

Date: August, 2019
Project: 80 Marginal Street - Notice of Intent

Copper Forge Partners, LLC
80 Marginal Street

NOTICE OF INTENT

August, 2019

A handwritten signature in blue ink, appearing to be 'J. P. N.', is centered on the page.

Prepared by:

WDG | Waterfield Design Group

50 Cross Street | Winchester, Massachusetts | 01890 | t 781.756.0001 f 781.756.0007

WDG Project No.: 1613

PROTECT NARRATIVE

- 1.0 Introduction
- 2.0 Background
- 3.0 Site Description
- 4.0 Wetland Resource Areas
 - 4.1 Land Subject to Coastal Storm Flowage
- 5.0 Proposed Work
 - 5.1 Demolition
 - 5.2 Site Preparation/Stormwater Management Structures
- 6.0 Regulatory Compliance
 - 6.1 Land Subject to Coastal Storm Flowage
- 7.0 Sedimentation Controls
- 8.0 Construction Sequence
- 9.0 Conclusion

Attachments

- Attachment A – Stormwater Report
- Attachment B –Architectural Plans for Green Roof

Appendices

- Appendix A – DEP NOI Form 3
- Appendix B – USGS Site Locus Map
- Appendix C – Copy of Filing Fees
- Appendix D – Abutter Notification
- Appendix E – FEMA Regional Map
- Appendix F – Climate Resiliency Checklist
- Appendix G – Memo Regarding Other Permitting

1.0 Introduction

On behalf of Zero Marginal Street LLC, (the "Applicant"), Waterfield Design Group, Inc. is pleased to submit this Notice of Intent (NOI) application to the City of Boston Environmental Department (BED) for an Order of Conditions authorizing the construction a condominium building at 80 Marginal Street (the "Project"). This NOI has been prepared in accordance with the Massachusetts Wetlands Protection Act (MGL C.131 §40) and Regulations (310 CMR 10.00) (the "Act") and the requirements of the City of Boston Environmental Department.

The project consists of the demolition of an existing parking area within the Land Subject to Coastal Storm Flowage (LCSF) adjacent to the Boston Inner Harbor.

2.0 Site Background

The project site is currently owned by Zero Marginal Street, LLC. The total site consists of 4,620± SF (*Appendix B* -USGS Site Locus Map). The site is currently almost entirely comprised of pavement.

3.0 Site Description

The subject parcel is approximately 4,620± SF in size and located at 80 Marginal Street in Boston.

The site is a parking lot with chain link fence. The site is abutted to the east by a parking lot, to the west by a residential building, to the north by Haynes Street, and to the south by Marginal Street.

The entire site is previously disturbed. The overall site gradient slopes from the south to north from the Marginal Street to Haynes Street.

See Attachment A - Stormwater Report.

4.0 Wetland Resource Areas

4.1 *Land Subject to Coastal Storm Flowage*

According to 310 CMR 10.04, Land Subject to Coastal Storm Flowage means land subject to any inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record or storm of record, whichever is greater.

Date: August, 2019
Project: 80 Marginal Street - Notice of Intent

The entire property is within the 100-year flood elevation as defined by FEMA FIRM Map 250286 Panel 0081J. Elevation 10 NAVD (16.46 Boston City Base).

See Appendix D.

4.2 *Natural Heritage and Endangered Species Program*

No Natural Heritage or Endangered Species habitats are found at the site

5.0 Proposed Work

The applicant is proposing to remove all existing pavement from the site at 80 Marginal Street and construct a condominium building with underground parking and 577.2 cubic feet of infiltration perforated pipes and crushed stone under the non-building areas on site. The new buildings will have new utility hook ups from Haynes Street.

As part of the redevelopment approximately 275± S.F. green roof will be installed on the third and fourth floor roofs of the building. See plans in Attachment B.

5.1 *Demolition*

The applicant will remove the existing pavement at the site. Excavate for the new foundation, underground parking, and infiltration areas.

Silt sacks will be provided in all catch basins along Haynes Street and Marginal Street.

5.2 *Site Preparation/Stormwater Management Structures*

The 577.2 cubic feet of infiltration areas, which have been approved by the BWSC, will treat the first inch of runoff and reduce the runoff from the site for up to the 100 year storm event.

See Attachment A - Stormwater Report.

6.0 Regulatory Compliance

Project activities will be located within previously developed Land Subject to Coastal Storm Flowage.

6.1 Land Subject to Coastal Storm Flowage

The entire site is within Land Subject to Coastal Storm Flowage. The building will be designed to meet the applicable building code standards regarding building design within the Land Subject to Coastal Storm Flowage. No compensatory flood storage is required for Land Subject to Coastal Storm Flowage. The mechanical and electrical rooms are all above the ground floor and therefore will be out of the Land Subject to Coastal Storm Flowage.

7.0 Sedimentation Controls

An erosion and sediment control program will minimize the risk of impacts to the resource areas during construction of the project. The program incorporates Best Management Practices (BMPs) specified in the guidelines developed by the DEP and complies with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from construction activities. These measures include the installation of temporary erosion and sediment controls and construction sequencing. Areas of exposed soil will be kept to a minimum. Details of the erosion and sediment control measures proposed for site preparation and development phases will be included in the attached Stormwater Report (Attachment A – Stormwater Report).

8.0 Construction Sequence

See Attachment A – Stormwater Report for construction sequencing.

9.0 Conclusion

The proposed location of the site is within Land Subject to Coastal Storm Flowage in a previously disturbed location with pavement. The proposed re-development of the site from pavement to a building with underground parking and infiltration to treat the stormwater runoff will improve the site to a greater extent than the potential site alternatives. The project has been designed to comply with the performance standards of the Massachusetts Wetland Protection Act and the requirements of the BWSC.

Date: August, 2019
Project: 80 Marginal Street - Notice of Intent

Appendix A

DEP NOI Form 3



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):

<u>80 Marginal Street</u>	<u>Boston</u>	<u>02128</u>
a. Street Address	b. City/Town	c. Zip Code
Latitude and Longitude:		
<u>42° 21' 59"</u>	<u>71° 02' 17"</u>	
d. Latitude	e. Longitude	
<u>Parcel IDs 0104480000</u>		
f. Assessors Map/Plat Number	g. Parcel /Lot Number	

2. Applicant:

<u>Paul</u>	<u>Marks</u>	
a. First Name	b. Last Name	
<u>Copper Forge Partners, LLC</u>		
c. Organization		
<u>7 Columbus Terrace, Unit 2</u>		
d. Street Address		
<u>Brookline</u>	<u>MA</u>	<u>02446</u>
e. City/Town	f. State	g. Zip Code
<u>617-731-9114</u>	<u>617-731-9114</u>	<u>PaulM@apartmentseastboston.com</u>
h. Phone Number	i. Fax Number	j. Email Address

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

<u>Copper Forge Partners, LLC</u>	<u>Copper Forge Partners, LLC</u>	
c. Organization	b. Last Name	
<u>7 Columbus Terrace, Unit 2</u>		
d. Street Address		
<u>Brookline</u>	<u>MA</u>	<u>02446</u>
e. City/Town	f. State	g. Zip Code
<u>617-731-9114</u>	<u>617-731-9114</u>	<u>rmdadmin@apartmentseastboston.com</u>
h. Phone Number	i. Fax Number	j. Email address

4. Representative (if any):

<u>Jacob</u>	<u>Murray</u>	
a. First Name	b. Last Name	
<u>Waterfield Design Group, Inc.</u>		
c. Company		
<u>50 Cross Street</u>		
d. Street Address		
<u>Winchester</u>	<u>MA</u>	<u>01890</u>
e. City/Town	f. State	g. Zip Code
<u>781-756-0001</u>	<u>781-756-0007</u>	<u>jmurray@wdgrp.com</u>
h. Phone Number	i. Fax Number	j. Email address

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

<u>\$2,012.50</u>	<u>\$512.50</u>	<u></u>
a. Total Fee Paid	b. State Fee Paid	c. City/Town Fee Paid



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:

Construction of a four-story condominium - with nine units on an existing paved parking area in 100 Year Flood Zone.

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

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

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

1. Yes No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

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

8. Property recorded at the Registry of Deeds for:

Suffolk

a. County

56436

c. Book

b. Certificate # (if registered land)

131

d. Page Number

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

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

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



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.

Table with 3 columns: Resource Area, Size of Proposed Alteration, Proposed Replacement (if any). Rows include Bank, Bordering Vegetated Wetland, and Land Under Waterbodies and Waterways.

Table with 3 columns: Resource Area, Size of Proposed Alteration, Proposed Replacement (if any). Rows include Bordering Land Subject to Flooding and Isolated Land Subject to Flooding.

- 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.



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.

Table with 3 columns: Resource Area, Size of Proposed Alteration, Proposed Replacement (if any). Rows include Designated Port Areas, Land Under the Ocean, Barrier Beach, Coastal Beaches, Coastal Dunes, Coastal Banks, Rocky Intertidal Shores, Salt Marshes, Land Under Salt Ponds, Land Containing Shellfish, Fish Runs, and Land Subject to Coastal Storm Flowage.

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



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**

Online 2019 _____

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.



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/nhosp/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/nhosp/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
1213 Purchase Street – 3rd Floor
New Bedford, MA 02740-6694
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.



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

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

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

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.



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

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.

BWSC Site Plan #XXXXXX

a. Plan Title

Waterfield Design Group, Inc.

b. Prepared By

7-3-19

d. Final Revision Date

Craig Miller

c. Signed and Stamped by

1"=10'

e. Scale

f. Additional Plan or Document Title

g. Date

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

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

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

8. Attach NOI Wetland Fee Transmittal Form

9. Attach Stormwater Report, if needed.

E. Fees

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

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

1058

2. Municipal Check Number

1057

4. State Check Number

Waterfield Design Group

6. Payor name on check: First Name

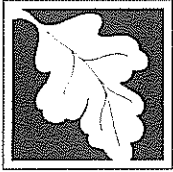
8/6/19

3. Check date

8/6/19

5. Check date

7. Payor name on check: Last Name



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

F. Signatures and Submittal Requirements

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

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

1. Signature of Applicant

08/01/2019

2. Date

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date

8/8/19

For Conservation Commission:

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

For MassDEP:

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

Other:

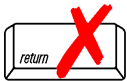
If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

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



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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



A. Applicant Information

1. Location of Project:

80 Marginal Street Boston
 a. Street Address b. City/Town
 1057 512.50
 c. Check number d. Fee amount

2. Applicant Mailing Address:

Paul Marks
 a. First Name b. Last Name
 Copper Forge Partners, LLC
 c. Organization
 7 Columbus Terrace, Unit 2
 d. Mailing Address
 Brookline MA 02446
 e. City/Town f. State g. Zip Code
 617-731-9114 617-731-9114 PaulM@apartmentseastboston.com
 h. Phone Number i. Fax Number j. Email Address

3. Property Owner (if different):

Copper Forge Partners, LLC
 a. First Name b. Last Name
 c. Organization
 7 Columbus Terrace, Unit 2
 d. Mailing Address
 Brookline MA 02446
 e. City/Town f. State g. Zip Code
 617-731-9114 617-731-9114 rmdadmin@apartmentseastboston.com
 h. Phone Number i. Fax Number j. Email Address

B. Fees

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

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

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

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

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

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

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

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



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
Construction of one building development	1	\$1,050	\$1,050
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Step 5/Total Project Fee: _____

Step 6/Fee Payments:

Total Project Fee:	<u>\$1,050</u>
	a. Total Fee from Step 5
State share of filing Fee:	<u>\$512.50</u>
	b. 1/2 Total Fee less \$12.50
City/Town share of filing Fee:	<u>\$1,500 (Per City Regs.)</u>
	c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

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

Department of Environmental Protection
 Box 4062
 Boston, MA 02211

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

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

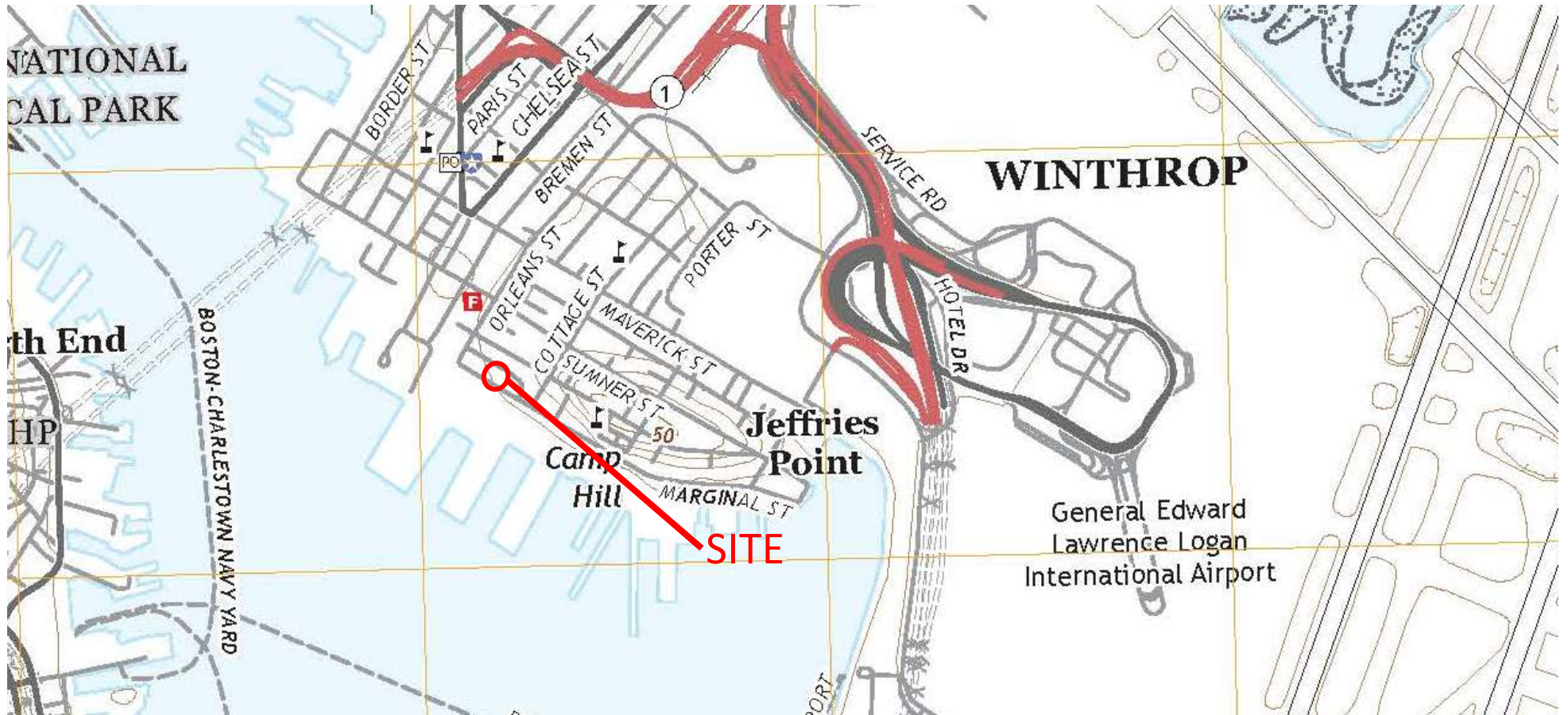
Date: August, 2019
Project: 80 Marginal Street - Notice of Intent

Appendix B

USGS Site Locus Map

Regional Locus

80 Marginal Street, Boston, MA



Date: August, 2019
Project: 80 Marginal Street - Notice of Intent

Appendix C

Copy of Filing Fees

1057

WATERFIELD DESIGN GROUP

50 CROSS STREET
WINCHESTER, MA 01890

DATE

8/6/19

53-260/113

PAY
TO THE
ORDER OF

COMMONWEALTH OF MASSACHUSETTS

\$ 572.50

FIVE HUNDRED TWELVE DOLLARS AND 50/100

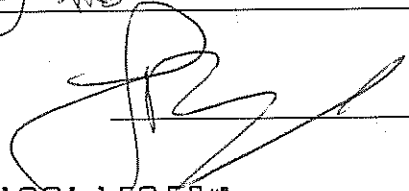
DOLLARS

JOB #

1613

NORTHMARK
BANK
NORTH ANDOVER, MA 01845

FOR



⑈001057⑈ ⑆011302603⑆ 100415058⑈

1058

WATERFIELD DESIGN GROUP

50 CROSS STREET
WINCHESTER, MA 01890

DATE

8/6/19

53-260/113

PAY
TO THE
ORDER OF

CITY OF BOSTON

\$ 1,500.00

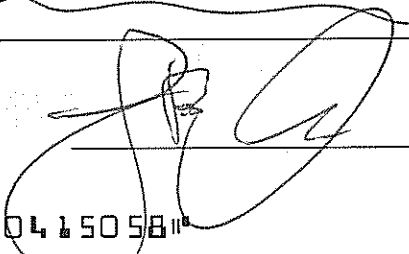
ONE THOUSAND FIVE HUNDRED

DOLLARS

FOR

JOB 1613

NORTHMARK
BANK
NORTH ANDOVER, MA 01845



⑈001058⑈ ⑆011302603⑆ 100415058⑈

Date: August, 2019
Project: 80 Marginal Street - Notice of Intent

Appendix D

Abutter Notification

**Notification to Abutters Under the
Massachusetts Wetlands Protection Act**

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

- A. The name of the applicant is Copper Forge Partners, LLC
- B. The applicant has filed a Notice of Intent with the Conservation Commission for the municipality of City of Boston seeking permission to remove, fill, dredge, or alter an Area Subject to Protection Under the Wetlands Protection Act (General Laws Chapter 131, Section 40). The proposed activity consists of the: Constructing a building on an existing parking area in the 100 year floodplain.
- C. The address of the lot where the activity is proposed is _____
80 Marginal Street, Boston, MA
- D. Copies of the Notice of Intent may be examined at _____ the City of Boston Environmental Department between the hours of 9:00 a.m. and 5:00 p.m. on the following days of the week: Monday-Friday
- For more information, call (617) 635-3850. (Copies are on display in the basket on the office door.)
- E. Copies of the Notice Intent may be obtained from at the City of Boston Environmental Department Office between the hours of 9:00 a.m. and 5:00 p.m. from Monday through Friday. For more information, call (617) 635-3850.
- F. A public hearing will be held at 6:00 PM on Wednesday 8/21/19 at the Piemonte Room on the 5th Floor of Boston City Hall.

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

NOTE: Notice of the public hearing, including its date, time, and place, will be posted in the City Hall not less than forty eight (48) hours in advance.

NOTE: You also may contact your local Conservation Commission or the nearest Department of Environmental Protection Regional Office for more information about this application or the Wetlands Protection Act. To contact DEP, call:

Central Region: 508-792-7650

Southeast Region: 508-946-2700

XX Northeast Region: 978-694-3200

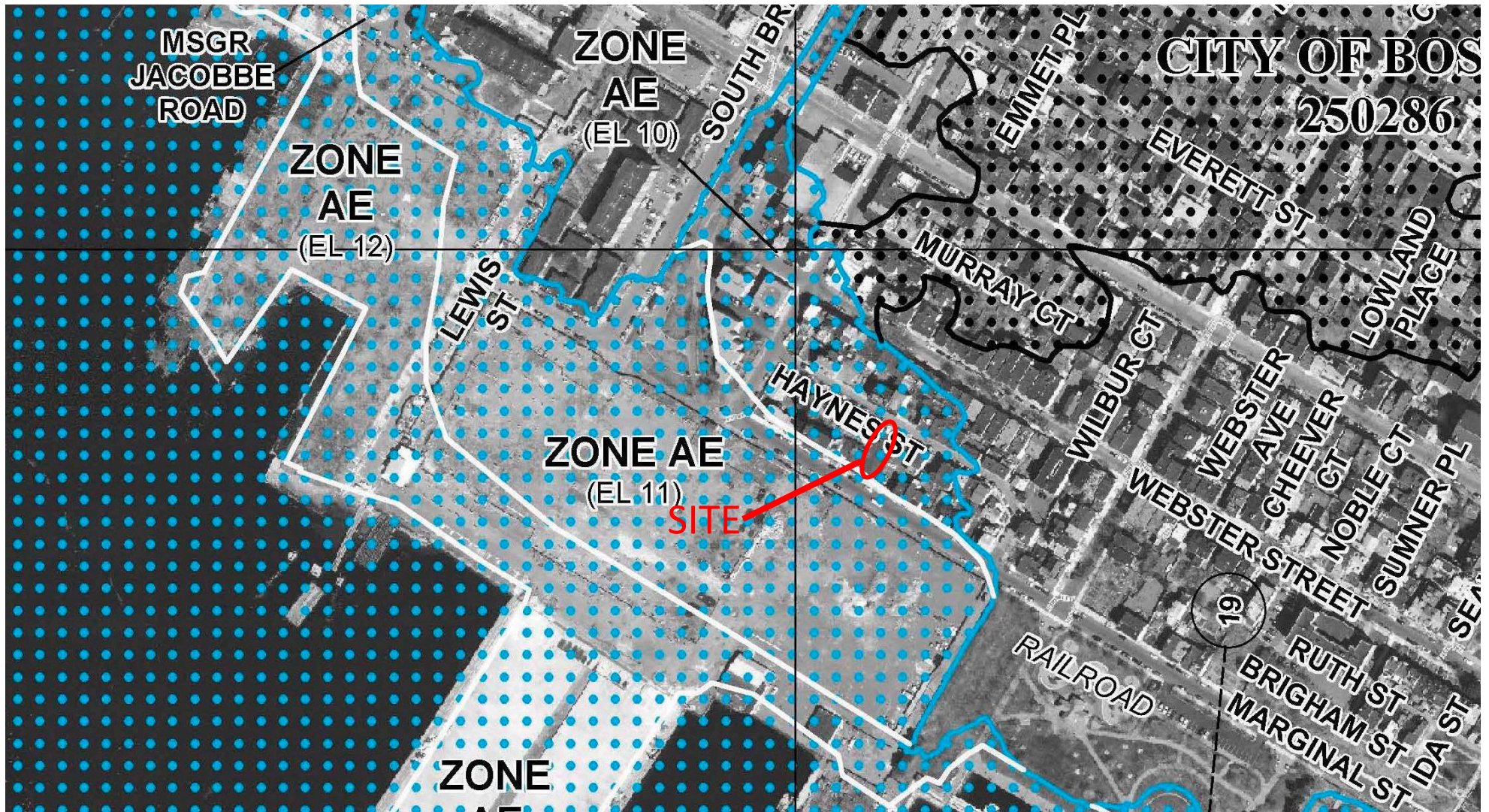
Western Region: 413-784-1100

Appendix E

FEMA Regional Map

FIRM Flood Insurance Map Number 250286 Panel 0081J

80 Marginal Street, Boston, MA



Date: August, 2019
Project: 80 Marginal Street - Notice of Intent

Appendix F

Climate Change Resiliency Checklist

Boston Planning & Development Agency Climate Resiliency Report Summary



Submitted: 08/08/2019 13:57:26

A.1 - Project Information

Project Name:	80 Marginal Street		
Project Address:	80 Marginal Street		
Filing Type:	Design / Building Permit (prior to final design approval)		
Filing Contact:	Jacob Murray	Waterfield Design Group, Inc.	jmurray@wdgrp.com 7817560001
Is MEPA approval required?	No	MEPA date:	

