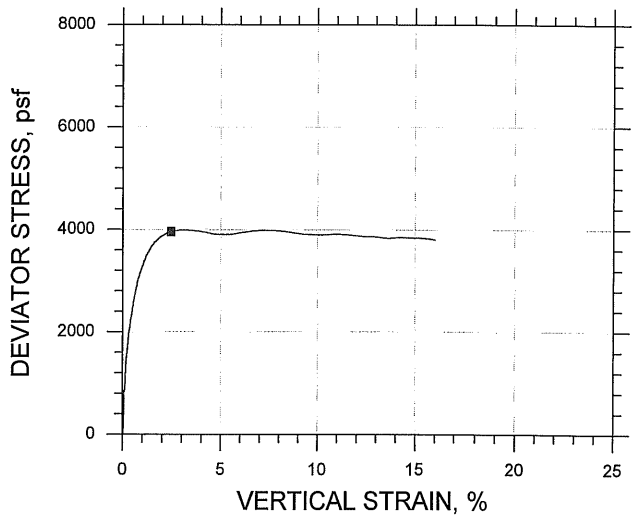
Project: Seaport Parcel B&C	Location: Boston, MA	Project No.: GTX-300833
Boring No.: HAC-A8	Sample Type: intact	
Description: Moist, greenish gray clay		
Remarks: System Q		

GeoTesting EXPRESS

Client: Haley & Aldrich, Inc.	
Project Name: Seaport Parcel B&C	
Project Location: Boston, MA	
Project Number: GTX-300833	
Tested By: md	Checked By: jdt
Boring ID: HAC-A9	
Preparation: intact	
Description: Moist, greenish gray clay	
Classification: Clay	
Group Symbol: CL	
Liquid Limit: 44	Plastic Limit: 19
Plasticity Index: 25	Estimated Specific Gravity: 2.7

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





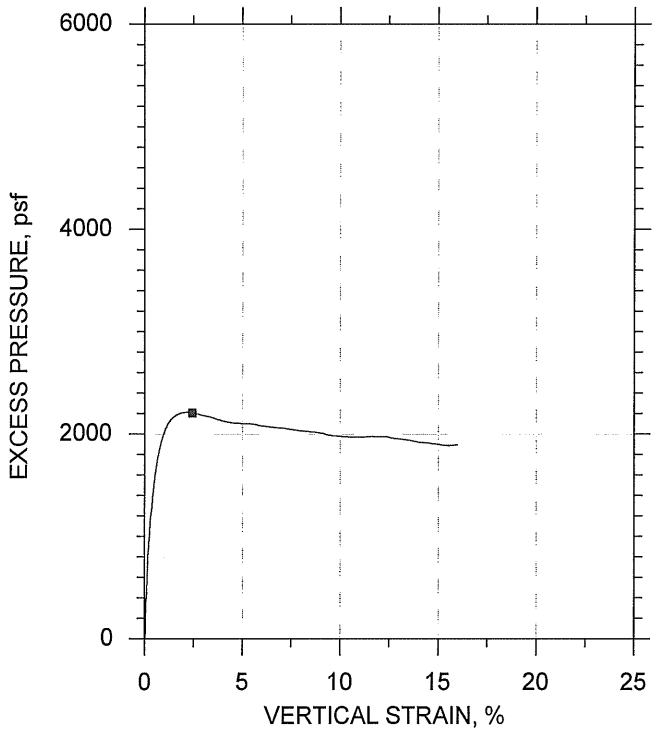
Symbol		■			
Sample ID		U1			
Depth, ft		56-58 ft			
Test Number		CU-4-1			
Initial	Height, in	4.210			
	Diameter, in	2.010			
	Moisture Content (from Cuttings), %	35.8			
	Dry Density, pcf	85.6			
	Saturation (Wet Method), %	99.5			
	Void Ratio	0.970			
Before Shear	Moisture Content, %	32.0			
	Dry Density, pcf	90.4			
	Cross-sectional Area (Method A), in²	3.075			
	Saturation, %	100.0			
	Void Ratio	0.865			
	Back Pressure, psf	1.883e+004			
Vertical Effective Consolidation Stress, psf		3781.			
Horizontal Effective Consolidation Stress, psf		3798.			
Vertical Strain after Consolidation, %		1.420			
Volumetric Strain after Consolidation, %		2.698			
Time to 50% Consolidation, min		2.250			
Shear Strength, psf		1978.			
Strain at Failure, %		2.45			
Strain Rate, %/min		0.01600			
Deviator Stress at Failure, psf		3957.			
Effective Minor Principal Stress at Failure, psf		1591.			
Effective Major Principal Stress at Failure, psf		5548.			
B-Value		0.96			

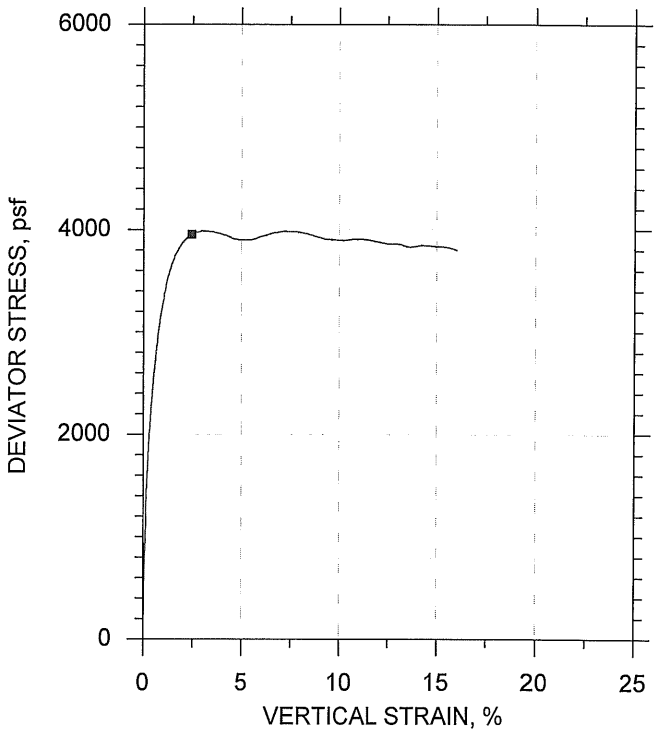
Notes:
- Before Shear Saturation set to 100% for phase calculation.
- Moisture Content determined by ASTM D2216.
- Atterberg Limits determined by ASTM D4318.
- Deviator Stress includes membrane correction.
- Values for c and φ determined from best-fit straight line for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site conditions.

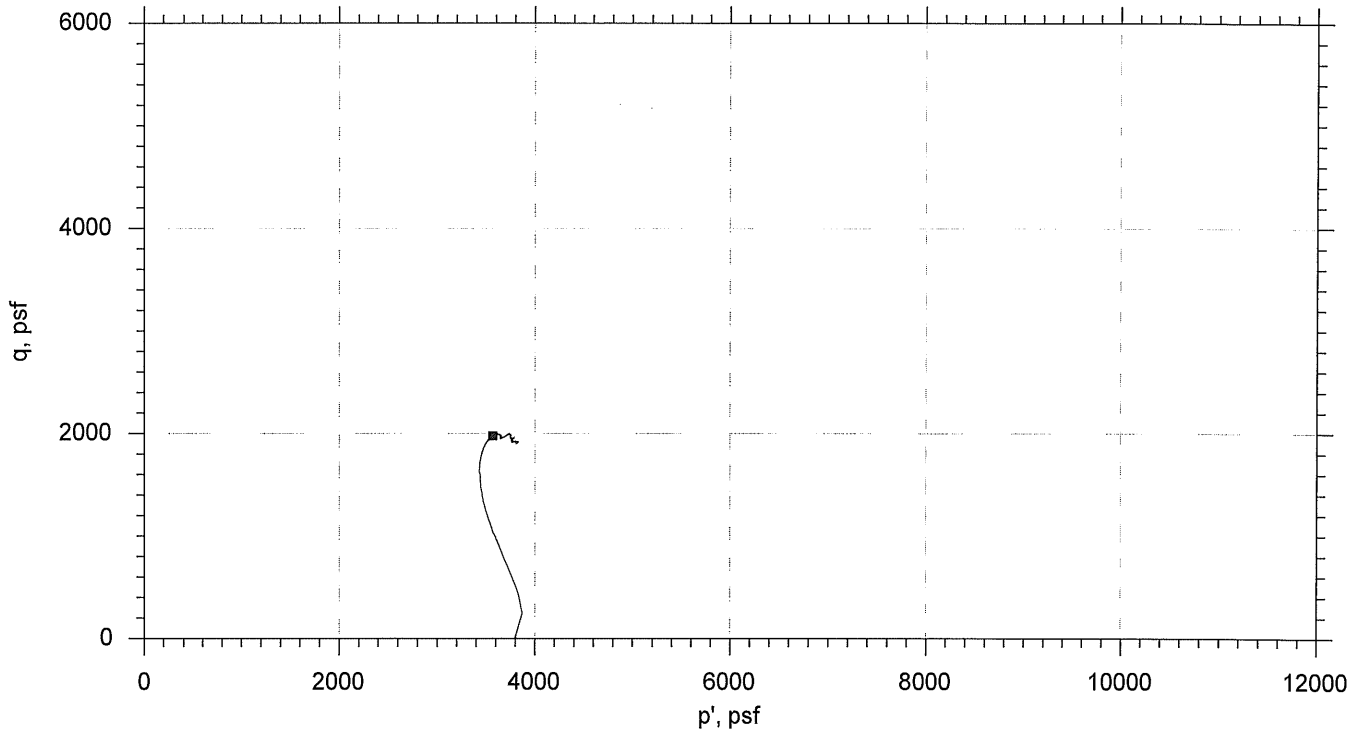
Remarks:

System T

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



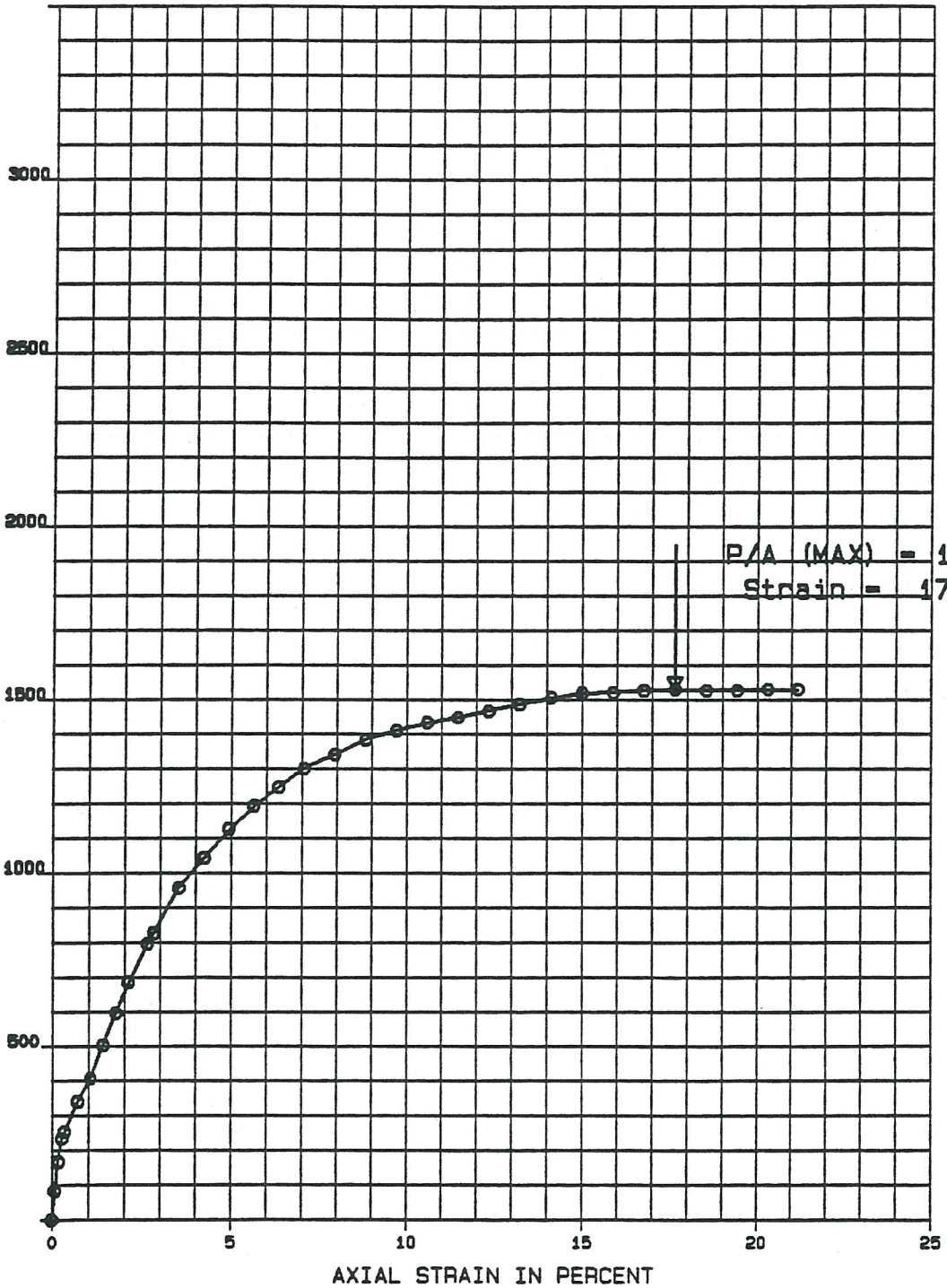




	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
■	U1	CU-4-1	56-58 ft	md	8/12/13	jdt	8/15/13	300833-CU-4-1n.dat

GeoTesting EXPRESS

Project: Seaport Parcel B&C	Location: Boston, MA	Project No.: GTX-300833
Boring No.: HAC-A9	Sample Type: intact	
Description: Moist, greenish gray clay		
Remarks: System T		



TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T9.0	28.5	98.8	5.66 2.84	2794	-	-	-	28.3	-	0.80

SOIL DESCRIPTION: See Summary Sheet

LIQUID LIMIT 32 % PLASTIC LIMIT 17 % SPECIFIC GRAVITY 2.70

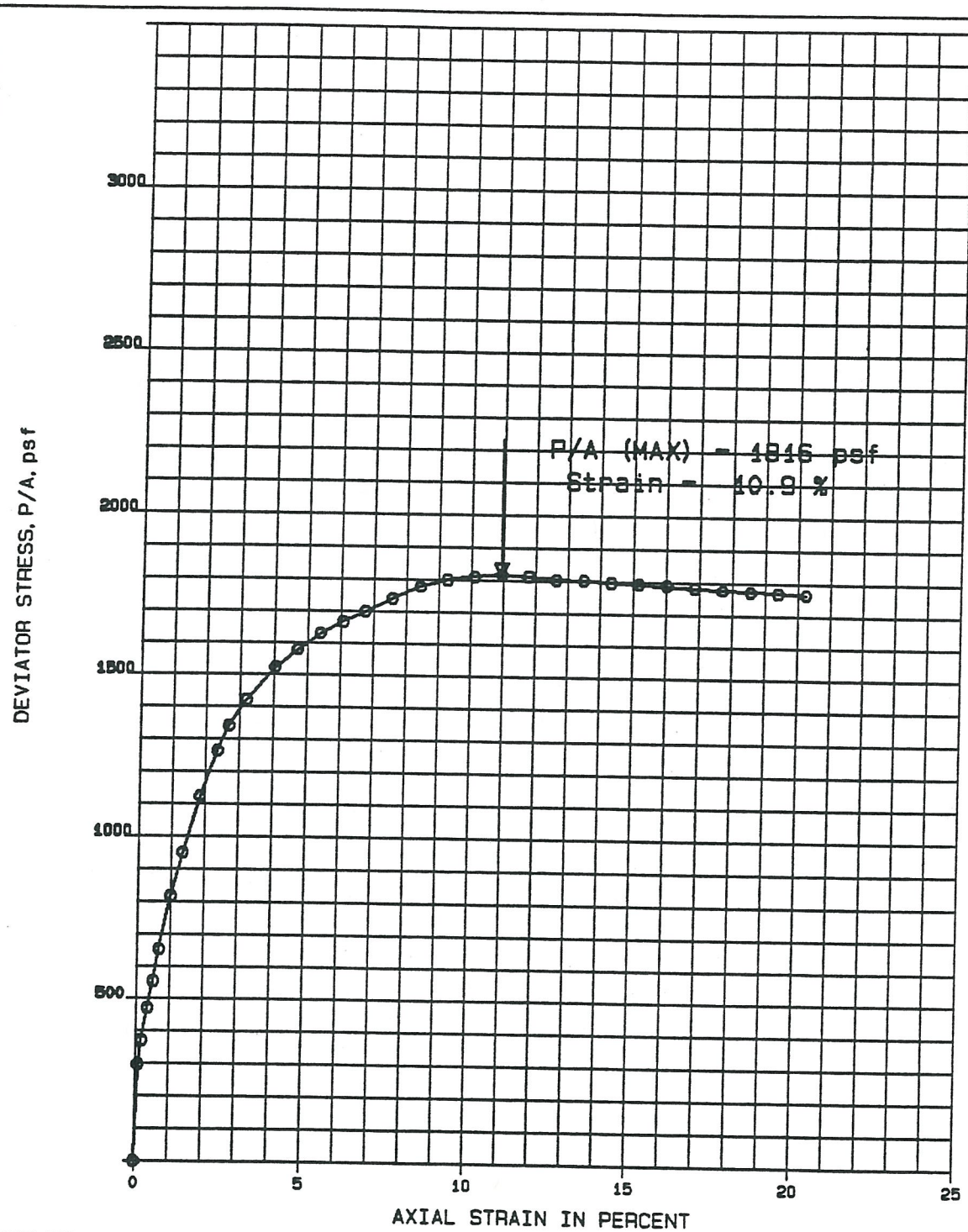
MBTA SOUTH BOSTON PIERS
FORT POINT CHANNEL
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO. TM-7
SAMPLE UP-1
DEPTH 43.2-43.7'
TECH. MST
REVIEWER

TEST SERIES NO. 9
DATE Sept. 94
FILE L13769

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SKETCH AT FAILURE

TEST NO. T10.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T10.0	36.9	86.6	5.93 2.85	3600.	-	-	-	36.7	-	0.50

SOIL DESCRIPTION: Olive Grey Silty CLAY

LIQUID LIMIT 45 % PLASTIC LIMIT 20 % SPECIFIC GRAVITY 2.70

MBTA SOUTH BOSTON PIERS
FORT POINT CHANNEL
TRIAXIAL COMPRESSION TESTS (UU)

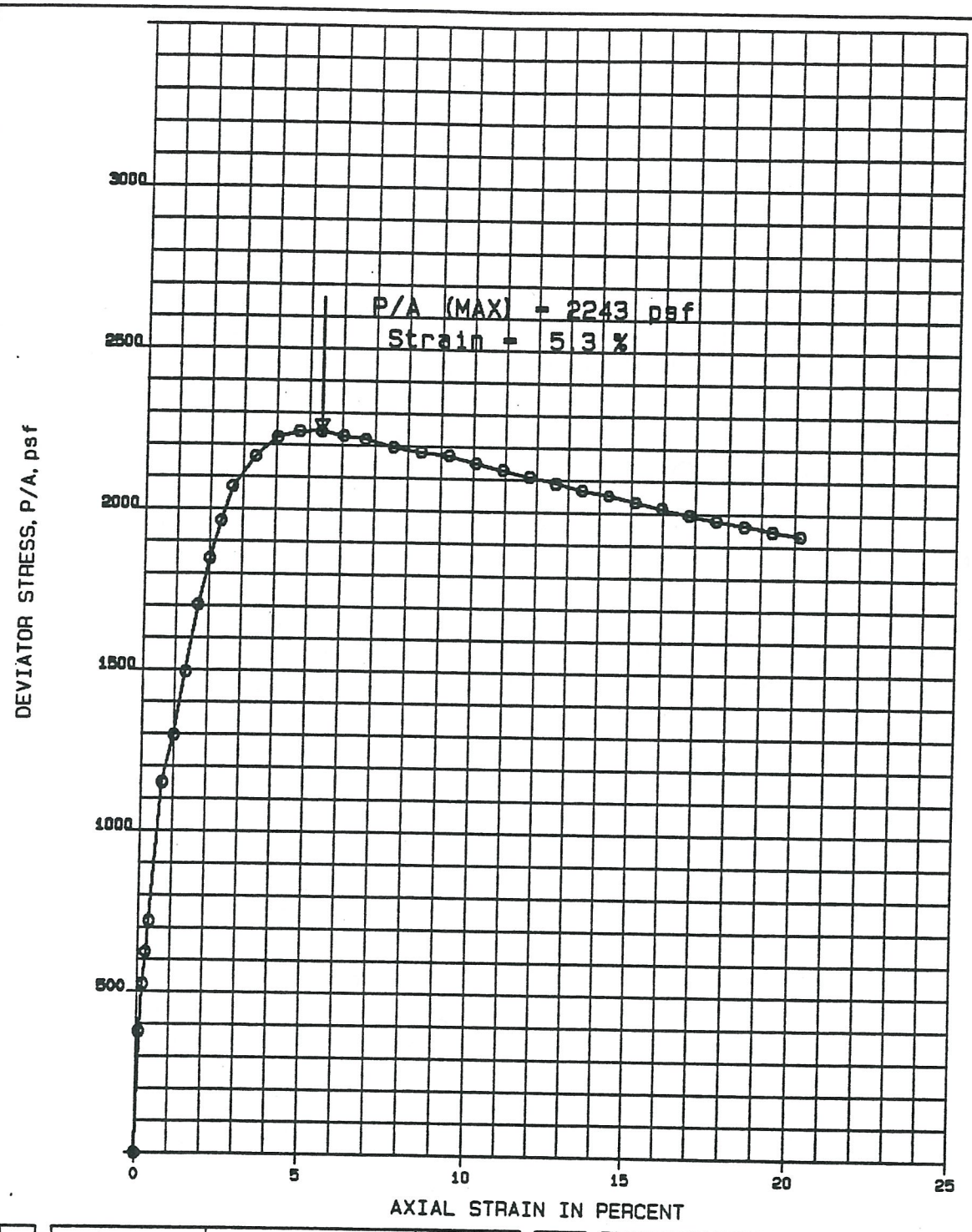
BORING NO. TM-7
SAMPLE UP-2
DEPTH 57.7-58.2'
TECH. MST
REVIEWER

TEST SERIES NO. 10
DATE Sept. 94

FILE L13789

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SKETCH AT FAILURE

TEST NO. T11.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T11.0	38.7	82.8	5.95 2.85	4208.	-	-	-	38.6	-	0.50

