



Fort Point Associates, Inc.

Urban Planning Environmental Consulting Project Permitting

A TETRA TECH COMPANY

April 1, 2022

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

RE: DEP File No: 006-1431 Request for Certificate of Compliance
Clippership Wharf
25 – 65 Lewis Street, East Boston

Dear Mr. Moreno,

On behalf of Lend Lease Development, LLC, please find enclosed a Request for Certificate of Compliance for the completed project at 25 – 65 Lewis Street, East Boston, located along the Boston Harbor. The Order of Conditions was issued in August 2015, amended in November 2016, and received an Extension Permit in September 2018. This request is for the remediation work, construction of 4 buildings, a Harborwalk, living shoreline, docks, and other waterside and open space improvements. All the improvements have been completed in accordance with the submitted plans as expressed in the enclosed engineer's compliance letter.

If you have any questions or concerns, or need additional information, please contact me at (617)279-4384 or at jfay@fpa-inc.com.

Sincerely,

Jamie Fay, AICP, CEP
President
Fort Point Associates, Inc

Cc: Aristotle Bakalos, Lendlease Development, Inc
Nicholas Iselin, Lendlease Development, Inc
John Schmid, PE, Nitsch Engineering
Timothy Burgess, WinnCompanies

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Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands

DEP File Number:

WPA Form 8A – Request for Certificate of Compliance

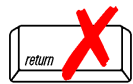
Provided by DEP

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

A. Project Information

Important:

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



Upon completion of the work authorized in an Order of Conditions, the property owner must request a Certificate of Compliance from the issuing authority stating that the work or portion of the work has been satisfactorily completed.

1. This request is being made by:

Jamie Fay
 Name
31 State Street, 3rd Floor
 Mailing Address
Boston MA 02109
 City/Town State Zip Code
617-279-4384
 Phone Number

2. This request is in reference to work regulated by a final Order of Conditions issued to:

Lendlease Development, Inc.
 Applicant
Order: 8/3/2015 Amended: 11/22/2016 Extention: 9/26/2018 006-1431
 Dated DEP File Number

3. The project site is located at:

25-65 Lewis Street Boston
 Street Address City/Town
Assessors Map/Plat Number 0105397000
 Parcel/Lot Number

4. The final Order of Conditions was recorded at the Registry of Deeds for:

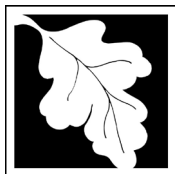
Property Owner (if different)
Suffolk 23698 279
 County Book Page

Certificate (if registered land)

5. This request is for certification that (check one):

- the work regulated by the above-referenced Order of Conditions has been satisfactorily completed.
 the following portions of the work regulated by the above-referenced Order of Conditions have been satisfactorily completed (use additional paper if necessary).

- the above-referenced Order of Conditions has lapsed and is therefore no longer valid, and the work regulated by it was never started.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

DEP File Number:

WPA Form 8A – Request for Certificate of Compliance

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Provided by DEP

A. Project Information (cont.)

6. Did the Order of Conditions for this project, or the portion of the project subject to this request, contain an approval of any plans stamped by a registered professional engineer, architect, landscape architect, or land surveyor?

Yes If yes, attach a written statement by such a professional certifying substantial compliance with the plans and describing what deviation, if any, exists from the plans approved in the Order.

No

B. Submittal Requirements

Requests for Certificates of Compliance should be directed to the issuing authority that issued the final Order of Conditions (OOC). If the project received an OOC from the Conservation Commission, submit this request to that Commission. If the project was issued a Superseding Order of Conditions or was the subject of an Adjudicatory Hearing Final Decision, submit this request to the appropriate DEP Regional Office (see <http://www.mass.gov/eea/agencies/massdep/about/contacts/find-the-massdep-regional-office-for-your-city-or-town.html>).



2 Center Plaza, Suite 430
 Boston, MA 02108-1928
 T: 617-338-0063
 F: 617-338-6472
www.nitscheng.com

MEMORANDUM

TO: Boston Conservation Commission
FROM: John M Schmid, PE, LEED AP BD+C
DATE: March 30, 2022
RE: DEP File # 006-1431 Statement Nitsch Project #10055

This document shall serve as the written statement accompanying WPA Form 8A- request for Certificate of Compliance for Clippership Wharf in East Boston.

To the best of my knowledge, information and belief based on the standards of care of professional engineers practicing in the Commonwealth of Massachusetts familiar with this project, the work as described in the Order of Conditions File #006-1431 is completed in substantial conformance with the approved plans.

This certification is limited to the physical observable elements and by review of the applicable As-built Plans. I confirm following requirements are met:

- The construction period BMPs have been removed.
- The as-built final construction BMP plans are included, signed, and stamped by a Registered Professional Engineer, certifying the site is fully stabilized.
- There is no illicit charge to the stormwater management system, as per the requirement of Stormwater Standard 10.
- The post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition.
- The vegetation associated with post-construction BMPs is suitably established to withstand erosion.
- An Operation and Maintenance Compliance Statement (O&M Statement) and an Operation and Maintenance Plan (O&M Plan) are also submitted along with this statement.
- The O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance. The O&M Plan also notifies in writing to the future responsible parties of their ongoing legal responsibility to operate and maintain the stormwater management BMPs.

If you have any questions or concerns, please call. I can also be reached at jschmid@nitscheng.com.

Verv truly yours.

John M. Schmid, PE, LEED AP
 Vice President – Executive Project Manager
 10055/project data/NOI Certificate/2022-03-30 Con Com Statement





2015 00073683
Bk: 54938 Pg: 140 Page: 1 of 24
Recorded: 08/19/2015 10:08 AM
ATTEST: Francis M. Roache, Register
Suffolk County Registry of Deeds



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 - Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:006-1431
eDEP Transaction #:762892
City/Town: BOSTON

A. General Information

1. Conservation Commission BOSTON

2. Issuance a. OOC b. Amended OOC

3. Applicant Details
 a. First Name NICK b. Last Name ISELIN
 c. Organization LEND LEASE DEVELOPMENT, INC
 d. Mailing Address 20 CITY SQUARE, 2ND FLOOR
 e. City/Town BOSTON f. State MA g. Zip Code 02129

4. Property Owner
 a. First Name b. Last Name
 c. Organization NODDLE ISLAND LIMITED PARTNERSHIP
 d. Mailing Address 6 FANEUIL HALL MARKETPLACE, 5TH FLOOR
 e. City/Town BOSTON f. State MA g. Zip Code 02109

5. Project Location
 a. Street Address 25 - 65 LEWIS STREET
 b. City/Town BOSTON c. Zip Code 02128
 d. Assessors Map/Plat# 00000000 e. Parcel/Lot# 0105397000, 0105397000
 f. Latitude 42.36749N g. Longitude 71.04165W

6. Property recorded at the Registry of Deed for:
 a. County SUFFOLK b. Certificate 23698 c. Book 279 d. Page

7 Dates
 a. Date NOI Filed: 5/26/2015 b. Date Public Hearing Closed: 7/15/2015 c. Date Of Issuance: 8/3/2015

8 Final Approved Plans and Other Documents
 a. Plan Title: b. Plan Prepared by: c. Plan Signed/Stamped by: d. Revised Final Date: e. Scale:

Christie McVay
Point Associates
53 Union St, 2nd Floor
Boston MA 02108

R. Bell
04/25/16

Book / Page - 23698 / 279
of pages: 24



Massachusetts Department of Environmental Protection
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 MassDEP File #:006-1431
 eDEP Transaction #:762892
 City/Town:BOSTON

CLIPPERSHIP WHARF EAST BOSTON MA FIRST FLOOR PLAN; PROPOSED VIEW DOWN HARVE ST; VIEW FROM WATER	HALVORSON DESIGN PARTNERSHIP		June 30 2015/ July 7 2015	N/A
CLIPPERSHIP WHARF EAST BOSTON, MA SITE MATERIALS NOI L1.1	THE ARCHITECTURAL TEAM/ HALVORSON DESIGN	ROBERT J. ADAMS	July 15, 2015	1 3/4"=80'
CLIPPERSHIP WHARF EAST BOSTON, MA SITE MATERIALS NOI L1.2	THE ARCHITECTURAL TEAM HALVORSON DESIGN	ROBERT J. ADAMS	July 15, 2015	1 3/4"=80'
CLIPPERSHIP WHARF EAST BOSTON, MA SITE MATERIALS NOI L1.3	THE ARCHITECTURAL TEAM/ HALVORSON DESIGN	ROBERT J. ADAMS	July 15, 2015	1 3/4"=80'
CLIPPERSHIP WHARF EAST BOSTON, MA EXISTING TREE PLAN NOI L2.1	THE ARCHITECTURAL TEAM/ NITSCH ENGINEERING	ROBERT J. ADAMS	July 15, 2015	APPROX 1"=80'
CLIPPERSHIP WHARF EAST BOSTON, MA PROPOSED TREE PLAN NOI L2.2	THE ARCHITECTURAL TEAM/ NITSCH ENGINEERING	ROBERT J. ADAMS	July 15, 2015	APPROX 1"=80'
CLIPPERSHIP WHARF EAST BOSTON, MA SITE EXISTING CONDITIONS PLAN NOI-EX-1	THE ARCHITECTURAL TEAM/ NITSCH ENGINEERING	JOHN M. SCHMID	July 8, 2015	1"=40'
CLIPPERSHIP WHARF EAST BOSTON, MA SITE EROSION CONTROL PLAN NOI-C- 000	THE ARCHITECTURAL TEAM/ NITSCH ENGINEERING	JOHN M. SCHMID	July 8, 2015	1"=40'

RBell



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CLIPPERSHIP WHARF EAST BOSTON, MA SITE DEMOLITION PLAN NOI-C- 100	THE ARCHITECTURAL TEAM/NITSCH ENGINEERING	JOHN M. SCHMID	July 8, 2015	1"=40'
CLIPPERSHIP WHARF EAST BOSTON, MA OVERALL SITE UTILITY PLAN NOI-C- 200	THE ARCHITECTURAL TEAM/NITSCH ENGINEERING	JOHN M. SCHMID	July 8, 2015	1"=40'
CLIPPERSHIP WHARF EAST BOSTON, MA SITE UTILITY PLAN NOI-C- 201	THE ARCHITECTURAL TEAM/NITSCH ENGINEERING	JOHN M. SCHMID	July 8, 2015	1"=20'
CLIPPERSHIP WHARF EAST BOSTON, MA SITE UTILITY PLAN NOI-C- 202	THE ARCHITECTURAL TEAM/NITSCH ENGINEERING	JOHN M. SCHMID	July 8, 2015	1"=20'
CLIPPERSHIP WHARF EAST BOSTON, MA BWSC 48" STORM DRAIN OUTFALL PLAN & PROFILE NOI-C- 202A	THE ARCHITECTURAL TEAM/NITSCH ENGINEERING	JOHN M. SCHMID	July 8, 2015	1"=20'
CLIPPERSHIP WHARF EAST BOSTON, MA SITE UTILITY PLAN NOI-C- 203	THE ARCHITECTURAL TEAM/NITSCH ENGINEERING	JOHN M. SCHMID	July 8, 2015	1"=20'
CLIPPERSHIP WHARF EAST BOSTON, MA SITE UTILITY PLAN NOI-C- 204	THE ARCHITECTURAL TEAM/NITSCH ENGINEERING	JOHN M. SCHMID	July 8, 2015	1"=20'
CLIPPERSHIP WHARF EAST BOSTON, MA SITE LAYOUT & GRADING PLAN NOI-C- 300	THE ARCHITECTURAL TEAM/NITSCH ENGINEERING	JOHN M. SCHMID	July 8, 2015	1"=40'

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CLIPPERSHIP WHARF EAST BOSTON, MA NOTES, LEGENDS & ABBREVIATIONS NOI-C- 400	THE ARCHITECTURAL TEAM/ NITSCH ENGINEERING	JOHN M. SCHMID	July 8, 2015	N/A
CLIPPERSHIP WHARF EAST BOSTON, MA DETAILS NOI-C- 401, NOI-C- 402, NOI-C- 403	THE ARCHITECTURAL TEAM/ NITSCH ENGINEERING	JOHN M. SCHMID	July 8, 2015	N/A
CLIPPERSHIP WHARF EAST BOSTON, MA EROSION CONTROL DETAILS NOI-C- 404, NOI-C-405	THE ARCHITECTURAL TEAM/ NITSCH ENGINEERING	JOHN M. SCHMID	July 8, 2015	N/A
CLIPPERSHIP WHARF EAST BOSTON, MA SITE SECTIONS NOI L1.4, NOI L1.5	THE ARCHITECTURAL TEAM/ HALVORSON DESIGN	ROBERT J. ADAMS	July 15, 2015	AS NOTED
CLIPPERSHIP WHARF EAST BOSTON, MA EXISTING SITE PLAN NOI-MS-01	THE ARCHITECTURAL TEAM/ CHILDS ENGINEERING CORPORATION	DAVID LIVINGSTON PORTER	May 8, 2015	AS NOTED
CLIPPERSHIP WHARF EAST BOSTON, MA EXISTING/ DEMOLITION SECTIONS NOI- MS-02, NOI-MS-03	THE ARCHITECTURAL TEAM/ CHILDS ENGINEERING CORPORATION	DAVID LIVINGSTON PORTER	May 8, 2015	AS NOTED
CLIPPERSHIP WHARF EAST BOSTON, MA PROPOSED PLAN NOI-MS-04	THE ARCHITECTURAL TEAM/ CHILDS ENGINEERING CORPORATION	DAVID LIVINGSTON PORTER	May 8, 2015	AS NOTED
CLIPPERSHIP WHARF EAST BOSTON, MA PROPOSED SECTIONS NOI- MS-05, NOI-MS-06	THE ARCHITECTURAL TEAM/ CHILDS ENGINEERING CORPORATION	DAVID LIVINGSTON PORTER	May 8, 2015	AS NOTED

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Provided by MassDEP:
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CLIPPERSHIP WHARF EAST BOSTON, MA PROPOSED FLOATING DOCK PLANS NOI-MS-07	THE ARCHITECTURAL TEAM/ CHILDS ENGINEERING CORPORATION	DAVID LIVINGSTON PORTER	May 8, 2015	AS NOTED
CLIPPERSHIP WHARF EAST BOSTON, MA PROPOSED FLOATING DOCK SECTIONS NOI- MS-08	THE ARCHITECTURAL TEAM/ CHILDS ENGINEERING CORPORATION	DAVID LIVINGSTON PORTER	May 8, 2015	AS NOTED
CLIPPERSHIP WHARF EAST BOSTON, MA DREDGING PLAN AND SECTION AND TYPICAL OUTFALL DETAILS NOI-MS-09	THE ARCHITECTURAL TEAM/ CHILDS ENGINEERING CORPORATION	DAVID LIVINGSTON PORTER	November 15, 2010	AS NOTED
STORMWATER REPORT FOR CLIPPERSHIP WHARF, EAST BOSTON MA	NITSCH ENGINEERING	JOHN M. SCHMID	July 2015	N/A

B. Findings

1 Findings pursuant to the Massachusetts Wetlands Protection Act

Following the review of the the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act.

Check all that apply:

- | | | |
|--|--|---|
| a. <input type="checkbox"/> Public Water Supply | b. <input checked="" type="checkbox"/> Land Containing Shellfish | c. <input checked="" type="checkbox"/> Prevention of Pollution |
| d. <input type="checkbox"/> Private Water Supply | e. <input checked="" type="checkbox"/> Fisheries | f. <input checked="" type="checkbox"/> Protection of Wildlife Habitat |
| g. <input type="checkbox"/> Ground Water Supply | h. <input checked="" type="checkbox"/> Storm Damage Prevention | i. <input checked="" type="checkbox"/> Flood Control |

2. Commission hereby finds the project, as proposed, is

Approved subject to:

- a. The following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

Denied because:

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- b. The proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**
- c. The information submitted by the applicant is not sufficient to describe the site, the work or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**
3. Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310CMR10.02(1)(a). _____
 a. linear feet

Inland Resource Area Impacts:(For Approvals Only)

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. <input type="checkbox"/> Bank	_____	_____	_____	_____
	a. linear feet	b. linear feet	c. linear feet	d. linear feet
5. <input type="checkbox"/> Bordering Vegetated Wetland	_____	_____	_____	_____
	a. square feet	b. square feet	c. square feet	d. square feet
6. <input type="checkbox"/> Land under Waterbodies and Waterways	_____	_____	_____	_____
	a. square feet	b. square feet	c. square feet	d. square feet
	_____	_____		
	e. c/y dredged	f. c/y dredged		
7. <input type="checkbox"/> Bordering Land Subject to Flooding	_____	_____	_____	_____
	a. square feet	b. square feet	c. square feet	d. square feet
Cubic Feet Flood Storage	_____	_____	_____	_____
	e. cubic feet	f. cubic feet	g. cubic feet	h. cubic feet
8. <input type="checkbox"/> Isolated Land Subject to Flooding	_____	_____		
	a. square feet	b. square feet		
Cubic Feet Flood Storage	_____	_____	_____	_____
	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9. <input type="checkbox"/> Riverfront Area	_____	_____		
	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	_____	_____	_____	_____
	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	_____	_____	_____	_____
	g. square feet	h. square feet	i. square feet	j. square feet

Coastal Resource Area Impacts:



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Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below			
11. <input checked="" type="checkbox"/> Land Under the Ocean	<u>33418</u> a. square feet	<u>33418</u> b. square feet		
	<u>0</u> c. c/y dredged			<u>0</u> d. c/y dredged
12. <input type="checkbox"/> Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13. <input type="checkbox"/> Coastal Beaches	<u> </u> a. square feet	<u> </u> b. square feet	<u> </u> c. c/y nourishment	<u> </u> d. c/y nourishment
14. <input type="checkbox"/> Coastal Dunes	<u> </u> a. square feet	<u> </u> b. square feet	<u> </u> c. c/y nourishment	<u> </u> d. c/y nourishment
15. <input checked="" type="checkbox"/> Coastal Banks	<u>1703</u> a. linear feet	<u>1703</u> b. linear feet		
16. <input checked="" type="checkbox"/> Rocky Intertidal Shores	<u>22797</u> a. square feet	<u>22797</u> b. square feet		
17. <input type="checkbox"/> Salt Marshes	<u> </u> a. square feet	<u> </u> b. square feet	<u> </u> c. square feet	<u> </u> d. square feet
18. <input type="checkbox"/> Land Under Salt Ponds	<u> </u> a. square feet	<u> </u> b. square feet		
	<u> </u> c. c/y dredged	<u> </u> d. c/y dredged		
19. <input type="checkbox"/> Land Containing Shellfish	<u> </u> a. square feet	<u> </u> b. square feet	<u> </u> c. square feet	<u> </u> d. square feet
20. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			
	<u> </u> c. c/y dredged	<u> </u> d. c/y dredged		
21. <input checked="" type="checkbox"/> Land Subject to Coastal Storm Flowage	<u>112376</u> a. square feet	<u>112376</u> b. square feet		

22.

Restoration/Enhancement (For Approvals Only)

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.5.c & d or B.17.c & d above, please entered the additional amount here.

 10397
a. square feet of BVW b. square feet of Salt Marsh

23.

Streams Crossing(s)

RB



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If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.

a. number of new stream crossings

b. number of replacement stream crossings

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
 - a. the work is a maintenance dredging project as provided for in the Act; or
 - b. the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not exceed the issuance date of the original Final Order of Conditions.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.
8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.
9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work.
10. A sign shall be displayed at the site not less than two square feet or more than three square feet in size bearing the words,

" Massachusetts Department of Environmental Protection"
 [or 'MassDEP']
 File Number : "006-1431"
11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before Mass DEP.
12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.
13. The work shall conform to the plans and special conditions referenced in this order.
14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.
15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to

R. Bell



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enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.

16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.
17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.
18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

NOTICE OF STORMWATER CONTROL AND MAINTENANCE REQUIREMENTS

19. The work associated with this Order (the "Project") is (1) is not (2) subject to the Massachusetts Stormwater Standards. If the work is subject to Stormwater Standards, then the project is subject to the following conditions;
 - a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Construction General Permit as required by Stormwater Standard 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.
 - b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that: *i.* all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures; *ii.* as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized; *iii.* any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10; *iv.* all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition; *v.* any vegetation associated with post-construction BMPs is suitably established to withstand erosion.
 - c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 19(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement") for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following: *i.* the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and *ii.* the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.
 - d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Multi-Sector General Permit.
 - e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the

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Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
WPA Form 5 - Order of Conditions
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
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issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 19(f) through 19(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 19(f) through 19(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.

- f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.
- g) The responsible party shall:
 - 1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
 - 2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
 - 3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.
- h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.
- i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.
- j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.
- k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.
- l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions:

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? Yes No
2. The Conservation Commission hereby (check one that applies):
 - a. DENIES the proposed work which cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw specifically:

1. Municipal Ordinance or Bylaw _____	2. Citation _____
---------------------------------------	-------------------

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order or Conditions is issued. Which are necessary to comply with a municipal ordinance or bylaw:

- b. APPROVES the proposed work, subject to the following additional conditions.

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1. Municipal Ordinance or Bylaw _____

2. Citation _____

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

The special conditions relating to municipal ordinance or bylaw are as follows:

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E. Signatures

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

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

08/03/2015
1. Date of Issuance

Please indicate the number of members who will sign this form.

5
2. Number of Signers

This Order must be signed by a majority of the Conservation Commission.

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy must be mailed, hand delivered or filed electronically at the same time with the appropriate MassDEP Regional Office.



Signatures:

[Signature]
[Signature]
[Signature]

by hand delivery on

August 3, 2015
Date

by certified mail, return receipt requested, on

Date

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

[Handwritten signature]



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G. Recording Information

This Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

BOSTON
 Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:
BOSTON
 Conservation Commission

Please be advised that the Order of Conditions for the Project at:

25 - 65 LEWIS STREET
 Project Location

006-1431
 MassDEP File Number

Has been recorded at the Registry of Deeds of:

County	Book	Page

for:
Property Owner

and has been noted in the chain of title of the affected property in:

<u>Book</u>	<u>Page</u>
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In accordance with the Order of Conditions issued on:

Date

If recorded land, the instrument number identifying this transaction is:

Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant

Rev. 4/1/2010

Handwritten signature

JULY 15, 2015 BCC PUBLIC HEARING

Attachment – Special Conditions

Lend Lease Development, Inc, Clippership Wharf Development, 25-65 Lewis Street
East Boston, Boston Harbor (LUO, Coastal Banks, Rocky Intertidal Shores, LSCSF)

DEP File No. 006-1431

20. The term "Applicant" as used in this Order of Conditions refers to the owner, any successor in interest or successor in control of the property referenced in the Notice of Intent, supporting documents and this Order of Conditions. The Commission must be notified in writing within 30 days of all transfers of title of any portion of property that take place prior to the issuance of the Certificate of Compliance.
21. The property that is the subject of this Order and upon which the project is located will be referred hereinafter as "the subject property" or the "project site".
22. A member of the Conservation Commission or its agent may enter and inspect the property and the activities that are the subjects of this Order of Conditions (OOC) at all reasonable times, with or without probable cause or prior notice, and until a Certificate of Compliance (COC) is issued, for the limited purpose of evaluating compliance with this OOC.
23. The Applicant is hereby instructed to review such conditions with all contractors and workers involved in on site operations prior to the commencement of construction on this project. Any contractors and workers arriving after construction commences must also be apprised of these conditions.
24. The Applicant must attach a copy of this Final Order of Conditions (hereinafter "the Order") to the contract documents associated with this project.
25. The Commission reserves the right to impose additional conditions or require the submittal of additional information as necessary to protect the interests of the Act.
26. If at any time during the implementation of the project, a fish kill or significant water quality problem occurs in the vicinity of the project, all site related activities impacting the water must cease until the source of the problem is identified and adequate mitigating measures employed to the satisfaction of the Boston Conservation Commission (hereinafter "the Commission").
27. Where relevant, all facilities and equipment will be continually operated and maintained so as to comply with the conditions and the Massachusetts Wetlands Protection Act (hereinafter "the Act"). The Applicant, owner, successor or assigns will be responsible for maintaining all on-site drainage structures and outfalls, assuring the lasting integrity of the surface cover on the site and site activities so as to prevent erosion, siltation, sedimentation, chemical contamination or other detrimental impact to the on-site and/or off-site wetland resource areas. This condition is a **maintenance** condition, and will not expire upon the issuance of a Certificate of Compliance.
28. A copy of the Order, including all referenced documents and plans, and all other subsequent approvals and directives issued by the Commission, must be available for inspection at the work area.
29. All project generated discharges, including stormwater, authorized by a NPDES permit, will be subject to the terms of the NPDES permit which is incorporated herein by reference pursuant to 310 CMR 10.03 (4). The Applicant must submit the NPDES permit to the Commission.
30. If applicable, the Applicant will submit the Water Quality Certificate issued by the Massachusetts Department of Environmental Protection, pursuant to Section 401 and 404 of the federal Clean Water Act, to the Commission. The terms of the Water Quality Certificate will be made part of this Order of Conditions. In no case will they exempt the proponent from any other condition of this Order. If a conflict arises between requirements of this Order and the requirements of the Water Quality Certificate the Applicant will request an amendment of this Order of Conditions to review the condition causing the conflict.
31. There may be no discharge or spillage of fuel, oil, or any other pollutant from this project into adjacent wetland resource areas or 100-foot Buffer Zone (hereinafter "buffer zone") associated with those resource areas. Any equipment used in any wetland resource area or buffer zone that uses fuel, oil or hydraulic fluid must be inspected daily for leakage. Any equipment that requires repair must be repaired outside of any wetland resource area or buffer zone. Any equipment that uses fuel, oil and/or hydraulic fluid must be staffed at all times while operational within wetland resource areas or buffer zone. Equipment must not be re-fueled within any wetland resource areas.

R. B. Deo

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32. The Applicant and/or their contractor will develop a spill management plan for any hazardous materials that may be employed during work in the buffer zone or over the water. Specifically, the Applicant should prepare to effectively deal with spillage of fuel or hydraulic fluids from equipment. A quick-absorbent material, such as "Speedy Dry" or equivalent, must be stored in a dry readily available area at the work site, and on any project related vessels, for use in the event petroleum-based fluids are spilled or leaked. The contractor must have an oil sorbent boom at the project site and deploy the boom immediately upon observing any petroleum sheen on the watershed. The spent material should be containerized and disposed of properly.
33. The Applicant must inform the Commission of any violation of this Order and any other project related spill or accident that may impact wetland resource areas as soon as possible and at least by the end of the business day, and must take appropriate action to mitigate impacts from such spill or accident. The Applicant or site supervisor must notify the City of any emergency by calling Commission staff at 617-635-3850 from 9:00 AM - 5:00 PM, Monday - Friday and, at all other times, by calling the Mayor's Office's 24-hour Hotline at 617-635-4500. On the date of the issuance of this Order, the appropriate contact is Charlotte Moffat, Executive Secretary: cc@boston.gov
34. The Applicant must submit for Commission staff review and approval an Oil Spill Prevention, Control and Countermeasure Plan, which must specify the containment measures and notification protocol to be implemented should a fuel spill occur. The fuel tanks must also have a leak detection system. The plan should include the continued maintenance of emergency fuel booms at the facility. The approved plan will be incorporated into this Order by reference herein, and will not expire upon issuance of a Certificate of Compliance.
35. Anti-degradation provisions of the Massachusetts Surface Water Quality Standards protect all waters including wetlands. The contractor must take all steps necessary to assure that the proposed activities will be conducted in a manner which will avoid violations of said standards.
36. Any mitigation measures required by federal, state, or other local agencies that may impact wetlands resource areas must be submitted to Commission staff for review to determine what level of permitting or authorization will be necessary.
37. All project related correspondence and submittals to the Boston Conservation Commission regarding this Final Order must indicate the DEP File number: 006-1431.

Prior To Construction

38. Prior to construction start up, the Applicant must submit final plans stamped by a registered professional engineer to Commission staff. Commission staff will determine if there have been significant revisions made to the plans referenced in this Order that may require further Commission review.
39. In advance of construction start-up on any section of this project, the Applicant must notify the Commission and, at the request of the Commission, may arrange an on-site conference of representatives of the Commission, the contractor, the project engineer and the Applicant to ensure that all the conditions of this Order are understood. The Commission must be notified at least 48 hours in advance of the date upon which construction activities on the site are to proceed. All appropriate construction impact mitigation measures must be in place prior to initiation of work on the project site.
40. The Applicant and/or their contractor must provide to the Commission written notification of the name, title, address and telephone numbers of the person or persons designated by the project proponent to be responsible for compliance with the Order on site. An emergency telephone number must be provided in the event that action is required during non-working hours.
41. The project supervisor overseeing daily operations at the site must read this Order and sign a copy of each page, indicating that each condition has been read and understood. These signed pages must be submitted to Commission staff.

R. B. Lee

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42. Before work at this site commences, the Applicant or their contractor must submit a final erosion and sediment control plan for review and approval by Commission staff. Final plans showing the points of discharge, wheel wash stations, sedimentation tanks and basins, oil separating equipment and other engineering structures should be provided to the Commission with a certified engineer's stamp and signature. To satisfy this condition the Applicant may submit a Storm Water Pollution Prevention Plan (SWPPP) required under the NPDES Construction General Permit for Storm Water Discharges for Construction Activities. The approved plan will be a condition of this Order by reference herein.
43. Prior to the commencement of construction and site clearing, an erosion and sediment control barrier must be installed along the limit of activity between all work areas and wetland resource areas. Hay bales or straw bales should be double staked (where possible) with bales butted against each other. If straw wattles or filter sox are used, they should be anchored in place. If specified, geotextile siltation fence should be installed no further than twelve (12) inches from the down-gradient side of the barrier. These barriers must be inspected daily and after significant rain events (greater than 0.5 inches of precipitation) and maintained as necessary, including the removal of accumulated sediments. The contractor will ensure that additional erosion and sediment control materials are available for immediate installation to replace those that are damaged or degraded. Erosion control measures should be removed upon completion of work and after disturbed areas are stabilized. The geotextile fence will constitute a limit-of-work line, beyond which no work or clearing of vegetation may occur.
44. The contractor must submit a construction materials and equipment staging plan 30 days prior to construction for Commission staff review and approval. Project related staging areas will be subject to all conditions herein. Staging areas located outside the project footprint, as indicated on the approved project plan of record, and within wetland resource areas and the buffer zone may be subject to further Commission review.
45. The Applicant must submit to Commission staff notice of approval by the Boston Water and Sewer Commission (BWSC) of the plans for this project. Any modifications required by BWSC to the plans approved by this Order must be detailed in writing with this submittal so that Commission staff can determine if further conditions are required.
46. Before construction commences, the Applicant must submit to the Commission for its review and approval a landscaping plan that provides native coastal bank vegetation along the Harborwalk; finished details for the Harborwalk; a maintenance plan for these structures and amenities; and plans stamped by a registered engineer depicting the proposed construction of the pile-supported segments of the Harborwalk. These submittals will be incorporated into this Order by reference herein.
47. In accordance with the applicable City Ordinance the Applicant will obtain approval from the Boston Parks and Recreation Commission for approval of construction within 100 feet of any park within the City of Boston.
48. The Applicant must design the stormwater drainage system to include infiltration of rooftop runoff and parking lot drainage or submit certification from a registered professional engineer that infiltration is not technically feasible. The revised plans or certification must be approved by the Boston Water and Sewer Commission and then submitted to Conservation Commission staff before construction commences.
49. The Applicant must submit a construction and post-construction snow management plan for Commission staff review and approval. Snow from landside areas may not be plowed or otherwise deposited into the waters of Boston Harbor or adjacent coastal beaches or banks. Snow must be stockpiled on paved surfaces that direct melted snow water to catch basins. De-icing material and sand must be stored and contained in areas that will not allow for their migration into wetland resource areas. Prior to April 1st, all sand and salt from winter application must be removed from the site. The approved snow management plan will be a perpetual maintenance condition that will not expire upon issuance of a Certificate of Compliance.

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During Construction

50. The Applicant, owner, successor or assigns must regularly remove and dispose of debris on all wetland resources areas on the project site. This is a perpetual **maintenance** condition that will not expire upon issuance of a Certificate of Compliance. The Applicant must develop a debris removal plan for the rip-rap detailing how often and by what means debris collected in the rip-rap will be removed and disposed of.
51. The Applicant must maintain the project site free of trash and debris during any down time or hiatus in the project during the term of this Order.
52. The Applicant and/or their contractor must clean the work area at the end of each workday to prevent wind deposition of fugitive dust and accumulation of debris in the buffer zone or wetland resource areas. All stored excavate or fill must be contained with appropriate best management practices when not in use. Special attention should be given by the contractor to securing covers on stored excavate, fill, dumpsters and roll-off containers over the weekend or during down time.
53. Except when necessary for final fitting or precision cutting and during demolition, no treated timber may be cut within the buffer zone. All sawdust and debris must be collected and disposed of properly. Wood treated with creosote or cuprinol may not be placed in the waters of Boston Harbor.
54. The applicant should consider the use of Alkaline Copper Quaternary (ACQ)-treated timber piles in place of Chromated Copper Arsenate (CCA)-treated timber piles. This material employs preservative components that are listed in EPA's classification as "General Use" pesticides. This is a less toxic material than CCA and it performs similarly.
55. Disposal of all construction materials, demolition debris and excess fill must be done in accordance with applicable federal, state, and local laws. Proof of proper disposal must be provided in the form of copies of bills of lading, disposal receipts or manifests to Commission staff upon request.
56. All practical best management practices must be implemented during in-water or waterside construction activities to minimize turbidity and other water quality impacts, including but not limited to a floating boom with an attached silt curtain to contain work areas. The silt curtain should be maintained in good operating condition, should rest on the mud line at all times, and should have adequate shore-line anchors, tie-downs or other mechanisms to ensure proper position and performance. Any visible plume of turbid water caused by project activity outside the area contained by the silt curtain will constitute inadequate performance and require immediate adjustment and/or repositioning of the curtain. Deployment of the curtain should occur in such a way that it will not interfere with water traffic. The boom may be removed when work directly requiring the use of a boom has been completed. The contractor must also have an oil sorbent boom at the project site and deploy the boom immediately upon observing any petroleum sheen on the watersheet.
57. All project-related materials must be contained from migration into wetland resource areas and all practical precautions must be used during any water-based construction work. The Applicant and/or their contractor will be responsible for the removal of any project-related debris, material, machinery or equipment lost, dumped, thrown into, or otherwise entering any wetland resource area, regardless of whether it is within or outside of the project limits. The proponent must seek Commission approval for any remedial action involving substantial impacts to wetland resource areas.
58. The contractor must have a boat available for the collection and removal of project related trash and debris within wetland resource areas and on the watersheet. The contractor will contain and collect all floating debris that results from the project and collect it along with solid waste including trash. The collected debris and trash will be placed into containers and periodically removed for proper disposal. The boat should also be used to check the boom.
59. All vessels working at this site must be maintained in seaworthy condition. Should any vessel or barge associated with the project sink, the Commission must be informed immediately. The proposed work and placement of barges should be coordinated with vessels that navigate in the affected



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waterways. All vessels and floating equipment must be anchored or moored when not in use and have proper lighting per U.S. Coast Guard requirements. Barges must be anchored with spuds or tied off to a secure structure; under no circumstances should construction equipment on the barge be utilized for purposes of anchoring. Project related vessels may not rest upon tidal flats.

60. All deck gear and equipment stored on project-related vessels must be secured at the end of each workday and inspected for any leakage. All project-related vessels must have a spill kit containing sorbent materials on the vessel at all times. All material stored on project related vessels must be contained so as not to enter the resource area. Petroleum product and hydraulic fluids must be stored within leak-proof lockers secured to the deck of the vessel.
61. Piles must be extracted entirely by pulling. If there is a structural reason for cutting the piles, then the contractor must cut them at the mud line, and the Applicant must submit to Commission staff a letter from a registered, professional engineer certifying the reason therefore. The Applicant must also submit a plan stamped by a registered engineer indicating the location of piles that remain below the mud line. It is noted that the submitted plans, certified by a registered professional engineer propose that all piles within 30' of the seawall be cut off at mudline.
62. On-site discharge of untreated, decanted water from construction dewatering to resource areas is prohibited. If on-site discharge becomes necessary, the Applicant must submit a plan indicating dewatering methodology, water quality monitoring measures, and staging location of dewatering equipment for Commission staff review and approval. Any approved dewatering must treat decanted water according to additional conditions deemed necessary by Commission staff.
63. The Applicant, owner, successor or assigns will ensure the cleanliness of all catch basins on the project site or affected by project related activity. Catch basins will be protected with hay bales and/ or silt sacks during the construction period. The proponent must inspect and, as necessary, clean all catch basins at least weekly during construction and more frequently after a significant rain event. Upon completion of the project, the inspection and cleaning of catch basins on the subject property must occur twice a year: once between March 1st and April 30th and once between November 1st and November 30th of each year, and more often if necessary. This **maintenance** condition is perpetual and will not expire upon issuance of a Certificate of Compliance.
64. The Applicant must provide the Commission with copies of the Operations and Maintenance Log for all stormwater BMP's on the subject site yearly. Copies must be provided for a minimum of three years after completion of construction and specify dates of inspections, repairs, replacement, maintenance and cleaning actions, and names of individuals or contractors conducting said maintenance.
65. Repair or replacement of stormwater infrastructure may not commence in advance of a forecasted rain event.
66. All sheet flow from areas where vehicles drive or park must be directed toward catch basins that meet Boston Water and Sewer Specifications.
67. Any new or reconstructed catch basins, or any new or replaced sections of sidewalk or pavement adjacent to surface drains on the project site, must have a permanent plaque within one foot of the structure that states "Don't Dump - Drains to Boston Harbor."
68. Trucks entering and leaving the site must have their loads completely covered in compliance with M.G.L. Chapter 85 § 36. Vehicles that accumulate soil or any unconsolidated material on their tires due to exposed ground conditions at the site must be thoroughly washed to avoid tracking of material onto the public way.
69. The contractor must have designated washout areas for concrete equipment that will be comprised of impermeable material and sized to contain project concrete wastes and wash water. Washout areas may not be located in the vicinity of storm drain inlets, stormwater conveyance, surface waters or wetlands.

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70. Excavation equipment may access the inter-tidal area only during periods of low tide and utilize rubber-tired vehicles.
71. There may be no parking of contractor or laborer vehicles in any resource area or associated buffer zone without proper stormwater controls or best management practices installed.
72. Construction activity will be confined within the limits of work as represented on the final plan of record. There may be no staging of construction materials, storage of construction equipment, clearing or disturbance to land beyond the limit of work.
73. Erosion and sediment control containment measures must be installed and maintained between wetland resource areas and any stored construction materials or staged construction equipment. Under no circumstances may the project contractor store, stage or locate construction equipment not directly associated with the project and subject site within resource areas or the buffer zone. At the request of the Applicant, Commission staff may authorize construction lay-down areas within the buffer zone for storage of equipment *during the construction period only*.
74. The Applicant or their contractor must keep a daily log summarizing all construction and demolition activities of this project on every day that such activity occurs, noting turbidity conditions, occurrence of fish kills, debris removal from resource areas and evaluations of measures employed to reduce turbidity and other impacts to the water and wetland resources. The condition of all drainage, erosion controls and sedimentation structures must be noted in the daily log, as well as the performance of maintenance activities on such structures. The contractor must provide Commission staff with a draft construction inspection form prior to commencement of work on the project site. This log must be kept at the work area and made available upon demand by Commission staff.
75. All land-side areas disturbed during construction must be stabilized as soon as possible upon completion of construction. Loaming and seeding should occur within (5 - 30) days of final grading. Disturbed resource areas landward of the high water line and buffer zone mark should be secured by a biodegradable erosion control mats while vegetation establishes. Barren areas should be stabilized with a temporary cover of rye or other grass if work on the project is interrupted for more than 30 days. If the season is not appropriate for plant growth, then exposed surfaces may be stabilized by straw, snow fence, or other U.S. Natural Resources Conservation Service - recommended methods. The Applicant or their contractor will ensure a mature cover of vegetation is established on previously disturbed or exposed areas.
76. The contractor will conduct construction sequencing such that areas cleared of ground vegetation and earth materials are exposed for a minimum of time before they are covered, seeded, or otherwise stabilized to prevent erosion.
77. There may be no dumping of leaves, grass clippings, brush, fill or other debris into wetland resource areas. This condition is perpetual and will not expire upon issuance of a certificate of compliance.
78. All equipment and unconsolidated materials must be removed from the buffer zone and Land Subject to Coastal Storm Flowage (Special Flood Hazard Areas subject to inundation by the 1% annual chance flood) in advance of any forecasted coastal flooding event.

Additional Conditions

79. Exterior trash receptacles must be secured to the ground and must be covered or designed to prevent pollution of adjacent resource areas by vandalism or wind-blown litter. Trash receptacles will be emptied daily from Memorial Day to Columbus Day, and at least weekly during all other months. This is a perpetual maintenance condition that will not expire upon issuance of a Certificate of Compliance.
80. In the interest of pollution prevention, the Applicant must install pet waste bag dispensers at the entrance to the proposed dog park subject to this Order. Said dispensers must be installed in visible locations at park entrances. The trash barrels for the dog waste must be emptied on a regular basis as needed- no less frequently in the summer months than every other day, and in the winter, no less



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DEP File No. 006-1431

than once a week or as needed. This is a continuing condition and will not expire with the issuance of a Certificate of Compliance.

81. In the interest of prevention of pollution and storm damage prevention, the Applicant should give consideration to future sea level rise over the design life of the project in determining the ground-level floor elevation for buildings, as well as the location of building mechanical equipment, utilities, storage areas for hazardous materials, underground garage portals, exhaust and ventilation infrastructure, and building entry points.
82. The useful life of storm water management infrastructure places currently conceived systems well within the time period when climate change impacts will manifest. The applicant must demonstrate how the project has been prepared for forecasted changes to rainfall intensity and watershed runoff.
83. Only organic fertilizers are to be used on the property landward of the resource areas. Fertilizers should not contain pesticides or herbicides; should contain slow release nitrogen and should not contain more than 3% phosphorous. To mitigate chemical runoff, do not fertilize directly before a rainstorm and do not over fertilize. Apply fertilizer in late April and in September (refer to: A Homeowner's Guide to Environmentally Sound Lawncare published by the Massachusetts Department of Food and Agriculture and the booklet, Don't Trash Grass, published by the Massachusetts Department of Environmental Protection)
<http://www.mass.gov/dep/recycle/reduce/dtg.htm>
84. Site clearing and grubbing must be phased, so that only the residential lots that are actively being constructed are cleared of vegetation.
85. *Boston Harbor*: The Land Under Ocean in the project area underlies an anadromous fish run and provides important spawning habitat for the winter flounder. Unless otherwise allowed by the Massachusetts Division of Marine Fisheries pursuant to M.G.L. c. 130 § 19, water-based construction activity that will directly disturb sediments on the harbor bottom, i.e. pile driving or extraction or dredging, is prohibited in the fish run between February 15th and June 30th in any year in which the Final Order of Conditions for this project is valid.
86. The Applicant must confer with the Massachusetts Division of Marine Fisheries (DMF) regarding the installation of rip rap berms at the subject site and possible impacts to winter flounder habitat. The Applicant must adhere to any mitigation requirements as determined by DMF. The Commission reserves the right to impose additional conditions to this Order should DMF determine mitigation is necessary to compensate for lost habitat.
87. Disturbed wetland resource areas should be replaced with wetland soils, re-graded to pre-project elevations and contours, and re-planted with native wetland species. Disturbed buffer zone areas should be replanted with native salt tolerant vegetation.
88. The recommendations of the interagency task force regarding the Living Shoreline will be incorporated into the Order of Conditions.
89. The Applicant must utilize a closed, environmental clamshell bucket for dredging and provide a dredge dewatering plan for Commission staff review and approval at least two weeks prior to commencement of dredging. The plan must provide specific information on where dewatering will occur, measures to contain turbidity, and the location and method of transport of dredge spoils. If landside dewatering is to occur, the plan must indicate points of discharge, and locations of wheel wash stations and sedimentation tanks. Spoils test data must be submitted to all relevant agencies, including the Commission, and indicate disposal location. The approved plan will be a condition of this Order by reference herein.
90. All loose debris and trash must be removed from piers before demolition commences. A work barge must be placed under the piers to capture any debris that may fall during demolition and reconstruction. Dumpsters and roll-off containers must be completely covered overnight, during rain events, and on weekends and other days when work does not occur at the site.

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91. The floor of any occupied non-residential structure placed within Land Subject to Coastal Storm Flowage must be at or above the elevation of the 100-year Base Flood Elevation (BFE) or must be flood proofed to the BFE indicated on the City's Flood Insurance Rate Map. Buildings employing dry floodproofing techniques must be designed and constructed so that any exterior wall areas below the BFE, together with attendant utilities and sanitary facilities, is flood resistant with walls that are substantially impermeable to the passage of water. This is a perpetual condition that will not expire upon issuance of an Order of Conditions. Preliminary FEMA FIRM panel 81 indicates that project is within zone AE 12. This map is currently under review and has not yet been adopted as Boston's Special Flood Hazard Zone map. However, the applicant should consider the implications of this impending map change.
92. Before construction may commence, the Applicant must submit to Commission staff for review and receive its approval of a flood contingency plan to prevent and mitigate any storm damage from a flood event during construction and as an ongoing maintenance provision. This plan must also receive the approval of the Boston Water and Sewer Commission. The flood contingency plan will be incorporated into this Order by reference herein and will be a perpetual maintenance condition that will not expire upon issuance of a certificate of compliance.
93. In the interest of prevention of pollution and storm damage prevention, the Applicant should give consideration to future sea level rise over the design life of the project in determining the ground-level floor elevation for buildings, as well as the location of building mechanical equipment, utilities, storage areas for hazardous materials, underground garage portals, exhaust and ventilation infrastructure, and building entry points.
94. Construction of a structure in an A-Zone Special Flood Hazard Area and the placement of appurtenant facilities must be in compliance with the provisions of the state Board of Building Regulations and Standards' Design Requirements for Construction in Floodplains (780 CMR 3107). Prior to construction above the foundation an elevation certificate, as required by 780 CMR 3107 must be submitted to the Commission.
95. In the interest of prevention of pollution the storage or processing of materials that are flammable, explosive or injurious to water quality is forbidden within the Special Flood Hazard Area (Zone-A). Storage of other material or equipment must be firmly anchored to prevent flotation or be readily removable from the area.
96. Any building or substantial improvement of any existing structure must be located landward of the reach of mean high tide. This condition shall not limit approved dock structures from being located landward of mean high tide.
97. Demolition debris may not enter the waters of Boston Harbor. The Applicant or their contractor must submit for Commission staff review and approval a demolition and dust control plan at least 30-days prior to the commencement of any demolition activities. The plan must indicate how demolition activities will be phased to prevent debris from entering resource areas, staging locations for demolition equipment and debris, and measures to contain demolition debris and prevent the wind-borne transport of dust into adjacent resource areas. A work barge or debris catchment panels must be staged beneath active areas of demolition to capture falling debris. Barges must be equipped to fully contain such debris and prevent material from entering the waters of Boston Harbor. Demolition debris must be removed from the barge at least weekly.
98. For areas of seawall requiring repair, each course of granite blocks below the mean high water line may not be removed to facilitate repair until the earth behind it has been excavated to a slope that will minimize erosion by the ebb and flow of tides. Where feasible, steel sheet piles installed for seawall repair must be cut at or below the mean low water line. The Applicant must notify the Commission if the stability or integrity of the seawall on the subject property changes during the proposed construction activities. The Commission strongly encourages the restoration of as much of the original seawall, using the original granite blocks, as feasible. This project may require review by the Massachusetts Historical Commission and the Boston Landmarks Commission. Should those

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commissions require revisions to the plans approved in this Order, then the Applicant must submit these revisions to Conservation Commission staff to determine if further Conservation Commission review is necessary.

99. The proponent must undertake excavation and placement of fill and stone revetment in phases such that the contractor will complete work in a given phase before proceeding to the next phase. This condition is necessary to minimize exposure of disturbed areas to tidal action and to prevent excessive erosion and development of silt plumes during the construction period in the high-energy environment in which the proponent has proposed work. The proponent must also take all other steps necessary to ensure against significant erosion or siltation during the construction period. The proponent must notify the Commission if at any time during the construction a silt plume develops.
100. All project related materials must be contained from migration into wetland resource areas. All practical best management practices must be implemented during the cleaning of stormwater infrastructure to minimize turbidity and other water quality impacts, including but not limited to a floating boom with an attached silt curtain to enclose the area immediate to the outfall. The silt curtain must be maintained in good operating condition, should rest on the mud line at all times, and should have adequate shore-line anchors, tie-downs or other mechanisms to ensure proper position and performance. Any visible plume of turbid water caused by project activity outside the area contained by the silt curtain will constitute inadequate performance and require immediate adjustment and/or repositioning of the curtain. The boom may be removed when work directly requiring the use of a boom has been completed. The contractor must also have an oil sorbent boom at the project site and deploy the boom immediately upon observing any petroleum sheen on the watersheet.
101. Research on insects, turtles, birds, fish, reptiles, and other wildlife species shows that light pollution can alter behaviors, foraging areas, and breeding cycles. In the interest of protection of fisheries and wildlife habitat, all lighting on the subject property must be designed to eliminate light intrusion so as to minimize interference in these resource areas.
102. The proponent has agreed to install and maintain as a perpetual condition at least one binocular.
103. The proponent will provide to the Commission a copy of the signage plan, which will include wayfinding signs as well as the interpretive signage, as well as signage visible from the outside indicating where the public restrooms are, indicating they are open to the public regardless of patronage or residency.

Project Description from NOI:

The Project consists of four six-story buildings containing up to 492 residential units and a single level of underground parking with approximately 300 spaces (See Figure A-3, Project Site Plan and Figure A-4, Elevated Perspective Looking North). The Project will include a public fitness club, a destination restaurant, a commuter café, public parking, and a docking facility for boating and recreational uses meant to create a waterfront destination for the entire East Boston community. There will be secure bike storage for public use in Building 1 near the Maverick MBTA Blue Line transit station and Building 4 near the waterfront restaurant and water transportation dock on Lewis Street.

The Project will also include approximately 189,837 square feet of open space, including approximately 1,400 linear feet of harborwalk, a wetland exploration and interpretive area, a kayak launch, lawn and viewing areas, benches, lighting, and other waterfront improvements. The total building footprint for the Project is approximately 105,681 square feet.

The Project will result in alterations to wetland resources subject to Massachusetts Wetland Protection Act jurisdiction, and therefore requires the filing of a Notice of Intent. Work will occur in Land Under the Ocean, Rocky Intertidal Shore, Coastal Bank, and Land Subject to Coastal Storm Flowage.

Handwritten signature

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A comprehensive suite of measures has been incorporated into the Project's design to mitigate any potential impacts to wetland resources on the Site. Overall, the project will enhance wetland resources by restoring existing wetland resource areas, removing piles and wooden decking, updating and improving the stormwater management system to discharge water with fewer pollutants, and by eliminating sheeting from unstabilized surfaces.

1.1.1 LIVING SHORELINE

The most significant improvement to the site is the creation of a 31,400 square foot coastal wetland and harbor access area comprised of Land Under the Ocean, Coastal Bank, Rocky Intertidal Shore and tidal Salt Marsh created from the existing solid fill at the end of the western wharf. New watersheet and wetlands will be created that allow users to interact with the water and the different intertidal wetland regimes ranging from rocky shorelines to a rocky beach area to intertidal salt marsh planting to coastal upland plantings.

The majority of the Living Shoreline will consist of relatively level (2% slope) terraces at a variety of elevations relative to the tide elevations of the harbor. The steps between the various terraces will be created primarily with stacked salvaged granite blocks which will extend 12 inches above the elevation of the terraces, creating a small sill/breakwater at each terrace.

The lowest terrace, Low Tidal Marsh, will be approximately at elevation 5.1 (BCB). The Low Tidal Marsh Terrace will be the smallest of the terraces and the surface will be a mixture of *Spartina alterniflora* and salvaged granite stone outcroppings, which will provide secure locations for shellfish and tidal vegetation. The next two terraces, Low Marsh I at elevation 6.5 and Low Marsh II at elevation 8.5, are the largest of the terraces in the area and occupy the majority of the Living Shoreline. These two terraces are at the "sweet spot" in elevation to support *Spartina alterniflora* and will provide lush green swaths of marsh grass, which will give the Living Shoreline its predominant character. The upper most terrace, High Marsh Terrace at elevation 11.0 will be comprised of *Spartina patens*. The High Marsh terrace differs from the lower terraces in that its landward boundary is not a granite terrace step, but a continuously sloping landscape that rises to elevation 24.0. This will create a continuous ecological cross section from the mean high water mark up to a coastal upland ecosystem.

In addition to the vegetated areas of the Living Shoreline, the project will include several recreational access points for the public to interact with the harbor. A long kayak ramp slopes (approximately 12% slope) from the Harborwalk and proposed kayak rental/storage facility down to the low tide elevation. This ramp will be surfaced with interlocked pre-cast concrete planks and salvaged granite blocks along its edge. At the end of the existing cove, a proposed small rocky beach stretches underneath the elevated Harborwalk bridge above. (See Figure A- 3, Project Site Plan and Figure A-5, Landscape Plan).

1.1.2 HARBORWALK

The Project will provide a 12-foot wide, minimum 10-foot clear Harborwalk around the entire shoreline of the Site. There will be opportunities for

Harborwalk users to access the water and adjacent wetlands from several different locations including the kayak launch, floating dock on the western side of the Site, and a public lawn at the end of the wharf adjacent to Lewis Street. All of these water dependent uses will activate the shoreline. (See Figure A-5, Landscape Plan).

1.1.3 PILE SUPPORTED PIER

An overlook pier is proposed on the west side of the Site along the water's edge where the Harborwalk meets the proposed wetland area. The solid pier will be approximately 27' x 25'. It will provide excellent views of downtown Boston, Boston Inner Harbor, and Charlestown.

1.1.4 FLOATING DOCK SYSTEM

The Project will provide new public access to and along the water with a new floating dock for kayaks and other small vessels in the cove and a dock for recreational vessels on the west side of the Project Site.

1.1.5 REMOVAL OF PILINGS AND PIERS

The project will involve the cleanup and removal of 1.6 acres of existing deteriorated piers, wharves and pile fields, which will improve water circulation around the Site.

SITE DEVELOPMENT AND SHORELINE IMPROVEMENTS

The Project will redevelop the currently abandoned Site into a vibrant residential, commercial and public waterfront space. Work under this Notice of Intent will consist of:

R. Bell

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- Four buildings including below grade parking;
- Creation of 31,400 square feet of Living Shoreline;
- Approximately 189,837 square feet of open space;
- Stabilization of the seawall with riprap to create a Harborwalk of approximately 1,400 linear feet wrapping around most of the Site's waterfront edge;
- Creation of two new floating docks to support small and mid-size vessels;
- A public kayak launch;
- Neighborhood open space such as a dog run, community garden, and picnic area;
- Extension of the street network through the Site, with expansive sidewalks and on-street public parking spaces;
- Construction of two bridges: one over tidal waters and one over wetlands, for public viewing and waterfront access.

1.3.2 DREDGING

A. DREDGING SCOPE

The proposed project will require a limited amount of dredging at two locations. The dredging is associated with the construction of the living shoreline; the vast majority of material removal for the living shoreline will be by excavation. The dredging will occur on the seaward side of the mean high water line as it currently exists on the Site. Approximately 900 cubic yards of dredge material will be removed.

All dredging and excavation in the area of the Living Shoreline will be performed from shore with conventional excavation equipment. The dredge area will be contained by a floating silt curtain attached to a debris boom.

The silt curtain will extend from the water surface to the mudline. Dredge excavate material will be placed on site for dewatering. Dewatering will occur within a temporary containment dyke comprised of soil with appropriate lining or jersey barriers with infill. Once the material has dried and been tested it will be handled on site in accordance with the project soils materials plan.

Design improvements

The originally proposed street and associated parking between Msgr. Jaconne Road and the center of the street was eliminated and replaced with wider and level Harborwalk and open space along the west pier. The opening between Building 2 and Building 3 which is located in the middle of the site, was expanded by approximately 25 feet to improve views through the center of the site. A parking garage entrance along Lewis Street was eliminated and replaced with a pedestrian connection through the waterfront. Building 4 which runs along Lewis Street was extended approximately 15 feet towards Building 2. An approximately two and a half story passageway was added in Building 1 to improve pedestrian circulation through the site.

Revised landscape planting plans now reflect substantial improvements in the Harborwalk details including trees, wayfinding and interpretive signage, benches, lighting and other public amenities.

RGL
4/25/16



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 - Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:006-1431
eDEP Transaction #:884809
City/Town:BOSTON

A. General Information

1. Conservation Commission BOSTON

2. Issuance a. OOC b. Amended OOC

3. Applicant Details

a. First Name	NICK	b. Last Name	ISELIN
c. Organization	LEND LEASE DEVELOPMENT, INC		
d. Mailing Address	20 CITY SQUARE, 2ND FLOOR		
e. City/Town	BOSTON	f. State	MA
		g. Zip Code	02129

4. Property Owner

a. First Name	NICK	b. Last Name	ISELIN
c. Organization	LEND LEASE DEVELOPMENT, INC		
d. Mailing Address	20 CITY SQUARE, 2ND FLOOR		
e. City/Town	BOSTON	f. State	MA
		g. Zip Code	02129

5. Project Location

a. Street Address	25 - 65 LEWIS STREET		
b. City/Town	BOSTON	c. Zip Code	02109
d. Assessors	N/A	e. Parcel/Lot#	0105397000
Map/Plat#		f. Longitude	71.04165W

6. Property recorded at the Registry of Deed for:

a. County	b. Certificate	c. Book	d. Page
SUFFOLK		23698	279

7. Dates

a. Date NOI Filed : 5/26/2015 b. Date Public Hearing Closed: 11/2/2016 c. Date Of Issuance: 11/22/2016

8. Final Approved Plans and Other Documents

a. Plan Title:	b. Plan Prepared by:	c. Plan Signed/Stamped by:	d. Revised Final Date:	e. Scale:
CLIPPERSHIP WHARF SHEETS C-101, C-200, C- 201-204, C-300, C- 400-404, NOI L1.1- 1.5	NITSCH ENGINEERING	JOHN M. SCHMID	September 28, 2016	AS NOTED

B. Findings

1. Findings pursuant to the Massachusetts Wetlands Protection Act
Following the review of the the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act.