A.2 - Project Team

Owner / Developer:	Copper Forge Partners, LLC
Architect:	Pisani + Associates Architects
Engineer:	Waterfield Design Group, Inc.
Sustainability / LEED:	NA
Permitting:	NA
Construction Management:	NA

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Condominium
List the First Floor Uses:	Condominium
List any Critical Site Infrastructure and or Building Uses:	NA

Site and Building:

Site Area (SF):	4620	Building Area (SF):	3793
Building Height (Ft):	47.5	Building Height (Stories):	4
Existing Site Elevation – Low (Ft BCB):	14.86	Existing Site Elevation – High (Ft BCB):	15.91
Proposed Site Elevation – Low (Ft BCB):	14.86	Proposed Site Elevation – High (Ft BCB):	15.91
Proposed First Floor Elevation (Ft BCB):	21.0	Below grade spaces/levels (#):	1

Article 37 Green Building:

LEED Version - Rating System:	NA	LEED Certification:	
Proposed LEED rating:		Proposed LEED point score (Pts.):	NA

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:	NA	Exposed Floor :	NA
Foundation Wall:	NA	Slab Edge (at or below grade):	NA
Vertical Above-grade Assemblies (%’s are of total vertical area and together should total 100%):			
Area of Opaque Curtain Wall & Spandrel Assembly:	NA	Wall & Spandrel Assembly Value:	NA
Area of Framed & Insulated / Standard Wall:	NA	Wall Value:	NA
Area of Vision Window:	NA	Window Glazing Assembly Value:	NA
		Window Glazing SHGC:	NA
Area of Doors:	NA	Door Assembly Value :	NA

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined	NA		
Annual Electric (kWh):		Peak Electric (kW):	
Annual Heating (MMbtu/hr):		Peak Heating (MMbtu):	
Annual Cooling (Tons/hr):		Peak Cooling (Tons):	
Energy Use - Below ASHRAE 90.1 - 2013 (%):		Have the local utilities reviewed the building energy performance?:	Yes
Energy Use - Below Mass. Code (%):		Energy Use Intensity (kBtu/SF):	

Back-up / Emergency Power System

Electrical Generation Output (kW):		Number of Power Units:	
System Type (kW):		Fuel Source:	Gas & Electric

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

Electric (kW):		Heating (MMbtu/hr):	
		Cooling (Tons/hr):	

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

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): [REDACTED]

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

NA [REDACTED]

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

NA [REDACTED]

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

NA [REDACTED]

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

NA [REDACTED]

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

NA [REDACTED]

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

NA [REDACTED]

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):

NA

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.): [redacted] Temperature Range - High (Deg.): [redacted]
Annual Heating Degree Days: [redacted] Annual Cooling Degree Days: [redacted]

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

Days - Above 90° (#): [redacted] Days - Above 100° (#): [redacted]
Number of Heatwaves / Year (#): [redacted] Average Duration of Heatwave (Days): [redacted]

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

275 SF Green Roof on top of the 3rd floor.

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:

NA

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:

NA

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)

NA

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

275 SF Green Roof. Underground infiltration systems to meet BWSC standards.

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):

275 SF Green Roof. Underground infiltration systems to meet BWSC standards.

E – Sea Level Rise and Storms

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)?	100 Year Storm	First Floor Elevation (Ft BCB):	21.00
What are the Site Elevations at Building (Ft BCB)?	14.86 to 15.85	What is the Accessible Route Elevation (Ft BCB)?	15.0

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.:

First floor out of flood plain.

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.:

NA

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:

NA

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

NA

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.:

NA

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

NA

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

Date: August, 2019
Project: 80 Marginal Street - Notice of Intent

Appendix G

Memo Regarding Other Permitting

Waterfield Design Group
50 Cross Street
Winchester, MA 01890

Attn: Jacob Murray

RE: 16-289
New Multi-Family Dwelling
80 Marginal Street, East Boston, MA 02128

ARCHITECTS
PLANNERS
DESIGNERS
374
CONGRESS
STREET
BOSTON
MASSACHUSETTS
02210-1807
617-423-1022
FAX: 617-426-0939
Email: apisani@pisani.com

DRAFT

We are providing the following brief summary of the project review process to date for the proposed 9-Unit Residential Project at 80 Marginal Street, East Boston, for inclusion with the application to the Conservation Commission.

NEIGHBORHOOD GROUPS

The proposed project was initially presented to the Jeffries Point Neighborhood Association in April 2017, and three more times through October 2017. As a result of those meetings, the project was extensively revised, including reducing the project from five to four stories, and moving the garage entrance from Haynes to Marginal Street.

ZONING BOARD of APPEAL

After those revisions the project was submitted to the City of Boston, refused by Inspectional Services due to anticipated zoning violations, which were appealed and for which relief was granted by the Zoning Board of Appeal (ZBA) on November 28, 2017.

BPDA DESIGN REVIEW

In accordance with the ZBA's design review proviso, the Boston Planning and Development Agency (BPDA), since March 2018, has suggested a number of changes to the front of the building, in particular the front balcony configuration, which we have accommodated.

SUB-SURFACE INVESTIGATION / BUILDING HEIGHT REVISION

In response to the August 31, 2018 Foundation Engineering Report prepared by McPhail Associates, Inc., and in particular the groundwater depth, the proposed basement elevation and overall building height have been raised. Approval for this revision is ongoing.

Please contact me if you have any questions.

Very truly yours,

William A Paquette, Architect
Cc: Paul Marks

Date: August, 2019
Project: 80 Marginal Street - Notice of Intent

Attachment A

Stormwater Report

Date: August, 2019
Project: 80 Marginal Street - Notice of Intent

Attachment B

Architectural Plans for Green Roofs

OWNER
COPPER FORGE ASSOCIATES, INC.
P.O. BOX 1046
BROOKLINE, MA 02446

SURVEYOR
BOSTON SURVEY, INC.
UNIT C-4 SHIPWAY PLACE
CHARLESTOWN, MA 02129
617-242-1313

GEOTECHNICAL ENGINEER
McPHAIL ASSOCIATES, LLC
2269 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02140
617-868-1420

CIVIL ENGINEER
WATERFIELD DESIGN GROUP
50 CROSS STREET
WINCHESTER, MA 01890
781-756-0001

STRUCTURAL ENGINEER
ROOME & GUARRACINO LLC
CONSULTING STRUCTURAL ENGINEERS
48 GROVE STREET
SOMERVILLE, MA 02144
617-628-1700

MEP/FP ENGINEER
LVR CORPORATION
88 FOUNDRY STREET
WAKEFIELD, MA 01880
781-245-9888

STAMP

ISSUE / REVISION		
NO.	DATE	DESCRIPTION
	07/31/17	INITIAL FILE
	07/08/19	REVISION [HGT]

NEW MULTI-FAMILY DWELLING
80 MARGINAL STREET
EAST BOSTON MA

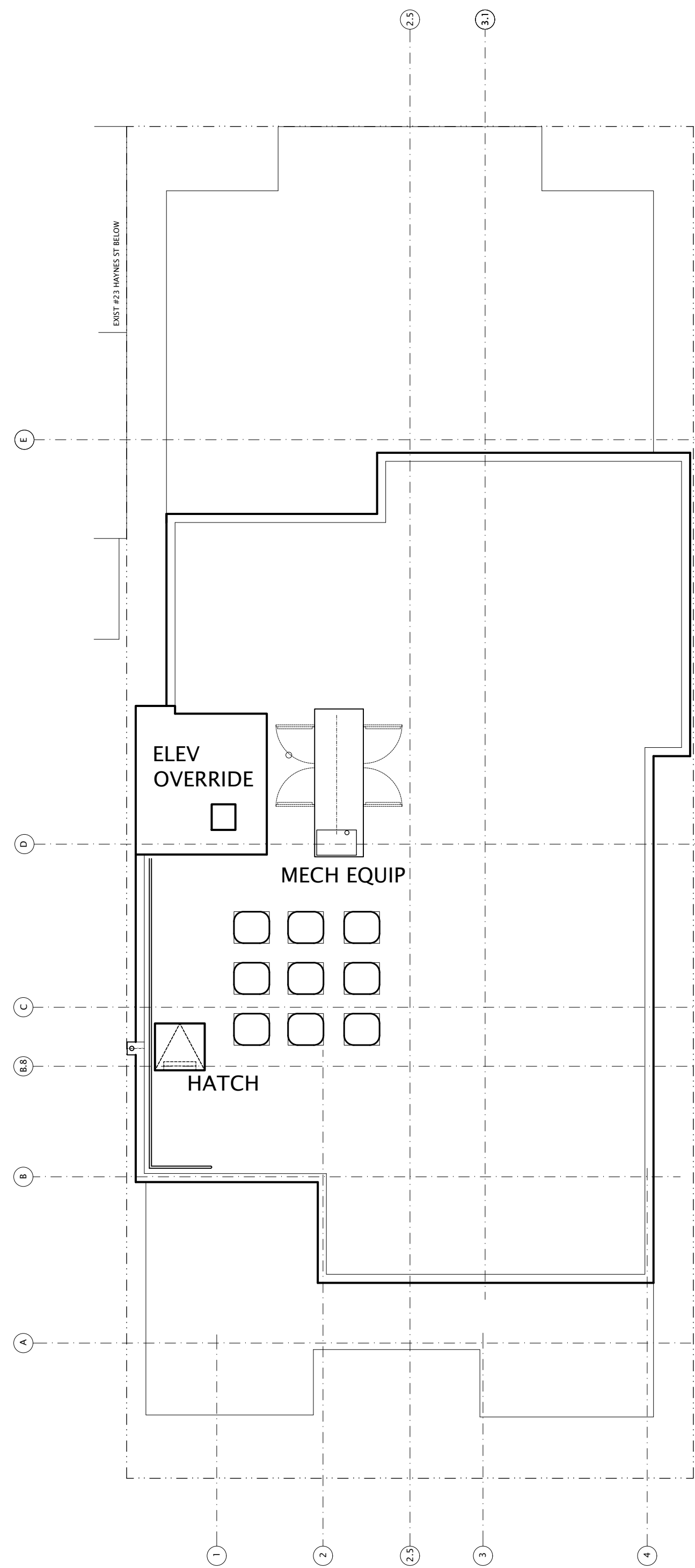
PROJECT 16-289

DATE	WAP DRAWN	AMP CHECKED

3rd & 4th FLOOR PLANS,
ROOF PLAN
DRAWING

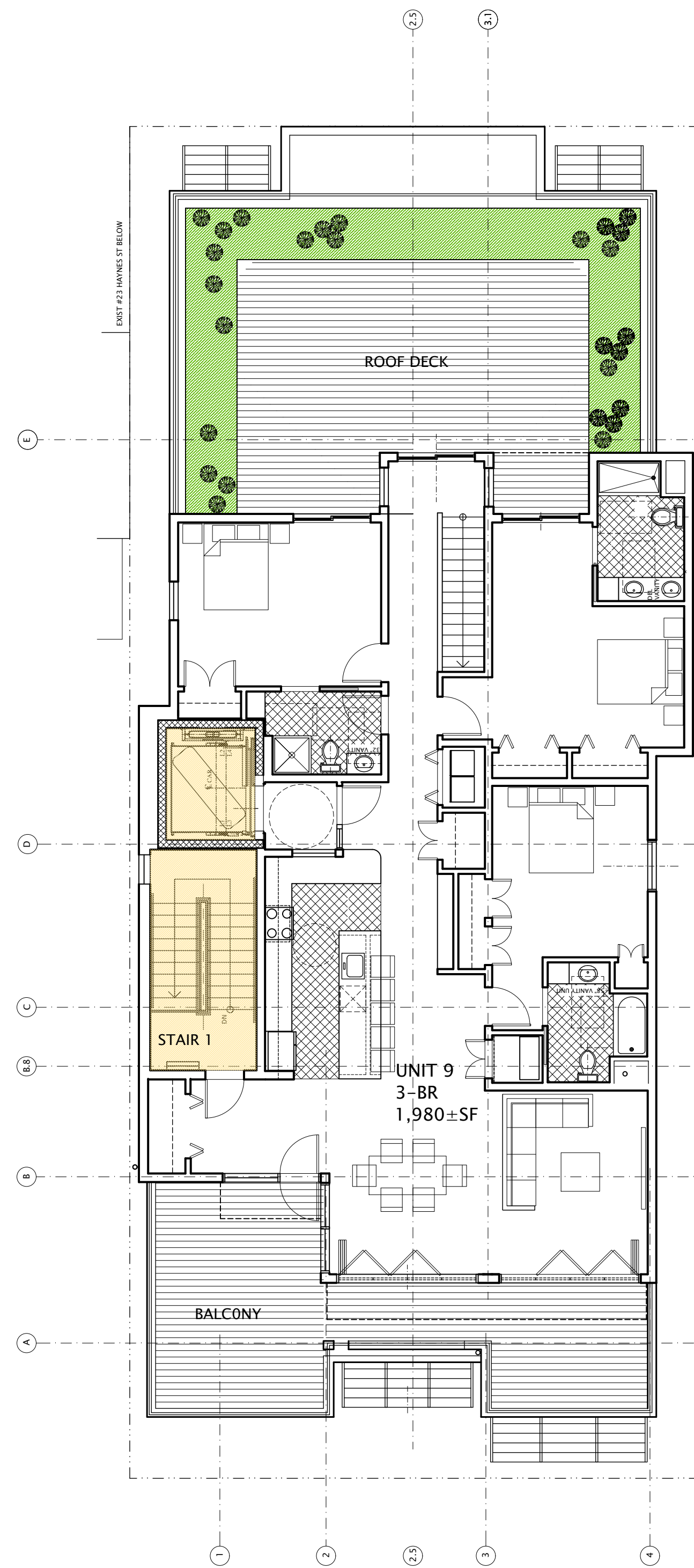
A1.2

DWG. NO.



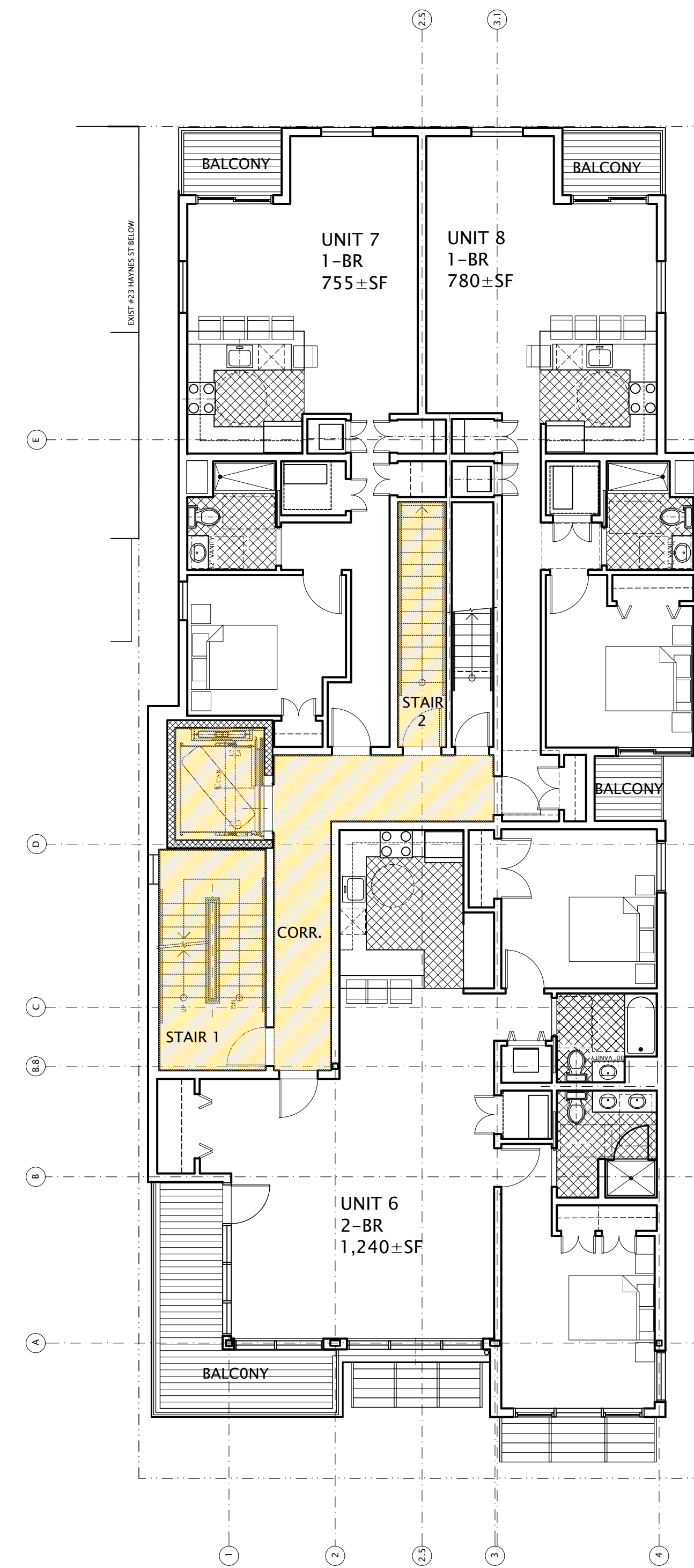
ROOF PLAN

ORIGINAL SCALE 1/8" = 1'-0"



4th FLOOR PLAN

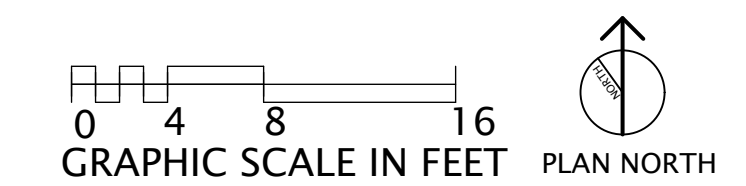
ORIGINAL SCALE 1/8" = 1'-0"



3rd FLOOR PLAN

ORIGINAL SCALE 1/8" = 1'-0"

 COMMON SPACE



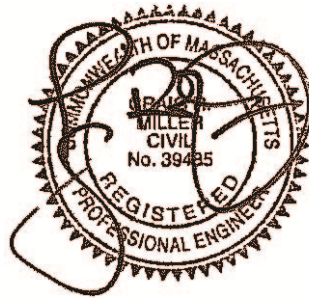
Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

Copper Forge Partners, LLC
80 Marginal Street

STORMWATER REPORT

August, 2019



Prepared by:

WDG | Waterfield Design Group

50 Cross Street | Winchester, Massachusetts | 01890 | t 781.756.0001 f 781.756.0007

WDG Project No.: 1613

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

Introduction:

This Stormwater Report, Erosion and Sedimentation Control Plan and Long Term Operations and Maintenance Plan have been prepared in conformance with the requirements of the 2008 Massachusetts Department of Environmental Protection (MADEP) Stormwater Handbook, the 2008 amendments to 310 CMR 10.00 et. seq. (Massachusetts Wetlands Act Regulations (MAWPA Regs)). This report is prepared to meet the requirements of MADEP Stormwater Checklist and is submitted as part of a Notice of Intent under the Massachusetts Wetlands Protection Act.

Site Description:

The proposed project site is located along Marginal Street in the City of Boston approximately 300 linear feet west of the intersection of Haynes Street and Marginal Street. The proposed project is located on land which is presently paved. The site is owned by Copper Forge Partners, LLC and is at the City of Boston’s Assessor’s parcel ID# 0104480000. The land on which the project is proposed is located in the Land Use Code R4. The entire site is located within the 100 year floodplain Boston Inner Harbor FEMA Map #250286 Panel 0081J dated March 16, 2016.

Description of Proposed Project:

The proposed project is for the redevelopment of an existing paved parking area to a proposed building with 577.2 cubic feet of perforated pipe and crushed stone stormwater storage.

New utilities will be connected to the mains in the existing Haynes Street as part of the project.

These utilities have been approved by the Boston Water and Sewer Commission (BWSC).

Existing Conditions:

80 Marginal Street is an existing paved parking area.

Stormwater runoff from the parking area and roof sheet flows from the site to the catch basins in Haynes Street and then to the Boston Inner Harbor. There is no existing drainage system at the site.

Proposed Conditions:

The parking area at 80 Marginal Street will be replaced with a condominium building with underground parking and 577.2 cubic feet of perforated pipe and crushed stone for stormwater infiltration. Stormwater drainage for the new building will be directed to the new infiltration areas.

The redevelopment is designed to not increase the flows from the site for up to the 100 year storm event.

Soils

According to the NRCS Custom Soil Resource Report, the soils on site are listed as 603 & 627 – Urban Land, wet substratum and Newport, Urban land complex (NRCS Soils Report).

Urban land consist of areas where the soil has been altered or obscured by buildings, industrial areas, paved parking lots, sidewalks, roads and railroad yards.

Low Impact Development (LID) Practices

The DEP Stormwater Standards require LID measures be considered. The DEP Stormwater checklist requires that the proponent document which environmentally sensitive and LID Techniques were considered during the planning and design of the projects.