SOIL DESCRIPTION: Olive Grey Silty CLAY

LIQUID LIMIT 56 % PLASTIC LIMIT 24 % SPECIFIC GRAVITY 2.70

MBTA SOUTH BOSTON PIERS
FORT POINT CHANNEL
TRIAXIAL COMPRESSION TESTS (UU)

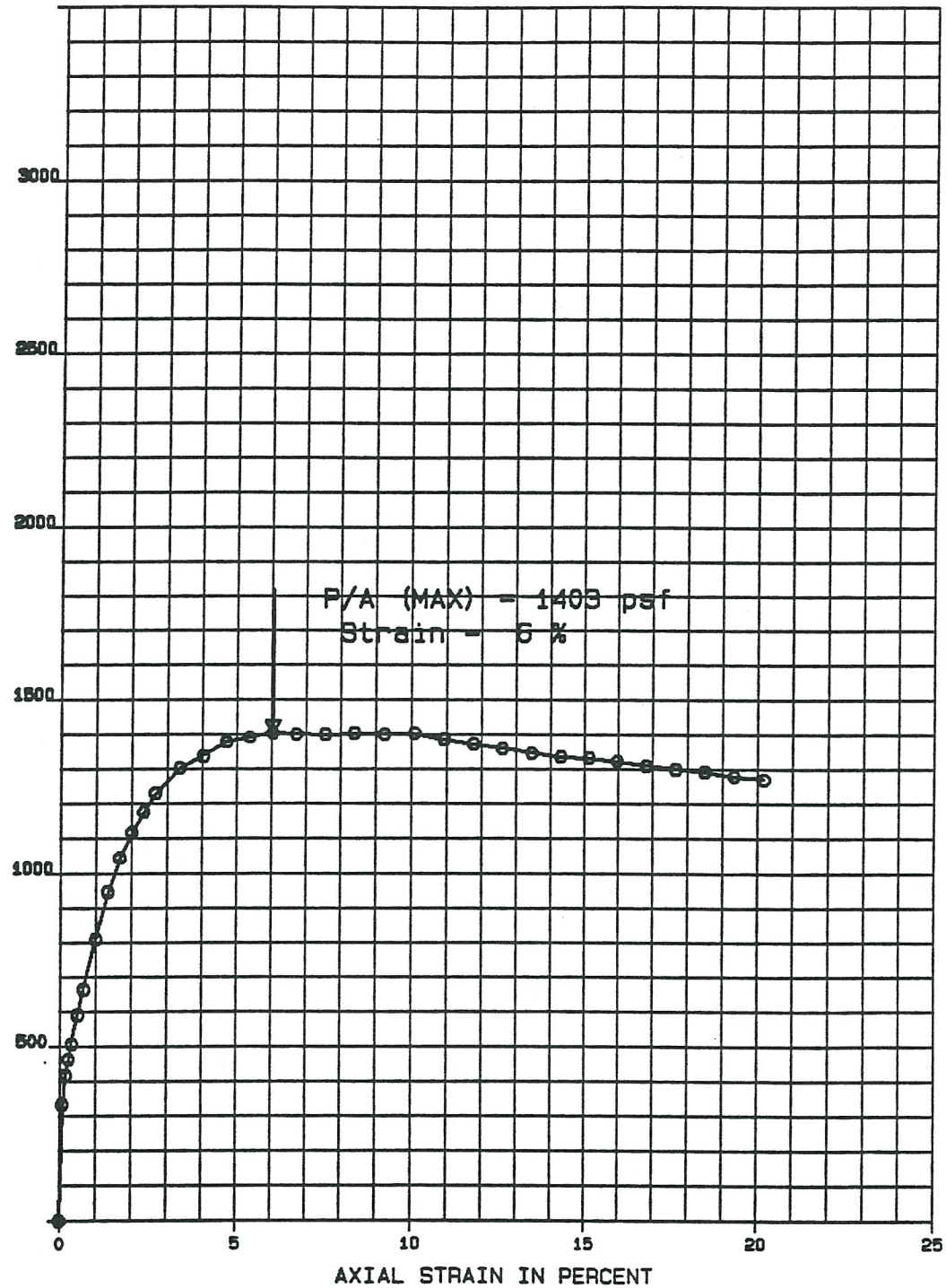
BORING NO. TM-7
SAMPLE UP-3
DEPTH 67.7-68.2
TECH. MST
REVIEWER

TEST SERIES NO. 11
DATE Sept. 94

FILE L13769

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SKETCH AT FAILURE

TEST NO. T12.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T12.0	38.4	83.2	5.94 2.84	8001	1	1	1	38.2	1	0.80

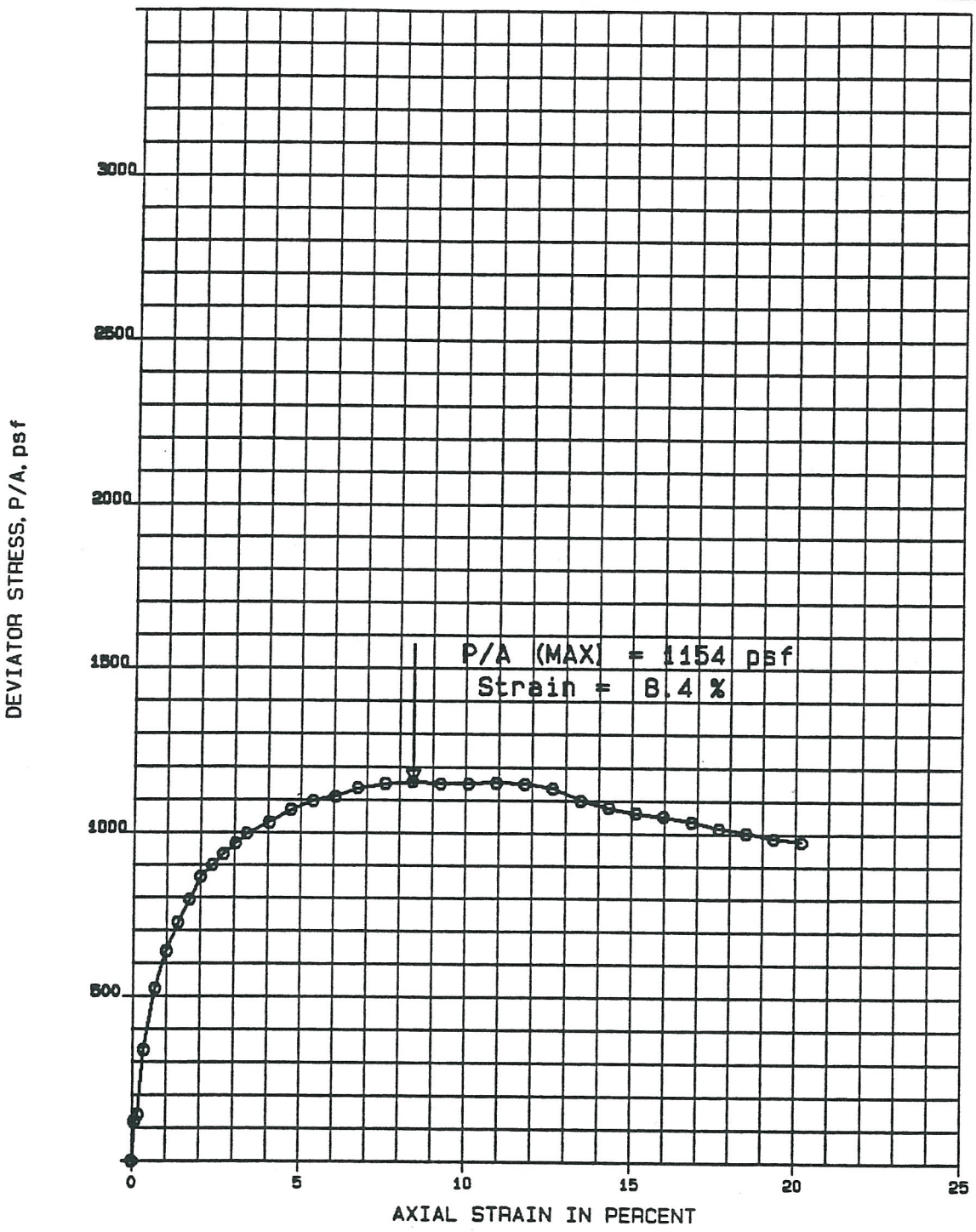
SOIL DESCRIPTION: Olive Grey Silty CLAY

LIQUID LIMIT	47	%	PLASTIC LIMIT	23	%	SPECIFIC GRAVITY	2.70

MBTA SOUTH BOSTON PIERS
FORT POINT CHANNEL
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO.	TM-7	TEST SERIES NO.	12
SAMPLE	UP-4	DATE	Sept. 94
DEPTH	82.7-83.2'		
TECH.	MST		
REVIEWER		FILE	L13769

FIGURE



SKETCH AT FAILURE

TEST NO. T13.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T13.0	44.7	77.1	5.94 2.82	6000	—	—	—	44.6	—	0.50

SOIL DESCRIPTION: Olive Grey Silty CLAY

LIQUID LIMIT 48 % PLASTIC LIMIT 24 % SPECIFIC GRAVITY 2.70

MBTA SOUTH BOSTON PIERS
FORT POINT CHANNEL
TRIAXIAL COMPRESSION TESTS (UU)

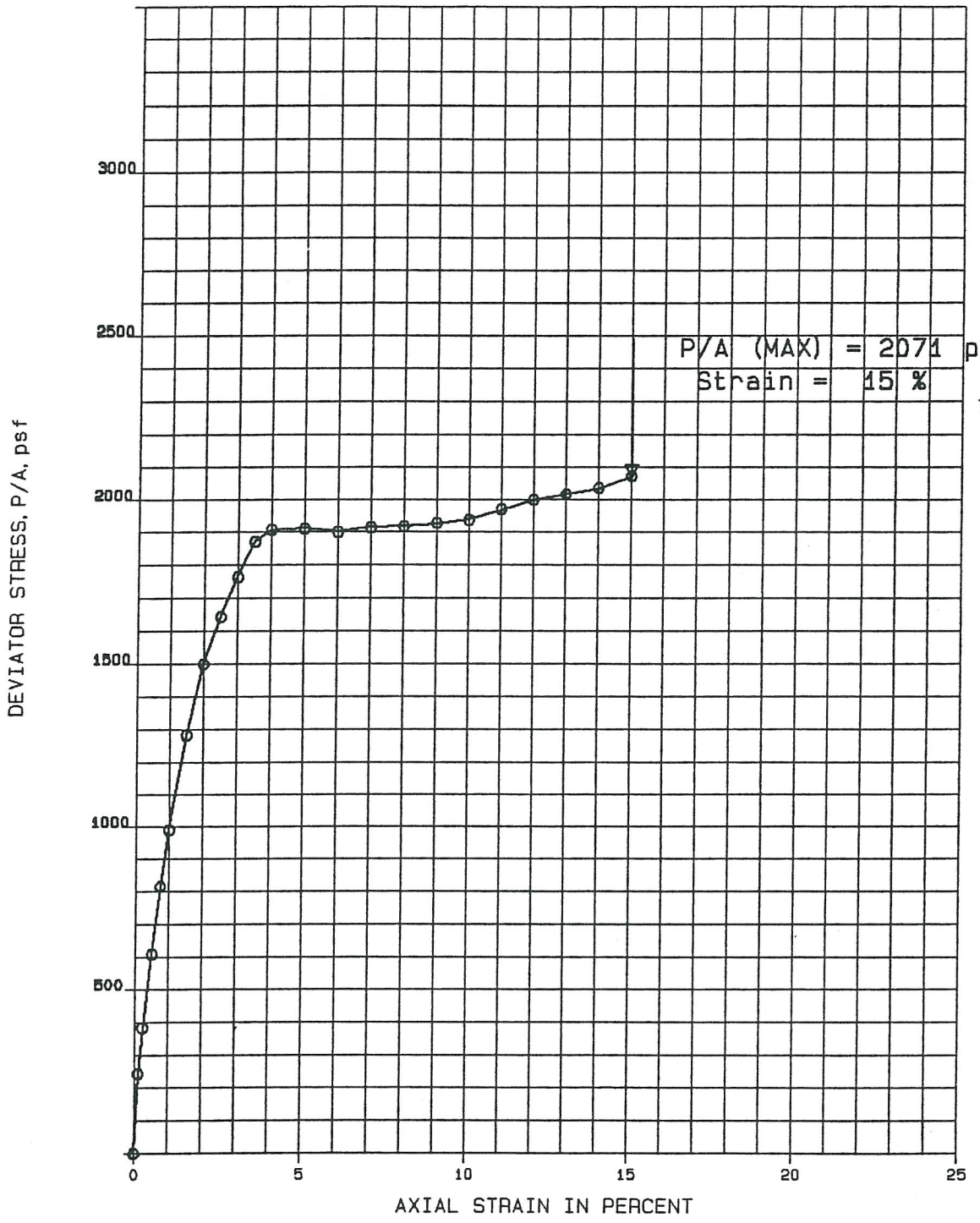
BORING NO. TM-7
SAMPLE UP-5
DEPTH 112.7-113.2'
TECH. MST
REVIEWER

TEST SERIES NO. 13
DATE Sept. 94

FILE L13769

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SKETCH AT FAILURE

TEST NO. T12.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T12.0	29.7	92.3	4.00 1.98	5184	-	-	-	29.6	-	0.50

SOIL DESCRIPTION: **See Summary Sheet**

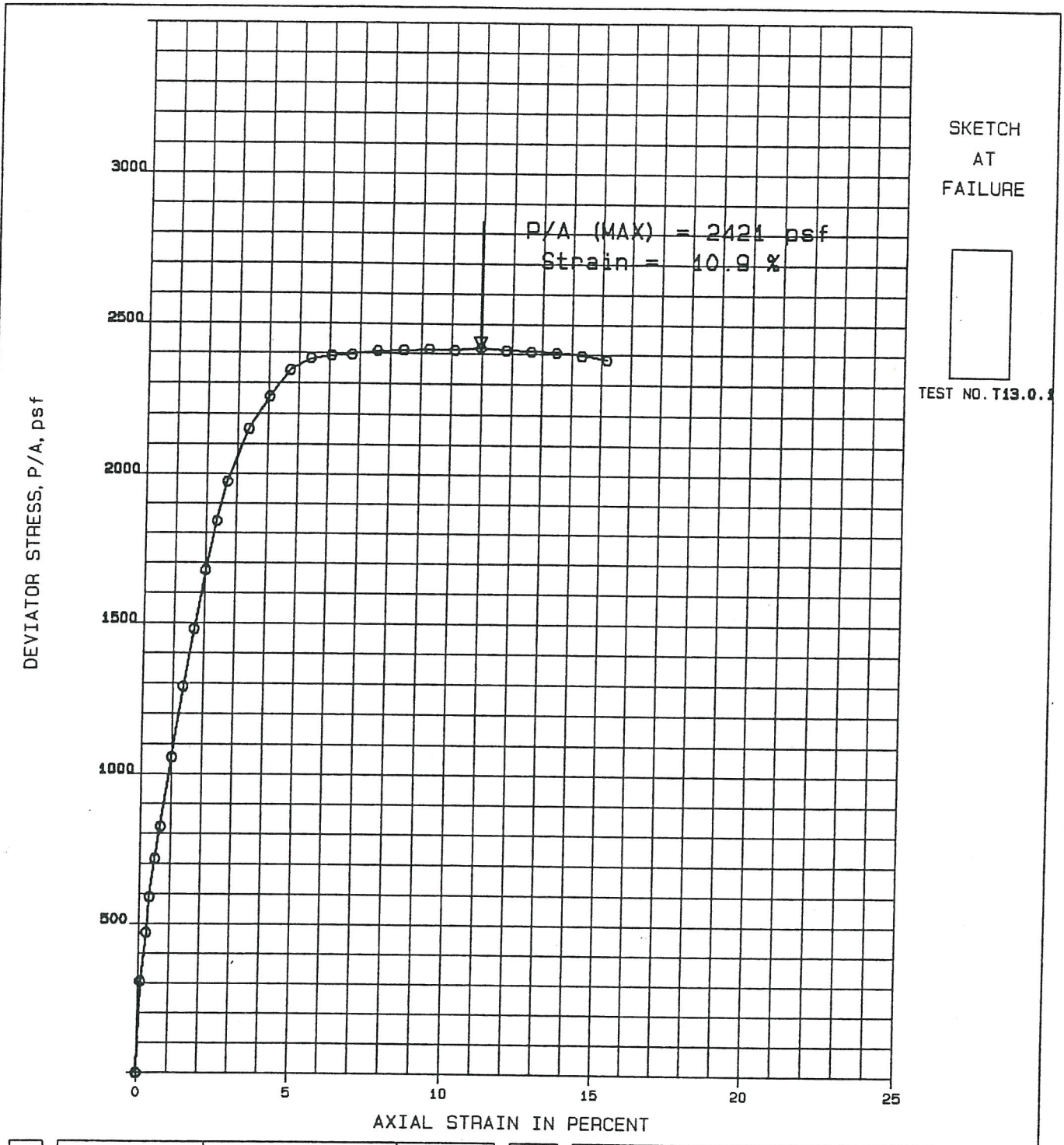
LIQUID LIMIT	34	%	PLASTIC LIMIT	15	%	SPECIFIC GRAVITY	2.70

MBTA SOUTH BOSTON/PIERS
FORT POINT CHANNEL
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO.	TW-20	TEST SERIES NO.	12
SAMPLE	U-1		
DEPTH	44.3-44.8'	DATE	Aug. 95
TECH.	MST		
REVIEWER		FILE	L14136

FIGURE _____

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SKETCH AT FAILURE

TEST NO. T13.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T13.0	32.4	88.7	5.93 2.84	6336	-	-	-	32	-	0.50

SOIL DESCRIPTION: **Olive Grey Silty CLAY**

LIQUID LIMIT **49** % PLASTIC LIMIT **20** % SPECIFIC GRAVITY **2.70**

MBTA SOUTH BOSTON/PIERS
FORT POINT CHANNEL
TRIAXIAL COMPRESSION TESTS (UU)

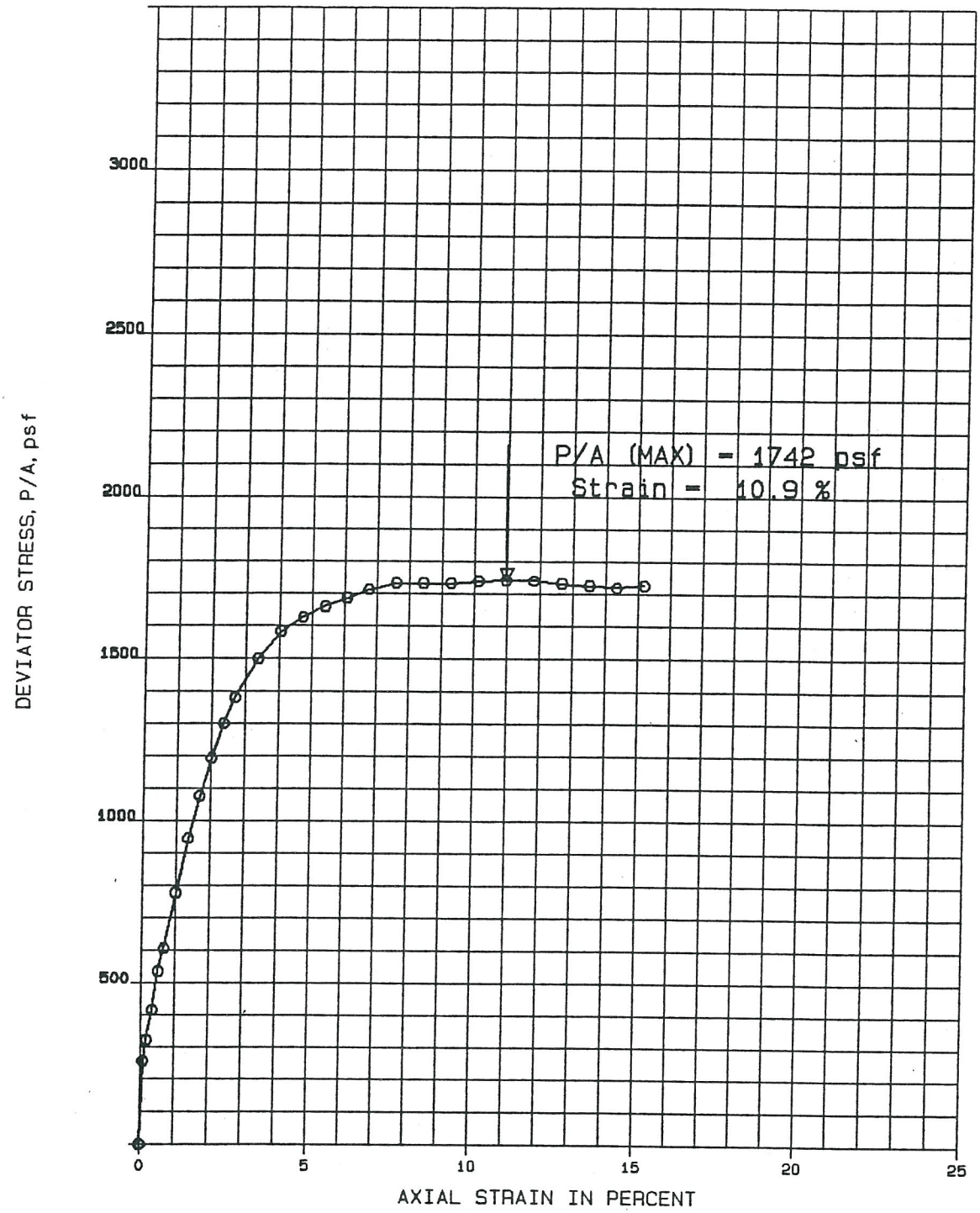
BORING NO. TW-20
SAMPLE U-2
DEPTH 54.7-55.2'
TECH. MST
REVIEWER