Check all that apply:

a. Public Water Supply b. Land Containing Shellfish c. Prevention of Pollution



2016 00115784
Bk: 57235 Pg: 296 Page: 1 of 10
Recorded: 12/08/2016 11:06 AM
ATTEST: Stephen J. Murphy, Register
Suffolk County Registry of Deeds

Page 1 of 10 * ELECTRONIC COPY

total: 10 pages.
Fort Point Associates, Inc.
Attn: Christine McVay
31 State Street, 3rd Fl
Boston, MA 02109



Massachusetts Department of Environmental Protection

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- | | | |
|--|--|---|
| d. <input type="checkbox"/> Private Water Supply | e. <input type="checkbox"/> Fisheries | f. <input checked="" type="checkbox"/> Protection of Wildlife Habitat |
| g. <input type="checkbox"/> Ground Water Supply | h. <input checked="" type="checkbox"/> Storm Damage Prevention | i. <input checked="" type="checkbox"/> Flood Control |

2. Commission hereby finds the project, as proposed, is:

Approved subject to:

- a. The following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

Denied because:

- b. The proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**
- c. The information submitted by the applicant is not sufficient to describe the site, the work or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**

3. Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310CMR10.02(1)(a).
 a. linear feet

Inland Resource Area Impacts:(For Approvals Only):				
Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. <input type="checkbox"/> Bank	<u> </u> a. linear feet	<u> </u> b. linear feet	<u> </u> c. linear feet	<u> </u> d. linear feet
5. <input type="checkbox"/> Bordering Vegetated Wetland	<u> </u> a. square feet	<u> </u> b. square feet	<u> </u> c. square feet	<u> </u> d. square feet
6. <input type="checkbox"/> Land under Waterbodies and Waterways	<u> </u> a. square feet	<u> </u> b. square feet	<u> </u> c. square feet	<u> </u> d. square feet
	<u> </u> e. c/y dredged	<u> </u> f. c/y dredged		
7. <input type="checkbox"/> Bordering Land Subject to Flooding	<u> </u> a. square feet	<u> </u> b. square feet	<u> </u> c. square feet	<u> </u> d. square feet
Cubic Feet Flood Storage	<u> </u> e. cubic feet	<u> </u> f. cubic feet	<u> </u> g. cubic feet	<u> </u> h. cubic feet
8. <input type="checkbox"/> Isolated Land Subject to Flooding				



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	a. square feet	b. square feet		
Cubic Feet Flood Storage				
	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9. <input type="checkbox"/> Riverfront Area				
	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft				
	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft				
	g. square feet	h. square feet	i. square feet	j. square feet

Coastal Resource Area Impacts:

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below			
11. <input checked="" type="checkbox"/> Land Under the Ocean	185441	185441		
	a. square feet	b. square feet		
	0			
	c. c/y dredged	d. c/y dredged		
12. <input type="checkbox"/> Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13. <input type="checkbox"/> Coastal Beaches				
	a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
14. <input type="checkbox"/> Coastal Dunes				
	a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
15. <input checked="" type="checkbox"/> Coastal Banks	1863	1863		
	a. linear feet	b. linear feet		
16. <input checked="" type="checkbox"/> Rocky Intertidal Shores	53367	53367		
	a. square feet	b. square feet		
17. <input type="checkbox"/> Salt Marshes				
	a. square feet	b. square feet	c. square feet	d. square feet
18. <input type="checkbox"/> Land Under Salt Ponds				
	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
19. <input type="checkbox"/> Land Containing Shellfish				
	a. square feet	b. square feet	c. square feet	d. square feet
20. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			
	c. c/y dredged	d. c/y dredged		



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21. Land Subject to Coastal Storm Flowage 5985859858 147004
a. square feet b. square feet

22.

Restoration/Enhancement (For Approvals Only)

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.5.c & d or B.17.c & d above, please entered the additional amount here.

a. square feet of BVW 17000
b. square feet of Salt Marsh

23.

Streams Crossing(s)

If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.

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

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
 - a. the work is a maintenance dredging project as provided for in the Act; or
 - b. the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not exceed the issuance date of the original Final Order of Conditions.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.
8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.
9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon



**Massachusetts Department of Environmental
Protection**

Bureau of Resource Protection - Wetlands

WPA Form 5 - Order of Conditions

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

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which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work..

10. A sign shall be displayed at the site not less than two square feet or more than three square feet in size bearing the words,

" Massachusetts Department of Environmental Protection"
[or 'MassDEP']
File Number : "006-1431"

11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before Mass DEP.
12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.
13. The work shall conform to the plans and special conditions referenced in this order.
14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.
15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.
16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.
17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.
18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

NOTICE OF STORMWATER CONTROL AND MAINTENANCE REQUIREMENTS

19. The work associated with this Order(the "Project") is (1) is not (2) subject to the Massachusetts Stormwater Standards. If the work is subject to Stormwater Standards, then the project is subject to the following conditions;
- a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Construction General Permit as required by Stormwater Standard 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.
- b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that: *i.* all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period



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- BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures; *ii.* as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized; *iii.* any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10; *iv.* all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition; *v.* any vegetation associated with post-construction BMPs is suitably established to withstand erosion.
- c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 19(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement") for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following: *i.*) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and *ii.*) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.
- d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Multi-Sector General Permit.
- e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 19(f) through 19(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 19(f) through 19(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.
- f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.
- g) The responsible party shall:
1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
 2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
 3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.
- h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with



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all applicable federal, state, and local laws and regulations.

- i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.
- j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.
- k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.
- l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions:

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? Yes No

2. The Conservation Commission hereby (check one that applies):

a. DENIES the proposed work which cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw specifically:

1. Municipal Ordinance or Bylaw _____

2. Citation _____

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order or Conditions is issued. Which are necessary to comply with a municipal ordinance or bylaw:

b. APPROVES the proposed work, subject to the following additional conditions.

1. Municipal Ordinance or
Bylaw _____

2. Citation _____

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

The special conditions relating to municipal ordinance or bylaw are as follows:



Massachusetts Department of Environmental Protection
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E. Signatures

This Order is valid for three years from the date of issuance, unless otherwise specified pursuant to General Condition #4. If this is an Amended Order of Conditions, the Amended Order expires on the same date as the original Order of Conditions.

8/3/2015
 1. Date of Original Order

Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission.

3
 2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signatures:

Aldo Ghirin

Joe Orfant

Mike Wilson

by hand delivery on _____

by certified mail, return receipt requested, on _____

Date

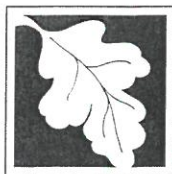
Date

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act



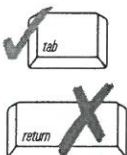
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City/Town

E. Signatures

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



This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission.

1. Date of Issuance
3
2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy must be mailed, hand delivered or filed electronically at the same time with the appropriate MassDEP Regional Office.

Signatures:

[Handwritten Signature]
[Handwritten Signature]

by hand delivery on

by certified mail, return receipt requested, on

Date

Date

11-22-16

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.



CITY OF BOSTON

THE ENVIRONMENT DEPARTMENT

Boston City Hall, Room 709 • Boston, MA 02201 • 617/635-3850 • FAX: 617/635-3435

April 28, 2017

Richard Jabba
Fort Point Associates, Inc.
31 State Street, 3rd Floor
Boston, MA 02109

RE: **DEP File No. 006-1431 Request for an Amendment to the Original Order of Conditions for the placement of a temporary sales center at Clippership Wharf.**

Dear Mr. Jabba,

At the April 19, 2017 public meeting, your request for an Amendment to the Original Order of Conditions for the placement of a temporary sales center at Clippership Wharf was heard. The Commission voted to deem the addition of the temporary sales center as an insignificant change to the project. Therefore, your project and the temporary facility are allowed to commence.

If you should have any questions regarding the decision, I can be reached at 617-635-4416 or at amelia.croteau@boston.gov.

For the Commission,

Amelia Croteau
Conservation Assistant



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
WPA Form 7 – Extension Permit for Orders of Conditions
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:

006-1431

Provided by DEP

C. Recording Confirmation

The applicant shall record this document in accordance with General Condition 8 of the Order of Conditions (see below), complete the form attached to this Extension Permit, have it stamped by the Registry of Deeds, and return it to the Conservation Commission.

Note: General Condition 8 of the Order of Conditions requires the applicant, prior to commencement of work, to record the final Order (or in this case, the Extension Permit for the Order of Conditions) in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, it shall be noted in the Registry's Granter Index under the name of the owner of the land upon which the proposed work is to be done. In the case of registered land, it shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done.

Detach this page and submit it to the Conservation Commission prior to the expiration of the Order of Conditions subject to this Extension Permit.

To:

Boston

Conservation Commission

Please be advised that the Extension Permit to the Order of Conditions for the project at:

25-65 Lewis Street, East Boston

Project Location

006-1431

DEP File Number

has been recorded at the Registry of Deeds of:

Suffolk

County

for:

Lendlease Clippership Wharf

Property Owner

and has been noted in the chain of title of the affected property in accordance with General Condition 8 of the original Order of Conditions on:

<i>September 26, 2018</i>	<i>60213</i>	<i>36</i>
Date	Book	Page

If recorded land the instrument number which identifies this transaction is:

Instrument Number

If registered land, the document number which identifies this transaction is:

Document Number

Signature of Applicant

Richard Jubba

BWSC INSPECTION SIGN OFF LIST	DATE AND SIGNATURE	COMMENT	DYE TEST	SAWCUT
(A) PLUG EX. DRAIN LATERAL AT DRAIN MANHOLE	02/12/2020 C. Taylor			5' x 5'
(B) REMOVE & DISPOSE OF EX. DRAIN MANHOLE	10/16/2020			5' x 5'
(C) REMOVE & DISPOSE OF EX. DRAINAGE CATCH BASIN	02/12/2020 C. Taylor			5' x 5'
(D) CONNECT EX. CATCH BASIN & INSTALL "DON'T DUMP" PLAQUE	12/06/2017 T. Hanlon			30' x 5'
(E) 48" RCP CLASS IV OUTFALL PIPE	09/13/2017 T. Hanlon			245' x 8'
(F) CONNECT TO EX. 10" SEWER MAIN	12/18/2017 R. Perrillo			25' x 5'
(G) CONNECT TO EX. CATCH BASIN & INSTALL "DON'T DUMP" PLAQUE	09/07/2018 T. Hanlon			50' x 5'
(H) CONNECT DOMESTIC SERVICE TO EX. 12" WATER MAIN (LS) WITH TS&V	08/31/2018 R. Perry			20' x 5'
(I) CONNECT FIRE PROTECTION SERVICE TO EX. 12" WATER MAIN (LS) WITH TS&V	08/31/2018 R. Perry			20' x 5'
(J) CONNECT SEWER SERVICE TO EX. 10" SEWER MAIN WITH WYE CONNECTION	12/29/2017 T. Hanlon			50' x 5'
(K) CONNECT TO EX. DRAIN MANHOLE	02/12/2020 C. Taylor			15' x 5'
(L) DRAINAGE CATCH BASIN 102 WITH "DON'T DUMP" PLAQUE	07/30/2019 R. Perry			15' x 5'
(M) CONNECT EX. CATCH BASIN & INSTALL "DON'T DUMP" PLAQUE	11/21/2017 T. Hanlon			30' x 5'
(N) OVERFLOW DRAIN #11	11/25/2020 Davis			NA
(O) OUTLET CONTROL STRUCTURE 401	07/02/2018 T. Hanlon			5' x 5'
(P) OVERFLOW DRAIN #24	11/25/2020 Davis			NA
(Q) (2,500) GALLON GREASE TRAP	11/13/2018 T. Hanlon			NA
(R) OVERFLOW DRAIN #25	10/20/2020 R. Perry			NA
(U) OVERFLOW DRAIN #26	10/20/2020 R. Perry			NA
(V) OVERFLOW DRAIN #27	10/20/2020 R. Perry			NA
(X) DRAIN MANHOLE 204	10/23/2018 J. Horan			NA
(Z) OVERFLOW DRAIN #28	10/23/2018 J. Horan			NA
(A1) OUTLET CONTROL STRUCTURE 402	11/21/2018 R. Perry			NA
(H1) RAIN GARDEN #3	07/30/2019 R. Perry			NA
(I1) OVERFLOW DRAIN #4	10/23/2018 J. Horan			NA
(J1) RAIN GARDEN #4	07/30/2019 R. Perry			NA
(K1) OVERFLOW DRAIN #5	10/23/2018 J. Horan			NA
(L1) RAIN GARDEN #5	07/30/2019 R. Perry			NA
(M1) OVERFLOW DRAIN #6	10/23/2018 J. Horan			NA
(N1) RAIN GARDEN #6	07/30/2019 R. Perry			NA
(O1) OVERFLOW DRAIN #7	10/23/2018 J. Horan			NA
(P1) DRAIN MANHOLE 201	01/24/2018 R. Parra			NA
(Q1) 18" OUTFALL PIPE WITH TIDFLEX INLINE CHECK VALVE	03/22/2019 C. Taylor			NA
(R1) OUTLET CONTROL STRUCTURE 400	02/22/2018 T. Krabey			NA
(S1) OVERFLOW DRAIN #21	11/21/2018 R. Perry			NA
(T1) 24" OUTFALL PIPE WITH TIDFLEX INLINE CHECK VALVE	03/22/2019 C. Taylor			NA
(U1) BIORETENTION BASIN #2	07/30/2019 R. Perry			NA
(V1) OVERFLOW DRAIN #22	07/30/2019 R. Perry			NA
(X1) BIORETENTION BASIN #1	07/30/2019 R. Perry			NA
(Y1) OVERFLOW DRAIN #20	07/30/2019 R. Perry			NA
(Z1) WATER QUALITY STRUCTURE 300	11/13/2018 T. Hanlon			NA
(A2) OVERFLOW DRAIN #23	07/30/2019 R. Perry			NA
(B2) DRAIN MANHOLE 200	05/25/2017 T. Krabey			NA
(C2) OVERFLOW DRAIN #1	10/20/2020 R. Perry			NA
(D2) DRAIN MANHOLE 200	**deleted from scope**			NA
(E2) OVERFLOW DRAIN #33	07/30/2019 R. Perry			NA
(F2) DRAIN MANHOLE 208	11/13/2018 T. Hanlon			NA
(G2) CONNECT TO EXISTING 12" BWSC MAIN	05/31/2019 T. Hanlon			NA
(H2) DRAIN MANHOLE 207	03/31/2017 T. Hanlon			10' x 10'
(I2) SEWER MANHOLE 01	07/02/2018 T. Hanlon			NA
(J2) OVERFLOW DRAIN #12	03/05/2019 T. Hanlon			NA
(K2) OVERFLOW DRAIN #13	03/05/2019 T. Hanlon			NA
(L2) OVERFLOW DRAIN #14	03/05/2019 T. Hanlon			NA
(M2) OVERFLOW DRAIN #15	03/05/2019 T. Hanlon			NA
(N2) DRAIN MANHOLE 206	11/13/2018 T. Hanlon			NA
(O2) TRENCH DRAIN 01	07/30/2019 R. Perry			NA
(P2) WATER QUALITY STRUCTURE 301	08/18/2018 T. Hanlon			NA
(Q2) OVERFLOW DRAIN #16	03/05/2021 G. Gameau			NA
(R2) OVERFLOW DRAIN #17	07/30/2019 R. Perry			NA
(S2) OVERFLOW DRAIN #18	03/05/2019 T. Hanlon			NA
(T2) OVERFLOW DRAIN #19	03/05/2019 T. Hanlon			NA
(U2) DRAINAGE CATCH BASIN 103 WITH "DON'T DUMP" PLAQUE	07/30/2019 R. Perry			5' x 5'
(V2) CONNECT TO EX. DRAIN MANHOLE	07/30/2019 R. Perry			10' x 5'
(W2) PLUG EX. 12" DRAIN LATERAL AT DRAIN MANHOLE	03/05/2021 G. Gameau			5' x 5'
(X2) REMOVE & DISPOSE OF EX. DRAINAGE CATCH BASIN	03/05/2021 G. Gameau			5' x 5'
(Y2) PLUG EX. DRAIN LATERAL AT DRAIN MANHOLE	02/12/2020 C. Taylor			5' x 5'
(Z2) REMOVE & DISPOSE OF EX. DRAIN MANHOLE	03/30/2017 T. Hanlon			5' x 5'
(A3) PLUG EX. 12" DRAIN LATERAL AT DRAIN MANHOLE	11/21/2017 T. Hanlon			5' x 5'
(B3) CORE CONNECTION TO 48" OUTFALL PIPE	11/21/2017 T. Hanlon			40' x 5'
(C3) CORE CONNECTION TO 48" OUTFALL PIPE	10/31/2017 T. Hanlon			35' x 5'
(D3) CONNECT TO EX. CATCH BASIN & INSTALL "DON'T DUMP" PLAQUE	10/31/2017 T. Hanlon			5' x 5'
(E3) REMOVE & DISPOSE OF EX. DRAIN MANHOLE	10/31/2017 T. Hanlon			5' x 5'
(F3) CUT & CAP EX. 24" DRAIN LINE AT DRAIN MANHOLE	03/05/2019 T. Hanlon			10' x 5'
(G3) INFILTRATION TRENCH 1	08/31/2018 R. Perry			NA
(H3) INFILTRATION TRENCH 2	07/02/2018 T. Hanlon			NA
(I3) INFILTRATION TRENCH 3	08/31/2018 R. Perry			NA
(J3) NEW HYDRANT	05/31/2019 T. Hanlon			NA
(K3) REMOVE & DISPOSE OF EX. DRAIN LATERAL	10/31/2017 T. Hanlon			35' x 5'
(L3) DRAIN MANHOLE 210	07/14/2018 T. Hanlon			5' x 5'
(M3) 36" SDR 35 PVC STUB FOR FUTURE USE	07/14/2018 T. Hanlon			5' x 5'
(N3) CONNECT TO EX. 36" PVC STUB	07/30/2018 T. Hanlon			5' x 5'
(O3) 24" OUTFALL PIPE WITH TIDFLEX INLINE CHECK VALVE	07/02/2018 T. Hanlon			NA
(P3) OVERFLOW DRAIN #10	03/05/2021 G. Gameau			NA
(Q3) TIDEGATE STRUCTURE	02/23/2017 A. Leone			NA
(R3) OVERFLOW DRAIN #29	07/30/2019 R. Perry			NA
(U3) 8" DAYLIGHT DRAIN SERVICE WITH HEADWALL	11/21/2018 R. Perry			NA
(V3) ADJUST EX. CATCH BASIN FRAME & GRATE	**deleted from scope**			5' x 5'
NUMBER OF "DON'T DUMP" PLAQUES = (6)	03/05/2021 G. Gameau			NA
POST VIDEO INSPECTION OF 36" & 48" STORM DRAIN PIPES (MEETING BWSC SPEC.)				NA
AS-BUILT PLAN				NA
4 TO 1 / 1'				NA

BWSC INSPECTION SIGNOFF LIST	INSPECTOR	DATE	COMMENT	SAWCUT	DYE TEST
(W3) OVERFLOW DRAIN #30	Davis	11/25/2020			
(X3) OVERFLOW DRAIN #31	T. Hanlon	03/05/2019			
(Y3) OVERFLOW DRAIN #32	G. Gameau	03/05/2021			
(Z3) 24" OUTFALL PIPE WITH TIDFLEX INLINE CHECK VALVE	R. Perry	11/21/2018			
(A4) SEWER MANHOLE 02	R. Perry	11/21/2018			
(B4) 4" UNDERDRAIN CONNECTION TO CATCH BASIN	**deleted from scope**				
(C4) 4" UNDERDRAIN CONNECTION TO CATCH BASIN	**deleted from scope**				
(D4) 5'x5'x5' CRUSHED STONE BASE UNDER DOG RINSE	R. Perry	11/21/2018			
(E4) CAP & SEAL EX. TEMP. DRAIN CONNECTION TO EX. 24X30 SEWER MAIN	T. Hanlon	03/05/2019			
(F4) DMH--209	C. McGuire	02/12/2019			
(G4) DMH--212	R. Perry	11/21/2018			
(H4) DMH--210	R. Perry	11/21/2018			
(I4) DMH--211	R. Perry	11/21/2018			

BWSC & CONTRACTOR NOTES:

- THE ESTIMATED SANITARY SEWAGE DISCHARGE IS 76,390 GALLONS PER DAY (GPD). THIS ESTIMATE IS BASED ON 310 C.M.R. 15.000 THE STATE ENVIRONMENTAL CODE, TITLE 5: STANDARD REQUIREMENTS FOR THE SITING, CONSTRUCTION, INSPECTION, UPGRADE AND EXPANSION OF ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS AND FOR THE TRANSPORT AND DISPOSAL OF SEPTAGE.
- THE ESTIMATED DAILY WATER USE IS 84,029 GPD BASED ON THE ESTIMATED SANITARY SEWAGE DISCHARGE WITH A 10% PEAKING FACTOR. THE PEAK DOMESTIC FLOW BASED ON FIXTURE COUNTS IS APPROXIMATELY 693 GPM.
- TWO - 3" COMPOUND WATER METERS WILL BE EITHER NEPTUNE OR ELSTER AMCO COMPOUND TYPE METERS. THE METERS MUST BE PURCHASED BY THE CONTRACTOR. A METER TRANSMITTER UNIT (MTU) SHALL BE SUPPLIED BY THE COMMISSION AT THE OWNER'S EXPENSE. A FEE OF \$325/MTU WILL BE PAID TO THE COMMISSION AT THE TIME OF FILING THE GENERAL SERVICE APPLICATION.
- BACKWATER VALVES SHALL BE PROVIDED BY THE PLUMBER AT ALL GRAVITY SANITARY SEWER AND STORM DRAIN CONNECTIONS FOR ANY FIXTURE LOCATED AT AN ELEVATION BELOW THE TOP OF THE SEWER OR DRAIN MANHOLE.
- THE CONTRACTOR SHALL NOTIFY THE BWSC CROSS-CONNECTION DEPARTMENT AT 617-989-7283 ONCE BACKWATER VALVES ARE INSTALLED FOR BWSC INSPECTION.
- DYE TESTING SHALL BE PERFORMED ON NEW STORM DRAIN AND SANITARY SEWER CONNECTIONS AFTER INSTALLATION IS COMPLETE. DYE TESTS SHALL BE WITNESSED BY THE BWSC.
- A PREREQUISITE FOR FILING A GENERAL SERVICE APPLICATION WITH THE BWSC FOR NEW CONSTRUCTION IS THE ROUGH CONSTRUCTION SIGN-OFF DOCUMENT FROM THE CITY OF BOSTON'S INSPECTIONAL SERVICES DEPARTMENT.
- IN ADDITION TO THE INSPECTION FEES, A DEPOSIT BASED ON THE SIZE OF THE WATER SERVICE, FIRE PIPE, SEWER OR DRAIN CONNECTION MUST ACCOMPANY THE GSA SUBMISSION. UPON RECEIPT OF THE APPROPRIATE DEPOSIT, THE COMMISSION WILL ESTABLISH A WATER AND SEWER ACCOUNT AND ASSIGN AN ACCOUNT NUMBER TO THE PROPERTY. THE TOTAL AMOUNT OF A DEPOSIT FOR A GSA SHALL NOT EXCEED TEN THOUSAND DOLLARS (\$10,000.00).
- AN AS-BUILT PLAN (AUTOCAD 2012 OR EARLIER RELEASE) SHALL BE PROVIDED BY THE CONTRACTOR AND ENDORSED BY A CIVIL ENGINEER OR PROFESSIONAL LAND SURVEYOR SHOWING THE LOCATION, DEPTH, AND INVERT OF EVERY BEND, FITTING, VALVE, CLEANOUT AND ANCHOR. THE AS-BUILT DRAWING SHALL BE SUBMITTED TO THE BOSTON AND WATER SEWER COMMISSION FOR REVIEW AND APPROVAL.
- WATER SHUT DOWN SHALL BE COORDINATED WITH BWSC WATER OPERATIONS, (617) 989-7276, 24 HOURS NOTICE REQUIRED.
- PROVIDE "DON'T DUMP" PLAQUES AT ALL CATCH BASIN AND DRAIN INLET LOCATIONS. "DON'T DUMP" PLAQUES TO BE PURCHASED FROM BWSC.
- THE CONTRACTOR SHALL PURCHASE THE NEW HYDRANT(S) FROM THE BWSC. THE CONTRACTOR SHALL PURCHASE THE HYDRANT(S) FROM THE COMMISSION WHEN FILING THE GENERAL SERVICE APPLICATION.
- THE CONTRACTOR SHALL TELETYPE THE CONSTRUCTED 36" AND 48" BWSC STORM DRAIN IN CLIPPERSHIP LANE AND SUMNER STREET AFTER CONSTRUCTION IS COMPLETE AND SUBMIT TO BWSC AND NITSC ENGINEERING FOR REVIEW. THE INSPECTION SOFTWARE SHALL BE CAPABLE OF EXPORTING DIGITAL INSPECTION LOG DATA INTO AN MSACCESS DATABASE IN THE PIPELINE ASSESSMENT AND CERTIFICATION PROGRAM (PACP) STANDARD EXCHANGE FORMAT (MPG). THE INSPECTION SOFTWARE CODING SYSTEM SHALL BE PACP CERTIFIED (LATEST EDITION) AS PER THE NATIONAL ASSOCIATION OF SEWER SERVICE COMPANIES (NASSCO). THE SOFTWARE SHALL BE EQUIPPED WITH ALL MODULES NECESSARY FOR PACP INSPECTIONS AND SCORING. THE CONTRACTOR SHALL COORDINATE DIRECTLY WITH BWSC TO DETERMINE AN APPROVED VIDEO INSPECTION COMPANY AND DELIVERABLE. SEE BWSC TV INSPECTION SPECIFICATION.
- THE INSTALLATION OF THE 48-INCH DRAIN MAIN IN CLIPPER SHIP LANE AND THE STORMWATER OUTFALL WITHIN THE PROJECT SITE WILL REQUIRE BWSC INSPECTION DURING THE INSTALLATION AS DETAILED BY BWSC IN THE GSA. THE CONTRACTOR ESTIMATES THAT BWSC INSPECTION WILL BE REQUIRED FOR 30 DAYS FOR THE STORM DRAIN AND STORMWATER OUTFALL WORK.

BOSTON WATER & SEWER COMMISSION
 Backwater Valve Installation
 Approved: *[Signature]* Date: 5/5/17

0.5" RECHARGE CALCULATIONS:
 BWSC requires groundwater recharge in the volume equal to 0.5" of storage over the impervious area of the site.

REQUIRED STORAGE VOLUME
 Impervious Area = 201,276 sf
 0.5" of runoff (0.042 ft) over the area = 0.042' x 201,276 s.f. = 8,387 cf

PROVIDED STORAGE VOLUME

- Infiltration Trench #1:
 405 ft of 24" pipe storage = 405 ft x 3.14 x (1.0 ft)² = 1,272 cf
 2,000 sf of crushed stone =
 [(area stone x depth of storage) - (pipe volume)] x 30% =
 [(2,000 sf x 3.0 ft) - (1,272 cf)] x 30% = 1,418 cf
 Total Storage (Pipe + Crushed Stone) = 1,272 cf + 1,418 cf = 2,690 cf
- Infiltration Trench #2:
 357 ft of 24" pipe storage = 357 ft x 3.14 x (1.0 ft)² = 1,122 cf
 2,500 sf of crushed stone =
 [(area stone x depth of storage) - (pipe volume)] x 30% =
 [(2,500 sf x 2.0 ft) - 1,122 cf] x 30% = 1,163 cf
 Total Storage (Pipe + Crushed Stone) = 1,122 cf + 1,163 cf = 2,285 cf
 storage due to 1 manhole: [3.14 x (2.5 ft)² x 4 ft. depth] = 78 cf
 2,285 cf + 78 cf = 2,363 cf
- Infiltration Trench #3:
 658 ft of 24" pipe storage = 658 ft x 3.14 x (1.0 ft)² = 2,067 cf
 2,046 sf of crushed stone =
 [(area stone x depth of storage) - (pipe volume)] x 30% =
 [(2,046 sf x 3.0 ft) - 2,067 cf] x 30% = 1,221 cf
 Total Storage (Pipe + Crushed Stone) = 2,067 cf + 1,221 cf = 3,288 cf
 Storage due to 3 manholes: [3.14 x (2.5 ft)² x 6 ft. depth] = 118 c.f. x 3 = 354 cf
 3,288 cf + 354 cf = 3,642 cf

Total Storage: 2,690 + 2,363 + 3,642 = **8,695 cf**
 Required Storage = 8,387 < 8,695 cf = Storage Provided

RECHARGE REQUIREMENTS:
 THIS PROJECT WILL RECHARGE 0.57 INCHES OF RUNOFF FROM IMPERVIOUS AREAS AS APPROVED BY THE BOSTON CONSERVATION COMMISSION ON AUGUST 3, 2015, DEP FILE #006-1431.

IMPERVIOUS AREA = 201,276 SF
 REQUIRED RECHARGE = 8,387 CF (0.5")

STORAGE PROVIDED BY BIORETENTION BASINS (FOR ADDITIONAL DRAINAGE INFORMATION, PLEASE SEE THE REPORT ENTITLED "STORMWATER REPORT, CLIPPERSHIP WHARF, PREPARED FOR LEASE LEASE DEVELOPMENT, INC. PREPARED BY NITSC ENGINEERING" DATED JULY 8, 2015.

BASIN #2: 460 CF
 BASIN #3: 398 CF

STORAGE PROVIDED BY INFILTRATION SYSTEMS: 8,695 CF
 PROVIDED RECHARGE = 9,553 CF

BWSC FILE NO. 15322

BWSC USE ONLY

BOSTON WATER AND SEWER COMMISSION
 Reviewed and approved as to proposed connection(s) to existing Water and Sewer facilities as shown on this issue of Building Permit Only. Additional Permits must be obtained from BWSC prior to connection to BWSC facilities. See file # 15322 for details. (one (1) year from date of approval)

[Signature] 5/17
 JOHN P. SULLIVAN, JR. P.E.
 Chief Engineer

BOSTON WATER & SEWER COMMISSION

Cross Connection

Approval: *[Signature]* Date: 5/5/17

SITE ADDRESS:
 25-65 LEWIS STREET
 BOSTON, MASSACHUSETTS 02128
 WARD: 01
 PARCEL: 05397000; 05400000

OWNER CONTACT:
 LEND LEASE CLIPPERSHIP WHARF LLC
 ATTN: NICHOLAS ISELIN
 20 CITY SQUARE, 2ND FLOOR
 BOSTON, MA 02129
 P: 617-557-6417

BUILDING USE:
 RESIDENTIAL/COMMERCIAL

ACCOUNT NUMBER - TO BE ASSIGNED:


LAND USE CODE:
 R: RESIDENTIAL
 C: COMMERCIAL

tat |

the architectural team

The Architectural Team, Inc.
 50 Commandant's Way at Admiral's Hill
 Chelsea MA 02150
 T 617.889.4402
 F 617.884.4329
 www.architecturalteam.com
 ©2011 The Architectural Team, Inc.

Consultant:




Nitsch Engineering

Revision:

PERMIT SET	12/01/15
REVISED	12/17/15
BWSC SUBMISSION	12/30/15
100% CONSTRUCTION DOCS	03/17/16
REVISED 100% CDS	05/04/16
ADDENDUM 02	06/30/16
ADDENDUM 03	10/21/16
ADDENDUM 04	10/31/16
BULLETIN-001	11/30/16
BULLETIN-004	12/07/16
BULLETIN-025	02/10/17
BULLETIN-026	02/10/17
BULLETIN-042	05/26/17

Architect of Record:

Drawn: RMG
 Checked: JMS
 Scale: NOT TO SCALE
 Key Plan:



Project Name:

CLIPPERSHIP WHARF

EAST BOSTON, MA

Sheet Name:

BWSC NOTES, INSPECTION TABLE & CALCULATIONS

Project Number:

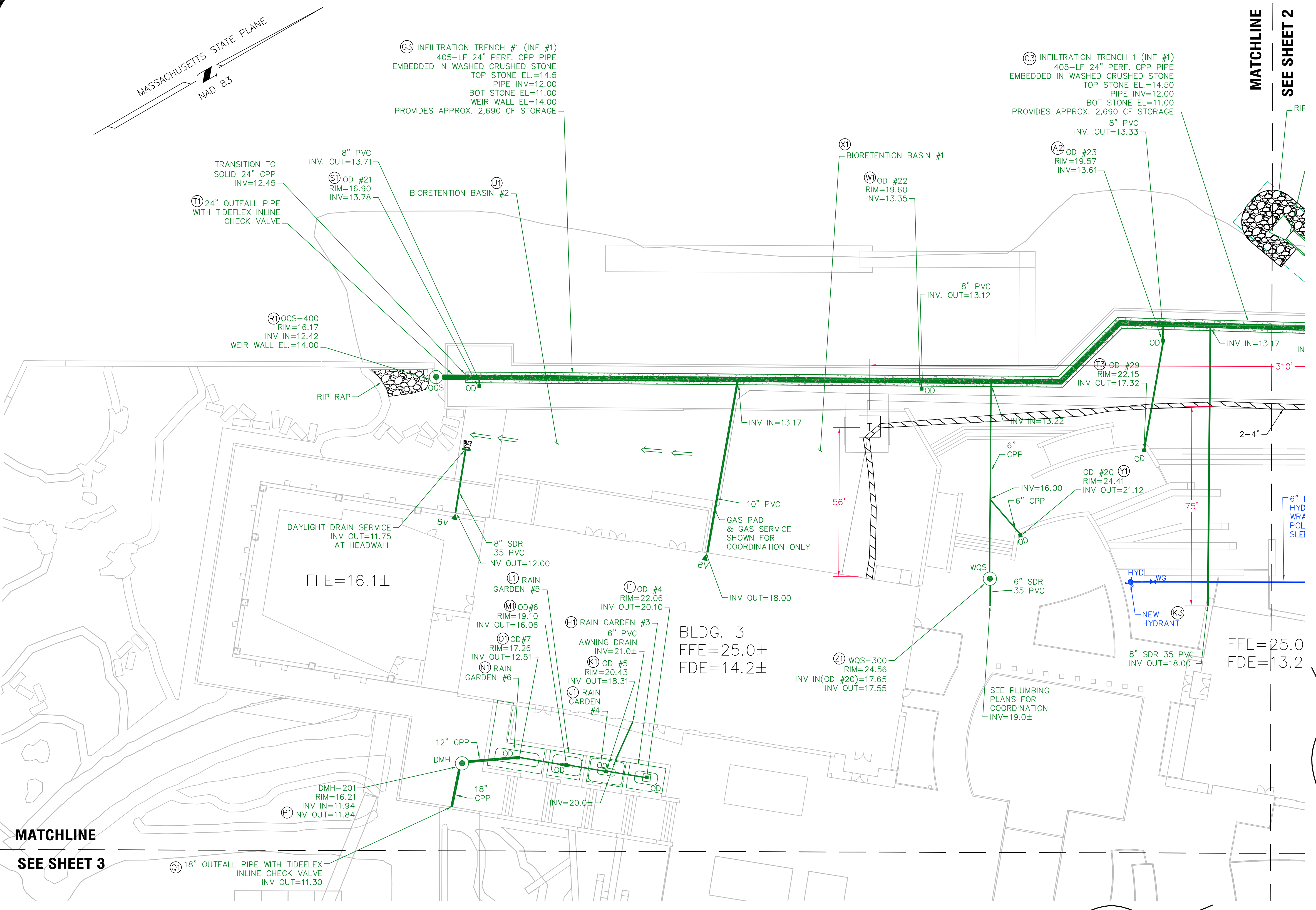
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Issue Date:

OCTOBER 28, 2016

Sheet Number:

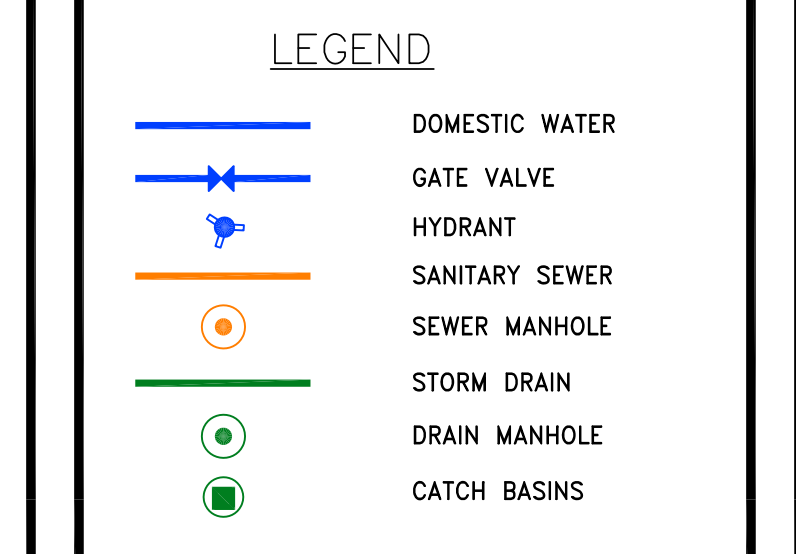
C-101



MATCHLINE
SEE SHEET 2

MATCHLINE
SEE SHEET 3

- General Notes
- 25-65 LEWIS STREET
BOSTON, MA 02128
 - WARD NO. 01, PARCEL NO.
05397000, 05400000
 - WATER ACCOUNT NO. 135659002
 - PROJECT FILE NO. 15322
 - OWNER:
LEND LEASE CLIPPERSHIP WHARF
LLC
20 CITY SQUARE, 2ND FLOOR
BOSTON, MA 02129
CONTACT: NICHOLAS ISELIN
(617) 557-6417
 - ACCOUNT TO REMAIN
 - GSA 11853, 11856



No.	Revision/Issue	Date
4	As-built complete	3/10/21
3	Construction update	9/16/19
2	Construction update	6/21/19
1	Construction update	4/02/19

A.A. WILL CORPORATION
145 ISLAND STREET
STOUGHTON, MA 02072
(781) 341-4800

CONTACT: MIKE RENNIE,
MIKE BROOKS

CLIPPERSHIP WHARF
BWSC WATER, SEWER &
DRAIN
UTILITY ASBUILT
PLAN

Project	Sheet
Date 10/25/2018	1
Scale 1" = 20'	

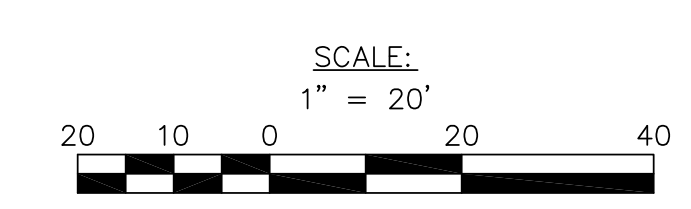
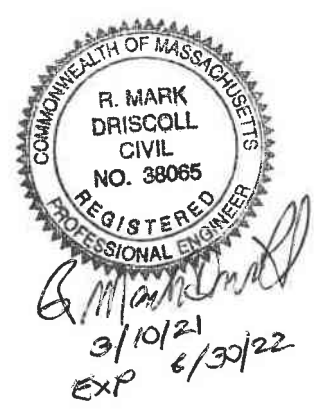
AS BUILT PLAN CERTIFICATION

I certify that these plans were prepared in accordance with the Boston Water and Sewer Commission ("Commission") minimum standards for As-built plans. The undersigned further certifies that the survey measurements, materials, sizes, field conditions and related utility information are based on both a field survey and/or the latest plan of record available.

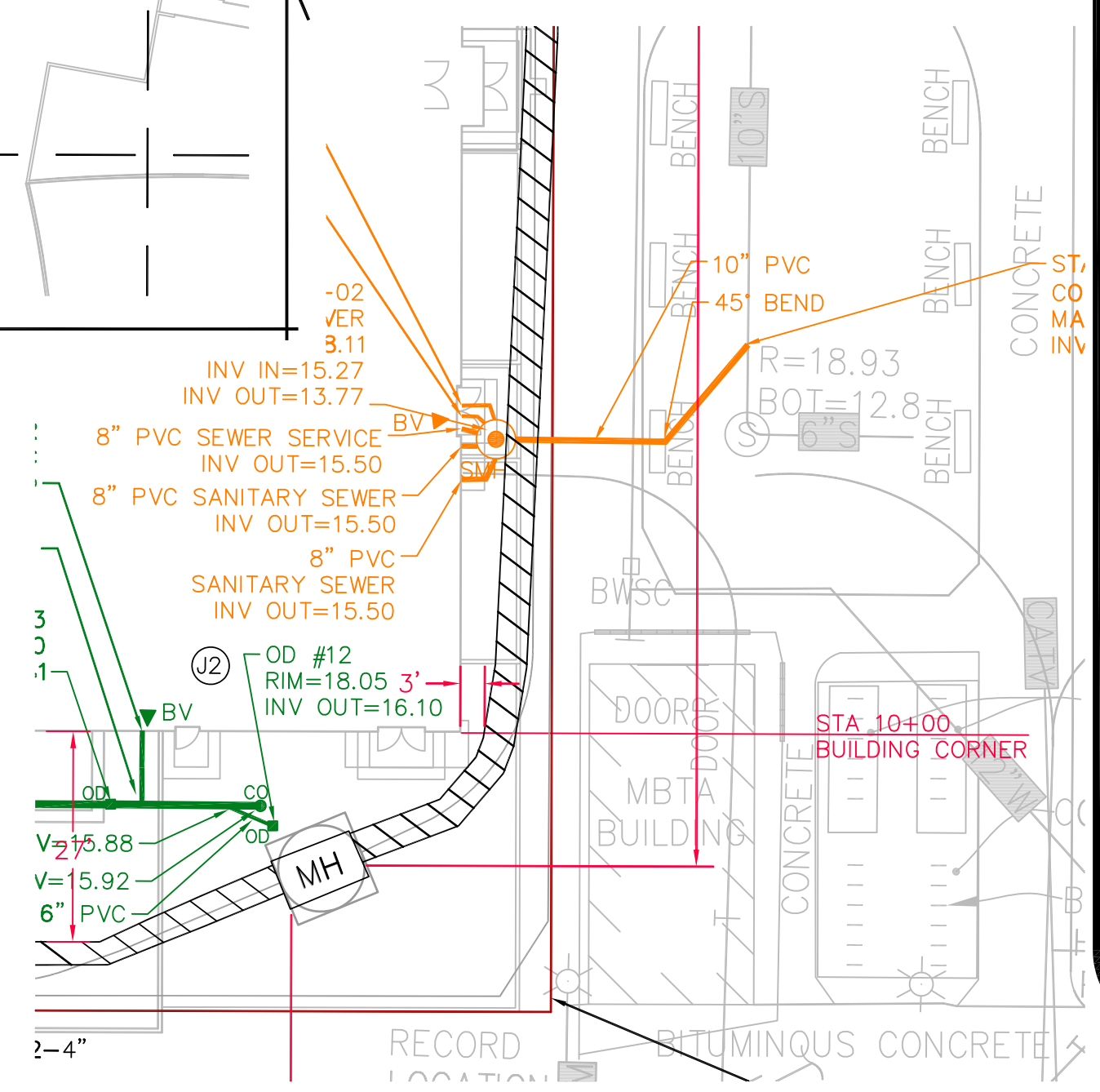
Engineer's Name, PE/PLS: R. MARK DRISCOLL Date: 3/10/21 PE Number: 98065
Expiration Date: 6/30/22

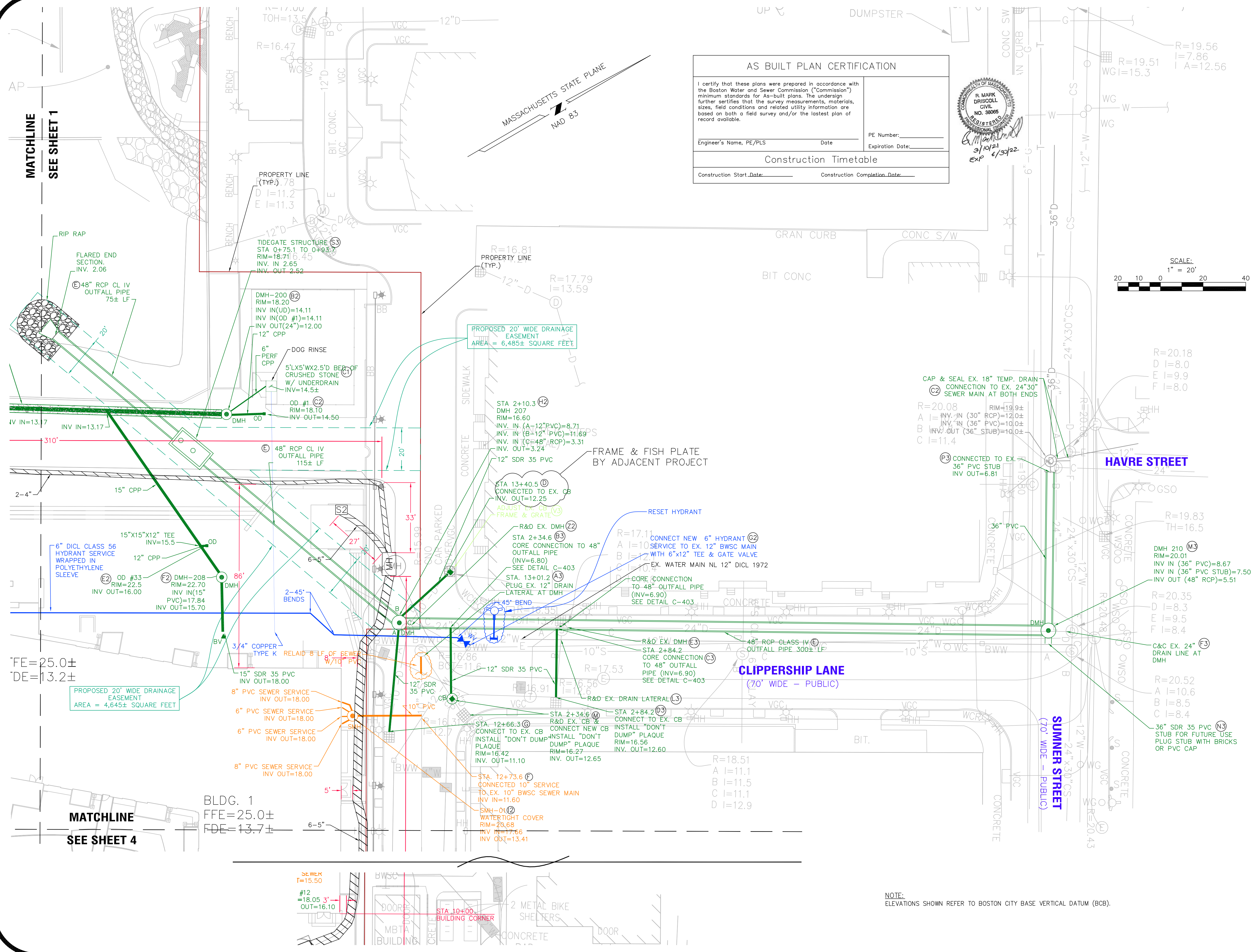
Construction Timetable

Construction Start Date: _____ Construction Completion Date: _____



NOTE:
ELEVATIONS SHOWN REFER TO BOSTON CITY BASE VERTICAL DATUM (BCB).





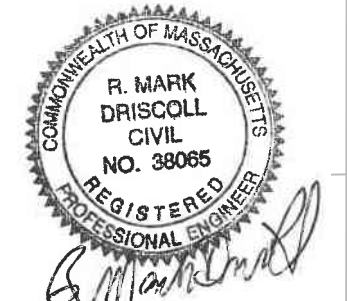
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Engineer's Name, PE/PLS: R. MARK DRISCOLL Date: 3/10/21 PE Number: 010000000
 Expiration Date: 6/30/22

Construction Timetable

Construction Start Date: _____ Construction Completion Date: _____



- General Notes**
- 25-65 LEWIS STREET BOSTON, MA 02128
 - WARD NO. 01, PARCEL NO. 05397000, 05400000
 - WATER ACCOUNT NO. 135659002
 - PROJECT FILE NO. 15322
 - OWNER: LEND LEASE CLIPPERSHIP WHARF LLC, 20 CITY SQUARE, 2ND FLOOR, BOSTON, MA 02129, CONTACT: NICHOLAS ISELIN (617) 557-6417
 - ACCOUNT TO REMAIN
 - GSA 11853, 11856



- LEGEND**
- Blue line: DOMESTIC WATER
 - Blue line with 'X': GATE VALVE
 - Blue line with 'H': HYDRANT
 - Orange line: SANITARY SEWER
 - Orange circle: SEWER MANHOLE
 - Green line: STORM DRAIN
 - Green circle: DRAIN MANHOLE
 - Green square: CATCH BASINS

No.	Revision/Issue	Date
4	As-built complete	3/10/21
3	Construction update	9/16/19
2	Construction update	6/21/19
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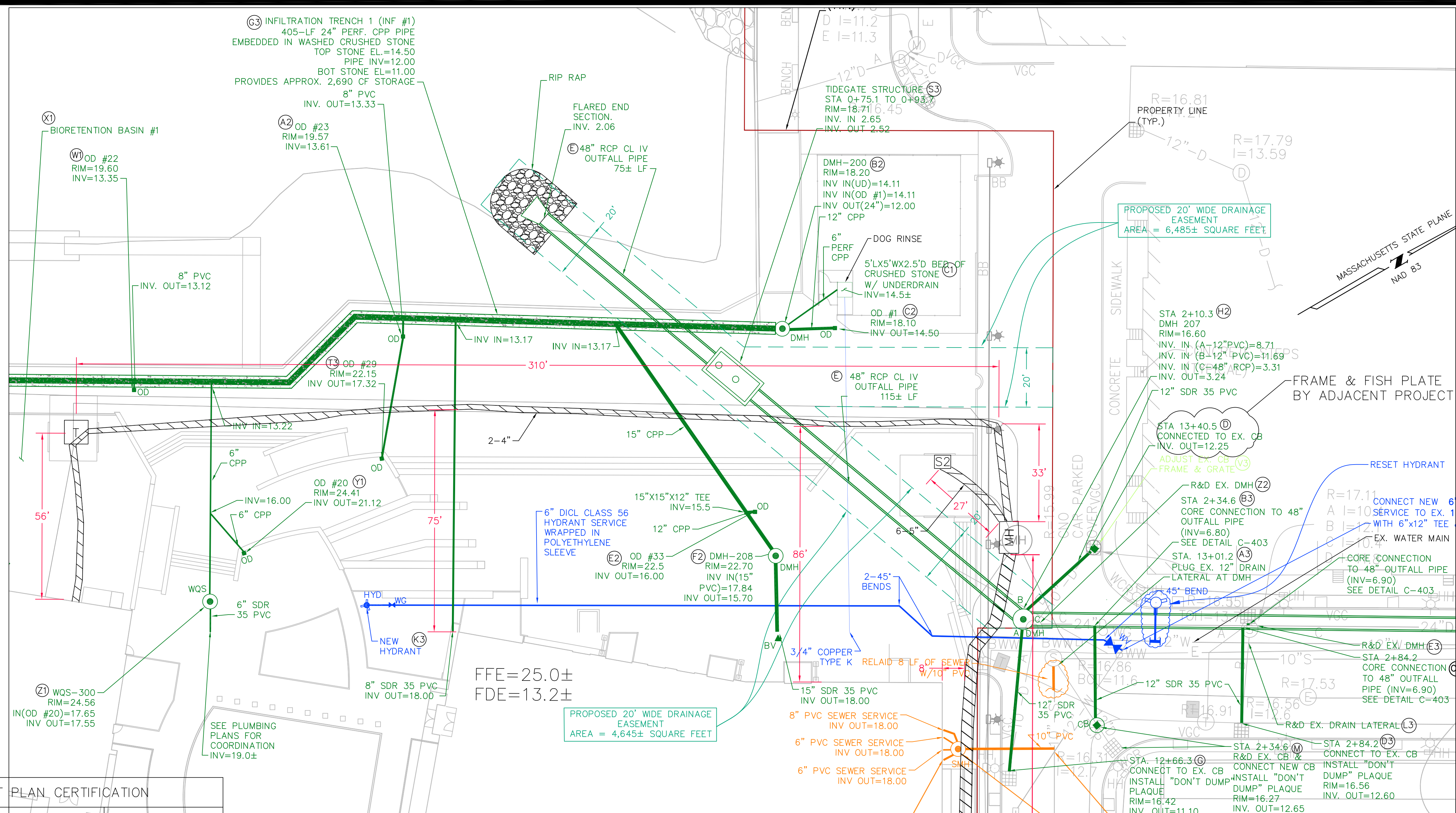
A.A. WILL CORPORATION
 145 ISLAND STREET
 STOUGHTON, MA 02072
 (781) 341-4800

CONTACT: MIKE RENNIE, MIKE BROOKS

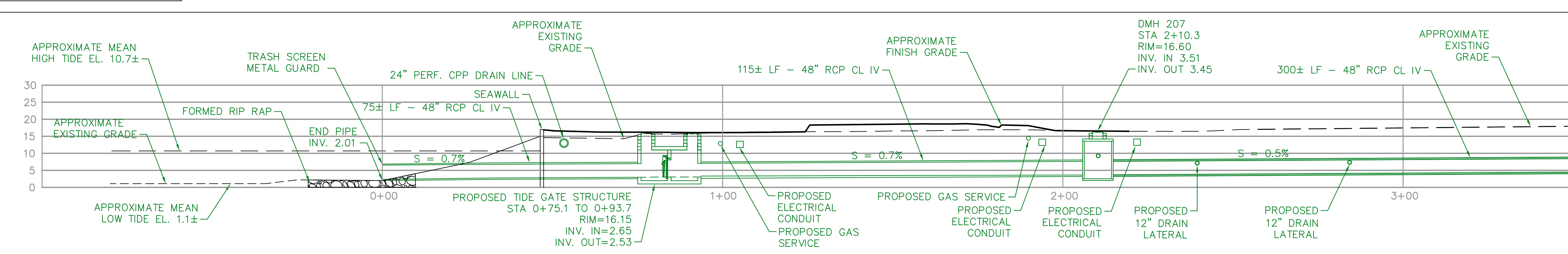
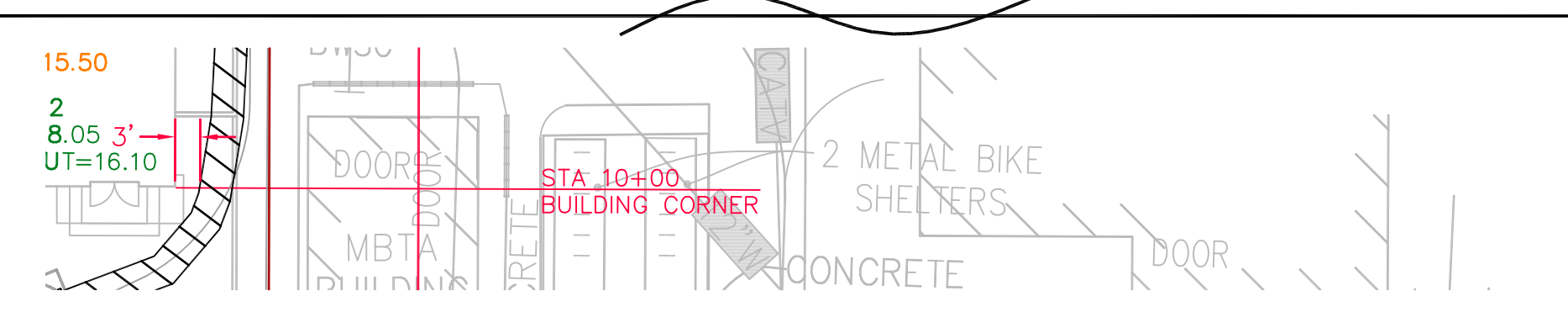
CLIPPERSHIP WHARF
 BWSC WATER, SEWER & DRAIN
 UTILITY ASBUILT
 PLAN

Project	Sheet
Date: 10/25/2018	2
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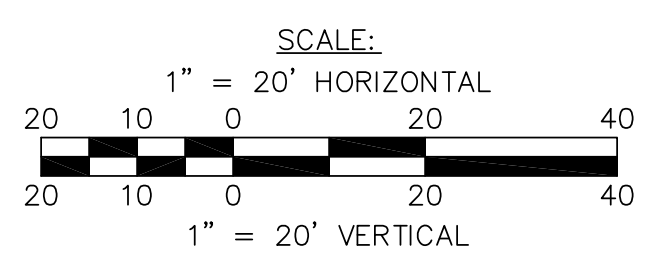
NOTE:
 ELEVATIONS SHOWN REFER TO BOSTON CITY BASE VERTICAL DATUM (BCB).



48" STORM DRAIN OUTFALL PLAN
SCALE: 1" = 20'



48" STORM DRAIN OUTFALL PROFILE
SCALE: 1" = 20' HORIZONTAL
1" = 20' VERTICAL



NOTE: ELEVATIONS SHOWN REFER TO BOSTON CITY BASE VERTICAL DATUM (BCB).