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

Below are a list of environmentally sensitive and LID Techniques and how they were or were not able to be implemented into the project:

No disturbance to any Wetland Resource Areas

The proposed project is the redevelopment of an existing disturbed site. The project does not disturb any wetland resource areas.

The project improved existing conditions by reducing particle runoff from the site by replacing a broken pavement with a solid uniform roof.

Site Design Practices

The site is designed to not increase impervious area.

Minimize Disturbance to Existing Trees and Shrubs

The existing site has no significant vegetation. No new planting areas are proposed at the site.

Use of “country drainage” versus curb and gutter conveyance and pipe/vegetated filter strips

Given the heavy urban environment the site could not accommodate “country drainage”.

Bioretention Cells

Bioretention cells were considered, but were not implemented for the following reasons:

- Due to high groundwater.
- Grading requirements do not allow for an underdrain outflow to be located on the property.
- During flooding events the bioretention cells would become damaged and solids would become resuspended.
- Due to the high flood elevations Bioretention cells cannot be used to attenuate peak volume and runoff as the bioretention cells would fill up with flood waters during such significant storm events.
- In addition, bioretention cells require pretreatment by sediment forebay which would have the same high groundwater, soils, and flooding issues.

Constructed Wetlands

The site does not have the area to accommodate Constructed Wetlands.

Treebox Filter

Treebox filters require overflow outlet pipes that are not possible at the site due to the grading constraints of the property. The MA DEP Handbook also calls for the filter to be 4 feet deep, this would put most of the filter and the underdrain pipe within the groundwater table.

Water Quality Swales & Grass Channels

The site does not have the area to accommodate Water Quality and Grass Swales.

Green Roof

As part of the redevelopment approximately 275± S.F. green roof will be installed on the third floor roof of the building. See attached plans.

Permeable Pavements

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

Permeable pavers cannot be proposed on the west side of the site due to the proximity to the abutting foundations. The areas on the east side of the building are needed for stormwater storage and therefore cannot have cross-section needed for permeable pavers.

Green walls & Fences

Flooding at the site will cause major damage to green wall and fence systems requiring expensive maintenance and contributing to erosion from the site.

Cisterns

Cistern and water reuse are not possible as all of the runoff is from paved areas and cannot practically be treated appropriately.

Total Project Area

Total Site Area to be Developed = 4,620 SF

Existing Impervious Area = 4,620 SF±

Proposed Impervious Area = 4,620 SF

Standard 1: No New Untreated Discharges

The existing disturbed site currently discharges all runoff untreated into the catch basins along Haynes Street. The site will now send all runoff to infiltration areas at the south and west sides of the property. These drainage systems were designed by Waterfield Design Group, Inc. and are currently being reviewed by the BWSC.

Since the runoff from the redeveloped impervious surfaces on the site will be not increase in accordance with the requirements of the MADEP 2008 Stormwater Handbook and Regulations the redeveloped site will not have any new untreated site runoff. Therefore, Standard 1 has been met by the proposed project.

Standard 2: Peak Rate Attenuation

The proposed project involves the redevelopment of the previously developed site. Since the site is almost all impervious and since the proposed impervious area is being directed to infiltration systems at the south and east sides of the site the proposed runoff will be less than the existing runoff. See attached Design Calculations.

Based on the description of the site provided above the requirements of Standard 2 have been met and the redevelopment of the site will not result in any net increase in the peak rate of runoff from the site.

Standard 3: Recharge

The proposed project involves the redevelopment of a previously developed site. The proposed site will direct the runoff to infiltration systems to recharge the runoff into the soils.

Therefore, Standard 3 has been met by the proposed project to the maximum extent practical.

Standard 4: Water Quality

The proposed project involves the redevelopment of a previously developed site. The proposed site will direct the runoff to infiltration systems to treat the runoff.

Therefore, Standard 4 has been met by the proposed project to the maximum extent practical.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

The proposed project use does not constitute a Land Use with Higher Potential Pollutant Loads as defined by the 2008 MADEP Stormwater Handbook and the 2008 amendments to 310 CMR 10.00 et. seq. (MAWPA Regs).

Therefore Standard 5 has been met by the proposed project.

Standard 6: Critical Areas

No portion of the site is in a critical area. Therefore, Standard 6 has been met by the proposed project.

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

The proposed project is a redevelopment project as defined by the 2008 MADEP Stormwater Handbook and the 2008 amendments to 310 CMR 10.00 et. seq. (MAWPA Regs). Below is a summary of how the different Standards are met for the development areas.

Standard 1 (must be met to the maximum extent practical):

Since the runoff from the redeveloped impervious surfaces on the site will be not increase in accordance with the requirements of the MADEP 2008 Stormwater Handbook and Regulations the redeveloped site will not have any new untreated site runoff. Therefore, Standard 1 has been met by the proposed project.

Standard 2 (must be met to the maximum extent practical)

Based on the description of the site provided above the requirements of Standard 2 have been met and the redevelopment of the site will not result in any net increase in the peak rate of runoff from the site.

Standard 3 (must be met to the maximum extent practical)

The proposed project involves the redevelopment of a previously developed site. The proposed site will direct the runoff to the runoff to infiltration systems to recharge the runoff.

Therefore, Standard 3 has been met by the proposed project to the maximum extent practical.

Standard 4 (must be met to the maximum extent practical)

The proposed project involves the redevelopment of a previously developed site. The proposed site will direct the runoff to the runoff to infiltration systems to treat the runoff.

Therefore, Standard 4 has been met by the proposed project to the maximum extent practical.

Standard 5 (must be met to the maximum extent practical)

The proposed project use does not constitute a Land Use with Higher Potential Pollutant Loads as defined by the 2008 MADEP Stormwater Handbook and the 2008 amendments to 310 CMR 10.00 et. seq. (MAWPA Regs).

Therefore Standard 5 has been met by the proposed project.

Standard 6 (must be met to the maximum extent practical)

No portion of the site is in a critical area. Therefore, Standard 6 has been met by the proposed project.

Standard 8 (must be met)

Standard 8 is met for the redevelopment portion as described below.

Standard 9 (must be met)

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

Standard 9 is met for the redevelopment portion as described below.

Standard 10 (must be met)

Standard 10 is met for the redevelopment portion as described below.

Standard 8: Construction Period Pollution Prevention Plan/Erosion and Sedimentation Control Plan

Flood Contingency Plan

During construction the contractor shall monitor the national weather service forecast office for weather updates. The contractor shall initiate a flood contingency plan when a "Flood Watch" has been issued for the Boston Inner Harbor. Watches are issued by radio broadcast and are available via the internet at <http://www.nws.noaa.gov>. The contractor shall remove all construction vehicles from the floodplain area except those necessary to implement the flood contingency plan when a "Flood Watch" has been issued. The contractor shall have staff and materials available seven days a week to implement the flood contingency plan if needed. Once a "Flood Watch" has been issued contractor shall do the following within 6 hours or by the time the "Flood Watch" is to go into effect:

1. Notify of the environmental administrator within four (4) hours of any intended as well as completed actions described in this section.
2. Securely staking geotextile or jute matting over areas of exposed / unstabilized soil within the flood plain and any potential loose material.
3. Contractor shall have enough geotextile or jute matting to completely cover exposed / unstabilized soil within the flood plain. Geotextile or jute matting shall overlap at seams a minimum of three feet. The covering around the perimeter shall be keyed into the surrounding soil six inches. The seams and perimeter of the covering shall be covered with 3/4-inch crushed stone ballast.
4. The contractor shall be required to provide a enough geotextile or jute matting and crushed stone available to ballast all loose material on site at all times.
5. In the event of flooding, no active work will be allowed to take place within the work zone until the floodwaters have receded, and any damage to erosion control measures have been repaired.

Construction Phasing Notes

1. Contractor shall substantially complete and stabilize all disturbed areas in one phase of construction prior to beginning the next phase of construction.
2. Upon completion of a phase of construction contractor shall notify the engineer and city environmental department to review the site prior to beginning the next phase of construction.

Demolition Notes

1. All demolition debris shall be legally disposed of offsite and shall be considered incidental work.
2. The contractor shall be responsible for all permits and licenses, fees and approvals required to correctly complete the work.
3. The contractor shall assume complete responsibility and liability for the safety of all who will traverse through the site and the structural integrity and safety of all excavations, stored items, work and utilities to remain during construction.
4. Demolition, site work and landscaping shall be sequenced so as to avoid long periods of disturbance to the site. Construction sequencing shall be scheduled so that work progresses quickly, efficiently and with the least amount of disturbance to the site.
5. Contractor shall clean construction site daily to prevent dust and debris from leaving the site. Contractor shall clear debris from site at the end of each day. All potential loose material shall be secured in closed containers. Contractor shall have a water source on site to wash vehicles and spray down dust.
6. The contractor shall call Dig Safe (1-888-DIG-SAFE, notify private and public utility companies and receive formal clearance/verification from all affected utilities at least 72 hours prior to excavating near any utilities that may be

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

affected by any portion of this construction. The contractor shall notify the town of Winchester at the same time Dig Safe is called. The contractor shall also notify the Winchester department of public works to mark out any town-owned utilities, which are not registered with Dig Safe.

7. The contractor shall conform with the specific requirements for excavation as set forth in Massachusetts General Law: Chapter 82, Section 40a and OSHA Regulations 29cfr1926.651(a). The contractor shall coordinate all work involving utility company facilities, whether those facilities be existing or proposed.
8. All trees, shrubs, grass and landscaping areas, and physical site features (buildings, fences, paving, light poles, signs etc. not included in this project; along with all other property not included in this project shall be protected during construction operations at all times. This includes abutting property as well. Any damage or loss to the above items or areas caused by the actions of the contractor shall be immediately repaired or replaced by the contractor at no cost to the owner. The contractor is also responsible for the actions of all sub-trades and subcontractors that the contractor may invite to perform the work of this contract.
9. The contractors shall verify all existing conditions in the field and report any discrepancies between plans and actual conditions to the engineer prior to starting work.
10. Install erosion control measures as indicated prior to beginning demolition activities.

Erosion Control and Construction Sequencing

With regard to work proposed on the project and erosion and siltation control, the sequence of activities will generally take place as follows:

1. Remove any accumulation of silt or soil build-up in siltsacks.
2. Throughout excavation, filling, and grading operations the Contractor shall take other necessary precautions, including installation of temporary drainage swales, siltation sumps/filtration dams, check dams, strawbales, silt fences, and temporary pipe, to direct and control drainage from disturbed areas on the site so that erosion and siltation is minimal. In addition, no erosion or discharge of silt or larger particles shall occur in areas to remain undisturbed or onto adjacent properties.
3. Remove all erosion control measures, including strawbales, silt fence, siltation sumps and check dams, only when construction is completed, upland surfaces are stabilized.

If the Contractor anticipates deviations from the above procedures, he shall obtain written approval from the environmental department prior to proceeding.

List of Materials Available for to Stabilize Site for Storm Event

- Extra haybales and silt fences to repair broken fencing
- 3/4" Crushed stone to ballast mating
- Geotextile or jute mating to cover exposed material

Erosion and Sediment Control BMP's

The Erosion and Sediment Controls represent the suggested best management practices proposed for the project. The Contractor's approach to controlling stormwater runoff from the site may vary somewhat; however they must update the plan for the project to reflect the changes and implement appropriate corresponding erosion control measures.

The use of erosion and sediment controls are mandatory and must be employed to eliminate impacts to adjacent areas during construction. If sediment escapes the construction site, off-site accumulations of sediment must be completely removed immediately.

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

The control practices which are required to minimize stormwater pollution during construction must remain functional until disturbed areas have been stabilized. Erosion control products are to be installed and maintained in accordance with manufacturer's specifications and good engineering practices.

The most important aspects of controlling erosion and sedimentation are limiting the extent of drainage structures. These fundamental principles will be the key factors in the contractor's control of erosion on the project site. If appropriate, the contractor will construct temporary diversion swales and settling basins or use a settling tank. If additional drainage or erosion control measures are needed, they will be located up-gradient from the hay bales and silt fences.

The contractor is responsible for the maintenance and repair of all erosion control devices on-site. All erosion control devices will be regularly inspected. At no time will silt-laden water be allowed to enter sensitive areas (wetlands, streams, and drainage systems). Any runoff from disturbed surfaces will be directed through a sedimentation process prior to being discharged to the existing on site drainage system.

The contractor will establish a staging area off site to stockpile materials.

In the staging area, the contractor will have a stockpile of materials required to control erosion on-site to be used to supplement or repair erosion control devices. These materials will include, but are not limited to hay bales, silt fence, erosion control matting, and crushed stone. As mentioned previously, erosion and sedimentation controls will be employed to minimize the erosion and transport of sediment into resource areas during the earthwork and construction phases of the Project. Erosion and sedimentation control measures will be installed prior to site excavation or disturbance and will be maintained throughout the construction period.

The contractor is responsible for erosion control on the site and will utilize supplemental erosion control measures to supplement the erosion controls shown on the plans prepared for this project to work with his day to day operations at the site.

Primary erosion control techniques proposed include hay bale barriers, silt fence barriers, inlet sediment traps, siltation control dikes, a stabilized construction entrance, temporary diversion channels, and temporary sedimentation ponds when applicable. A detailed description of each technique is discussed below. During the growing season, slope stabilization will be achieved by applying topsoil followed by seeding and mulching as soon as final grades are achieved. Organic mulching, jute netting, geotextiles, or a combination will be used to stabilize slopes completed outside of the growing season.

Best Management Practices (BMPs)

Silt Fence Strawbale Barriers

Erosion control barriers (silt fences or strawbale dike) will be installed prior to the start of construction. These barriers will remain in place until all tributary surfaces have been fully stabilized.

Strawbale barriers will be placed to trap sediment transported by runoff before it reaches the drainage system or leaves the construction site. In areas where high runoff velocities or high sediment loads are expected, silt fencing may be installed adjacent to the strawbale barriers. This semi-permeable barrier made of a synthetic porous fabric will provide additional protection. The silt fences and hay bale barrier will be replaced as determined by periodic field inspection. The underside of hay bales will be kept in close contact with the earth and reset as necessary. Hay bale barriers and siltation fences will be maintained and cleaned until slopes have healthy stands of grass.

Diversion Channels

Diversion channels may be used to intercept and divert runoff from slopes that are exposed during construction. These diversions will minimize the development of concentrated runoff down slopes, which could produce gully erosion. Diversions will also be used to collect runoff from construction areas and convey it to temporary sediment basins or traps. Temporary diversions will remain in place until slopes are stabilized or graded level. If vegetation of the diversion channel is required to avoid erosion of the channel, the channel will be temporarily stabilized to ensure viability of the grass seed.

Temporary Sediment Ponds

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

Temporary sediment ponds/basins will be constructed as necessary on the site either as excavations or bermed water detention structures, depending on grading. These temporary ponds will retain runoff for a sufficient period of time to allow suspended soil particles to settle out prior to discharge. These temporary basins will be located at low points on the site and will receive runoff from temporary diversion swales. Discharge points from sediment basins will be stabilized as necessary to minimize erosion. The bottom of sediment basins will be cleaned periodically, with the sediment removed to a secure location to prevent siltation of natural waterways.

Stabilization Activities

All disturbed surfaces will be stabilized within 14 days after construction in any portion of the project site is completed or is temporarily halted, unless additional construction is intended to be initiated within 14 days. The Contractor will not disturb more area than can be stabilized within 14 days unless the area is to remain active. The Contractor will not disturb more area than can be stabilized within the same construction season.

Inspections

The 2012 EPA Construction General Permit Conditions require routine inspections of the site and careful documentation of events and conditions. The following inspection activities will be completed by a qualified, designated site monitor.

- Erosion control, sedimentation prevention, and stormwater management measures will be inspected at least once per week throughout the construction period.

A log of inspection results will be maintained on-site and will include the name of the inspector, date, major observations, and necessary corrective measures.

Built up sediment will be removed when it has reached one-third the height of the silt fence.

All needed repairs or modifications will be reported to the contractors to permit the timely implementation of required actions. Where necessary repairs do not pose an immediate concern, repairs or modifications will be implemented within two (2) days of inspection.

The plan for the project will be modified within seven days to reflect any modifications to measures as a result of inspection.

A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the SWPPP, and actions taken will be made and retained as part of the plan for at least three years after the date of the inspection.

Weekly reports of maintenance and inspection activities will be maintained on-site, in conformance with the NPDES permit conditions.

Maintenance

The following maintenance practices will be used by the Contractor to maintain erosion and sediment controls. Maintenance activities will be documented on the Inspection Report Forms.

Erosion and sediment control measures and other protective measures must be maintained in effective operating condition.

- If site inspections indicate that BMPs are not operating effectively, maintenance must be performed as soon as possible and before the next storm event whenever practicable to maintain the continued effectiveness of the BMPs. If implementation before the next storm event is impracticable, the situation must be documented in the forms and alternative BMPs must be implemented as soon as possible.
- If existing BMPs need to be modified or if additional BMPs are necessary for any reason, implementation must be completed before next storm event whenever practicable. If implementation before the next storm event is impracticable, the situation must be documented in the forms and alternative BMPs must be implemented as soon as possible.

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

- Pollution prevention measures must be maintained in good working order. If a repair is necessary, it will be initiated, if practicable, within 24 hours of report.
- Maintenance and inspection of pollution prevention measures must be continued on the site for as long as a portion of the site remains disturbed.
- Stabilization measures will be initiated as soon as practicable on portions of the site where construction has temporarily or permanently ceased. This will occur in NO CASE more than 14 days after construction activities have temporarily or permanently ceased.
- If issues are identified at hazardous materials storage areas, corrective actions will be implemented immediately. If leaks or spills are identified procedures outlined in Standard 9 will be followed.

Record Keeping

Records will be retained for a minimum period of at least 3 years after the permit is terminated. Any time the following activities occur the *Grading and Stabilization Activities Log* will be filled out:

- When major grading activities occur
- When construction activities temporarily or permanently cease on a portion of the site
- When an area is either temporarily or permanently stabilized

A copy of the Stormwater Construction Site Inspection Reports shall be submitted monthly to the Town Conservation Agent.

Log of Changes To The Plan

This forms must be modified as necessary to:

- Include additional or modified BMPs that correct problems identified as a result of an inspection. Revisions must be completed with seven (7) calendar days following the inspection.
- Ensure the effectiveness of the plan in eliminating or significantly minimizing pollutants from stormwater discharges from the site.
- Prevent the reoccurrence of release of a hazardous material or oil.
- Address a change in design, construction, operation, or maintenance which has or may have a significant effect on the potential for the discharge of pollutants.

All modifications to the plan must be recorded on the plan Amendment Log included in the plan Appendix.

Stockpiling

During construction materials may be stockpiled within the 100 Year Floodplain, but the contractor must have an off-site location within 5 miles of the project that the stockpiled materials can be relocated to in case of a "Flood Watch".

Training

Training sessions must be provided by the Contractor for construction personnel. The training will review specific BMPs used in the work as well as reporting and response measures that may be needed by either construction personnel and/or inspectors to implement the plan. Additionally, appropriate construction personnel will be trained in the operation and maintenance of equipment to prevent the discharge of oil/hazmat and spill response procedures. Training sessions will highlight known spills or releases and recently developed precautionary measures. The Training Log shall be kept up to date by the Contractor.

80 Marginal Street Boston, MA

Report No. ____

Stormwater Construction Site Inspection Report

General Information			
Project Name	80 Marginal Street		
NPDES Tracking No.	MAR10????	Location	12-22 Haynes Boston, MA
Date of Inspection		Time	Start/End
Inspector's Name(s) & Title			
Inspector's Company			
Inspector's Contact Information			
Inspector's Qualifications			
Describe present phase of construction			
Type of Inspection:			
<input type="checkbox"/> Regular <input type="checkbox"/> Pre-storm event <input type="checkbox"/> During storm event <input type="checkbox"/> Post-storm event			
Weather Information			
Has there been a storm event since the last inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, provide:			
Storm Start Date & Time:	Storm Duration (hrs):	Approximate Amount of Precipitation (in):	
Weather at time of this inspection?			
<input type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Sleet <input type="checkbox"/> Fog <input type="checkbox"/> Snowing <input type="checkbox"/> High Winds			
<input type="checkbox"/> Other:		Temperature:	
Have any discharges occurred since the last inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, describe:			
Are there any discharges at the time of inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No			
If yes, describe:			

Site-specific BMPs

	BMP	BMP Installed?	BMP Maintenance Required?	Corrective Action Needed and Notes
	Hay Bales / Silt Fence	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Catch Basin Protection	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Interior Site Erosion Controls	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Temporary Check Dams	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Diversion Channels	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Temporary Sediment Basins	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Stabilized Construction Entrance	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Street Sweeping / Construction Access	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Temp. and Permanent Slope Stabilization	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Dust Control	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	

N/A – Not Applicable

Overall Site Issues

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
	Are all slopes and disturbed areas not actively being worked properly stabilized?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
	Are discharge points and receiving waters free of any sediment deposits?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Are storm drain inlets properly protected?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Is the construction exit preventing sediment from being tracked into the street?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Is trash/litter from work areas collected and placed in covered dumpsters?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Are materials that are potential stormwater contaminants stored inside or under cover?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
	(Other)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	

In the event of a spill refer to the Spill Response Procedure and contact appropriate agencies. Refer to SWPPP for Spill Prevention Plan and Response Procedures.

Are sediment / pollution discharges from the site present?

No Yes If yes, describe: _____

Describe any corrective action at this time: _____

Non-Compliance

Describe any incidents of non-compliance not described above:

General Comments (Attached figures to show locations of concern):

Are Additional Erosion Control Measures Needed?

No Yes If yes, describe: _____

Notes: _____

CERTIFICATION STATEMENT

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Print name and title: _____

Signature: _____

Date: _____

**** A copy of this report should be placed in the Monitoring Section of the Stormwater Pollution Prevention Plan.**

Subcontractor Certifications/Agreements

SUBCONTRACTOR CERTIFICATION STORMWATER POLLUTION PREVENTION PLAN

Project Number: _____

Project Title: _____

Operator(s): _____

As a subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement:

I certify under the penalty of law that I have read and understand the terms and conditions of the Report for the above designated project and agree to follow the BMPs and practices described in the Report.