TEST SERIES NO. 13
DATE Aug. 96

FILE L14136

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SKETCH AT FAILURE

TEST NO. T14.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T14.0	33.2	87.7	5.92 2.85	7200	-	-	-	33	-	0.50

SOIL DESCRIPTION: **Olive Grey Silty CLAY**

LIQUID LIMIT **46** % PLASTIC LIMIT **20** % SPECIFIC GRAVITY **2.70**

MBTA SOUTH BOSTON/PIERS
FORT POINT CHANNEL
TRIAXIAL COMPRESSION TESTS (UU)

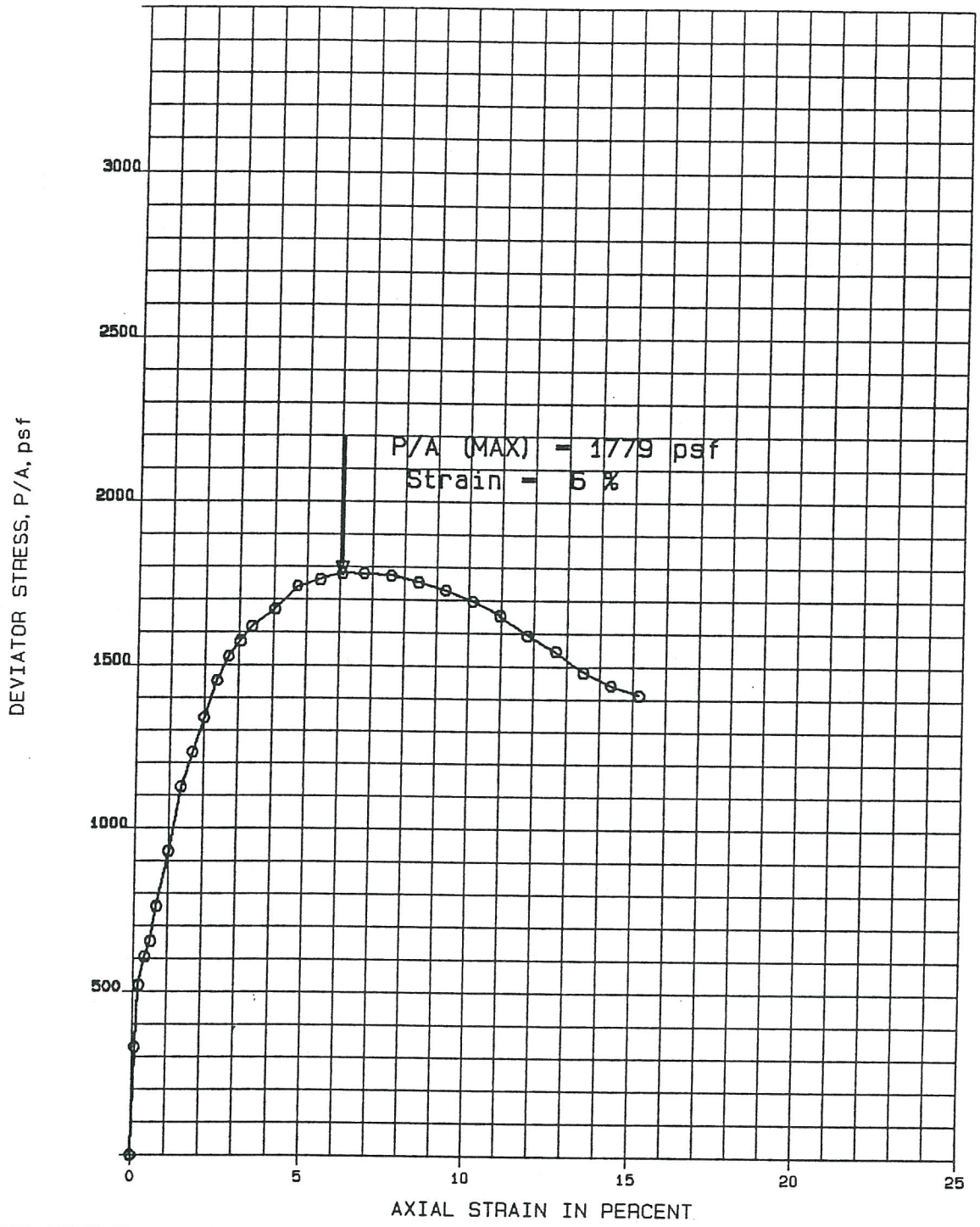
BORING NO. **TW-20**
SAMPLE **U-3**
DEPTH **64.7-65.2'**
TECH. **MST**
REVIEWER

TEST SERIES NO. **14**
DATE **Aug. 95**

FILE **L14138**

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SKETCH AT FAILURE

TEST NO. T15.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T15.0	32.1	88.5	5.92 2.86	8626	-	-	-	31.8	-	0.50

SOIL DESCRIPTION: Olive Grey CLAY & SILT

LIQUID LIMIT		PLASTIC LIMIT		SPECIFIC GRAVITY
37	%	18	%	2.70

MBTA SOUTH BOSTON/PIERS
FORT POINT CHANNEL
TRIAXIAL COMPRESSION TESTS (UU)

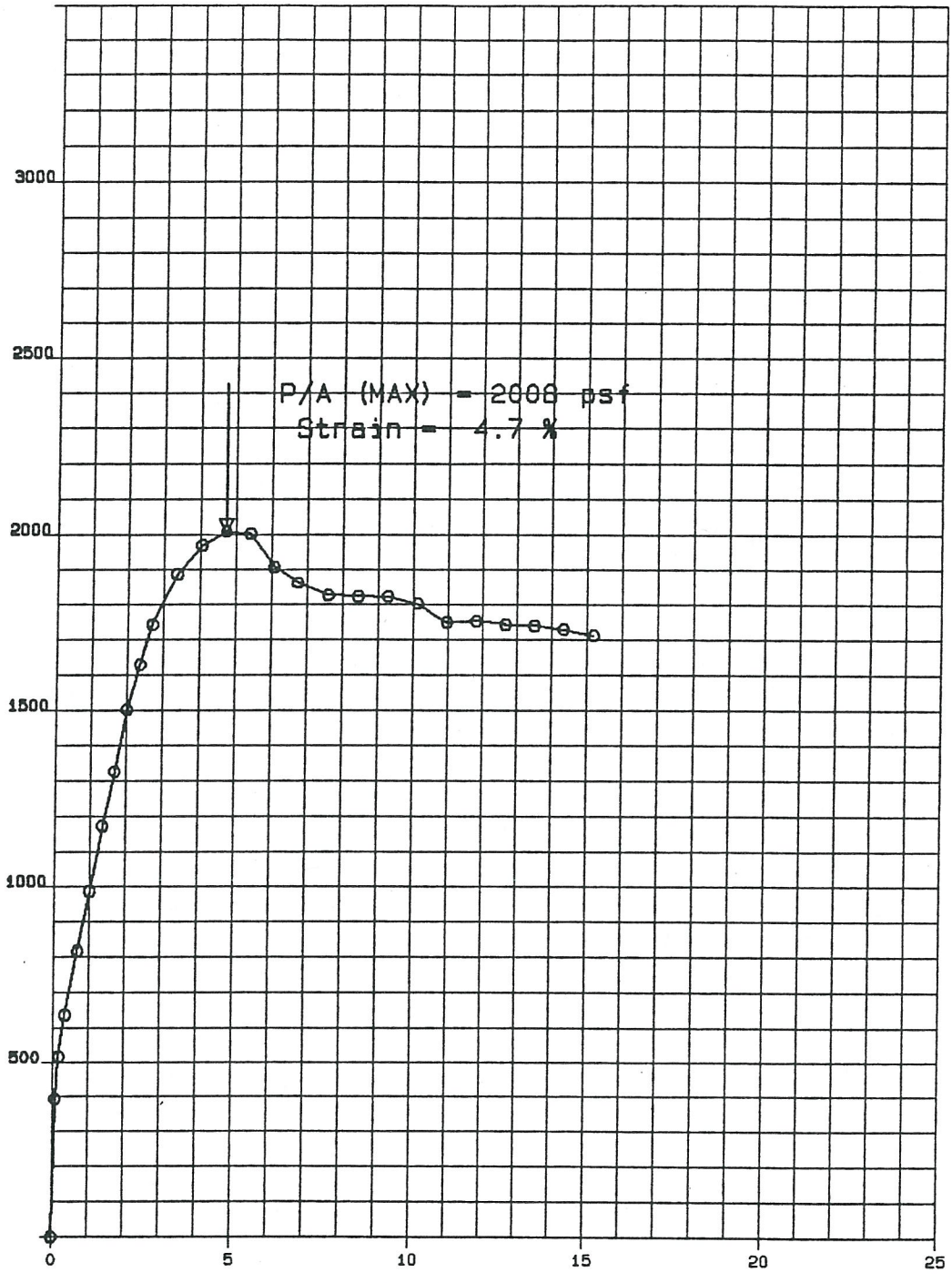
BORING NO. TW-20
SAMPLE U-4
DEPTH 74.7-75.2'
TECH. MST
REVIEWER

TEST SERIES NO. 15
DATE Aug. 95

FILE L14136

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SKETCH AT FAILURE

TEST NO. T16.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T16.0	35.1	84.8	5.92 2.85	9775.	-	-	-	34.8	-	0.50

SOIL DESCRIPTION: Olive Grey Silty CLAY

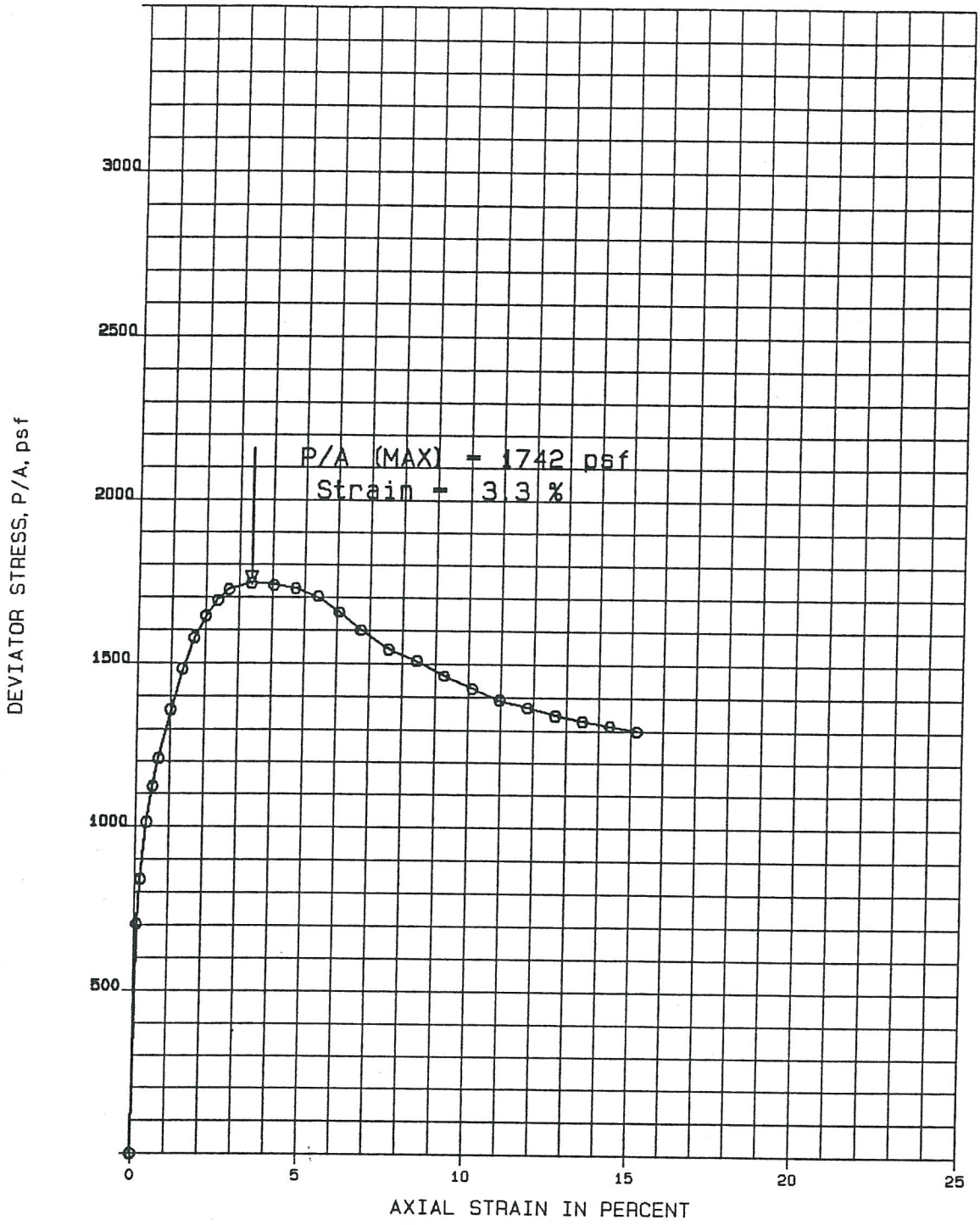
LIQUID LIMIT		PLASTIC LIMIT		SPECIFIC GRAVITY
49	%	20	%	2.70

MBTA SOUTH BOSTON/PIERS
FORT POINT CHANNEL
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO.	TW-20	TEST SERIES NO.	16
SAMPLE	U-5	DATE	Aug. 95
DEPTH	84.4-84.9'		
TECH.	MST		
REVIEWER		FILE	L14138

FIGURE ___

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SKETCH AT FAILURE

TEST NO. T17.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: CONFINING STRESS, psf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE,	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
T17.0	38.2	82.2	5.92 2.85	10924	—	—	—	36.8	—	0.50

SOIL DESCRIPTION: Olive Gray CLAY & SILT

LIQUID LIMIT 34 % PLASTIC LIMIT 18 % SPECIFIC GRAVITY 2.70

MBTA SOUTH BOSTON/PIERS FORT POINT CHANNEL
TRIAXIAL COMPRESSION TESTS (UU)

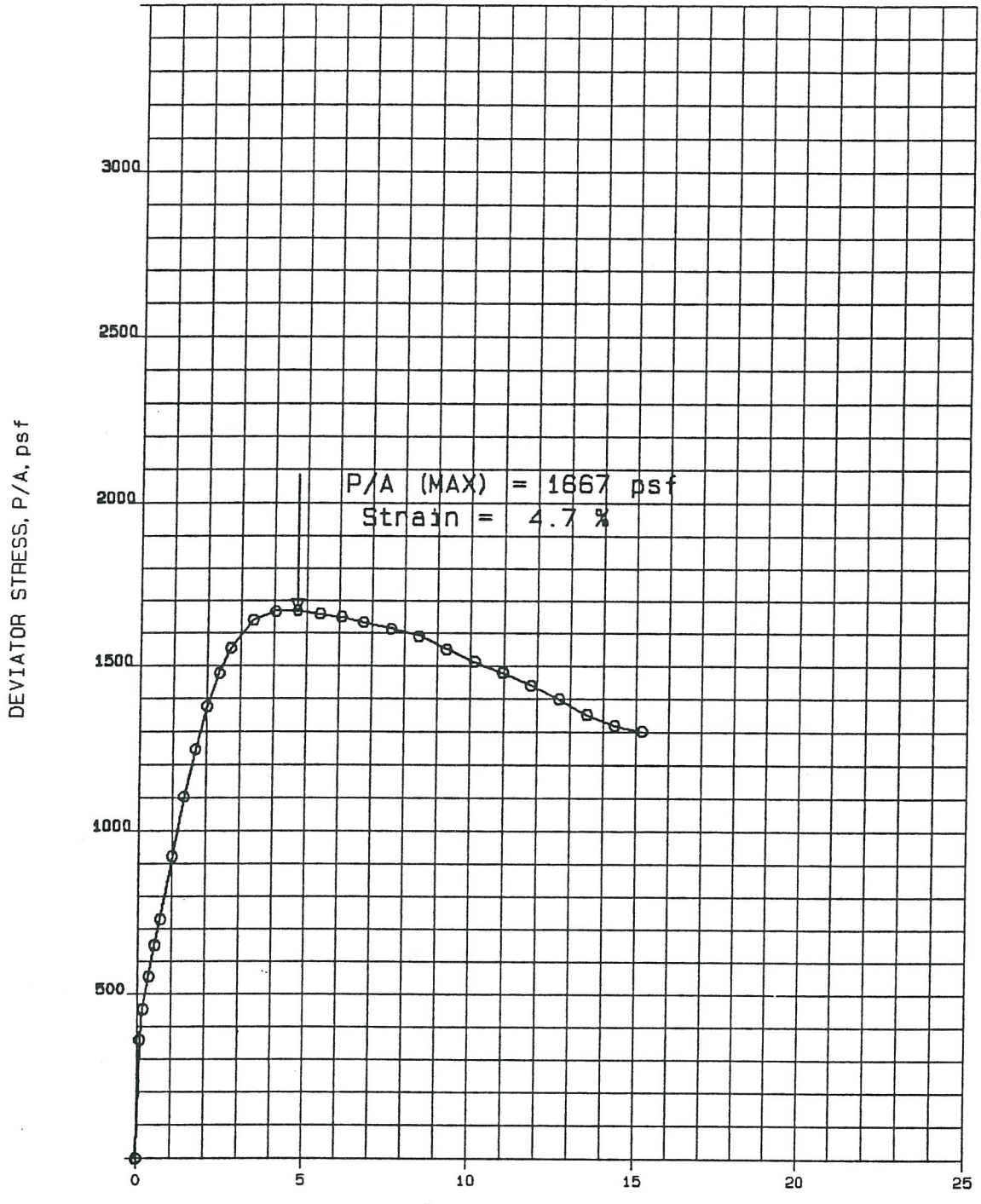
BORING NO. TW-20
SAMPLE UP-6
DEPTH 94.7-95.2'
TECH. MST
REVIEWER

TEST SERIES NO. 17
DATE Aug. 95

FILE L14136

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SKETCH AT FAILURE

TEST NO. T18.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T18.0	38.2	83.7	5.92 2.84	12074.	—	—	—	37.3	—	0.50