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Engineer's Name, PE/PLS: R. Mark Driscoll Date: 3/10/21
PE Number: 30005 Expiration Date: 6/30/22

Construction Timetable

No.	Revision/Issue	Date
4	As-built complete	3/10/21
3	Construction update	9/16/19
2	Construction update	6/21/19
1	Construction update	4/02/19

General Notes

25-65 LEWIS STREET
BOSTON, MA 02128

- WARD NO. 01, PARCEL NO. 05397000, 05400000
- WATER ACCOUNT NO. 135659002
- PROJECT FILE NO. 15322
- OWNER: LEND LEASE CLIPPERSHIP WHARF LLC
20 CITY SQUARE, 2ND FLOOR
BOSTON, MA 02129
CONTACT: NICHOLAS ISELIN (617) 557-6417
- ACCOUNT TO REMAIN
- GSA 11853, 11856

LEGEND

- DOMESTIC WATER
- GATE VALVE
- HYDRANT
- SANITARY SEWER
- SEWER MANHOLE
- STORM DRAIN
- DRAIN MANHOLE
- CATCH BASINS

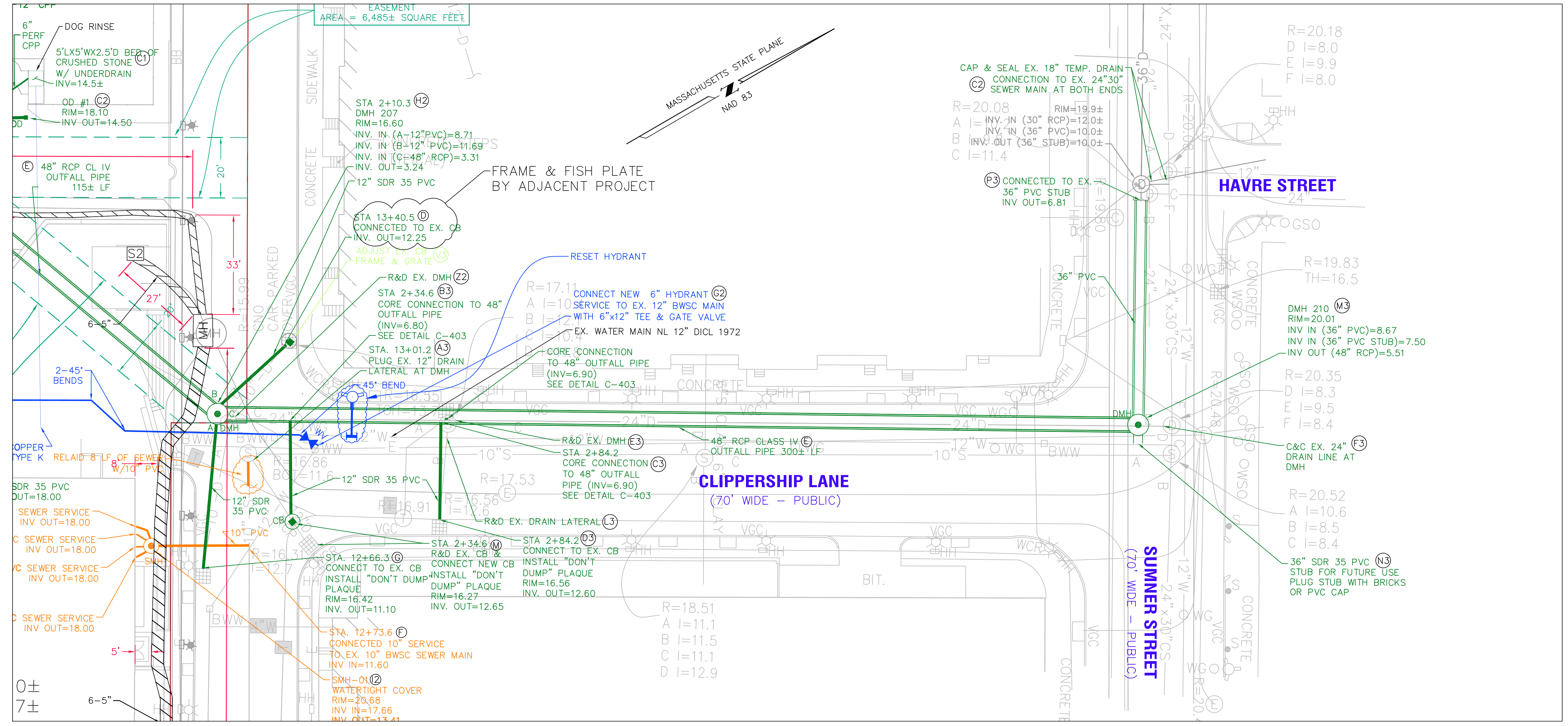
No.	Revision/Issue	Date
4	As-built complete	3/10/21
3	Construction update	9/16/19
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A.A. WILL CORPORATION
145 ISLAND STREET
STOUGHTON, MA 02072
(781) 341-4800

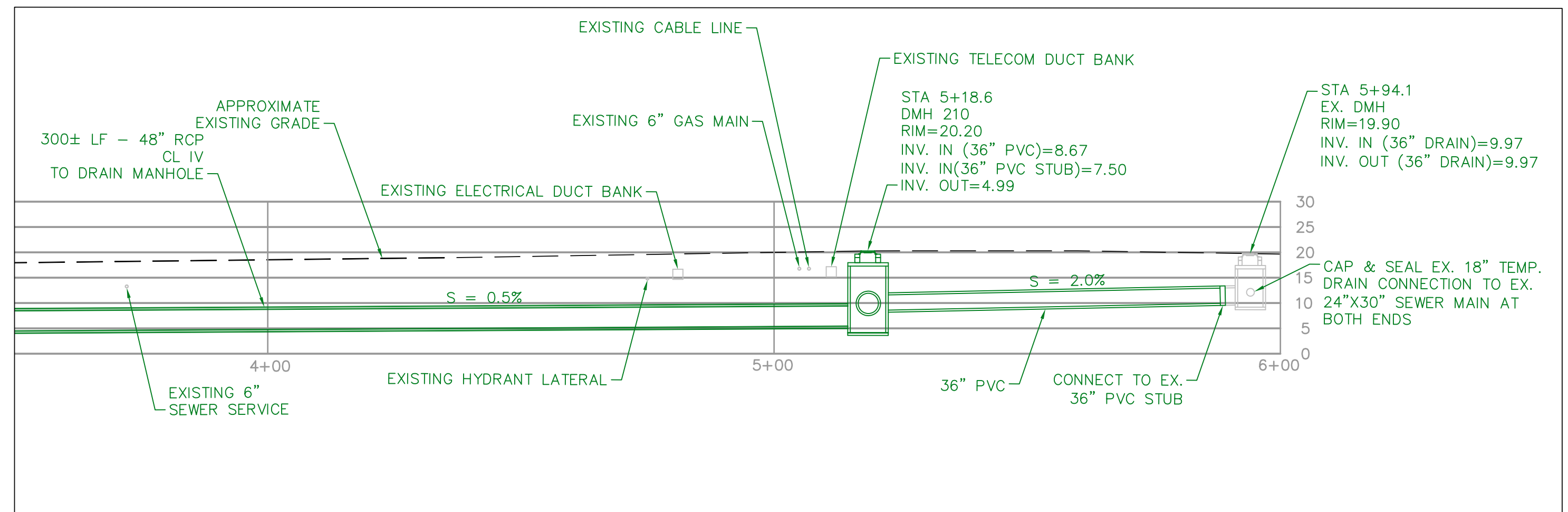
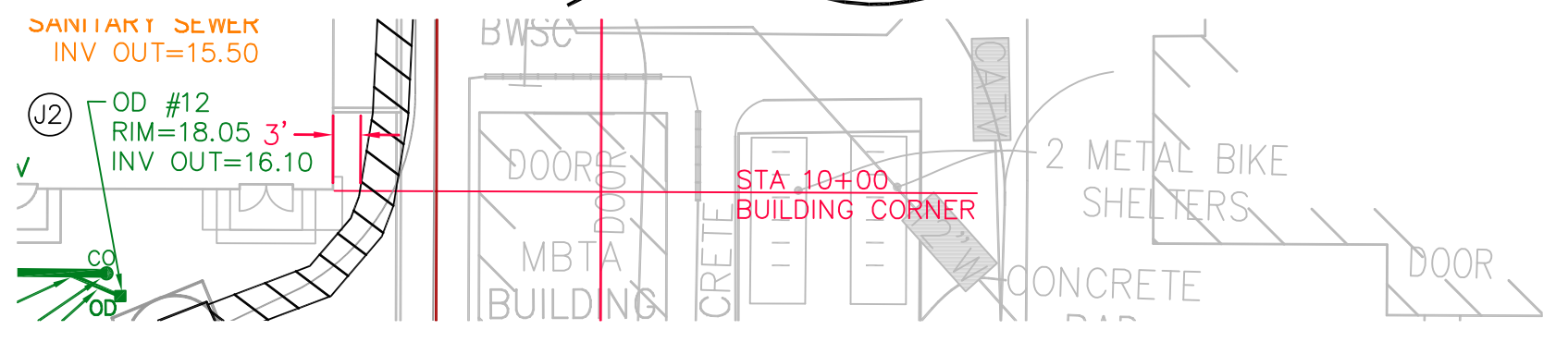
CONTACT: MIKE RENNIE,
MIKE BROOKS

CLIPPERSHIP WHARF
BWSC WATER, SEWER & DRAIN
UTILITY ASBUILT
PLAN

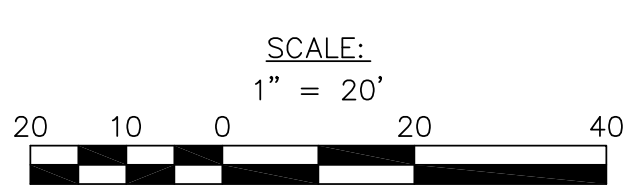
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48" STORM DRAIN OUTFALL PLAN
SCALE: 1" = 20'

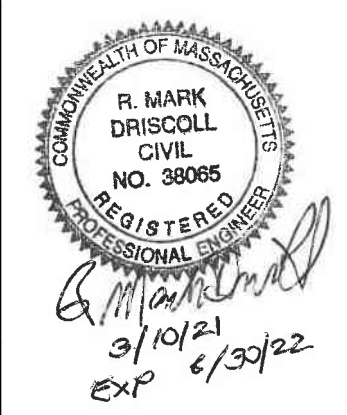


48" STORM DRAIN OUTFALL PROFILE
SCALE: 1" = 20' HORIZONTAL
1" = 20' VERTICAL



NOTE: ELEVATIONS SHOWN REFER TO BOSTON CITY BASE VERTICAL DATUM (BCB).

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Engineer's Name, FE/PLS	PE Number:
Date	Expiration Date:
Construction Timetable	
Construction Start Date:	Construction Completion Date:



General Notes

- 25-65 LEWIS STREET
BOSTON, MA 02128
- WARD NO. 01, PARCEL NO. 05397000, 05400000
- WATER ACCOUNT NO. 135659002
- PROJECT FILE NO. 15322
- OWNER:
LEND LEASE CLIPPERSHIP WHARF LLC
20 CITY SQUARE, 2ND FLOOR
BOSTON, MA 02129
CONTACT: NICHOLAS ISELIN
(617) 557-6417
- ACCOUNT TO REMAIN
- GSA 11853, 11856

LEGEND

- DOMESTIC WATER
- GATE VALVE
- HYDRANT
- SANITARY SEWER
- SEWER MANHOLE
- STORM DRAIN
- DRAIN MANHOLE
- CATCH BASINS

No.	Revision/Issue	Date
4	As-built complete	3/10/21
3	Construction update	9/16/19
2	Construction update	6/21/19
1	Construction update	4/02/19

A.A. WILL CORPORATION
145 ISLAND STREET
STOUGHTON, MA 02072
(781) 341-4800

CONTACT: MIKE RENNIE,
MIKE BROOKS

CLIPPERSHIP WHARF
BWSC WATER, SEWER &
DRAIN
UTILITY ASBUILT
PLAN

Project	Sheet
Date: 10/25/2018	2B
Scale: 1" = 20'	

MATCHLINE
SEE SHEET 1

General Notes

- 25-65 LEWIS STREET
BOSTON, MA 02128
- 1. WARD NO. 01, PARCEL NO. 05397000, 05400000
- 2. WATER ACCOUNT NO. 135659002
- 3. PROJECT FILE NO. 15322
- 4. OWNER:
LEND LEASE CLIPPERSHIP WHARF LLC
20 CITY SQUARE, 2ND FLOOR
BOSTON, MA 02129
CONTACT: NICHOLAS ISELIN
(617) 557-6417
- 5. ACCOUNT TO REMAIN
- 6. GSA 11853, 11856

LEGEND

- DOMESTIC WATER
- GATE VALVE
- HYDRANT
- SANITARY SEWER
- SEWER MANHOLE
- STORM DRAIN
- DRAIN MANHOLE
- CATCH BASINS

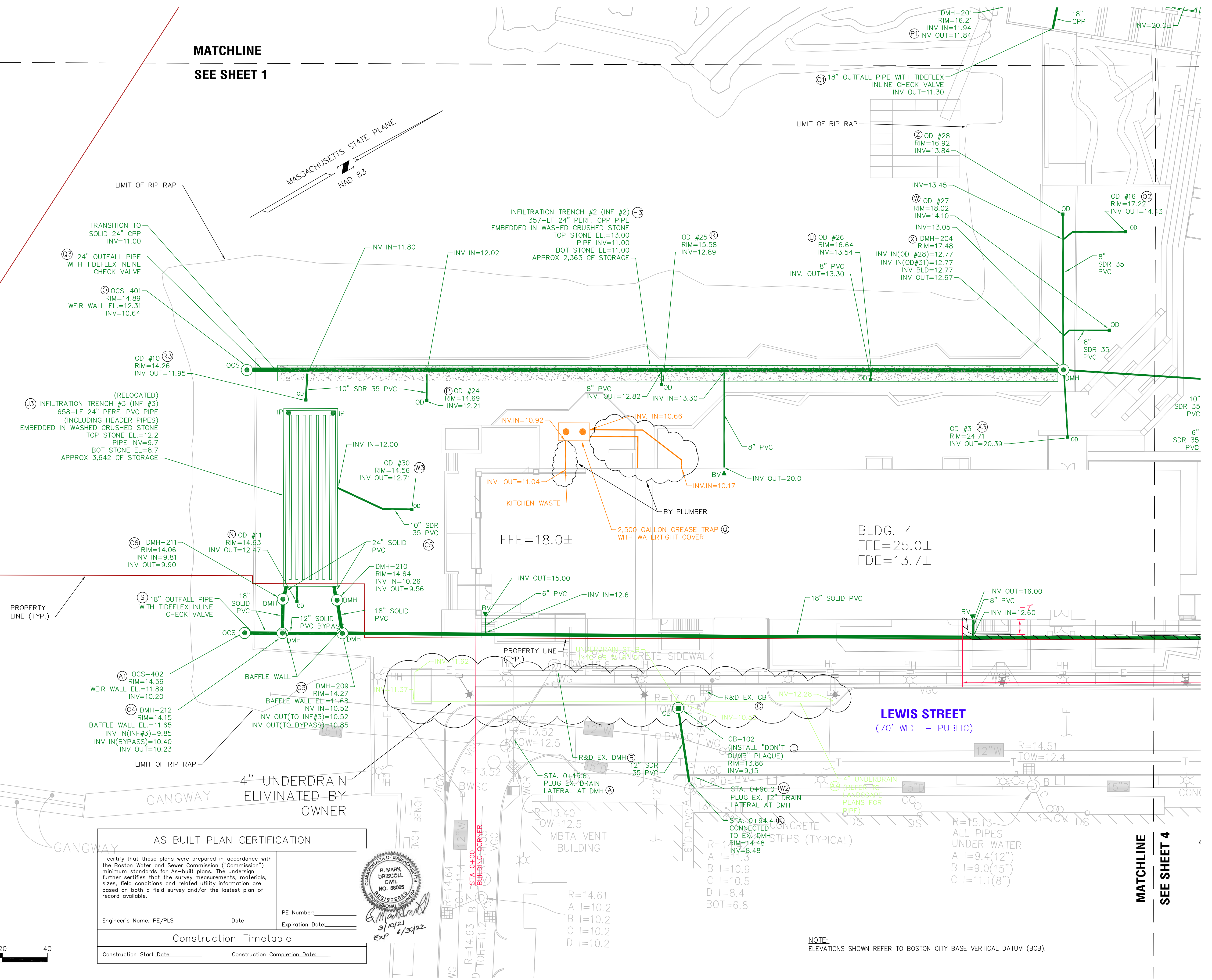
No.	Revision/Issue	Date
4	As-built complete	3/10/21
3	Construction update	9/16/19
2	Construction update	6/21/19
1	Construction update	4/02/19

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MIKE BROOKS

CLIPPERSHIP WHARF
BWSC WATER, SEWER & DRAIN
UTILITY ASBUILT
PLAN

Project	Sheet
Date: 10/25/2018	3
Scale: 1" = 20'	



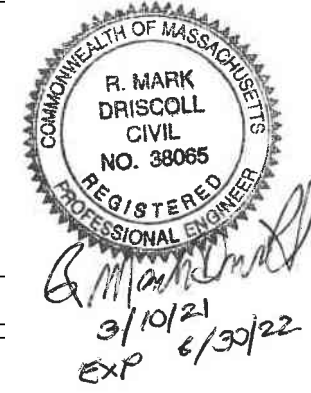
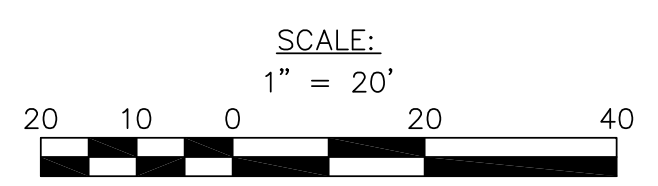
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Engineer's Name, PE/PLS: R. MARK DRISCOLL Date: 3/10/21 PE Number: 030005 Expiration Date: 6/30/22

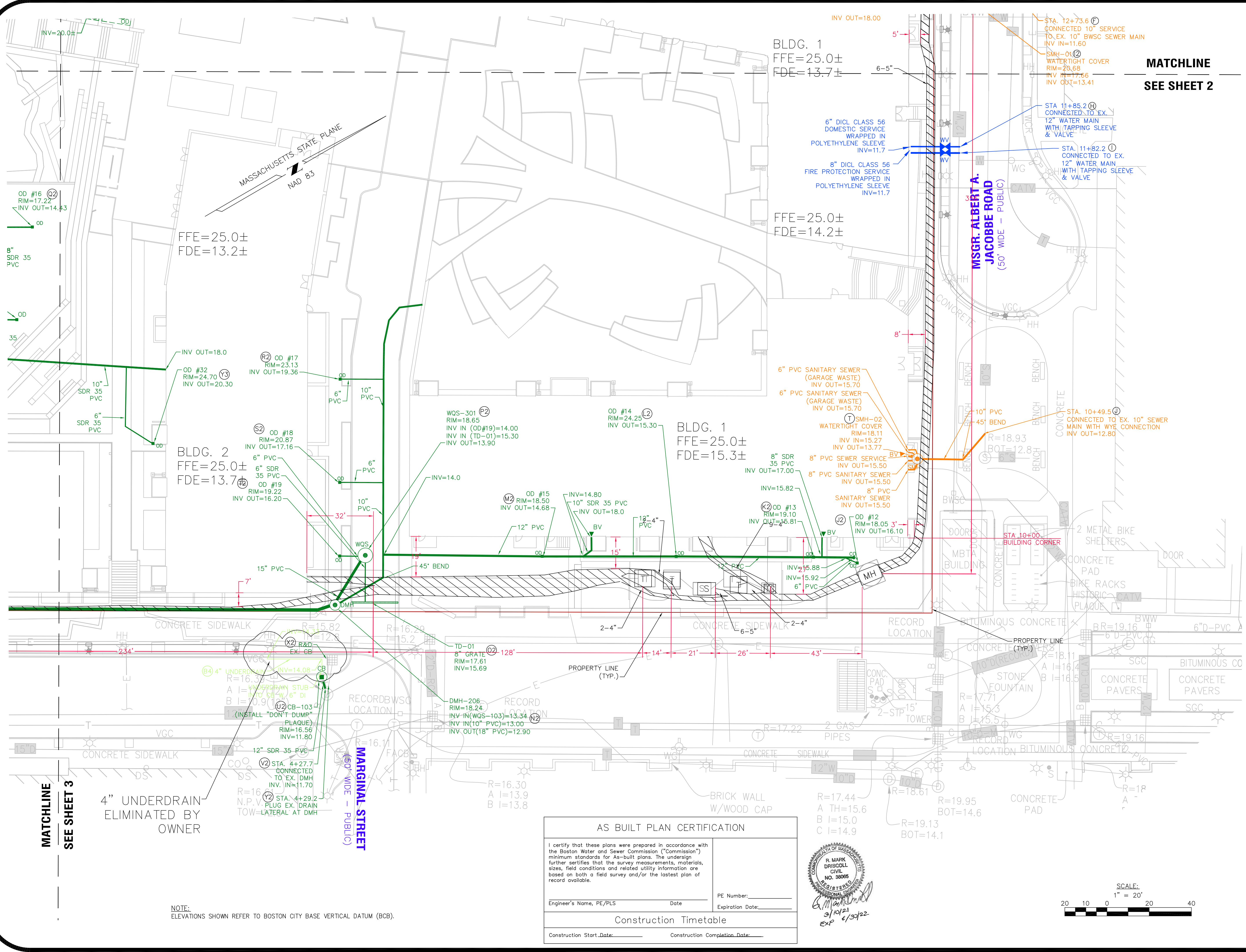
Construction Timetable

Construction Start Date: _____ Construction Completion Date: _____



NOTE:
ELEVATIONS SHOWN REFER TO BOSTON CITY BASE VERTICAL DATUM (BCB).

MATCHLINE
SEE SHEET 4



General Notes

- 25-65 LEWIS STREET BOSTON, MA 02128
- WARD NO. 01, PARCEL NO. 05397000, 05400000
- WATER ACCOUNT NO. 135659002
- PROJECT FILE NO. 15322
- OWNER: LEND LEASE CLIPPERSHIP WHARF LLC, 20 CITY SQUARE, 2ND FLOOR, BOSTON, MA 02129, CONTACT: NICHOLAS ISELIN (617) 557-6417
- ACCOUNT TO REMAIN
- GSA 11853, 11856

LEGEND

- DOMESTIC WATER
- GATE VALVE
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No.	Revision/Issue	Date
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Engineer's Name, PE/PLS: **R. MARK DRISCOLL** Date: **3/10/21** PE Number: **010000000** Expiration Date: **6/30/22**

Construction Timetable

Construction Start Date: _____ Construction Completion Date: _____

SCALE:
1" = 20'

Project: CLIPPERSHIP WHARF
Sheet: BWSC WATER, SEWER & DRAIN UTILITY ASBUILT PLAN

Project: _____ **Sheet:** _____

Date: 10/25/2018

Scale: 1" = 20'

NOTE: ELEVATIONS SHOWN REFER TO BOSTON CITY BASE VERTICAL DATUM (BCB).

MATCHLINE SEE SHEET 3

MATCHLINE SEE SHEET 2

4" UNDERDRAIN ELIMINATED BY OWNER

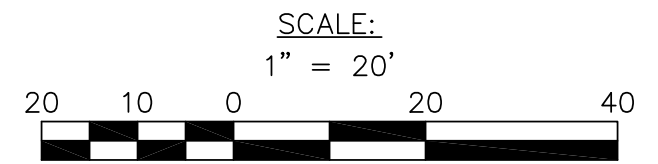
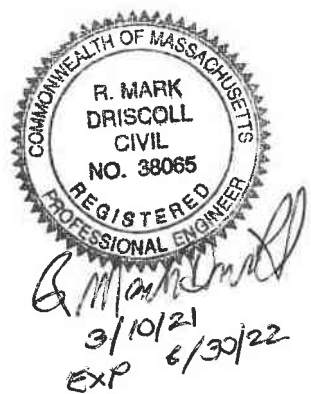
AS BUILT PLAN CERTIFICATION

I certify that these plans were prepared in accordance with the Boston Water and Sewer Commission ("Commission") minimum standards for As-built plans. The undersigned further certifies that the survey measurements, materials, sizes, field conditions and related utility information are based on both a field survey and/or the latest plan of record available.

Engineer's Name, PE/PLS: _____ Date: _____ PE Number: _____ Expiration Date: _____

Construction Timetable

Construction Start Date: _____ Construction Completion Date: _____



Consultant:



Nitsch Engineering

Revision:	
PERMIT SET	12/01/15
REVISED	12/17/15
BWSC SUBMISSION	12/30/15
100% CONSTRUCTION DOCS	03/17/16
ADDENDUM 03	10/21/16
ADDENDUM 04	10/31/16
BULLETIN-004	12/07/16
BULLETIN-059	12/08/17

Architect of Record:

*Asbuilt
Rem Grades
11/23/21*

Drawn: RMG

Checked: JMS

Scale: 1" = 20'

Key Plan:

BWSC FILE NO. 15322

Project Name:
CLIPPERSHIP WHARF

EAST BOSTON, MA

Sheet Name:

SITE UTILITY PLAN

Project Number:

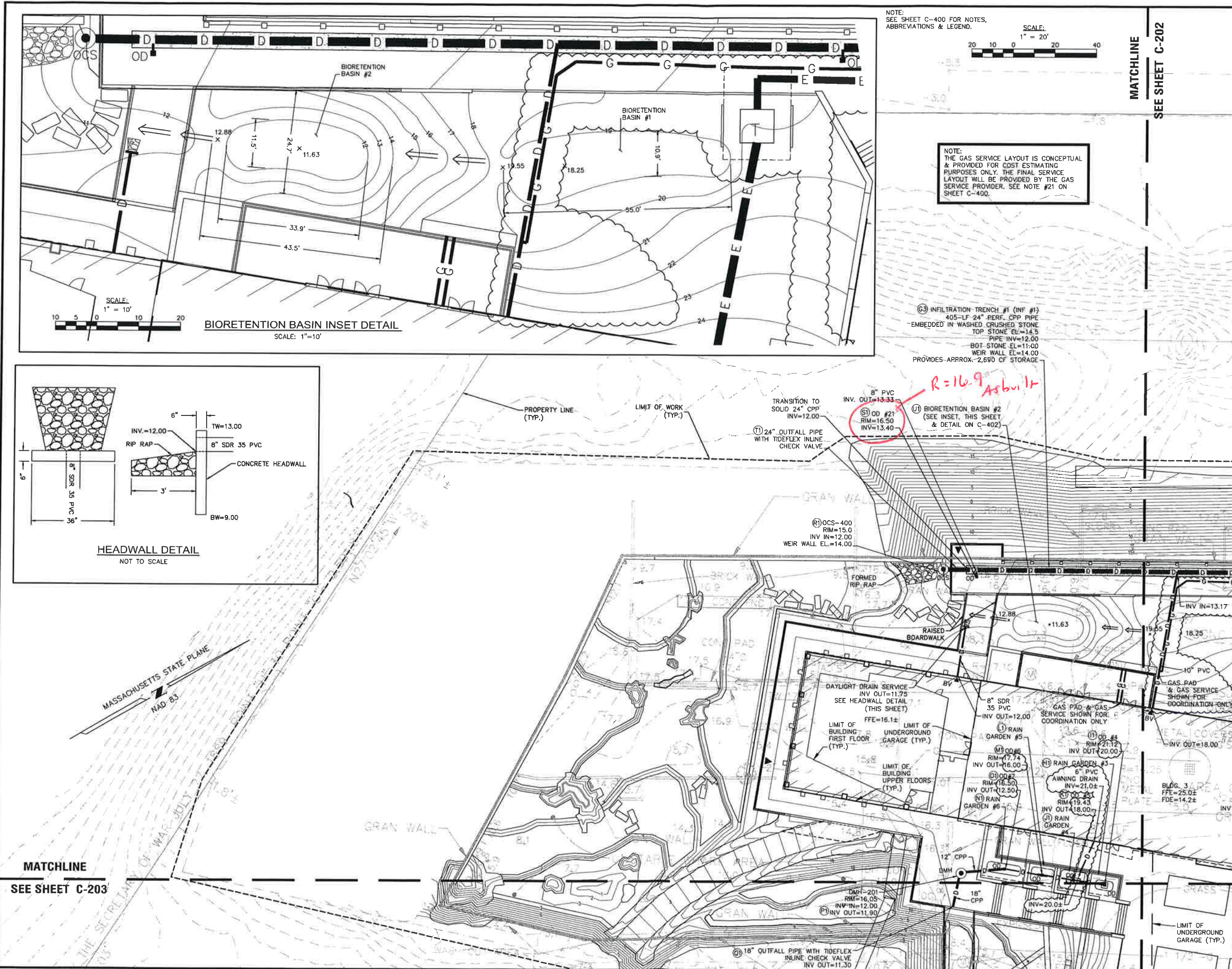
13166

Issue Date:

OCTOBER 28, 2016

Sheet Number:

C-201



Consultant:



Nitsch Engineering

Revision:	
PERMIT SET	12/01/15
REVISED	12/17/15
BWSC SUBMISSION	12/30/15
100% CONSTRUCTION DOCS	03/17/16
REVISED 100% CDS	05/04/16
ADDENDUM 03	10/21/16
ADDENDUM 04	10/31/16
BULLETIN-002	11/30/16
BULLETIN-058	11/22/17
BULLETIN-059	12/08/17

Architect of Record:

** Asbuilt
Rim Grades
11/23/24*

Drawn: RMG
Checked: JMS
Scale: 1" = 20'
Key Plan:

BWSC FILE NO. 15322

Project Name:
CLIPPERSHIP WHARF

EAST BOSTON, MA

Sheet Name:

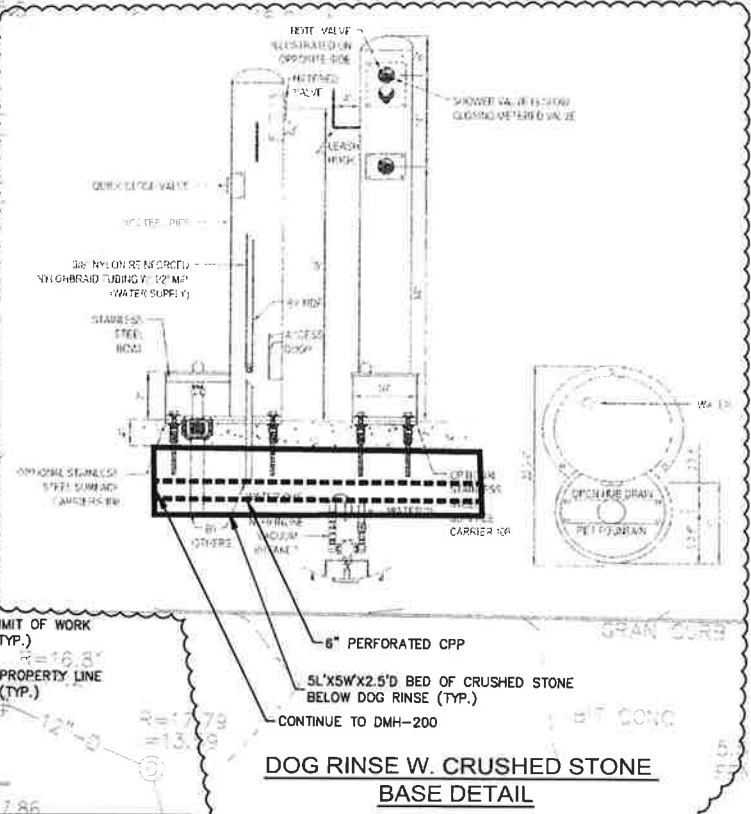
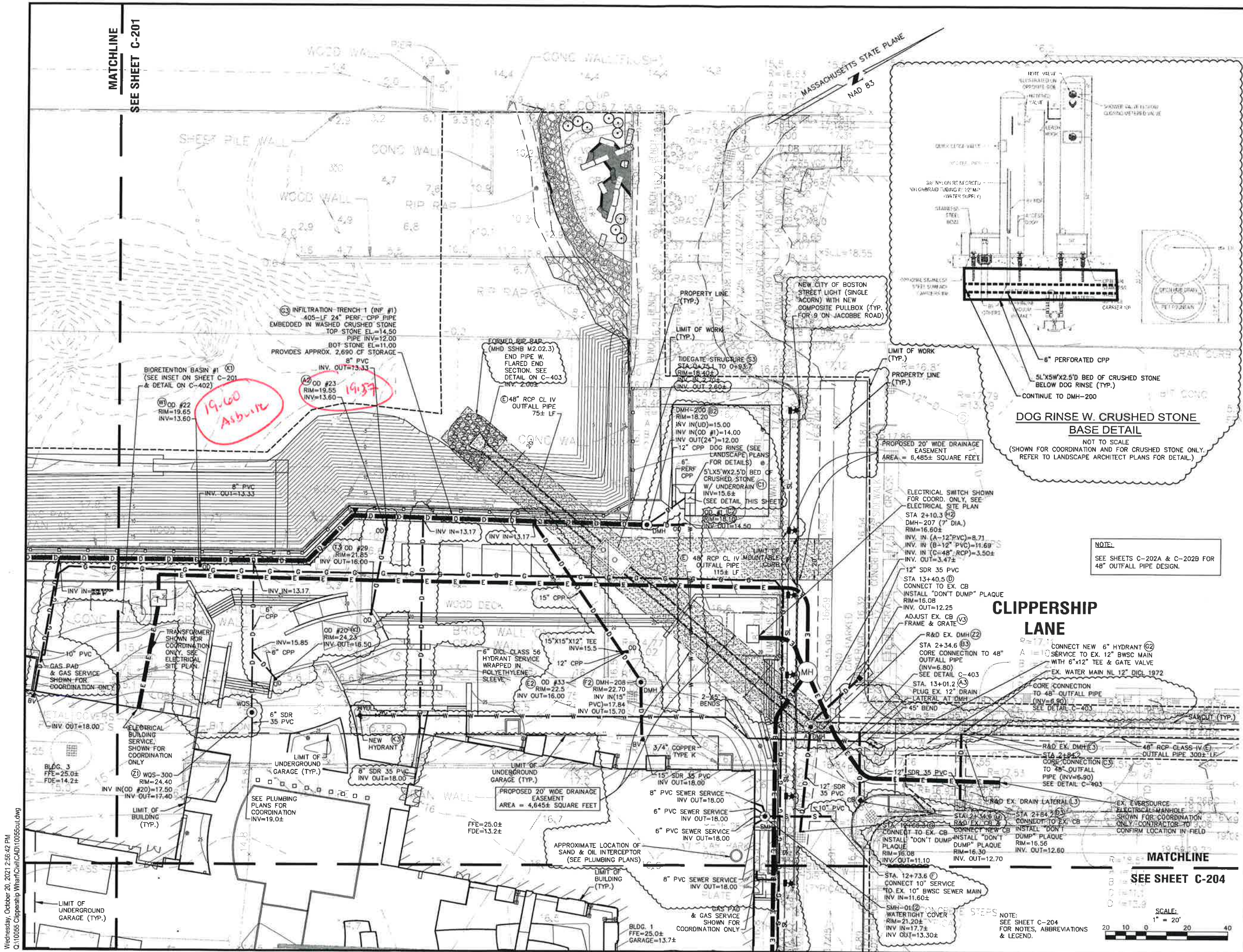
SITE UTILITY PLAN

Project Number:
13166

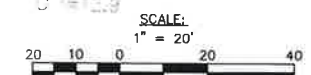
Issue Date:
OCTOBER 28, 2016

Sheet Number:

C-202



NOTE:
SEE SHEETS C-202A & C-202B FOR 48" OUTFALL PIPE DESIGN.



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Consultant:



Revision table with columns for revision type and date. Includes entries for PERMIT SET, REVISION, BWS SUBMISSION, 100% CONSTRUCTION DOCS, REVISED 100% CDS, ADDENDUM 03, ADDENDUM 04, BULLETIN-002, BULLETIN-025, BULLETIN-058, and BULLETIN-059.

Architect of Record:

As built Rim Grad 11/23/24

Drawn: RMG

Checked: JMS

Scale: 1" = 20'

Key Plan:

BWSC FILE NO. 15322

Project Name:

CLIPPERSHIP WHARF

EAST BOSTON, MA

Sheet Name:

SITE UTILITY PLAN

Project Number:

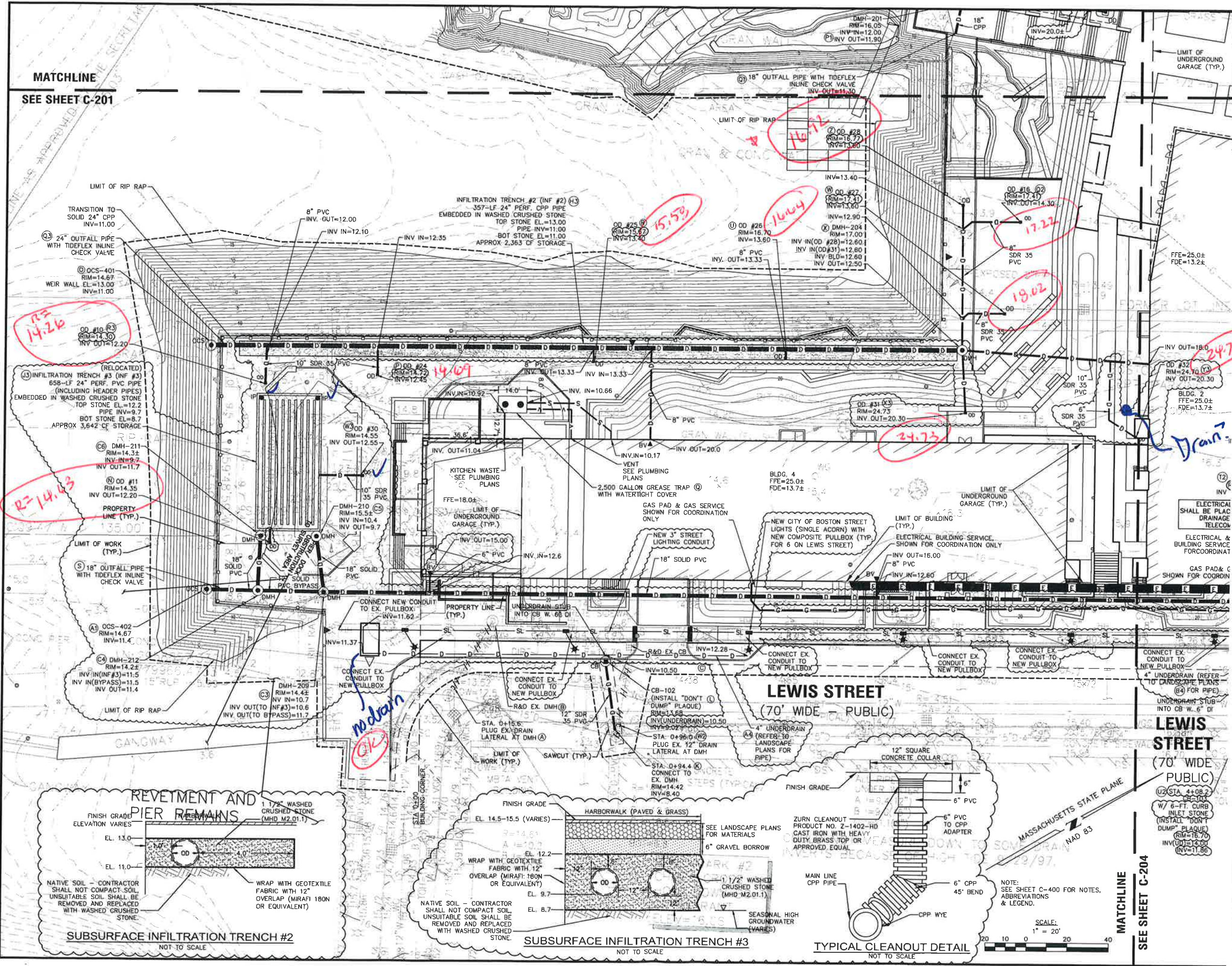
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Issue Date:

OCTOBER 28, 2016

Sheet Number:

C-203



MATCHLINE SEE SHEET C-201

MATCHLINE SEE SHEET C-204

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25-65 Lewis Street
Nitsch #10055

Stormwater Pollution Prevention Plan (SWPPP)
Clippership Wharf

Stormwater Pollution Prevention Plan (SWPPP)

For Construction Activities At:

Clippership Wharf
25-65 Lewis Street
Boston, Massachusetts 02128
(617) 557-6400

SWPPP Prepared For:

Lend Lease Clippership Wharf LLC
Joseph Vincent
20 City Square, 2nd Floor
Boston, MA 02129
(617) 557-6400
Fax: (617) 557-6439

SWPPP Prepared By:

Nitsch Engineering, Inc.
Ryan M. Gordon, EIT, LEED GA
2 Center Plaza, Suite 430
Boston, MA 02108
617-338-0063
RGordon@nitscheng.com

SWPPP Preparation Date:

12/29/2015

Estimated Project Dates:

Project Start Date: 04 / 21 / 2016
Project Completion Date: 12 / 30 / 2018

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25-65 Lewis Street
Nitsch #10055

Stormwater Pollution Prevention Plan (SWPPP)
Clippership Wharf

SECTION 1: CONTACT INFORMATION/RESPONSIBLE PARTIES

1.1 Operator(s) / Subcontractor(s)

Instructions (see definition of "operator" at CGP Part 1.1.a):

- Identify the operator(s) who will be engaged in construction activities at the site. Indicate respective responsibilities, where appropriate. Also include the 24-hour emergency contact.
- List subcontractors expected to work on-site. Notify subcontractors of stormwater requirements applicable to their work.
- Consider using Subcontractor Agreements such as the type included as a sample in Appendix G of the Template.

Operator(s):

LendLease (US) Construction LMB Inc.:

Robert Bellavia; Clayton Morin

20 City Square, 2nd Floor:

Boston, MA 02129

(617) 557-6400:

(617) 557-6439

Construction Manager –Entire Project Oversight

Subcontractor(s): TBD

Insert Company or Organization Name:

Insert Name:

Insert Address:

Insert City, State, Zip Code:

Insert Telephone Number:

Insert Fax/Email:

Area of Control:

Emergency 24-Hour Contact:

Lend Lease Project Management & Construction

Robert Bellavia, Sr. Project Superintendent

(617) 519-7076

1.2 Stormwater Team**Instructions (see CGP Part 7.2.1):**

- Identify the staff members (by name or position) that comprise the project's stormwater team as well as their individual responsibilities. At a minimum the stormwater team is comprised of individuals who are responsible for overseeing the development of the SWPPP, any later modifications to it, and for compliance with the requirements in this permit (i.e., installing and maintaining stormwater controls, conducting site inspections, and taking corrective actions where required).
- Each member of the stormwater team must have ready access to either an electronic or paper copy of applicable portions of the 2012 CGP and your SWPPP.

Construction Manager

EH&S Manager
Clayton Morin
(781) 583-8925
clay.morin@lendlease.com

Construction Manager

Sr. Project Superintendent
Robert Bellavia
(617) 519-7076
robert.bellevia@lendlease.com

Site Contractor - TBD

Insert Position:
Insert Name:
Insert Telephone Number:
Insert Email:

25-65 Lewis Street
Nitsch #10055

Stormwater Pollution Prevention Plan (SWPPP)
Clippership Wharf

SECTION 2: SITE EVALUATION, ASSESSMENT, AND PLANNING

2.1 Project/Site Information

Project Name and Address

Project/Site Name: Clippership Wharf
Project Street/Location: 25-65 Lewis Street
City: Boston
State: MA
ZIP Code: 02128
County or Similar Subdivision: Suffolk County

Project Latitude/Longitude

(Use **one** of three possible formats, and specify method)

Latitude:	Longitude:
1. 42° 22' 3.7" N (degrees, minutes, seconds)	1. 71° 2' 30.4" W (degrees, minutes, seconds)
2. ___° ___' ___" N (degrees, minutes, decimal)	2. ___° ___' ___" W (degrees, minutes, decimal)
3. ___ . ___ . ___ ° N (decimal)	3. ___ . ___ . ___ ° W (decimal)

Method for determining latitude/longitude:

USGS topographic map (specify scale: _____) EPA Web site GPS
 Other (please specify): Google

Horizontal Reference Datum:

NAD 27 NAD 83 or WGS 84 Unknown

If you used a U.S.G.S topographic map, what was the scale? N/A

Additional Project Information

Is the project/site located on Indian country lands, or located on a property of religious or cultural significance to an Indian tribe? Yes No

If yes, provide the name of the Indian tribe associated with the area of Indian country (including the name of Indian reservation if applicable), or if not in Indian country, provide the name of the Indian tribe associated with the property: N/A

If you are conducting earth-disturbing activities in response to a public emergency, document the cause of the public emergency (e.g., *natural disaster, extreme flooding conditions*), information substantiating its occurrence (e.g., *state disaster declaration*), and a description of the construction necessary to reestablish effective public services: N/A

Are you applying for permit coverage as a "federal operator" as defined in Appendix A of the 2012 CGP? Yes No

2.2 Discharge Information**Instructions (see "Discharge Information" section of Appendix J – NOI form):**

- In this section, include information relating to your site's discharge. This information corresponds to the "Discharge Information" section of the NOI form. Because you may be using EPA's mapping tool to answer some of these questions, and the tool is accessed in the eNOI system, you may find it necessary to leave some questions unanswered until you have completed that portion of the NOI.
- For Table 1, list the name of the first surface water that receives discharges from your site. If your site has discharges to multiple surface waters, indicate the names of all such waters.
- For Table 2, if any of the surface waters you listed out in Table 1 are listed as impaired by the applicable State or Tribe, provide specified information about pollutants causing the impairment and whether or not a Total Maximum Daily Load (TMDL) has been completed for the surface water. For more information on TMDLs and impaired waters, including a list of TMDL contacts and links by state, visit www.epa.gov/npdes/stormwater/tmdl.
- For Table 3, indicate whether any of the surface waters you listed out in Table 1 are designated as Tier 2, 2.5, or 3 waters by your State or Tribe. See Appendix F for more information.

Does your project/site discharge stormwater into a Municipal Separate Storm Sewer System (MS4)? Yes No

Are there any surface waters that are located within 50 feet of your construction disturbances?

Yes No

Table 1 – Names of Receiving Waters

Name(s) of the first surface water that receives stormwater directly from your site and/or from the MS4 (note: multiple rows provided where your site has more than one point of discharge that flows to different surface waters)

1.	Boston Harbor
2.	
3.	
4.	
5.	
6.	

Table 2 – Impaired Waters / TMDLs (Answer the following for each surface water listed in Table 1 above)

	Is this surface water listed as "impaired"?	What pollutant(s) are causing the impairment?	If you answered yes, then answer the following:		Title of the TMDL document	Pollutant(s) for which there is a TMDL
			Has a TMDL been completed?			
1.	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Pathogens	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		Draft Pathogen TMDL for the Boston Harbor Watershed (Excluding the Neponset River sub-basin)	Bacteria
2.	<input type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> YES <input type="checkbox"/> NO			
3.	<input type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> YES <input type="checkbox"/> NO			
4.	<input type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> YES <input type="checkbox"/> NO			
5.	<input type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> YES <input type="checkbox"/> NO			
6.	<input type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> YES <input type="checkbox"/> NO			

Describe the method(s) you used to determine whether or not your project/site discharges to an impaired water: Approved TMDL List

Table 3 – Tier 2, 2.5, or 3 Waters (Answer the following for each surface water listed in Table 1 above)

	Is this surface water designated as a Tier 2, Tier 2.5, or Tier 3 water? (see Appendix F)	If you answered yes, specify which Tier (2, 2.5, or 3) the surface water is designated as?
1.	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
2.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
3.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
4.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
5.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
6.	<input type="checkbox"/> YES <input type="checkbox"/> NO	

2.3 Nature of the Construction Activity

Instructions (see CGP Parts 1.3.c and 7.2.2):

- Provide a general description of the nature of the construction activities at your project.
- Describe the size of the property (in acres) and the total area expected to be disturbed by the construction activities (in acres), construction support activities covered by this permit (see Part 1.3.c of the permit), and the maximum area expected to be disturbed at any one time.

General Description of Project

Provide a general description of the construction project:

Clippership Wharf is an approximately 12-acre site located in East Boston and is bounded by Jacobbe Road to the north, Lewis Street and Lewis Mall to the east, Boston Harbor to the south and west. The site is currently an unused lot which was previously developed and now consists of compacted earth with grass, paved areas, and foundations of old buildings, and dilapidated and collapsed wooden piers.

The Project proposes four new 6-story residential buildings connected by an underground parking garage. The site will include a harborwalk, a courtyard between the buildings with paved and landscaped areas, and a "living shoreline".

Size of Construction Project

What is the size of the property (in acres), the total area expected to be disturbed by the construction activities (in acres), and the maximum area expected to be disturbed at any one time?

SIZE OF PROPERTY: APPROXIMATELY 12.0-ACRES

TOTAL AREA OF CONSTRUCTION DISTURBANCES: APPROXIMATELY 10.1-ACRES

MAXIMUM AREA TO BE DISTURBED AT ANY ONE TIME: APPROXIMATELY 10.1-ACRES

Construction Support Activities

Describe any construction support activities for the project (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas)

Proposed disposal Sites for ACS & ACM – None Confirmed (as of 2-25-2016)

1. Waste Management Turnkey Landfill – Rochester, NH
2. Norridgewock (Crossroads) Landfill
3. Fitchburg Landfill (Permit Pending for Asbestos) – Westminster, MA

2.4 Sequence and Estimated Dates of Construction Activities

Instructions (see CGP Part 7.2.5):

- Describe the intended construction sequence and timing of major activities.
- For each phase of construction, include the following information:
 - ✓ Installation of stormwater controls, and when they will be made operational;
 - ✓ Commencement and duration of earth-disturbing activities, including clearing and grubbing, mass grading, site preparation (i.e., excavating, cutting and filling), final grading, and creation of soil and vegetation stockpiles requiring stabilization;
 - ✓ Cessation, temporarily or permanently, of construction activities on the site, or in designated portions of the site;
 - ✓ Final or temporary stabilization of areas of exposed soil. The dates for stabilization must reflect the applicable deadlines to which you are subject to in Part 2.2.1; and
 - ✓ Removal of temporary stormwater conveyances/channels and other stormwater control measures, removal of construction equipment and vehicles, and cessation of any pollutant-generating activities.
- The construction sequence must reflect the following requirements:
 - ✓ Part 2.1.1.1 (area of disturbance);
 - ✓ Part 2.1.1.3.a (installation of stormwater controls); and
 - ✓ Parts 2.2.1.1, 2.2.1.2, 2.2.1.3 (stabilization deadlines).
- Also, see EPA's *Construction Sequencing BMP Fact Sheet* at http://www.epa.gov/npdes/stormwater/menuofbmps/construction/cons_seq

Construction Activity Sequence April 21, 2016 to April 13, 2020

- 1: **Site Mobilization & Storm Water BMPs installation**
 Duration: 4-6 weeks: April 21 to June 1, 2016
 Mobilize Trailers & Wellbeing Facilities; Fencing; Installation of Storm water control measures

Storm Water BMP Installation – Removal dates:
 Perimeter Fence with Dust Screen: May 2016 to February 2020
 Silt Fence & wattle: May 2016 to September 2018
 Floating Debris Boom: February 2016 to August 2018
 Silt Sacks in Catch Basins: May 2016 to August 2018
 Stone Apron – Wheel Wash: May 2016 to December 2018
 Street Sweeping-As Needed: May 2016 to December 2018
 Truck Wash: May 2016 to February 2017
- 2: **Marine Work & Wharf Preparation (some earth disturbing operations)**
 Duration: 5 months; 5/5/16 to 10/11/16
 Remove Timber Piles & old Wharfs; Marine Work – walls & rip-rap
- 3: **Site Remediation & Abatement (considerable earth disturbing operations)**
 Duration: 8 months; 5/5/16 to 2/6/17
 Mass Ex of ACS & Spot Excavation of ACM
 Excavation of Soils with Trace Asbestos & Non Detect

25-65 Lewis Street
Nitsch #10055

Stormwater Pollution Prevention Plan (SWPPP)
Clippership Wharf

- 4: Excavation/Site Work –Utility Installation & Relocation; Site excavation, clearing & grubbing, pre-trenching, grading of site & excavation & construction of Living Shoreline: (Earth Disturbing Operations)**
Duration: 18 months; 5/16 to 10/17 (Buildings 1,2 & 3)
Duration: 15 months; 12/18 to 12/19 (Building 4)
- 5: Foundation Installation – Pile Driving (Exposed Soil)**
Duration: 5 months ; 8/22/16 to 12/27/17
- 6: Concrete Construction-Pile Caps, Grade Beams & Structure (Exposed Soil, gradually covered with concrete pile caps & slab on grade)**
Duration: 8 months ; 11/3/16 to 7/10/17
- 7: Wood Structure and Façade (no ground disturbance)**
Duration: 18 months; 6/5/17 to 12/3/18
- 8: MEP/Interior Fit Out (no ground disturbance)**
Duration: 14 months; 8/23/17 to 9/24/18
- 9: Hardscapes & Landscape Work (some ground disturbance)**
Duration: 5 months; 3/16/18 to 8/6/18

NOTE: Site Activities may cease for a short period of time, Before Building # 4.

- 10: Building 4**
Duration: 16 months; 12/4/18 to 4/13/20

Storm Water BMP Installation:

Perimeter Fence with Dust Screen: December 2018 to February 2020

Silt Fence & wattle: December 2018 to Dec 2019

Silt Sacks in Catch Basins: December 2018 to March 2020

Stone Apron – Wheel Wash: December 2018 to Dec 2019

Street Sweeping-As Needed: December 2018 to April 2020

- 11: Demobilize**
Duration: 4 weeks; 3/13/20 to 4/13/20

2.5 Allowable Non-Stormwater Discharges

Instructions (see CGP Parts 1.3.d and 7.2.8):

- Identify all allowable sources of non-stormwater discharges. The allowable non-stormwater discharges identified in Part 1.3.d of the 2012 CGP include:
 - ✓ Discharges from emergency fire-fighting activities;
 - ✓ Fire hydrant flushings;
 - ✓ Landscape irrigation;
 - ✓ Waters used to wash vehicles and equipment, provided that there is no discharge of soaps, solvents, or detergents used for such purposes;
 - ✓ Water used to control dust;
 - ✓ Potable water including uncontaminated water line flushings;
 - ✓ Routine external building wash down that does not use detergents;
 - ✓ Pavement wash waters provided spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and detergents are not used. You are prohibited from directing pavement wash waters directly into any surface water, storm drain inlet, or stormwater conveyance, unless the conveyance is connected to a sediment basin, sediment trap, or similarly effective control;
 - ✓ Uncontaminated air conditioning or compressor condensate;
 - ✓ Uncontaminated, non-turbid discharges of ground water or spring water;
 - ✓ Foundation or footing drains where flows are not contaminated with process materials such as solvents or contaminated ground water; and
 - ✓ Construction dewatering water that has been treated by an appropriate control.

List of Allowable Non-Stormwater Discharges Present at the Site

Type of Allowable Non-Stormwater Discharge	Likely to be Present at Your Site?
Discharges from emergency fire-fighting activities	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Fire hydrant flushings	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Landscape irrigation	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Waters used to wash vehicles and equipment	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Water used to control dust	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Potable water including uncontaminated water line flushings	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Routine external building wash down	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Pavement wash waters	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Uncontaminated air conditioning or compressor condensate	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Uncontaminated, non-turbid discharges of ground water or spring water	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
Foundation or footing drains	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Construction dewatering water	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO

(Note: You are reminded of the requirement to identify the likely locations of these allowable non-stormwater discharges on your site map. See Section 2.6, below, of the SWPPP Template.)

2.6 Site Maps**Instructions (see CGP Part 7.2.6):**

- Attach site maps in Appendix A of the Template. For most projects, a series of site maps is necessary and recommended. The first should show the undeveloped site and its current features. An additional map or maps should be created to show the developed site or, for more complicated sites, show the major phases of development.

These maps must include the following features:

- Boundaries of the property and of the locations where construction will occur, including:
 - ✓ Locations where earth-disturbing activities will occur, noting any phasing of construction activities;
 - ✓ Approximate slopes before and after major grading activities. Note areas of steep slopes, as defined in Appendix A;
 - ✓ Locations where sediment, soil, or other construction materials will be stockpiled;
 - ✓ Locations of any crossings of surface waters;
 - ✓ Designated points on the site where vehicles will exit onto paved roads;
 - ✓ Locations of structures and other impervious surfaces upon completion of construction; and
 - ✓ Locations of construction support activity areas covered by this permit.
- Locations of all surface waters, including wetlands, that exists on or near your site. Indicate which waterbodies are listed as impaired, and which are identified by your state, tribe, or EPA as Tier 2, Tier 2.5, or Tier 3 waters.
- The boundary lines of any natural buffer areas. See CGP Part 2.1.2.1.a.
- Areas of federally-listed critical habitat for endangered or threatened species.
- Topography of the site, existing vegetative cover (e.g., forest, pasture, pavement, structures), and drainage pattern(s) of stormwater and allowable non-stormwater flow onto, over, and from the site property before and after major grading activities.
- Stormwater and allowable non-stormwater discharge locations, including:
 - ✓ Locations of any storm drain inlets on the site and in the immediate vicinity of the site; and
 - ✓ Locations where stormwater or allowable non-stormwater will be discharged to surface waters (including wetlands).
- Locations of all potential pollutant-generating activities.
- Locations of stormwater control measures.
- Locations where polymers, flocculants, or other treatment chemicals will be used and stored.

See Appendix A.

[Insert additional site maps as needed.]

SECTION 3: DOCUMENTATION OF COMPLIANCE WITH OTHER FEDERAL REQUIREMENTS

3.1 Endangered Species Protection

Instructions (see CGP Parts 1.1.e, 7.2.14.1, Appendix D, and the "Endangered Species Protection" section of the Appendix J – NOI form):

Follow the process in Appendix D of the permit for determining which eligibility criterion (A-E) you have met with respect to the protection of endangered species. You will

- Include documentation supporting your determination of eligibility.
- Additional information on Endangered Species Act (ESA) provisions for EPA's Construction General Permit is at www.epa.gov/npdes/stormwater/esa

Eligibility Criterion

Under which criterion listed in Appendix D are you eligible for coverage under this permit?