This certification is hereby signed in reference to the above named project:

Company: _____

Address: _____

Telephone Number: _____

Type of construction service to be provided: _____

Signature: _____

Title: _____

Date: _____

Site Training Log

Stormwater Pollution Prevention Training Log

Project Name: _____

Project Location: _____

Instructor's Name(s): _____

Instructor's Title(s): _____

Course Location: _____ Date: _____

Course Length (hours): _____

Stormwater Training Topic: *(check as appropriate)*

- Erosion Control BMPs Emergency Procedures
- Sediment Control BMPs Good Housekeeping BMPs
- Non-Stormwater BMPs

Specific Training Objective: _____

Attendee Roster: *(attach additional pages as necessary)*

No.	Name of Attendee	Company
1		
2		
3		
4		
5		
6		
7		
8		
9		

Delegation of Authority Form

Delegation of Authority

I, _____ (name), hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing compliance with environmental requirements, including the Construction General Permit, at the _____ construction site. The designee is authorized to sign any reports, stormwater pollution prevention plans and all other documents required by the permit.

_____ (name of person or position)
_____ (company)
_____ (address)
_____ (city, state, zip)
_____ (phone)

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in _____ (Reference State Permit), and that the designee above meets the definition of a “duly authorized representative” as set forth in _____ (Reference State Permit).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____

Company: _____

Title: _____

Signature: _____

Date: _____

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

Construction Phase and Long Term Operation and Maintenance Plan (Standard 9 MA DEP Handbook)

An Operation and Maintenance Plan is summarized below and will be incorporated into the construction documents for this project.

In accordance with the Stormwater Management Policy issued by the Department of Environmental Protection (DEP), Waterfield Design Group, Inc. has prepared the following Operation and Maintenance Plan for the proposed project. This plan is broken into two major sections. The first section describes construction-related controls and practices. The second section is devoted to the post-construction operation and maintenance plan.

Basic Information

Developer: RMD Management Associates, LLC
Contact: Mr. Paul Marks
Address: P.O Box 1046
City: Brookline, MA 02246
Tel: (617)731-9114

Good Housekeeping BMP's (Construction and Post Construction Periods)

The following good housekeeping practices will be followed onsite during and after the construction project:

- An effort will be made to store only enough product required to do the job. All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible under a roof or other enclosure
- Products will be kept in their original containers with the original manufacturer's label
- Substances will not be mixed with one another unless recommended by the manufacture
- Whenever possible, all of a product will be used up before disposing of the container
- Manufacturer's recommendations for proper use and disposal will be followed
- The site superintendent will inspect daily to ensure proper use and disposal of materials
- When a Flood Watch is posted for the Boston Inner Harbor all loose materials within the 100 year floodplain (everywhere lower than the first floor of the indoor soccer facility) shall be removed from the site.

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

CONSTRUCTION PERIOD

Material Handling And Waste Management

Hazardous Products:

These practices will be used to reduce the risks associated with hazardous materials. Material Safety Data Sheets (MSDSs) for each substance with hazardous properties that is used on the job site will be obtained and used for the proper management of potential wastes that may result from these products. An MSDS will be posted in the immediate area where such product is stored and/or used and another copy of each MSDS will be maintained in the SWPPP file at the job site construction trailer office. Each employee who must handle a substance with hazardous properties will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product they are using, particularly regarding spill control techniques.

- Products will be kept in original containers unless they are not re-sealable
- Original labels and material safety data will be retained; they contain important product information
- If surplus product must be disposed of, manufacture's or local and State recommended methods for proper disposal will be followed

Hazardous Waste

All hazardous waste material will be disposed of by the Contractor in the manner specified by local, state, and/or federal regulations and by the manufacturer of such products. Site personnel will be instructed in these practices by the job site superintendent, who will also be responsible for seeing that these practices are followed.

Solid and Construction Wastes

All waste materials will be collected and stored in accordance with state and federal law in an appropriately covered container and/or securely lidded metal dumpster.

All trash and construction debris from the site will be deposited in the dumpster. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedures for waste disposal.

All waste dumpsters and roll-off containers will be located in an area where the likelihood of the containers contributing to storm water discharges is negligible. If required, additional BMPs must be implemented, such as sandbags around the base, to prevent wastes from contributing to storm water discharges.

Sanitary Wastes

All sanitary waste will be collected from the portable units a minimum of three times per week by a licensed portable facility provider in complete compliance with local and state regulations.

All sanitary waste units will be located in an area where the likelihood of the unit contributing to storm water discharges is negligible. If required, additional BMP's must be implemented, such as sandbags around the base, to prevent wastes from contributing to storm water discharges.

Washout Areas

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

The Contractor will provide wheel wash stations and concrete washout areas at the site as described below.

Wheel Wash Stations

The Contractor will provide wheel wash stations adjacent to the construction entrance which lead directly to a public way or portions of the site outside the limits of work

Concrete Washout

Trucks will be allowed to washout or discharge surplus concrete or drum wash water on the site, but only in specifically designated diked and impervious washout areas which have been prepared to prevent contact between the concrete wash and stormwater. Waste generated from concrete wash water shall not be allowed to flow into drainage ways, inlets, receiving waters or highway right of ways, or any location other than the designated concrete washout. Waste concrete may be poured into forms to make riprap or other useful concrete products. Proper signage designating the "concrete washout" shall be placed near the facility.

The hardened residue from the concrete washout diked areas will be disposed of in the same manner as other non-hazardous construction waste materials or may be broken up and used on site as deemed appropriate by the Contractor. Maintenance of the washout is to include removal of hardened concrete. Facility shall have sufficient volume to contain all the concrete waste resulting from washout and a minimum freeboard of 1 foot. Facility shall not be filled beyond 95% capacity and shall be cleaned out once 75% full unless a new facility is constructed.

Vehicle and Equipment Fueling

Areas will be designated on site, outside of any resource or buffer area, to refuel or maintain equipment used on site. Equipment fuel storage and refueling operations will be in an upland area at a horizontal distance greater than 100 feet from the boundaries of the wetland resource areas. The fueling areas will include secondary containment. The fueling areas will be inspected and cleaned weekly.

Spill Prevention and Control Plan

The Contractor will train all personnel in the proper handling and cleanup of spilled materials. No spilled hazardous materials or hazardous wastes will be allowed to come in contact with storm water discharges. If such contact occurs, the storm water discharge will be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated storm water. It shall be the responsibility of the job site superintendent to properly train all personnel in spill prevention and clean up procedures.

In order to minimize the potential for a spill of hazardous materials to come into contact with storm water, the following steps will be implemented:

1. All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) will be stored in a secure location, with their lids on, preferably under cover, when not in use.
2. During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area, An "infiltration area" is

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

any area of the site that by design or as a result of soils, topography and other relevant factors accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials

3. The minimum practical quantity of all such materials will be kept on the job site at all times.
4. A spill control and containment kit (containing, for example, absorbent materials, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site. Catch basin inlet cover blankets and inflatable pipe plugs will be used to seal the openings in the outlet control structure and isolate product in the wet pond should a spill occur.
5. Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.

In the event of a spill, the following procedures should be followed:

1. All spills will be cleaned up immediately after discovery.
2. The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with the hazardous substances.
3. The project manager and the Engineer of Record will be notified immediately.
4. Spills of toxic or hazardous materials will be reported to the appropriate federal, state, and/or local government agency, regardless of the size of the spill.
5. If the spill exceeds a Reportable Quantity, the SWPPP must be modified within seven (7) calendar days of knowledge of the discharge to provide a description of the release, the circumstances leading to the release, and the date of the release. The plans must identify measures to prevent the recurrence of such releases and to respond to such releases.

The job site superintendent will be the spill prevention and response coordinator. He will designate the individuals who will receive spill prevention and response training. These individuals will each become responsible for a particular phase of prevention and response. The names of these personnel will be posted in the material storage area and in the office trailer onsite.

In case of a spill the site superintendent will determine if the fire department needs to be called.

Allowable Non-Stormwater Discharge Management

Certain types of discharges are allowed under the NPDES General Permit for Construction Activity, and it is the intent of this Report to allow such discharges. These types of discharges will be allowed under the conditions that no pollutants will be allowed to come into contact with the water prior to or after its discharge. The control measures that have been outlined previously in this Report will be strictly followed to ensure that no contamination of these non-stormwater discharges takes place. The following non-stormwater discharges that may occur from the job site include:

- Discharges from fire-fighting activities
- Fire Hydrant flushings
- Waters used to wash vehicles where detergents are not used

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

- Water used to control dust in accordance with off-site vehicle tracking
- Potable water including uncontaminated water line flushings
- Routine external building wash down that does not use detergents
- Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used
- Uncontaminated air conditioner compressor condensate
- Uncontaminated ground water or spring water
- Foundation or footing drains where flows are not contaminated with process materials such as solvents
- Uncontaminated excavation dewatering
- Landscape irrigation

Standard 9: Long Term Operation and Maintenance Plan

POST CONSTRUCTION PERIOD LONG-TERM POLLUTION PREVENTION PLAN

Post-Construction BMP's for Water Quality

- Good housekeeping practices for long-term pollution prevention are detailed below.
- All material and waste products used for maintaining the site shall be stored inside, outside under cover, or placed in the dumpster if it is being disposed of.
- No post-construction vehicle washing shall occur on site.
- Requirements for routine inspections and maintenance of stormwater BMPs are detailed below.
- Spill prevention and response plans are detailed below.
- Provisions for maintenance of lawns, gardens, and other landscaped areas are detailed below.
- Storage of all fertilizers, herbicides, and pesticides shall follow the material storage requirements listed above. Use of all fertilizers, herbicides, and pesticides is detailed below.
- All pet waste shall be disposed of in the dumpster facilities.
- No septic system is on site.
- Solid waste management shall be relegated to the disposal facilities placed on site. All debris and other waste shall be disposed of in the dumpster. The dumpster shall be emptied at a regularly scheduled time to be determined by the site operator. Special pick-ups shall be made before and after large events to make sure that the dumpster does not overflow. Dumpster shall be emptied if a "Flood Watch" is issued for the Aberjona River and then secured to the concrete foundation pad until flood waters have receded from the site.
- Snow disposal and plow plans are detailed below.
- Winter salt and sand use are detailed below.
- Street sweeping schedules are detailed below.
- Provisions for prevention of illicit discharges to the stormwater management system are detailed below.
- Stormwater BMPs are not near a critical area or an LUHPPL. If a spill occurs that directs contaminants to the catch basin entry points on site. Those spills shall be contained by closing the flap gates at the outfalls.
- Training of staff involved with implementing the Long-Term Pollution Prevention Plan is detailed below.
- List of Emergency contacts responsible for implementing the Long-Term Pollution Prevention Plan are listed above in the Basic Information section.

The following best management practices are specified in the proposed development program to mitigate the increase in stormwater runoff from the site.

BMPs Used

- Street Sweeping

Post-Development Activities

1. All sediments removed from the site shall be disposed of properly and in accordance with all applicable local and state regulations.
2. All vegetated slope areas on the site shall be stabilized following completion of construction and maintained to control erosion. Any disturbed areas shall be re-seeded and stabilized by the application of jute mesh if the slope exceeds 3 feet horizontal to 1 foot vertical.
3. Snow storage at the site will be managed to prevent blockage of storm runoff.

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

4. Snow shall not be dumped into any waterbody, pond, or wetland resource area.
5. Sand and debris deposited on vegetated and paved areas at the site shall be cleared from the site and disposed of at the end of the snow season, no later than May 15.
6. Snow should be trucked off-site to an approved disposal area operated in accordance with MADEP Snow Management Standards when there is insufficient space for snow storage at the site.

All structural BMP's and maintenance responsibilities as identified on the site plans and within this document will be owned and maintained by the owner of the property and shall run with the title of the property.

Annual Reporting Form

The Owner shall keep complete records of all BMP maintenance activities using the following form which will be submitted annually to the Boston Environmental Department as part of the Order of Conditions:

OPERATION AND MAINTENANCE PLAN

Project: 80 Marginal Street
 Location: Boston, MA

Date: July 2019

Structure or Task	Inspection Schedule	Inspection Performed		Method	Notes/Remarks
		Date	By:		
Infiltration Area #1	April / May			Inspect maintenance ports	Remove accumulated debris and silt
	Sept. / Oct.				
Infiltration Area #2	April / May			Inspect maintenance ports	Remove accumulated debris and silt
	Sept. / Oct.				
Infiltration Area #3	April / May			Inspect maintenance ports	Remove accumulated debris and silt
	Sept. / Oct.				
Infiltration Area #4	April / May			Inspect maintenance ports	Remove accumulated debris and silt
	Sept. / Oct.				

Party responsible for O & M Plan:

Name RMD Management Associates, LLC
 Address P.O. Box 1046, Brookline, MA 02446
 Contact Paul Marks
 Phone (617) 731-9114

NOTE: This form must be submitted to the Boston Conservation Commission yearly by May 1st.

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

Annual Operating Budget

The estimated annual operating budget for the O & M Plan is \$1,000±.

Post-Construction Snow Storage

There should be minimum plowing at the site as most of the parking areas are under the building.

80 Marginal Street Flood Preparation Plan

The site operator shall monitor the national weather service forecast office for weather updates. The operator shall initiate a flood preparation plan when a “Flood Watch” has been issued for the Boston Inner Harbor. Watches are issued by radio broadcast and are available via the internet at <http://www/nws.noaa.gov>. The operator shall remove all vehicles from the floodplain area. The operator shall have staff and materials available seven days a week to implement the Flood Preparation Plan if needed. Once a “Flood Watch” has been issued the plan shall include the following:

- Remove all loose materials from the floodplain area.
- Secure any equipment within the 100 year flood plain too large to move or store.
- Remove all debris and debris collection receptacles from the flood plain area. Confirm that debris collection receptacles are secured.

Inspections

The following inspection activities will be completed by a qualified, designated site operator.

- Once a Flood Watch is issued for the Boston Inner Harbor and inspection shall be made by the property manager to ensure that the proper preparations described in this manual have been made.
- After a flooding event has occurred and has been cleaned up an inspection shall be made to ensure that materials have not left the site and that materials (debris, hazardous materials, etc.) that have entered the site from the flood event have been properly removed or treated.
- Inspections to evaluate conditions within the floodplain and to improve and prevent the transmission of debris from the site during flood events shall be completed quarterly.

A log of inspection results will be maintained on-site and will include the name of the inspector, date, major observations, and necessary corrective measures.

Necessary minor modification to the site will be implemented within two (2) days of inspection.

This manual will be modified within seven days to reflect any modifications to measures as a result of inspection.

A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the Manual, and actions taken will be made and retained as part of the Manual for at least three years after the date of the inspection.

After a flood event the turf manufacture shall be contacted to inspect the cleanup of the site and to test the field to ensure it continues to meet hardness and contamination safety standards. If the field does not meet safety standards, the field shall be modified as necessary and retested before play can be resumed.

Training

Training sessions must be provided by the Owner for property managers and operations personnel. The training will review specific procedures to be put in place in case of a Flood Watch in particulars of how to manage the synthetic turf field before and after the possible flood, maintenance of the site and stormwater structures, and reporting and response measures that may be needed by either operations personnel to implement the Operations and Maintenance plan. The Training Log shall be kept up to date by the Owner.

Updating the Plan

This plan must be modified as necessary to:

- Include additional or modified BMPs that correct problems identified as a result of an inspection. Revisions must be completed with seven (7) calendar days following the inspection.
- Ensure the effectiveness of the plan in eliminating or significantly minimizing pollutants from stormwater and flood waters discharging from the site.
- Prevent the reoccurrence of release of a hazardous material or oil.
- Address a change in design, construction, operation, or maintenance which has or may have a significant effect on the potential for the discharge of pollutants.

All modifications to the plan must be recorded on the Plan Amendment Log included in the Appendix.

Standard 10: Prohibition of Illicit Discharges

As provided for in the 2008 MADEP Stormwater Handbook and the 2008 amendments to 310 CMR 10.00 et. seq. (MAWPA Regs) the following will serve as the Illicit Discharge Compliance Statement for the project.

The existing developed site has no existing illicit discharges from the site. The new site is being designed such that there will not be any illicit discharges from the site.

Print name and title: Jacob R. Murray, PE, Senior Civil Engineer

Signature:  _____

Date: 8/8/19

Conclusion

As demonstrated in this report, the construction of the proposed redevelopment project will meet the requirements of the 2008 MADEP Stormwater Handbook and the 2008 amendments to 310 CMR 10.00 et. seq. (MAWPA Regs)MADEP Stormwater Guidelines except where the proposed redevelopment site meets the regulations to the maximum extent practical where noted above.

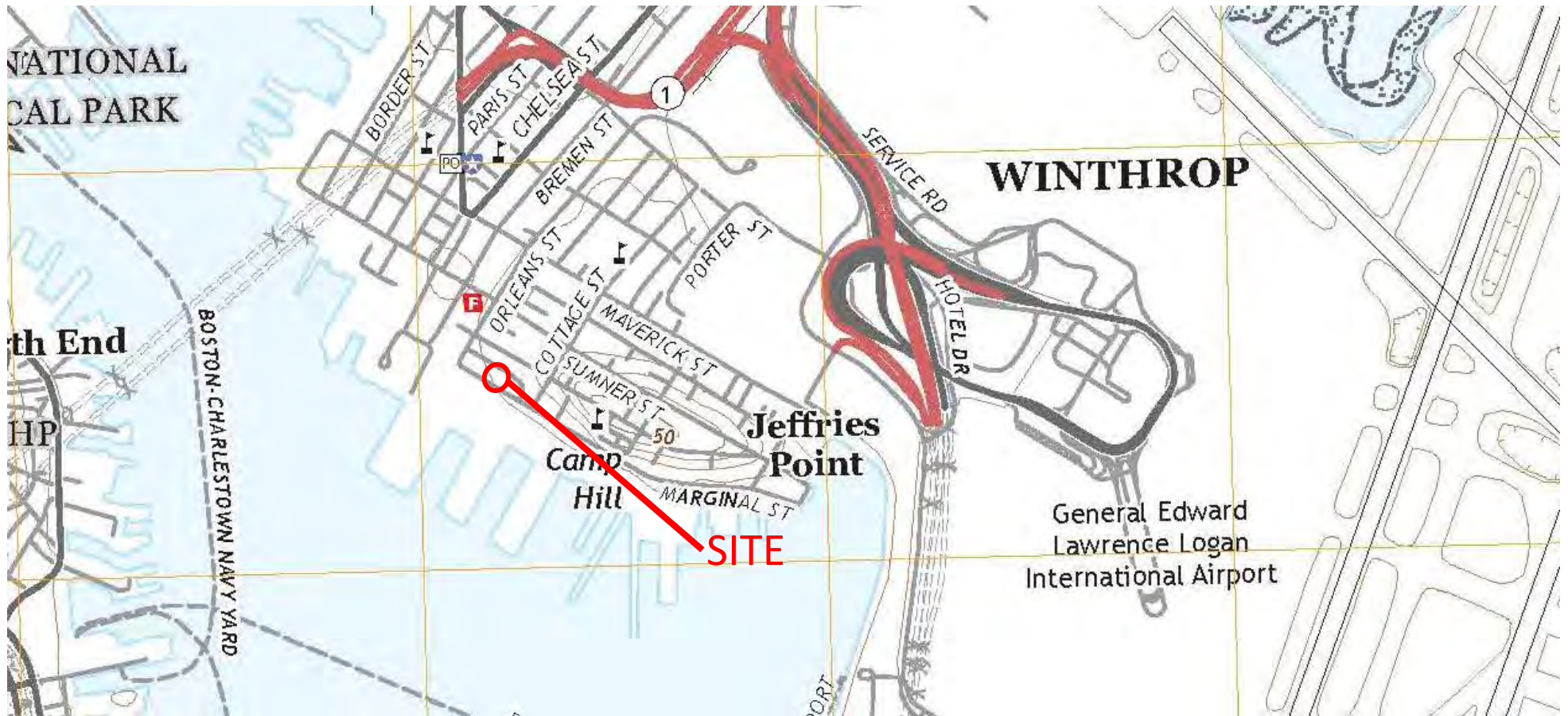
Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

**LOCUS MAP,
GEOTECHNICAL REPORT &
NRCS SOIL MAP**

Regional Locus

80 Marginal Street, Boston, MA





FOUNDATION ENGINEERING REPORT
80 MARGINAL STREET
EAST BOSTON, MASSACHUSETTS

AUGUST 31, 2018

Prepared For:

COPPER FORGE PARTNERS, LLC
c/o RMD Management Assoc., LLC
P.O. Box 1046
Brookline, MA 02446

2269 Massachusetts Avenue
Cambridge, MA 02140
www.mcphailgeo.com
(617) 868-1420

PROJECT NO. 6641.2.00



August 31, 2018

Copper Forge Partners, LLC
c/o RMD Management Assoc., LLC
P.O. Box 1046
Brookline, MA 02446

Attention: Mr. Paul Marks

Reference: 80 Marginal Street; East Boston, Massachusetts
Foundation Engineering Report

Ladies and Gentlemen:

This letter report documents the results of our subsurface exploration and foundation design study for the proposed development to be constructed at 80 Marginal Street in East Boston, Massachusetts. Refer to the Project Location Plan (**Figure 1**) for the general site location.

This report was prepared in accordance with our proposal dated June 28, 2018 and the subsequent authorization of Mr. Paul Marks. These services are subject to the limitations contained in **Appendix A**.

Purpose and Scope

The purposes of the subsurface exploration program and foundation design study are to assess the subsurface soil and groundwater conditions at the site as they relate to foundation design and construction, and based on this information, to provide safe and economic foundation design recommendations for the proposed development.

Foundation design includes foundation support of the proposed structure and its lowest level slab, treatment of the lowest level slab in consideration of groundwater, lateral earth pressures on foundation walls and cantilevered site retaining walls, and seismic design considerations in accordance with the provisions of the Ninth Edition of the Massachusetts State Building Code (Code). Foundation construction considerations relating to preparation of footing bearing surfaces, excavation support, construction dewatering, and off-site removal of excess excavated material are also presented herein.