SOIL DESCRIPTION: **Olive Grey Silty CLAY**

LIQUID LIMIT		PLASTIC LIMIT		SPECIFIC GRAVITY
43	%	20	%	2.70

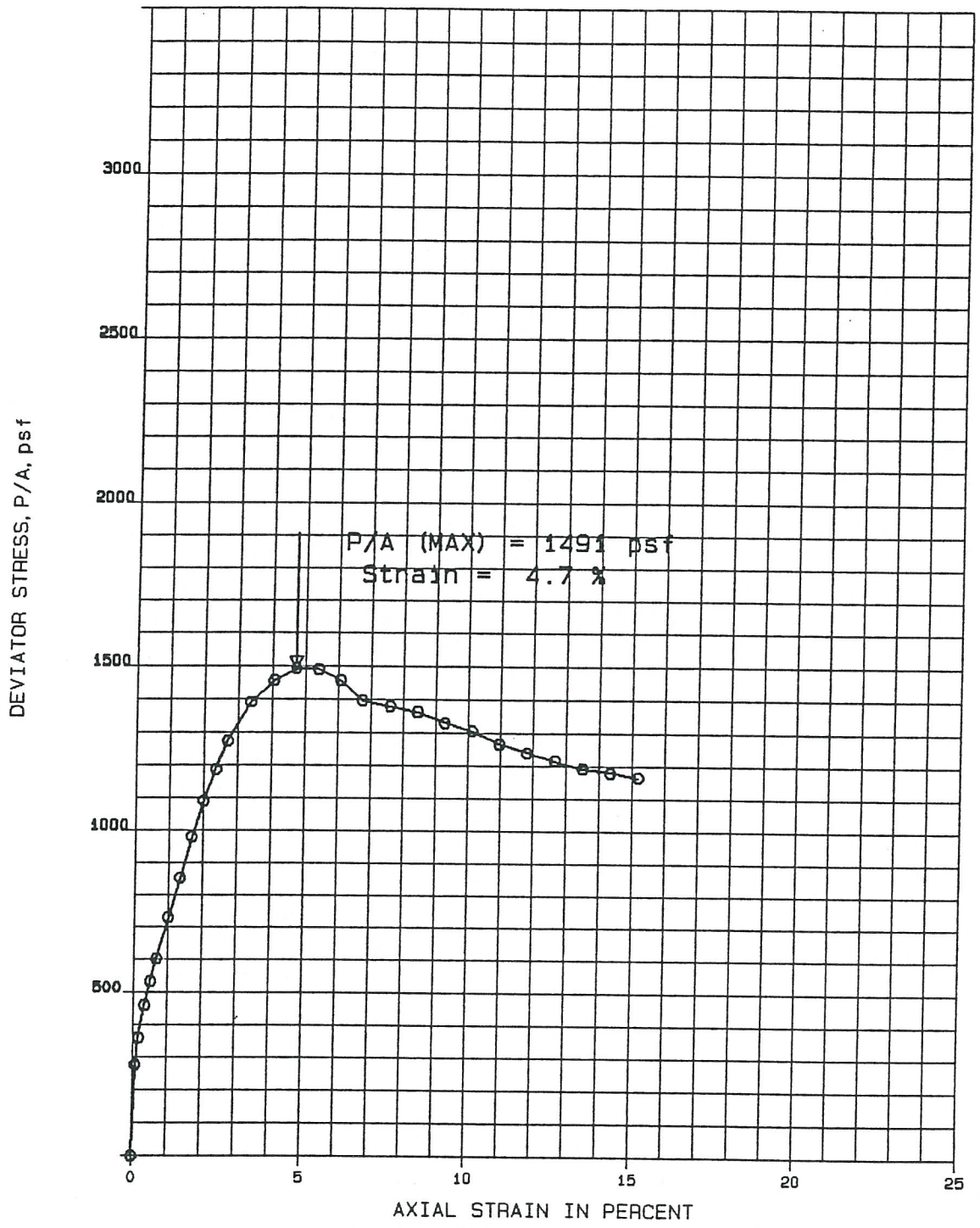
MBTA SOUTH BOSTON/PIERS FORT POINT CHANNEL
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO. TW-20
SAMPLE UP-7
DEPTH 104.7-105.2'
TECH. MST
REVIEWER

TEST SERIES NO. 18
DATE Aug. 95
FILE L14138

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SKETCH AT FAILURE

TEST NO. T19.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: CONFINING STRESS, psf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE,	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
T19.0	40.8	79.7	5.92 2.84	13225.	–	–	–	40.3	–	0.50

SOIL DESCRIPTION: **Olive Grey Silty CLAY**

LIQUID LIMIT **42** % PLASTIC LIMIT **19** % SPECIFIC GRAVITY **2.70**

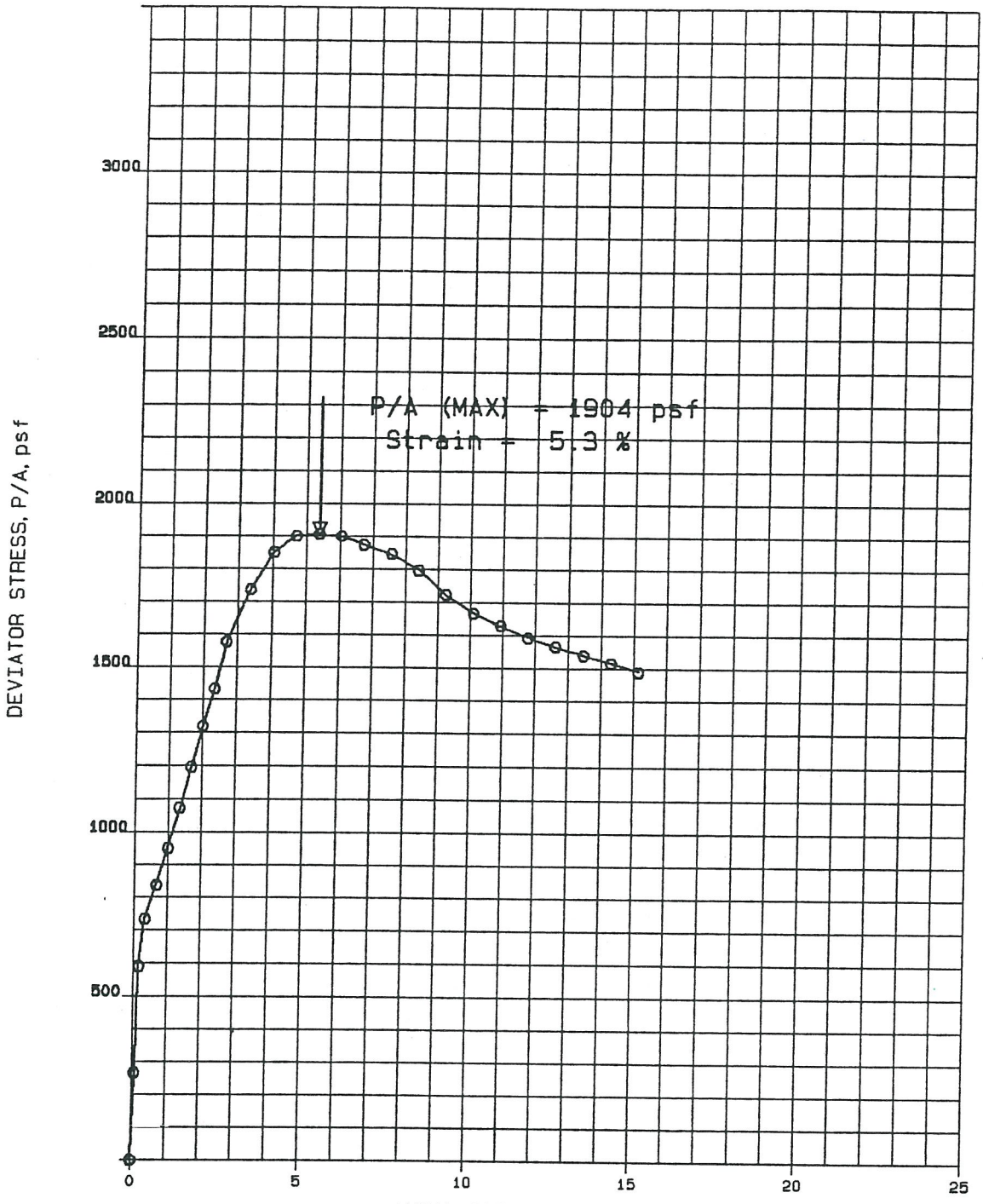
MBTA SOUTH BOSTON/PIERS
FORT POINT CHANNEL
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO. TW-20
SAMPLE UP-8
DEPTH 114.1-114.6'
TECH. MST
REVIEWER

TEST SERIES NO. 19
DATE Aug. 95
FILE L14136

FIGURE 1

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T20.0	42.3	79.3	5.94 2.85	14374.	—	—	—	41.3	—	0.50

SOIL DESCRIPTION: **Olive Grey Silty CLAY**

LIQUID LIMIT **47** % PLASTIC LIMIT **22** % SPECIFIC GRAVITY **2.70**

MBTA SOUTH BOSTON/PIERS
FORT POINT CHANNEL
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO. **TW-20**
SAMPLE **UP-9**
DEPTH **124.1-124.8'**
TECH. **MST**
REVIEWER

TEST SERIES NO. **20**
DATE **Aug. 95**

FILE **L14136**

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

APPENDIX F

Soil Pre-Characterization Group Classification System Descriptions

APPENDIX F
HALEY & ALDRICH SOIL PRECHARACTERIZATION
GROUP CLASSIFICATION SYSTEM
SEAPORT SQUARE PARCEL D
BOSTON, MASSACHUSETTS
FILE NO. 201286-000

Haley & Aldrich has developed the following Soil Precharacterization Group Classification System to describe soil quality with regards to both Massachusetts Contingency Plan (MCP) requirements and disposal facility requirements (#COMM-97-001 and specific facility requirements):

GROUP I:

Note: Group I soils (soils with levels of contaminants less than RCS-1) may not meet facility specific criteria (based on material characteristics or levels of contaminants) at most locations that accept material below RCS-1. Accordingly, these materials may require reuse at an in-state unlined landfill.

- Group I-1: Naturally deposited inorganic soils that contain no detectable levels of oil, waste oil, or hazardous materials other than background levels of naturally occurring metals or other natural substances.

- Group I-2: Naturally deposited inorganic soils that contain low levels of oil, waste oil, or hazardous materials below applicable RCS-1 release notification thresholds specified in CMR 40.0300 and/or background levels of naturally occurring metals or other natural substances and that are not otherwise a hazardous waste, as specified in DEP Policy.

- Group I-3: Urban Fill soils which contain oil, waste oil or hazardous materials at concentrations less than a release notification threshold equal to RCS-1 specified in CMR 40.0361, and that are not otherwise a hazardous waste, as specified in DEP Policy.

    - Group I-3A: Cohesive Urban Fill or Organic soils which contain oil, waste oil or hazardous materials at concentrations less than a release notification threshold equal to RCS-1 specified in CMR 40.0361, and that are not otherwise a hazardous waste, as specified in DEP Policy.

- Group I-3B: Fill, Organic, or Natural soils which contain oil, waste oil or hazardous materials at concentrations less than a release notification threshold equal to RCS-1 specified in CMR 40.0361, and that are not otherwise a hazardous waste, as specified in DEP Policy. Material contains concentrations of specific compounds which do not meet the acceptance criteria for reuse at currently available MassDEP-approved reclamation sites that have an Administrative Consent Order (ACO). For bidding purposes, the Contractor shall assume that these soils are to be reused as daily cover, intermediate cover, or pre-cap contouring material at in-state, unlined landfills.

- Group I-4: Slurry spoils from slurry wall and foundation element construction. For bidding purposes, the Contractor shall assume that these soils are to be reused as daily cover, intermediate cover, or pre-cap contouring material at in-state, unlined landfills. It is assumed that the soil is segregated during the pre-excavation process and that only soil that meets Massachusetts unlined landfill criteria remains below the pre-trench depth.

APPENDIX F
HALEY & ALDRICH SOIL PRECHARACTERIZATION
GROUP CLASSIFICATION SYSTEM
SEAPORT SQUARE PARCEL D
BOSTON, MASSACHUSETTS
FILE NO. 201286-000

GROUP II:

Soils that contain oil, waste oil, or hazardous materials at concentrations greater than or equal to applicable RCS-1 release notification thresholds specified in CMR 40.0300, and that are not otherwise a hazardous waste as specified in MassDEP Policy. Group II soils are considered Remediation Waste and require management under the MCP unless specifically indicated otherwise. Unless otherwise specified, transport of Group II soils from the site to appropriate off-site facilities shall be tracked using Bureau of Waste Site Cleanup Bills-of-Lading (BOL) prepared by the Owner's LSP. Group II soils require off-site reuse, recycling, treatment, or disposal at MassDEP-approved facilities based on the results of the Precharacterization Testing Program and criteria outlining the following Groups:

- Group II-1: Material which meets the COMM-97-001 criteria for disposal at in-state unlined landfills to be reused as daily cover, intermediate cover, and pre-cap contouring material.

- Group II-2: Material which meets the COMM-97-001 criteria for disposal at in-state lined facilities to be reused as daily cover, intermediate cover, and pre-cap contouring material.

- Group II-3: Material which meets the acceptance criteria for in-state or regional asphalt batching recycling facilities.

- Group II-4: Material which meets regional thermal treatment facilities. These materials may also be acceptable for reuse or disposal at RCRA Subtitle D facilities.

- Group II-5: RCRA non-hazardous waste material which contains concentrations of contaminants that exceed acceptance criteria of regional recycling or thermal treatment facilities that require disposal at a RCRA Subtitle D landfill facility.

APPENDIX F
HALEY & ALDRICH SOIL PRECHARACTERIZATION
GROUP CLASSIFICATION SYSTEM
SEAPORT SQUARE PARCEL D
BOSTON, MASSACHUSETTS
FILE NO. 201286-000

GROUP III - Hazardous Waste:

Soils that meet specific “characteristic” or “listed” hazardous waste criteria as defined in 310 CMR 30.000, the “Massachusetts Hazardous Waste Regulations.”

- Group III-1: Soils determined to contain "listed" or "characteristic" hazardous waste constituents that cannot be readily treated on-site. This material must be transported to an out-of-state approved RCRA Subtitle C hazardous waste disposal or treatment facility that has been approved by the Owner in accordance with the procedures outlined in the Submittals section of the project specification. These soils must be transported under Uniform Hazardous Waste Manifest. Land Disposal Restrictions (LDRs) may apply to the soil.

- Group III-2: Soils determined to exhibit a "characteristic" of hazardous waste such as ignitability, corrosivity, reactivity or toxicity (leachability) or soils that contain hazardous constituents from a listed hazardous waste that can be successfully treated on-site and no longer exhibits a characteristic of hazardous waste or has been determined (by the applicability of the Contained-in Determination) that the material is no longer a hazardous waste. The material will be reclassified depending on other contaminants and disposed of at a Group II-2, II-3, II-4, or II-5 facility that has been approved by the Owner in accordance with the procedures outlined in the Treatment of Group III-2 section of the project specification. Decharacterized hazardous waste may not be acceptable for reuse at select Group II-3 facilities or for reuse as daily cover.

Nitsch Engineering

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Boston, MA 02108-1928
T: 617-338-0063
F: 617-338-6472
www.nitscheng.com

STANDARD 10: Illicit Discharge Compliance Statement

Project Name: 88 Seaport Boulevard	Nitsch Project #: 10684.5
Location: 88 Seaport Boulevard Boston, MA 02210	Checked by: JMS
Prepared by: CMH	Sheet No. 1 of 1
Date: 10/06/2021	

Standard 10 states: All illicit discharges to the stormwater management system are prohibited.

This is to verify:

1. Based on the information available there are no known or suspected illicit discharges to the stormwater management system at the Summer Street School site as defined in the MassDEP Stormwater Handbook.

2. The design of the stormwater system includes no proposed illicit discharges.

John Schmid, PE

10/06/2021
Date

COMMONWEALTH OF MASSACHUSETTS
JOHN M. SCHMID
CIVIL
No. 39155
REGISTERED PROFESSIONAL ENGINEER

DEMOLITION NOTES:

1. SITE PREPARATION AND DEMOLITION SHALL INCLUDE THOSE AREAS WITHIN THE LIMIT OF WORK LINE AS SHOWN ON THE CONTRACT DOCUMENTS.
2. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
3. CONSULT ALL OF THE DRAWINGS AND SPECIFICATIONS FOR COORDINATION REQUIREMENTS BEFORE COMMENCING DEMOLITION.
4. THE CONTRACTOR SHALL COORDINATE SITE DEMOLITION EFFORTS WITH ALL TRADES THAT MAY BE AFFECTED BY THE WORK.
5. ALL ITEMS REQUIRING REMOVAL SHALL BE REMOVED TO FULL DEPTH TO INCLUDE BASE MATERIAL AND FOOTINGS OR FOUNDATIONS AS REQUIRED TO FACILITATE CONSTRUCTION, AND LEGALLY DISPOSED OF OFFSITE BY CONTRACTOR.
6. UTILITY PIPES DESIGNATED TO BE ABANDONED IN PLACE SHALL BE PLUGGED AT THEIR ENDS WITH WATERTIGHT BRICK MASONRY OR CEMENT MORTAR WITH A MINIMUM THICKNESS OF 8 INCHES.
7. UTILITY PIPES DESIGNATED TO BE REMOVED SHALL CONSIST OF THE COMPLETE REMOVAL AND DISPOSAL OF THE ENTIRE LENGTH OF PIPE AND BACKFILL AND 95% COMPACTION OF THE VOID WITH ORDINARY BORROW. WHEN THE VOID IS WITHIN THE FOOTPRINT OF THE NEW BUILDING, GRAVEL BORROW SHALL BE USED TO BACKFILL THE VOID.
8. UTILITY STRUCTURES DESIGNATED TO BE ABANDONED IN PLACE SHALL HAVE THEIR CAST IRON CASTINGS REMOVED AND DISPOSED, INLET AND OUTLET PIPES PLUGGED, THE BOTTOM OF THE STRUCTURES SHALL BE BROKEN, THE VOID OF THE STRUCTURES SHALL BE BACKFILLED AND COMPACTED TO 95% WITH ORDINARY BORROW OR FLOWABLE FILL, AND THE TOP OF THE STRUCTURE SHALL BE REMOVED SO THAT IT IS AT LEAST 36 INCHES BELOW FINISH GRADE.
9. UTILITY STRUCTURES DESIGNATED TO BE REMOVED SHALL CONSIST OF THE REMOVAL AND DISPOSAL OF CAST IRON CASTINGS, PLUGGING OF INLET AND OUTLET PIPES, REMOVAL OF THE STRUCTURE, AND BACKFILL AND 95% COMPACTION OF THE VOID WITH ORDINARY BORROW. WHEN HE VOID IS WITHIN THE FOOTPRINT OF THE NEW BUILDING, GRAVEL BORROW SHALL BE USED TO BACKFILL THE VOID.
10. ALL DEBRIS GENERATED DURING SITE PREPARATION ACTIVITIES SHALL BE LEGALLY DISPOSED OF OFFSITE.
11. AT ALL LOCATIONS WHERE EXISTING CURBING, CONCRETE PAVEMENT OR BITUMINOUS CONCRETE ROADWAY ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAW CUT TO A CLEAN, SMOOTH EDGE.
12. EXTEND DESIGNATED LIMIT OF WORK AS NECESSARY TO ACCOMPLISH ROUGH GRADING, EROSION CONTROL, TREE PROTECTION, AND SITE WORK AS REQUIRED BY THESE DRAWINGS AND SPECIFICATIONS.
13. THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL RUBBISH AND DEBRIS FOUND THEREON. STORAGE OF SUCH MATERIALS ON THE PROJECT SITE WILL NOT BE PERMITTED. THE CONTRACTOR SHALL LEAVE THE SITE IN SAFE, CLEAN, AND LEVEL CONDITION UPON COMPLETION OF THE SITE DEMOLITION WORK.
14. REMOVE AND STOCKPILE ALL EXISTING SITE LIGHTS, BENCHES, TRASH RECEPTACLES, TRAFFIC SIGNS, GRANITE CURB, AND OTHER SITE IMPROVEMENTS WITHIN LIMIT OF WORK LINE UNLESS OTHERWISE NOTED.
15. ALL EXISTING TREES AND SHRUBS TO REMAIN SHALL BE PROTECTED AND MAINTAINED THROUGHOUT THE TIME OF CONSTRUCTION, AS SPECIFIED AND DIRECTED BY THE LANDSCAPE ARCHITECT.
16. BEFORE ANY TREES OR SHRUBS ARE REMOVED, THE CONTRACTOR SHALL ARRANGE A CONFERENCE ON THE SITE WITH THE OWNER OR OWNER'S REPRESENTATIVE TO IDENTIFY TREES AND SHRUBS THAT ARE TO BE REMOVED, AS WELL AS THOSE WHICH ARE TO BE PROTECTED. DO NOT COMMENCE CLEARING OPERATIONS WITHOUT A CLEAR UNDERSTANDING OF EXISTING CONDITIONS TO BE PRESERVED.
17. THE CONTRACTOR SHALL REMOVE FROM THE AREA OF CONSTRUCTION PAVEMENT, CONCRETE, CURBING, POLES AND FOUNDATIONS, ISLANDS, TREE BERMS AND OTHER FEATURES WITHIN THE LIMITS OF CONSTRUCTION AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION WHETHER SPECIFIED ON THE DRAWINGS OR NOT.