A B C D E

For reference purposes, the eligibility criteria listed in Appendix D are as follows:

- Criterion A.** No federally-listed threatened or endangered species or their designated critical habitat(s) are likely to occur in your site's "action area" as defined in Appendix A of this permit.
- Criterion B.** The construction site's discharges and discharge-related activities were already addressed in another operator's valid certification of eligibility for your action area under eligibility Criterion A, C, D, E, or F and there is no reason to believe that federally-listed species or federally-designated critical habitat not considered in the prior certification may be present or located in the "action area". To certify your eligibility under this Criterion, there must be no lapse of NPDES permit coverage in the other operator's certification. By certifying eligibility under this Criterion, you agree to comply with any effluent limitations or conditions upon which the other operator's certification was based. ~~You must include in your NOI the tracking number from the other operator's notification of authorization under this permit.~~ If your certification is based on another operator's certification under Criterion C, you must provide EPA with the relevant supporting information required of existing dischargers in Criterion C in your NOI form.
- Criterion C.** Federally-listed threatened or endangered species or their designated critical habitat(s) are likely to occur in or near your site's "action area," and your site's discharges and discharge-related activities are not likely to adversely affect listed threatened or endangered species or critical habitat. This determination may include consideration of any stormwater controls and/or management practices you will adopt to ensure that your discharges and discharge-related activities are not likely to adversely affect listed species and critical habitat. To make this certification, you must include the following in your NOI: 1) any federally listed species and/or designated habitat located in your "action area"; and 2) the distance between your site and the listed species or designated critical habitat (in miles). You must also include a copy of your site map with your NOI.

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Criterion D. Coordination between you and the Services has been concluded. The coordination must have addressed the effects of your site's discharges and discharge-related activities on federally-listed threatened or endangered species and federally-designated critical habitat, and must have resulted in a written concurrence from the relevant Service(s) that your site's discharges and discharge-related activities are not likely to adversely affect listed species or critical habitat. You must include copies of the correspondence between yourself and the Services in your SWPPP and your NOI.

Criterion E. Consultation between a Federal Agency and the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service under section 7 of the ESA has been concluded. The consultation must have addressed the effects of the construction site's discharges and discharge-related activities on federally-listed threatened or endangered species and federally-designated critical habitat. The result of this consultation must be either:

- i. a biological opinion that concludes that the action in question (taking into account the effects of your site's discharges and discharge-related activities) is not likely to jeopardize the continued existence of listed species, nor the destruction or adverse modification of critical habitat; or
- ii. written concurrence from the applicable Service(s) with a finding that the site's discharges and discharge-related activities are not likely to adversely affect federally-listed species or federally-designated habitat.

You must include copies of the correspondence between yourself and the Services in your SWPPP and your NOI.

Criterion F. Your construction activities are authorized through the issuance of a permit under section 10 of the ESA, and this authorization addresses the effects of the site's discharges and discharge-related activities on federally-listed species and federally-designated critical habitat. You must include copies of the correspondence between yourself and the Services in your SWPPP and your NOI.

Supporting Documentation

Provide documentation for the applicable eligibility criterion you select in Appendix D, as follows:

For criterion A, indicate the basis for your determination that no federally-listed threatened or endangered species or their designated critical habitat(s) are likely to occur in your site's action area (as defined in Appendix A of the permit). Check the applicable source of information you relied upon:

- Specific communication with staff of the U.S. Fish & Wildlife Service or National Marine Fisheries Service.
- Publicly available species list. NHESP Priority Habitats online viewer and GIS data. See Appendix K.
- Other source:

3.2 Historic Preservation

Instructions (see CGP Part 1.1.f, 7.2.14.2, Appendix E, and the "Historic Preservation" section of the Appendix J – NOI form):

Follow the screening process in Appendix E of the permit for determining whether your installation of subsurface earth-disturbing stormwater controls will have an effect on historic properties.

- Include documentation supporting your determination of eligibility.
- To contact your applicable state or tribal historic preservation office, information is available at www.achp.gov/programs/html.

Appendix E, Step 1

Do you plan on installing any of the following stormwater controls at your site? Check all that apply below, and proceed to Appendix E, Step 2.

- Dike
- Berm
- Catch Basin
- Pond
- Stormwater Conveyance Channel (e.g., ditch, trench, perimeter drain, swale, etc.)
- Culvert
- Other type of ground-disturbing stormwater control: Stormwater infrastructure includes trench drain, catch basins, area drains, drain manholes, water quality structures, groundwater recharge systems with perforated pipe and stone and wrapped in filter fabric, outlet control structures, bioretention basins, rain gardens, and a storm drain outfall pipe.

Appendix E, Step 2

If you answered yes in Step 1, have prior surveys or evaluations conducted on the site already determined that historic properties do not exist, or that prior disturbances at the site have precluded the existence of historic properties? YES NO

- If yes, no further documentation is required for Section 3.2 of the Template.
- If no, proceed to Appendix E, Step 3.

3.3 Safe Drinking Water Act Underground Injection Control Requirements**Instructions (see CGP Part 7.2.14.3):**

- If you will use any of the identified controls in this section, include documentation of contact between you and the applicable state agency or EPA Regional Office responsible for implementing the requirements for underground injection wells in the Safe Drinking Water Act and EPA's implementing regulations at 40 CFR Parts 144-147.
- For state UIC program contacts, refer to the following EPA website:
<http://water.epa.gov/type/groundwater/uic/whereyoulive.cfm>.

Do you plan to install any of the following controls? Check all that apply below.

- Infiltration trenches (if stormwater is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system)
- Commercially manufactured pre-cast or pre-built proprietary subsurface detention vaults, chambers, or other devices designed to capture and infiltrate stormwater flow
- Drywells, seepage pits, or improved sinkholes (if stormwater is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system)

This area of the City of Boston does not have any underground drinking water sources. The project is being reviewed by the Boston Water and Sewer Commission for approval and compliance with required regulations and requirements.

SECTION 4: EROSION AND SEDIMENT CONTROLS

General Instructions (See CGP Parts 2.1 and 7.2.10):

- Describe the erosion and sediment controls that will be installed and maintained at your site.
- For more information or ideas on BMPs, see EPA's National Menu of BMPs <http://www.epa.gov/npdes/stormwater/menuofbmps>

4.1 Natural Buffers or Equivalent Sediment Controls

Instructions (see CGP Parts 2.1.2.1 and 7.2.9, and Appendix G):

This section only applies to you if a surface water is located within 50 feet your construction activities. If this is the case, consult CGP Part 2.1.2.1 and Appendix G for information on how to comply with the buffer requirements.

- Describe the compliance alternative (CGP Part 2.1.2.1.a.i, ii, or iii) that was chosen to meet the buffer requirements, and include any required documentation supporting the alternative selected. The compliance alternative selected must be maintained throughout the duration of permit coverage. However, if you select a different compliance alternative during your period of permit coverage, you must modify your SWPPP to reflect this change.
- If you qualify for one of the exceptions in CGP Part 2.1.2.1.e, include documentation related to your qualification for such exceptions.

Buffer Compliance Alternatives

Are there any surface waters within 50 feet of your project's earth disturbances? YES NO
(Note: If no, no further documentation is required for the SWPPP Template.)

Check the compliance alternative that you have chosen:

- I will provide and maintain a 50-foot undisturbed natural buffer.
(Note (1): You must show the 50-foot boundary line of the natural buffer on your site map.)
(Note (2): You must show on your site map how all discharges from your construction disturbances through the natural buffer area will first be treated by the site's erosion and sediment controls. Also, show on the site map any velocity dissipation devices used to prevent erosion within the natural buffer area.)
- I will provide and maintain an undisturbed natural buffer that is less than 50 feet and is supplemented by additional erosion and sediment controls, which in combination achieves the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.
(Note (1): You must show the boundary line of the natural buffer on your site map.)
(Note (2): You must show on your site map how all discharges from your construction disturbances through the natural buffer area will first be treated by the site's erosion and sediment controls. Also, show on the site map any velocity dissipation devices used to prevent erosion within the natural buffer area.)

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- INSERT WIDTH OF NATURAL BUFFER TO BE RETAINED
- INSERT EITHER ONE OF THE FOLLOWING:
 - (1) THE ESTIMATED SEDIMENT REMOVAL FROM A 50-FOOT BUFFER USING APPLICABLE TABLES IN APP. G, ATTACHMENT 1. INCLUDE INFORMATION ABOUT THE BUFFER VEGETATION AND SOIL TYPE THAT PREDOMINATE AT YOUR SITE
- OR
- (2) IF YOU CONDUCTED A SITE-SPECIFIC CALCULATION FOR THE ESTIMATED SEDIMENT REMOVAL OF A 50-FOOT BUFFER, PROVIDE THE SPECIFIC REMOVAL EFFICIENCY, AND INFORMATION YOU RELIED UPON TO MAKE YOUR SITE-SPECIFIC CALCULATION.
- INSERT DESCRIPTION OF ADDITIONAL EROSION AND SEDIMENT CONTROLS TO BE USED IN COMBINATION WITH NATURAL BUFFER AREA
- INSERT THE FOLLOWING INFORMATION:
 - (1) SPECIFY THE MODEL OR OTHER TOOL USED TO ESTIMATE SEDIMENT LOAD REDUCTIONS FROM THE COMBINATION OF THE BUFFER AREA AND ADDITIONAL EROSION AND SEDIMENT CONTROLS INSTALLED AT YOUR SITE, AND
 - (2) INCLUDE THE RESULTS OF CALCULATIONS SHOWING THAT THE COMBINATION OF YOUR BUFFER AREA AND THE ADDITIONAL EROSION AND SEDIMENT CONTROLS INSTALLED AT YOUR SITE WILL MEET OR EXCEED THE SEDIMENT REMOVAL EFFICIENCY OF A 50-FOOT BUFFER

It is infeasible to provide and maintain an undisturbed natural buffer of any size, therefore I will implement erosion and sediment controls that achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.

- INSERT RATIONALE FOR CONCLUDING THAT IT IS INFEASIBLE TO PROVIDE AND MAINTAIN A NATURAL BUFFER OF ANY SIZE
- INSERT EITHER ONE OF THE FOLLOWING:
 - (1) THE ESTIMATED SEDIMENT REMOVAL FROM A 50-FOOT BUFFER USING APPLICABLE TABLES IN APP. G, ATTACHMENT 1. INCLUDE INFORMATION ABOUT THE BUFFER VEGETATION AND SOIL TYPE THAT PREDOMINATE AT YOUR SITE
- OR
- (2) IF YOU CONDUCTED A SITE-SPECIFIC CALCULATION FOR THE ESTIMATED SEDIMENT REMOVAL OF A 50-FOOT BUFFER, PROVIDE THE SPECIFIC REMOVAL EFFICIENCY, AND INFORMATION YOU RELIED UPON TO MAKE YOUR SITE-SPECIFIC CALCULATION.
- INSERT DESCRIPTION OF ADDITIONAL EROSION AND SEDIMENT CONTROLS TO BE USED IN COMBINATION WITH NATURAL BUFFER AREA
- INSERT THE FOLLOWING INFORMATION:
 - (1) SPECIFY THE MODEL OR OTHER TOOL USED TO ESTIMATE SEDIMENT LOAD REDUCTIONS FROM THE EROSION AND SEDIMENT CONTROLS INSTALLED AT YOUR SITE, AND
 - (2) INCLUDE THE RESULTS OF CALCULATIONS SHOWING THAT THE ADDITIONAL EROSION AND SEDIMENT CONTROLS INSTALLED AT YOUR SITE WILL MEET OR EXCEED THE SEDIMENT REMOVAL EFFICIENCY OF A 50-FOOT BUFFER

I qualify for one of the exceptions in Part 2.1.2.1.e. (If you have checked this box, provide information on the applicable buffer exception that applies, below.)

Buffer Exceptions

Which of the following exceptions to the buffer requirements applies to your site?

- There is no discharge of stormwater to the surface water that is located 50 feet from my construction disturbances.
(Note: If this exception applies, no further documentation is required for Section 4.1 of the Template.)
- No natural buffer exists due to preexisting development disturbances that occurred prior to the initiation of planning for this project.
(Note (1): If this exception applies, no further documentation is required for Section 4.1 of the Template.)
(Note (2): Where some natural buffer exists but portions of the area within 50 feet of the surface water are occupied by preexisting development disturbances, you must still comply with the one of the CGP Part 2.1.2.1.a compliance alternatives.)
- For a "linear project" (defined in Appendix A), site constraints (e.g., limited right-of-way) make it infeasible for me to meet any of the CGP Part 2.1.2.1.a compliance alternatives. INCLUDE DOCUMENTATION HERE OF THE FOLLOWING: (1) WHY IT IS INFEASIBLE FOR YOU TO MEET ONE OF THE BUFFER COMPLIANCE ALTERNATIVES, AND (2) BUFFER WIDTH RETAINED AND/OR SUPPLEMENTAL EROSION AND SEDIMENT CONTROLS TO TREAT DISCHARGES TO THE SURFACE WATER
- The project qualifies as "small residential lot" construction (defined in Part 2.1.2.1.e.iv and in Appendix A).
For Alternative 1 (see Appendix G, Part G.2.3.2.a):
- INSERT WIDTH OF NATURAL BUFFER TO BE RETAINED
 - INSERT APPLICABLE REQUIREMENTS BASED ON TABLE G-1
 - INSERT DESCRIPTION OF HOW YOU WILL COMPLY WITH THESE REQUIREMENTS
- For Alternative 2 (see Appendix G, Part G.2.3.2.b):
- INSERT (1) THE ASSIGNED RISK LEVEL BASED ON APPLICABLE TABLE IN APP. G, PART G.2.3.2.b, AND (2) THE PREDOMINANT SOIL TYPE AND AVERAGE SLOPE AT YOUR SITE
 - INSERT APPLICABLE REQUIREMENTS BASED ON APP. G, TABLE G-7
 - INSERT DESCRIPTION OF HOW YOU WILL COMPLY WITH THESE REQUIREMENTS
- Buffer disturbances are authorized under a CWA Section 404 permit. INSERT DESCRIPTION OF ANY EARTH DISTURBANCES THAT WILL OCCUR WITHIN THE BUFFER AREA
(Note (1): If this exception applies, no further documentation is required for Section 4.1 of the Template.)
(Note (2): This exception only applies to the limits of disturbance authorized under the Section 404 permit, and does not apply to any upland portion of the construction project.)
- Buffer disturbances will occur for the construction of a water-dependent structure or water access area (e.g., pier, boat ramp, and trail). INSERT DESCRIPTION OF ANY EARTH DISTURBANCES THAT WILL OCCUR WITHIN THE BUFFER AREA
(Note (1): If this exception applies, no further documentation is required for Section 4.1 of the Template.)

4.2 Perimeter Controls

Instructions (see CGP Parts 2.1.2.2 and 7.2.10):

- Describe sediment controls that will be used (e.g., silt fences, filter berms, temporary diversion dikes, or fiber rolls) to meet the Part 2.1.2.2 requirement to "install sediment controls along those perimeter areas of your site that will receive stormwater from earth-disturbing activities."
- For linear projects, where you have determined that the use of perimeter controls in portions of the site is impracticable, document why you believe this is to be the case.
- Also see, EPA's *Silt Fence BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/silt_fences or *Fiber Rolls BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/fiber_rolls

General

The area of construction activity will be enclosed by a chain link fence and silt fence, silt fence with wattles, or super silt fence. Construction gates will be located at the entrance to the site as determined by the contractor. Sediment tracked offsite must be removed by the end of the same workday. All construction entrances should have be stabilized construction entrances.

Specific Perimeter Controls

Perimeter Control # 1

- | | |
|-------------------------------|---|
| ▪ BMP Description: | Silt Fence |
| ▪ Installation Schedule: | Start of construction |
| ▪ Maintenance and Inspection: | Weekly & after storm events greater than 1/4" |
| ▪ Responsible Staff: | Construction Manager and Site Contractor |

Perimeter Control # 2

- | | |
|-------------------------------|---|
| ▪ BMP Description: | Silt Fence with Wattles |
| ▪ Installation Schedule: | Start of construction |
| ▪ Maintenance and Inspection: | Weekly & after storm events greater than 1/4" |
| ▪ Responsible Staff: | Construction Manager and Site Contractor |

Perimeter Control # 3

- | | |
|-------------------------------|---|
| ▪ BMP Description: | Super Silt Fence |
| ▪ Installation Schedule: | Start of construction |
| ▪ Maintenance and Inspection: | Weekly & after storm events greater than 1/4" |
| ▪ Responsible Staff: | Construction Manager and Site Contractor |

Perimeter Control # 4

- | | |
|-------------------------------|--|
| ▪ BMP Description: | Construction Fence |
| ▪ Installation Schedule: | Start of Construction |
| ▪ Maintenance and Inspection: | Weekly |
| ▪ Responsible Staff: | Construction Manager and Site Contractor |

Perimeter Control # 5

- | | |
|--------------------------|---|
| ▪ BMP Description: | Floating Debris Boom with Suspended Siltation Curtain |
| ▪ Installation Schedule: | Start of Construction |

- Maintenance and Inspection: Weekly
- Responsible Staff: Construction Manager and Site Contractor

4.3 Sediment Track-Out

Instructions (see CGP Parts 2.1.2.3 and 7.2.10):

- Describe stormwater controls that will be used to “minimize the track-out of sediment onto off-site streets, other paved areas, and sidewalks from vehicles exiting your construction site.”
- Describe location(s) of vehicle exit(s), procedures to remove accumulated sediment off-site (e.g., vehicle tracking), and stabilization practices (e.g., stone pads or wash racks or both) to minimize off-site vehicle tracking of sediment. Also include the design, installation, and maintenance specifications for each control.
- Also, see EPA's Construction Entrances BMP Fact Sheet at www.epa.gov/npdes/stormwater/menuofbmps/construction/cons_entrance

General

Gates will be constructed as shown on the plans to allow for construction vehicle access. Construction access points will either have a stabilized construction entrance at the access location or a wheel wash station to minimize the track-out of sediment onto off-site streets, other paved areas, and sidewalks from vehicles exiting the construction site. Sediment tracked offsite must be removed by the end of the same workday.

Specific Track-Out Controls

Track-Out Control # 1

- BMP Description: Designated truck washing area
- Installation Schedule: Start of construction
- Maintenance and Inspection: Weekly & after storm events greater than 1/4"
- Responsible Staff: Construction Manager and Site Contractor

Track-Out Control # 2

- BMP Description: Wheel Wash station and Gravel
- Installation Schedule: Start of construction
- Maintenance and Inspection: Daily
- Responsible Staff: Construction Manager and Site Contractor

Track-Out Control # 3

- BMP Description: Street Sweeping
- Installation Schedule: Start of construction
- Maintenance and Inspection: Weekly or as needed
- Responsible Staff: Construction Manager and Site Contractor

Track-Out Control # 4

- BMP Description: Stabilized Construction Entrance
- Installation Schedule: Start of construction
- Maintenance and Inspection: Weekly or as needed
- Responsible Staff: Construction Manager and Site Contractor

4.4 Stockpiled Sediment or Soil**Instructions (see CGP Parts 2.1.2.4 and 7.2.10):**

- Describe stormwater controls and other measures you will take to minimize the discharge of sediment or soil particles from stockpiled sediment or soil. Include a description of structural practices (e.g., diversions, berms, ditches, storage basins), including design, installation, and maintenance specifications, used to divert flows from stockpiled sediment or soil, retain or detain flows, or otherwise limit exposure and the discharge of pollutants from stockpiled sediment or soil.
- Also, describe any controls or procedures used to minimize exposure resulting from adding to or removing materials from the pile.

General

All soil stockpiles should be kept away from existing and proposed catch basins and area drains and outside of proposed detention system footprints.

Stockpiles shall be protected from contact with onsite stormwater runoff using temporary perimeter sediment barriers. Soil stockpiles shall also be provided with cover (a tarp) or appropriate temporary stabilization to avoid direct contact with precipitation and to minimize sediment discharge.

Soil stabilization measures shall be initiated immediately when earth-disturbing activities have permanently or temporarily ceased on any portion of the site. Earth-disturbing activities are considered temporarily ceased when work will not resume for a period of 14 or more calendar days. Stabilization activities shall be completed within 14 calendar days after the initiation of soil stabilization measures. Wattles or a silt fence may be placed around the perimeter of stockpiles to contain sediments. Stabilized portions of a site shall be inspected at least one per month.

Specific Stockpile ControlsStockpile Control # 1

- | | |
|-------------------------------|--|
| • BMP Description: | Soil Stabilization Mats |
| • Installation Schedule: | As/if required |
| • Maintenance and Inspection: | Weekly & after storm events greater than 0.25" |
| • Responsible Staff: | Construction Manager and Site Contractor |

Stockpile Control # 2

- | | |
|-------------------------------|--|
| • BMP Description: | Rip-Rap |
| • Installation Schedule: | As/if required |
| • Maintenance and Inspection: | Weekly & after storm events greater than 0.25" |
| • Responsible Staff: | Construction Manager and Site Contractor |

Stockpile Control # 3

- | | |
|-------------------------------|--|
| • BMP Description: | Silt fabric Catch Basin Inlet Protection |
| • Installation Schedule: | Start of construction |
| • Maintenance and Inspection: | Weekly & after storm events greater than 0.25" |
| • Responsible Staff: | Construction Manager and Site Contractor |

Stockpile Control # 4

- BMP Description: Block and Gravel Inlet Protection
- Installation Schedule: Start of construction
- Maintenance and Inspection: Weekly & after storm events greater than 0.25"
- Responsible Staff: Construction Manager and Site Contractor

Stockpile Control # 5

- BMP Description: Rip-Rap/Gravel Inlet protection
- Installation Schedule: Start of construction
- Maintenance and Inspection: Weekly & after storm events greater than 0.25"
- Responsible Staff: Construction Manager and Site Contractor

Stockpile Control # 6

- BMP Description: Silt Sacks
- Installation Schedule: Start of construction
- Maintenance and Inspection: Weekly & after storm events greater than 0.25"
- Responsible Staff: Construction Manager and Site Contractor

4.5 **Minimize Dust**

Instructions (see CGP Parts 2.1.2.5 and 7.2.10):

Describe controls and procedures you will use at your project/site to minimize the generation of dust.

General

Dust Control # 1

- BMP Description: Sprinkling/Irrigation
- Installation Schedule: As needed throughout earthwork activities
- Maintenance and Inspection: Weekly & after storm events greater than 1/4"
- Responsible Staff: Construction Manager and Site Contractor

Dust Control # 2

- BMP Description: Contractor's seed mix
- Installation Schedule: Start of earthwork activities
- Maintenance and Inspection: Weekly & after storm events greater than 1/4"
- Responsible Staff: Construction Manager and Site Contractor

Dust Control # 3

- BMP Description: Hydro Seeding
- Installation Schedule: Start of earthwork activities
- Maintenance and Inspection: Weekly & after storm events greater than 1/4"
- Responsible Staff: Construction Manager and Site Contractor

Dust Control # 4

- BMP Description: Straw or Mulch

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- Installation Schedule: Start of earthwork activities
- Maintenance and Inspection: Weekly & after storm events greater than 1/4"
- Responsible Staff: Construction Manager and Site Contractor

4.6 Minimize the Disturbance of Steep Slopes

Instructions (see CGP Parts 2.1.2.6 and 7.2.10):

- Describe how you will minimize the disturbance to steep slopes (as defined by CGP Appendix A).
- Describe controls (e.g., erosion control blankets, tackifiers), including design, installation and maintenance specifications, that will be implemented to minimize sediment discharges from slope disturbances.
- Also, see EPA's *Geotextiles BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/geotextiles

General

Steep slopes are defined as slopes of 15% or greater in grade. No steep slopes are proposed as part of this project. Should any temporary steep slopes be created during construction, the following BMP's should be used.

Specific Steep Slope Controls

Steep Slope Control # 1

- BMP Description: Straw or Mulch
- Installation Schedule: Start of earthwork activities
- Maintenance and Inspection: Weekly & after storm events greater than 1/4"
- Responsible Staff: Construction Manager and Site Contractor

Steep Slope Control # 2

- BMP Description: Contractor's seed mix
- Installation Schedule: Start of earthwork activities
- Maintenance and Inspection: Weekly & after storm events greater than 1/4"
- Responsible Staff: Construction Manager and Site Contractor

Steep Slope Control # 3

- BMP Description: Hydro Seeding
- Installation Schedule: Start of earthwork activities
- Maintenance and Inspection: Weekly & after storm events greater than 1/4"
- Responsible Staff: Construction Manager and Site Contractor

Steep Slope Control # 4

- BMP Description: Soil Stabilization Mats
- Installation Schedule: Start of earthwork activities
- Maintenance and Inspection: Weekly & after storm events greater than 1/4"
- Responsible Staff: Construction Manager and Site Contractor

Steep Slope Control # 5

- BMP Description: Rip-Rap
- Installation Schedule: Start of earthwork activities
- Maintenance and Inspection: Weekly & after storm events greater than 1/4"
- Responsible Staff: Construction Manager and Site Contractor

4.7 Topsoil**Instructions (see CGP Parts 2.1.2.7 and 7.2.10):**

- Describe how topsoil will be preserved and identify these areas and associated control measures on your site map(s).
- If it is infeasible for you to preserve topsoil on your site, provide an explanation for why this is the case.

General

Onsite native topsoil shall be preserved, unless infeasible. Soil stabilization measure shall be initiated immediately when earth-disturbing activities have permanently or temporarily ceased on any portion of the site. Earth-disturbing activities are considered temporarily ceased when work will not resume for a period of 14 or more calendar days. Stabilization activities shall be complete within 14 calendar days after the initiation of soil stabilization measures.

Specific Topsoil Controls**Topsoil Control # 1**

- BMP Description: Straw or Mulch
- Installation Schedule: Start of earthwork activities
- Maintenance and Inspection: Weekly & after storm events greater than 1/4"
- Responsible Staff: Construction Manager and Site Contractor

Topsoil Control # 2

- BMP Description: Hydro Seeding
- Installation Schedule: Start of earthwork activities
- Maintenance and Inspection: Weekly & after storm events greater than 1/4"
- Responsible Staff: Construction Manager and Site Contractor

Topsoil Control # 3

- BMP Description: Contractor's seed mix
- Installation Schedule: Start of earthwork activities
- Maintenance and Inspection: Weekly & after storm events greater than 1/4"
- Responsible Staff: Construction Manager and Site Contractor

Topsoil Control # 4

- BMP Description: Annual Rye Seed Mix
- Installation Schedule: Start of earthwork activities
- Maintenance and Inspection: Weekly & after storm events greater than 1/4"
- Responsible Staff: Construction Manager and Site Contractor

4.8 Soil Compaction

Instructions (see CGP Parts 2.1.2.8 and 7.2.10):

- In areas where final vegetative stabilization will occur or where infiltration practices will be installed, describe the controls, including design, installation, and maintenance specifications that will be used to restrict vehicle or equipment access or condition the soil for seeding or planting.

General

In landscaped areas or areas where detention practices will be installed, soil compaction shall be minimized. This includes restricting vehicle access and equipment use.

Specific Soil Compaction ControlsSoil Compaction Control # 1

Protect areas proposed for post-construction detention.

- Areas of post-construction detention shall be constructed after all ground surfaces are fully stabilized.
- All soil stockpiles and material storage areas shall be located outside of the areas proposed for post-construction detention.
- If proposed infiltration areas are constructed prior to the site being fully stabilized, additional erosion controls shall be installed.

Installation

- Measures will be implemented throughout construction

Maintenance Requirements

- The construction manager and site contractor are responsible for enforcing soil compaction controls.

4.9 Storm Drain Inlets

Instructions (see CGP Parts 2.1.2.9 and 7.2.10):

- Describe controls (e.g., inserts, rock-filled bags, or block and gravel) including design, installation, and maintenance specifications that will be implemented to protect all inlets that will receive stormwater from your construction activities, and that you have authority to access.
- Also, see EPA's *Storm Drain Inlet Protection BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/storm_drain

General

All existing and proposed storm drain inlets will be protected throughout the duration of construction. Inlet protection with siltation sacks and inlet protection with gravel will be the primary BMPs used during construction.

Specific Storm Drain Inlet Controls

Storm Drain Inlet Control # 1

- | | |
|-------------------------------|---|
| ▪ BMP Description: | Inlet Protection Catch Basin with Siltation Sacks |
| ▪ Installation Schedule: | Start of earthwork activities |
| ▪ Maintenance and Inspection: | Weekly & after storm events greater than 1/4" |
| ▪ Responsible Staff: | Construction Manager and Site Contractor |

Storm Drain Inlet Control # 2

- | | |
|-------------------------------|---|
| ▪ BMP Description: | Inlet Protection Catch Basin with Gravel |
| ▪ Installation Schedule: | Start of earthwork activities |
| ▪ Maintenance and Inspection: | Weekly & after storm events greater than 1/4" |
| ▪ Responsible Staff: | Construction Manager and Site Contractor |

4.10 Constructed Stormwater Conveyance Channels

Instructions (see CGP Parts 2.1.3.1 and 7.2.10):

If you will be installing a stormwater conveyance channel, describe control practices (e.g., velocity dissipation devices), including design specifications and details (volume, dimensions, outlet structure), that will be implemented at the construction site.

General

Storm drain conveyance channels are not expected as part of this project. Should temporary channels be used during construction, the BMPs listed below should be used.

Specific Conveyance Channel Controls

Stormwater Conveyance Channel Control # 1

- | | |
|-------------------------------|---|
| • BMP Description: | Check Dams |
| • Installation Schedule: | Start of construction |
| • Maintenance and Inspection: | Weekly & after storm events greater than 1/4" |
| • Responsible Staff: | Construction Manager and Site Contractor |

Stormwater Conveyance Channel Control # 2

- | | |
|-------------------------------|---|
| • BMP Description: | Rip-Rap |
| • Installation Schedule: | Start of earthwork activities |
| • Maintenance and Inspection: | Weekly & after storm events greater than 1/4" |
| • Responsible Staff: | Construction Manager and Site Contractor |

4.11 Sediment Basins**Instructions (see CGP Parts 2.1.3.2 and 7.2.10):**

If you will install a sediment basin, include design specifications and other details (volume, dimensions, outlet structure) that will be implemented at in conformance with CGP Part 2.1.3.2.

- At a minimum, sediment ponds must provide storage for either (1) the calculated volume of runoff from the 2-year, 24-hour storm (see CGP App. H), or (2) 3,600 cubic feet per acre drained
- Sediment ponds must also utilize outlet structures that withdraw water from the surface, unless infeasible
- Also, see EPA's *Sediment Basin BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/sediment_basins

General

No temporary sediment basins are currently planned during the construction of this project. Should the contractor decide to use a temporary sediment basin, it should be sized using the criteria outlined in the Construction General Permit.

4.12 Chemical Treatment**Instructions (see CGP Parts 2.1.3.3 and 7.2.10.2):**

If you are using treatment chemicals at your site, provide details for each of the items below. This information is required as part of the SWPPP requirements in CGP Part 7.2.10.2.

NOTE: No Chemical Treatment of Soils proposed at this time (2-25-16)

Soil Types

Treatment Chemicals

Special Controls for Cationic Treatment Chemicals (if applicable)

Schematic Drawings of Stormwater Controls/Chemical Treatment Systems

Training

Reference: RAM & NON TRADITIONAL
Adhesive Abatement

Reference:
RAM plan
sheet

4.13 Dewatering Practices

Instructions (see CGP Parts 2.1.3.4 and 7.2.10):

If you will be discharging stormwater that is removed from excavations, trenches, foundations, vaults, or other similar points of accumulation, include design specifications and details of all dewatering practices that are installed and maintained to comply with CGP Part 2.1.3.4.

General

If groundwater is encountered during construction, dewatering will occur using the following BMPs.

Specific Dewatering Practices

Dewatering Practice # 1

- | | |
|-------------------------------|--|
| • BMP Description: | Sediment Trap |
| • Installation Schedule: | Start of de-watering activities |
| • Maintenance and Inspection: | Weekly & after 1/4" storm events |
| • Responsible Staff: | Construction Manager and Site Contractor |

Dewatering Practice # 2

- | | |
|-------------------------------|---|
| • BMP Description: | Stone filter berm |
| • Installation Schedule: | Start of construction |
| • Maintenance and Inspection: | Weekly & after storm events greater than 1/4" |
| • Responsible Staff: | Construction Manager and Site Contractor |

Dewatering Practice # 3

- | | |
|-------------------------------|--|
| • BMP Description: | Dumpster Lined with Plastic Sheeting |
| • Installation Schedule: | Start of de-watering activities |
| • Maintenance and Inspection: | Weekly & after 1/4" storm events |
| • Responsible Staff: | Construction Manager and Site Contractor |

4.14 Other Stormwater Controls

Instructions:

- Describe any other stormwater controls that do not fit into the above categories.

General

Any changes in construction activity that produce other allowable non-stormwater discharges will be identified, the SWPPP will be amended, and the appropriate erosion and sedimentation controls will be implemented.

4.15 Site Stabilization

Instructions (see CGP Parts 2.2 and 7.2.10):

The CGP requires you to immediately initiate stabilization when work in an area of your site has permanently or temporarily stopped, and to complete certain stabilization activities within prescribed deadlines. See CGP Part 2.2.1. The CGP also requires that stabilization measures meet certain minimum criteria. See CGP Part 2.2.2. For your SWPPP, you must include the following:

- Describe the specific vegetative and/or non-vegetative practices that will be used to stabilize exposed soils where construction activities have temporarily or permanently ceased. Avoid using impervious surfaces for stabilization whenever possible.
- Also, see EPA's *Seeding BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/seeding
- Once you begin construction, consider using the Grading/Stabilization Activities log in Appendix H of the Template to document your compliance with the stabilization requirements in CGP Part 2.2

Site Stabilization Practice

All excavated soil will be stockpiled in the designated areas onsite. Soil stabilization measures shall be initiated immediately when earth-disturbing activities have permanently or temporarily ceased on any portion of the site. Earth-disturbing activities are considered temporarily ceased when work will not resume for a period of 14 or more calendar days. Stabilization activities shall be completed within 14 calendar days after the initiation of soil stabilization measures. It shall be stabilized with temporary soil stabilization mats or a tarp to prevent blowing dust and siltation into the storm drain system.

- Vegetative Non-Vegetative
- Temporary Permanent

- BMP Description: Soil Stabilization Mat
- Installation Schedule: As/if required
- Maintenance and Inspection: Weekly & after storm events greater than 0.25"
- Responsible Staff: Construction Manager and Site Contractor

SECTION 5: POLLUTION PREVENTION STANDARDS**5.1 Potential Sources of Pollution****Instructions (see CGP Part 7.2.7):**

- Identify and describe all pollutant-generating activities at your site (e.g., paving operations; concrete, paint, and stucco washout and waste disposal; solid waste storage and disposal).
- For each pollutant-generating activity, include an inventory of pollutants or pollutant constituents associated with that activity (e.g., sediment, fertilizers, and/or pesticides, paints, solvents, fuels), which could be exposed to rainfall or snowmelt, and could be discharged from your construction site. You must take into account where potential spills and leaks could occur that contribute pollutants to stormwater discharges.

Construction Site Pollutants

Potential sources of sediment to stormwater runoff:

- Stockpiles and construction staging
- Clearing and grubbing operations
- Grading and site excavation
- Topsoil stripping
- Landscape operations
- Soil tracking offsite from construction vehicles
- Runoff from unstabilized areas
- Construction debris

Potential pollutants and sources, other than sediment, to stormwater runoff:

- Combined Staging Area – fueling activities, equipment maintenance, sanitary facilities, and hazardous waste storage
- Materials Storage Area – building materials, solvents, adhesives, paving materials, paints, aggregates, trash, etc.
- Construction Activity-paving, curb installation, concrete pouring, and building construction

The Contractor shall coordinate staging areas with the Owner. The location of all staging areas will be determined for each phase of construction and shown on plans produced by The Contractor.

Pollutant-Generating Activity	Pollutants or Pollutant Constituents (that could be discharged if exposed to stormwater)	Location on Site (or reference SWPPP site map where this is shown)
Pesticides (insecticides, fungicides, herbicides, rodenticides)	Chlorinated hydrocarbons, organophosphates, carbonates, arsenic	Herbicides used for noxious weed control
Fertilizers	Nitrogen, phosphorous	Newly seeded areas
Plaster	Calcium sulphate, calcium carbonate, sulfuric acid	Building construction

Cleaning Solvents	Perchloroethylene, methylene chloride, trichloroethylene, petroleum distillates	No equipment cleaning allowed in project limits
Asphalt	Oil, petroleum distillates	Streets and parking lots
Concrete	Limestone, sand pH, chromium	Curb and gutter, sidewalk, building construction
Glue, Adhesives	Polymers, epoxies	Building construction
Paints	Metal oxides, Stoddard solvent, talc, calcium carbonate, arsenic	Building construction
Curing compounds	Naphtha	Curb and gutter, building construction
Wood preservatives	Stoddard solvent, petroleum distillates, arsenic, copper, chromium	Timber pads, bracing, building construction
Hydraulic Oils/fluids	Mineral oil	Leaks/broken hoses from equipment
Gasoline	Benzene, ethyl benzene, toluene, xylene, MTBE	Secondary containment/staging area
Diesel Fuel	Petroleum distillate, oil & grease, naphthalene, xylenes	Secondary containment/staging area
Kerosene	Coal oil, petroleum distillates	Secondary containment/staging area
Antifreeze/coolant	Ethylene glycol, propylene glycol, heavy metals (copper, lead, zinc)	Leaks or broken hoses from equipment
Sanitary toilets	Bacteria, parasites, and viruses	Staging area

5.2 Spill Prevention and Response**Instructions (see CGP Parts 2.3 and 7.2.11):**

- Describe procedures you will use to prevent and respond to leaks, spills, and other releases. You must implement the following at a minimum:
 - ✓ Procedures for expeditiously stopping, containing, and cleaning up spills, leaks, and other releases. Identify the name or title of the employee(s) responsible for detection and response of spills or leaks; and
 - ✓ Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity consistent with Part 2.3.3.4c and established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302, occurs during a 24-hour period. Contact information must be in locations that are readily accessible and available.
- Some projects/site may be required to develop a Spill Prevention Control and Countermeasure (SPCC) plan under a separate regulatory program (40 CFR 112). If you are required to develop an SPCC plan, or you already have one, you should include references to the relevant requirements from your plan.

Spill Prevention and Control Plan BMPS.

- BMP Description: Spill kit, vehicle washing, straw bale catch basin protection, silt fence
- Installation Schedule: Start of construction activity
- Maintenance and Inspection: Minimum weekly & as necessary
- Responsible Staff: Construction Manager and Site Contractor

- Hazardous material handling shall be provided to sub Construction Manager.
- Major vehicle maintenance on-site shall be prohibited
- Re-fueling of vehicles within 25 feet of a drainage structure shall be prohibited
- Spill kit shall be kept on-site consisting of:
 - Gloves
 - Absorbent mats
 - Drip pan

Spill Prevention and Control Plan

- Manufacturers' recommended spill control methods will be posted onsite and site personnel will be made aware of the requirements.
- Cleanup supplies will be kept onsite in a materials storage area. This equipment will include: goggles, brooms, dustpans, mops, rags, gloves, oil absorbent, sawdust, plastic and metal trash cans, and other materials and supplies specifically designated for cleanup.
- All spills will be immediately cleaned up after discovery.
- The spill area will be well ventilated.
- Cleanup personnel will wear suitable protective clothing.
- Spills of toxic and/or hazardous material will be reported to state, local, and Federal authorities, as required by law. Spills shall also be reported immediately to the owner.

- A spill incident report will be filed detailing the amount and extent of the spill, material(s) involved, and effectiveness of the cleanup. This report will be on file at the Construction Manager/ Site Contractor office, as well as kept onsite in the field office. A copy shall also be filed with the Hazard Communication Coordinator (HCC).

The Construction Manager/ Site Contractor will designate someone onsite that will serve as the Spill Cleanup Coordinator. At least Two other personnel will be designated as alternate spill coordinators. All spill control personnel will be trained in spill prevention, control, and cleanup. The names of the responsible personnel will be posted at the jobsite office of the Construction Manager/ Site Contractor.

5.3 Fueling and Maintenance of Equipment or Vehicles

Instructions (see CGP Parts 2.3.3.1 and 7.2.11):

- Describe equipment/vehicle fueling and maintenance practices that will be implemented to eliminate the discharge of spilled or leaked chemicals (e.g., providing secondary containment (examples: spill berms, decks, spill containment pallets) and cover where appropriate, and/or having spill kits readily available.
- Also, see EPA's *Vehicle Maintenance and Washing Areas BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/vehicile_maintain

General

Minor vehicle and equipment emergency maintenance can be performed onsite in a covered, paved area dedicated to vehicle maintenance and washing. Major vehicle and equipment maintenance must be performed offsite. Equipment/vehicle storage areas and any onsite fuel tanks will be inspected weekly and after storm events. Equipment and vehicles will be inspected on each day of use. Any leaks will be repaired immediately or the equipment/vehicle will be removed from the site.

Minor vehicle and equipment emergency maintenance shall occur when a vehicle cannot be safely removed from the site. The vehicle should be repaired so it can be taken off-site so that the rest of the maintenance can occur.

Major vehicle maintenance on-site is prohibited.

If fueling and/or maintenance of equipment or vehicles takes place, an effective means of eliminating the discharge of spilled or leaked chemicals, including fuel, from the area where these activities will take place must be provided. If applicable, the Spill Prevention Control and Countermeasures (SPCC) requirements in 40 CFR 112 and Section 311 of the CWA must be complied with. Adequate supplies must be available at all times to handle spill, leaks, and disposal of used liquids. Drip pans and absorbents must be used under or around leaky vehicles. Oil and oily wastes must be disposed of or recycled in accordance with other federal, state, tribal, or local requirements. Spills or contaminated surfaces must be cleaned up immediately using dry clean up measures where possible, and the source of the spill must be eliminated to prevent a discharge or a furtherance of an ongoing discharge. Surfaces cannot be cleaned by hosing the area down.

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Specific Pollution Prevention Practices

Pollution Prevention Practice # 1

- BMP Description: Spill Kit
- Installation Schedule: Start of Construction/Onsite throughout construction
- Responsible Staff: Construction Manager and Site Contractor

5.4 Washing of Equipment and Vehicles

Instructions (see CGP Parts 2.3.3.2 and 7.2.11):

- Describe equipment/vehicle washing practices that will be used to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other types of washing (e.g., locating activities away from surface waters and stormwater inlets or conveyances and directing wash waters to a sediment basin or sediment trap, using filtration devices, such as filter bags or sand filters, or using other similarly effective controls).
- Describe how you will prevent the discharge of soaps, detergents, or solvents by providing either (1) cover (examples: plastic sheeting or temporary roofs) to prevent these detergents from coming into contact with rainwater, or (2) a similarly effective means designed to prevent the discharge of pollutants from these areas.
- Also, see EPA's *Vehicle Maintenance and Washing Areas BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/vehicile_maintain

General

Vehicle and equipment washout areas shall be constructed by the contractor so that no untreated water enters the storm drain system. Soaps, detergents, or solvents must be stored in a way to prevent these detergents from coming into contact with rainwater, or a similarly effective means designed to prevent the discharge of pollutants from these areas.

Specific Pollution Prevention Practices

Pollution Prevention Practice # 1

- BMP Description: Designated vehicle/equipment washing areas
- Installation Schedule: Start of construction
- Maintenance and Inspection: Daily
- Responsible Staff: Construction Manager and Site Contractor

Pollution Prevention Practice # 2

- BMP Description: Spill kit, vehicle washing, straw bale catch basin protection, silt fence
- Installation Schedule: Start of construction activity
- Maintenance and Inspection: Minimum weekly & as necessary
- Responsible Staff: Construction Manager and Site Contractor

5.5 Storage, Handling, and Disposal of Construction Products, Materials, and Wastes

Instructions (see CGP Parts 2.3.3.3 and 7.2.11):

- For any of the types of construction products, materials, and wastes below in Sections 5.5.1-5.5.6 below that are expected to be used or stored at your site, provide the information on how you will comply with the corresponding CGP provision and the specific practices that will be employed.
- Also, see EPA's *General Construction Site Waste Management BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/cons_wasteman

5.5.1 Building Products

(Note: Examples include asphalt sealants, copper flashing, roofing materials, adhesives, concrete admixtures.)

General

Any building materials required to be stored onsite will be stored at a combined staging and materials storage area. Larger items, such as framing materials, will be elevated by appropriate methods to minimize contact with runoff. The storage area will be inspected weekly and after storm events. It will be kept clean, organized, and equipped with appropriate cleaning supplies. Perimeter controls (silt fence, straw bales, gravel bag berms, etc.), containment structures, covers, and liners will be repaired or replaced as needed to maintain proper function.

Building product usage shall follow the following good housekeeping BMPs:

- The Responsible Staff: Construction Manager or Site Contractor representative will inspect daily for proper use, storage, and cleanup of material used on the job site.
- Store only enough material onsite required for that job as to satisfy current construction needs.
- Store required materials in tightly lidded containers under cover.
- Store materials in original containers with clearly legible labels.
- Separate and store materials apart from each other.
- Do not mix materials unless specifically in accordance with manufacturers' recommendations.
- Use all products from a container before disposing of the container.
- Follow manufacturers' instructions for handling, storage, and disposing of all materials.
- All materials shall be stored in an area to prevent the discharge of pollutants from building products.

Specific Pollution Prevention Practices

Pollution Prevention Practice # 1

- | | |
|-------------------------------|--|
| ▪ BMP Description: | Stacked straw bales around soil stockpiles |
| ▪ Installation Schedule: | Start of construction |
| ▪ Maintenance and Inspection: | Weekly & after storm events greater than 0.25" |
| ▪ Responsible Staff: | Construction Manager and Site Contractor |

Pollution Prevention Practice # 2

- | | |
|-------------------------------|--|
| ▪ BMP Description: | Silt Fence |
| ▪ Installation Schedule: | Start of construction |
| ▪ Maintenance and Inspection: | Weekly & after storm events greater than 0.25" |

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- Responsible Staff: Construction Manager and Site Contractor

Pollution Prevention Practice # 3

- BMP Description: Plastic Cover
- Installation Schedule: Start of construction
- Maintenance and Inspection: Weekly & after storm events greater than 0.25"
- Responsible Staff: Construction Manager and Site Contractor

5.5.2 Pesticides, Herbicides, Insecticides, Fertilizers, and Landscape Materials

General

- Fertilizers will be used at the application rates called for in the specifications for the project.
- Once applied, fertilizer will be worked into the soil to minimize wash off from irrigation and stormwater.
- Fertilizer will be stored under cover.
- The contents of partially used fertilizer bags will be transferred to re-sealable, watertight containers clearly labeled with their contents.

5.5.3 Diesel Fuel, Oil, Hydraulic Fluids, Other Petroleum Products, and Other Chemicals

General

- Only skilled personnel in a designated area will perform fueling of vehicles onsite.
- Vehicles used onsite will be monitored for fuel and oil leaks.
- Vehicles used onsite will be maintained in good working order.
- Asphalt substances will be applied in accordance with manufacturers' recommendations.
- The use of petroleum products as a release agent for asphalt transport trucks is prohibited.
- Vehicle fueling will only be done in vehicle fueling areas located by the contractor.
- All vehicles parked overnight onsite shall have fuel absorbent pads placed beneath them to absorb any fuel leaks.
- The contractor shall be responsible for locating the fuel storage and re-fueling area onsite to minimize disturbance to construction activities and site area.

5.5.4 Hazardous or Toxic Waste

(Note: Examples include paints, solvents, petroleum-based products, wood preservatives, additives, curing compounds, acids.)

General

- Keep products in their original containers.
- Original container labels should be clearly visible.
- Material safety data sheets will be kept onsite and be available.
- Follow all state, local, and Federal regulations regarding the handling, use, storage, and disposal of hazardous material.

Paints:

- All paint containers will be tightly sealed when not in use.
- Remove excess paint in original labeled containers from the jobsite.
- Paint will not be disposed of onsite. Remove excess paint material from the site and legally dispose of.
- Paint shall not be disposed of in the storm drain system.

5.5.5 Construction and Domestic Waste

(Note: Examples include packaging materials, scrap construction materials, masonry products, timber, pipe and electrical cuttings, plastics, styrofoam, concrete, and other trash or building materials.)

General

Pollution Prevention Practice # 1

- BMP Description: Dumpster
- Installation Schedule: Start of construction
- Maintenance and Inspection: Weekly
- Responsible Staff: Construction Manager and Site Contractor

Pollution Prevention Practice # 2

- BMP Description: Litter/debris pick-up
- Installation Schedule: Start of construction
- Maintenance and Inspection: Daily
- Responsible Staff: Construction Manager and Site Contractor

5.5.6 Sanitary Waste

General

Pollution Prevention Practice # 1

- BMP Description: Porta John
- Installation Schedule: Start of construction
- Maintenance and Inspection: As manufacturer requires
- Responsible Staff: Construction Manager and Site Contractor

5.6 Washing of Applicators and Containers used for Paint, Concrete or Other Materials

Instructions (see CGP Parts 2.3.3.4 and 7.2.11):

- Describe how you will comply with the CGP Part 2.3.3.4 requirement to "provide an effective means of eliminating the discharge of water from the washout and cleanout of stucco, paint, concrete, form release oils, curing compounds, and other construction materials."
- Also, see EPA's *Concrete Washout BMP Fact Sheet* at www.epa.gov/npdes/stormwater/menuofbmps/construction/concrete_wash

General

Washing of applicators and containers used for paint, concrete or other materials shall follow the following good housekeeping BMPs:

- An effective means of eliminating the discharge of water from the washout and cleanout of stucco, pain, concrete, form release oils, curing compounds, and other construction materials.
- All washwater must be directed into a leak-proof container or leak-proof pit. The container or pit must be designed so that no overflows can occur due to inadequate sizing or precipitation.
- Washout and cleanout wastes should be handled as follows:

- Do not dump liquid wastes into storm sewers.
 - Dispose of liquid wastes in accordance with applicable requirements.
 - Remove and dispose of hardened concrete waste consistent with the handling of other construction wastes.
- Locate any washout or cleanout activities as far away as possible from surface waters and stormwater inlets or conveyances, and to the extent practicable, designate areas to be used for these activities and conduct such activities only in these areas.

Specific Pollution Prevention Practices

- | | |
|-------------------------------|---|
| ▪ BMP Description: | Designated applicator and container washing areas |
| ▪ Installation Schedule: | Start of construction |
| ▪ Maintenance and Inspection: | Daily |
| ▪ Responsible Staff: | Construction Manager and Site Contractor |

5.7 Fertilizers

Instructions (CGP Parts 2.3.5 and 7.2.11):

Describe how you will comply with the CGP Part 2.3.5 requirement to "minimize discharges of fertilizers containing nitrogen or phosphorus"

General

Fertilizer usage shall follow the following good housekeeping BMPs to minimize discharges of nitrogen and phosphorous:

- Fertilizers will be used at the application rates called for in the specifications for the project and the manufacturer's specifications.
- Apply at the appropriate time of year for your location, and preferably timed to coincide as closely as possible to the period of maximum vegetation uptake and growth.
- Avoid applying before heavy rains that could cause excess nutrients to be discharged.
- Never apply to frozen ground.
- Never apply to stormwater conveyance channels with flowing water.
- Follow all other federal, state, tribal, and local requirements regarding fertilizer application.
- Once applied, Fertilizers will be worked into the soil to minimize wash off from irrigation and stormwater.
- Fertilizers will be stored under cover.
- The contents of partially used fertilizer bags will be transferred to re-sealable, watertight containers clearly labeled with their contents.

5.8 Other Pollution Prevention Practices

Instructions:

Describe any additional pollution prevention practices that do not fit into the above categories.

INSERT #10000

Supporting Table

General

- INSERT GENERAL DESCRIPTION OF THE PROBLEM THIS CONTROL IS DESIGNED TO ADDRESS

Specific Pollution Prevention Practices

Pollution Prevention Practice # 1

Description

- INSERT DESCRIPTION OF PRACTICE TO BE INSTALLED
- IF APPLICABLE INCLUDE COPIES OF DESIGN SPECIFICATIONS HERE

Installation

- INSERT APPROXIMATE DATE OF INSTALLATION

Maintenance Requirements

- INSERT MAINTENANCE REQUIREMENTS FOR THE POLLUTION PREVENTION PRACTICE

[Repeat as needed.]

SECTION 6: INSPECTION AND CORRECTIVE ACTION

6.1 Inspection Personnel and Procedures

Instructions (see CGP Parts 2.1.1.4, 2.3.2, 3.3.2, 4, 5, and 7.2.12):

Describe the procedures you will follow for conducting inspections in accordance with CGP Parts 2.1.1.4, 2.3.2, 3.3.2, 4, 5, and 7.2.12.

Personnel Responsible for Inspections

~~Robert Dowling, Superintendent~~

Clayton Morin, CSP, PE-Civil – EH&S Site Manager

Ben Baptiste, Sr. EH&S Manager

Inspection Schedule

Specific Inspection Frequency

- All area-drain, catch basins, drain manholes and other structures shall be inspected before and after construction. The condition of the structures shall be recorded.
- All stormwater control devices are to be inspected weekly (7 days) and within 24-hours of the occurrence of a storm even event of 0.25" depth or greater (even if the storm is still continuing).
- Litter and debris clean-up shall be performed daily.
- The engineer of record shall be contacted immediately after the observance of any SWPPP issues.
- If a problem is observed with an erosion and sediment control (needs repair or replacement), work must be initiated immediately to fix the problem, and shall be completed by the end of the next work day. If the repair or replacement is more substantial, it shall be completed within 7 calendar days from the time of discovery. If a repair takes longer than 48-hours, the repair procedures should be documented and recorded.
- If discharge of stormwater is occurring during an inspection, the location and quality of the discharge shall be noted as well as the effectiveness of erosion and sediment controls.
- Attach a copy of the inspection report you will use for your site.
 - For reduction in inspections due to frozen conditions: Approximate frozen ground dates in Boston - December 1 +/- to April 1

Inspection Report Forms

Inspection Report Forms are found in Appendix D.

6.2 Corrective Action

Instructions (CGP Parts 5 and 7.2.12):

- Describe the procedures for taking corrective action in compliance with CGP Part 5.

Personnel Responsible for Corrective Actions

TBD

INSERT NAMES OF PERSONNEL OR TYPES OF PERSONNEL RESPONSIBLE FOR CORRECTIVE ACTIONS

Corrective Action Forms

Corrective Action Forms are found in Appendix E.

6.3 Delegation of Authority

Instructions:

- Identify the individual(s) or positions within the company who have been delegated authority to sign inspection reports.
- Attach a copy of the signed delegation of authority (see example in Appendix J of the Template).
- For more on this topic, see Appendix I, Subsection 11 of EPA's CGP.

Duly Authorized Representative(s) or Position(s):

Lend Lease (US) Construction LMB Inc.

Clayton Morin, EHS Manager
Robert Bellavia, General Superintendent

20 City Square, 2nd Floor
Boston, MA 02129
(617) 557-6400
fax: (617) 557-6439

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SECTION 8: CERTIFICATION AND NOTIFICATION

Instructions (CGP Appendix I, Part I.11.b):

- The following certification statement must be signed and dated by a person who meets the requirements of Appendix I, Part I.11.b.
- This certification must be re-signed in the event of a SWPPP Modification.

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: _____ Title: _____

Signature: _____ Date: _____

[Repeat as needed for multiple construction operators at the site.]

SWPPP APPENDICES

Attach the following documentation to the SWPPP:

Appendix A – Site Maps

Appendix B – Copy of 2012 CGP

Appendix C – NOI and EPA Authorization Email

Appendix D – Inspection Form

(Note: EPA is in the process of developing a sample inspection form for use by CGP permittees. The form will be made available at <http://cfpub.epa.gov/npdes/stormwater/cgp.cfm>.)

Appendix E – Corrective Action Form

(Note: EPA is in the process of developing a sample corrective action form for use by CGP permittees. The form will be made available at <http://cfpub.epa.gov/npdes/stormwater/cgp.cfm>.)

Appendix F – SWPPP Amendment Log

Appendix G – Subcontractor Certifications/Agreements

Appendix H – Grading and Stabilization Activities Log

Appendix I – Training Log

Appendix J – Delegation of Authority

Appendix K – Endangered Species Documentation

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Appendix A – Site Maps

[INSERT SITE MAPS CONSISTENT WITH TEMPLATE SECTION 2.6]

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Appendix B – Copy of 2012 CGP

[INSERT COPY OF 2012 CGP]

Company: Lend Lease Development Inc.
ATTN: Nicholas Iselin
20 City Square 2nd Floor
Boston MA 02129

Project/Site: Clippership Wharf
25-65 Lewis Street
Boston MA 02128

Permit Tracking Number: MAR12BE31

This email acknowledges that a complete Notice of Intent (NOI) form seeking coverage under EPA's Construction General Permit (CGP) is now active. Your NOI was completed and submitted on Thursday, January 14, 2016. Coverage under this permit began at the conclusion of your 14 day waiting period on Thursday, January 28, 2016, unless otherwise notified by EPA.

For tracking purposes, the following number has been assigned to your NOI form: MAR12BE31. Attached to this email, you will find an electronic copy of your completed NOI which should be posted at your site.

As stated above, this email acknowledges receipt of a complete NOI. However, it is not an EPA determination of the validity of the information you provided. Your eligibility for coverage under this permit is based on the validity of the certification you provided. Your electronic signature on this form certifies that you have read, understood, and are implementing all of the applicable requirements. An important aspect of this certification requires that you have correctly determined whether you are eligible for coverage under this permit.