Available Information

Information provided to McPhail Associates, LLC (McPhail) included a set of architectural drawings prepared by Pisani + Associates Architects (Pisani) and dated May 11, 2018 containing floor plans, elevations and renderings of the proposed development. Additionally, subsurface information contained within McPhail files was used in preparation of this report.



Existing and Proposed Site Conditions

The approximate 4,600 square-foot project site spans from Haynes Street to the north to Marginal Street to the south. A paved parking lot is present along the east side of the site. The west side of the site is bounded by a two-story wood-framed structure (23 Haynes Street) to the north and a landscaped area to the south. The site is currently undeveloped and utilized as a paved at-grade parking lot. The existing ground surface across the site is relatively level at about Elevation +15.

The proposed development is understood to include the construction of a new, four-story, residential building. The first through the third floors of the proposed building are planned to contain 1- and 2-bedroom condominiums with a single three-bedroom unit on the fourth floor. One level of below-grade parking is planned as part of the proposed project with an approximate footprint of 3,800 square-feet and a lowest level slab planned at Elevation +9.4. Additionally, a central elevator core is proposed that will extend down to Elevation +4.4.

Previous Subsurface Exploration Program

On September 21, 2015, a subsurface exploration program consisting of two borings (B-1 and B-2) was completed at the project site by McPhail Associates, LLC (McPhail) within the existing paved parking lot. The borings were performed by Carr-Dee Corp. of Medford, Massachusetts under contract to McPhail. The results of the previous subsurface explorations were reviewed as part of our foundation design study. The approximate locations of the previous borings are indicated on the enclosed Subsurface Exploration Plan, **Figure 2**. Logs of the borings prepared by Carr-Dee Corp. are included in **Appendix B**.

To permit monitoring of groundwater levels, a groundwater observation well was installed in completed borehole B-1. Installation details of the observation well are indicated on the boring log contained in **Appendix B**. A groundwater monitoring report is presented in **Appendix E**.

Recent Subsurface Exploration Program

A subsurface exploration program consisting of two (2) borings and two (2) test pits was completed at the site on August 17, 2018. The borings and test pits were conducted by Carr-Dee Corp. (Carr-Dee) of Medford, Massachusetts and Guarino Site and Utility Contracting LLC (GSU Contracting) of Saugus, Massachusetts, respectively, both under contract to Copper Forge Development. Approximate locations of the borings and test pits are indicated on the attached Subsurface Exploration Plan, **Figure 2**. Logs of the borings prepared by Carr-Dee are contained in **Appendix C**. Logs of the test pits prepared by McPhail are contained in **Appendix D**.



The borings were performed using a truck-mounted drill rig and advanced utilizing NW casing and the wet rotary drilling method or utilizing 2-¼-inch diameter hollow-stem augers. Standard 2-inch O.D. split-spoon samples and standard penetration tests were generally obtained at minimum 5-foot intervals of depth in accordance with the standard procedures described in ASTM D1586. Borings B-101 and B-102 were both advanced to a depth of 32 feet below existing grade and were terminated within the clay deposit which underlies the site.

The borings were observed by a McPhail field representative who performed field layout, prepared field logs, obtained and visually classified soil samples, monitored groundwater conditions in the open boreholes and previously installed observation wells, and determined the required exploration depths based upon the actual subsurface conditions encountered.

Field locations of the subsurface explorations were determined by taping from existing site features identified on the referenced site plan provided to us.

Subsurface Conditions

The following description of the subsurface conditions across the project site was developed primarily from the borings performed at the site, but also from our knowledge of the local geology. Detailed descriptions of the conditions encountered in the recent and previous borings and test pits are presented in the logs contained in **Appendix B**, **Appendix C**, and **Appendix D**, respectively. Based on the boring explorations performed on the site, the following is a description of the generalized subsurface conditions encountered from ground surface downward.

Soil and Groundwater Conditions

Underlying the approximate 6-inch thick asphalt pavement, the borings encountered granular fill material which generally consists of loose to compact, brown to black to gray, sand and gravel with some silt. Additionally, a 2- to 4-foot layer of cohesive fill was encountered within the fill deposit within both borings. The fill was also observed to contain occasional pieces of wood, cinders, ash and brick with some organic material. The fill material was observed to extend to depths of 10.5 and 14 feet below the existing ground surface.

Within boring B-101, an organic silt deposit was encountered, which generally consists of very soft to firm, gray organic silt with some sand and trace peat fibers, was present below the fill material. The organic silt deposit was observed to extend to a depth of 14.5 feet below the existing ground surface.

A marine clay deposit was encountered underlying the fill and organic deposits in borings B-102 and B-101, respectively. The marine clay generally consists of a stiff to hard, brown-gray to gray, silty clay with some to trace gravel and trace sand varying to a sandy



silty clay with some gravel. The surface of the marine clay deposit was observed to be at depths of 14.5 and 14 feet below the existing ground surface. The borings were terminated in the marine clay at a depth of 32 feet below ground surface.

Groundwater was observed in the boreholes upon the completion of drilling at a depth of 7 feet below the ground surface, corresponding to approximately Elevation +8. In addition, groundwater measurements recorded in the observation well installed in previously completed boring B-1 indicate that the groundwater level ranges from 4.9 to 6 feet below existing ground surface, corresponding to between approximately Elevation +10.1 and Elevation +9. It is anticipated that future groundwater levels across the site may vary from those reported herein due to factors such as normal seasonal changes, runoff particularly during or following periods of heavy precipitation, and alterations of existing drainage patterns.

Adjacent Foundation Conditions

Based on our observations of test pits TP-1 and TP-2, the adjacent building located at 23 Haynes Street appears to be supported by a granite block foundation along the perimeter wall that bears in the fill deposit. Along the perimeter, the bottom of footing level was observed to range from approximately 5.3 to 6 feet below the ground surface and offset approximately 0.2-feet from the exterior face of the brick wall foundation, into the project site. Backfill around the footing and against the foundation wall was observed to consist of a granular fill material, as described above. The test pit logs documenting these observations are contained in **Appendix C**.

Foundation Design Recommendations

Based on the subsurface conditions encountered during the subsurface exploration program and in consideration of the proposed single level of below-grade parking with regards to the observed groundwater level, it is recommended that the proposed perimeter wall of the structure be supported by a drilled secant pile cut-off wall which would be installed as groundwater cut-off, excavation support, and subsequently, remain in-place as the permanent perimeter foundation wall in conjunction with a soil-supported slab-on-grade. Additionally, it is recommended that support of the interior footings of the proposed building be provided by pier footings. The results of the subsurface exploration indicate that the project site is underlain by a fill material overlying an organic deposit that extends to depths ranging from 13 to 14.5 feet below existing ground surface. Therefore, it is recommended that the interior pier footings be supported on lean concrete piers that extend from the design bottom of the footing to the surface of the marine clay deposit bearing stratum.

All foundations should be designed in accordance with the Ninth Edition of the Massachusetts State Building Code (Code). Perimeter foundations and foundations below unheated areas should be provided with a minimum 4-foot thickness of soil cover as frost protection. Foundations at heated interior locations should be located such that the top of



the foundation concrete is a minimum of 6 inches below the underside of the lowest level slab.

The lowest level slab at Elevation +9.4 is below the variable groundwater levels observed across the site. For this situation, one foundation approach would be to design the lowest level floor slab as a thick, heavily-reinforced and waterproofed pressure slab to withstand the hydrostatic uplift pressure. However, subsurface conditions at this site are considered to be suited for economical, underdrained slab-on-grade construction in conjunction with the perimeter foundation walls acting as a groundwater cut-off. The existing granular fill, where encountered, may remain in place below the lowest level slab provided it is proof-compacted with a minimum of six passes of a large walk-behind double drum vibratory roller. All soft, spongy or "weaving" areas observed during the proof compaction should be cut-out and replaced with compacted structural fill.

The foundation design concept of an underdrained slab, in conjunction with perimeter groundwater cut-off walls, is intended to maintain the general groundwater levels adjacent to the site at their pre-construction levels and to reduce the magnitude of groundwater flow into the underslab drainage system.

Interior pier footings are recommended to be supported on lean concrete piers that extend from the design bottom of the footing to the surface of the marine clay deposit bearing stratum. The footings should be proportioned utilizing a maximum design bearing pressure of three (3) tons per square-foot (tsf). The lateral limits of the lean concrete should extend beyond the plan dimensions of the footing by at least six (6) inches in all directions. The lean concrete should have a minimum 28-day compressive strength of 1,000 psi.

It is currently understood that the proposed below-grade construction will necessitate an approximate 10- to 15-foot deep excavation in close proximity to adjacent streets, buildings, and utilities. The type and design of the earth support system to achieve this excavation must provide adequate support and protection of the adjacent existing structures, streets, and utilities and must be compatible with the subsurface soil and groundwater conditions. In consideration of these factors, a drilled secant pile cut-off wall is considered to be the most effective means of excavation support, as it can be installed into the marine clay that underlies the site with minimal impact to adjacent buildings due to construction vibrations (unlike a driven steel sheet pile wall) and can provide a perimeter groundwater cut-off during construction of the proposed below-grade space (unlike a soldier pile and lagging wall). Furthermore, utilization of a secant pile wall would allow for the excavation support system to remain in-place after the construction and function as the permanent foundation wall and perimeter groundwater cut-off for the below-grade portion of the proposed building. The use of driven steel sheet piles would also require the perimeter walls to be "off-set" to allow for formwork. The utilization of a secant pile wall will allow the foundation wall to be installed directly adjacent to the existing property line.

Secant pile walls are constructed as continuous walls of intersecting drilled shafts. Typical construction of secant pile walls involve the installation of alternative (primary) shafts which



are spaced at a center-to-center distances smaller than twice the shaft diameter. Concrete is then placed in these shafts, and, before the concrete has fully cured, intermediate (secondary) shafts are installed in a slightly offset location to the alternative shafts. This installation procedure allows for the secondary shafts to “cut” into both of the adjacent primary shafts and, once concrete has been placed in the intermediate shafts, creates a continuous wall. Wall steel reinforcement generally consisting of structural steel members are installed within the secondary shafts. Typically, secant piles are designed utilizing roughly 24- to 36-inch diameter shafts with a center-to-center distance of 18 to 30 inches, resulting in an approximate shaft overlap of about three (3) inches.

In consideration of the necessity to achieve a permanent groundwater cut-off, the secant pile wall should extend a minimum of 10 feet below the bottom of the final excavation level or a minimum of 8 feet below the top of the underlying marine clay, whichever is deeper. Additionally, the secant pile wall should be designed for support of structural loads applied to the perimeter foundation wall utilizing a maximum allowable bearing pressure of two (2) tsf on the marine clay deposit. Since the drilled secant pile wall will be utilized as the permanent foundation wall, it should be designed by the project structural engineer based on design parameters provided herein. Construction considerations associated with the temporary excavation support system are further discussed in the “Foundation Construction Considerations” section of this report.

Upon completion, it is anticipated that minor seepage through the secant pile wall will occur, primarily at the intersection of the shafts. It is recommended that these leaks be attempted to be grouted or treated with a cementitious waterproofing. Alternatively, the minor groundwater seepage through the secant pile wall could be collected in a perimeter trench cut into the floor slab which discharges into the underslab drainage system. A properly tied water stop should be located at the construction joints between the exterior walls and the slab-on-grade.

The lowest level slab should be designed as a conventional slab-on-grade which is directly underlain by a polyethylene vapor barrier spread over a minimum 9-inch thickness of $\frac{3}{4}$ -inch crushed stone. A network of 4-inch diameter perforated PVC drain pipes should be located within the crushed stone drainage layer and be surrounded by a minimum 6-inch thickness of crushed stone. The crushed stone should be underlain by a thickness of filter fabric such as Mirafi 140N placed directly over the proof-compacted existing granular fill subgrade.

Due to the groundwater seal created by the construction of the perimeter foundation walls a minimum of 8-foot into the site marine clay, groundwater inflow into the underslab pressure-relief system is anticipated to be minimal, likely less than 20 gallons per minute. Due to the importance of the continuous long-term performance of the underslab drainage system, the underslab drains should discharge to a sump which is equipped with duplex pumps, each having a capacity of pumping at least 20 gallon per minute when pumping against a 15-foot head, which are tied into an emergency generator.



All localized depressions in the lowest level slab extending below the invert elevation of the underslab drainage system (such as elevator pits) should be provided with properly tied continuous waterstops in all construction joints and cementitious waterproofing to protect against groundwater intrusion.

The below-grade, secant pile foundation wall of the proposed below-grade space should also be designed to resist hydrostatic pressures. Foundation walls should be designed for a lateral earth pressure corresponding to an equivalent fluid density of 90 pounds per cubic foot (pcf) below the design groundwater level of Elevation +13 and 60 pcf above the design groundwater elevation, plus one half of any adjacent vertical surcharge loads applied as a constant pressure over the height of the wall. To these values must be added the pressures attributable to earthquake forces per Section 1610.2 of the Code.

Lateral forces can be considered to be transmitted from the structure to the soil by passive pressure against the foundation walls utilizing an equivalent fluid density of 120 pcf providing that the walls are designed to resist these pressures. Lateral force can also be considered to be transmitted from the structure to the soil by friction on the base of the foundations using a coefficient of 0.4 to which a safety factor of 1.5 should be applied.

Seismic Design Considerations

For the purposes of determining parameters for structural seismic design, this site is considered to be a Site Class D as defined in Section 1613.5.2 of the Code. Furthermore, the bearing strata on the proposed site is not considered to be subject to liquefaction during an earthquake based on the criterion of Section 1806.4 of the Code.

Foundation Construction Considerations

The primary foundation construction considerations are anticipated to include the preparation of foundation bearing surfaces, temporary earth support, construction dewatering, and off-site removal of excess excavated material.

Preparation of the foundation bearing surfaces should include removal of all fill and organic materials from within the locations of the interior building footings to expose the surface of the natural undisturbed bearing stratum consisting of natural marine clay. To minimize disturbance of the marine clay deposit, it is recommended that the final excavation should be accomplished using an excavator that is equipped with smooth-edged bucket.

It is anticipated that a trench box and/or steel plates may be used as temporary excavation support where needed and to limit the quantity of lean concrete during the overexcavation and replacement of lean concrete at the proposed spread footing locations.



As discussed above, it is anticipated that foundation construction will require an excavation that extends to a depth of about 10 to 15 feet below the existing ground surface, and that a cantilevered secant pile wall is recommended to be installed for support of this excavation. The installation process of a secant pile wall generally imparts less vibrations on the surrounding soils, thus reducing the potential for consolidation of those soils which could negatively impact adjacent properties and structures. The secant pile wall earth support system should be designed by a professional engineer registered in the Commonwealth of Massachusetts who is employed by the Contractor. The design should be based on design parameters provided in the Contract Documents and on the Contractor's anticipated construction sequence and procedures. The design should be submitted to the Architect for review prior to the commencement of construction.

Given an effective groundwater cut-off being achieved by the secant pile wall, sumping from within the excavation should suffice for dewatering such that construction can proceed in-the-dry and that the final subgrade surfaces will not be unduly disturbed. In addition, trapped surface water and groundwater runoff may accumulate on the surface of the subgrade soils at localized areas within the excavation after periods of heavy precipitation that may also necessitate localized sumping.

Based on the extent of the building footprint across the project site, on-site recharge of collected groundwater is not considered to be feasible. As such, appropriate dewatering discharge permits should be obtained prior to discharging water into nearby storm drains.

Our scope of services to date specifically excludes geoenvironmental engineering services pursuant to the Massachusetts Oil and Hazardous Materials Release Prevention and Response Act (MGL Chapter 21E) and pursuant to the Massachusetts Contingency Plan (310 CMR 40.00). However, off-site removal of excess excavated soil from the proposed development will likely be necessary, chemical analysis of the excess soil will be required in order to conform to the regulations and policies of the Massachusetts Department of Environmental Protection (MA DEP). Chemical analysis of excess excavated material for the purpose of off-site removal would not be required if the excess excavated material remains on the site. If requested, McPhail Associates, LLC can provide these services for this project at the appropriate time based on the project schedule.

Final Comments

McPhail has been retained to provide design assistance to the design team during the final design phase of this project. The purpose of our involvement would be to review the structural foundation drawings and foundation notes for conformance with the recommendations presented herein, to generate the Earthwork specification section for inclusion into the Contract Documents for construction and to design the foundation drainage system.



Copper Forge Partners, LLC
August 31, 2018
Page 9

It is further recommended that McPhail be retained during the construction period to observe installation of the secant pile wall, preparation of foundation bearing surfaces, installation of underslab drainage, and placement and compaction of structural fill. Our involvement during the construction phase of the work should minimize costly delays due to unanticipated field problems since our field engineer would be under the direct supervision of our project manager who was responsible for the subsurface exploration program and foundation design recommendations documented herein.

We trust that the above information is sufficient for your present requirements. Should you have any questions concerning the recommendations presented herein, please do not hesitate to call us.

Very truly yours,

McPHAIL ASSOCIATES, LLC

A handwritten signature in blue ink, appearing to read "C. Miller", with a long horizontal flourish extending to the right.

Christopher P. Miller

A handwritten signature in blue ink, appearing to read "Chris M. Erikson", with a long horizontal flourish extending to the right.

Chris M. Erikson, P.E.

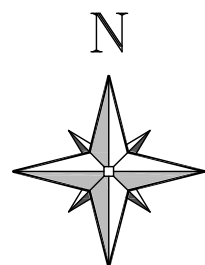
N:\Working Documents\Reports\6641-FER-082718.docx

CPM/cme

FIGURE I



Geotechnical and
 Geoenvironmental Engineers
 2269 Massachusetts Avenue
 Cambridge, MA 02140
 617/868-1420
 617/868-1423 (Fax)
 www.mcphailgeo.com



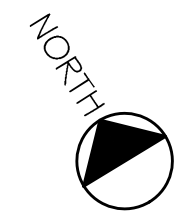
SCALE 1:25,000

PROJECT LOCATION PLAN

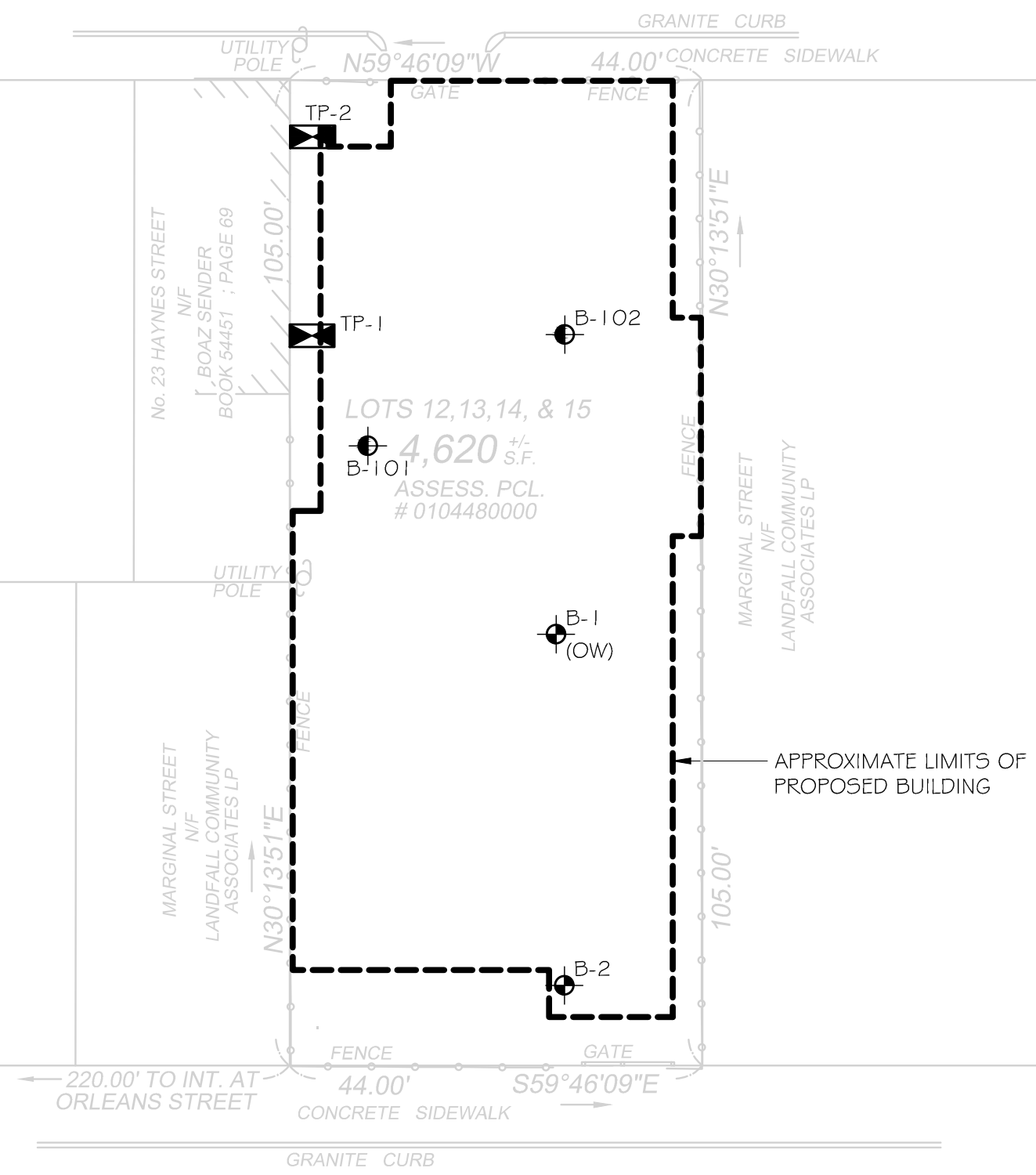
80 MARGINAL STREET

EAST BOSTON

MASSACHUSETTS



HAYNES (PUBLIC - 50.0' WIDE) STREET



LEGEND


- APPROXIMATE LOCATION OF TEST PIT PERFORMED BY GSU CONTRACTING LLC ON AUGUST 17, 2018 FOR COPPER FORGE DEVELOPMENT
- APPROXIMATE LOCATION OF BORING PERFORMED BY CARR-DEE CORP. ON AUGUST 17, 2018 FOR COPPER FORGE DEVELOPMENT
- APPROXIMATE LOCATION OF BORING PERFORMED BY CARR-DEE CORP. ON SEPTEMBER 21, 2015 FOR McPHAIL ASSOCIATES, LLC
- (OW) — INDICATES OBSERVATION WELL INSTALLED WITHIN COMPLETED BOREHOLE

REFERENCE: THIS PLAN WAS PREPARED FROM AN 1/8-SCALE DRAWING ENTITLED, "PRELIMINARY SITE PLAN" DATED AUGUST 27, 2015 PREPARED BY THE ARCHITECTURAL TEAM



MARGINAL (PUBLIC - 50.0' WIDE) STREET

FILE NAME: N:\Acad\JOBS\641\6641-F02.dwg

 <p>McPHAIL ASSOCIATES, LLC Geotechnical and Geoenvironmental Engineers 2269 Massachusetts Avenue Cambridge, MA 02140 617/868-1420 617/868-1423 (Fax) www.mcphailgeo.com</p>	80 MARGINAL STREET		
	EAST BOSTON MASSACHUSETTS		
	SUBSURFACE EXPLORATION PLAN		
	FOR COPPER FORGE PARTNERS, LLC BY McPHAIL ASSOCIATES, LLC		
Date: AUGUST 2018	Dwn: M.B.S.	Chkd: C.P.M.	Scale: 1/16" = 1'-0"
Project No: 6641			



**APPENDIX A:
LIMITATIONS**



LIMITATIONS

This report has been prepared on behalf of and for the exclusive use of Copper Forge Partners, LLC for specific application to the proposed development to be constructed at 80 Marginal Street in East Boston, Massachusetts in accordance with generally accepted soil and geotechnical engineering practices. No other warranty, expressed or implied, is made.