BWSC & CONTRACTOR NOTES:

1. THE ESTIMATED SANITARY SEWAGE DISCHARGE IS 38,733.43 GALLONS PER DAY (GPD). THIS ESTIMATE IS BASED ON 310 C.M.R. 15.000 THE STATE ENVIRONMENTAL CODE, TITLE 5: STANDARD REQUIREMENTS FOR THE SITING, CONSTRUCTION, INSPECTION, UPGRADE AND EXPANSION OF ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS AND FOR THE TRANSPORT AND DISPOSAL OF SEPTAGE.
2. THE ESTIMATED DAILY WATER USE IS 42,606.77 [110% SEWAGE NUMBER ABOVE] GPD BASED ON THE ESTIMATED SANITARY SEWAGE DISCHARGE WITH A 10% PEAKING FACTOR.
3. TWO 3" COMPOUND WATER METERS WILL BE EITHER NEPTUNE OR ELSTER AMCO COMPOUND TYPE METERS. THE METERS MUST BE PURCHASED BY THE CONTRACTOR. A METER TRANSMITTER UNIT (MTU) SHALL BE SUPPLIED BY THE COMMISSION AT THE OWNER'S EXPENSE. A FEE OF $325/MTU WILL BE PAID TO THE COMMISSION AT THE TIME OF FILING THE GENERAL SERVICE APPLICATION.
4. BACKWATER VALVES SHALL BE PROVIDED BY THE PLUMBER AT ALL GRAVITY SANITARY SEWER AND STORM DRAIN CONNECTIONS FOR ANY FIXTURE LOCATED AT AN ELEVATION BELOW THE TOP OF THE SEWER OR DRAIN MANHOLE.
5. THE CONTRACTOR SHALL NOTIFY THE BWSC CROSS-CONNECTION DEPARTMENT AT 617-989-7283 ONCE BACKWATER VALVES ARE INSTALLED FOR BWSC INSPECTION.
6. DYE TESTING SHALL BE PERFORMED ON NEW STORM DRAIN AND SANITARY SEWER CONNECTIONS AFTER INSTALLATION IS COMPLETE. DYE TESTS SHALL BE WITNESSED BY THE BWSC.
7. A PREREQUISITE FOR FILING A GENERAL SERVICE APPLICATION WITH THE BWSC FOR NEW CONSTRUCTION IS THE ROUGH CONSTRUCTION SIGN-OFF DOCUMENT FROM THE CITY OF BOSTON'S INSPECTIONAL SERVICES DEPARTMENT.
8. AN AS-BUILT PLAN (AUTOCAD 2016 OR EARLIER RELEASE) SHALL BE PROVIDED BY THE CONTRACTOR AND ENDORSED BY A CIVIL ENGINEER OR PROFESSIONAL LAND SURVEYOR SHOWING THE LOCATION, DEPTH, AND INVERT OF EVERY BEND, FITTING, VALVE, CLEANOUT AND ANCHOR. THE AS-BUILT DRAWING SHALL BE SUBMITTED TO THE BOSTON AND WATER SEWER COMMISSION FOR REVIEW AND APPROVAL.
9. WATER SHUT DOWN SHALL BE COORDINATED WITH BWSC WATER OPERATIONS, (617) 989-7276, 24 HOURS NOTICE REQUIRED.
10. PROVIDE "DON'T DUMP" PLAQUES AT ALL CATCH BASIN AND DRAIN INLET LOCATIONS. "DON'T DUMP" PLAQUES TO BE PURCHASED FROM BWSC.
11. THE CONTRACTOR SHALL PURCHASE THE NEW HYDRANT(S) FROM THE BWSC. THE CONTRACTOR SHALL PURCHASE THE HYDRANT(S) FROM THE COMMISSION WHEN FILING THE GENERAL SERVICE APPLICATION.

EROSION AND SEDIMENT CONTROL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS" PREPARED BY DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF RESOURCE PROTECTION, AND THE CURRENT NPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES.
2. MEANS OF EROSION AND SEDIMENT PROTECTION AS NOTED ON THE DRAWINGS INDICATE MINIMUM RECOMMENDED PROVISIONS. THE CONTRACTOR IS RESPONSIBLE FOR FINAL SELECTION AND PLACEMENT OF EROSION AND SEDIMENTATION CONTROLS BASED ON ACTUAL SITE CONDITIONS AND CONSTRUCTION CONDITIONS. ADDITIONAL MEANS OF PROTECTION SHALL BE PROVIDED BY THE CONTRACTOR AS REQUIRED FOR CONTINUED OR UNFORESEEN EROSION PROBLEMS, OR AS DIRECTED BY CONTROLLING MUNICIPAL AUTHORITIES, AT NO ADDITIONAL EXPENSE TO THE OWNER.
3. AN EROSION CONTROL BARRIER SHALL BE INSTALLED ALONG THE EDGE OF PROPOSED DEVELOPMENT AS INDICATED IN THE PLAN PRIOR TO COMMENCEMENT OF DEMOLITION OR CONSTRUCTION OPERATIONS.
4. SEDIMENT CONTROL MEASURES SHALL BE ADJUSTED TO MEET FIELD CONDITIONS AT THE TIME OF AND DURING ALL PHASES OF CONSTRUCTION AND BE CONSTRUCTED PRIOR TO AND IMMEDIATELY AFTER ANY GRADING OR DISTURBANCE OF EXISTING SURFACE MATERIAL ON THE SITE.
5. AFTER ANY SIGNIFICANT RAINFALL (GREATER THAN 0.25 INCHES OF RAINFALL WITHIN 24 HOURS), SEDIMENT CONTROL STRUCTURES SHALL BE INSPECTED FOR INTEGRITY. ANY DAMAGE SHALL BE CORRECTED IMMEDIATELY.
6. PERIODIC INSPECTION AND MAINTENANCE OF ALL SEDIMENT CONTROL STRUCTURES SHALL BE PROVIDED TO ENSURE THAT THE INTENDED PURPOSE IS ACCOMPLISHED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SEDIMENT LEAVING THE LIMIT OF WORK. SEDIMENT CONTROL MEASURES SHALL BE IN WORKING CONDITION AT THE END OF EACH WORKING DAY.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING SEDIMENT FROM ENTERING ANY STORM DRAINAGE SYSTEM AND FROM BEING CONVEYED TO ANY WETLAND RESOURCE AREA, PUBLIC WAYS, ABUTTING PROPERTY, OR OUTSIDE OF THE PROJECT LIMITS.
8. THE CONTRACTOR SHALL PROTECT ALL DRAINAGE SWALES AND GROUND SURFACES WITHIN THE LIMIT OF WORK FROM EROSIVE CONDITIONS. STRAW BALE, CRUSHED STONE OR EQUIVALENT CHECK DAMS ARE TO BE PROVIDED AT A MAXIMUM OF TWO HUNDRED (200) FOOT SPACING, OR LESS AS SITE-SPECIFIC CONDITIONS WARRANT, WITHIN ALL DRAINAGE SWALES AND DITCHES AND AT UPSTREAM SIDES OF ALL DRAINAGE INLETS.
9. ALL STOCK PILES SHALL BE PROTECTED AND LOCATED A MINIMUM OF 100' FROM EXISTING WETLAND RESOURCE AREAS & WITHIN THE LIMIT OF WORK.
10. ANY SEDIMENT TRACKED ONTO PAVED AREAS SHALL BE SWEPT AT THE END OF EACH WORKING DAY.
11. ALL SEDIMENT RETAINED BY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE LEGALLY DISPOSED OF OFFSITE.
12. TEMPORARY DIVERSION DITCHES, PERMANENT DITCHES, CHANNELS, EMBANKMENTS, AND ANY DENUDED SURFACE THAT WILL BE EXPOSED FOR A PERIOD OF 14 CALENDAR DAYS OR MORE SHALL BE CONSIDERED CRITICAL VEGETATION AREAS. THESE AREAS SHALL BE STABILIZED/PROTECTED WITH APPROPRIATE EROSION CONTROL MATTING OR OTHER EROSION CONTROL METHODS.
13. DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS AS DIRECTED BY THE PERMITTING AUTHORITY OR OWNER.
14. THE CONTRACTOR SHALL USE TEMPORARY SEEDING, MULCHING, OR OTHER APPROVED STABILIZATION MEASURES TO PROTECT EXPOSED AREAS DURING PROLONGED CONSTRUCTION OR OTHER LAND DISTURBANCE. STOCKPILES THAT WILL BE EXPOSED FOR LONGER THAN 14 DAYS SHALL BE STABILIZED.
15. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL EROSION AND SEDIMENT CONTROLS AT THE COMPLETION OF SITE CONSTRUCTION, BUT ONLY WHEN DIRECTED BY THE CITY OF BOSTON CONSERVATION AGENT. STABILIZE OR SEED BARE AREAS LEFT AFTER EROSION CONTROL REMOVAL.

EARTH MOVING AND GRADING NOTES:

1. ALL TOPSOIL ENCOUNTERED WITHIN THE WORK AREA SHALL BE STRIPPED TO ITS FULL DEPTH AND STOCKPILED FOR REUSE. EXCESS TOPSOIL SHALL BE REMOVED FROM THE SITE UNLESS OTHERWISE DIRECTED BY THE OWNER. TOPSOIL PILES SHALL REMAIN SEGREGATED FROM EXCAVATED SUBSURFACE SOIL MATERIALS.
2. GRADES WITHIN HANDICAP PARKING SPACES AND ACCESS AISLES SHALL NOT EXCEED 1.5% IN ANY DIRECTION.
3. CROSS SLOPES OF ALL PEDESTRIAN WALKS SHALL NOT EXCEED 1.5%.
4. RUNNING SLOPE OF ALL PEDESTRIAN WALKS SHALL NOT EXCEED 4.5%, UNLESS OTHERWISE NOTED.
5. THE CONTRACTOR SHALL EXERCISE CAUTION IN ALL EXCAVATION ACTIVITY DUE TO POSSIBLE EXISTENCE OF UNRECORDED UTILITY LINES.
6. ALL PAVED AREAS MUST PITCH TO DRAIN AT A MINIMUM OF 1% UNLESS OTHERWISE NOTED.
7. PROVIDE POSITIVE DRAINAGE AWAY FROM FACE OF BUILDINGS AT ALL LOCATIONS.
8. PITCH EVENLY BETWEEN CONTOUR LINES AND BETWEEN SPOT GRADES. SPOT GRADE ELEVATIONS TAKE PRECEDENCE OVER CONTOUR LINES.
9. ALL PROPOSED TOP OF CURB ELEVATIONS ARE SIX INCHES (6") ABOVE BOTTOM OF CURB ELEVATIONS UNLESS OTHERWISE NOTED. ALL PROPOSED TOP OF CAPE COD BERM ELEVATIONS ARE FOUR INCHES (4") ABOVE BOTTOM OF CURB ELEVATION UNLESS OTHERWISE NOTED.
10. THE CONTRACTOR SHALL BLEND NEW GRADING SMOOTHLY INTO EXISTING GRADING AT LIMITS OF GRADING.
11. WHERE NEW PAVING MEETS EXISTING PAVING, MEET LINE AND GRADE OF EXISTING PAVING WITH SMOOTH TRANSITION BETWEEN EXISTING AND NEW SURFACES.
12. THE CONTRACTOR SHALL VERIFY EXISTING GRADES IN THE FIELD AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ARCHITECT OR OWNER'S REPRESENTATIVE PRIOR TO STARTING WORK.
13. PITCH TOPS OF ALL WALLS AT ONE-EIGHTH INCH (1/8") PER FOOT FROM BACK OF WALL TO FACE OF WALL.
14. SURPLUS MATERIALS SHALL BE REMOVED FROM THE SITE UNLESS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE. REFER TO EARTHWORK SPECIFICATIONS.
15. ANY AREAS OUTSIDE OF THE LIMIT OF WORK THAT ARE DISTURBED SHALL BE RESTORED BY THE CONTRACTOR TO THE PRE-CONSTRUCTION CONDITION/GRADE AT NO COST TO THE OWNER.
16. EXCAVATION REQUIRED WITHIN PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO ADDITIONAL COST TO OWNER.

GENERAL NOTES:

1. TOPOGRAPHIC DATA, PROPERTY LINE INFORMATION, AND EXISTING SITE FEATURES WERE OBTAINED FROM A PLAN ENTITLED "ALTA/NSPS LAND TITLE SURVEY SEAPORT PARCEL D 65 NORTHERN AVE. SEAPORT DISTRICT, BOSTON, MASSACHUSETTS", PREPARED BY NITSCH ENGINEERING INC., DATED APRIL 2020 REVISED MAY 19, 2021.
2. FLOODPLAIN INFORMATION WAS OBTAINED FROM THE FLOOD INSURANCE RATE MAP (FIRM) NO. 25025C0081J. A PORTION OF THE SITE IS IN ZONE X AND A PORTION OF THE SITE IS IN ZONE AE.
3. THE CONTRACTOR SHALL COMPLY WITH MASSACHUSETTS GENERAL LAWS CHAPTER 82, SECTION 40, AS AMENDED, WHICH STATES THAT NO ONE MAY EXCAVATE IN THE COMMONWEALTH OF MASSACHUSETTS EXCEPT IN AN EMERGENCY WITHOUT 72 HOURS NOTICE, EXCLUSIVE OF SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS, TO NATURAL GAS PIPELINE COMPANIES, AND MUNICIPAL UTILITY DEPARTMENTS THAT SUPPLY GAS, ELECTRICITY, TELEPHONE, OR CABLE TELEVISION SERVICE IN OR TO THE CITY OR TOWN WHERE THE EXCAVATION IS TO BE MADE. THE CONTRACTOR SHALL CALL "DIG SAFE" AT 1-888-DIG-SAFE.
4. THE CONTRACTOR SHALL COMPLY WITH MASSACHUSETTS GENERAL LAWS CHAPTER 82A, ALSO REFERRED TO AS JACKIE'S LAW, AS DETAILED IN SECTION 520 CMR 14.00 OF THE CODE OF MASSACHUSETTS REGULATIONS.
5. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, RULES, REGULATIONS AND SAFETY CODES IN THE CONSTRUCTION OF ALL IMPROVEMENTS.
6. THE LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES ARE APPROXIMATE AND ALL UTILITIES MAY NOT BE SHOWN. PRESENCE AND LOCATIONS OF ALL UTILITIES WITHIN THE LIMIT OF WORK MUST BE DETERMINED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND CONTACTING THE CONTROLLING AUTHORITIES AND/OR UTILITY COMPANIES RELATIVE TO THE LOCATIONS AND ELEVATIONS OF THEIR LINES. THE CONTRACTOR SHALL KEEP A RECORD OF ANY DISCREPANCIES OR CHANGES IN THE LOCATIONS OF ANY UTILITIES SHOWN OR ENCOUNTERED DURING CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE OWNER AND NITSCH ENGINEERING. ANY DAMAGE RESULTING FROM THE FAILURE OF THE CONTRACTOR TO MAKE THESE DETERMINATIONS AND CONTACTS SHALL BE BORNE BY THE CONTRACTOR.
7. THE CONTRACTOR SHALL, THROUGHOUT CONSTRUCTION, TAKE ADEQUATE PRECAUTIONS TO PROTECT ALL WALKS, GRADING, SIDEWALKS AND SITE DETAILS OUTSIDE OF THE LIMIT OF WORK AS DEFINED ON THE DRAWINGS AND SHALL REPAIR AND REPLACE OR OTHERWISE MAKE GOOD AS DIRECTED BY THE ENGINEER OR OWNER'S DESIGNATED REPRESENTATIVE ANY SUCH OR OTHER DAMAGE SO CAUSED.
8. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE SAFETY AND ALL CONSTRUCTION MEANS AND METHODS.
9. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE SITE AND CONSTRUCTION DOCUMENTS TO DEVELOP A THOROUGH UNDERSTANDING OF THE PROJECT, INCLUDING ANY SPECIAL CONDITIONS AND CONSTRAINTS.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BECOME FAMILIAR WITH THE PROJECT SITE AND TO VERIFY ALL CONDITIONS IN THE FIELD AND REPORT DISCREPANCIES BETWEEN PLANS AND ACTUAL CONDITIONS TO THE OWNER OR OWNER'S REPRESENTATION IMMEDIATELY.
11. THE CONTRACTOR SHALL CONDUCT ALL NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN ALL NECESSARY CONSTRUCTION PERMITS.
12. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE ESTABLISHMENT AND USE OF ALL VERTICAL AND HORIZONTAL CONSTRUCTION CONTROLS.
13. ELEVATIONS REFER TO BOSTON CITY BASE (BCB).
14. THE CONTRACTOR SHALL COMPLY WITH THE ORDER OF CONDITIONS DATED XXXX XX, XXXX AND ISSUED BY THE XXXX CONSERVATION COMMISSION (DEP #XXX-XXX).
15. FOR SOIL INFORMATION REFER TO GEOTECHNICAL REPORT.

UTILITY NOTES:

1. ALL UTILITY CONNECTIONS ARE SUBJECT TO THE APPROVAL OF, AND GRANTING OF PERMITS BY, THE LOCAL MUNICIPALITY. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL PERMITS AND APPROVALS RELATED TO UTILITY WORK PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR OBTAINING ALL PERMISSIONS FOR, AND FOR CONDUCTING ALL PREPARATIONS RELATED TO, WORK AFFECTING ANY UTILITIES WITHIN THE JURISDICTION OF ANY NON-MUNICIPAL UTILITY COMPANY, INCLUDING BUT NOT LIMITED TO ELECTRIC, TELEPHONE, AND/OR GAS. THE CONTRACTOR SHALL NOTIFY ALL APPROPRIATE AGENCIES, DEPARTMENTS, AND UTILITY COMPANIES, IN WRITING, AT LEAST 7 DAYS (OR PER UTILITY COMPANY REQUIREMENT) AND NOT MORE THAN 30 DAYS PRIOR TO ANY CONSTRUCTION.
3. THE CONTRACTOR SHALL MAINTAIN UTILITIES SERVICING BUILDINGS AND FACILITIES WITHIN OR OUTSIDE THE PROJECT LIMIT UNLESS THE INTERRUPTION OF SERVICE IS COORDINATED WITH THE OWNER.
4. ALL WATER, SEWER, AND DRAIN WORK SHALL BE PERFORMED ACCORDING TO THE REQUIREMENTS AND STANDARD SPECIFICATIONS OF THE LOCAL MUNICIPALITY.
5. GAS, TELECOMMUNICATIONS AND ELECTRIC SERVICES ARE TO BE DESIGNED BY EACH UTILITY COMPANY IN COORDINATION WITH THE MECHANICAL, ELECTRIC, AND PLUMBING CONSULTANTS.
6. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES OF NEW UTILITIES WITH GAS, TELECOMMUNICATION AND ELECTRICAL SERVICES.
7. INSTALL WATER LINES WITH A MINIMUM OF FIVE FEET OF COVER AND A MAXIMUM OF SEVEN FEET COVER FROM THE FINAL DESIGN GRADES.
8. MAINTAIN 10 FEET HORIZONTAL SEPARATION AND 18 INCHES VERTICAL SEPARATION (WATER OVER SEWER) BETWEEN SEWER AND WATER LINES. WHEREVER THERE IS LESS THAN 10 FEET OF HORIZONTAL SEPARATION AND 18 INCHES OF VERTICAL SEPARATION BETWEEN A PROPOSED OR EXISTING SEWER LINE TO REMAIN AND A PROPOSED OR EXISTING WATER LINE TO REMAIN BOTH WATER MAIN AND SEWER MAIN SHALL BE CONSTRUCTED OF MECHANICAL JOINT CEMENT LINED DUCTILE IRON PIPE FOR A DISTANCE OF 10-FEET ON EITHER SIDE OF THE CROSSING. ONE (1) FULL LENGTH OF WATER PIPE SHALL BE CENTERED OVER THE SEWER AT THE CROSSING.
9. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES EXCEPT THOSE NOTED TO BE ABANDONED AND/OR REMOVED & DISPOSED.
10. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR TRENCHING, BACKFILLING, AND SURFACE RESTORATION FOR GAS UTILITY SYSTEMS.
11. ALL ONSITE UTILITIES SHALL BE INSTALLED UNDERGROUND UNLESS OTHERWISE NOTED.
12. ALL EXISTING AND PROPOSED MANHOLE FRAMES, COVERS, VALVES, CLEANOUTS, CASTINGS, ETC. SHALL BE RAISED TO FINISHED GRADE PRIOR TO FINAL GRADING AND PAVING CONSTRUCTION.
13. ALL GRATES IN WALKWAYS SHALL BE ADA COMPLIANT.

PROPOSED LEGEND

Symbol	Description
	LIMIT OF WORK
// //	EXISTING UTILITY TO BE ABANDONED, REMOVED AND DISPOSED IF IN CONFLICT WITH NEW SITE IMPROVEMENTS, OR AS INDICATED ON DRAWINGS
	EROSION CONTROL BARRIER
x x	CONSTRUCTION FENCE
W	DOMESTIC WATER PIPE
FP	FIRE PROTECTION PIPE
S	SANITARY SEWER PIPE
D	STORM DRAIN PIPE
G	GAS PIPE
E	ELECTRIC DUCTBANK
T/C	TELECOM DUCTBANK
RW	REUSE WATER PIPE
	INLET PROTECTION
	ELEVATION CONTOURS
	MATCH LINE
	CENTERLINE
CO	CLEANOUT
	AREA DRAIN
	ACCESS BASIN
	DRAIN MANHOLE
Q	WATER QUALITY STRUCTURE
	CATCH BASIN
	WATER QUALITY INLET
	SEWER MANHOLE
TMH	TELECOM MANHOLE
EMH	ELECTRIC MANHOLE
WV	WATER VALVE
HYD	FIRE HYDRANT

ABBREVIATIONS

AB	ACCESS BASIN
AD	AREA DRAIN
BC	BOTTOM OF CURB ELEVATION
CB	CATCH BASIN
CI	CAST IRON
CL	CENTER LINE
CO	CLEANOUT
CPP	CORRUGATED POLYETHYLENE PIPE
DICL	DUCTILE IRON PIPE CEMENT LINED
DMH	DRAIN MANHOLE
EHH	ELECTRIC HANDHOLE
EMH	ELECTRIC MANHOLE
FFE	FINISHED FLOOR ELEVATION
HYD	FIRE HYDRANT
INV	INVERT ELEVATION
LF	LINEAR FEET
LOW	LIMIT OF WORK
M&P	MAINTAIN AND PROTECT
OC	ON CENTER
OCS	OUTLET CONTROL STRUCTURE
PERF	PERFORATED
PVC	POLYVINYL CHLORIDE PIPE
R&D	REMOVE AND DISPOSE
R&S	REMOVE AND STOCKPILE
RD	ROOF DRAIN
RIM	RIM ELEVATION
SMH	SEWER MANHOLE
SS	SEWER SERVICE
TC	TOP OF CURB ELEVATION
THH	TELECOM HANDHOLE
TMH	TELECOM MANHOLE
TOP	TOP OF PIPE
TOD	TOP OF DUCT BANK
TYP	TYPICAL
UD	UNDERDRAIN
USD	UNDERSLAB DRAIN
VGC	VERTICAL GRANITE CURB
WQI	WATER QUALITY INLET
WQS	WATER QUALITY STRUCTURE
WV	WATER VALVE

COST ESTIMATING NOTES:

1. ALL WATER LINES ARE DUCTILE IRON UNLESS OTHERWISE NOTED. ASSUME ALL WATER LINES INSTALLED WITH 5' OF COVER.
2. ASSUME ALL ROADWAY DRAINAGE LINES ARE 12" RCP UNLESS OTHERWISE NOTED. ASSUME ALL DRAIN LINES INSTALLED WITH 6' OF COVER.
3. ASSUME ALL ROOF DRAINAGE LINES ARE 6" CORRUGATED PLASTIC PIPE UNLESS OTHERWISE NOTED. ASSUME ALL DRAIN LINES INSTALLED WITH 4' OF COVER.
4. ASSUME THAT ALL SEWER LINES ARE 8" PVC. ASSUME ALL SEWER LINES INSTALLED WITH 6' OF COVER.
5. ASSUME ALL STRUCTURES ARE 4' INSIDE DIAMETER, EXCEPT FOR DOUBLE CATCH BASINS AND STRUCTURES THAT ARE DIRECTLY CONNECTED TO UNDERGROUND RECHARGE/DETENTION SYSTEMS. ASSUME THOSE STRUCTURES ARE 6' INSIDE DIAMETER.
6. SEE MEP PLANS FOR SIZING OF ELECTRIC, CABLE, TELEPHONE AND LIGHTING.