As you know, the CGP requires you to have developed a Stormwater Pollution Prevention Plan (SWPPP) prior to submitting your NOI. The CGP also includes specific requirements for erosion and sediment control, stabilization, pollution prevention, inspections, corrective actions, and staff training. You must also comply with any additional location-specific requirements applicable to your state or tribal area as described in the CGP. Note that a copy of the CGP must be kept with your SWPPP. An electronic copy of the CGP and additional guidance materials can be viewed and downloaded at: <http://www.epa.gov/npdes/stormwater>

You have indicated in your NOI that there are surface waters that exist within or immediately adjacent to your site. Because of the proximity of these waters to your construction activities, be advised that you are required to comply with the buffer requirements in Part 2.1.2.1. This provision requires that you comply with one of the following three compliance alternatives:

- Provide and maintain a 50-foot buffer of undisturbed natural vegetation; or
- Provide and maintain an undisturbed naturally vegetated buffer that is less than 50 feet and is supplemented by additional erosion and sediment controls, which in combination achieves the sediment load reduction equivalent to a 50-foot buffer of undisturbed natural vegetation; or
- If it is infeasible to provide and maintain an undisturbed naturally vegetated buffer of any size,

you must implement erosion and sediment controls that achieve the sediment load reduction equivalent to a 50-foot buffer of undisturbed natural vegetation.

You must document the compliance alternative you have selected in your SWPPP, and comply with the applicable additional requirements described in Parts 2.1.2.1.b and 2.1.2.1.c.

You have indicated in your NOI that you discharge to at least one surface water that is listed as impaired by the state or tribe in which your project is located. If your site discharges to one or more surface waters that are impaired for sediment or a sediment-related parameter (e.g., total suspended solids or turbidity) or nutrients (e.g., nitrogen or phosphorus), you are required to comply with additional stormwater control requirements pertaining to site inspections in Part 4.1.3 and the deadline to complete site stabilization in Part 2.2.1.3.c. If your site discharges to surface waters that are impaired for pollutants other than a sediment or nutrients, or related pollutants, you are only subject to additional requirements if EPA informs you separately of such requirements.


If you have general questions regarding the stormwater program or your responsibilities under the CGP, please call your region contact. Regional contact email and phone number can be found at: <http://cfpub.epa.gov/npdes/contacts.cfm>

If you have questions about your NOI form, please call the EPA NOI Processing Center at 1-866-352-7755 (toll free) or send an inquiry via the online form at: <http://cfpub.epa.gov/npdes/noicontact.cfm>

If you have difficulty accessing CDX, please contact the CDX Help Desk at: (888) 890-1995.

You can return to the eNOI system using the following link at any time
<https://cdx.epa.gov/SSL/cdx/login.asp>.

EPA NOI Processing Center
Operated by Avanti Corporation
1200 Pennsylvania Ave., NW
Mail Code: 4203M
Washington, DC 20460
1-866-352-7755

NPDES FORM 3510-9		UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, DC 20460 NOTICE OF INTENT (NOI) FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER AN NPDES GENERAL PERMIT	Form Approved. OMB Nos. 2040-0004
<p>Submission of this Notice of Intent (NOI) constitutes notice that the operator identified in Section II of this form requests authorization to discharge pursuant to the NPDES Construction General Permit (CGP) permit number identified in Section I of this form. Submission of this NOI also constitutes notice that the operator identified in Section II of this form meets the eligibility requirements of Parts 1.1 and 1.2 of the CGP for the project identified in Section III of this form. Permit coverage is required prior to commencement of construction activity until you are eligible to terminate coverage as detailed in Part 8 of the CGP. To obtain authorization, you must submit a complete and accurate NOI form. Discharges are not authorized if your NOI is incomplete or inaccurate or if you were never eligible for permit coverage. Refer to the instructions at the end of this form.</p>			
I. Approval to Use Paper NOI Form			
<p>Have you been given approval from the Regional Office to use this paper NOI form*? <input type="checkbox"/> Yes <input type="checkbox"/> NO</p> <p>If yes, provide the reason you need to use this paper form, the name of the EPA Regional Office staff person who approved your use of this form, and the date of approval:</p> <p>Reason for using paper form:</p> <p>Name of EPA staff person:</p> <p>Date approval obtained:</p>			
<p>* Note: You are required to obtain approval from the applicable Regional Office prior to using this paper NOI form.</p>			
II. Permit Information:		Tracking Number (EPA Use Only) MAR12BE31	
Permit Number: <u>MAR120000</u> (see Appendix B of the CGP for the list of eligible permit numbers)			
III. Operator Information			
<p>Name: <u>Lend Lease Development Inc.</u></p> <p>Phone: <u>617 557 6417</u> Fax (Optional): <u>617 557 6439</u></p> <p>Email: <u>Nicholas.Iselin@lendlease.com</u></p> <p>IRS Employer Identification Number (EIN):</p> <p>Point of Contact (First Name, Middle Initial, Last Name): <u>Nicholas J Iselin</u></p> <p>Mailing Address:</p> <p>Street: <u>20 City Square 2nd Floor</u></p> <p>City: <u>Boston</u> State: <u>MA</u> Zip: <u>02129</u></p> <p>NOI Preparer (Complete if NOI was prepared by someone other than the certifier):</p> <p>Prepared by (First Name, Middle Initial, Last Name): <u>Ryan M Gordon</u></p> <p>Organization: <u>Nitsch Engineering, Inc.</u></p> <p>Phone: <u>617-338-0063</u> Fax (Optional):</p> <p>E-mail: <u>RGordon@nitscheng.com</u></p>			

IV. Project/Site InformationProject/Site Name: Clippership Wharf**Project/Site Address:**

Street/Location:

City: BostonState: MAZip: 02128County or similar government subdivision: Suffolk

For the project/site for which you are seeking permit coverage, provide the following information:

Latitude/Longitude (Use one of three possible formats, and specify method)

Latitude 1. <u>42,22,3</u>	N(degrees, minutes, seconds)	Longitude 1. <u>71,2,30</u>	W(degrees, minutes, seconds)
2. _____	N(degrees, minutes, decimal)	2. _____	W(degrees, minutes, decimal)
3. _____	N(degrees, decimals)	3. _____	W(degrees, decimals)

Latitude/Longitude Data Source: U.S.G.S topographical map EPA Web Site GPS Other: Google Earth

If you used a U.S.G.S. topographic map, what was the scale?

Horizontal Reference Datum: NAD 27 NAD 83 or WGS 84 UnknownIs your project located in Indian Country lands? Yes No

If yes, provide the name of the Indian tribe associated with the area of Indian country (including name of Indian reservation, if applicable), or if not in Indian country, provide the name of the Indian tribe associated with the property:

Are you requesting coverage under this NOI as a "federal operator" as defined in Appendix A? Yes NoEstimated Project Start Date: 03/01/2016Estimated Project Completion Date: 12/31/2018Estimated Area to be Disturbed (to the nearest quarter acre): 12.0Have earth-disturbing activities commenced on your project/site? Yes NoIf yes, is your project an emergency-related project? Yes NoHave stormwater discharges from your project/site been covered previously under an NPDES permit? Yes No

If yes, provide the Tracking Number if you had coverage under EPA's CGP or the NPDES permit number if you had coverage under an EPA individual permit:

V. Discharge InformationDoes your project/site discharge stormwater into a Municipal Separate Storm Sewer System (MS4)? Yes NoAre there any surface waters within 50 feet of your project's earth disturbances? Yes No

Receiving Waters and Wetlands Information: (Attach a separate list if necessary)

Surface water(s) to which discharge	Impaired Water	Listed Water Pollutant(s)	Tier 2, 2.5 or 3	Source	TMDL Name and Pollutant
Boston Harbor	Yes	PATHOGENS	No	Approved TMDL List	Pathogens

Describe the methods you used to complete the above table: Please refer to the Source(s) in the above table.

VI. Chemical Treatment InformationWill you use polymers, flocculants, or other treatment chemicals at your construction site? Yes NoIf yes, will you use cationic treatment chemicals* at your construction site? Yes NoIf yes, have you been authorized to use cationic treatment chemicals by your applicable EPA Regional Office in advance of filing your NOI*? Yes No

If you have been authorized to use cationic treatment chemicals by your applicable EPA Regional Office, attach a copy of your authorization letter and include documentation of the appropriate controls and implementation procedures designed to ensure that your use of cationic treatment chemicals will not lead to a violation of water quality standards.

Please indicate the treatment chemicals that you will use:

* Note: You are ineligible for coverage under this permit unless you notify your applicable EPA Regional Office in advance and the EPA office authorizes coverage under this permit after you have included appropriate controls and implementation procedures designed to ensure that your use of cationic treatment chemicals will not lead to a violation of water quality standards.

VII. Stormwater Pollution Prevention Plan (SWPPP) Information

Has the SWPPP been prepared in advance of filing this NOI? Yes No

SWPPP Contact Information:

First Name, Middle Initial, Last Name: Nicholas J Iselin

Organization: Lend Lease Development Inc.

Phone: 6175576417

Fax (Optional): 6175576439

E-mail: Nicholas.Iselin@lendlease.com

VIII. Endangered Species Protection

Using the instructions in Appendix D of the CGP, under which criterion listed in Appendix D are you eligible for coverage under this permit (only check 1 box)?

A B C D E F

Provide a brief summary of the basis for criterion selection listed in Appendix D (e.g., communication with U.S. Fish and Wildlife Service or National Marine Fisheries Service, specific study): Publicly Available Species List - NHESP Priority Habitats online view

If you select criterion B, provide the Tracking Number from the other operator's notification of authorization under this permit:

If you select criterion C, you must attach a copy of your site map (see Part 7.2.6 of the permit), and you must answer the following questions:

What federally-listed species or federally-designated critical habitat are located in your "action area":

What is the distance between your site and the listed species or critical habitat (miles):

If you select criterion D, E, or F, attach copies of any letters or other communications between you and the U.S. Fish and Wildlife Service or National Marine Fisheries Service.

IX. Historic Preservation

Is your project/site located on a property of religious or cultural significance to an Indian tribe? Yes No

If yes, provide the name of the Indian tribe associated with the property:

Are you installing any stormwater controls as described in Appendix E that require subsurface earth disturbance? (Appendix E, Step 1) Yes No

If yes, have prior surveys or evaluations conducted on the site have already determined historic properties do not exist, or that prior disturbances have precluded the existence of historic properties? (Appendix E, Step 2) Yes No

If no, have you determined that your installation of subsurface earth-disturbing stormwater controls will have no effect on historic properties? (Appendix E, Step 3) Yes No

If no, did the SHPO, THPO, or other tribal representative (whichever applies) respond to you within the 15 calendar days to indicate whether the subsurface earth disturbances caused by the installation of stormwater controls affect historic properties? (Appendix E, Step 4) Yes No

If yes, describe the nature of their response:

- Written indication that adverse effects to historic properties from the installation of stormwater controls can be mitigated by agreed upon actions.
- No agreement has been reached regarding measures to mitigate effects to historic properties from the installation of stormwater controls.
- Other:

X. Certification Information

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.

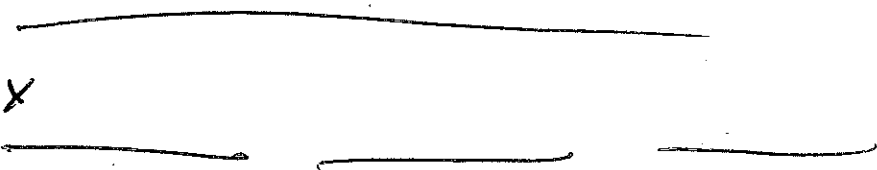
First Name, Middle Initial, Last Name: Nicholas J Iselin

Title: General Manager - Development

Signature:

Date: Thursday, January 14, 2016

E-mail: Nicholas.Iselin@lendlease.com



X

25-65 Lewis Street
Nitsch #10055

Stormwater Pollution Prevention Plan (SWPPP)
Clippership Wharf

Appendix D – Copy of Inspection Form

INSPECTOR: _____ DATE: _____ NUMBER: _____
DAYS SINCE LAST RAINFALL: _____ AMOUNT LAST RAINFALL: _____ INCHES

TEMPORARY STABILIZATION

CATCH BASIN SILT SACKS? (YES/NO)	PAVED AREAS? (YES/NO)	LANDSCAPED AREAS? (YES/NO)

COMMENTS/ACTION:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

STABILIZED CONSTRUCTION ENTRANCES

IS SEDIMENT TRACKED ONTO ROAD? (YES/NO)	IS THE GRAVEL CLEAN? (YES/NO)	DOES ALL TRAFFIC USE THE STABILIZED ENTRANCE TO LEAVE THE SITE? (YES/NO)

COMMENTS/ACTION:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

SILT FENCES

	DEPTH OF SEDIMENT	CONDITION OF EFFLUENT?	CONDITION OF SILT FENCE	ANY EVIDENCE OF SEDIMENT BYPASSING THE FENCE
SILT FENCE				

COMMENTS/ACTION:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

25-65 Lewis Street
Nitsch #10055

Stormwater Pollution Prevention Plan (SWPPP)
Clippership Wharf

Appendix E – Copy of Corrective Action Form

Clippership Wharf, Boston, MA				
Inspector:				
Request Date	Action requested	Responsible Party	Re-Inspection Date	Additional Work Required

25-65 Lewis Street
Nitsch #10055

Stormwater Pollution Prevention Plan (SWPPP)
Clippership Wharf

Appendix F – Sample SWPPP Amendment Log

Instructions (see CGP Part 7.4):

- Create a log here of changes and updates to the SWPPP. You may use the table below to track these modifications.
- SWPPP modifications are required pursuant to CGP Part 7.4.1 in the following circumstances:
 - ✓ Whenever new operators become active in construction activities on your site, or you make changes to your construction plans, stormwater control measures, pollution prevention measures, or other activities at your site that are no longer accurately reflected in your SWPPP;
 - ✓ To reflect areas on your site map where operational control has been transferred (and the date of transfer) since initiating permit coverage;
 - ✓ If inspections or investigations determine that SWPPP modifications are necessary for compliance with this permit;
 - ✓ Where EPA determines it is necessary to impose additional requirements on your discharge; and
 - ✓ To reflect any revisions to applicable federal, state, tribal, or local requirements that affect the stormwater control measures implemented at the site.
- If applicable, if a change in chemical treatment systems or chemically-enhanced stormwater control is made, including use of a different treatment chemical, different dosage rate, or different area of application.

No.	Description of the Amendment	Date of Amendment	Amendment Prepared by [Name(s) and Title]

25-65 Lewis Street
Nitsch #10055

Stormwater Pollution Prevention Plan (SWPPP)
Clippership Wharf

Appendix G – Sample 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 SWPPP for the above designated project and agree to follow the practices described in the SWPPP.

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: _____

25-65 Lewis Street
Clippership Wharf

Stormwater Pollution Prevention Plan (SWPPP)

Nitsch #10055

Appendix H – Sample Grading and Stabilization Activities Log

Date Grading Activity Initiated	Description of Grading Activity	Description of Stabilization Measure and Location	Date Grading Activity Ceased (Indicate Temporary or Permanent)	Date When Stabilization Measures Initiated

25-65 Lewis Street
Nitsch #10055

Stormwater Pollution Prevention Plan (SWPPP)
Clippership Wharf

Appendix I – Sample SWPPP 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)*

- Sediment and Erosion Controls**
- Emergency Procedures**
- Stabilization Controls**
- Inspections/Corrective Actions**
- Pollution Prevention Measures**

Specific Training Objective: _____

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

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

25-65 Lewis Street
Nitsch #10055

Stormwater Pollution Prevention Plan (SWPPP)
Clippership Wharf

Appendix J – Sample 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 Appendix I of EPA's Construction General Permit (CGP), and that the designee above meets the definition of a "duly authorized representative" as set forth in Appendix I.

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: _____

25-65 Lewis Street
Nitsch #10055

Stormwater Pollution Prevention Plan (SWPPP)
Clippership Wharf

Appendix K – Endangered Species Documentation



Appendix K: NHESP
Clippership Wharf
East Boston, MA

Data Source: MassGIS
Nitsch Project #10055





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.

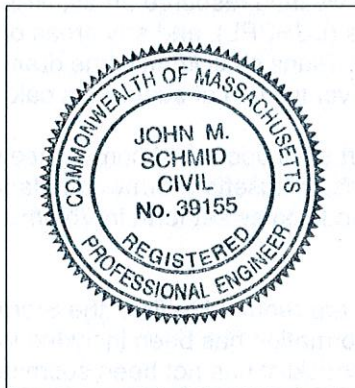
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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



John M. Schmid
Signature and Date

7/21/15

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): Subsurface Infiltration Trench

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.



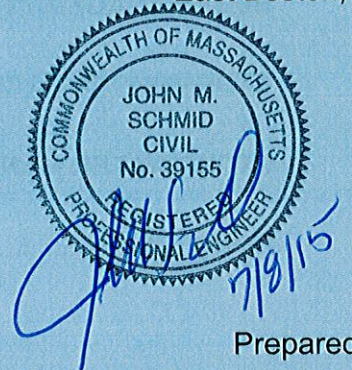
Nitsch Engineering

STORMWATER REPORT

Accompanying the
Notice of Intent Report
Attachment E

for

Clippership Wharf
East Boston, MA



Prepared for

Lend Lease Development, Inc.
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Prepared by

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Nitsch Project #10055

July 2015

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INTRODUCTION

Nitsch Engineering, Inc. (Nitsch) has performed a stormwater management analysis to compare the pre- and post-development conditions for the Clippership Wharf development at 25-65 Lewis Street in East Boston, Massachusetts. Clippership Wharf will contain residential, commercial and restaurant space. This Notice of Intent Application addresses the Clippership Wharf project.

Nitsch analyzed the hydrology for the drainage areas with the Soil Conservation Service's (SCS) Runoff Curve Number (CN) methodology. HydroCAD Version 10.00 computer modeling system was used in conjunction with the SCS's methods to determine the peak rates of run-off for the 2, 10, and 100-year storm events. Nitsch designed the site's closed drainage system utilizing the rational method based on a 25-year storm event in accordance with local requirements.

EXISTING CONDITIONS

Site Description

The site is located in the East Boston on Boston's Inner Harbor, south of Maverick Square and is bounded by Lewis Street to the east, the Harbor to the south, the Hodge Boiler Works and the Carlton Wharf residential site to the northwest, and Monsignor Albert Jacobbe Road to the north. The existing site consists of an unused lot consisting of pavement, intermittent grass areas, collapsed and deteriorated wharfs and wooden decks, and remains of brick and concrete wall foundations and is approximately 53-percent (53%) impervious. Currently, there are high points of approximately 17.2-feet Boston City Base (BCB) in the eastern wharf on the southern portion of the site, approximately 20.1-feet (BCB) in the western wharf on the southern portion of the site, and approximately 18.0-feet Boston City Base (BCB) on the eastern corner of the site adjacent to Lewis Street. There are existing low points in the center of the site at approximately 13.7-feet (BCB), and along the northern corner of the site at elevation 11.9-feet (BCB). Nearly all of the site slopes down towards the Boston Inner Harbor. The soils underlying the site are characterized by the National Resource Conservation Service (NRCS) as consisting of Udorthents and Urban land complex. Nitsch assumes the soils are classified as a hydrologic soil group D soil.

The existing site does not have a closed drainage system, while there are several unidentified catch basins on site. Nearly all stormwater sheet flows towards the Inner Harbor. Stormwater along the northern and eastern sides of the site may flow to the existing Boston Water and Sewer Commission (BWSC) storm drain mains in Monsignor Albert Jacobbe Road and Lewis Street, respectively. Nitsch Engineering is not aware of any existing water quality treatment of stormwater runoff before it leaves the site.

PROPOSED CONDITIONS

Site Description

The project includes the construction of a four new multi-rise residential buildings with a footprint of approximately 91,408 square feet connected by an underground parking garage with a footprint of approximately 134,548 square feet. There will also be a new roadway, walkways, Harborwalk, ecological study area/living shoreline, public docks, lawn and landscaped areas.

The proposed re-development of the site will increase the impervious cover on the site to approximately 63-percent (63%). The project proposes to construct a new stormwater management system that conforms to the DEP Stormwater Management Policy. The proposed stormwater management system is designed to mimic the existing drainage patterns and provide a higher level of water quality treatment than exists today. The proposed design will collect, treat, store, and infiltrate stormwater runoff generated from developed pervious and impervious areas within the project site property to the greatest extent possible. Stormwater collected in the roadway will be collected by deep sump and hooded catch bases and directed to proprietary water quality structures, bioretention basins, rain gardens and infiltration trenches. Stormwater collected on

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building roofs and over the underground parking garage will drain internally and be directed to underground infiltration trenches. Stormwater on paved walkways and other impervious surfaces will be directed to bioretention basins, rain gardens, and infiltration trenches or will sheet flow directly to the Boston Inner Harbor. Stormwater in portions of the project located in the public way will be directed to the existing BWSC catch basins located in Monsignor Albert Jacobbe Road and directed to the 24-inch BWSC storm drain main in Clippership Lane and collected by catch basins located in Lewis Street and directed to the 15-inch storm drain main in Lewis Street.

The project proposes to construct a new stormwater management system that conforms to the DEP Stormwater Management Policy. The proposed stormwater management system is designed to mimic the existing drainage patterns and provide a higher level of water quality treatment than exists today.

Sediment and Erosion Control Measures

Sediment and erosion control during construction will prevent possible damage to the Boston Inner Harbor and the drainage systems. The following guidelines will be adhered to during construction:

1. Keep land disturbance to a minimum. Plan the phases of development so that only the areas actively being developed are exposed. All other areas should have natural vegetation preserved, have good temporary cover, or permanent vegetation established.
2. Stabilize disturbed areas. Permanent structures, temporary or permanent vegetation, and mulch should be employed as quickly as possible after land is disturbed.
3. Protect disturbed areas from stormwater runoff. Install erosion control or stormwater management measures to prevent water from entering and running over disturbed areas, and to prevent erosion damage to downstream facilities.
4. Install perimeter control practices (siltation fences and/or haybales). Use practices that isolate the development site from surrounding areas. There will be sediment and erosion controls placed on site. The control will include silt fence with hay bales, silt sacs, and hay bales for all the catch basins that could receive sediment from work on site. Install debris booms in the water surrounding the project site to prevent sediment and erosion to travel beyond the project's limit of work.
5. Inspect all controls regularly to ensure that the controls are working properly.
6. Clean and reinstall any control that needs to be cleaned or replaced.
7. Clean/flush the entire stormwater system prior to final acceptance by the owner.

METHODOLOGY

Hydrology and Hydraulics

A drainage area, or subcatchment, is an area where the runoff from that area flows to a point, referred to as a design point. The design point is the focus of the runoff analysis. Peak rates of runoff for the existing and proposed conditions are calculated and compared at the design point.

The rate at which the runoff reaches the design point is determined by a number of factors: the slope and flow lengths of the subcatchment area, the soil type of the subcatchment area and the type of surface cover in the subcatchment area.

The slope of the subcatchment area directly affects the amount and rate of runoff from a subcatchment area. With all other things being equal, a site with steep slopes will produce more runoff and transport it at a faster rate than a flat site - with a flat site the rain will have more time to infiltrate into the ground before it flows away as runoff. The slope of the site is easily determined by either using an accurate survey or by a field examination.

The flow length of a subcatchment area is the longest distance that runoff would have to travel to reach the design point. Flow length is an important factor in determining the time of concentration (T_c). The time of

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concentration is time for runoff to travel from the hydraulically most distant point of the drainage area to a point of interest in that drainage area, in this case, the design point. The time of concentration influences the volume and rate of runoff. A low T_c will result in more runoff with a higher peak rate than a high T_c .

The type of soil on a site also affects the amount and rate of runoff generated. The soil type found on a site determines the amount and rate at which water can be absorbed into the ground. This is important because the more water that infiltrates into the soil, the greater the reduction in the volume and rate of runoff. The Soil Conservation Service categorizes soils into one of four hydrologic soils group: Type A, B, C, and D. Type A soils are the most permeable and Type D soils are the least.

The Soil Conservation Service (SCS) Runoff Curve Number (CN) method is the most commonly accepted method for generating peak rates of runoff from areas. CNs are used to amount of runoff flowing from a subcatchment area using the surface cover and soil type.

The surface cover on a site refers to what is on the surface of a site, whether it is lawn, roof, pavement, brush, woods, etc. Similarly, to the slope and the type of soil, surface cover affects the rate and volume of runoff. Certain types of cover allow for more opportunity for water to be absorbed into the ground. A site covered with impermeable pavement will not allow for any water to be absorbed into the ground, while a site covered by grass will allow some of the water to be absorbed into the ground. Almost all the rain that falls on pavement or other impermeable covers will be converted to runoff. In addition, different vegetative covers have different properties concerning producing runoff.

For each subcatchment area, Nitsch determined drainage flow path lengths, surface cover type, and slopes for sheet and shallow concentrated flow. The information was used to determine the time of concentration (T_c) for each subcatchment area. SCS Runoff Curve Numbers (CNs) were selected by using the cover type and hydrologic soil group each area. The peak runoff rates for the 2, 10, and 100-year storm events were then determined by inputting the weighted CN, T_c , drainage areas, and drainage information into the HydroCAD storm water modeling system computer program.

The HydroCAD computer program uses SCS and TR-20 methods to model drainage systems. The SCS Runoff Curve Number (CN) method uses CNs to classify the runoff characteristics of an area by the type of soil and the type of ground cover. TR-20 (Technical Release 20) was developed by the Soil Conservation Service to estimate runoff and peak discharges in small watersheds. TR-20 is generally accepted by engineers and reviewing authorities as the standard method for estimating runoff and peak discharges.

HydroCAD Version 10.00

HydroCAD Version 10.00 uses up to four types of components to analyze the hydrology of a given site. These components are subcatchments (drainage areas), reaches, basins, and links.

Subcatchments are areas of land that produce surface runoff. The area, weighted CN and T_c characterize each individual subcatchment area. Reaches are generally uniform streams, channels, or pipes that convey water from one point to another. A basin is any impoundment that fills with water from one or more sources and empties via an outlet structure. Links are used to introduce hydrographs into a project from another source.

Storm Event

Nitsch used Technical Paper 40 by the National Weather Service to estimate the rainfall intensity for the 2, 10, and 100-year storms. The rainfall intensity rates used are as follows:

<u>Storm Event</u>	<u>24 Hour Precipitation (inches)</u>
2-year	3.20
10-year	4.60
100-year	6.60

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STORMWATER MANAGEMENT ANALYSIS

Nitsch has performed a stormwater management analysis to compare the pre- and post-development conditions for the Clippership Wharf development. The proposed project will increase the impervious area on site from approximately 170,548 square feet (3.9 acres) to 201,276 square feet (4.6 acres), an increase of 10% compared to the existing condition of the site. The change in impervious coverage for the site is provided in Table 1 below.

Table 1: Area Summary Table

Cover	Existing (SF)	Proposed (SF)	Difference (SF)	Difference (%)
Impervious	170,548	201,276	+30,728	+10%
Pervious	148,503	117,775	-30,728	-10%
Total	319,051	319,051		

Existing Site Conditions

The existing site does not have a closed drainage system. Nearly all stormwater sheet flows towards the Boston Inner Harbor. Portions of the project located in the public way along the northern and eastern sides of the site may flow to the adjacent roadways, collected by catch basins and is directed to the existing BWSC closed drainage systems in Monsignor Albert Jacobbe Road and Lewis Street. This stormwater runoff collected by these storm drain mains discharges to the Boston Inner Harbor by the BWSC storm drain outfall in Lewis Street. The site is nearly 53-percent (53%) impervious. Nitsch is not aware of any existing water quality treatment of stormwater runoff before it leaves the site.

Proposed Site Conditions

The proposed redevelopment of the site will increase impervious cover to approximately 63-percent (63%). The project proposes to construct a stormwater management system that conforms to the DEP Stormwater Management Policy. The proposed design will collect, treat, store, and infiltrate stormwater runoff generated from developed pervious and impervious areas. To mimic the existing condition, the stormwater management system design point will be the Boston Inner Harbor.

The proposed drainage strategy for the site consists of the following components:

- Stormwater runoff from the private portion of Monsignor Albert Jacobbe Road and the Harborwalk on the northwest corner of the site will be collected by deep sump and hooded catch basins. This runoff will be pretreated with a proprietary water quality separator unit. Then stormwater will be directed in series to Subsurface Infiltration Trench #1 on the western side of the site underneath the proposed Harborwalk. Subsurface Infiltration Trench #1 will be comprised of approximately 400 linear feet of 24-inch perforated corrugate polyethylene pipe (CPP) imbedded in crushed stone and wrapped in filter fabric. Overflow from Infiltration Trench #1 will discharge to the Boston Inner Harbor via an outlet control structure. These areas are noted as subcatchments A1, B, and K.
- Stormwater runoff in the western portion of Building 1 roof, Building 3 roof and the plaza located over the underground garage will drain internally and be directed to Subsurface Infiltration Trench #1. The lawn areas located above the underground garage have been modeled as pervious areas for this stormwater report. These areas are noted as subcatchments C1 and D.
- Portions of the stormwater runoff from Building 3 roof will be directed to bioretention basins on the eastern side of the site and will drain directly to the ecological study area/living shoreline. This area is noted as 10,000 square feet of subcatchment D.
- Stormwater runoff from the Building 2 roof, a portion of the Building 3 roof, and the lawn/walkways areas on the southern side of the eastern wharf will be collected internally and directed to Subsurface Infiltration Trench #2, located on the western side of the eastern wharf. Subsurface Infiltration Trench #2 will be comprised of approximately 350 linear feet of 24-inch perforated CPP pipe imbedded in crushed stone and wrapped in filter fabric. Overflow from this infiltration trench will

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discharge to the Boston Inner Harbor via an outlet control structure. These areas are noted as subcatchments F, G1 and I.

- Stormwater runoff from the eastern portion of Building 1 roof with associated walkways, plaza located over the underground garage, and a portion of the Building 3 roof will drain internally and be directed to the Subsurface Infiltration Trench #3, located on the eastern side of the eastern wharf. Subsurface Infiltration Trench #3 will be comprised of approximately 550 linear feet of 24-inch perforated CPP pipe imbedded in crushed stone and wrapped in filter fabric. Overflow from this infiltration trench will discharge to the Boston Inner Harbor via an outlet control structure. These areas are noted as subcatchments C2 and G2.
- Stormwater runoff from the eastern portion of the proposed roadway will be collected and pretreated by rain gardens and proprietary water quality catch basin inlets. Then the stormwater will be directed to the Subsurface Infiltration Trench #3. This area is noted as subcatchment L.
- Stormwater from portions of the Harborwalk and the ecological study area/living shoreline will sheet flow directly the Boston Inner Harbor. Additionally, portions of the ecological study area/living shoreline will be inundated during high tides. These areas are noted as subcatchment E and J.
- Stormwater runoff from portions of the Harborwalk will be directed to sheet flow directly to the Boston Inner Harbor. These areas are noted as subcatchments A2 and H.
- Stormwater runoff in Lewis Street and Monsignor Albert Jacobbe Road will be collected by existing deep sump and hooded catch basins and directed to the existing closed drainage systems in Lewis Street and Monsignor Albert Jacobbe Road. These areas are noted as subcatchments M and N.

Peak Flow Rates

Nitsch Engineering analyzed the existing site conditions to determine the peak rates of runoff for the 2, 10, and 100-year storms at each design point. The proposed peak rates are less than the existing peak rates. The following tables present pre-development peak runoff rates versus post-development peak runoff rates for the 2, 10, and 100-year storms at both design points, and for the total site.

Tables: Comparison of Pre- and Post-Development Peak Runoff Rates (cfs)

TOTAL SITE	2-Year	10-Year	100-Year
Existing Conditions	20.92	31.42	46.21
Proposed Conditions	20.48	31.09	45.95

BEST MANAGEMENT PRACTICES

Best Management Practices (BMPs) include structural and non-structural features used on the site to promote water quality and water quantity mitigation for the developed conditions. Proposed BMPs include deep sump catch basins with hoods, a proprietary water quality separator units, and three stormwater infiltration trenches. The Department of Environmental Protection "Massachusetts Stormwater Handbook," Volumes 1 and 2 (February 2008) was used to select structural and non-structural BMPs for the long-term protection of resources at the site.

The project proposes three infiltration trenches and two bioretention basins that will provide storage for stormwater runoff. The volumes provided by these systems are:

STORMWATER RECHARGE REQUIREMENTS

Subsurface Infiltration Trenches

Proposed Impervious Area = 201,276 sf
 Required Static Storage Volume for ½ Inch =
 1 inch/12 inches * ½ inch runoff storage * 203,362 sf = 8,387 cf

Subsurface Infiltration Trench #1:

The 400 feet of pipe storage within the subsurface infiltration system provides storage =
 $400 \text{ ft} \times (3.14 \times 1.0 \text{ ft}^2) = 1,257 \text{ cf}$

The sf of crushed stone provides storage =
 $[(\text{area stone} \times \text{depth of storage}) - (\text{pipe volume})] \times 30\%$
 $[(2,020 \text{ sf} \times 3.0 \text{ ft}) - (1,257 \text{ cf})] \times 30\% = 1,440 \text{ cf}$

Total Storage (Pipe + Crushed Stone) = 1,257 cf + 1,440 cf = 2,670 cf

Subsurface Infiltration Trench #2:

The 358 feet of pipe storage within the subsurface infiltration system provides storage =
 $350 \text{ ft} \times (3.14 \times 1.0 \text{ ft}^2) = 1,125 \text{ cf}$

The 1,790 sf of crushed stone provides storage =
 $[(\text{area stone} \times \text{depth of storage}) - (\text{pipe volume})] \times 30\%$
 $[(1,790 \text{ sf} \times 3.0 \text{ ft}) - (1,125 \text{ cf})] \times 30\% = 1,274 \text{ cf}$

Total Storage (Pipe + Crushed Stone) = 1,125 cf + 1,274 cf = 2,399 cf

Subsurface Infiltration Trench #3:

The 550 feet of pipe storage within the subsurface infiltration system provides storage =
 $550 \text{ ft} \times (3.14 \times 1.0 \text{ ft}^2) = 1,728 \text{ cf}$

The 2,770 sf of crushed stone provides storage =
 $[(\text{area stone} \times \text{depth of storage}) - (\text{pipe volume})] \times 30\%$
 $[(2,770 \text{ sf} \times 3.0 \text{ ft}) - (1,728 \text{ cf})] \times 30\% = 1,975 \text{ cf}$

Total Storage (Pipe + Crushed Stone) = 1,728 cf + 1,975 cf = 3,703 cf

Total Storage Provided by Subsurface Infiltration Trenches = 2,630 cf + 2,399 cf + 3,703 cf = 8,732 cf

Bioretention Basins

Bioretention Basin 2

The ponding volume in the bioretention basin below the outlet weir (elev. 20.0') provides storage =

Elevation (ft)	Surface Area (sf)	Storage Volume (cf)
19.00	412	0
20.00	508	460

Storage for East Bioretention Basin = 460 cf

Bioretention Basin 3

The ponding volume in the bioretention basin below the outlet weir (elev. 15.0') provides storage =

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Elevation (ft)	Surface Area (sf)	Storage Volume (cf)
14.00	339	0
15.00	398	398

Storage for West Bioretention Basin = 398 cf

Total Storage Volume Provided by Bioretention Basins = 398 + 460 = 858 cf

Total Storage Volume Provided = 8,732 + 858 = 9,590 cf

9,590 cf > 8,387 cf

DEPARTMENT OF ENVIRONMENTAL PROTECTION'S STORMWATER MANAGEMENT STANDARDS

Standard 1: No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

Compliance: The proposed design will comply with this Standard. The Project site is located near the Boston Inner Harbor, and the design will incorporate the appropriate stormwater treatment and no new untreated stormwater will be directly discharged to, nor will erosion be caused to wetlands or waters of the Commonwealth as a result of stormwater discharges related to the Project.

Standard 2: Stormwater management systems shall be designed so that the post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

Compliance: The proposed site design complies with this standard. The existing discharge rate will be met or decreased as a result of the improvements associated with the Project. The proposed stormwater management practices will mitigate peak runoff rates for the 2-, 10-, and 100-year, 24-hour storm events to the Boston Inner Harbor.

Standard 3: Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater BMPs, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

Compliance: The Project will comply with this standard to the maximum extent practicable. The Site was designed using environmentally-sensitive site design, low impact development techniques, and stormwater BMP treatment trains to minimize the loss of annual recharge to groundwater. The annual recharge from the post-development site will approximate the annual recharge from pre-development conditions based on soil type using the guidelines provided in the MassDEP Stormwater Management Handbook.

Standard 4: Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This standard is met when: Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained; Structural stormwater BMPs are sized to capture the required water quality volume as determined in accordance with the Massachusetts Stormwater Handbook; and Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.

Compliance: The proposed design will comply with this standard. Within the Project's limit of work, there will be mostly building roof, paved sidewalk, roadway, Harborwalk, and landscaping areas and will be treated to remove greater than 80% of the average annual post-construction load of Total Suspended

Solids (TSS) with structural BMPs. Runoff from vehicular paved areas that would contribute to unwanted sediments or pollutants to the existing storm drain system will be collected by deep sump and hooded catch basins and conveyed through water quality units and directed to the subsurface infiltration trenches, before being discharged to the Boston Inner Harbor. A majority of the site is directed to infiltration trenches to meet the 80% TSS removal. Some portions of the Harborwalk drain direct to Boston Inner Harbor, however high pollutant loads aren't anticipated because they are pedestrian walkways. Source control and pollution prevention measures, such as vacuum cleaning, street sweeping, proper snow management, and stabilizing eroded surfaces, are included in the Long-Term Pollution Prevention Plan in Appendix F.

Standard 5: For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If, through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L.c. 21, §§ 26-53 and the regulations promulgated there under at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

Compliance: The project is not associated with Higher Potential Pollutant Loads. Therefore, the standard is not applicable.

Standard 6: Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "stormwater discharge" as defined in 314 CMR 3.04(2)(a)1. or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of the public water supply.

Compliance: The proposed site design complies with this standard. The project does not contain areas of Sensitive Resources and will not discharge untreated stormwater to a sensitive resource area.

Standard 7: A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

Compliance: This standard is not applicable as the Project is not classified as a redevelopment project according to the MassDEP Stormwater Standards.

Standard 8: A plan to control construction-related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

Compliance: The Project will comply with this standard. Sedimentation and erosion controls will be incorporated as part of the design of the Project and employed during construction.

Standard 9: A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.

Clippership Wharf, Boston, MA
Nitsch Project #10055

Compliance: The Project will comply with this standard. An O&M Plan including long-term BMP operation requirements has been prepared for the Proposed Project and will assure maintenance and functioning of the stormwater management system. The O&M plan is provided in Appendix E.

Standard 10: All illicit discharges to the stormwater management system are prohibited.

Compliance: The Project will comply with this standard. There will be no illicit connections associated with the Project.

CONCLUSION

In conclusion, the Project will maintain or reduce peak runoff rates and improve the water quality of the stormwater being discharged from Project Site. The proposed drainage system will comply with the requirements of the Department of Environmental Protection Stormwater Management Policies and the Boston Water & Sewer Commission. The proposed stormwater management system meets the ten design standards required by the DEP's Stormwater Management Policy and the performance standards under the Massachusetts Wetlands Protection Act.

APPENDICES

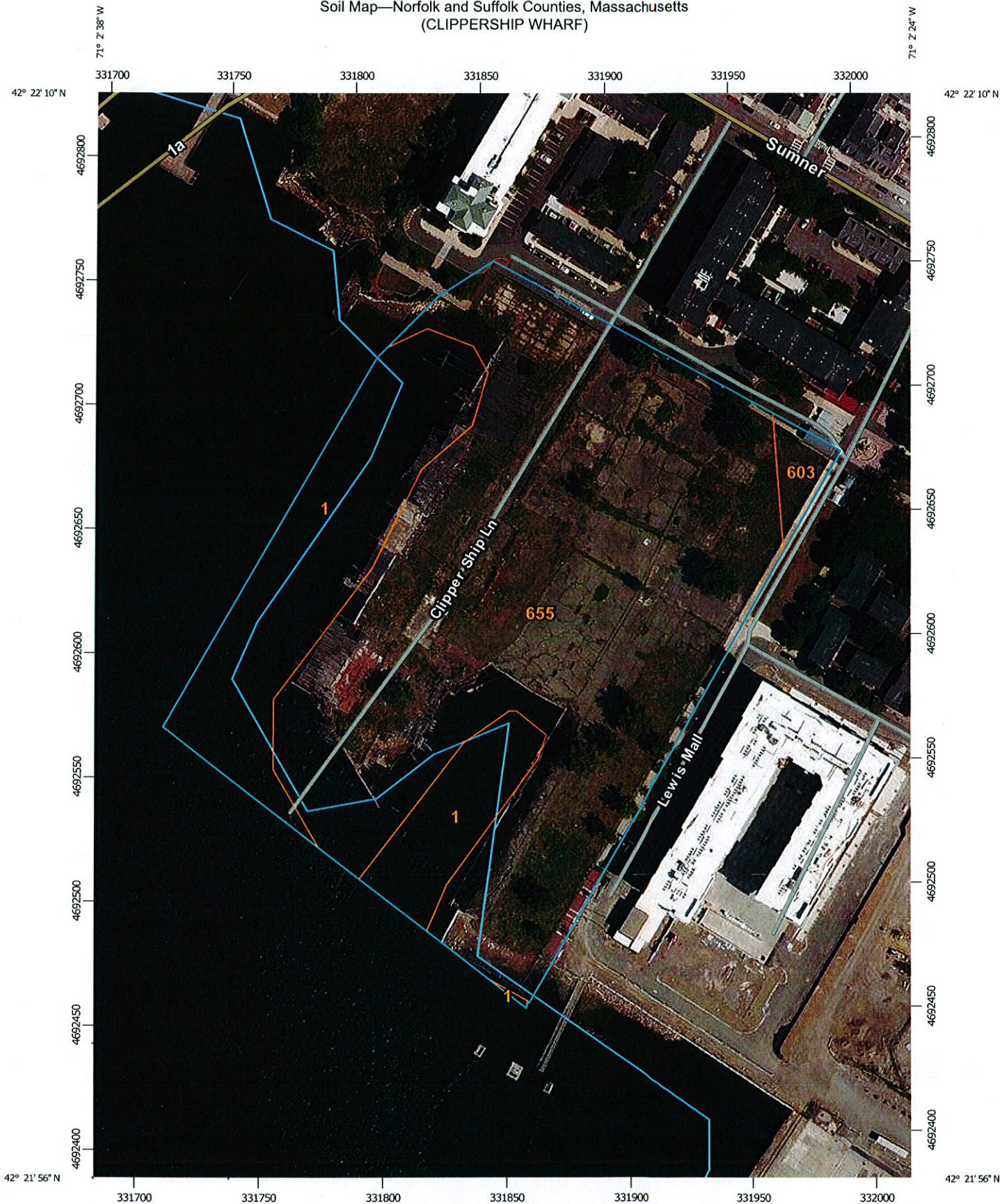
Appendix A	Soil Map
Appendix B	Pre- & Post- Development Drainage Area Maps
Appendix C	Hydrologic Calculations (HydroCAD)
Appendix D	Stormwater Management Standards Documentation Standard 3: Groundwater Recharge Calculations Standard 4: TSS Removal Calculations Standard 4: Proprietary Water Quality Structure Calculations Standard 10: Illicit Discharge Compliance Statement
Appendix E	Operations & Maintenance Plan
Appendix F	Long Term Pollution Prevention Plan

Clippership Wharf, Boston, MA
Nitsch Project #10055

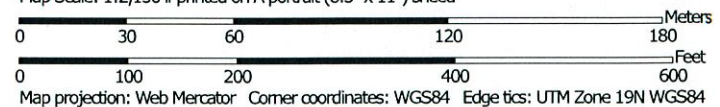
APPENDIX A

Soil Map

Soil Map—Norfolk and Suffolk Counties, Massachusetts
(CLIPPERSHIP WHARF)



Map Scale: 1:2,130 if printed on A portrait (8.5" x 11") sheet.



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

Soil Map—Norfolk and Suffolk Counties, Massachusetts
(CLIPPERSHIP WHARF)

MAP LEGEND

- | | | |
|-------------------------------|------------------------|-----------------------|
| Area of Interest (AOI) | Area of Interest (AOI) | Spoil Area |
| Soils | Soil Map Unit Polygons | Stony Spot |
| | Soil Map Unit Lines | Very Stony Spot |
| | Soil Map Unit Points | Wet Spot |
| Special Point Features | Other | Special Line Features |
| Blowout | Water Features | Streams and Canals |
| Borrow Pit | Transportation | Streams and Canals |
| Clay Spot | Rails | Interstate Highways |
| Closed Depression | US Routes | Major Roads |
| Gravel Pit | Major Roads | Local Roads |
| Gravelly Spot | Background | Aerial Photography |
| 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 | | |

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 10, Sep 19, 2014

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	2.6	24.2%
603	Urban land, wet substratum, 0 to 3 percent slopes	0.2	1.7%
655	Udorthents, wet substratum	8.1	74.1%
Totals for Area of Interest		10.9	100.0%

Clippership Wharf, Boston, MA
Nitsch Project #10055

APPENDIX B

Pre- & Post- Development Drainage Area Maps

Consultant:

Revision:

NOI RESUBMISSION	7/08/15

Architect of Record:

Drawn: _____
Checked: _____
Scale: _____
Key Plan: _____

Project Name:
CLIPPERSHIP WHARF

EAST BOSTON, MA

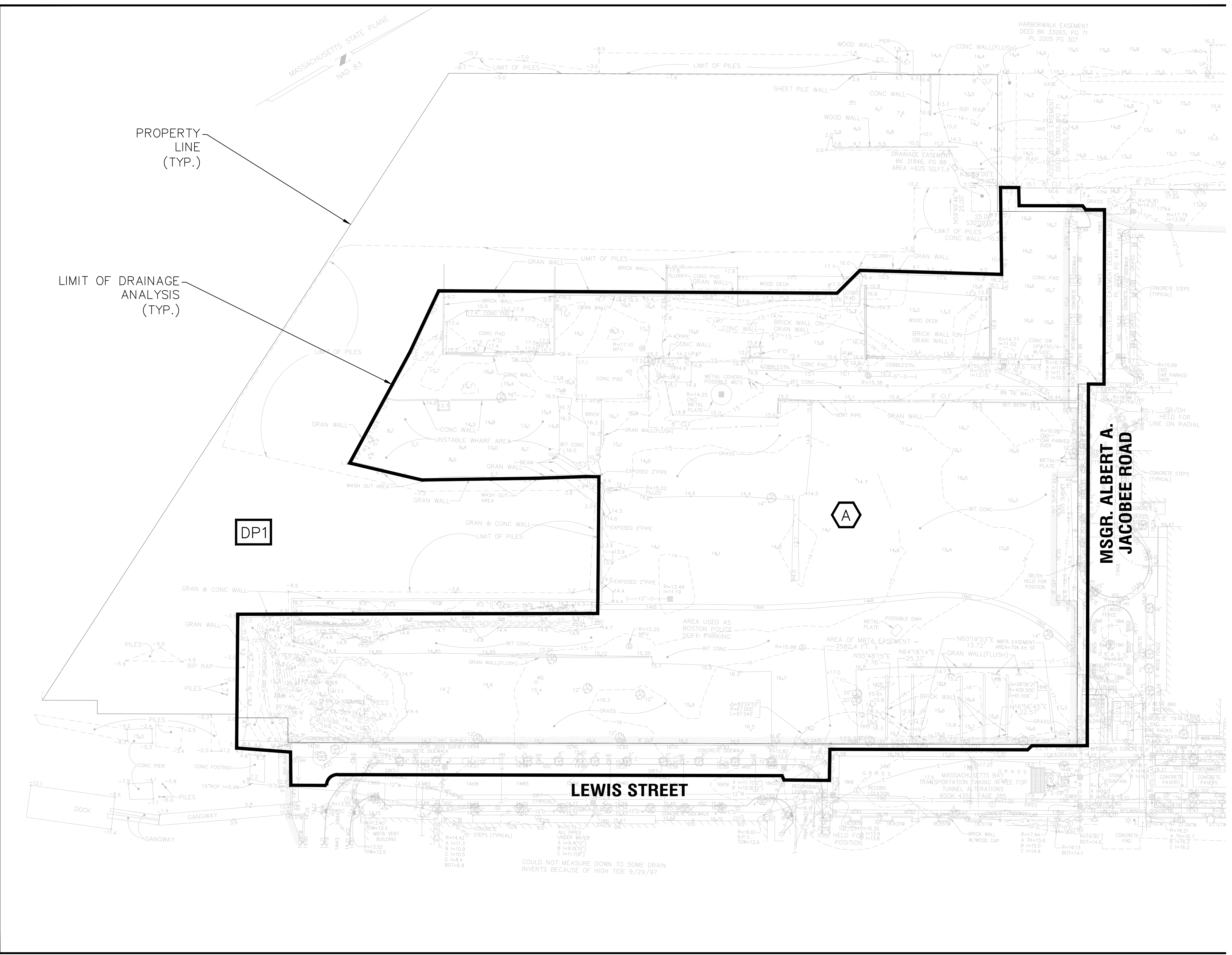
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EXISTING DRAINAGE AREAS

Project Number:
13166

Issue Date:
JULY 8, 2015

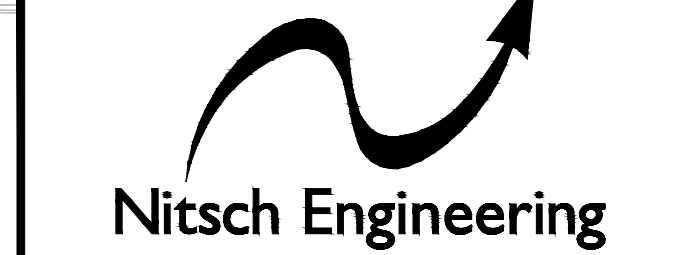
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COULD NOT MEASURE DOWN TO SOME DRAIN INVERTS BECAUSE OF HIGH TIDE 9/29/97.

Consultant:



Revision:
NOI RESUBMISSION 7/08/15

Architect of Record:

Drawn: RMG
Checked: JMS
Scale: 1" = 40'
Key Plan:

Project Name:
CLIPPERSHIP WHARF

EAST BOSTON, MA

Sheet Name:
PROPOSED DRAINAGE AREAS

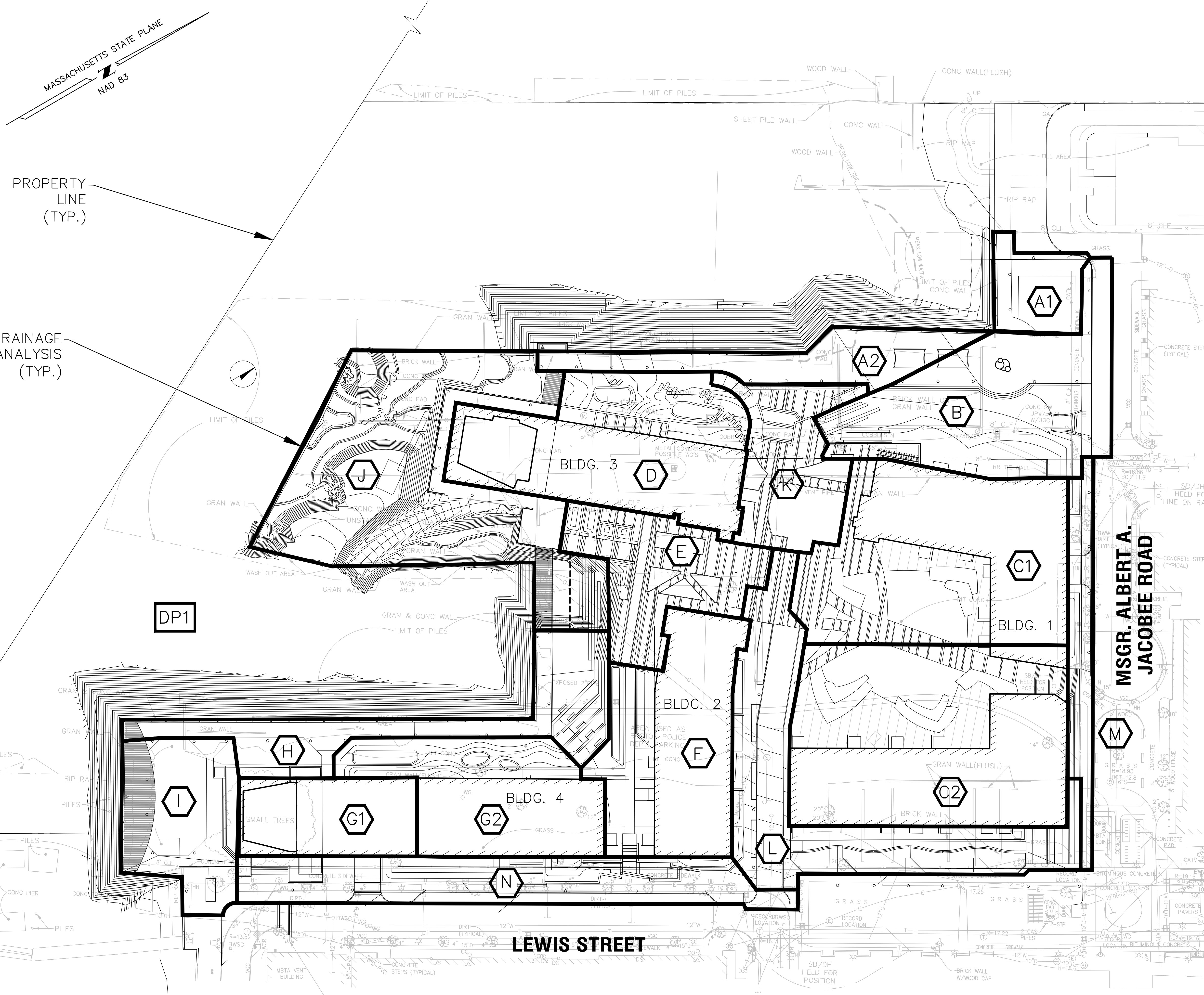
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Sheet Number:

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PROPERTY LINE (TYP.)

LIMIT OF DRAINAGE ANALYSIS (TYP.)