In the event that any changes in nature or design of the proposed construction are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing by McPhail Associates.

The analyses and recommendations presented in this report are based upon the data obtained from the subsurface explorations performed at the approximate locations indicated on the enclosed plans. If variations in the nature and extent of subsurface conditions between the widely spaced explorations become evident during the course of construction, it will be necessary for a re-evaluation of the recommendations of this report to be made after performing on-site observations during the construction period and noting the characteristics of any variations.



APPENDIX B:

**PREVIOUS BORING LOGS B-1 AND B-2
PREPARED BY CARR-DEE CORP.**

CARR-DEE CORP.

37 LINDEN STREET

MEDFORD, MA 02155-0001

Telephone (781) 391-4500

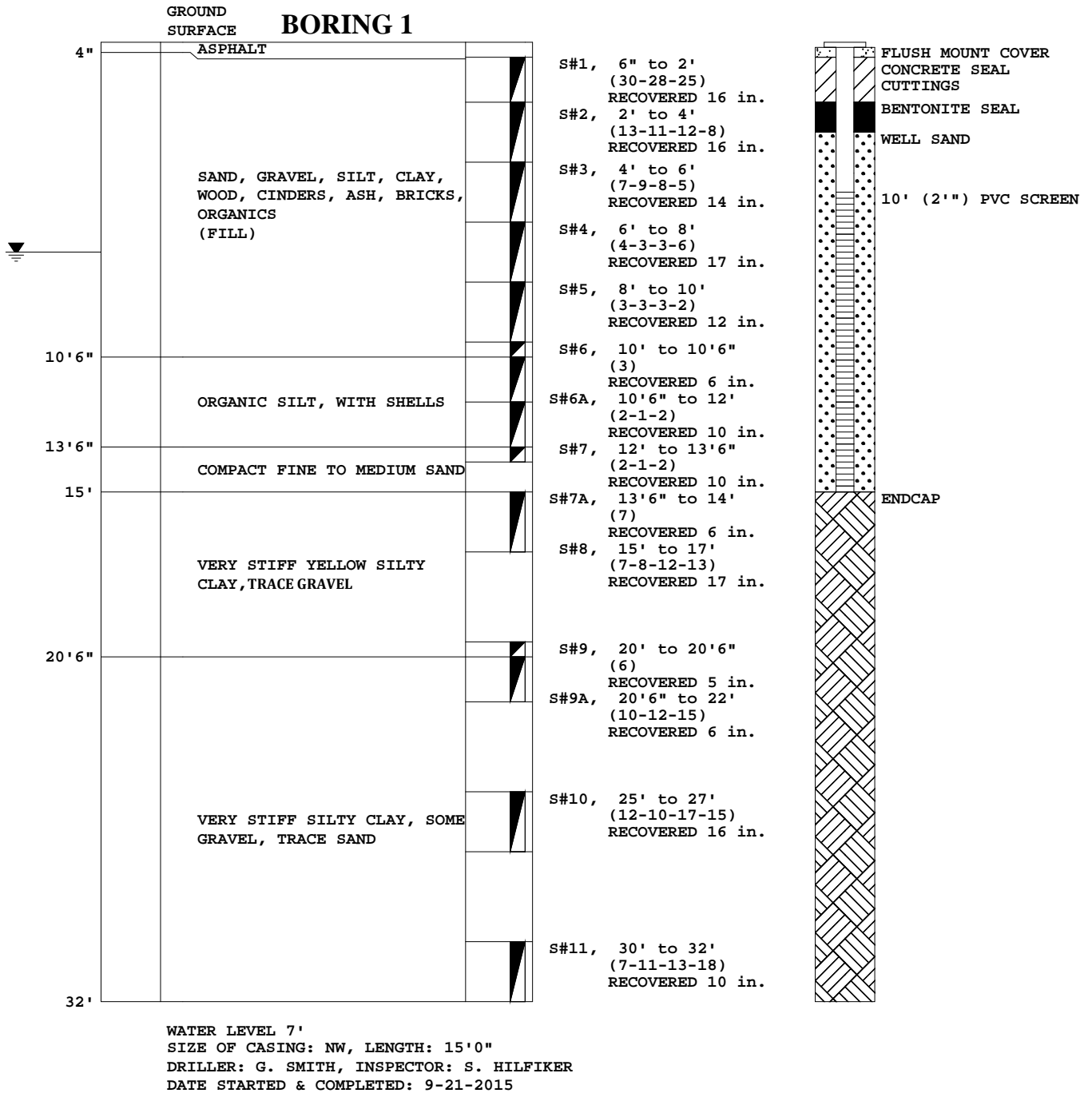
To: MCPHAIL ASSOC., LLC, 2269 MASS. AVE., CAMBRIDGE, MA

Date: 9-23-2015

Job No.: 2015-138

Location: 74-88 MARGINAL STREET, EAST BOSTON, MA

Scale: 1 in. = 5 ft.



All samples have been visually classified by DRILLER. Unless otherwise specified, water levels noted were observed at completion of borings, and do not necessarily represent permanent ground water levels. Figures in parenthesis indicate the number of blows required to drive Two-inch Split Sampler 6 inches using 140 lb. weight falling 30 inches(±). Figures in column to left (if noted) indicate number of blows to drive casing one foot, using 300 lb. weight falling 24 inches (±).

CARR-DEE CORP.

37 LINDEN STREET

MEDFORD, MA 02155-0001

Telephone (781) 391-4500

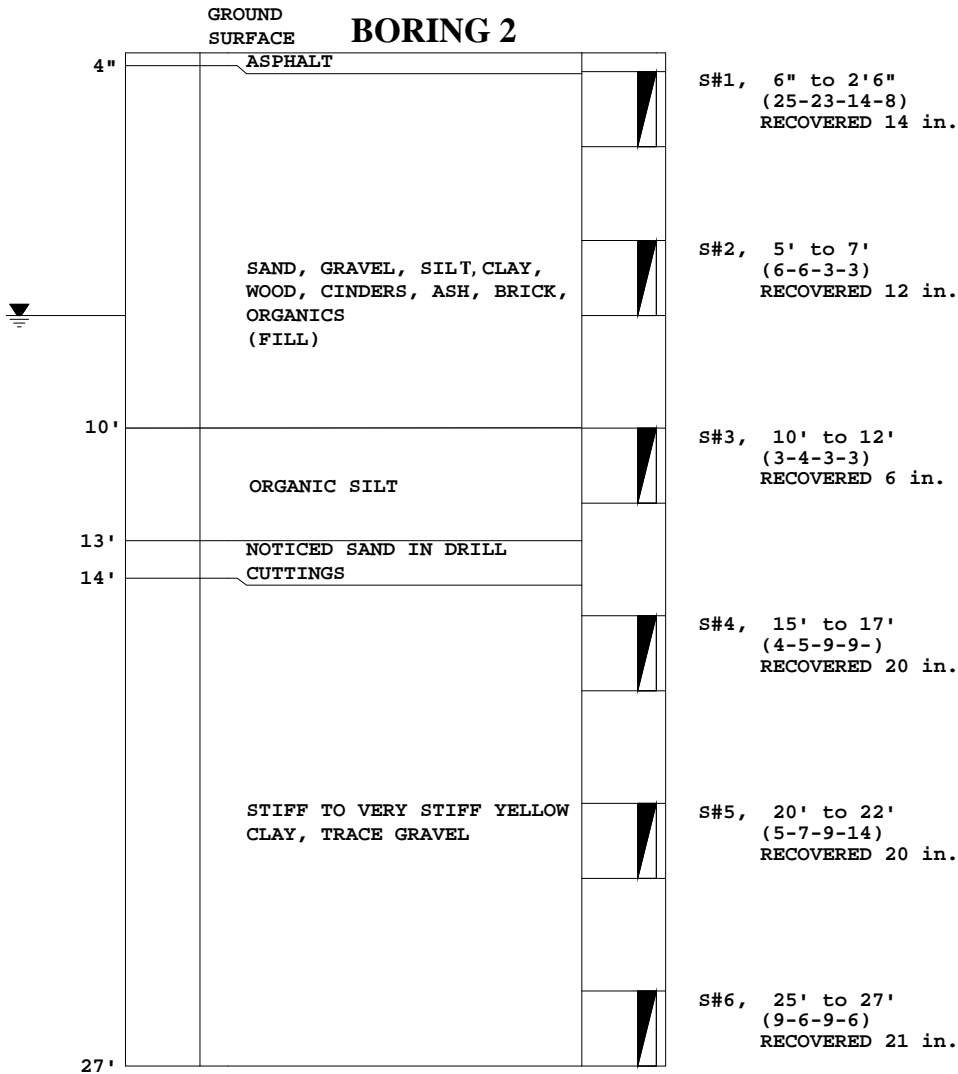
To: MCPHAIL ASSOC., LLC, 2269 MASS. AVE., CAMBRIDGE, MA

Date: 9-23-2015

Job No.: 2015-138

Location: 74-88 MARGINAL STREET, EAST BOSTON, MA

Scale: 1 in. = 5 ft.



WATER LEVEL 7'
 SIZE OF CASING: NW, LENGTH: 15'0"
 DRILLER: G. SMITH, INSPECTOR: S. HILFIKER
 DATE STARTED & COMPLETED: 9-21-2015

All samples have been visually classified by DRILLER. Unless otherwise specified, water levels noted were observed at completion of borings, and do not necessarily represent permanent ground water levels. Figures in parenthesis indicate the number of blows required to drive Two-inch Split Sampler 6 inches using 140 lb. weight falling 30 inches(±). Figures in column to left (if noted) indicate number of blows to drive casing one foot, using 300 lb. weight falling 24 inches (±).



APPENDIX C:

**RECENT BORING LOGS B-101 AND B-102
PREPARED BY CARR-DEE CORP.**

CARR-DEE CORP.

37 LINDEN STREET

MEDFORD, MA 02155-0001

Telephone (781) 391-4500

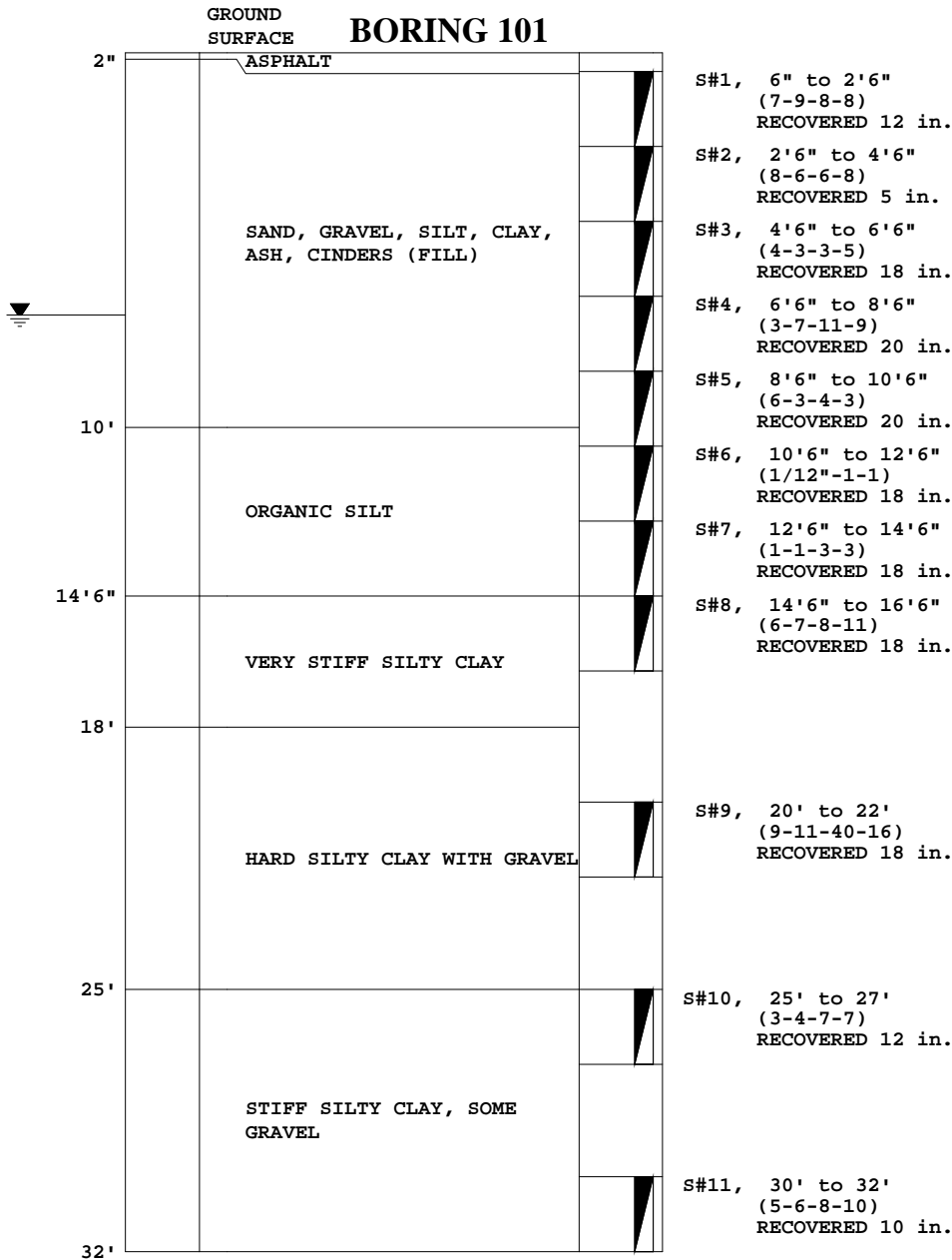
To: COPPER FORGE DEVELOPMENT, BROOKLINE, MA

Date: 8-20-2018

Job No.: 2018-143

Location: 80 MARGINAL STREET, EAST BOSTON, MA

Scale: 1 in. = 5 ft.



WATER LEVEL 7'
 SIZE OF CASING: NW, LENGTH: 15'0"
 DRILLER: S. DESIMONE, JR., INSPECTOR: C. MILLER
 DATE STARTED & COMPLETED: 8-17-2018

All samples have been visually classified by . Unless otherwise specified, water levels noted were observed at completion of borings, and do not necessarily represent permanent ground water levels. Figures in parenthesis indicate the number of blows required to drive Two-inch Split Sampler 6 inches using 140 lb. weight falling 30 inches(±). Figures in column to left (if noted) indicate number of blows to drive casing one foot, using 300 lb. weight falling 24 inches (±).

CARR-DEE CORP.

37 LINDEN STREET

MEDFORD, MA 02155-0001

Telephone (781) 391-4500

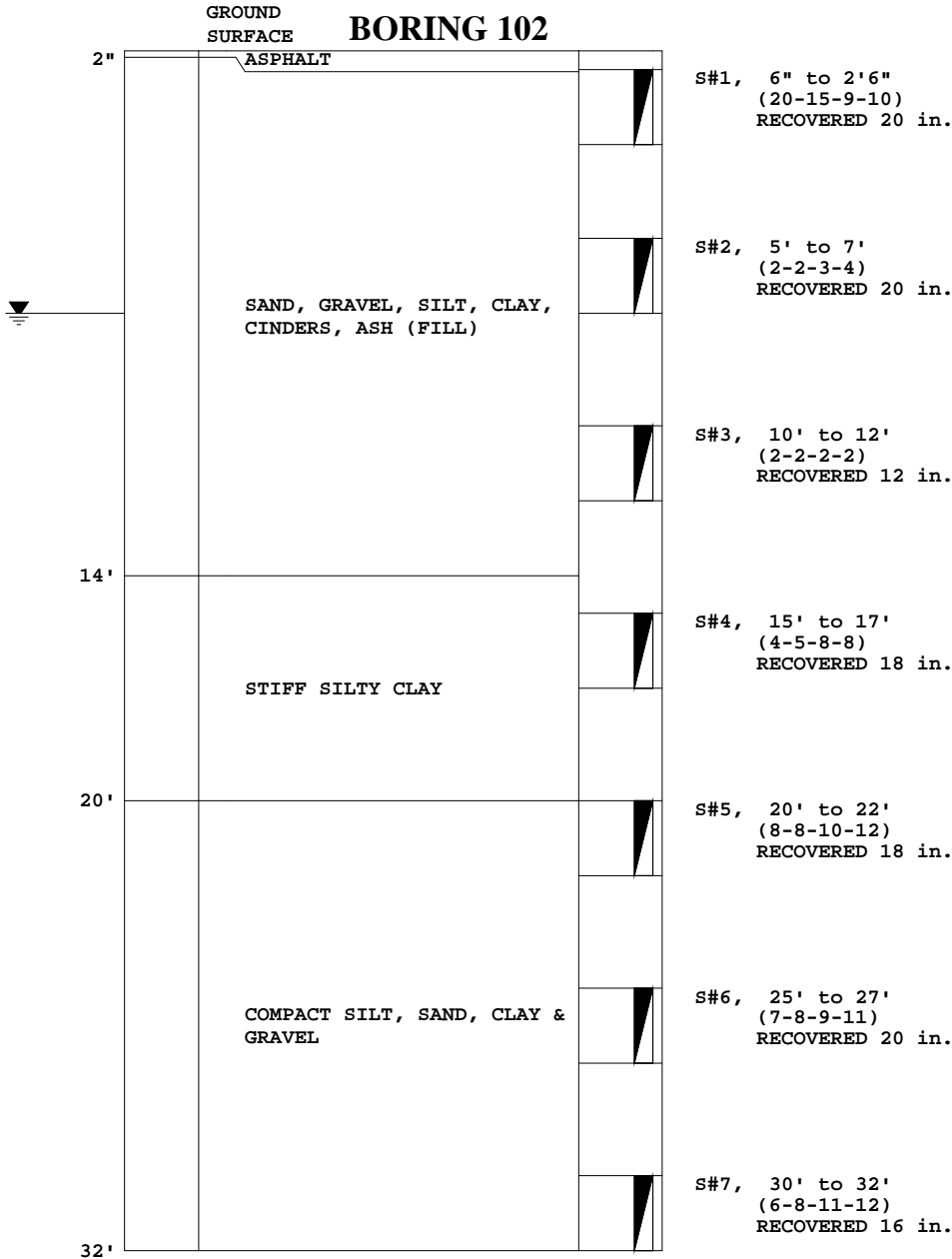
To: COPPER FORGE DEVELOPMENT, BROOKLINE, MA

Date: 8-20-2018

Job No.: 2018-143

Location: 80 MARGINAL STREET, EAST BOSTON, MA

Scale: 1 in. = 5 ft.



WATER LEVEL 7'
 SIZE OF CASING: NW, LENGTH: 15'0"
 DRILLER: S. DESIMONE, JR., INSPECTOR: C. MILLER
 DATE STARTED & COMPLETED: 8-17-2018

All samples have been visually classified by . Unless otherwise specified, water levels noted were observed at completion of borings, and do not necessarily represent permanent ground water levels. Figures in parenthesis indicate the number of blows required to drive Two-inch Split Sampler 6 inches using 140 lb. weight falling 30 inches(±). Figures in column to left (if noted) indicate number of blows to drive casing one foot, using 300 lb. weight falling 24 inches (±).