CITY OF BOSTON STREET LIGHTING NOTES:

1. ALL CITY OF BOSTON PUBLIC STREET LIGHT POLE INSTALLATIONS SHALL MEET THE CITY OF BOSTON, PUBLIC WORKS DEPARTMENT, STREET LIGHTING SECTION STANDARD SPECIFICATIONS AND DETAILS.
2. PROPOSED STREET LIGHT LOCATIONS REQUIRE A CITY OF BOSTON STANDARD LIGHT POLE BASE, LIGHT POLE, LAMP, CONDUIT, CABLING & COMPOSITE PULLBOX, UNLESS OTHERWISE NOTED.
3. STREET LIGHTING CONDUIT RUNNING FROM THE LIGHT POLE TO PULLBOX SHALL BE 2" PVC.
4. STREET LIGHTING CONDUIT RUNNING FROM PULLBOX TO PULLBOX SHALL BE 3" PVC.
5. STREET LIGHTING CONDUIT RUNNING UNDER ROADWAYS, DRIVEWAYS, OR OTHER VEHICULAR TRAVELED SURFACES SHALL BE CONCRETE ENCASED.
8. REMOVE AND RETURN EXISTING CITY OF BOSTON LIGHTS WITHIN THE LIMIT OF WORK TO THE CITY OF BOSTON, UNLESS OTHERWISE NOTED.
9. EXISTING CITY OF BOSTON STREET LIGHT POLES AND LUMINARIES TO BE REPLACED SHALL BE PROTECTED, REMOVED & RETURNED TO THE CITY OF BOSTON STREET LIGHTING SECTION.
10. ALL EXISTING PULLBOXES TO BE REUSED SHALL BE CLEANED OUT AND THE FRAME AND COVER SHALL BE REPLACED WITH A STANDARD CITY OF BOSTON COMPOSITE PULLBOX.
11. STREET LIGHT LOCATIONS NEED TO BE APPROVED BY THE CITY OF BOSTON PRIOR TO INSTALLATION FOR COORDINATION ONLY. STREET LIGHT LOCATIONS SHOWN FOR COORDINATION ONLY.
12. THE CONTRACTOR SHALL COORDINATE A FINAL INSPECTION WITH THE CITY OF BOSTON STREET LIGHTING SECTION AND APPROVAL/SIGN OFF FROM THE SECTION FOR THE INSTALLED STREET LIGHTS.
13. THE CONTRACTOR SHALL CONFIRM STREET LIGHTS ARE CONNECTED TO THE CITY OF BOSTON STREET LIGHTING POWER SOURCE AND OPERATE ACCORDING TO CITY OF BOSTON STREET LIGHTING STANDARD SPECIFICATIONS AT NIGHT.
14. FOR PRIVATE LIGHTING ON SITE AND PRIVATE WAYS, SEE LANDSCAPE ARCHITECT AND ELECTRICAL ENGINEER PLANS.

WSDEVELOPMENT

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BLOCK D BOSTON SEAPORT

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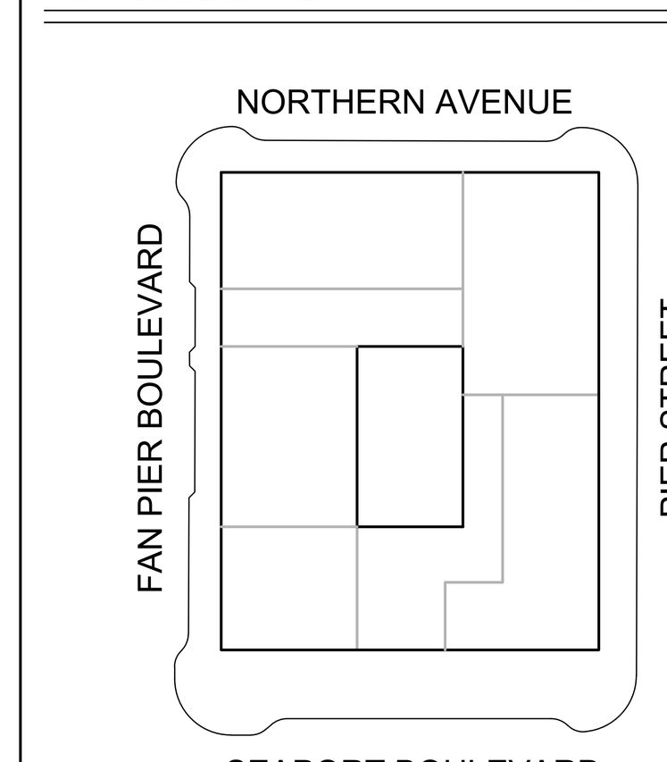
CONCORD, MA 01742

COMMONWEALTH OF MASSACHUSETTS
JOHN M. SCHMID
CIVIL
No. 39155
REGISTERED PROFESSIONAL ENGINEER
09-21-21

NO.	ISSUE DATE	COMMENTS
02	08/17/2021	BWSC SUBMISSION
01	05/28/2021	100% SCHEMATIC DESIGN



KEY PLAN

NOT FOR BID
NOT FOR
CONSTRUCTION

STAMP

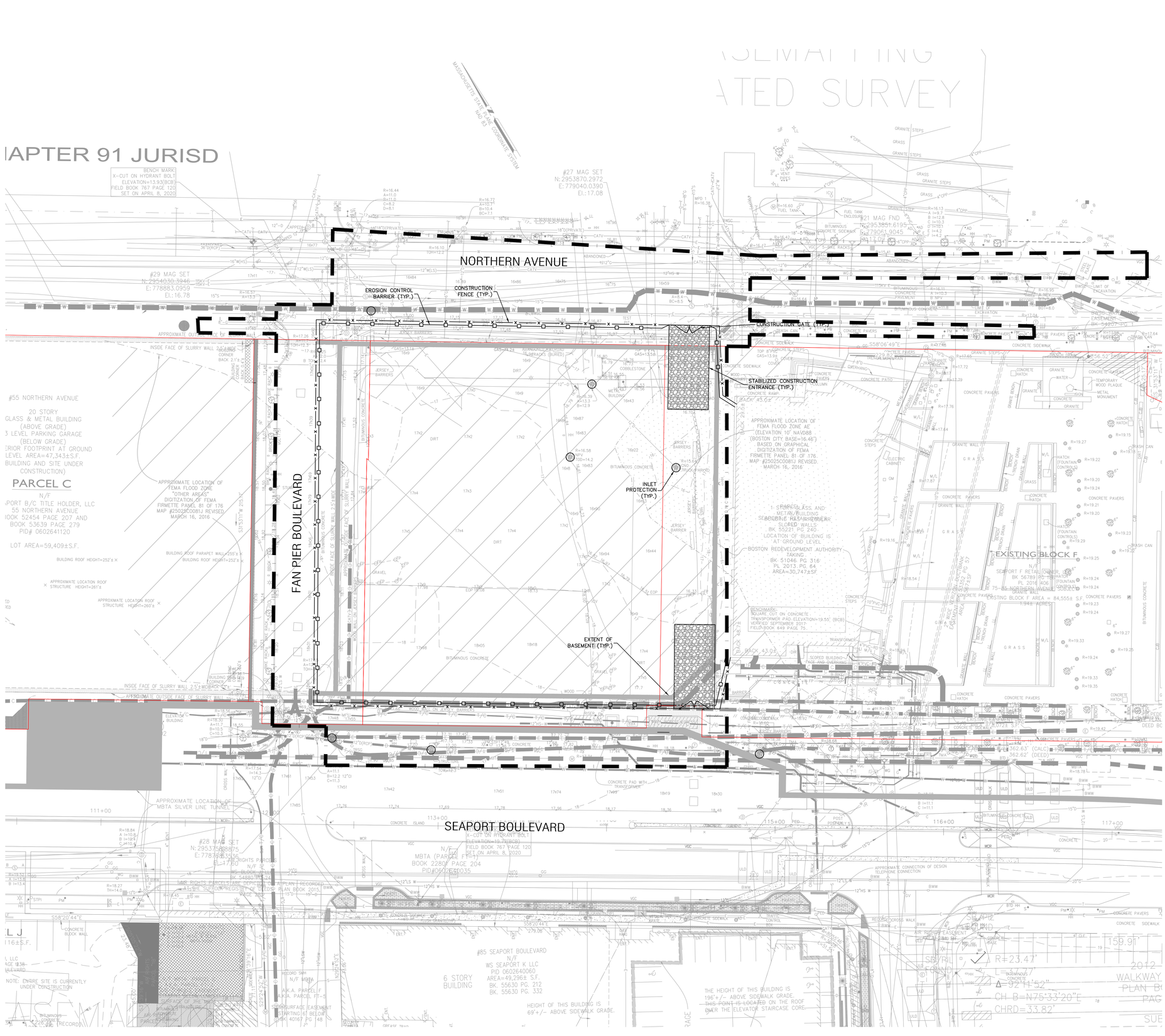
PROJ. NO.	FORMAT	DRAWN BY
20010099-2	48"X36"	CMH

SCALE: AS NOTED DATE: 2021-09-21

CIVIL NOTES, LEGEND AND ABBREVIATIONS
DRAWING TITLE

C-100
DRAWING NUMBER

NITSCH#10684.5



NITSCH#10684.5

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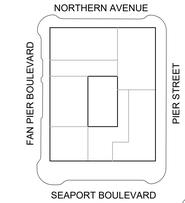

KEY PLAN

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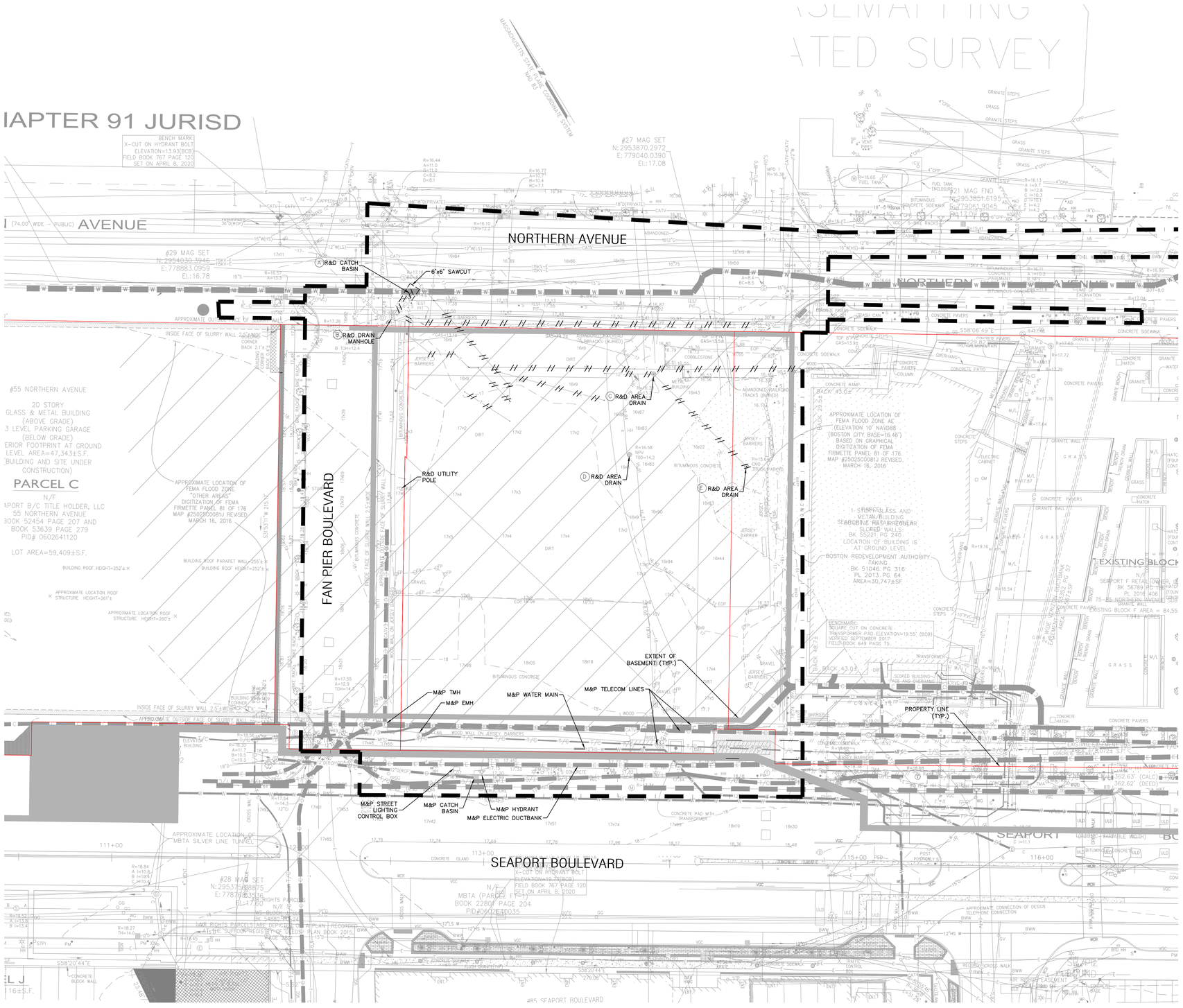
SCALE: AS NOTED DATE: 2021-09-21

DRAWING TITLE
EROSION AND SEDIMENTATION CONTROL PLAN

DRAWING NUMBER
C-200



BWSC SITE PLAN #21___

BWSC USE ONLY

BWSC INSPECTION SIGN-OFF	INSPECTOR	DATE	COMMENT	DYE TEST
(A) R&D CATCH BASIN				
(B) R&D DRAIN MANHOLE				
(C) R&D AREA DRAIN				
(D) R&D AREA DRAIN				
(E) R&D AREA DRAIN				

SCALE:
1" = 20'
20 10 0 20 40

SITE ADDRESS:
88 SEAPORT BOULEVARD
BOSTON, MA 02210

NEW BWSC ACCOUNT/METER NUMBER:
XXXXXXXXX/XXXXXXX

WARD / PARCEL NUMBER:
WARD 06 PARCELS 02641-080, 02641-000 02641-020

SITE USE:
RETAIL/OFFICE

OWNER CONTACT INFORMATION:
WS DEVELOPMENT
C/O KAREN GRAY
33 BOYLSTON STREET
CHESTNUT HILL, MA 02467

NITSCH#10684.5

WSDEVELOPMENT

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BLOCK D BOSTON SEAPORT

CLIENT
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09-21-21

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01	05/28/2021	100% SCHEMATIC DESIGN

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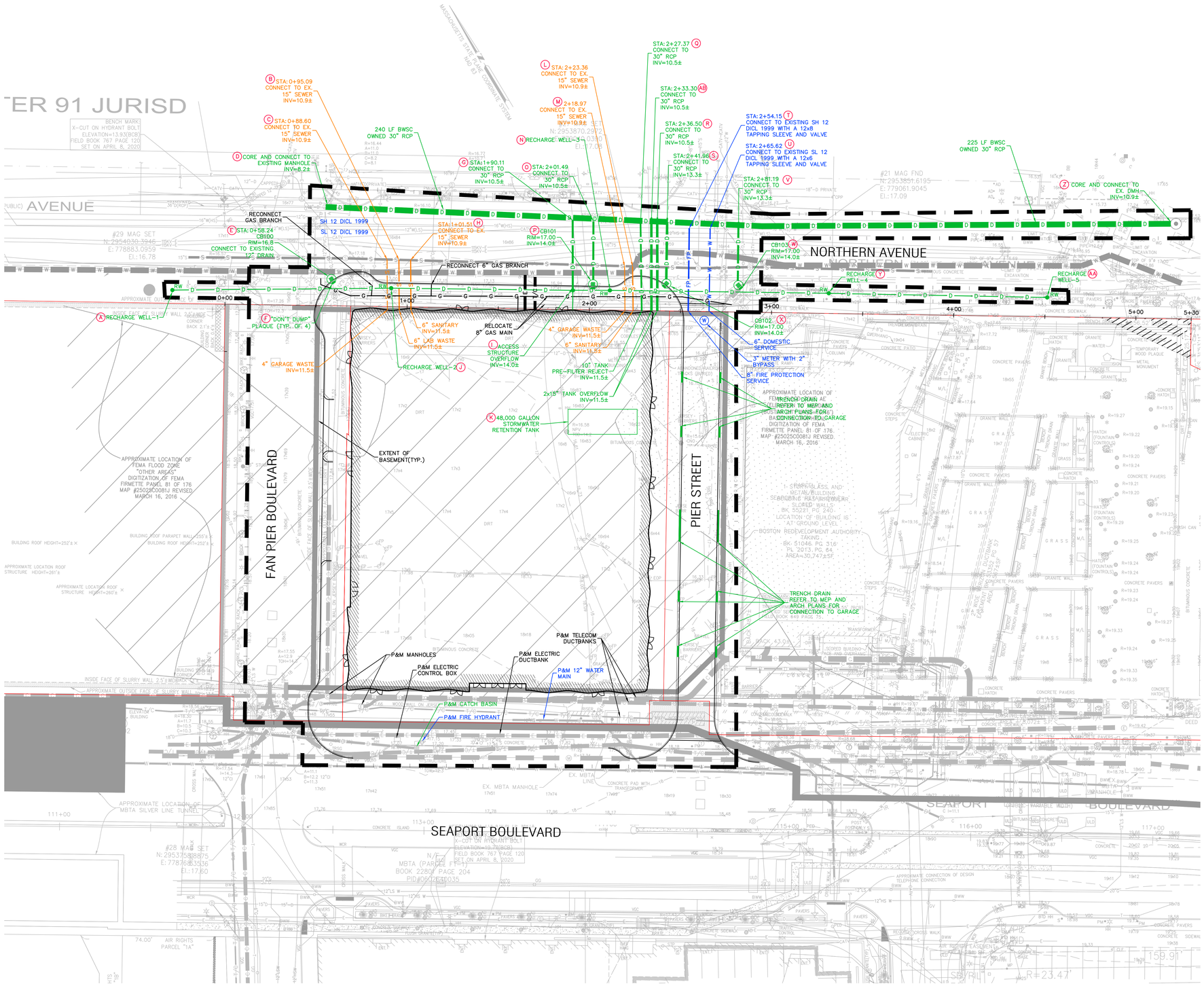
SCALE: AS NOTED DATE: 2021-09-21

CIVIL UTILITY DEMOLITION PLAN
DRAWING TITLE

C-300
DRAWING NUMBER



BWSC INSPECTION SIGN-OFF	INSPECTOR	DATE	COMMENT	DYE TEST
(A) RECHARGE WELL				
(B) NEW SEWER CONNECTION				
(C) NEW SEWER CONNECTION				
(D) NEW DRAIN CONNECTION				
(E) NEW SEWER CONNECTION				
(F) DON'T DUMP PLAQUE (4)				N/A
(G) NEW DRAIN CONNECTION				
(H) NEW SEWER CONNECTION				
(I) NEW ACCESS STRUCTURE				
(J) RECHARGE WELL				
(K) STORMWATER TANK				
(L) NEW SEWER CONNECTION				
(M) NEW SEWER CONNECTION				
(N) RECHARGE WELL				
(O) NEW DRAIN CONNECTION				

BWSC INSPECTION SIGN-OFF	INSPECTOR	DATE	COMMENT	DYE TEST
(P) NEW CATCH BASIN				
(Q) NEW DRAIN CONNECTION				
(R) NEW DRAIN CONNECTION				
(S) NEW DRAIN CONNECTION				
(T) NEW WATER CONNECTION				N/A
(U) NEW WATER CONNECTION				N/A
(V) NEW DRAIN CONNECTION				
(W) NEW CATCH BASIN				
(X) NEW CATCH BASIN				
(Y) RECHARGE WELL				
(Z) NEW DRAIN CONNECTION				
(AA) RECHARGE WELL				
(AB) NEW DRAIN CONNECTION				
(AC) 20 DAYS PER DIEM				N/A
4:1 I/I FEE				N/A
ASBUILT				N/A

PROPOSED RECHARGE VOLUME CALCULATIONS:

Total Impervious Area (SF) = 60,820 SF
Required Reuse = 1.25" storm over Impervious Area

Required Storage Volume = Roof Area + Impervious Site Area
= 34,178 SF(Roof) x [1.25'/12"] +26,642 SF(Site) x [1.25'/12"] = 5949 CF ◄

A 48,000 Gallon stormwater collection tank will be located in the building and the water will be pumped to recharge wells located in Northern Avenue. Per the 8/17/2021 meeting with John Sullivan and Phil Larocque of the BWSC, BWSC understands that the drawdown time may be greater than 72 hours for the full tank volume.