DP1

LEWIS STREET

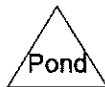
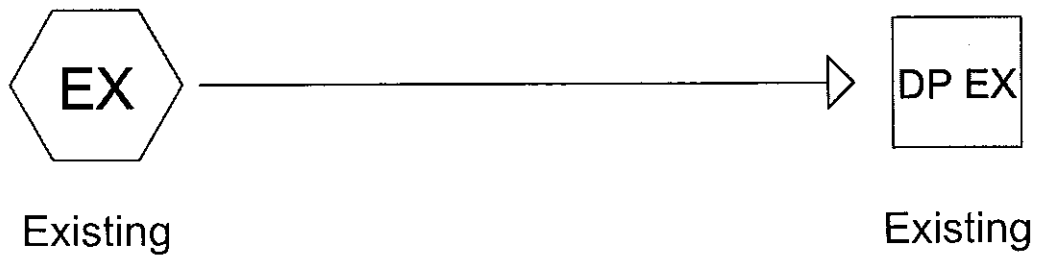
MSGR. ALBERT A. JACOBEE ROAD

BENCHMARK #2
CHISEL CROSS IN
HOLD DOWN BOLT
OF HYDRANT

Clippership Wharf, Boston, MA
Nitsch Project #10055

APPENDIX C

Hydrologic Calculations



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Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
148,503	89	<50% Grass cover, Poor, HSG D (EX)
170,548	98	Paved parking/Roadway (EX)
319,051	94	TOTAL AREA

10055-Hydrocad-Existing*Type III 24-hr 2-year Rainfall=3.20"*

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Page 3

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX: Existing

Runoff Area=319,051 sf 53.45% Impervious Runoff Depth=2.54"

Tc=6.0 min CN=94 Runoff=20.92 cfs 67,635 cf

Reach DP EX: Existing

Inflow=20.92 cfs 67,635 cf

Outflow=20.92 cfs 67,635 cf

Total Runoff Area = 319,051 sf Runoff Volume = 67,635 cf Average Runoff Depth = 2.54"
46.55% Pervious = 148,503 sf 53.45% Impervious = 170,548 sf

10055-Hydrocad-Existing

Prepared by Microsoft

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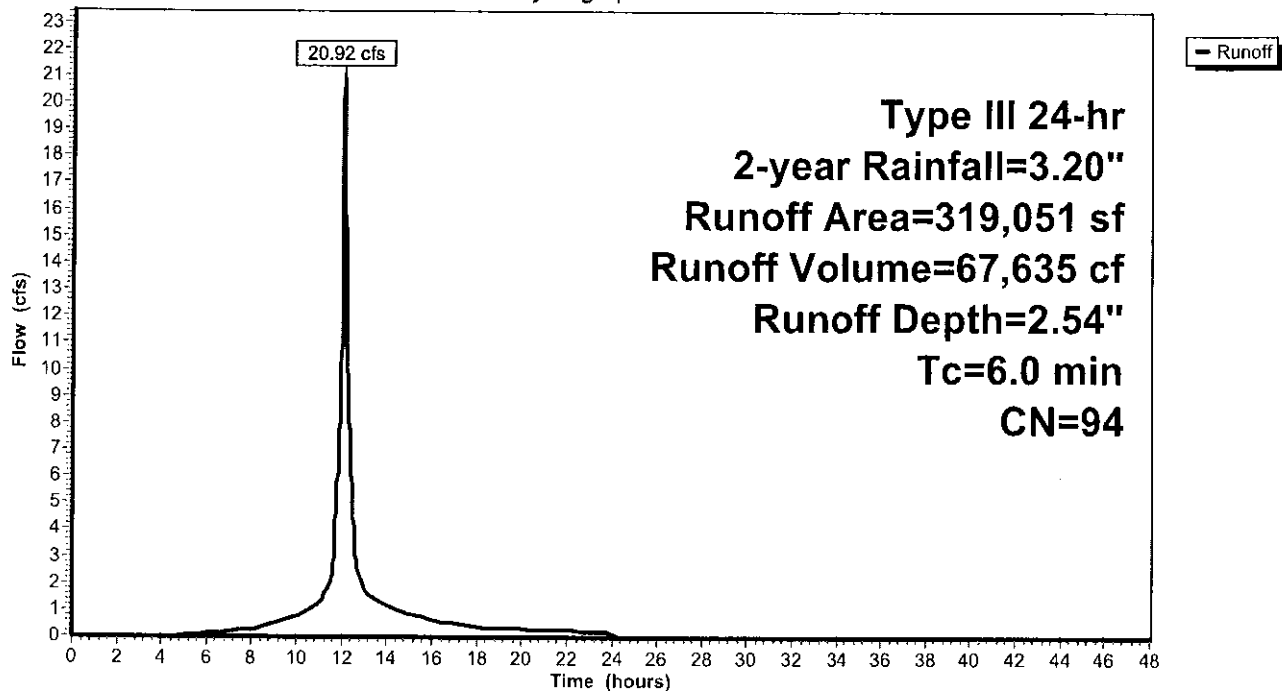
Type III 24-hr 2-year Rainfall=3.20"

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Page 4

Subcatchment EX: Existing

Hydrograph



10055-Hydrocad-Existing

Type III 24-hr 2-year Rainfall=3.20"

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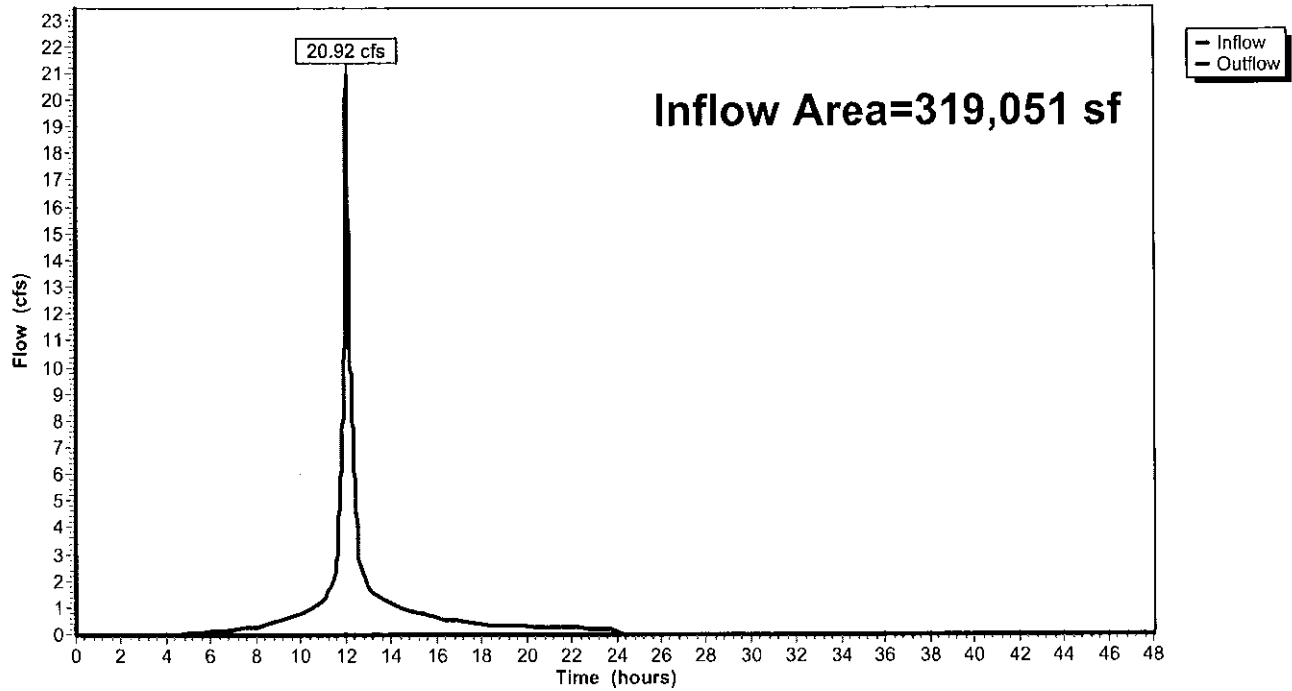
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Reach DP EX: Existing

Hydrograph



10055-Hydrocad-Existing*Type III 24-hr 10-year Rainfall=4.60"*

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
 Runoff by SCS TR-20 method, UH=SCS
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX: Existing

Runoff Area=319,051 sf 53.45% Impervious Runoff Depth=3.91"
 Tc=6.0 min CN=94 Runoff=31.42 cfs 104,058 cf

Reach DP EX: Existing

Inflow=31.42 cfs 104,058 cf
 Outflow=31.42 cfs 104,058 cf

Total Runoff Area = 319,051 sf Runoff Volume = 104,058 cf Average Runoff Depth = 3.91"
46.55% Pervious = 148,503 sf 53.45% Impervious = 170,548 sf

10055-Hydrocad-Existing

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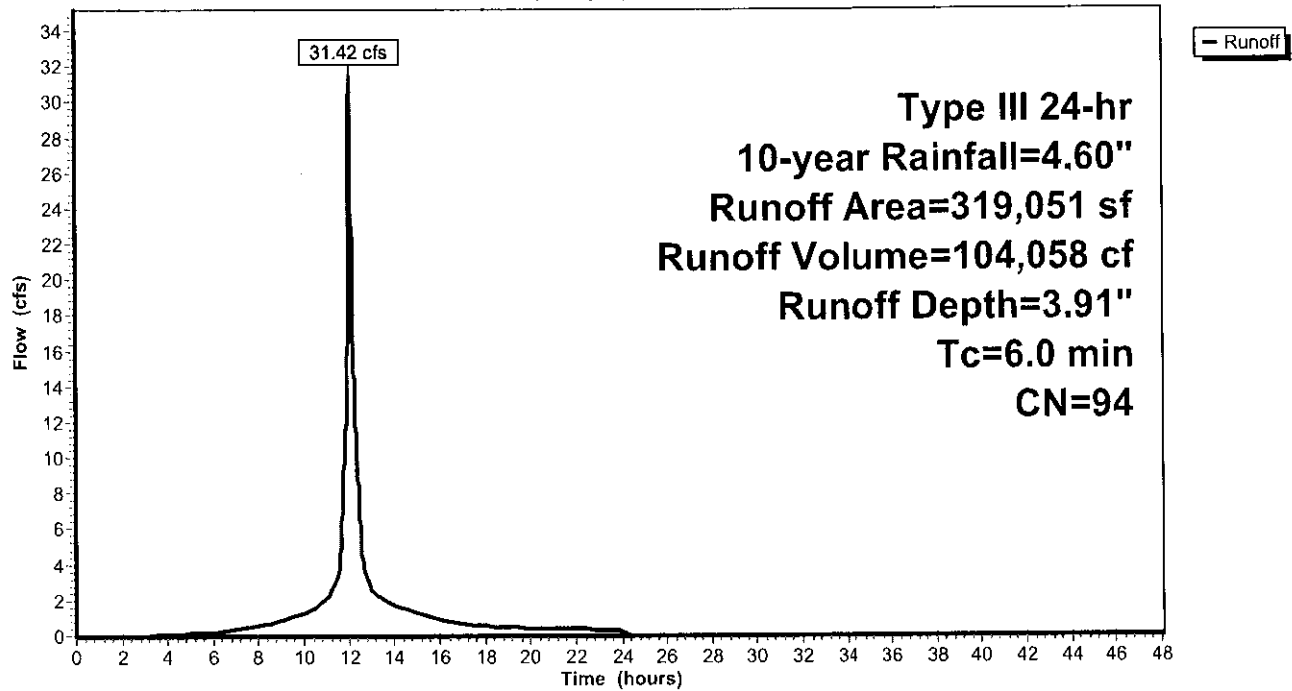
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Page 7

Subcatchment EX: Existing

Hydrograph



10055-Hydrocad-Existing

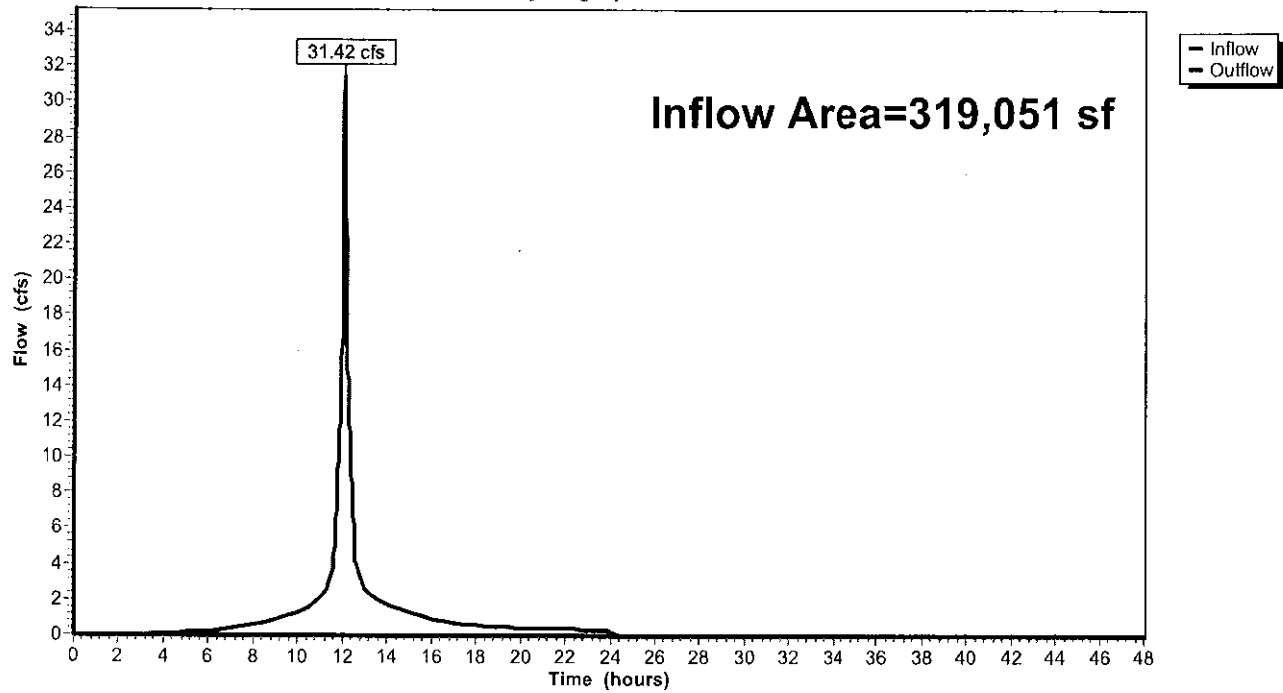
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Reach DP EX: Existing**Hydrograph**

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Type III 24-hr 100-year Rainfall=6.60"

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Page 9

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EX: ExistingRunoff Area=319,051 sf 53.45% Impervious Runoff Depth=5.89"
Tc=6.0 min CN=94 Runoff=46.21 cfs 156,637 cf**Reach DP EX: Existing**Inflow=46.21 cfs 156,637 cf
Outflow=46.21 cfs 156,637 cf**Total Runoff Area = 319,051 sf Runoff Volume = 156,637 cf Average Runoff Depth = 5.89"**
46.55% Pervious = 148,503 sf 53.45% Impervious = 170,548 sf

10055-Hydrocad-Existing

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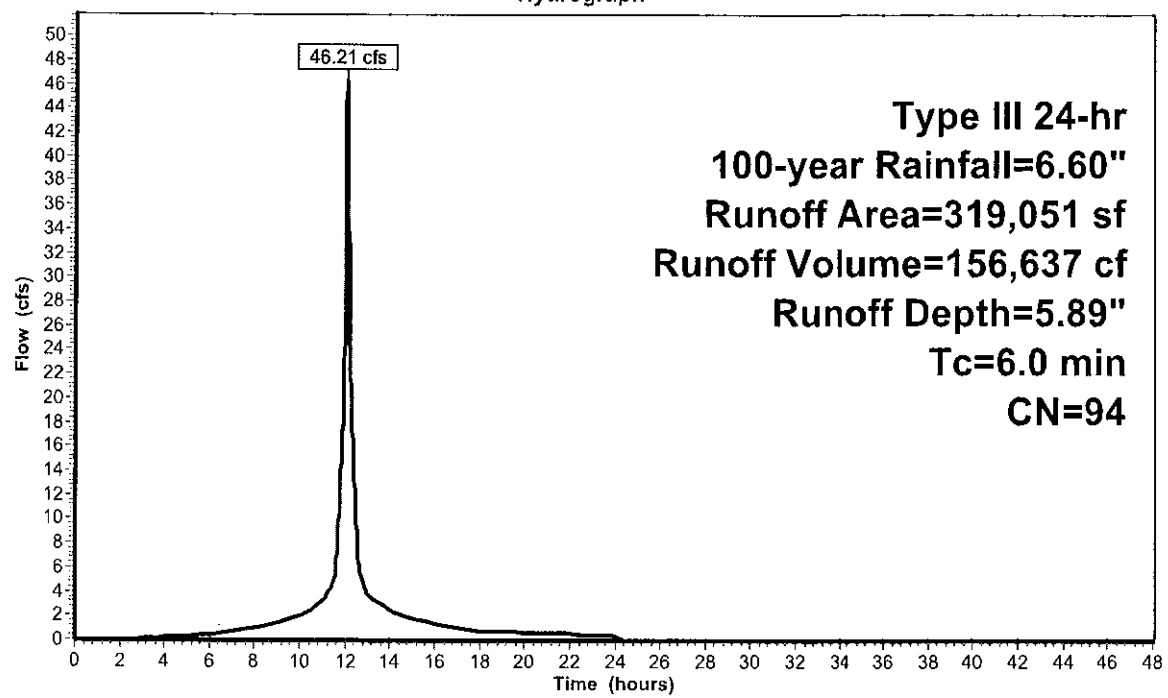
Type III 24-hr 100-year Rainfall=6.60"

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Page 10

Subcatchment EX: Existing

Hydrograph



10055-Hydrocad-Existing

Type III 24-hr 100-year Rainfall=6.60"

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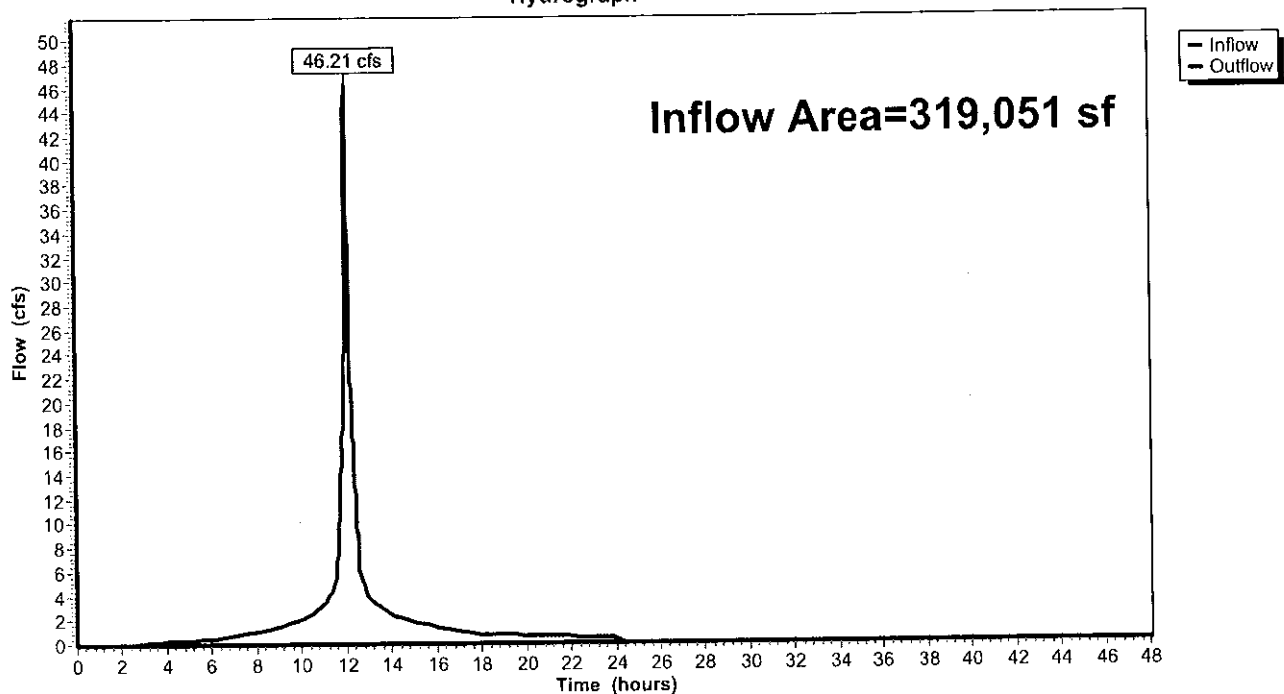
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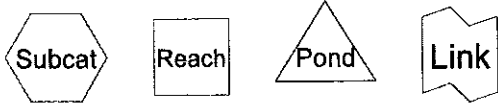
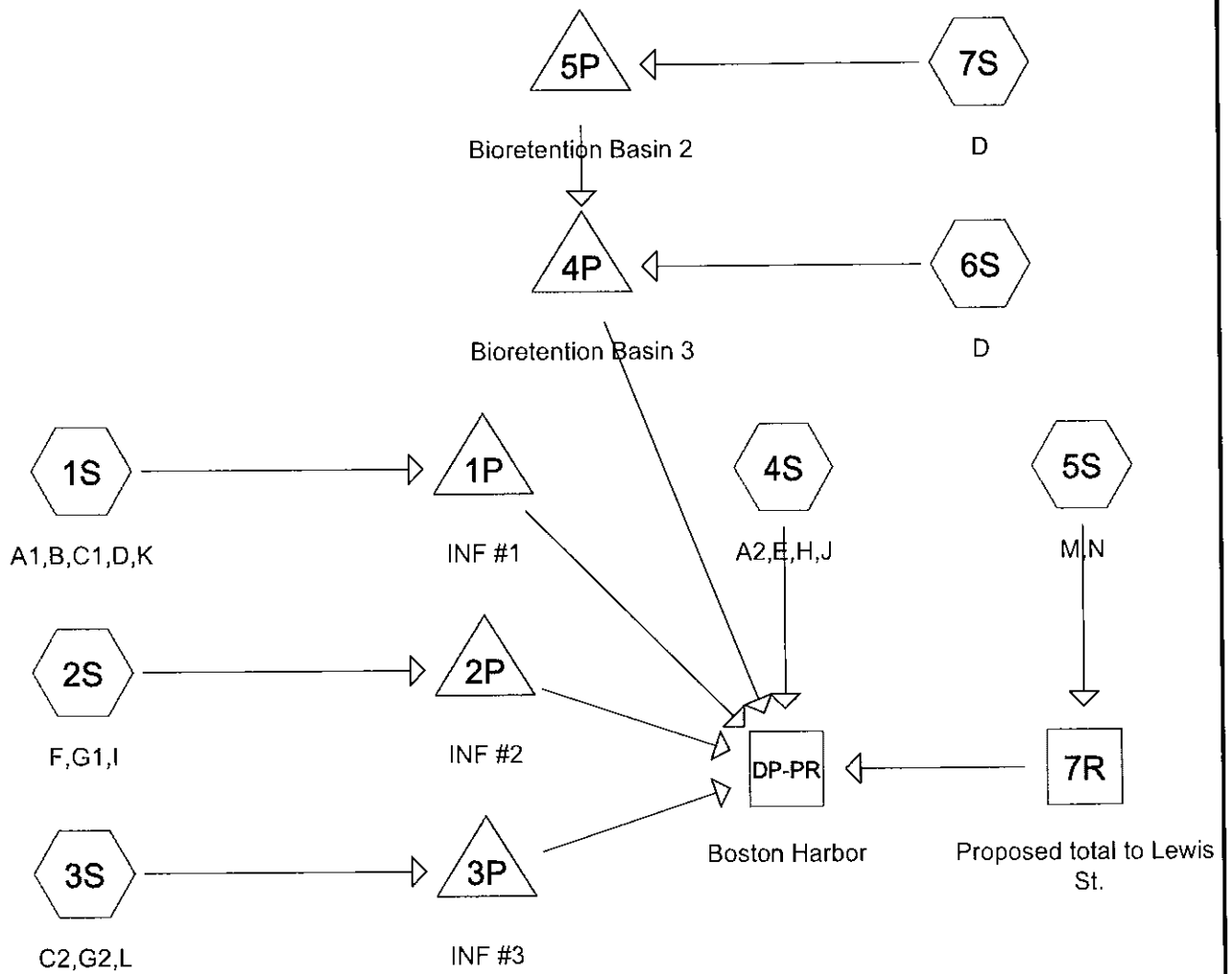
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Reach DP EX: Existing

Hydrograph





Routing Diagram for 10055-Hydrocad-Proposed-2015-07-08
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Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
75,389	84	50-75% Grass cover, Fair, HSG D (1S, 2S, 3S, 4S, 5S)
42,386	89	<50% Grass cover, Poor, HSG D (1S, 2S, 3S)
53,889	98	Paved parking, HSG D (1S, 2S, 3S, 5S)
95,917	98	Roofs, HSG D (1S, 2S, 3S, 6S, 7S)
35,466	98	Walkway (4S)
16,004	98	Water Surface, HSG D (4S)
319,051	93	TOTAL AREA

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Type III 24-hr 2-year Rainfall=3.20"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: A1,B,C1,D,K	Runoff Area=88,616 sf 60.99% Impervious Runoff Depth=2.54" Tc=6.0 min CN=94 Runoff=5.81 cfs 18,785 cf
Subcatchment 2S: F,G1,I	Runoff Area=48,898 sf 75.48% Impervious Runoff Depth=2.64" Tc=6.0 min CN=95 Runoff=3.29 cfs 10,778 cf
Subcatchment 3S: C2,G2,L	Runoff Area=74,028 sf 48.50% Impervious Runoff Depth=2.35" Tc=6.0 min CN=92 Runoff=4.57 cfs 14,501 cf
Subcatchment 4S: A2,E,H,J	Runoff Area=73,208 sf 70.31% Impervious Runoff Depth=2.54" Tc=6.0 min CN=94 Runoff=4.80 cfs 15,519 cf
Subcatchment 5S: M,N	Runoff Area=24,301 sf 53.25% Impervious Runoff Depth=2.26" Tc=6.0 min CN=91 Runoff=1.45 cfs 4,573 cf
Subcatchment 6S: D	Runoff Area=5,000 sf 100.00% Impervious Runoff Depth=2.97" Tc=6.0 min CN=98 Runoff=0.36 cfs 1,236 cf
Subcatchment 7S: D	Runoff Area=5,000 sf 100.00% Impervious Runoff Depth=2.97" Tc=6.0 min CN=98 Runoff=0.36 cfs 1,236 cf
Reach 7R: Proposed total to Lewis St.	Inflow=1.45 cfs 4,573 cf Outflow=1.45 cfs 4,573 cf
Reach DP-PR: Boston Harbor	Inflow=20.48 cfs 55,285 cf Outflow=20.48 cfs 55,285 cf
Pond 1P: INF #1	Peak Elev=14.51' Storage=3,050 cf Inflow=5.81 cfs 18,785 cf Discarded=0.01 cfs 1,247 cf Primary=5.75 cfs 15,486 cf Outflow=5.76 cfs 16,733 cf
Pond 2P: INF #2	Peak Elev=14.34' Storage=2,571 cf Inflow=3.29 cfs 10,778 cf Discarded=0.01 cfs 1,090 cf Primary=3.25 cfs 7,901 cf Outflow=3.26 cfs 8,991 cf
Pond 3P: INF #3	Peak Elev=13.43' Storage=4,064 cf Inflow=4.57 cfs 14,501 cf Discarded=0.01 cfs 1,632 cf Primary=4.48 cfs 10,096 cf Outflow=4.49 cfs 11,728 cf
Pond 4P: Bioretention Basin 3	Peak Elev=15.18' Storage=398 cf Inflow=0.74 cfs 2,063 cf Outflow=0.80 cfs 1,710 cf
Pond 5P: Bioretention Basin 2	Peak Elev=20.07' Storage=460 cf Inflow=0.36 cfs 1,236 cf Outflow=0.38 cfs 827 cf

Total Runoff Area = 319,051 sf Runoff Volume = 66,629 cf Average Runoff Depth = 2.51"
36.91% Pervious = 117,775 sf 63.09% Impervious = 201,276 sf

10055-Hydrocad-Proposed-2015-07-08

Type III 24-hr 2-year Rainfall=3.20"

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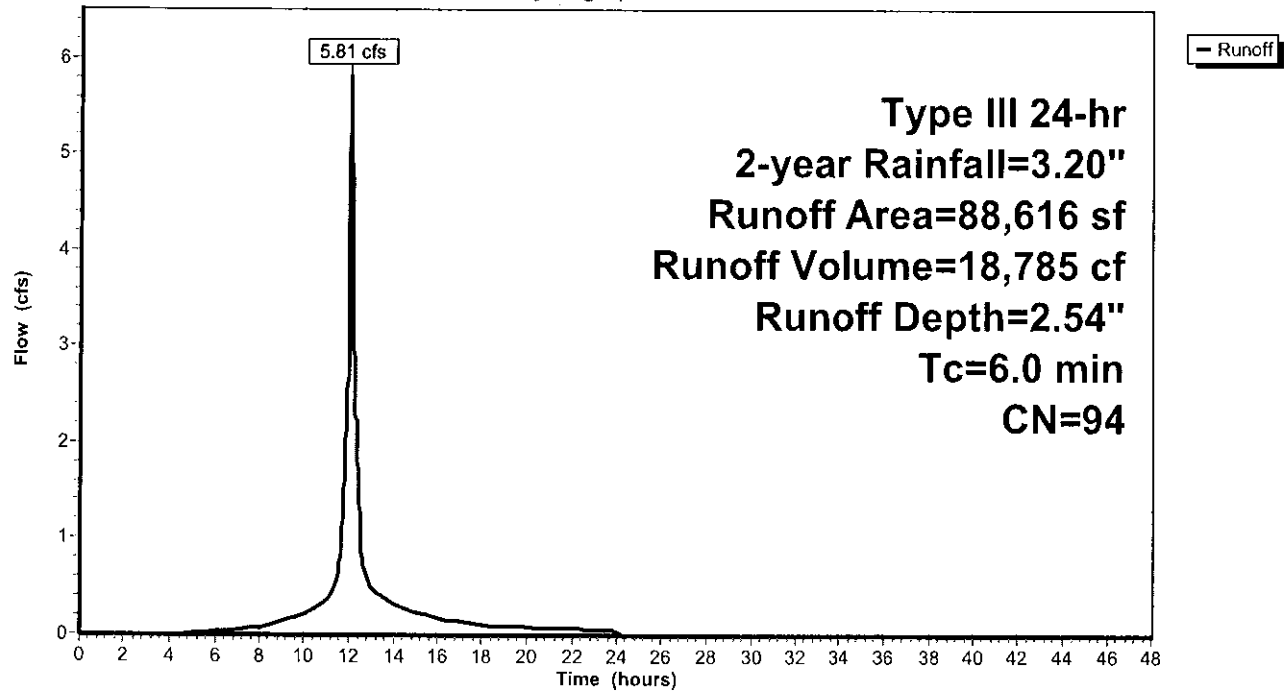
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Subcatchment 1S: A1,B,C1,D,K

Hydrograph



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Type III 24-hr 2-year Rainfall=3.20"

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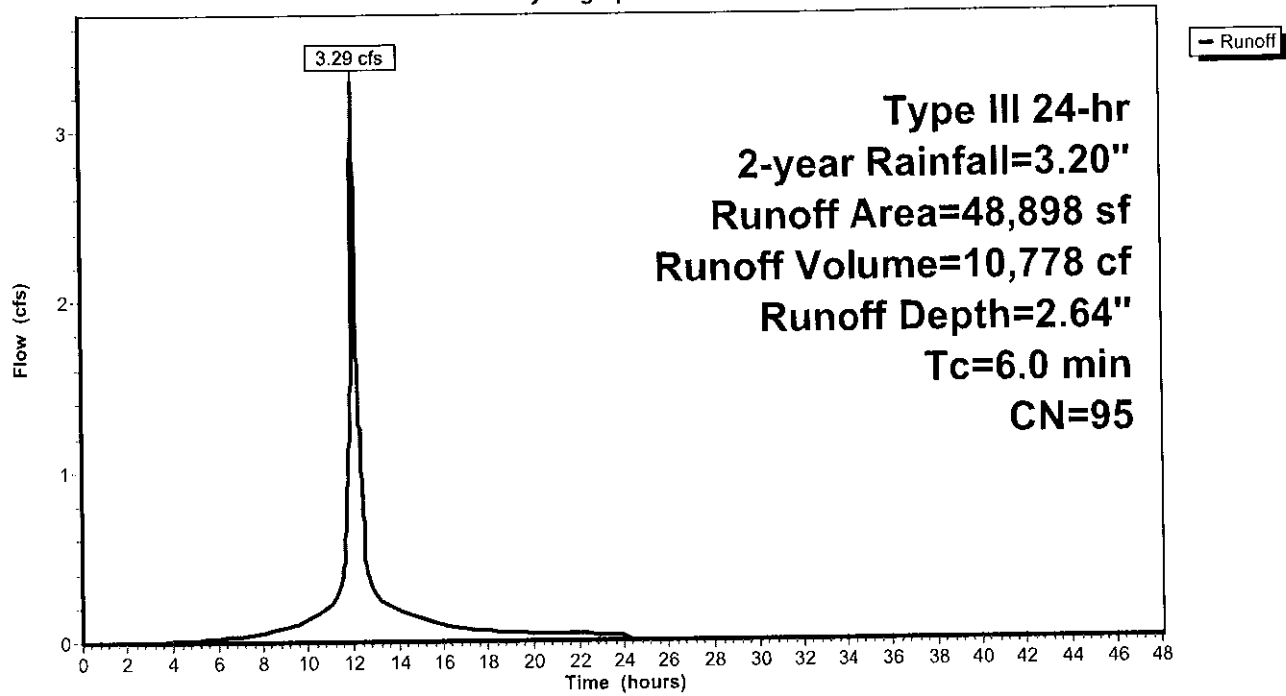
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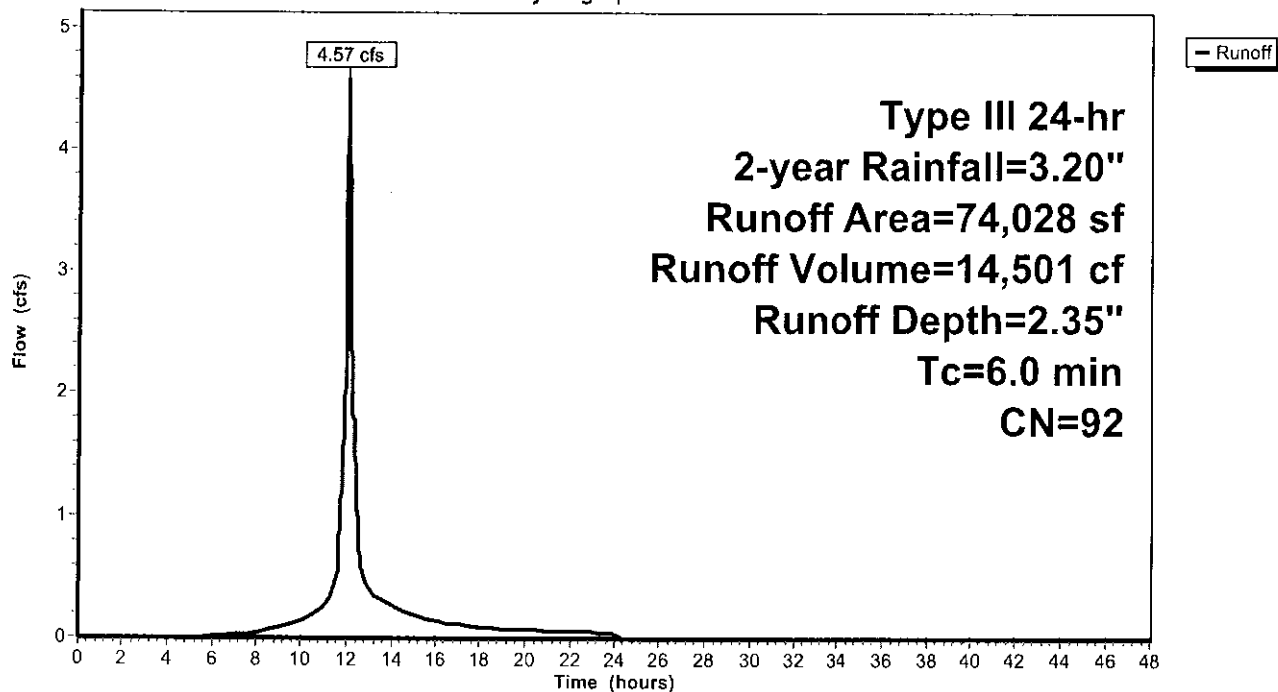
Subcatchment 2S: F,G1,I

Hydrograph



Subcatchment 3S: C2,G2,L

Hydrograph



10055-Hydrocad-Proposed-2015-07-08

Type III 24-hr 2-year Rainfall=3.20"

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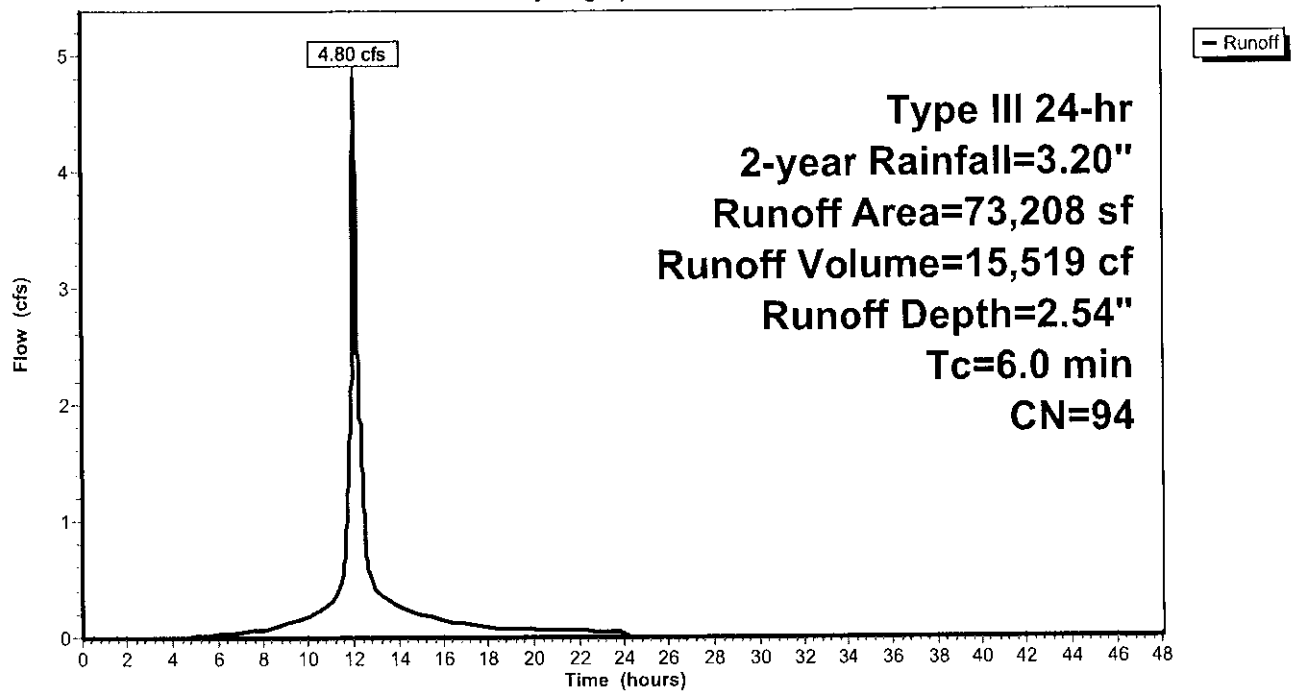
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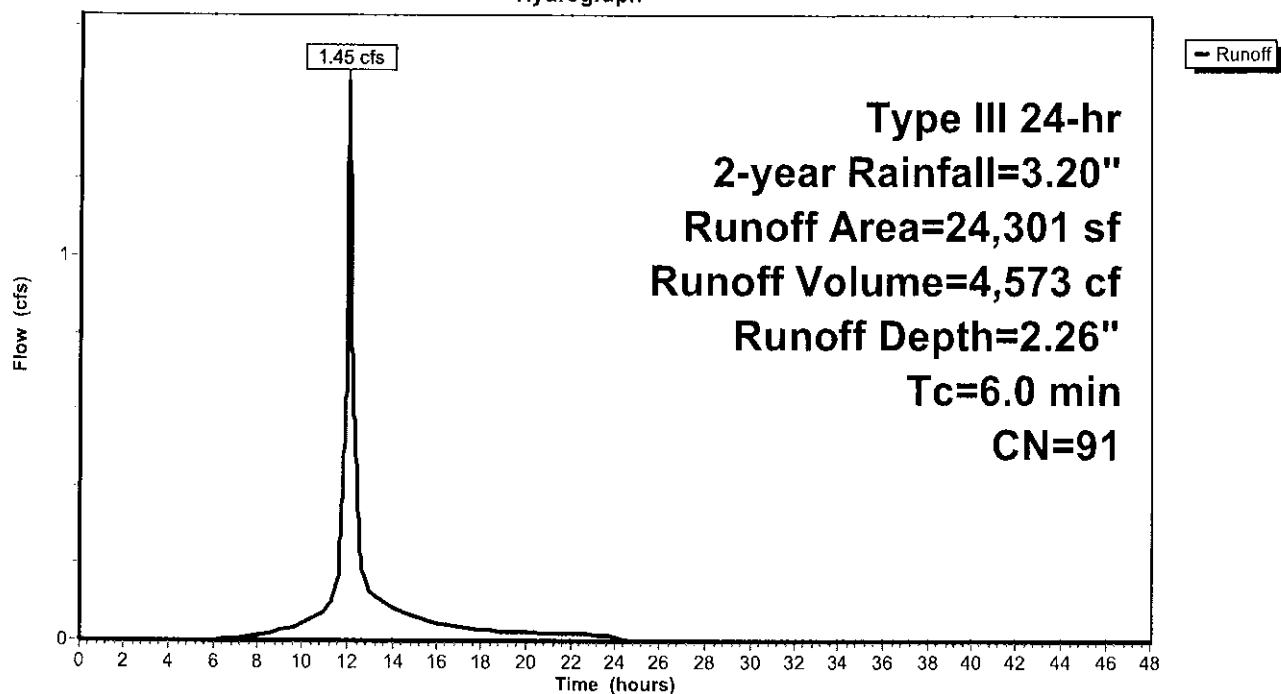
Subcatchment 4S: A2,E,H,J

Hydrograph



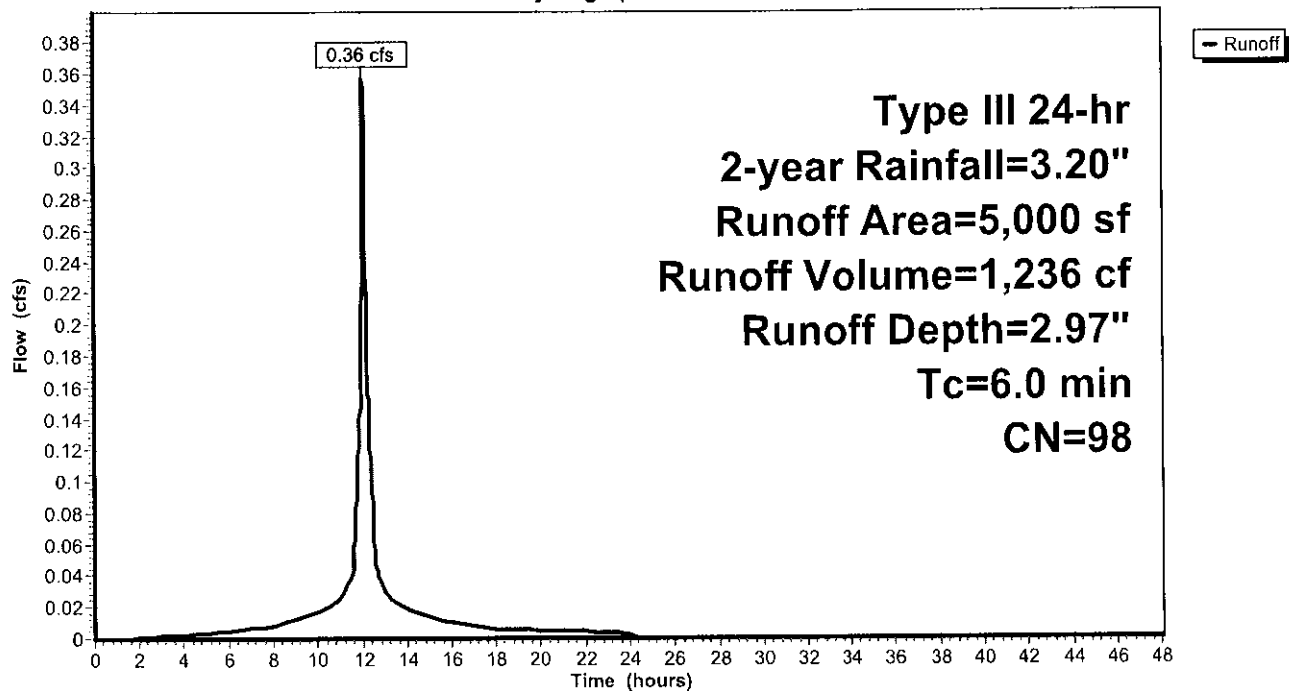
Subcatchment 5S: M,N

Hydrograph



Subcatchment 6S: D

Hydrograph



10055-Hydrocad-Proposed-2015-07-08

Type III 24-hr 2-year Rainfall=3.20"

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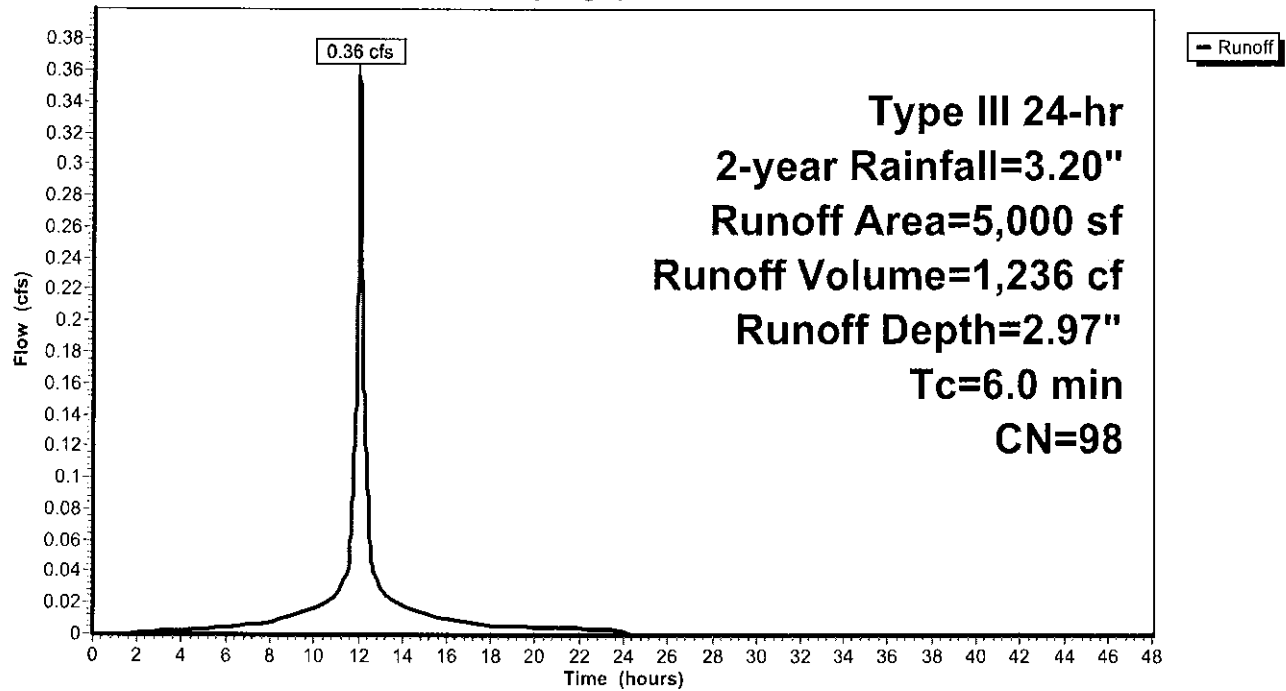
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Page 10

Subcatchment 7S: D

Hydrograph



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Type III 24-hr 2-year Rainfall=3.20"

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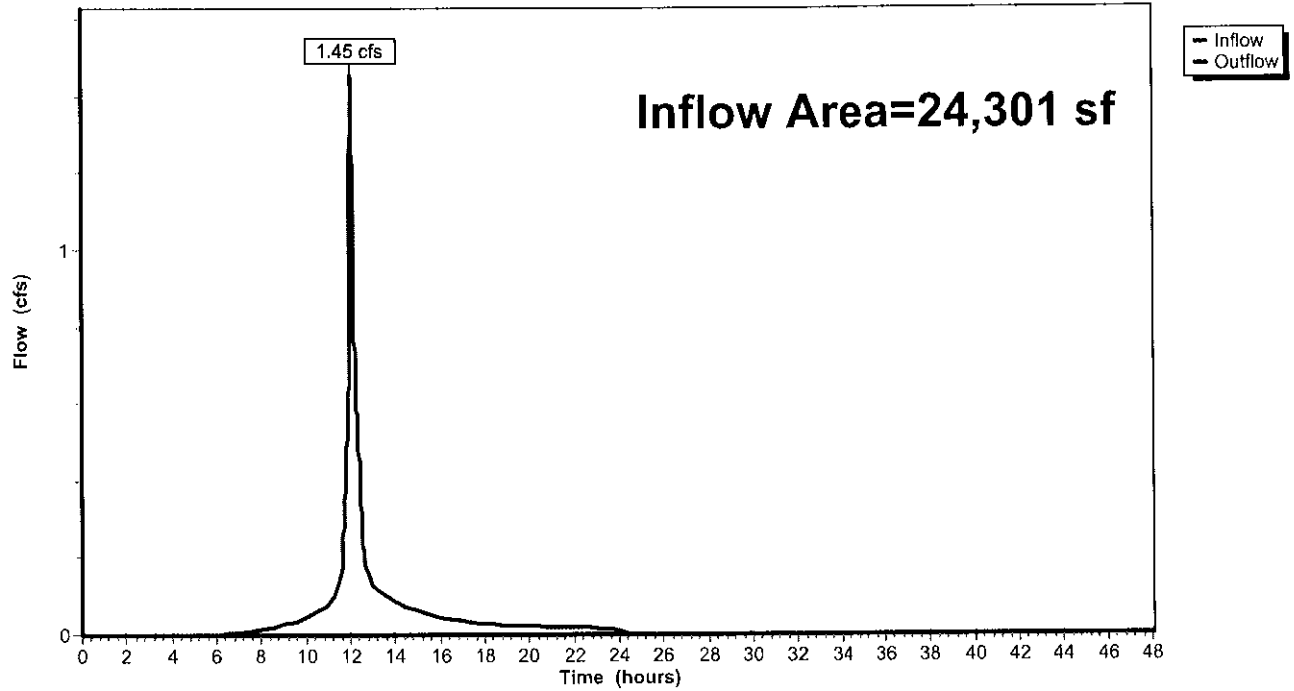
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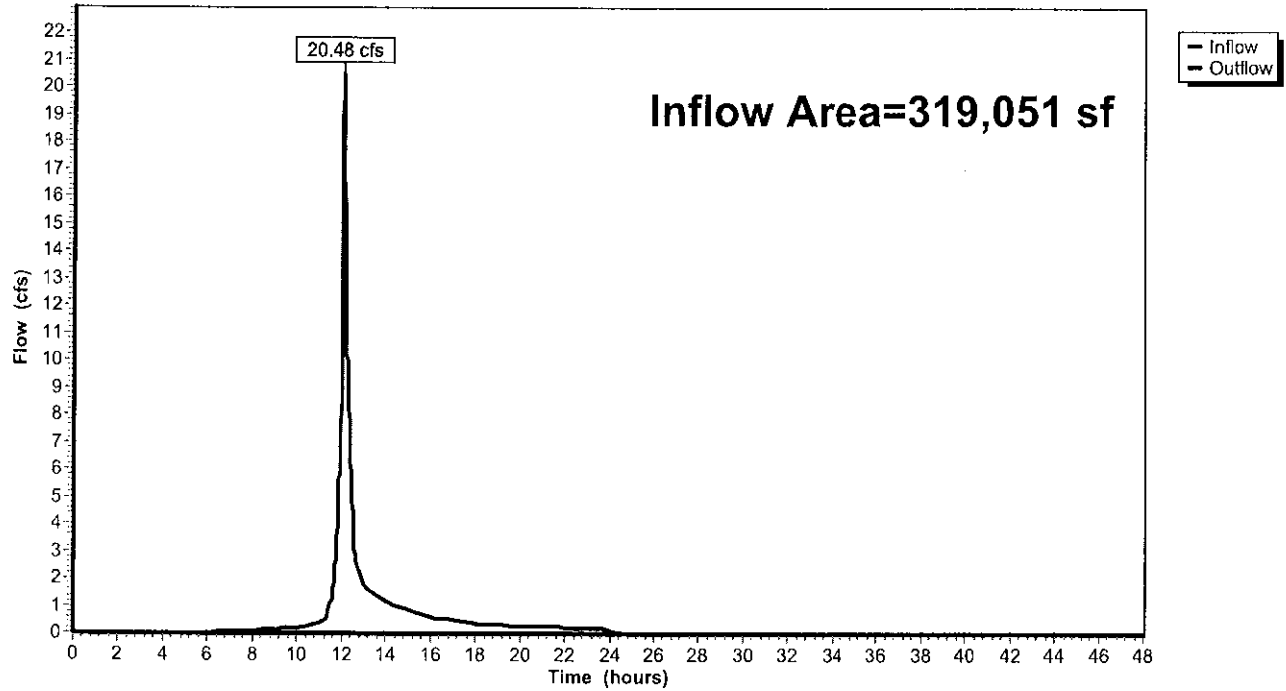
Reach 7R: Proposed total to Lewis St.