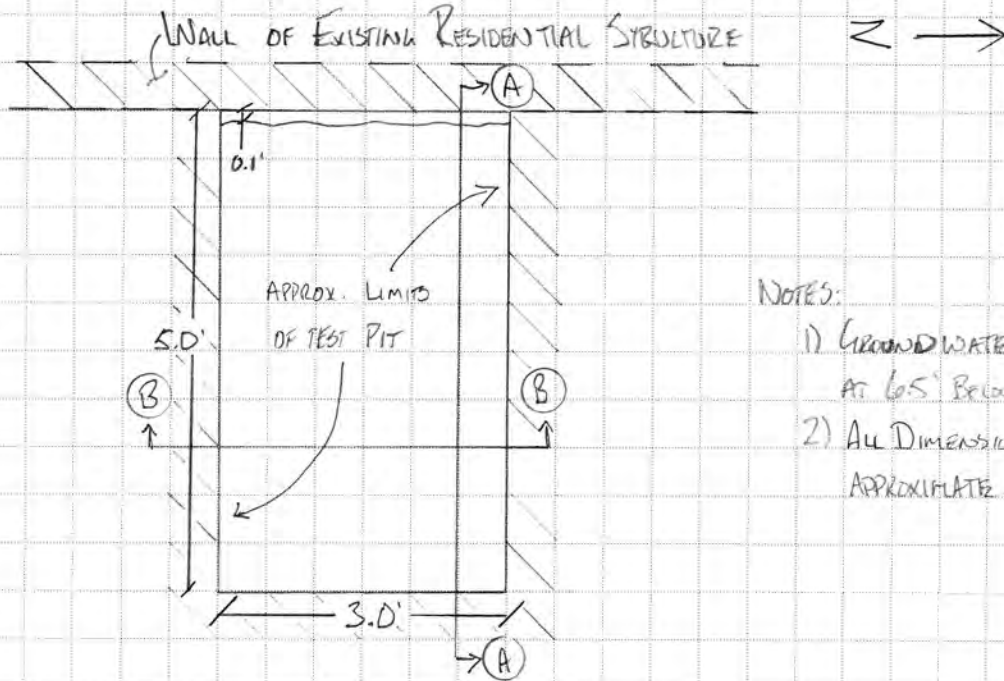


APPENDIX D:

**TEST PIT LOGS TP-1 AND TP-2
PREPARED BY MCPHAIL ASSOCIATES, LLC**

SCALE _____

PLAN VIEW

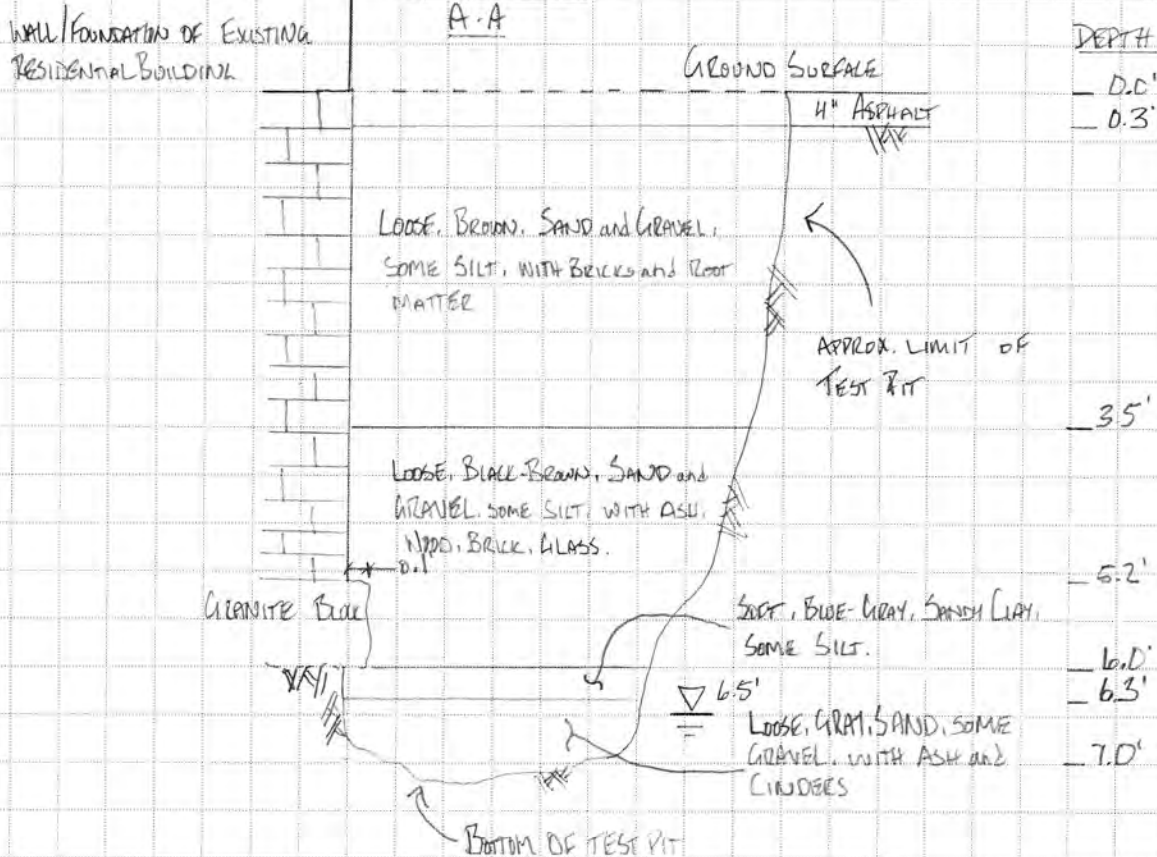


NOTES:

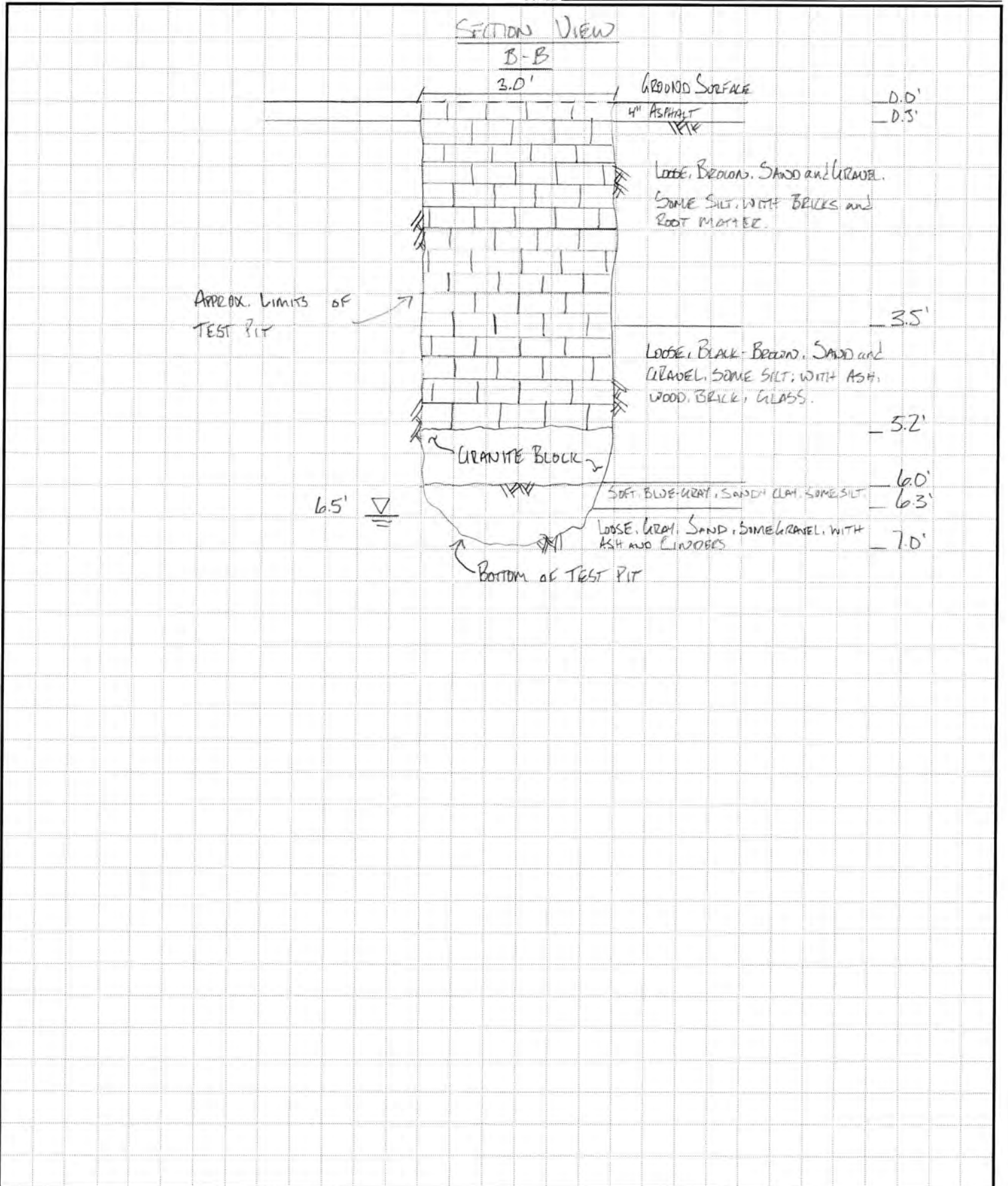
- 1) GROUNDWATER OBSERVED AT 6.5' BELOW GROUND SURFACE
- 2) ALL DIMENSIONS ARE APPROXIMATE

SECTION VIEW

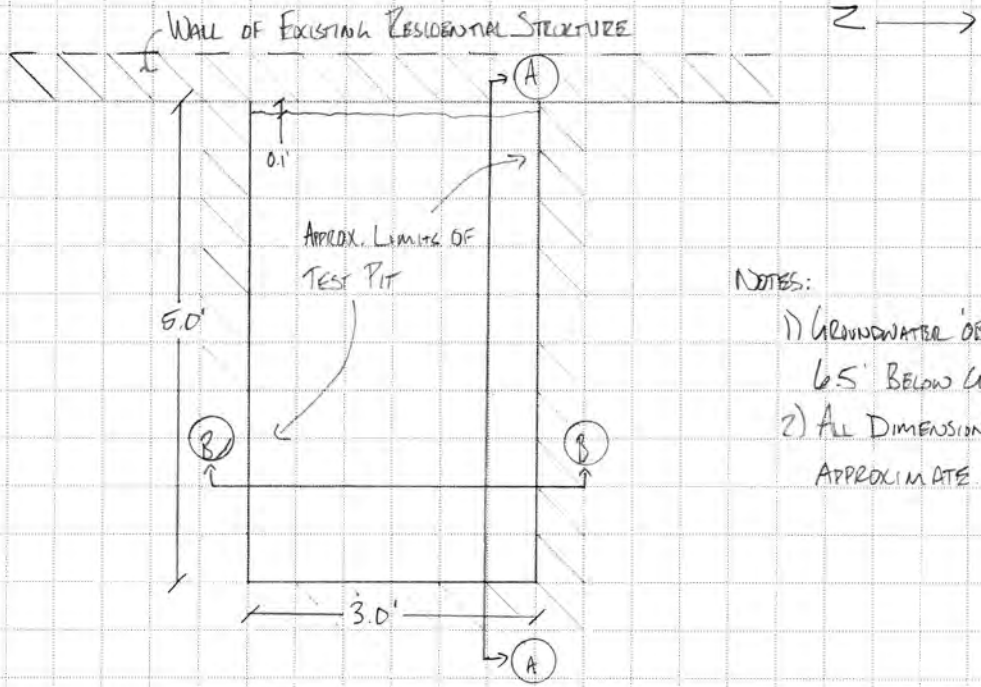
A-A



SCALE _____

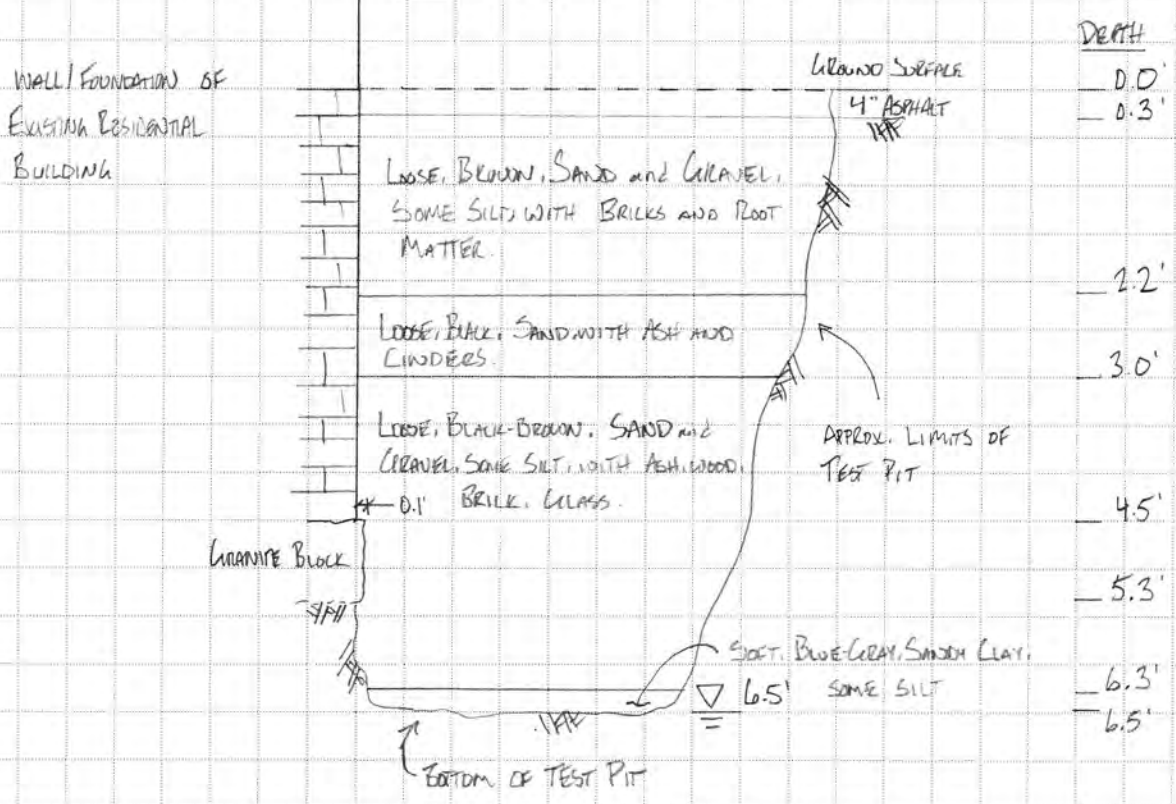


PLAN VIEW

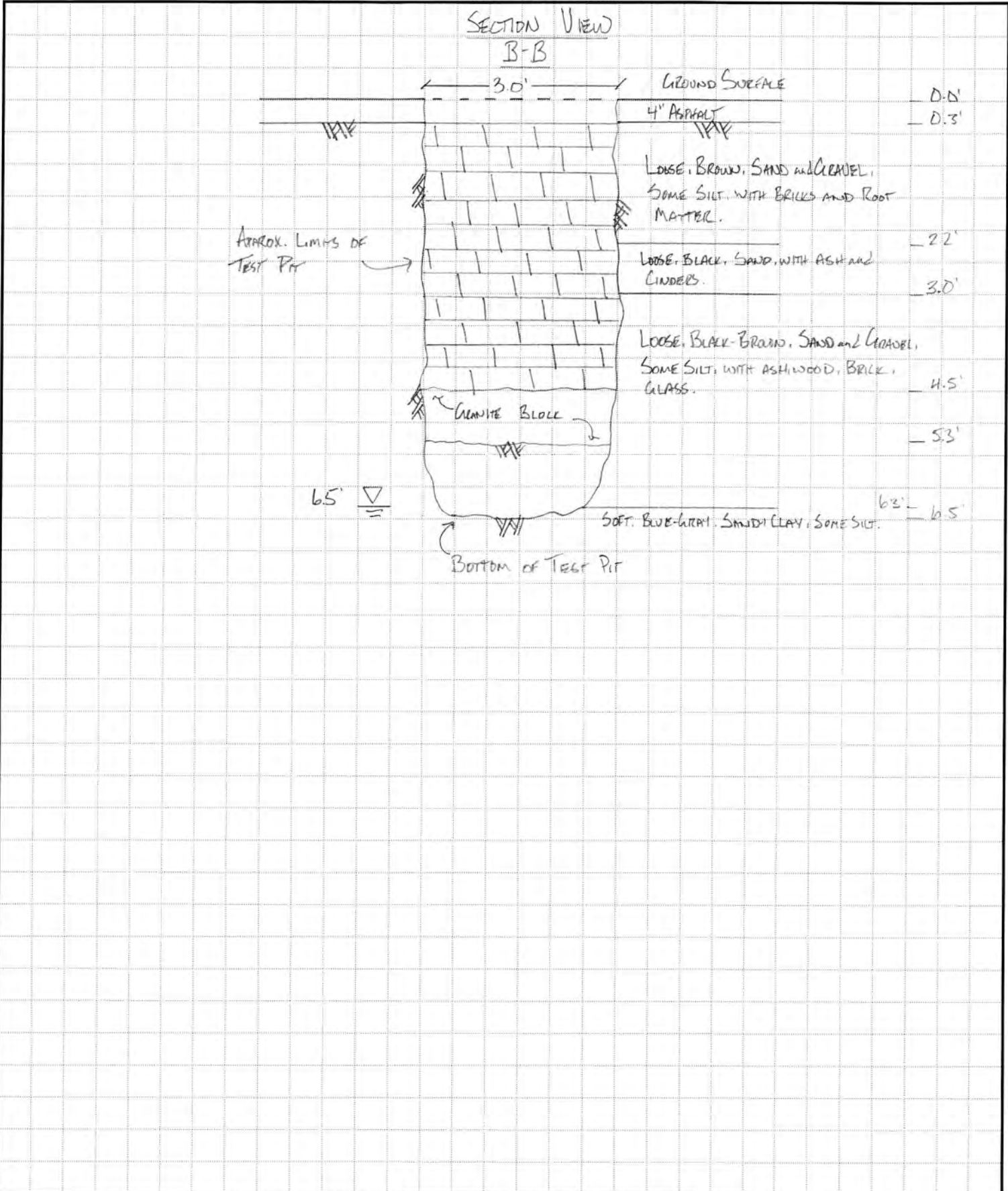


- NOTES:
- 1) GROUNDWATER OBSERVED AT 6.5' BELOW GROUND SURFACE.
 - 2) ALL DIMENSIONS ARE APPROXIMATE.

SECTION VIEW
A-A



SCALE





APPENDIX E:
GROUNDWATER MONITORING REPORT



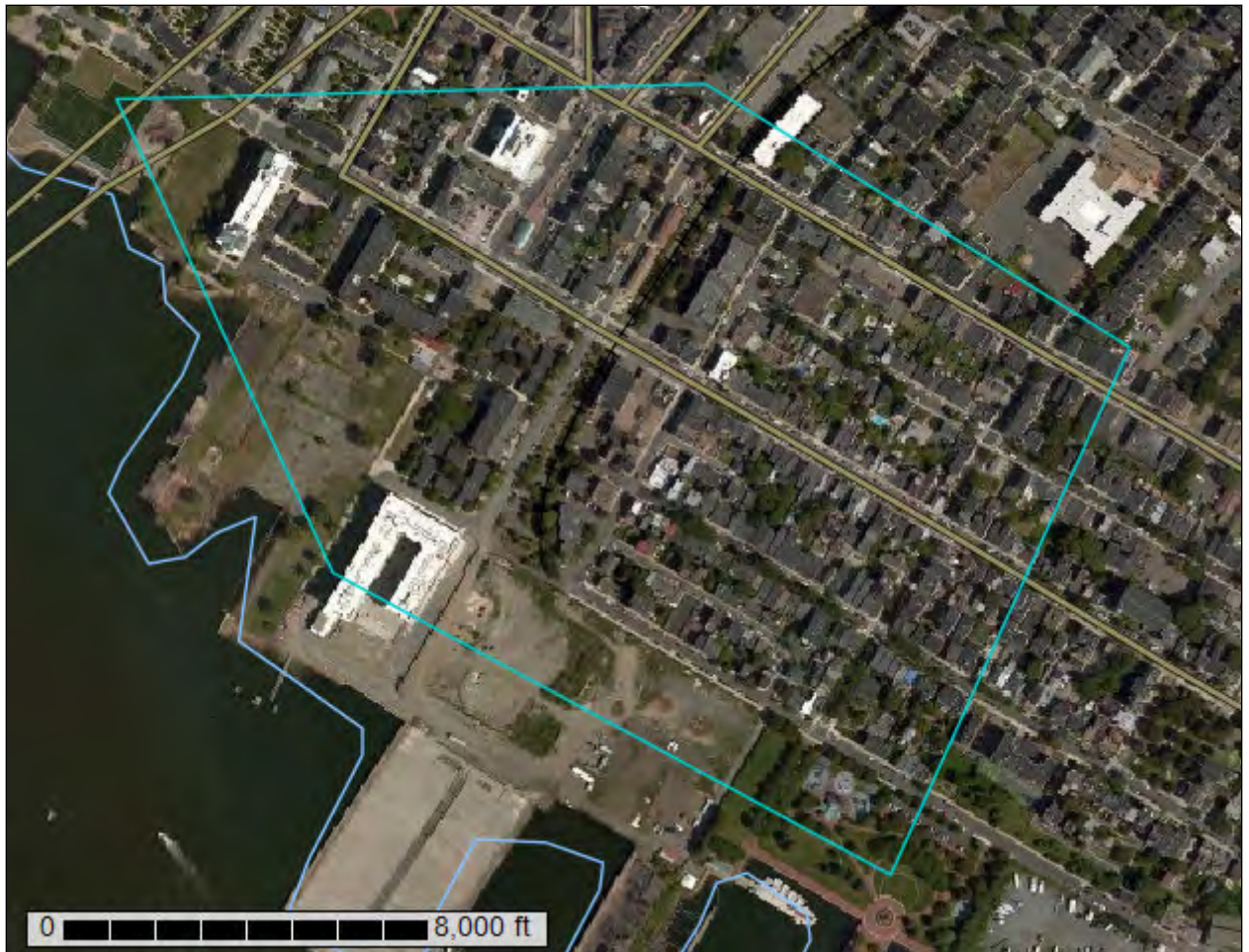
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Norfolk and Suffolk Counties, Massachusetts



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means

for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	7
Soil Map.....	8
Legend.....	9
Map Unit Legend.....	10
Map Unit Descriptions.....	10
Norfolk and Suffolk Counties, Massachusetts.....	12
1—Water.....	12
602—Urban land, 0 to 15 percent slopes.....	12
603—Urban land, wet substratum, 0 to 3 percent slopes.....	12
627C—Newport-Urban land complex, 3 to 15 percent slopes.....	13
655—Udorthents, wet substratum.....	14
References	16