SCALE:
1" = 20'
20 10 0 20 40

SITE ADDRESS:
88 SEAPORT BOULEVARD
BOSTON, MA 02210

NEW BWSC ACCOUNT/METER NUMBER:
XXXXXXXXX/XXXXXXX

WARD / PARCEL NUMBER:
WARD 06 PARCELS 02641-080, 02641-000
02641-020

SITE USE:
RETAIL/OFFICE

OWNER CONTACT INFORMATION:
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BWSC SITE PLAN #21___
BWSC USE ONLY

NITSCH#10684.5

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PH: 617.491.6450 FX: 617.491.7104

STRUCTURAL ENGINEER
McNAMARA SALVIA
101 FEDERAL STREET, 11TH FLOOR
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MEP ENGINEERS
WSP PARSONS BRINCKERHOFF
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PH: 617.210.1600 FX: 617.210.1800

EXTERIOR ENVELOPE ENGINEER
THORNTON TOMASETTI
51 MADISON AVENUE
NEW YORK, NY 10010
PH: 917.661.7800 FX: 917.661.7801

LIGHTING DESIGNER
DOTD&SH
1500 BROADWAY, 6TH FLOOR
NEW YORK, NY 10036
PH: 212.204.4000

GEOTECHNICAL ENGINEER
HALEY ALDRICH
465 MEDFORD STREET SUITE 2200
BOSTON, MA 02129
PH: 617.886.7400 FX: 617.886.7600

CIVIL ENGINEER
NITSCH ENGINEERING
2 CENTER PLAZA, SUITE 430
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PH: 617.338.0063 FX: 617.338.6472

VERTICAL TRANSPORTATION
FACADE ACCESS
LERCH BATES
303 WYMAN STREET SUITE 351
WALTHAM, MA 02451
PH: 617.532.2020 FX: 888.819.5540

CODE CONSULTANT
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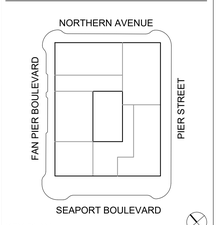
SUSTAINABILITY
THE GREEN ENGINEER
23 BRADFORD STREET, 1ST FLOOR
CONCORD, MA 01742

COMMONWEALTH OF MASSACHUSETTS
JOHN M. SCHMID
CIVIL
No. 39155
REGISTERED PROFESSIONAL ENGINEER
09-21-21

NO.	ISSUE	DATE	COMMENTS
02		08/17/2021	BWSC SUBMISSION
01		05/28/2021	100% SCHEMATIC DESIGN



KEY PLAN

NOT FOR BID
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STAMP

20010099-2	48"X36"	CMH
PROJ. NO.	FORMAT	DRAWN BY

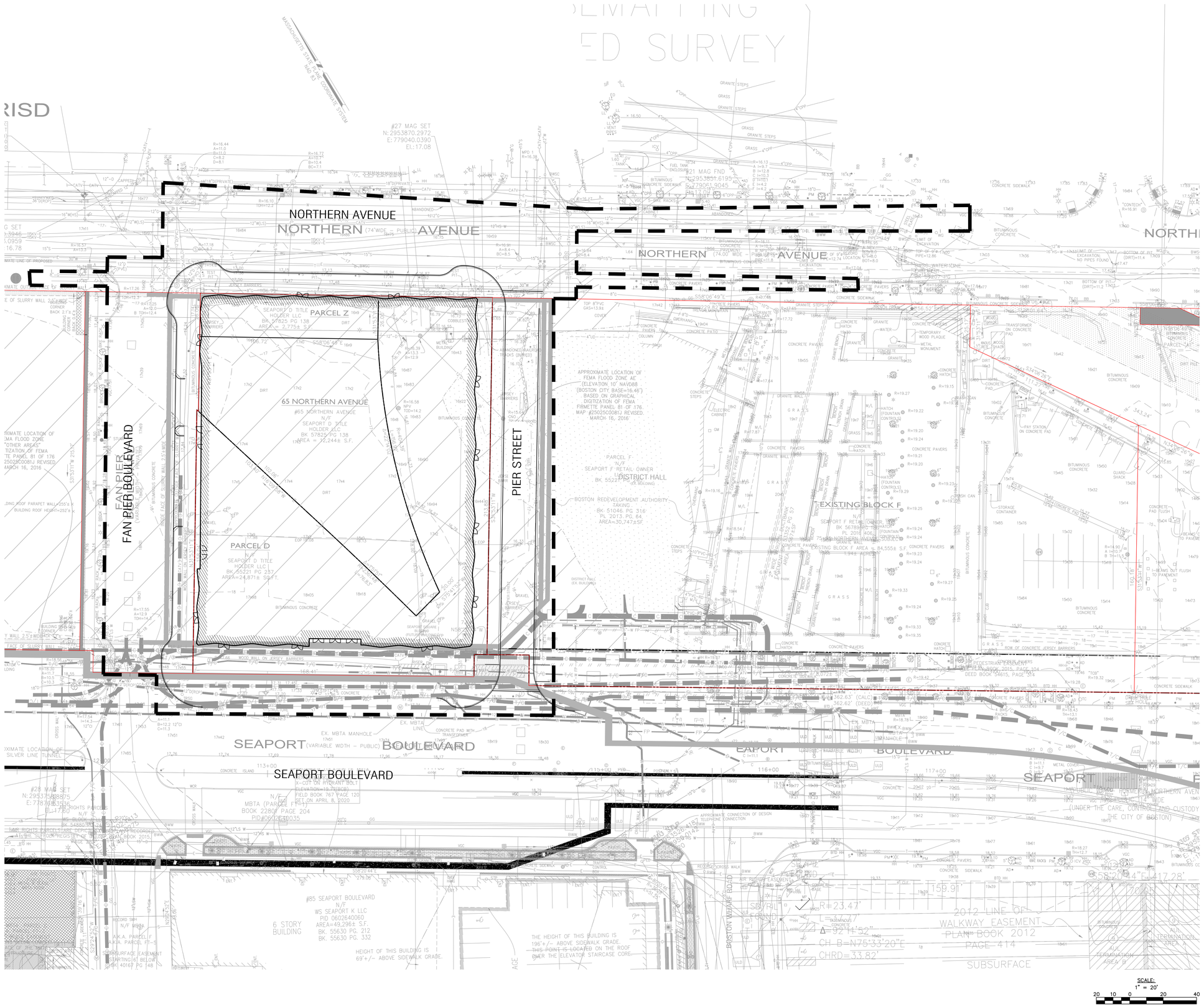
SCALE: AS NOTED DATE: 2021-09-21

SITE UTILITY PLAN

DRAWING TITLE

C-400

DRAWING NUMBER



NITSCH#10684.5

WSDEVELOPMENT

PROJECT
88 SEAPORT
BLOCK D BOSTON SEAPORT

CLIENT
WS DEVELOPMENT ASSOCIATES LLC
33 BOYLSTON STREET #3000
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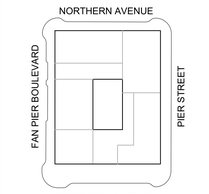

KEY PLAN

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PROJ. NO.	FORMAT	DRAWN BY
20010099-2	48"X36"	CMH

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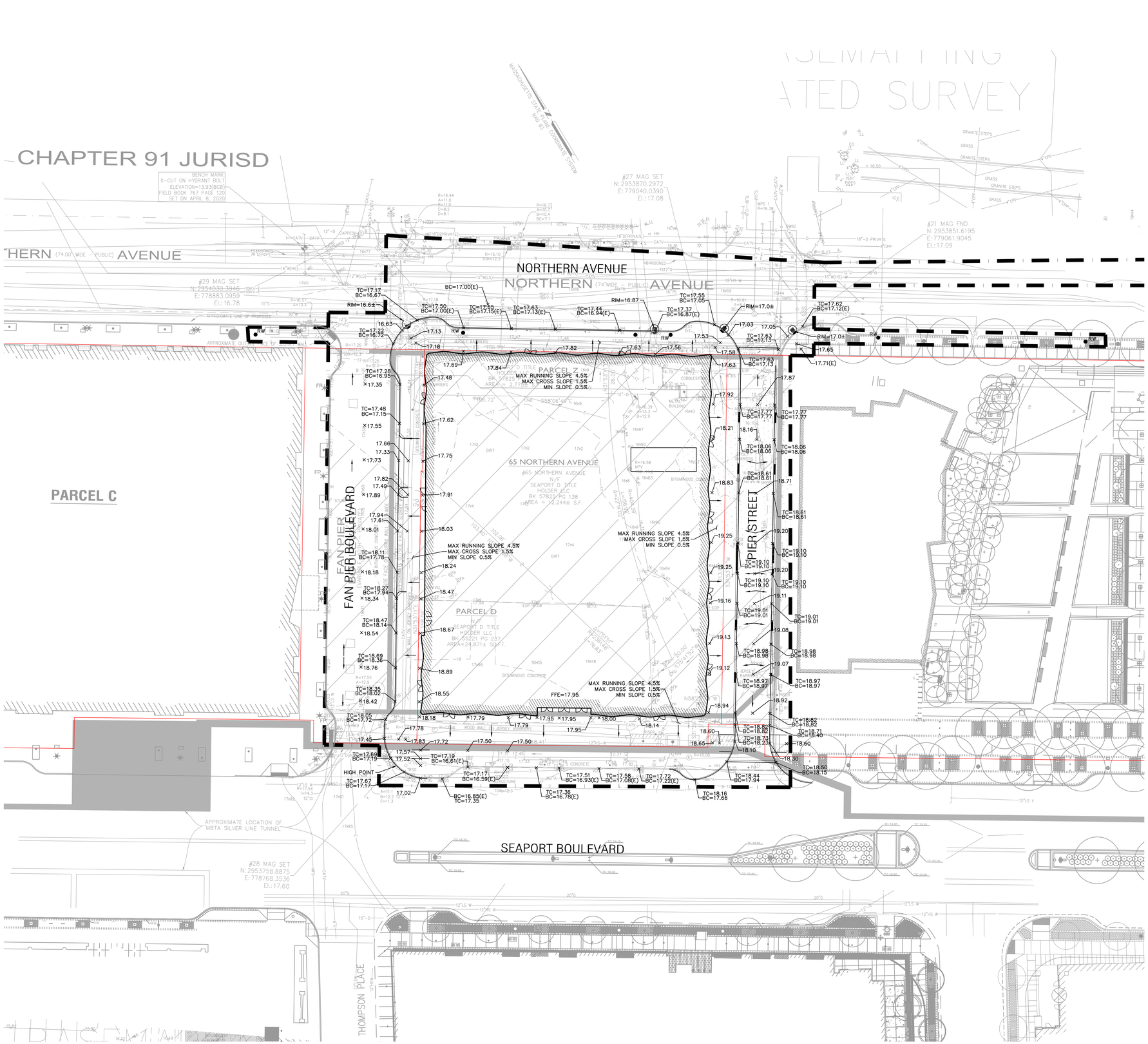
SITE LAYOUT PLAN

DRAWING TITLE

C-500

DRAWING NUMBER



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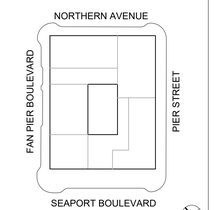

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PROJ. NO.	FORMAT	DRAWN BY
20010099-2	48"X36"	CMH

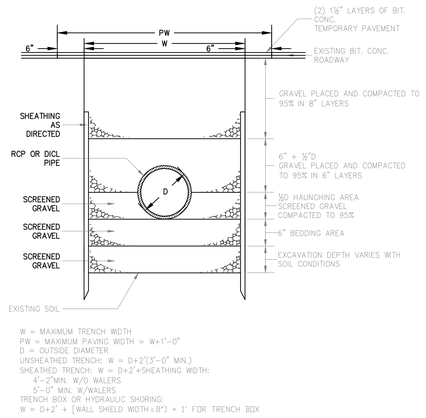
SCALE: AS NOTED DATE: 2021-09-21

SITE GRADING PLAN

DRAWING TITLE

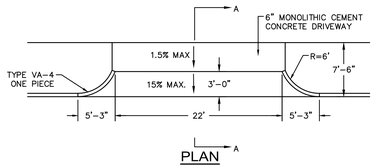
C-600

DRAWING NUMBER

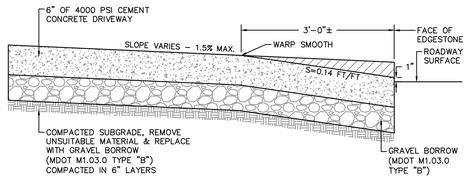


TRENCH DETAIL FOR RCP OR DICL PIPE

NOT TO SCALE



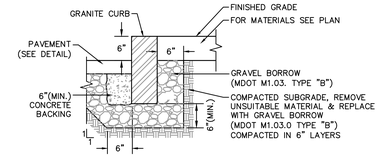
PLAN



SECTION A-A CONCRETE DRIVEWAY

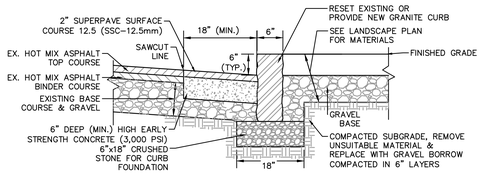
TYPICAL DRIVEWAY-BOSTON STANDARD DETAIL

NOT TO SCALE



VERTICAL GRANITE CURB SETTING DETAIL

NOT TO SCALE



RESET VERTICAL GRANITE CURB DETAIL

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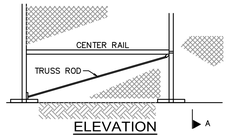
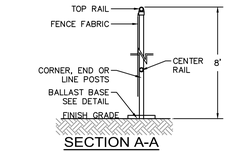
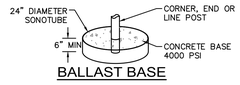


ELEVATION



SECTION A-A



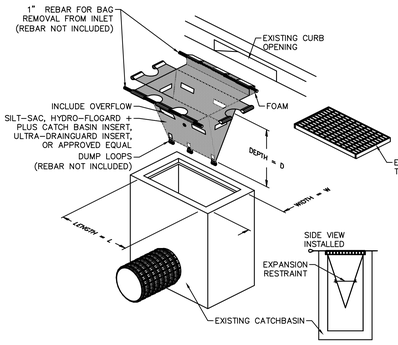
BALLAST BASE

TEMPORARY CONSTRUCTION CHAIN LINK FENCE WITH BALLAST BASE

NOT TO SCALE

NOTES

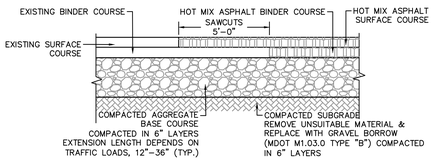
1. END, GATE AND CORNER POSTS SHALL BE BRACED TO ADJACENT LINE POSTS. (MORE THAN 30° CHANGE IN DIRECTION CONSTITUTES A CORNER)
2. FABRIC SHALL BE 0.148" GAUGE MIN. WIRE, WOVEN INTO APPROXIMATELY 2" DIAMOND MESH.
3. ZINC-COATED STEEL FABRIC BASE METAL SHALL BE COATED WITH PRIME WESTERN SPELTER OR EQUAL.
4. ALUMINUM COATED STEEL FABRIC BASE METAL SHALL BE COATED WITH ALUMINUM ALLOY.
5. LINE POSTS SHALL BE 2½" O.D. END OR CORNER POSTS SHALL BE 3" O.D.
6. THE CONTRACTOR IS RESPONSIBLE FOR SURFACE RESTORATION ONCE THE FENCE IS REMOVED.
7. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE TEMPORARY CONSTRUCTION FENCE AT THE CONCLUSION OF THE PROJECT.



THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS SHEET, OVERLAND OR CONCENTRATED FLOWS (NOT GREATER THAN 1 CFS). THE METHOD CAN DRAIN FLAT AREA TO STEEP SLOPES. INLET CAPACITY WILL BE DECREASED WITH THIS METHOD AND THE CONTRACTOR SHALL EXPECT PONDING DURING HIGH FLOW EVENTS.

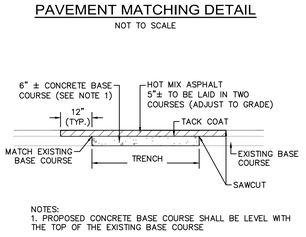
INLET PROTECTION (2) CATCH BASIN W/ SILTATION SACK

NOT TO SCALE



PAVEMENT MATCHING DETAIL

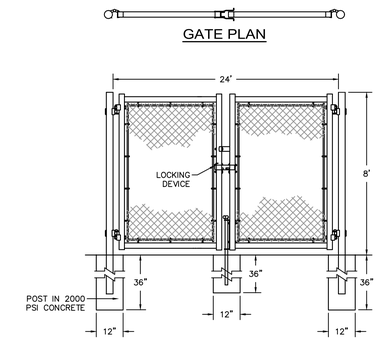
NOT TO SCALE



NOTES:
1. PROPOSED CONCRETE BASE COURSE SHALL BE LEVEL WITH THE TOP OF THE EXISTING BASE COURSE

PAVEMENT RESTORATION OVER TRENCH DETAIL

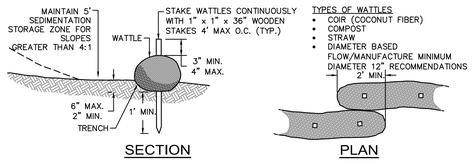
NOT TO SCALE



DOUBLE GATE ELEVATION

24' WIDE DOUBLE GATE

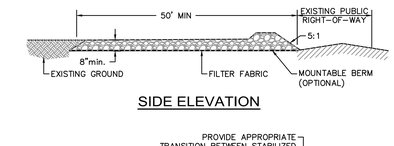
NOT TO SCALE



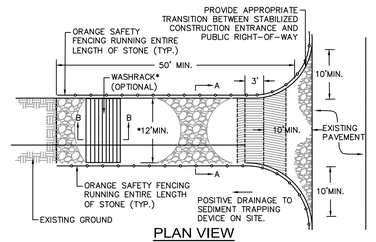
SECTION PLAN

WATTLES - SLOPE PROTECTION FOR SLOPES LESS THAN 10:1

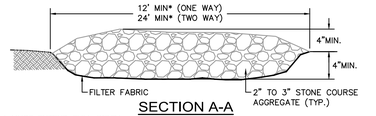
NOT TO SCALE



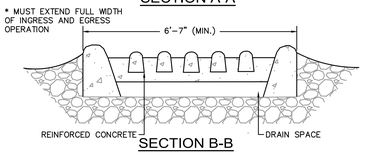
SIDE ELEVATION



PLAN VIEW



SECTION A-A



SECTION B-B

CONSTRUCTION SPECIFICATIONS

CONSTRUCTION SPECIFICATIONS

LENGTH – GREATER THAN OR EQUAL TO 50 FEET

WIDTH – TWELVE FOOT MINIMUM (ONE WAY), TWENTY FOUR FOOT MINIMUM (TWO WAY), BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.

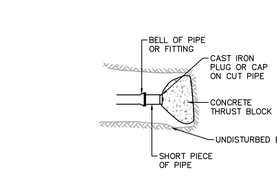
SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM SHALL BE PERMITTED.

THICKNESS – 8"

MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

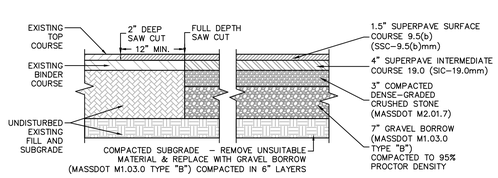
PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED.

STABILIZED CONSTRUCTION ENTRANCE



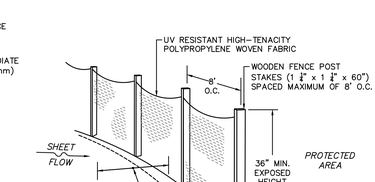
PLUG OR CAP DETAIL

NOT TO SCALE

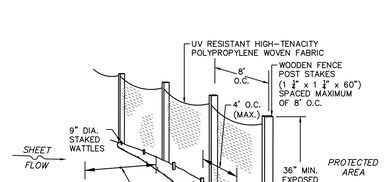


HOT MIX ASPHALT PAVING (TWO COURSES) DETAIL

NOT TO SCALE

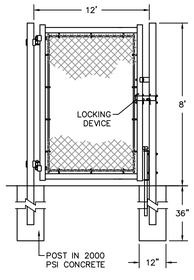


PERSPECTIVE VIEW



PERSPECTIVE VIEW

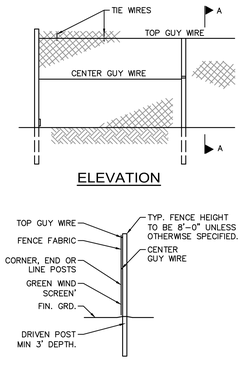
GATE PLAN



SINGLE GATE ELEVATION

12' WIDE EMERGENCY GATE

NOT TO SCALE



ELEVATION

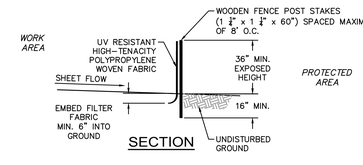
SECTION A-A

CONSTRUCTION FENCE AND GATE NOTES

1. FABRIC SHALL BE 0.148" WIRE, WOVEN INTO APPROXIMATELY 2" DIAMOND MESH.
2. THE FENCE FABRIC SHALL BE ZINC COATED STEEL OR ALUMINUM COATED STEEL.
3. FENCE POSTS SHALL RECEIVE THE SAME COATING AND TREATMENT AS THE FENCE FABRIC (DESCRIBED ABOVE).
4. THE CONTRACTOR SHALL ADD A GREEN WIND SCREEN
5. LINE POSTS SHALL BE 2½" O.D. END OR CORNER POSTS SHALL BE 3" O.D.
6. THE CONTRACTOR IS RESPONSIBLE FOR SURFACE RESTORATION ONCE THE FENCE IS REMOVED.
7. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE TEMPORARY CONSTRUCTION FENCE AT THE CONCLUSION OF THE PROJECT.