Hydrograph



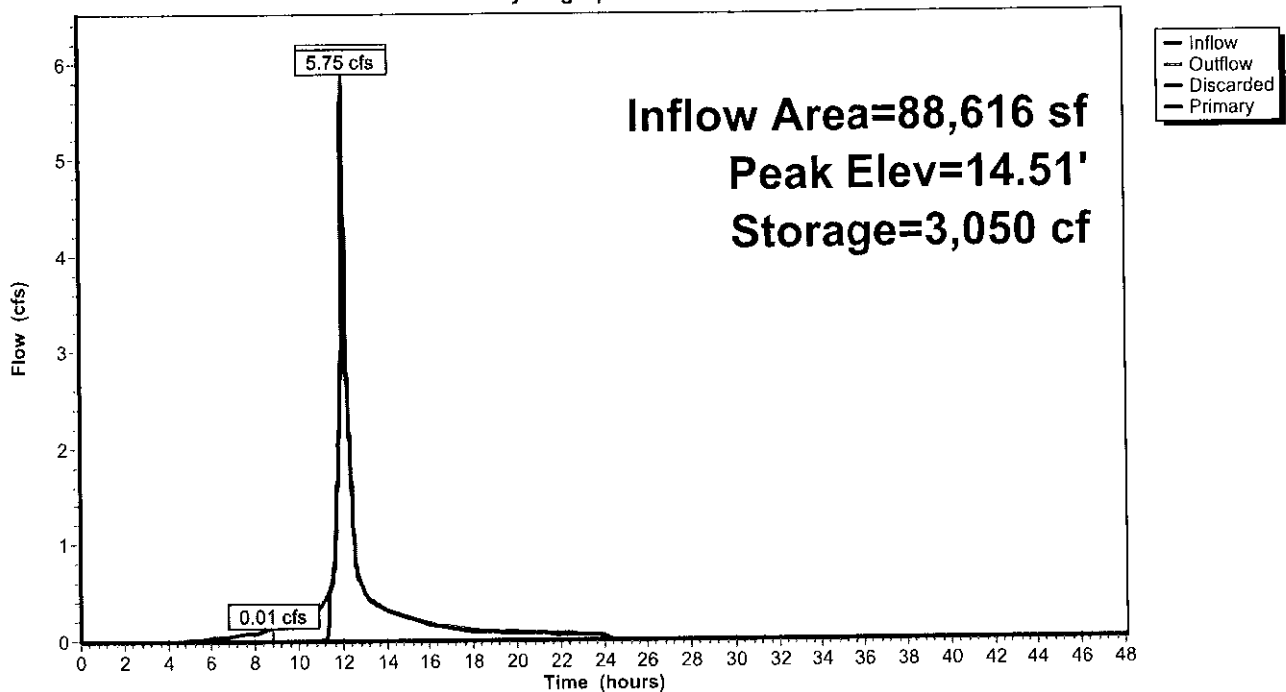
Reach DP-PR: Boston Harbor

Hydrograph



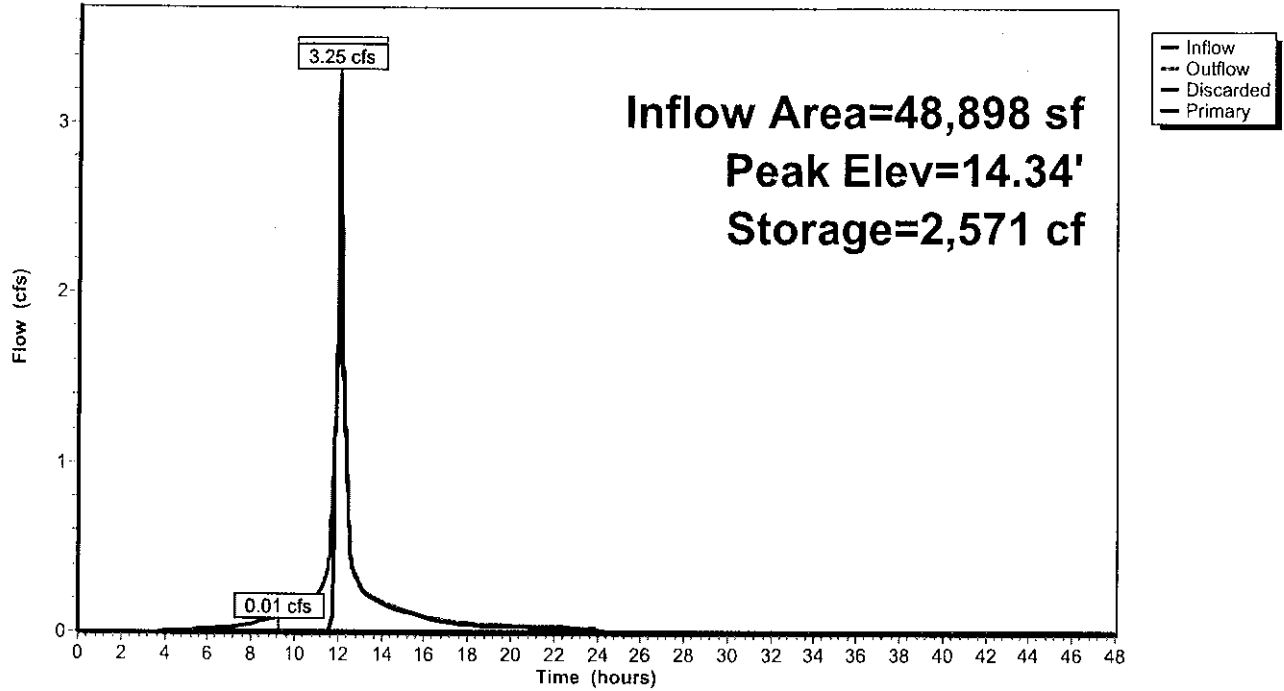
Pond 1P: INF #1

Hydrograph



Pond 2P: INF #2

Hydrograph



10055-Hydrocad-Proposed-2015-07-08

Type III 24-hr 2-year Rainfall=3.20"

Prepared by Microsoft

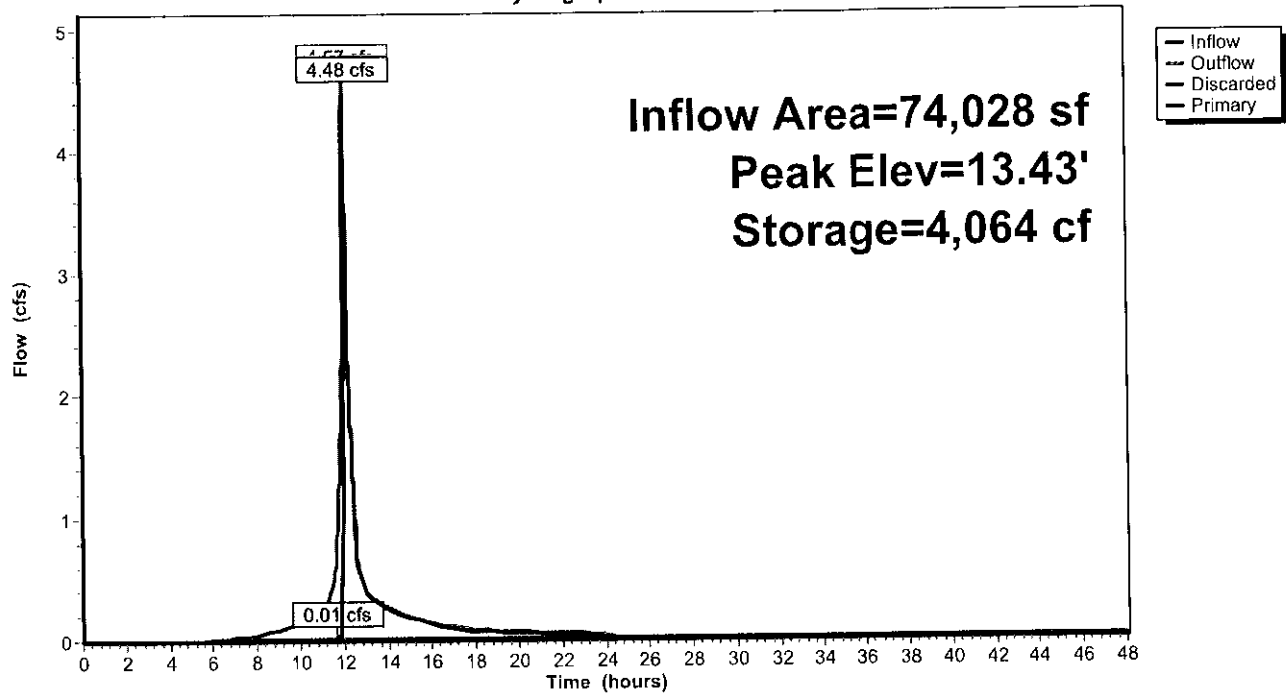
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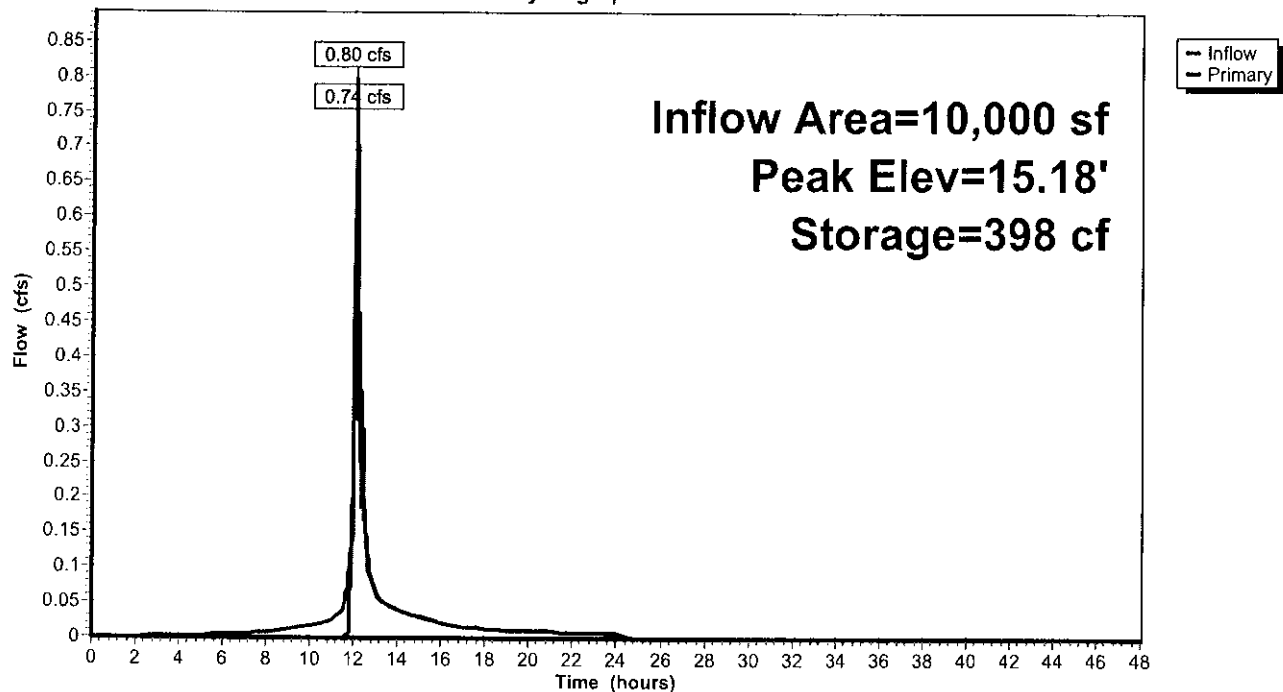
Pond 3P: INF #3

Hydrograph



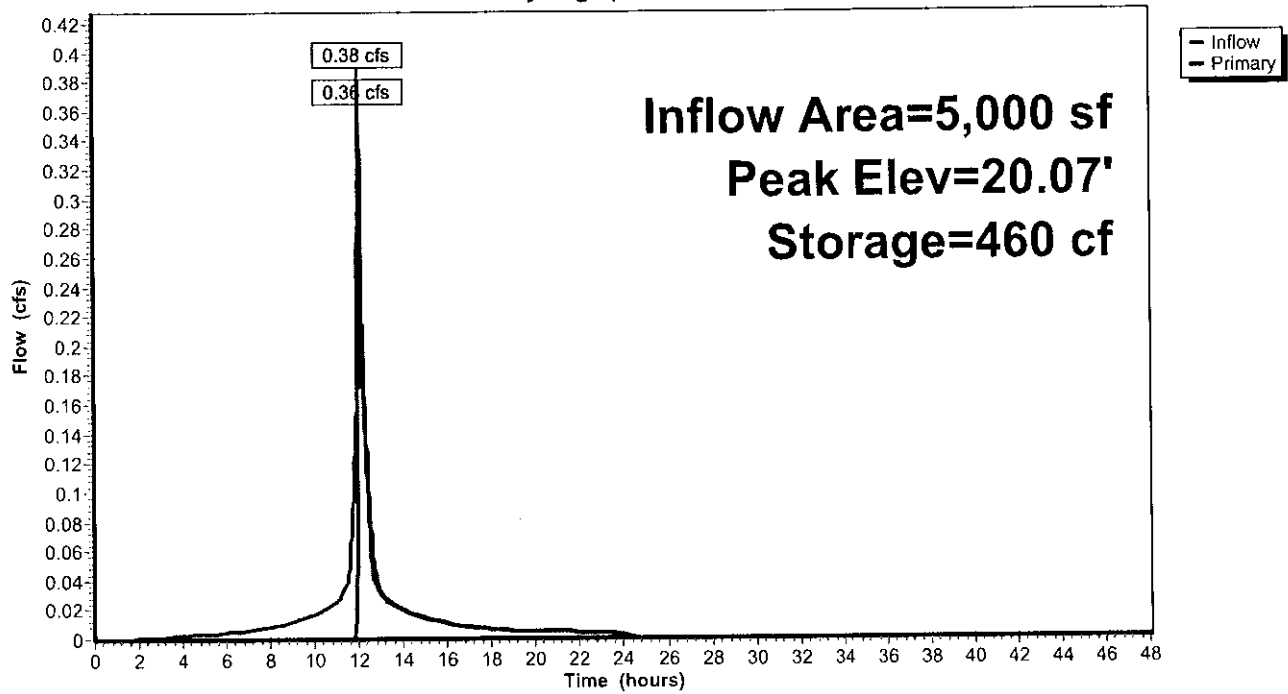
Pond 4P: Bioretention Basin 3

Hydrograph



Pond 5P: Bioretention Basin 2

Hydrograph



10055-Hydrocad-Proposed-2015-07-08

Type III 24-hr 10-year Rainfall=4.60"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points

Runoff by SCS TR-20 method, UH=SCS

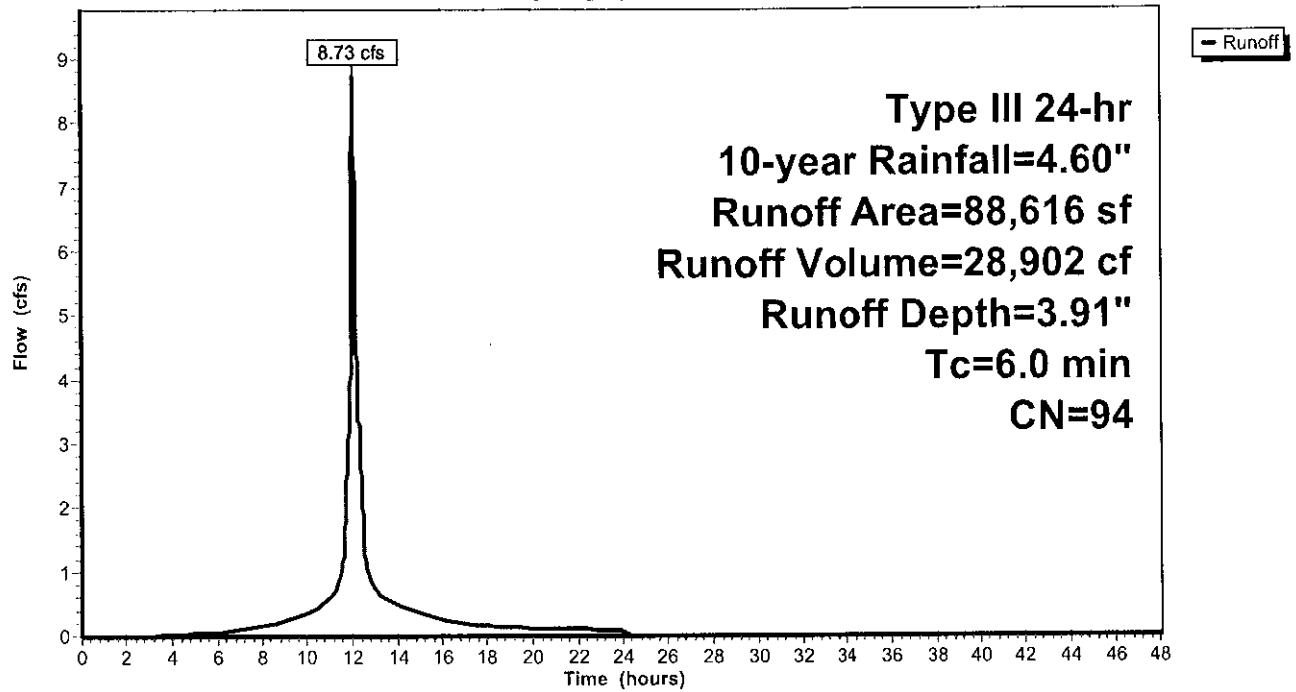
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: A1,B,C1,D,K	Runoff Area=88,616 sf 60.99% Impervious Runoff Depth=3.91" Tc=6.0 min CN=94 Runoff=8.73 cfs 28,902 cf
Subcatchment 2S: F,G1,I	Runoff Area=48,898 sf 75.48% Impervious Runoff Depth=4.02" Tc=6.0 min CN=95 Runoff=4.89 cfs 16,395 cf
Subcatchment 3S: C2,G2,L	Runoff Area=74,028 sf 48.50% Impervious Runoff Depth=3.70" Tc=6.0 min CN=92 Runoff=7.04 cfs 22,821 cf
Subcatchment 4S: A2,E,H,J	Runoff Area=73,208 sf 70.31% Impervious Runoff Depth=3.91" Tc=6.0 min CN=94 Runoff=7.21 cfs 23,877 cf
Subcatchment 5S: M,N	Runoff Area=24,301 sf 53.25% Impervious Runoff Depth=3.59" Tc=6.0 min CN=91 Runoff=2.26 cfs 7,279 cf
Subcatchment 6S: D	Runoff Area=5,000 sf 100.00% Impervious Runoff Depth=4.36" Tc=6.0 min CN=98 Runoff=0.52 cfs 1,818 cf
Subcatchment 7S: D	Runoff Area=5,000 sf 100.00% Impervious Runoff Depth=4.36" Tc=6.0 min CN=98 Runoff=0.52 cfs 1,818 cf
Reach 7R: Proposed total to Lewis St.	Inflow=2.26 cfs 7,279 cf Outflow=2.26 cfs 7,279 cf
Reach DP-PR: Boston Harbor	Inflow=31.09 cfs 91,489 cf Outflow=31.09 cfs 91,489 cf
Pond 1P: INF #1	Peak Elev=14.67' Storage=3,053 cf Inflow=8.73 cfs 28,902 cf Discarded=0.01 cfs 1,283 cf Primary=8.73 cfs 25,601 cf Outflow=8.74 cfs 26,885 cf
Pond 2P: INF #2	Peak Elev=14.45' Storage=2,629 cf Inflow=4.89 cfs 16,395 cf Discarded=0.01 cfs 1,120 cf Primary=4.84 cfs 13,488 cf Outflow=4.85 cfs 14,608 cf
Pond 3P: INF #3	Peak Elev=13.58' Storage=4,128 cf Inflow=7.04 cfs 22,821 cf Discarded=0.01 cfs 1,692 cf Primary=7.04 cfs 18,369 cf Outflow=7.05 cfs 20,060 cf
Pond 4P: Bioretention Basin 3	Peak Elev=15.23' Storage=398 cf Inflow=1.04 cfs 3,227 cf Outflow=1.05 cfs 2,874 cf
Pond 5P: Bioretention Basin 2	Peak Elev=20.11' Storage=460 cf Inflow=0.52 cfs 1,818 cf Outflow=0.52 cfs 1,409 cf

Total Runoff Area = 319,051 sf Runoff Volume = 102,911 cf Average Runoff Depth = 3.87"
36.91% Pervious = 117,775 sf 63.09% Impervious = 201,276 sf

Subcatchment 1S: A1,B,C1,D,K

Hydrograph



10055-Hydrocad-Proposed-2015-07-08

Type III 24-hr 10-year Rainfall=4.60"

Prepared by Microsoft

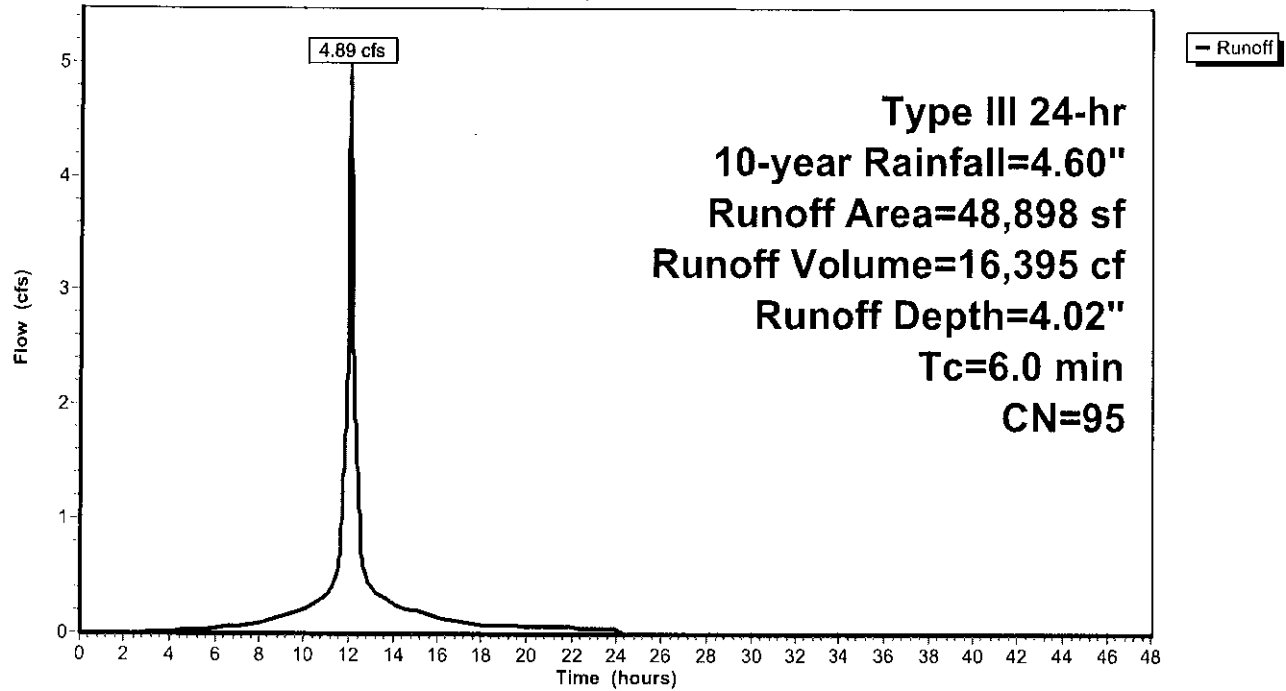
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Subcatchment 2S: F,G1,I

Hydrograph



10055-Hydrocad-Proposed-2015-07-08

Type III 24-hr 10-year Rainfall=4.60"

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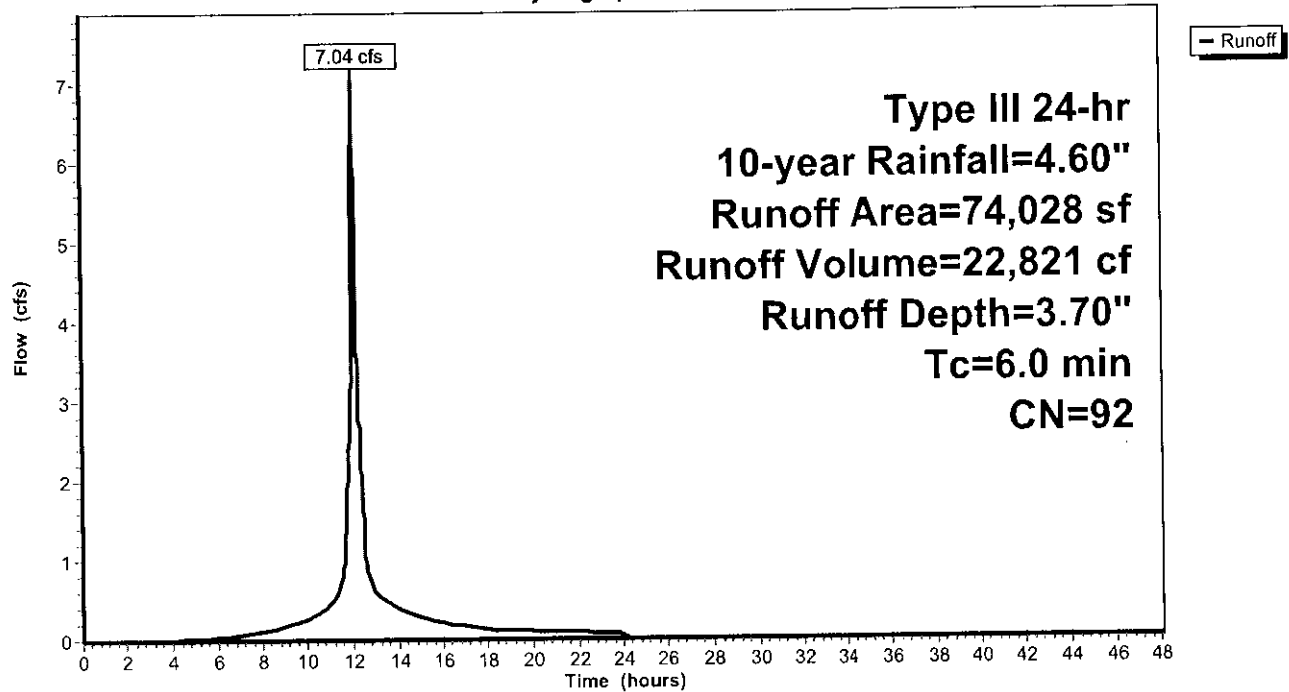
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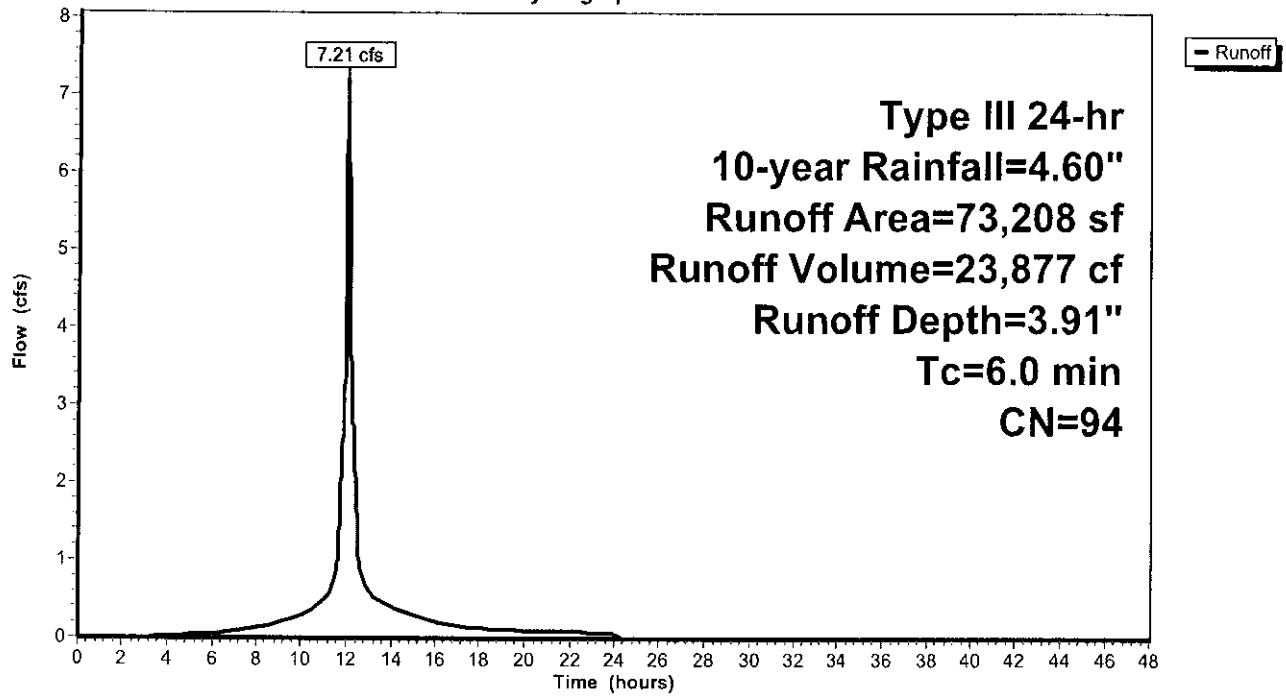
Subcatchment 3S: C2,G2,L

Hydrograph



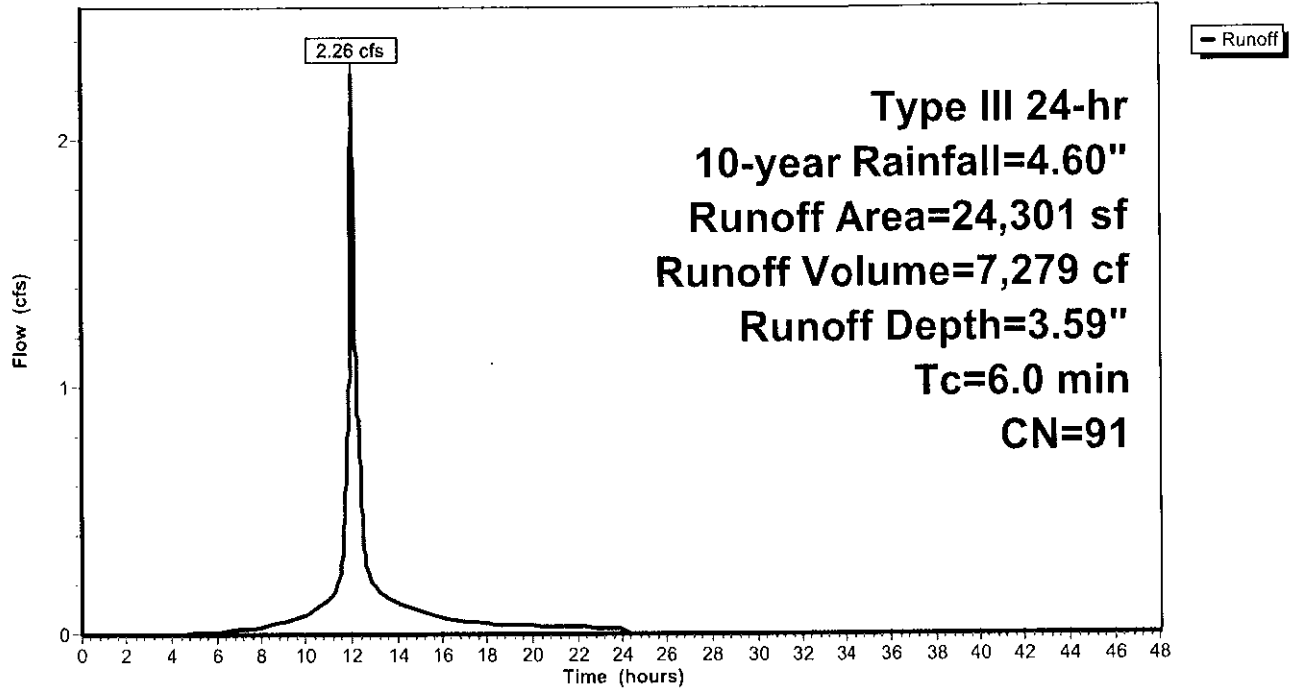
Subcatchment 4S: A2,E,H,J

Hydrograph



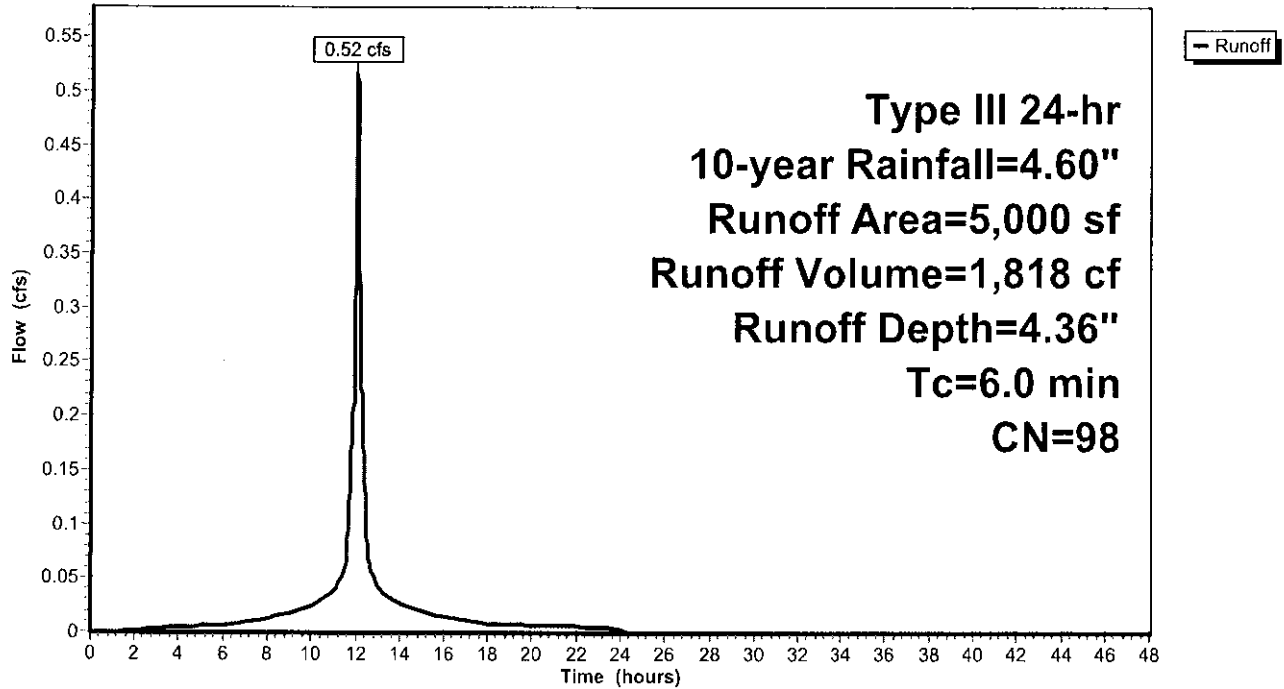
Subcatchment 5S: M,N

Hydrograph



Subcatchment 6S: D

Hydrograph



10055-Hydrocad-Proposed-2015-07-08

Type III 24-hr 10-year Rainfall=4.60"

Prepared by Microsoft

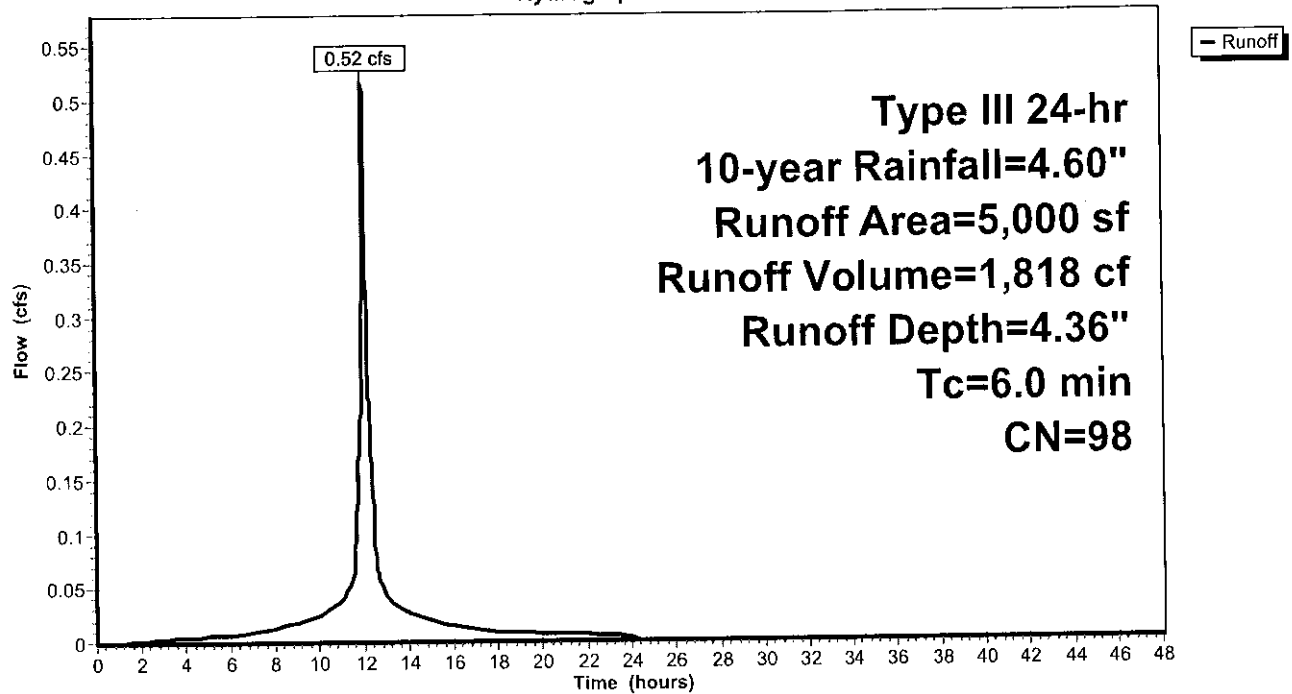
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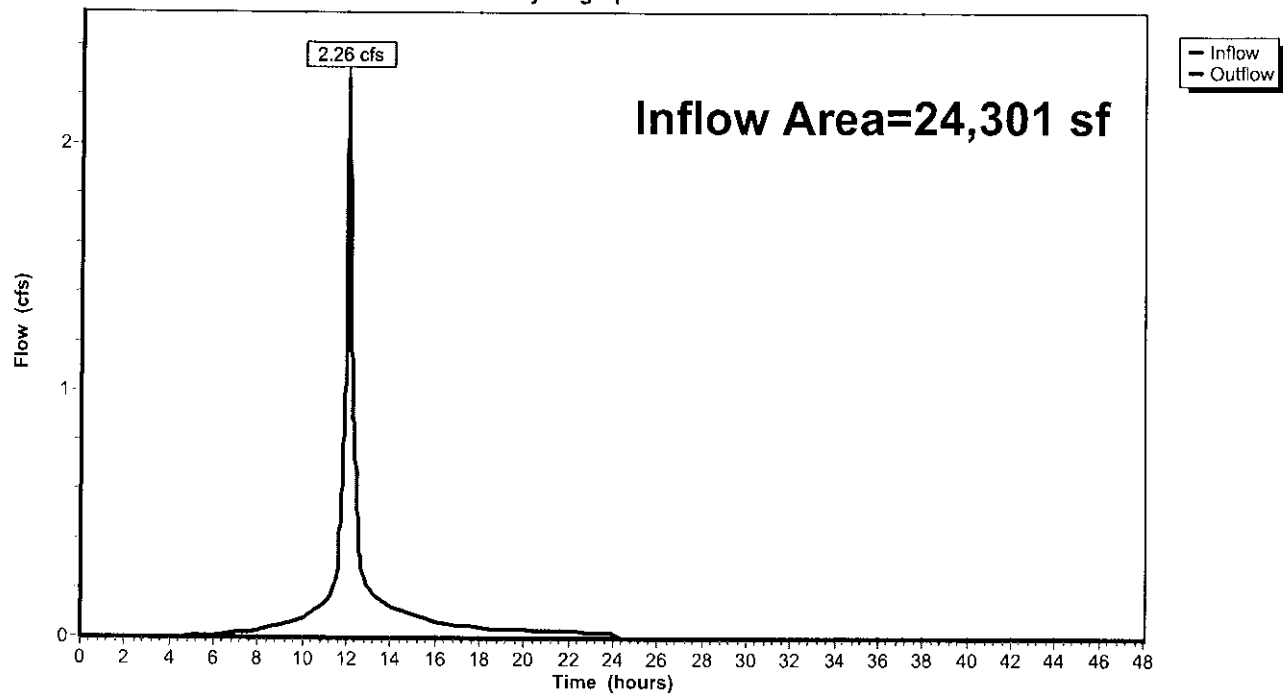
Subcatchment 7S: D

Hydrograph



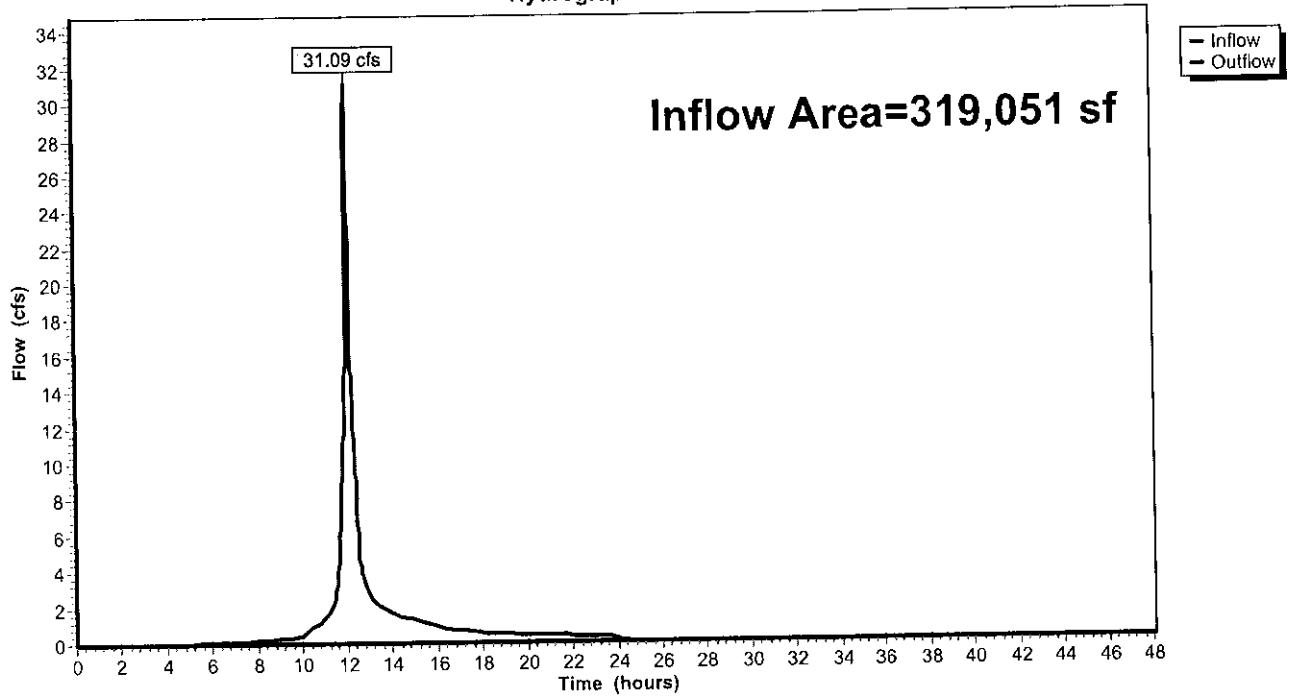
Reach 7R: Proposed total to Lewis St.

Hydrograph



Reach DP-PR: Boston Harbor

Hydrograph



10055-Hydrocad-Proposed-2015-07-08

Type III 24-hr 10-year Rainfall=4.60"

Prepared by Microsoft

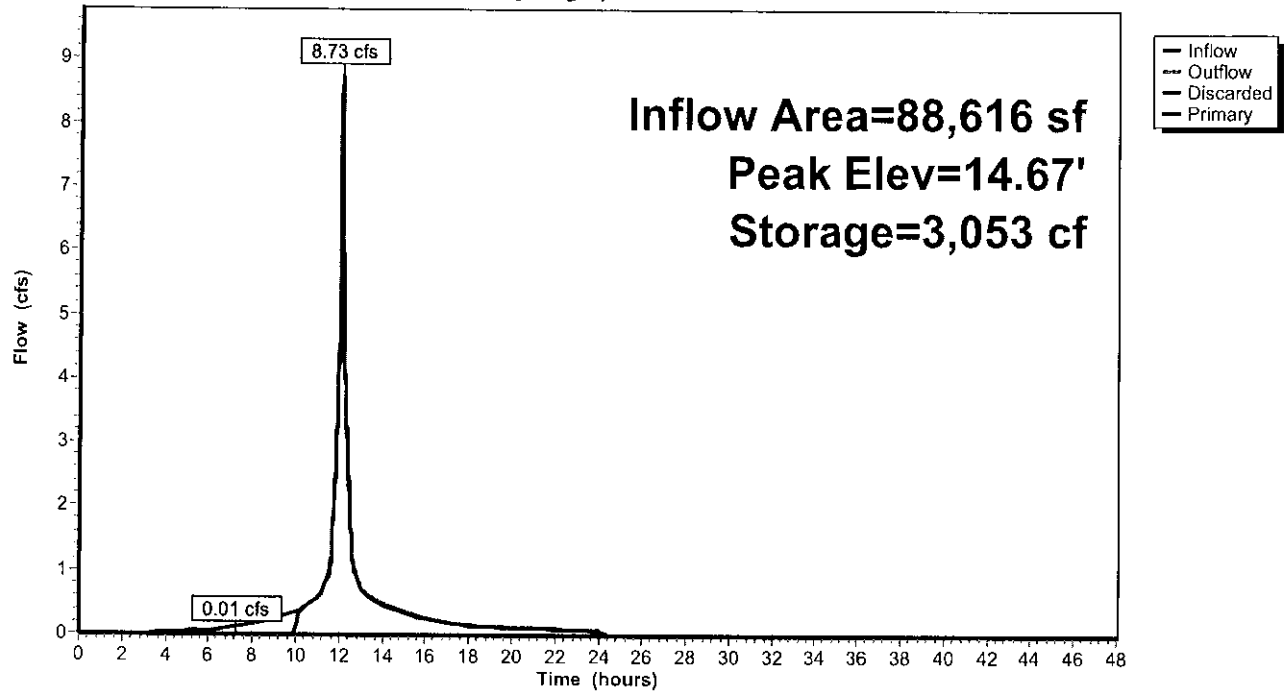
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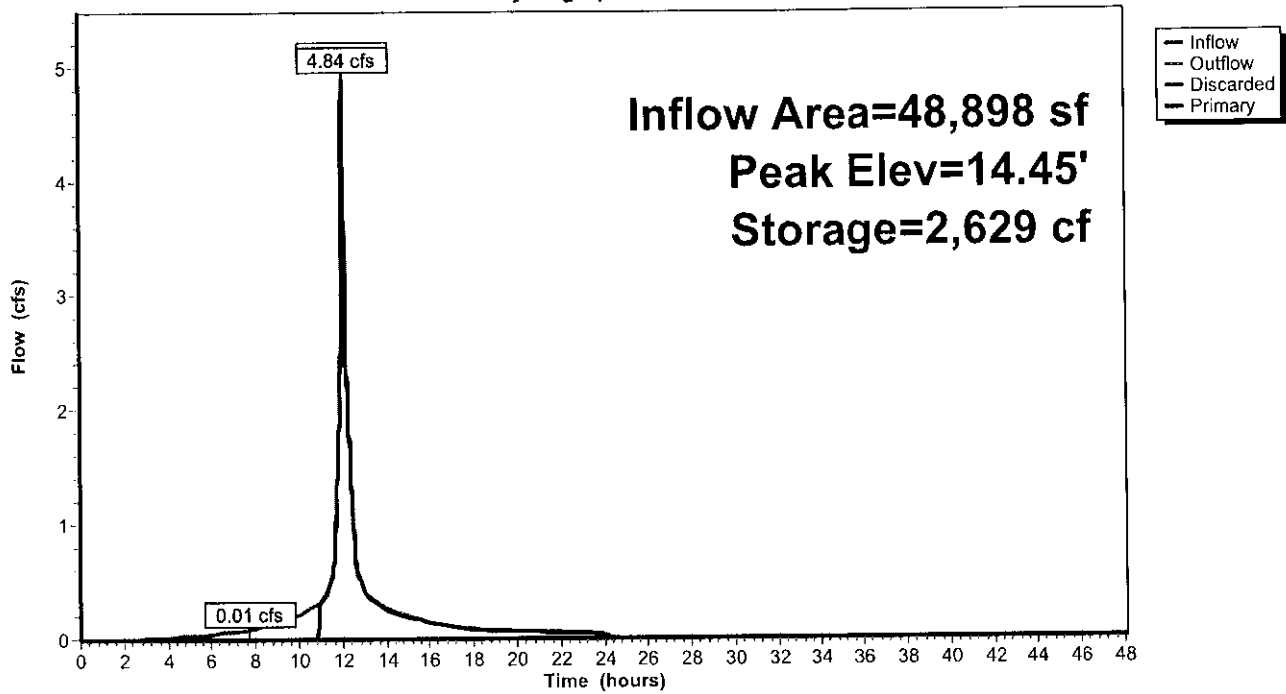
Pond 1P: INF #1

Hydrograph



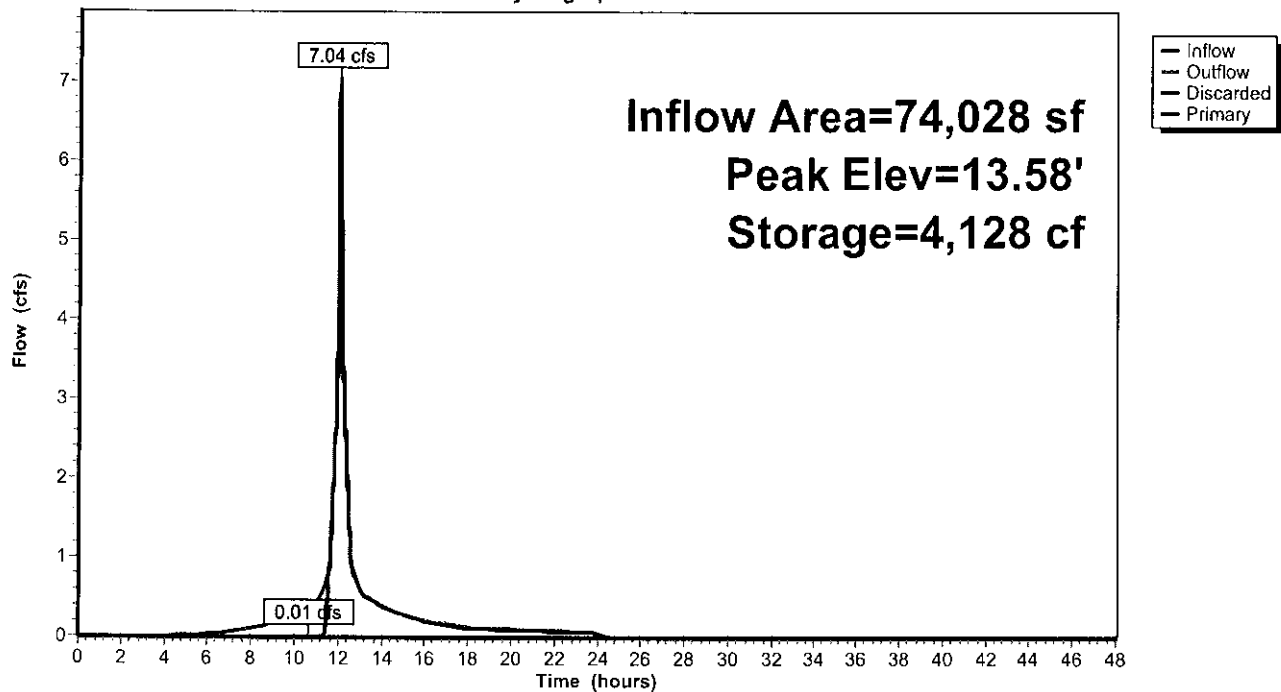
Pond 2P: INF #2

Hydrograph



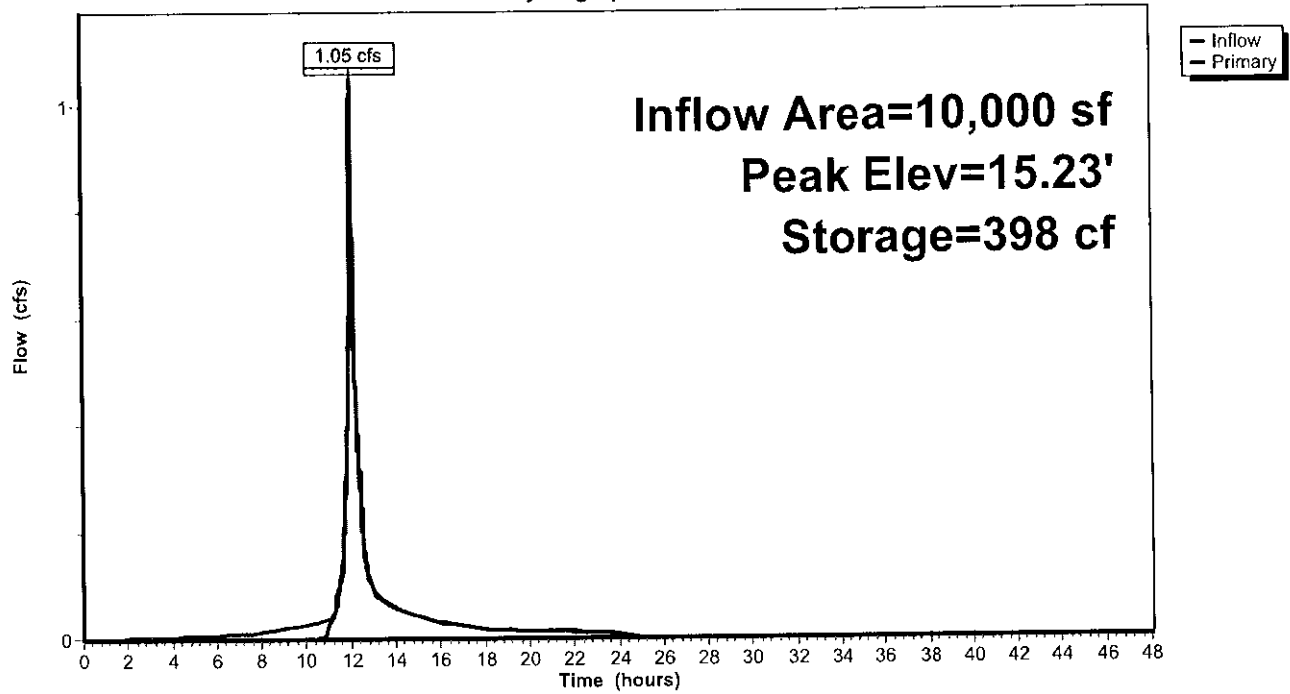
Pond 3P: INF #3

Hydrograph



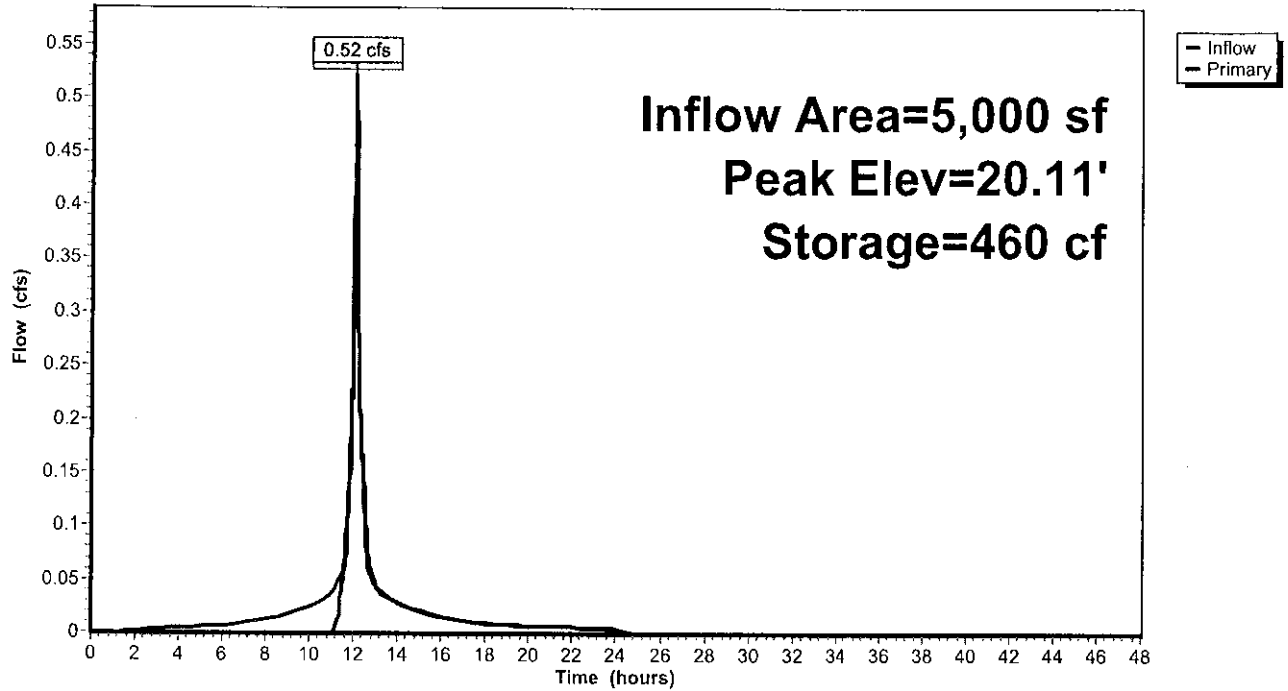
Pond 4P: Bioretention Basin 3

Hydrograph



Pond 5P: Bioretention Basin 2

Hydrograph



10055-Hydrocad-Proposed-2015-07-08

Type III 24-hr 100-year Rainfall=6.60"

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Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: A1,B,C1,D,K	Runoff Area=88,616 sf 60.99% Impervious Runoff Depth=5.89" Tc=6.0 min CN=94 Runoff=12.84 cfs 43,506 cf
Subcatchment 2S: F,G1,I	Runoff Area=48,898 sf 75.48% Impervious Runoff Depth=6.01" Tc=6.0 min CN=95 Runoff=7.14 cfs 24,481 cf
Subcatchment 3S: C2,G2,L	Runoff Area=74,028 sf 48.50% Impervious Runoff Depth=5.66" Tc=6.0 min CN=92 Runoff=10.51 cfs 34,918 cf
Subcatchment 4S: A2,E,H,J	Runoff Area=73,208 sf 70.31% Impervious Runoff Depth=5.89" Tc=6.0 min CN=94 Runoff=10.60 cfs 35,941 cf
Subcatchment 5S: M,N	Runoff Area=24,301 sf 53.25% Impervious Runoff Depth=5.55" Tc=6.0 min CN=91 Runoff=3.41 cfs 11,230 cf
Subcatchment 6S: D	Runoff Area=5,000 sf 100.00% Impervious Runoff Depth=6.36" Tc=6.0 min CN=98 Runoff=0.74 cfs 2,651 cf
Subcatchment 7S: D	Runoff Area=5,000 sf 100.00% Impervious Runoff Depth=6.36" Tc=6.0 min CN=98 Runoff=0.74 cfs 2,651 cf
Reach 7R: Proposed total to Lewis St.	Inflow=3.41 cfs 11,230 cf Outflow=3.41 cfs 11,230 cf
Reach DP-PR: Boston Harbor	Inflow=45.95 cfs 143,860 cf Outflow=45.95 cfs 143,860 cf
Pond 1P: INF #1	Peak Elev=14.87' Storage=3,057 cf Inflow=12.84 cfs 43,506 cf Discarded=0.01 cfs 1,311 cf Primary=12.82 cfs 40,159 cf Outflow=12.83 cfs 41,471 cf
Pond 2P: INF #2	Peak Elev=14.58' Storage=2,658 cf Inflow=7.14 cfs 24,481 cf Discarded=0.01 cfs 1,143 cf Primary=7.12 cfs 21,546 cf Outflow=7.13 cfs 22,689 cf
Pond 3P: INF #3	Peak Elev=13.76' Storage=4,132 cf Inflow=10.51 cfs 34,918 cf Discarded=0.01 cfs 1,740 cf Primary=10.50 cfs 30,445 cf Outflow=10.51 cfs 32,185 cf
Pond 4P: Bioretention Basin 3	Peak Elev=15.33' Storage=398 cf Inflow=1.50 cfs 4,891 cf Outflow=1.51 cfs 4,538 cf
Pond 5P: Bioretention Basin 2	Peak Elev=20.17' Storage=460 cf Inflow=0.74 cfs 2,651 cf Outflow=0.76 cfs 2,241 cf

Total Runoff Area = 319,051 sf Runoff Volume = 155,377 cf Average Runoff Depth = 5.84"
36.91% Pervious = 117,775 sf 63.09% Impervious = 201,276 sf

10055-Hydrocad-Proposed-2015-07-08

Type III 24-hr 100-year Rainfall=6.60"

Prepared by Microsoft

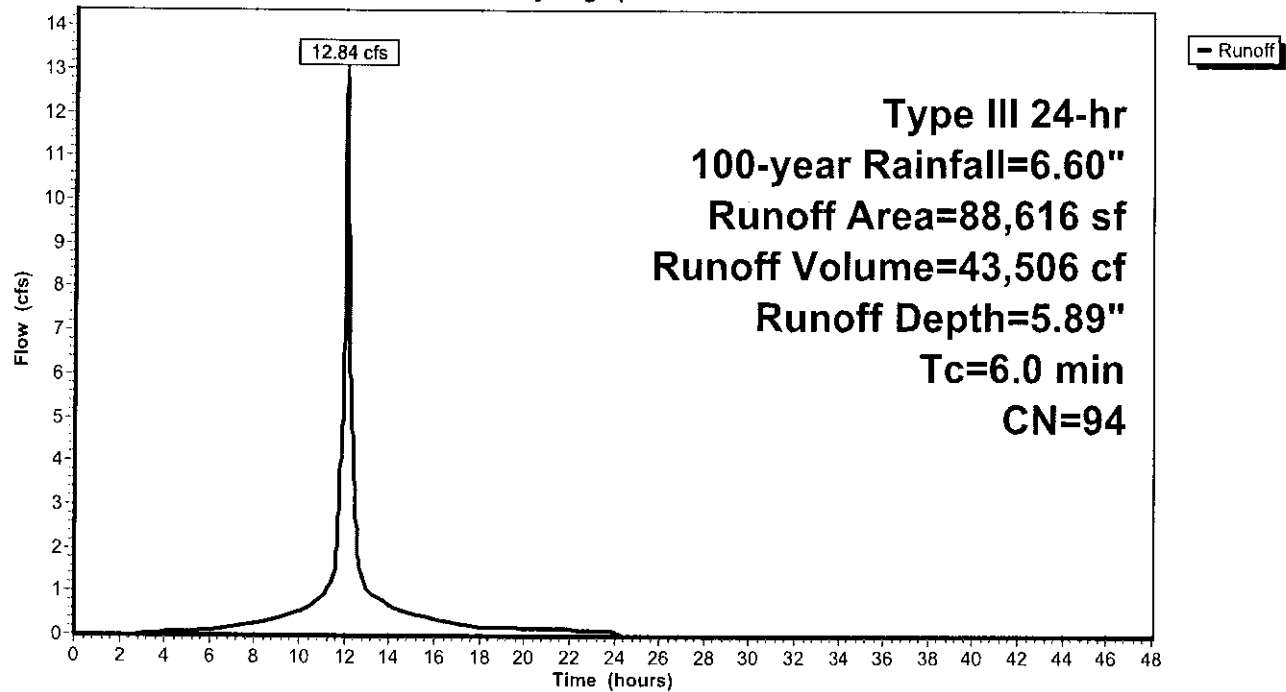
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Subcatchment 1S: A1,B,C1,D,K

Hydrograph



10055-Hydrocad-Proposed-2015-07-08

Type III 24-hr 100-year Rainfall=6.60"