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

Custom Soil Resource Report

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

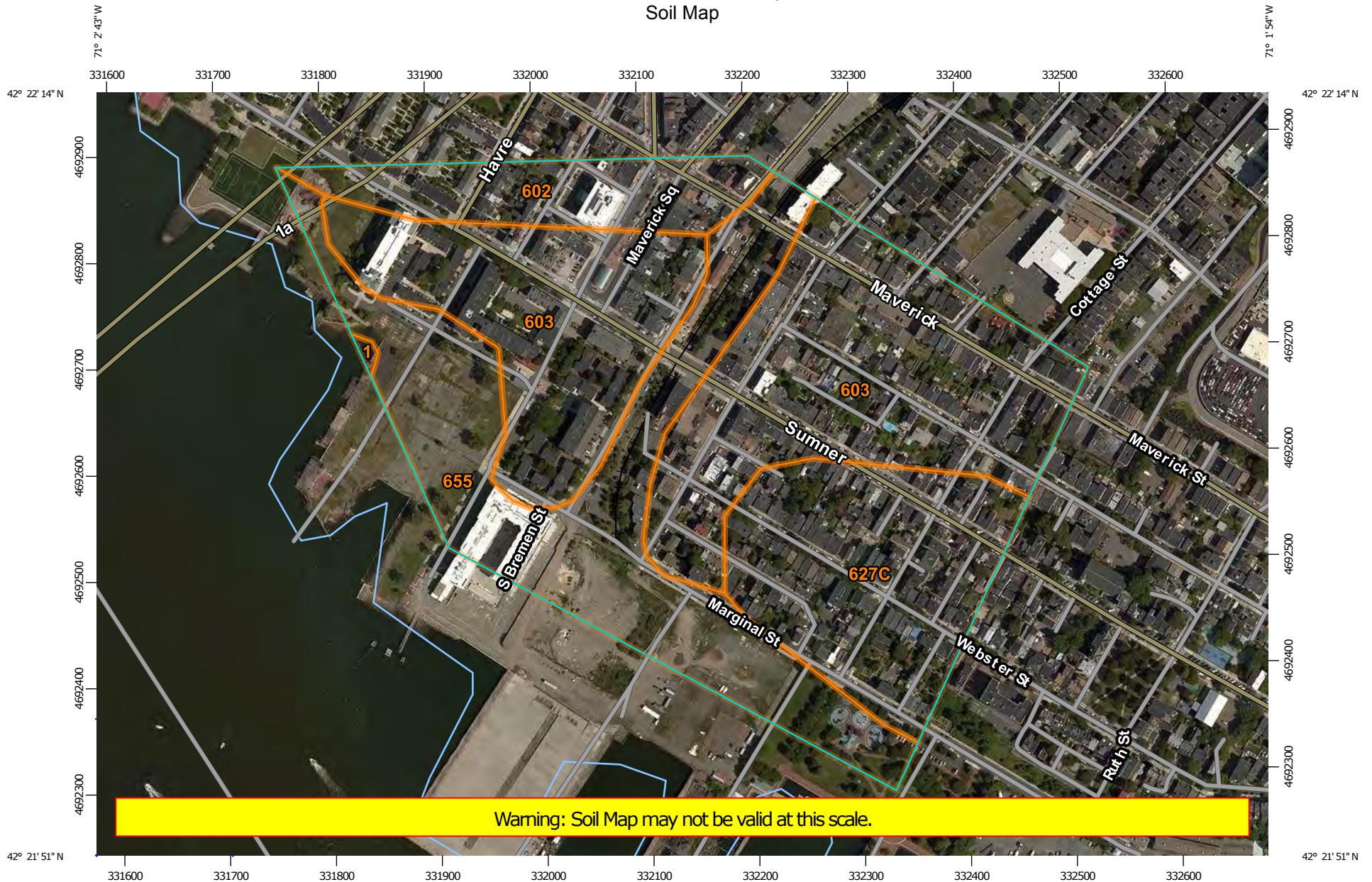
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

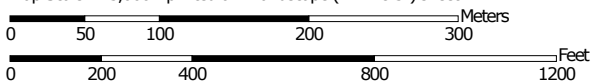
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map




Map Scale: 1:5,060 if printed on A landscape (11" x 8.5") sheet.



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: <http://websoilsurvey.nrcs.usda.gov>
 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 12, Sep 15, 2016

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

Date(s) aerial images were photographed: Aug 10, 2014—Aug 25, 2014

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

Norfolk and Suffolk Counties, Massachusetts (MA616)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Water	0.1	0.2%
602	Urban land, 0 to 15 percent slopes	6.0	8.9%
603	Urban land, wet substratum, 0 to 3 percent slopes	30.3	44.7%
627C	Newport-Urban land complex, 3 to 15 percent slopes	12.3	18.1%
655	Udorthents, wet substratum	19.1	28.1%
Totals for Area of Interest		67.8	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

Custom Soil Resource Report

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Norfolk and Suffolk Counties, Massachusetts

1—Water

Map Unit Setting

National map unit symbol: vkyj
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

602—Urban land, 0 to 15 percent slopes

Map Unit Setting

National map unit symbol: vkyj
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 99 percent
Minor components: 1 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Parent material: Excavated and filled land

Minor Components

Rock outcrops

Percent of map unit: 1 percent
Hydric soil rating: Unranked

603—Urban land, wet substratum, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: vkyl
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F

Custom Soil Resource Report

Frost-free period: 120 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Parent material: Excavated and filled land over herbaceous organic material and/or alluvium and/or marine deposits

Minor Components

Udorthents

Percent of map unit: 13 percent
Hydric soil rating: Unranked

Beaches

Percent of map unit: 2 percent
Hydric soil rating: Unranked

627C—Newport-Urban land complex, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: vkwv
Mean annual precipitation: 32 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 120 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Newport and similar soils: 70 percent
Urban land: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Newport

Setting

Landform: Drumlins
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Friable coarse-loamy eolian deposits over dense coarse-loamy lodgment till derived from metamorphic rock

Custom Soil Resource Report

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 26 inches: channery silt loam
H3 - 26 to 60 inches: channery silt loam

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to densic material
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Urban Land

Setting

Parent material: Excavated and filled land

Minor Components

Paxton

Percent of map unit: 4 percent
Hydric soil rating: No

Pittstown

Percent of map unit: 4 percent
Hydric soil rating: No

Udorthents

Percent of map unit: 2 percent
Hydric soil rating: Unranked

655—Udorthents, wet substratum

Map Unit Setting

National map unit symbol: vkyd
Mean annual precipitation: 45 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 95 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Landform position (two-dimensional): Shoulder, footslope

Landform position (three-dimensional): Riser, tread

Down-slope shape: Convex, linear

Across-slope shape: Convex, linear

Parent material: Excavated and filled sandy and gravelly human transported material over highly-decomposed herbaceous organic material

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Minor Components

Urban land

Percent of map unit: 3 percent

Hydric soil rating: Unranked

Ipswich

Percent of map unit: 2 percent

Landform: Marshes

Hydric soil rating: Yes

References

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

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

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

STORMWATER DESIGN CALCULATIONS

NORTHWEST & SOUTH ROOF & SOUTH PAVEMENT DRAINAGE CALCULATION:

1. Roof & South Impervious Area = 2,757 s.f.
2. $2,757 \text{ s.f.} * 0.0833 \text{ ft.} = 229.7 \text{ c.f.}$ storage required.
3. 24" Perforated HDPE Area = $\pi R^2 = \pi(1.0)^2 = 3.1$
4. 24" Perforated HDPE $19.5 \times 3.1 \times 3 = 181.4 \text{ c.f.}$
24" Perforated HDPE $8.0 \times 3.1 \times 2 = 49.6 \text{ c.f.}$
Total = $181.4 + 49.6 = 231.0 \text{ c.f.}$
5. Crushed Stone Storage Around & Between Perforated HDPE =
 $26.2' * 8.8' * 3.0' = 691.7 \text{ c.f.}$
 $691.7 \text{ c.f.} - 231.0 \text{ c.f.} = 460.7 \text{ c.f.}$
 $460.7 * 0.30 = 138.2 \text{ c.f.}$
6. Total Storage = $231.0 + 138.2 = 369.2 \text{ c.f.}$
7. $369.2 \text{ c.f.} > 229.7 \text{ c.f.}$

SOUTHEAST ROOF & PAVEMENT DRAINAGE CALCULATION:

1. Southeast Impervious Area = 758 s.f.
2. $758 \text{ s.f.} * 0.0833 \text{ ft.} = 63.2 \text{ c.f.}$ storage required.
3. 8" Perforated HDPE Area = $\pi R^2 = \pi(0.7)^2 = 1.4$
4. 8" Perforated HDPE $40.0 \times 1.4 = 56.0 \text{ c.f.}$
Total = 231.0 c.f.
5. Crushed Stone Storage Around & Between Perforated HDPE =
 $43.0' * 2.0' * 2.5' = 215.0' \text{ c.f.}$
 $215.0 \text{ c.f.} - 56.0 \text{ c.f.} = 159.0 \text{ c.f.}$
 $159.0 * 0.30 = 47.7 \text{ c.f.}$
6. Total Storage = $56.0 + 47.7 = 103.7 \text{ c.f.}$
7. $103.7 \text{ c.f.} > 63.2 \text{ c.f.}$

NORTHEAST ROOF & PAVEMENT DRAINAGE CALCULATION:

1. Northeast Impervious Area = 915 s.f.
2. $915 \text{ s.f.} * 0.0833 \text{ ft.} = 76.2 \text{ c.f.}$ storage required.
3. 8" Perforated HDPE Area = $\pi R^2 = \pi(0.7)^2 = 1.4$
4. 8" Perforated HDPE $24.0 \times 1.4 = 33.6 \text{ c.f.}$
Total = 33.6 c.f.
5. Crushed Stone Storage Around & Between Perforated HDPE =
 $25.5' * 3.25' * 2.5' = 207.2 \text{ c.f.}$
 $207.2 \text{ c.f.} - 33.6 \text{ c.f.} = 173.6 \text{ c.f.}$
 $173.6 * 0.30 = 52.1 \text{ c.f.}$
6. Total Storage = $33.6 + 52.1 = 85.7 \text{ c.f.}$
7. $85.7 \text{ c.f.} > 76.2 \text{ c.f.}$

NORTHWEST PAVEMENT DRAINAGE CALCULATION:

1. Northwest Impervious Area = 190 s.f.
2. $190 \text{ s.f.} * 0.0833 \text{ ft.} = 15.8 \text{ c.f.}$ storage required.
3. Crushed Stone Storage =
 $5.5' * 4.5' * 2.5' = 61.9 \text{ c.f.}$
 $61.9 * 0.30 = 18.6 \text{ c.f.}$
4. Total Storage = 18.6 c.f.
5. $18.6 \text{ c.f.} > 15.8 \text{ c.f.}$

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

BWSC SITE PLANS

Date: August, 2019

Project: 80 Marginal Street - Notice of Intent – Stormwater Report

CHECKLIST FOR STORMWATER REPORT



Checklist for Stormwater Report

A. Introduction

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



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

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

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

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

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

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

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



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

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

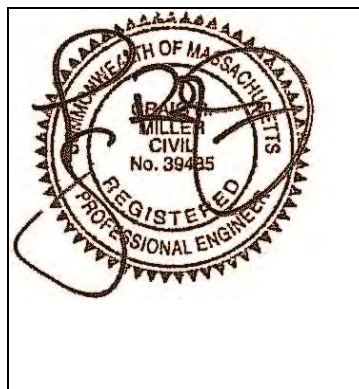
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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

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

Registered Professional Engineer's Certification

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

Registered Professional Engineer Block and Signature



July 12, 2019

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): _____

Standard 1: No New Untreated Discharges

- No new untreated discharges
- Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- Soil Analysis provided.
- Required Recharge Volume calculation provided.
- Required Recharge volume reduced through use of the LID site Design Credits.
- Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - Static
 - Simple Dynamic
 - Dynamic Field¹
- Runoff from all impervious areas at the site discharging to the infiltration BMP.
- Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - Site is comprised solely of C and D soils and/or bedrock at the land surface
 - M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - Solid Waste Landfill pursuant to 310 CMR 19.000
 - Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

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



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

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

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - is within the Zone II or Interim Wellhead Protection Area
 - is near or to other critical areas
 - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - involves runoff from land uses with higher potential pollutant loads.
 - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
 - The ½" or 1" Water Quality Volume or
 - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the 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.

Training

Training sessions must be provided by the Owner for property managers and operations personnel. The training will review specific procedures to be put in place in case of a Flood Watch in particulars of how to manage the synthetic turf field before and after the possible flood, maintenance of the site and stormwater structures, and reporting and response measures that may be needed by either operations personnel to implement the Operations and Maintenance plan. The Training Log shall be kept up to date by the Owner.

Updating the Plan

This plan must be modified as necessary to:

- Include additional or modified BMPs that correct problems identified as a result of an inspection. Revisions must be completed with seven (7) calendar days following the inspection.
- Ensure the effectiveness of the plan in eliminating or significantly minimizing pollutants from stormwater and flood waters discharging from the site.
- Prevent the reoccurrence of release of a hazardous material or oil.
- Address a change in design, construction, operation, or maintenance which has or may have a significant effect on the potential for the discharge of pollutants.

All modifications to the plan must be recorded on the Plan Amendment Log included in the Appendix.

Standard 10: Prohibition of Illicit Discharges

As provided for in the 2008 MADEP Stormwater Handbook and the 2008 amendments to 310 CMR 10.00 et. seq. (MAWPA Regs) the following will serve as the Illicit Discharge Compliance Statement for the project.

The existing developed site has no existing illicit discharges from the site. The new site is being designed such that there will not be any illicit discharges from the site.

Print name and title: Jacob R. Murray, PE, Senior Civil Engineer

Signature:  _____

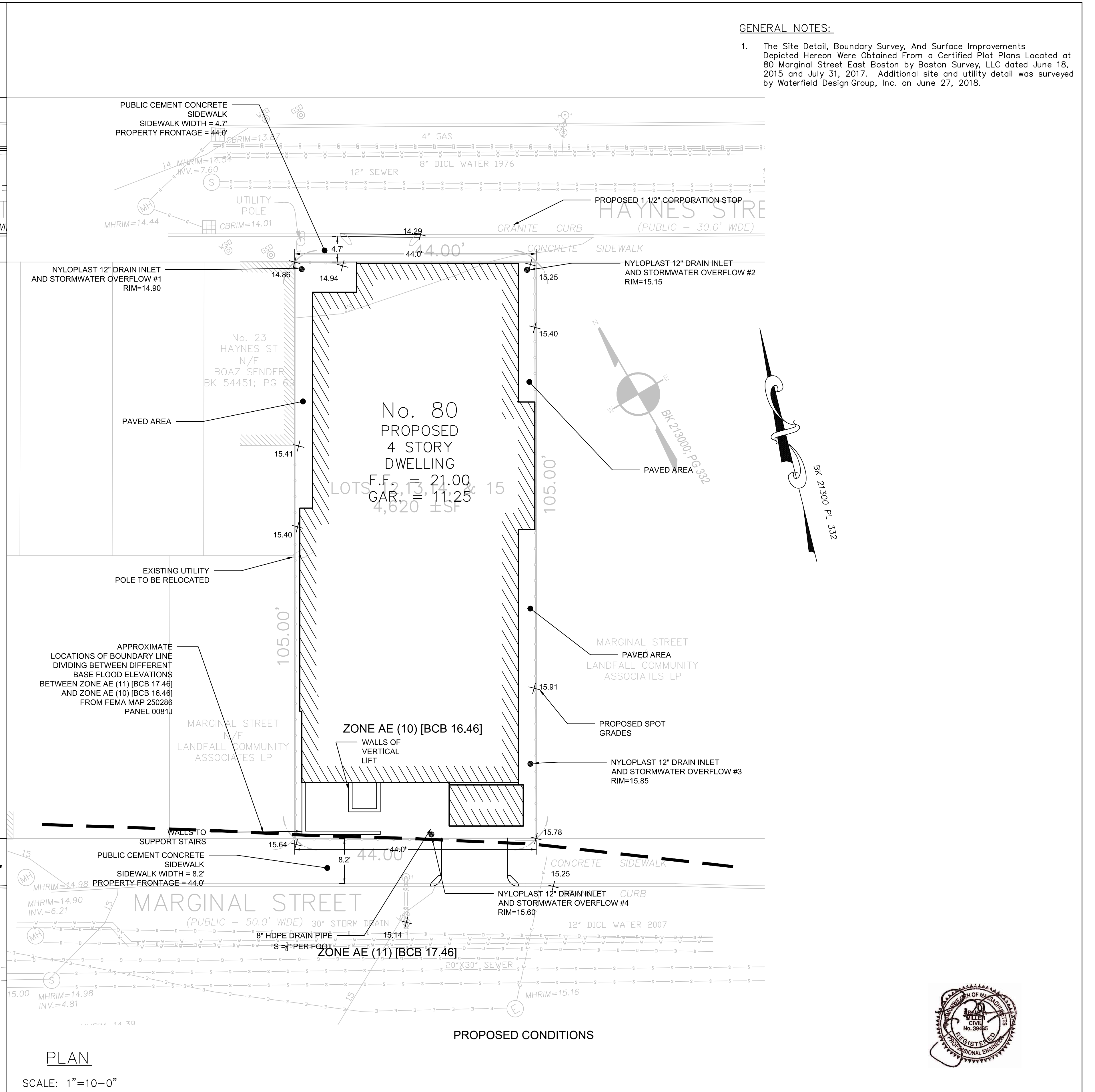
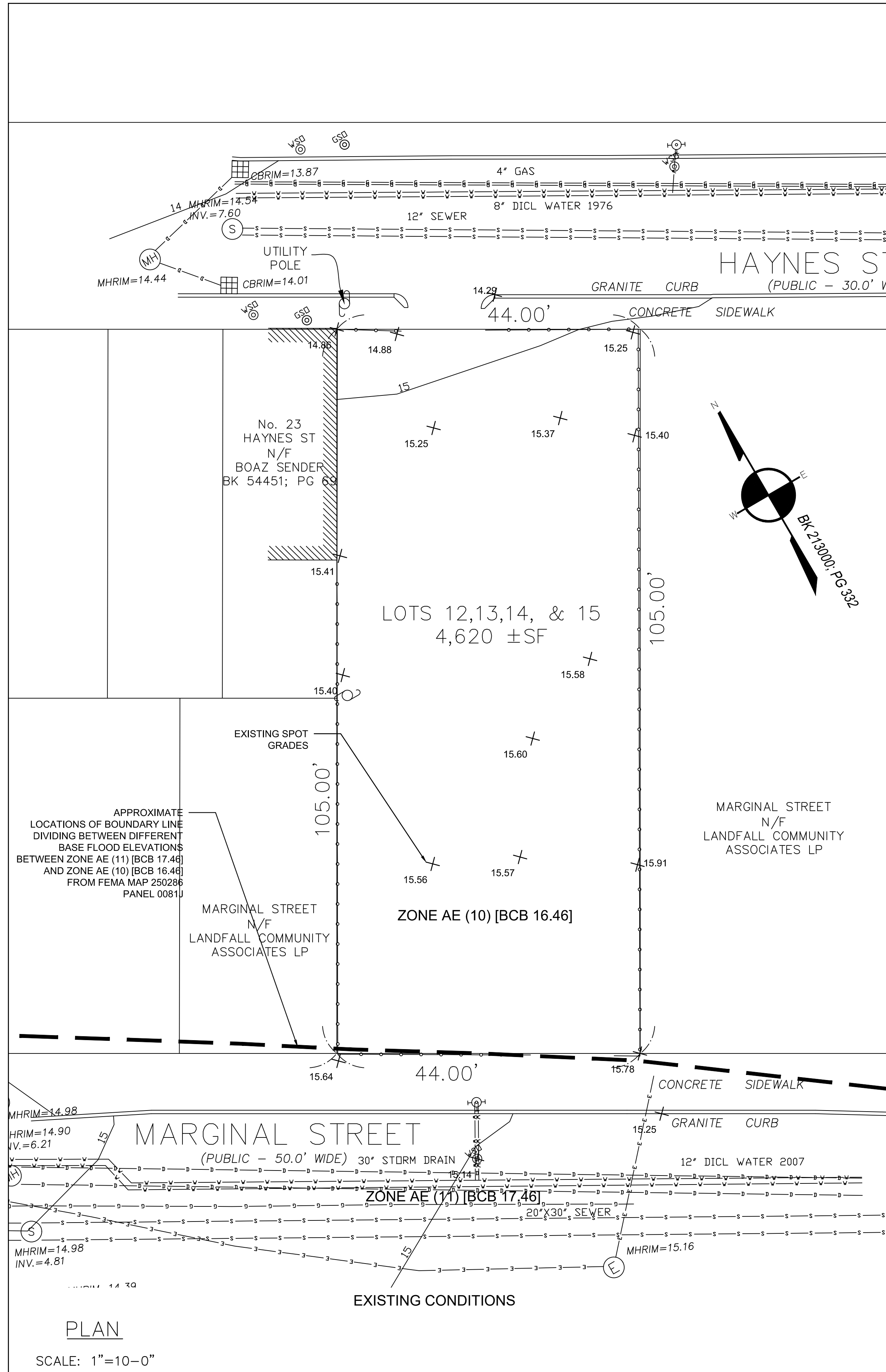
Date: 8/8/19

Conclusion

As demonstrated in this report, the construction of the proposed redevelopment project will meet the requirements of the 2008 MADEP Stormwater Handbook and the 2008 amendments to 310 CMR 10.00 et. seq. (MAWPA Regs)MADEP Stormwater Guidelines except where the proposed redevelopment site meets the regulations to the maximum extent practical where noted above.

GENERAL NOTES:

- The Site Detail, Boundary Survey, And Surface Improvements Depicted Hereon Were Obtained From a Certified Plot Plans Located at 80 Marginal Street East Boston by Boston Survey, LLC dated June 18, 2015 and July 31, 2017. Additional site and utility detail was surveyed by Waterfield Design Group, Inc. on June 27, 2018.



DESIGN BY: JRM	SHEET: GRADING PLAN		
DRAWN BY: JRM	DATE	BY	
CHECK BY: CRM			

Civil Engineer & Land Surveyor

WDG WATERFIELD DESIGN GROUP
 50 Cross Street
 Winchester, Massachusetts 01890
 P 781.756.0001 F 781.756.0007

Architect

Pisani + Associates Architects
 374 Congress Street
 Boston, MA 02110
 phone: 617-423-1022
 fax: 617-426-0939
 eMail: apisani@pisani.com

80 Marginal Street
 East Boston, Massachusetts

GRADING PLANS

Date: 8 August 2019
 Scale: As Noted

G
1.0