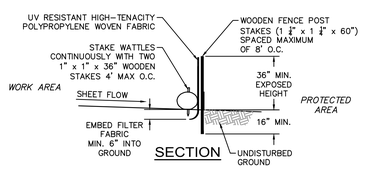
CHAIN LINK CONSTRUCTION FENCE

NOT TO SCALE



SECTION

PERIMETER PROTECTION BARRIER (A)



SECTION

PERIMETER PROTECTION BARRIER (B) SILT FENCE DETAIL WITH WATTLES

NOT TO SCALE

NITSCH#10684.5

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MEP ENGINEERS
WSP PARSONS BRINCKERHOFF
88 BLACK FALCON AVE., SUITE 210
BOSTON, MA 02210
PH: 617.210.1600 FX: 617.210.1800

EXTERIOR ENVELOPE ENGINEER
THORNTON TOMASETTI
51 MADISON AVENUE
NEW YORK, NY 10010
PH: 917.661.7800 FX: 917.661.7801

LIGHTING DESIGNER
DOTDASH
1500 BROADWAY, 6TH FLOOR
NEW YORK, NY 10036
PH: 212.204.4000

GEOTECHNICAL ENGINEER
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465 MEDFORD STREET SUITE 2200
BOSTON, MA 02129
PH: 617.886.7400 FX: 617.886.7600

CIVIL ENGINEER
NITSCH ENGINEERING
2 CENTER PLAZA, SUITE 430
BOSTON, MA 02108
PH: 617.338.0063 FX: 617.338.6472

VERTICAL TRANSPORTATION
FACADE ACCESS
LERCH BATES
303 WYMAN STREET SUITE 351
WALTHAM, MA 02451
PH: 617.532.2020 FX: 888.819.5540

CODE CONSULTANT
JENSEN HUGHES
1661 WORCHESTER ROAD., SUITE 501
FRAMINGHAM, MA 01701
PH: 508.620.8900 FX: 508.620.0908

ACOUSTICS
ACENTECH
33 MOULTON STREET
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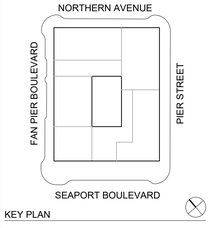
PH: 617.499.8086

SUSTAINABILITY
THE GREEN ENGINEER
23 BRADFORD STREET, 1ST FLOOR
CONCORD, MA 01742

COMMONWEALTH OF MASSACHUSETTS
JOHN M. SCHMID
CIVIL
No. 39155
REGISTERED PROFESSIONAL ENGINEER
09-21-21

NO.	ISSUE DATE	COMMENTS
02	08/17/2021	BWSC SUBMISSION
01	05/28/2021	100% SCHEMATIC DESIGN



KEY PLAN

NOT FOR BID
NOT FOR CONSTRUCTION

STAMP

PROJ. NO.	FORMAT	DRAWN BY
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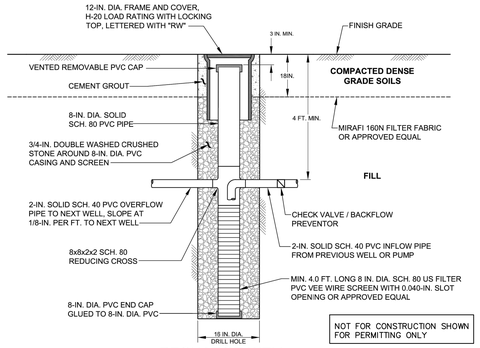
SCALE: AS NOTED DATE: 2021-09-21

CIVIL DETAILS

DRAWING TITLE

C-700

DRAWING NUMBER



RECHARGE WELL

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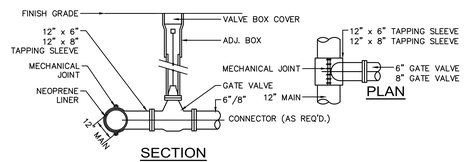
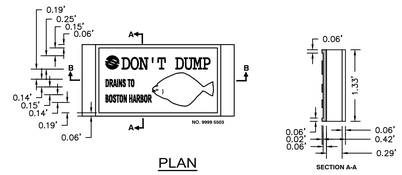


SECTION

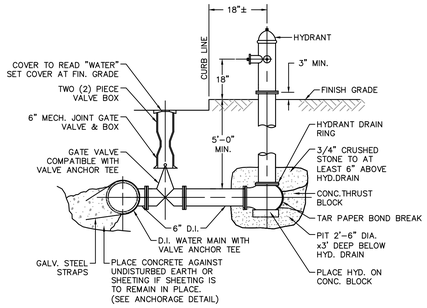
TAPPING SLEEVE, VALVE & BOX DETAIL

NOT TO SCALE



PLAN

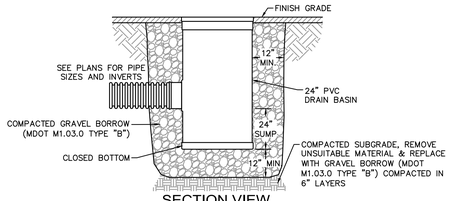
SECTION A-A



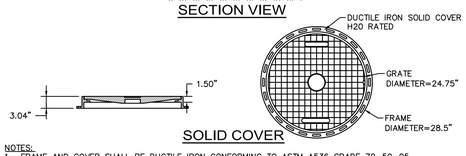
NOTE: ALL JOINTS ON HYDRANT BRANCH TO BE RESTRAINED JOINTS

FIRE HYDRANT DETAIL

NOT TO SCALE



SECTION VIEW

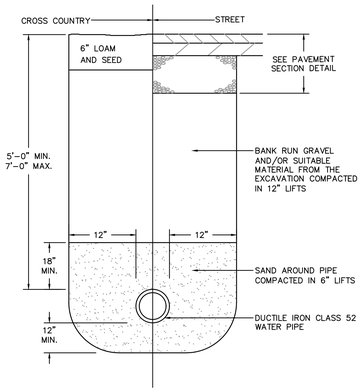


SOLID COVER

NOTES:
1. FRAME AND COVER SHALL BE DUCTILE IRON CONFORMING TO ASTM A536 GRADE 70-50-05.
2. 24" ACCESS BASINS SHALL BE NYLOPLAST MODEL 2824 AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC., OR APPROVED EQUAL.
3. ACCESS BASINS SHALL BE CUSTOM MANUFACTURED ACCORDING TO THE PLANS AND DETAIL.
4. CASTINGS SHALL BE FURNISHED WITH A BLACK PAINT.
5. SEE PLANS FOR LAYOUT AND ELEVATIONS OF DRAIN PIPES TO ACCESS BASINS.

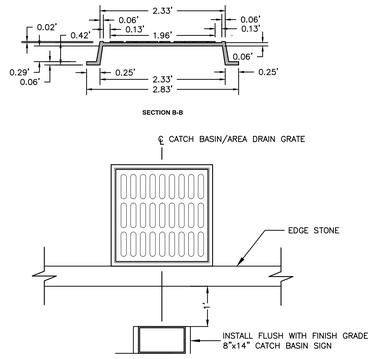
24" ACCESS BASIN DETAIL

NOT TO SCALE



WATER TRENCH DETAIL

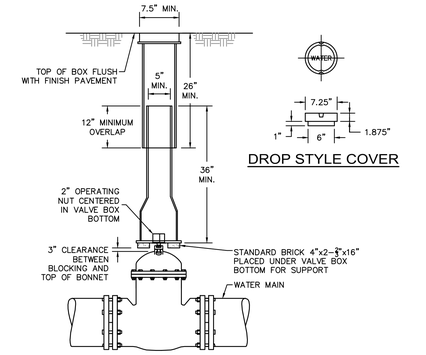
NOT TO SCALE



SECTION B-B

BWSC CATCH BASIN SIGN INSTALLATION

NOT TO SCALE



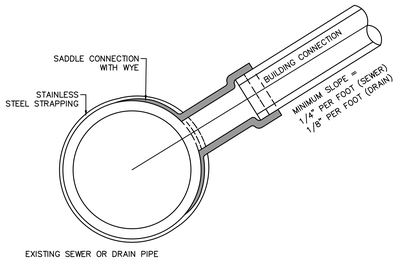
BOTTOM DETAIL

DROP STYLE COVER

NOTES:
1. ALL WATER MAINS SHOULD HAVE A MINIMUM DEPTH OF 5' FROM TOP OF PIPE TO FINISH GRADE.
2. COVER MUST BE MARKED "WATER".

GATE VALVE BOX DETAIL

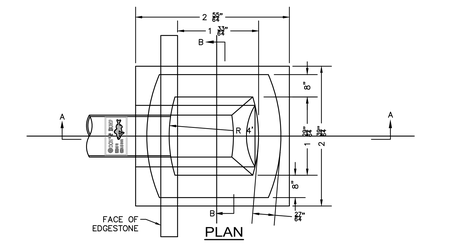
NOT TO SCALE



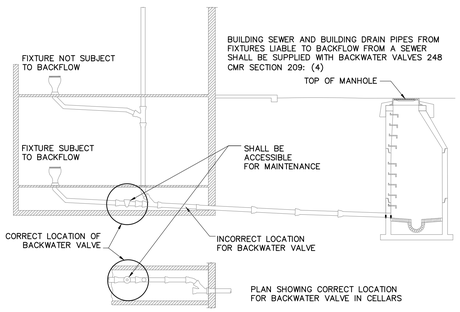
NOTES:
1. FULL PVC OR IRON SADDLE MAY BE USED TO CONNECT TO EXISTING PVC, CLAY, CONCRETE OR IRON PIPE.
2. SADDLES MUST HAVE RUBBER GASKETS AND SHALL BE TIGHTENED WITH STRAPS. SADDLES WILL NOT BE CEMENTED ONTO THE PIPE.
3. FULL WYE CONNECTION FITTINGS MAY BE USED.
4. PIPE SHALL BE CUT TO CONFORM TO THE OPENING IN THE SADDLE.
5. CONNECTIONS DIRECTLY INTO THE EXISTING PIPE WITHOUT A SADDLE OR A FULL WYE FITTING ARE NOT ALLOWED.

TYPICAL SADDLE CONNECTION DETAIL TO EXISTING DRAIN OR SEWER (6" TO 15")

NOT TO SCALE



PLAN

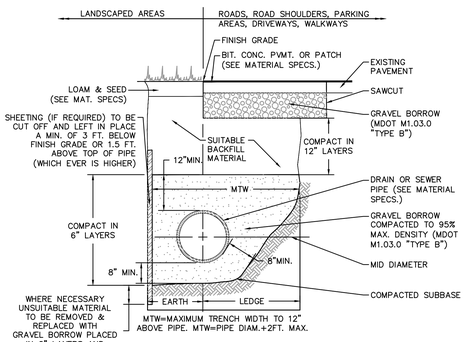


NOTE: ALL PLUMBING FIXTURES BELOW THE LEVEL OF THE TOP OF THE MANHOLE OF THE SEWER SERVICING THE FIXTURE(S) SHALL BE CONSIDERED AS BEING SUBJECT TO BACKFLOW AND SHALL BE SUPPLIED WITH BACKWATER VALVES.

BACK WATER VALVES TO BE LOCATED IN BUILDING AND DESIGNED, DETAILED, AND SPECIFIED BY THE PLUMBING ENGINEER. SHOWN FOR PERMITTING ONLY.

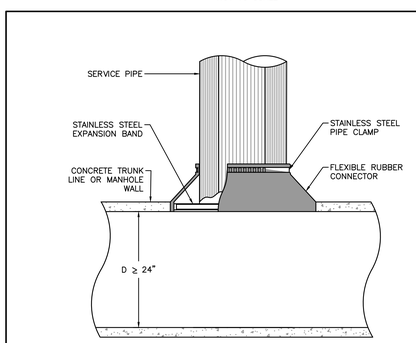
STANDARD BACKWATER VALVE

NOT TO SCALE



STANDARD TRENCH DETAIL FOR UTILITY PIPE

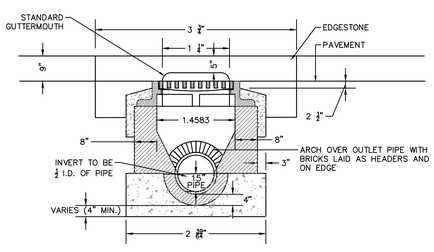
NOT TO SCALE



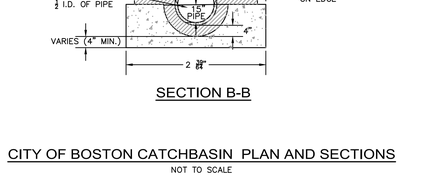
NOTES:
1. OPENING IN CONCRETE WALL SHALL BE CORED USING HIGH SPEED DIAMOND DRILL.
2. ALL METAL FIXTURES SHALL BE OF STAINLESS STEEL.
3. SERVICE LINE SHALL BE FLUSH WITH THE INSIDE OF THE CONCRETE PIPE OR WALL.
4. IF TRUNK LINE DIAMETER IS LESS THAN 24" THEN A SADDLE TYPE CONNECTION WILL BE USED.

TYPICAL FIELD CONNECTION TO LARGE CONCRETE PIPE OR CONCRETE MANHOLE DETAIL

NOT TO SCALE



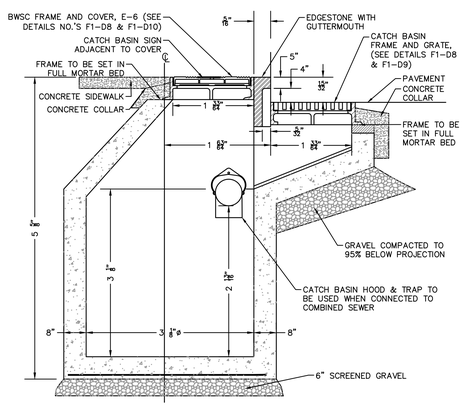
SECTION A-A



SECTION B-B

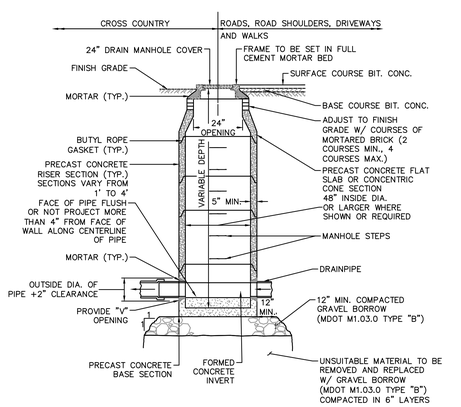
CITY OF BOSTON CATCHBASIN PLAN AND SECTIONS

NOT TO SCALE



CITY OF BOSTON CATCHBASIN

NOT TO SCALE



TYPICAL DRAIN MANHOLE DETAIL

NOT TO SCALE

NITSCH#10684.5

WSDEVELOPMENT

PROJECT
88 SEAPORT
BLOCK D BOSTON SEAPORT

CLIENT
WS DEVELOPMENT ASSOCIATES LLC
33 BOYLSTON STREET #3000
CHESTNUT HILL, MA 02467
PH: 617.232.8900

DESIGN ARCHITECT
OMA*AMO ARCHITECTURE PC
180 VARICK STREET, SUITE 1328
NEW YORK, NY 10014
PH: 212.337.0770 FX: 212.337.0771

ARCHITECT OF RECORD
JACOBS
ONE BROADWAY, 10TH FLOOR
CAMBRIDGE, MA 02142
PH: 617.491.6450 FX: 617.491.7104

STRUCTURAL ENGINEER
McNAMARA SALVIA
101 FEDERAL STREET, 11TH FLOOR
BOSTON, MA 02110
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MEP ENGINEERS
WSP PARSONS BRINCKERHOFF
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PH: 617.210.1600 FX: 617.210.1800

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LIGHTING DESIGNER
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COMMONWEALTH OF MASSACHUSETTS
JOHN M. SCHMID
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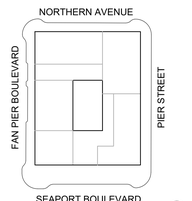
09-21-21

NO.	ISSUE	DATE	COMMENTS
02	BWSC SUBMISSION	08/17/2021	
01	100% SCHEMATIC DESIGN	05/28/2021	



KEY PLAN

NOT FOR BID
NOT FOR CONSTRUCTION

STAMP

PROJ. NO.	FORMAT	DRAWN BY
20010099-2	48"X36"	CMH

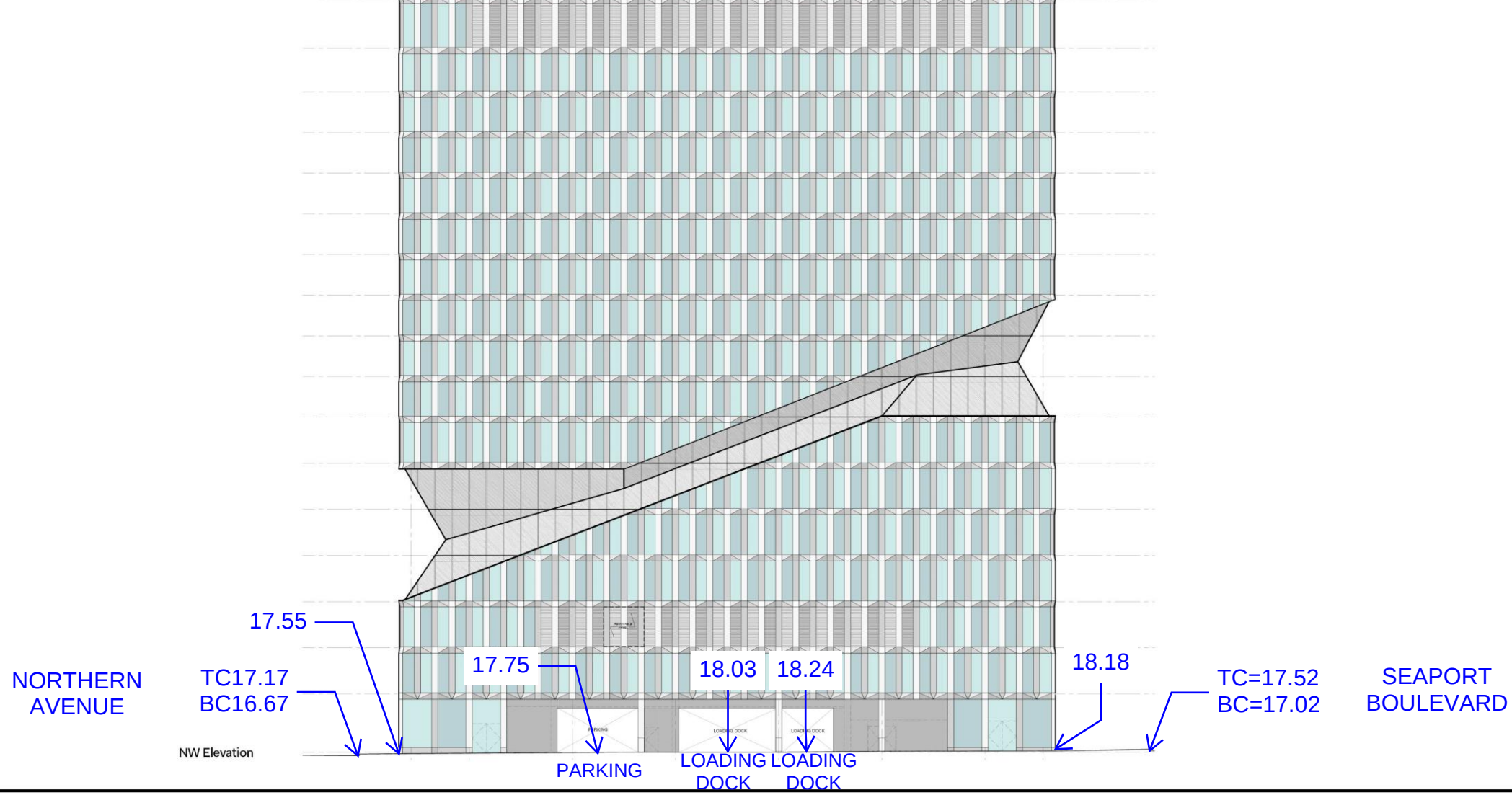
SCALE: AS NOTED DATE: 2021-09-21

CIVIL DETAILS

DRAWING TITLE

C-701

DRAWING NUMBER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NORTHERN AVENUE
TC17.17
BC16.67
17.75
18.03
18.24
18.18
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BC=17.02
SEAPORT BOULEVARD
NW Elevation
PARKING
LOADING DOCK
LOADING DOCK