Prepared by Microsoft

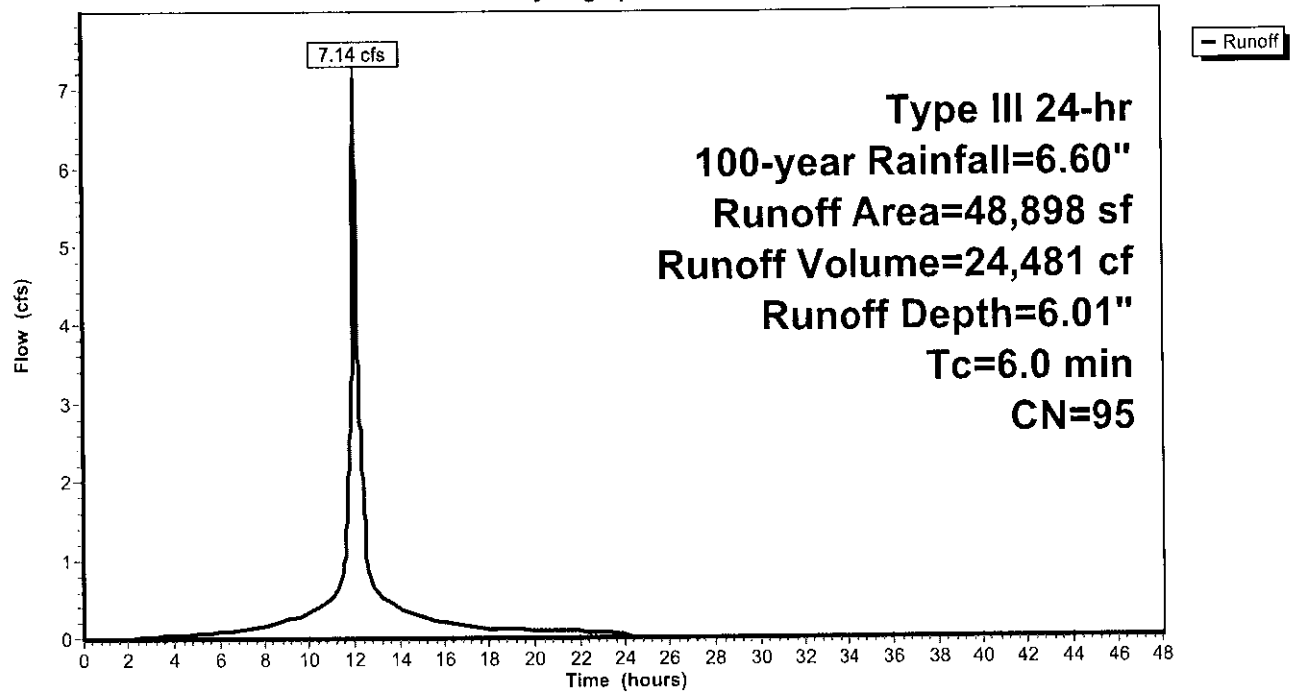
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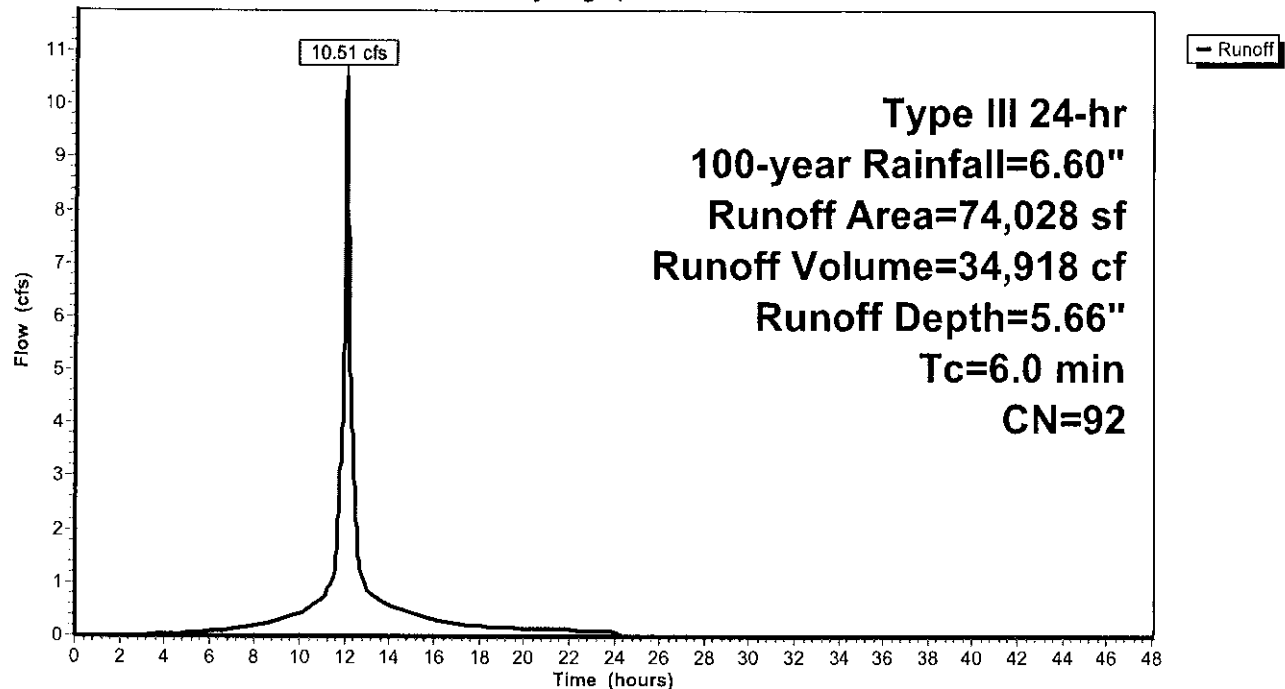
Subcatchment 2S: F,G1,I

Hydrograph



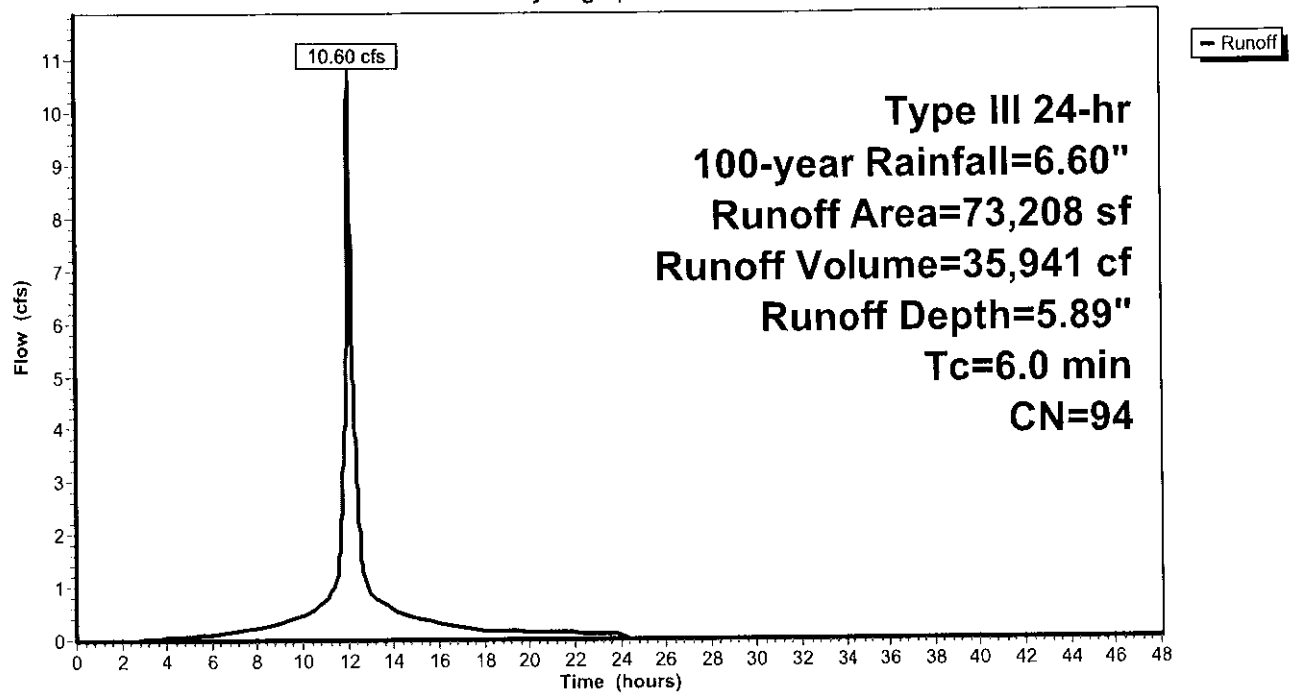
Subcatchment 3S: C2,G2,L

Hydrograph



Subcatchment 4S: A2,E,H,J

Hydrograph



10055-Hydrocad-Proposed-2015-07-08

Type III 24-hr 100-year Rainfall=6.60"

Prepared by Microsoft

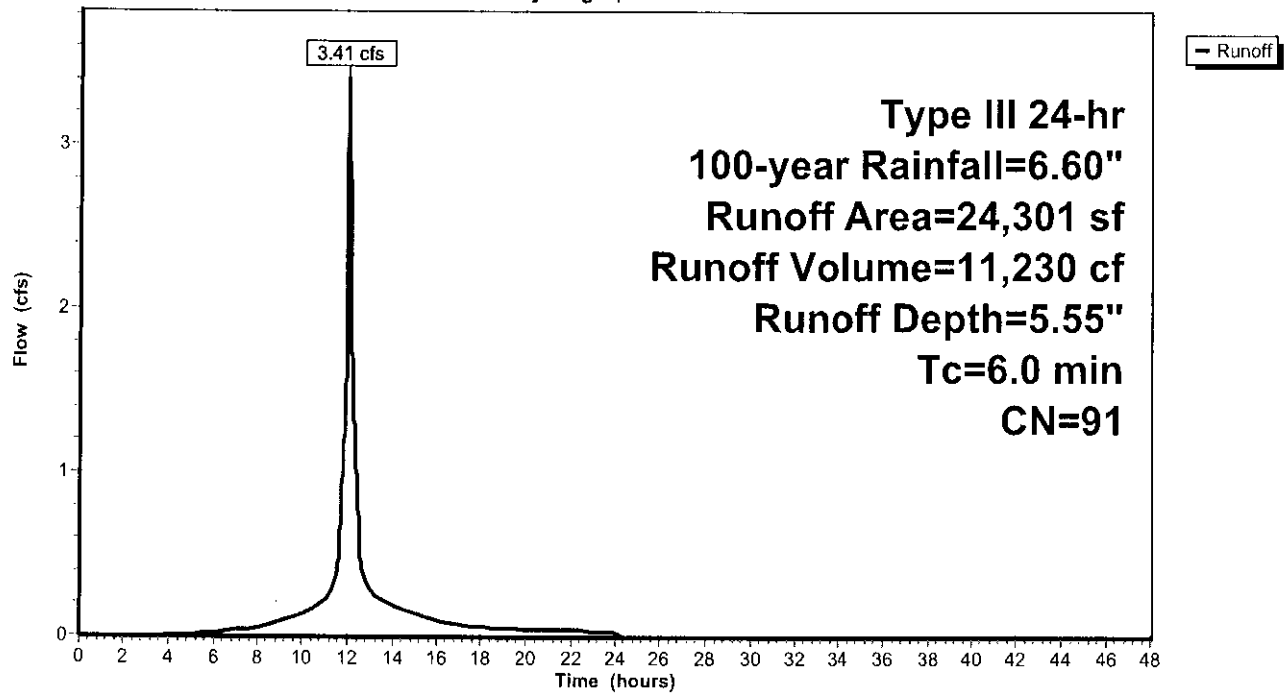
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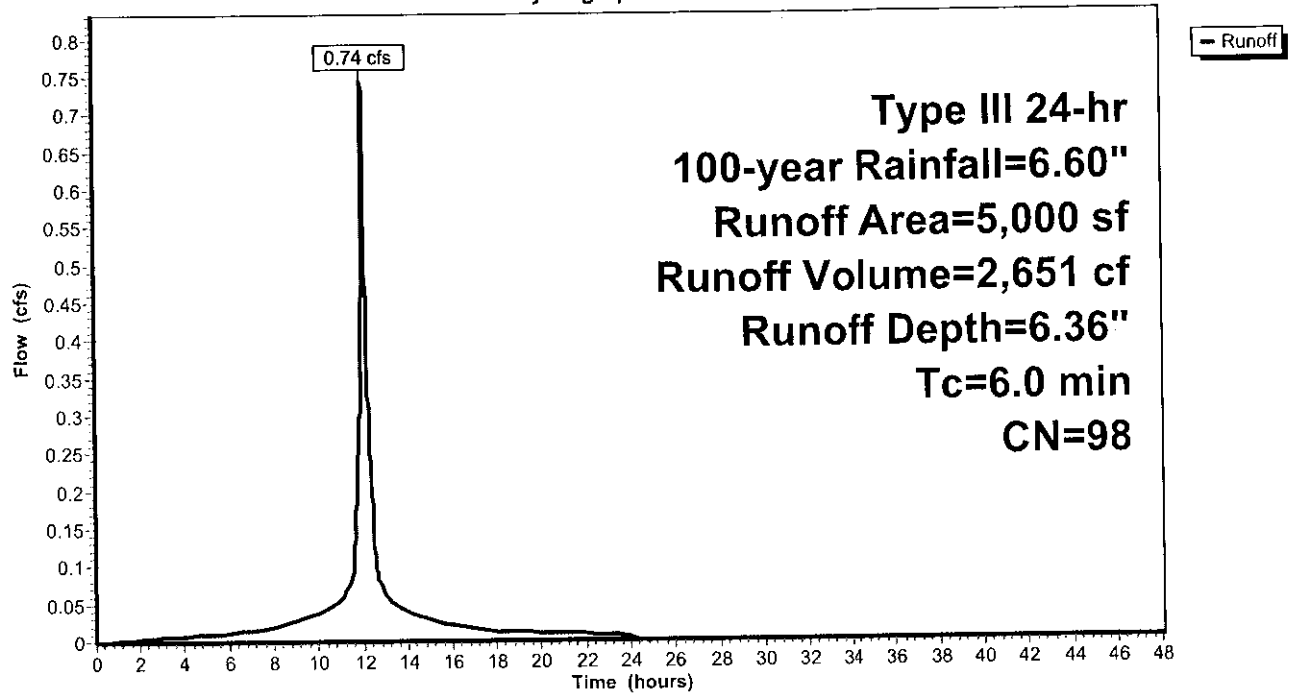
Subcatchment 5S: M,N

Hydrograph



Subcatchment 6S: D

Hydrograph



10055-Hydrocad-Proposed-2015-07-08

Type III 24-hr 100-year Rainfall=6.60"

Prepared by Microsoft

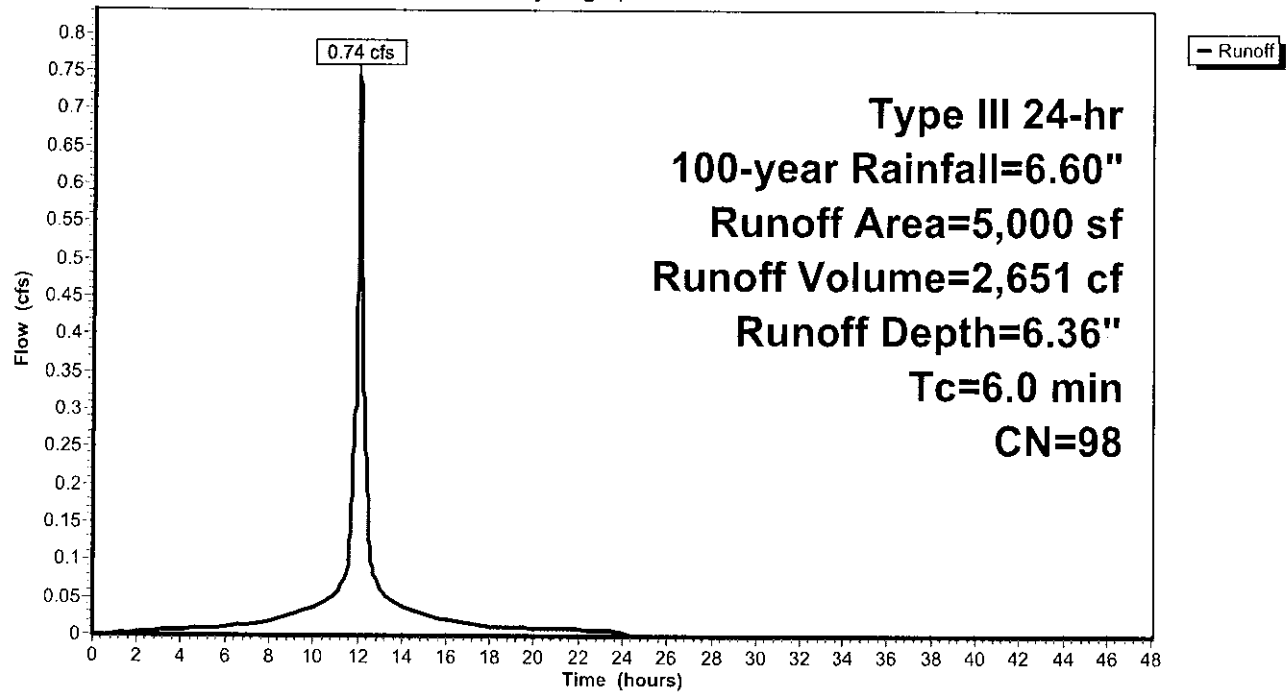
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Subcatchment 7S: D

Hydrograph



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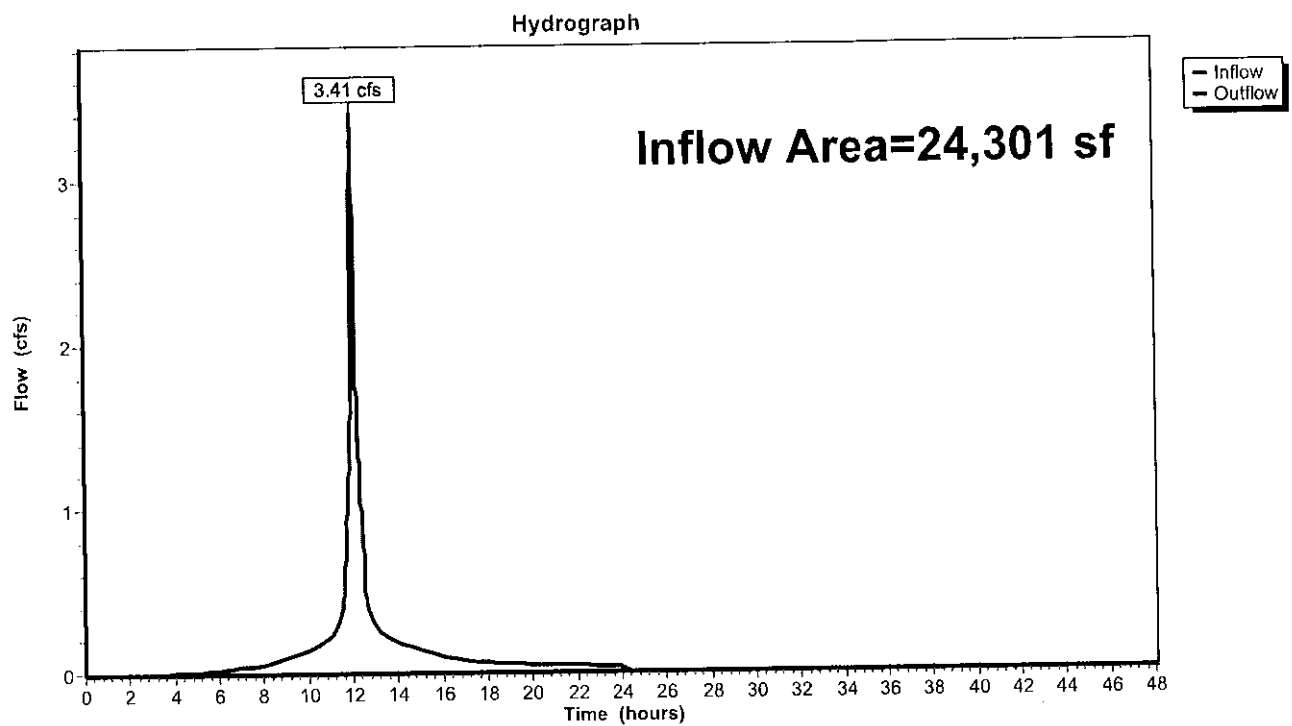
Type III 24-hr 100-year Rainfall=6.60"

Prepared by Microsoft

Printed 7/8/2015

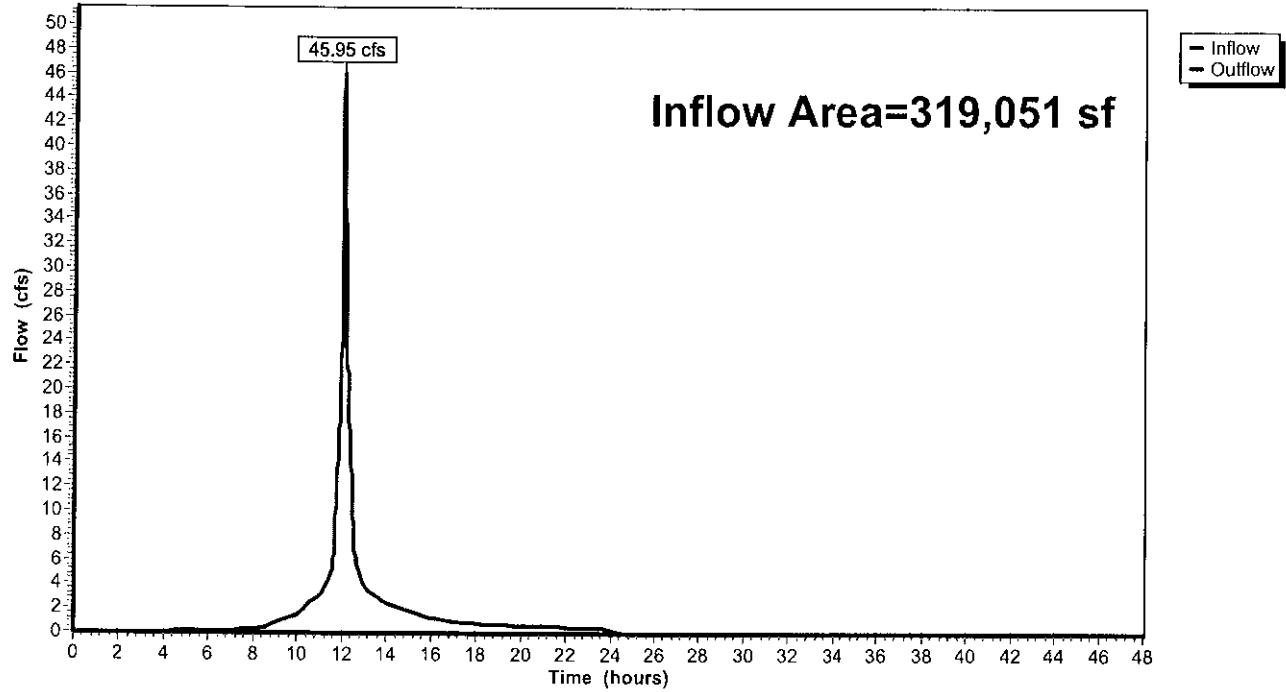
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Reach 7R: Proposed total to Lewis St.

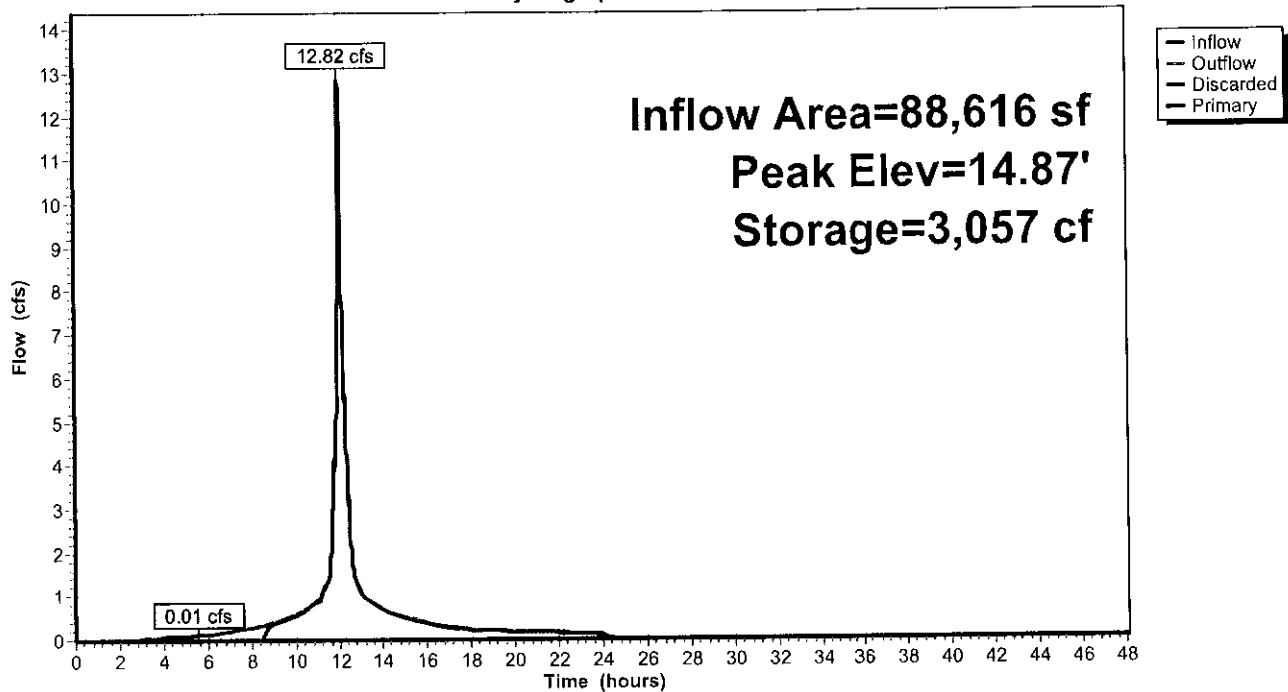
Reach DP-PR: Boston Harbor

Hydrograph



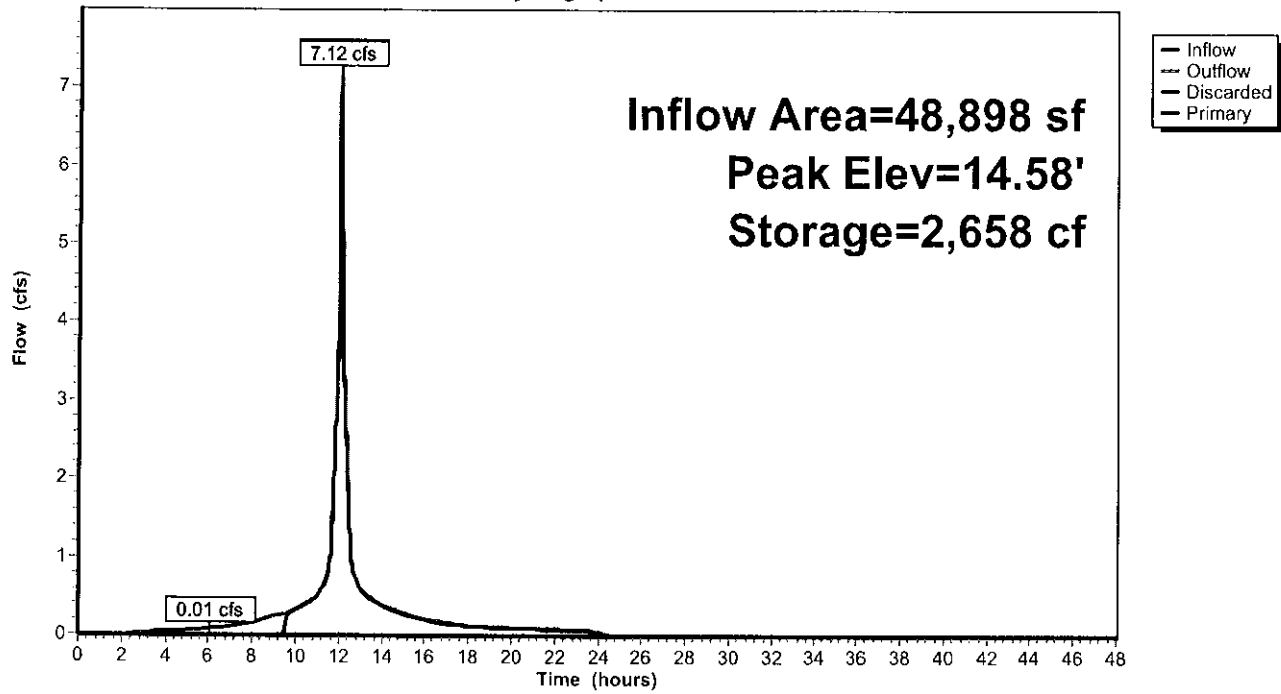
Pond 1P: INF #1

Hydrograph



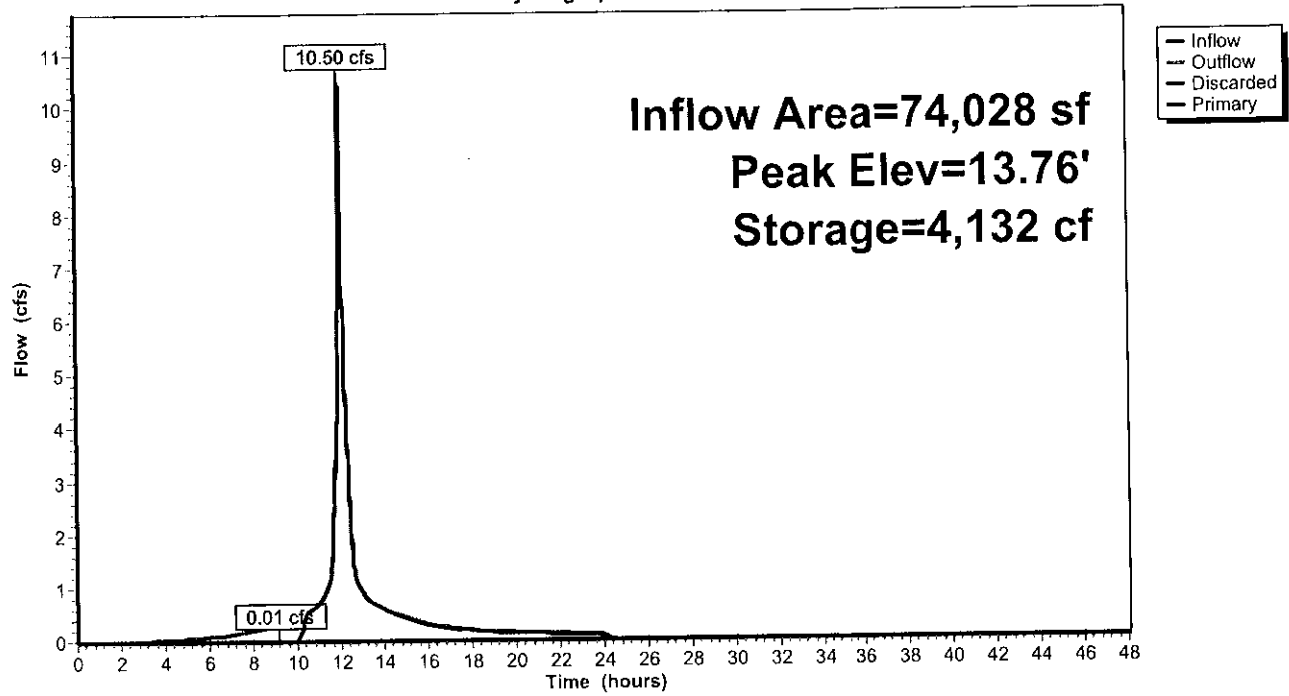
Pond 2P: INF #2

Hydrograph



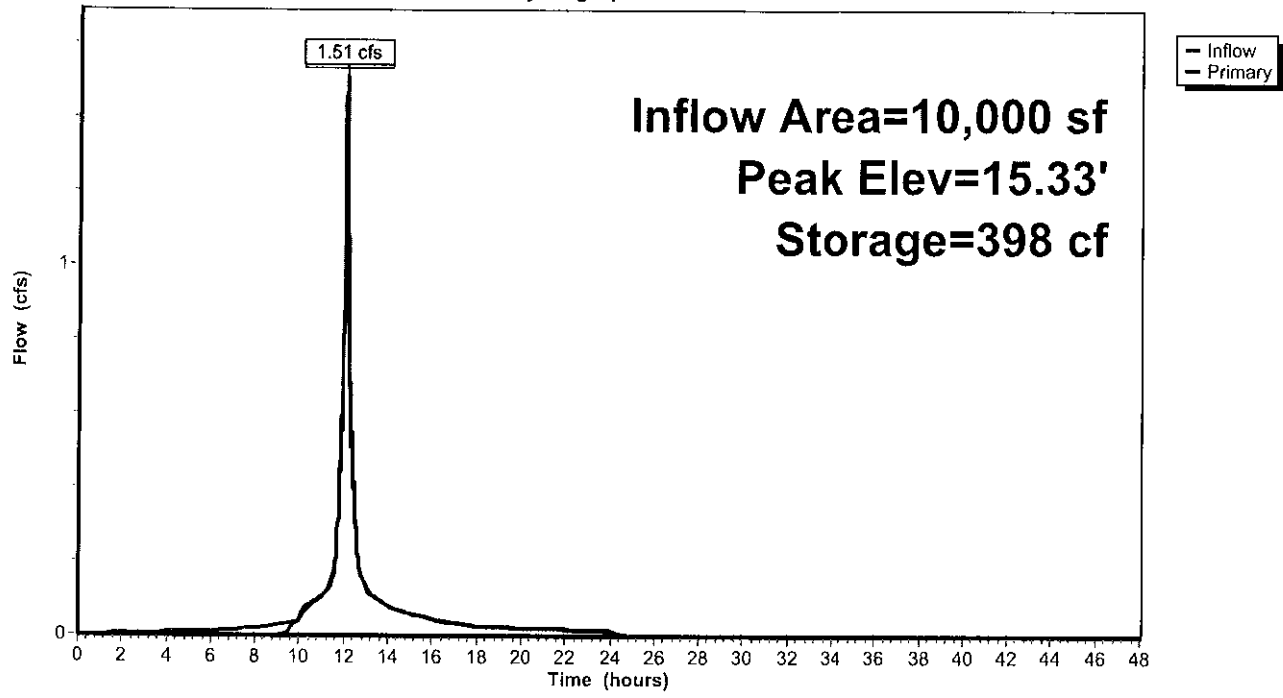
Pond 3P: INF #3

Hydrograph



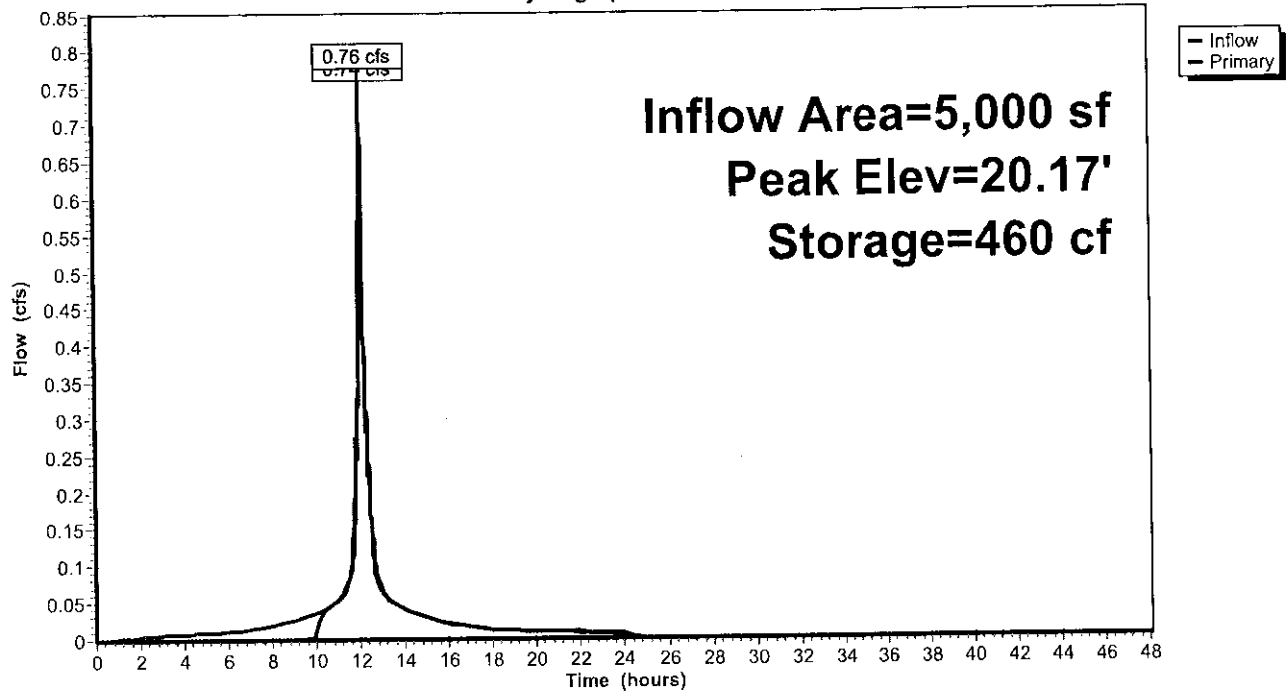
Pond 4P: Bioretention Basin 3

Hydrograph



Pond 5P: Bioretention Basin 2

Hydrograph



Clippership Wharf, Boston, MA
Nitsch Project #10055

APPENDIX D

Stormwater Management Standards Documentation



**Form S3-B: Standard #3 – Recharge
 Required Recharge Volume**

Project Name: Clippership Wharf	Nitsch Project #: 10055
Location: 25-65 Lewis Street, East Boston	Checked by: JMS
Prepared by: RMG	Sheet No. 1 of 1
Date: May 2015	

INSTRUCTIONS:

- Determine the increase in impervious area (in square feet) proposed above each Hydrologic Soil Group and input those areas in the appropriate blue cells.
- The Required Recharge Volume (in cubic feet) will be calculated and displayed in the yellow cell.

Step No.			
1	Impervious area located above:		
	Hydrologic Soil Group "A" Soil =	0	sf
	Hydrologic Soil Group "B" Soil =	0	sf
	Hydrologic Soil Group "C" Soil =	0	sf
	Hydrologic Soil Group "D" Soil =	201,276	sf
2	Required Recharge Volume =	1,677	cf



Form S3-G: Standard 3 – Recharge 72-Hour Drawdown Calculation

Project Name: Clippership Wharf	Nitsch Project #: 10055
Location: Boston, MA	Checked by: JMS
Prepared by: RMG	Sheet No. 1 of 1
Date: 5/13/15	Subsurface Infiltration Trenches #1, #2, and #3

INSTRUCTIONS:

1. In 'Method' Column, Click on Blue Cell to Activate Drop Down Menu
2. Enter the "Required recharge Volume" (in cubic feet) in Blue Cell for the appropriate chosen Method
3. Enter the "Bottom Area" (in square feet) in the blue cell as the maximum infiltration surface area. Do not use sidewalls.
4. **For "Dynamic: In-Situ Method" ONLY** (if other go to 5b) Enter hydraulic Conductivity Rate in Blue Cell
5. In 'Texture Class' Column, Click on Blue Cell to Activate Drop Down Menu

Step No.									
1	Method:	Static							
2	Required Recharge Volume (in cubic feet):	1677 as determined by the	Static Method						
3	Bottom Area (in Feet)	6520							
4a	ONLY - If using Dynamic: In-Situ Method --> Enter Hydraulic Conductivity Rate	Hydraulic Conductivity Rate:	In-Situ Saturated Hydraulic Conductivity Rate 0						
4b		<table border="1"> <thead> <tr> <th>Texture Class</th> <th>NRCS Hydrologic Soil Group (HSG)</th> <th>Infiltration Rate (Inches/Hour)</th> </tr> </thead> <tbody> <tr> <td>Silty Clay Loam</td> <td>D</td> <td>0.06</td> </tr> </tbody> </table>	Texture Class	NRCS Hydrologic Soil Group (HSG)	Infiltration Rate (Inches/Hour)	Silty Clay Loam	D	0.06	Hours
Texture Class	NRCS Hydrologic Soil Group (HSG)	Infiltration Rate (Inches/Hour)							
Silty Clay Loam	D	0.06							
		Time _{drawdown} =	51.44						
		72-Hour Drawdown Requirement Check:	OK						



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 Boston, MA 02108-1928
 T: 617-338-0063
 F: 617-338-6472
 www.nitscheng.com

1/2" Calculation Sheet

Nitsch Job # 10055
 Calc: RMG
 Date: Jul-15

This spreadsheet should be used to convert water quality volume to an equivalent water quality peak flow rate as outlined in the new MA DEP guidelines that take effect on October 15, 2013.

Glossary

Water Quality Flow Rate = WQF
 Water Quality Volume = WQV*
 unit peak discharge (csm/in) = qu**
 Impervious Area in watershed (square miles) = Ai

*WQV is expressed in watershed inches (you must use 0.5-inches in all cases with this method and not 1.0-inches)

** calculate the qu based on the time of concentration (see 0.5" - qu Table)

Compute Water Quality Flow with the following Equation

$$WQF = (qu)(A)(WQV)$$

Input Information (in colored cells only)

Site Plan Callout	Enter qu (from 0.5"-qu Table)	Enter Impervious Area (SF)	Ai (sq/mi)	WQV	WQF	
WQS-300	= 752	= 20483	= 0.000735	= 0.5	= 0.28	cfs
WQI-102	= 752	= 5522	= 0.000198	= 0.5	= 0.07	cfs
WQI-103	= 752	= 5522	= 0.000198	= 0.5	= 0.07	cfs
	=		= 0.000000	= 0.5	= 0.00	cfs
	=		= 0.000000	= 0.5	= 0.00	cfs
	=		= 0.000000	= 0.5	= 0.00	cfs
	=		= 0.000000	= 0.5	= 0.00	cfs
	=		= 0.000000	= 0.5	= 0.00	cfs
	=		= 0.000000	= 0.5	= 0.00	cfs
	=		= 0.000000	= 0.5	= 0.00	cfs



**Form S4-C: Standard 4 – Water Quality
TSS Worksheet**

Project Name: Clippership Wharf	Nitsch Project #: 10055
Location: 25-65 Lewis Street, East Boston	Checked by: JMS
Prepared by: RMG	Sheet No. 1 of 1
Date: July 2015	

Treatment Train A

Catchment Areas: A1, B, & K

Deep Sump & Hooded Catch Basins → Proprietary Separator (Water Quality Structure) →
Infiltration Trench #1 → Discharge

Treatment Train B

Catchment Areas: C1 & D

Roof Drains → Infiltration Trench #1 → Discharge

Treatment Train C

Catchment Areas: Portion of area D

Roof Drains → Bioretention Area → Discharge

Treatment Train D

Catchment Areas: F + G1

Roof Drains → Infiltration Trench #2 → Discharge

Treatment Train E

Area Drains → Infiltration Trench #2 → Discharge

Treatment Train F

Catchment Areas: C2 + G2

Roof Drains → Infiltration Trench #3 → Discharge

Treatment Train G

Catchment Areas: L

Water Quality Catch Basin Structures → Infiltration Trench #3 → Discharge

Treatment Train H

Catchment Areas: M & N

Deep Sump & Hooded Catch Basins → Discharge

Treatment Train I

Catchment Areas: A2, E, H, & J

Runoff → Discharge

Treatment Train A & G

Location:

BMP ¹	C	D	E	F
	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (C*D)	Remaining Load (D-E)
Deep Sump and Hooded Catch Basin	0.25	1.00	0.25	0.75
Proprietary Treatment Practice	0.73	0.75	0.55	0.20
Infiltration Trench	0.80	0.20	0.16	0.04

TSS Removal Calculation Worksheet

Total TSS Removal =

Project:
 Prepared By:
 Date:

*Equals remaining load from previous BMP (E) which enters the BMP

Treatment Train B, D, E & F

Location:

BMP ¹	C	D	E	F
	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (C*D)	Remaining Load (D-E)
Infiltration Trench	0.80	1.00	0.80	0.20

TSS Removal Calculation

Total TSS Removal =

Project:
 Prepared By:
 Date:

*Equals remaining load from previous BMP (E) which enters the BMP

Treatment Train C

Location:

TSS
Removal
Calculation

B BMP ¹	C TSS Removal Rate ¹	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
Bioretention Area	0.90	1.00	0.90	0.10

Total TSS Removal =

Project:
 Prepared By:
 Date:

*Equals remaining load from previous BMP (E) which enters the BMP

Treatment Train H

Location:

TSS
Removal
Calculation

B BMP ¹	C TSS Removal Rate ¹	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
Deep Sump & Hooded Catch Basins	0.25	1.00	0.25	0.75

Total TSS Removal =

Project:
 Prepared By:
 Date:

*Equals remaining load from previous BMP (E) which enters the BMP

TSS WORKSHEET from Volume 2, Chapter 3, Table 4, TSS Removal

May 2015

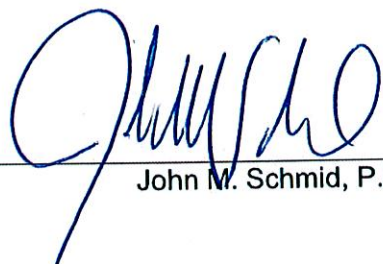
Clippership Wharf
Boston, Massachusetts

STANDARD 10: Illicit Discharge Compliance Statement

Standard 10 states: All illicit discharges to the stormwater management system are prohibited.

This is to verify:

1. Based on the information available there are no known or suspected illicit discharges to the stormwater management system at Clippership Wharf as defined in the DEP Stormwater Handbook.
2. The design of the stormwater system includes no proposed illicit discharges.



John M. Schmid, P.E., LEED AP BD+C

5-19-15

Date

Clippership Wharf, Boston, MA
Nitsch Project #10055

APPENDIX E
Operations & Maintenance Plan

Stormwater System Operations and Maintenance Plan

Project: Clippership Wharf
Location: Boston MA

Owner: Lend Lease Development, Inc.

Date: May, 2015

Prepared by: Nitsch Engineering, Inc.
2 Center Plaza, Suite 430
Boston, MA 02108
(617) 338-0063

Prepared for: Clippership Wharf

Nitsch Project #10055

- I. Stormwater management system owner: Lend Lease
- II. Parties responsible for O&M during construction: Contractor
- III. Parties responsible for O&M post-construction: Lend Lease
- IV. A schedule for O&M: See below
- V. Routine and non-routine maintenance tasks to be undertaken during and after construction: See below
- VI. The entire stormwater management system will be inspected and cleaned by the Contractor prior to the completion of construction. A report of the inspection/cleaning will be forwarded to the owner and the design engineer.
- VII. The stormwater management system shall be inspected the first year of operation after large rainfall events (all storms greater than 0.5-inch in 24-hour period) to verify functionality.
- VIII. The driveways and parking areas shall be swept six times per year.
- IX. All material removed during the cleaning operations shall be disposed of in accordance with applicable guidelines and regulations.
- X. All post construction maintenance activities will be documented and kept on file and made available upon request.
- XI. The drainage system shall be maintained. The repair of any component of the system shall be made as soon as possible to prevent any potential pollutants (including silt) from entering the resource areas or the existing closed drainage system.

Part I: Construction of the System

Sediment and erosion control during construction will prevent possible damage to the drainage systems. The following guidelines shall be adhered to during construction.

1. Keep land disturbance to a minimum. Plan the phases of development so that only the areas actively being developed are exposed. All other areas should have natural vegetation preserved, have good temporary cover, or permanent vegetation established.
2. Stabilize disturbed areas. Permanent structures, temporary or permanent vegetation, and mulch should be employed as quickly as possible after land is disturbed.
3. Protect disturbed areas from stormwater runoff. Install erosion control or stormwater management measures to prevent water from entering and running over disturbed areas, and to prevent erosion damage to downstream facilities.
4. Install perimeter control practices. Use practices that isolate the development site from surrounding areas. Siltation fence, haybales, and temporary settlement basin shall be utilized.
5. The swales, area drains and underground infiltration systems shall not be used as temporary sediment traps for construction. Sediment and erosion controls should be used to keep runoff and sediment away from these systems/structures. During and after excavation, all excavated materials should be placed downstream, away from these stormwater management systems, to prevent the redeposit of these materials during runoff events. These materials should be properly handled and disposed of during and after construction. Light earth-moving equipment shall be used to excavate the infiltration systems to minimize the compaction of the soils beneath the trench floor.
6. If necessary, temporary dewatering and groundwater control systems shall be designed to keep excavations free of water and to avoid disturbance of the sub-grade. The flows of all water resulting from pumping shall be managed so as not to cause erosion, siltation of drainage systems, or damage to adjacent properties or resource areas associated with the project site.
7. Contractor shall clean/flush entire stormwater system prior to final acceptance by the owner. The Contractor shall clean the interior of all drainage piping and structures of dirt and other superfluous material as work progresses. Care shall be taken to prevent earth, water and other materials from entering the pipeline. As soon as possible after the pipe and manholes are completed, the Contractor shall clean out the pipeline and manholes being careful to prevent soil, water and debris from entering the proposed infiltration systems, any storm drains, the isolated wetland area, and adjacent properties. The Contractor shall place plugs in the ends of uncompleted pipe at the end of the work day or whenever work stops. Flush lines between manholes if required to remove collected debris. Remove and dispose all debris, mortar, and soil from the bottom of all structures. The Contractor shall remove and dispose of sediment and debris from the catch basins and water quality structures.

Part II: Maintenance of the System

Maintenance Schedule during Construction

Sediment Control	Inspection	Maintenance Thresholds	Maintenance Action
Street Sweeping	Sweep six (6) times per year	Per Schedule	Sweep access roads and all parking lots
Erosion control silt fences, haybales	Weekly and after large storm events (more than 0.25-inch of rainfall in 24-hour period)	If integrity of the system is compromised	Restore the integrity of the system and/or clean sediment out
Catch Basins/ Drain Manholes w/deep sumps	Weekly and after large storm events (more than 0.25-inches of rainfall in 24-hour period)	If the sump is 1/3 full with sediment	Clean sediment out
Water Quality Structures	Weekly and after large storm events (more than 0.25-inches of rainfall in 24-hour period)	If the sediment depth is 15% of the interceptor's sediment storage (approximately 0.67 feet for Model 450i and 0.75 feet for Model #1200)	Clean sediment out with a vacuum truck
Adjacent Roadways	Weekly and after large storm events (more than 0.25-inches of rainfall in 24-hour period)	If sediment is greater than 1/2 inch in any area of the paved surfaces	Sweep/clean sediment from street
Stormwater Retention Systems	Weekly and after large storm events (more than 0.25-inches of rainfall in 24-hour period)	When sediment is observed in infiltration basin	Remove sediment by jetting system in accordance with Manufacturer's recommendations. Replace system if infiltration component is compromised.

After all slopes have been fully stabilized all erosion control measures shall be cleaned out. All temporary erosion control measures shall be removed.

Post-Construction Maintenance Schedule

Maintenance Schedule Post-Construction

<i>Sediment Control</i>	<i>Inspection</i>	<i>Maintenance Thresholds</i>	<i>Maintenance Action</i>
Street Sweeping	Sweep six (6) times per year	Per Schedule	Sweep access roads and all parking lots
Catch Basins/ Drain Manholes w/deep sumps	Semi-annually and after large storm events (more than 3.2-inches of rainfall in 24-hour period)	If the sump is 1/3 full with sediment	Clean sediment out
Water Quality Structures (Stormceptor Units®)	Semi-annually and after large storm events (more than 3.2-inches of rainfall in 24-hour period)	If the sediment depth is 15% of the interceptor's sediment storage (approximately 0.67 feet for Model 450i)	Clean sediment out with a vacuum truck
Stormwater Retention Systems	Semi-annually and after large storm events (more than 3.2-inches of rainfall in 24-hour period)	When sediment is observed in the access manholes	Remove sediment by jetting system in accordance with Manufacturer's recommendations

Lend Lease should prepare and maintain a report for each semi-annual inspection of the Stormwater Management System.

Part III: Repair of the System

The drainage system shall be maintained. The repair of any component of the system shall be made as soon as possible to prevent any potential pollutants including silt from discharging offsite or to the resource areas located on the property.

Part IV: Snow Management

Snow will be managed by the owner's snow removal crews. Snow will be placed on the sides and edges of the driveways. Snow should not be stockpiled along the waterfront or within the limits of the 100-ft buffer zone.

Part V: Reporting

Construction Maintenance Reporting

The Contractor shall maintain a record of erosion control measures and drainage system inspections and maintenance during construction. Attached is a prototype of the Erosion and Sedimentation Controls Inspection and Maintenance Report and the Stormwater Management System Report to be used.

Post-Construction Maintenance Reporting

The owner shall maintain a record of drainage system inspections and maintenance. Attached is a prototype of the Stormwater Management System Report to be used.

EROSION AND SEDIMENTATION CONTROLS INSPECTION AND MAINTENANCE REPORT

INSPECTOR: _____ DATE: _____ NUMBER: _____

DAYS SINCE LAST RAINFALL: _____ AMOUNT LAST RAINFALL: _____ INCHES

TEMPORARY STABILIZATION

CATCH BASIN SILT SACKS? (YES/NO)	PAVED AREAS? (YES/NO)	LANDSCAPED AREAS? (YES/NO)

COMMENTS/ACTION:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

STABILIZED CONSTRUCTION ENTRANCES

IS SEDIMENT TRACKED ONTO ROAD? (YES/NO)	IS THE GRAVEL CLEAN? (YES/NO)	DOES ALL TRAFFIC USE THE STABILIZED ENTRANCE TO LEAVE THE SITE? (YES/NO)

COMMENTS/ACTION:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

SILT FENCES AND HAYBALES

	DEPTH OF SEDIMENT	CONDITION OF EFFLUENT?	CONDITION OF SILT FENCE	ANY EVIDENCE OF SEDIMENT BYPASSING THE FENCE
SILT FENCE				

COMMENTS/ACTION:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

CHANGES REQUIRED TO THE POLLUTION PREVENTION PLAN/REASONS FOR CHANGES:

INSPECTED BY _____ SIGNATURE _____ DATE _____

Clippership Wharf, Boston, MA
Nitsch Project #10055

APPENDIX F
Long Term Pollution Prevention Plan

Long-Term Pollution Prevention Plan

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INTRODUCTION

This Long-Term Pollution Prevention Plan (LTPPP) for the Clippership Wharf was prepared by Nitsch Engineering. The plan is required under the Massachusetts Stormwater Handbook (2008) to provide the information for pollution prevention and source control to be implemented at the site following construction.

This document has been prepared in accordance with the requirements of the Stormwater Regulations issued by the Massachusetts Department of Environmental Protection (DEP), effective January 2, 2008. The document is intended to comply as part of Standard 4 and 9 of the submittal requirements of a "Notice of Intent" (NOI).

The property owner will implement this Long-Term Pollution Prevention Plan and proactively conduct operations at the site in an environmentally responsible manner. Compliance with this Long-Term Pollution Prevention Plan does not in any way dismiss the Owner, property manager, or occupants of the development from compliance with other applicable Federal, State or local laws.

LONG-TERM POLLUTION PREVENTION PLAN

The Owner is responsible for the implementation of the Long-Term Pollution Prevention Plan. The Owner will evaluate and revise this Plan as necessary and whenever an improvement to operations can be implemented. Approval from the City of Boston Conservation Commission will be required before amending this Plan.

AVAILABILITY OF PLAN DOCUMENTS

The Owner will maintain a copy of the Long-Term Pollution Prevention Plan and related inspection reports, amendments, etc. at their offices. Copies will be made available for review to authorized personnel of the DEP, the City of Boston Conservation Commission, and other authorized public officials upon request.

LONG-TERM POLLUTION PREVENTION PLAN RESPONSIBILITIES

RESPONSIBLE PARTY AND CONTACT INFORMATION

At the completion of the project, the site will be the responsibility of the Owner.

Presently, the responsible party for the implementation of the Long-Term Pollution Prevention Plan is:

*Lend Lease Development, Inc.
20 City Square, 2nd Floor
Boston, MA 02129
P: 617-557-6417*

RESPONSIBILITIES FOR IMPLEMENTATION

The following responsibilities for the implementation of the Long-Term Pollution Prevention Plan are as follows:

Oversee property management activities on the site.

Oversee inspection, monitoring, and reporting compliance.

Ensure property management contracts include both this Long Term Pollution Prevention Plan as well as the Stormwater System Operation and Maintenance Plan included in the Notice of Intent submittal, and any other requirements with the Order of Conditions issued by the City of Boston Conservation Commission under the Massachusetts Wetlands Protection Act to assure compliance with the Order of Conditions, this Long-Term Pollution Prevent Plan and the Operations and Maintenance Plan.

Provide training, if necessary, to those responsible for the inspection, monitoring, and maintenance of the site.

Identify other potential pollutant sources or deficiencies in the BMPs and amend the Long-Term Pollution Prevention Plan as appropriate to address those issues.

PROJECT DESCRIPTION

Existing Conditions

The site is located in the East Boston on Boston's Inner Harbor, south of Maverick Square and is bounded by Lewis Street to the east, the Harbor to the south, the Hodge Boiler Works and the Carlton Wharf residential site to the northwest, and Monsignor Albert Jacobbe Road to the north. The existing site consists of an unused lot consisting of pavement, intermittent grass areas, collapsed and deteriorated wharfs and wooden decks, and remains of brick and concrete wall foundations and is approximately 53-percent (53%) impervious. Currently, there are high points of approximately 17.2-foot Boston City Base (BCB) in the eastern wharf on the southern portion of the site, approximately 20.1-foot (BCB) in the western wharf on the southern portion of the site, and approximately 18.0-foot Boston City Base (BCB) on the eastern corner of the site adjacent to Lewis Street. There are existing low points in the center of the site at approximately 13.7-foot (BCB), and along the northern corner of the site at elevation 11.9-foot (BCB). Nearly all of the site slopes down towards the Inner Harbor. The soils underlying the site are characterized by the National Resource Conservation Service (NRCS) as consisting of Udorthents and Urban land complex. Nitsch assumes the soils are classified as a hydrologic soil group D soil.

The existing site does not have a closed drainage system, while there are several unidentified catch basins on site. Nearly all stormwater sheet flows towards the Inner Harbor. Stormwater along the northern and eastern edges of the site and in the public ways may flow to the existing Boston Water and Sewer Commission (BWSC) storm drain mains in Monsignor Albert Jacobbe Road and Lewis Street, respectively. Nitsch Engineering is not aware of any existing water quality treatment of stormwater runoff before it leaves the site.

Proposed Conditions

The project includes the construction of a four new multi-rise residential buildings with a footprint of approximately 91,408 square feet connected by an underground parking garage with a footprint of approximately 134,548 square feet. There will also be a new roadway, walkways, Harborwalk, ecological study area/living shoreline, public docks, lawn and landscaping areas.

The proposed re-development of the site will increase the impervious cover on the site to approximately 64-percent (64%). The project proposes to construct a new stormwater management system that conforms to the DEP Stormwater Management Policy. The proposed stormwater management system is designed to mimic the existing drainage patterns and provide a higher level of water quality treatment than exists today. The proposed design will collect, treat, store, and infiltrate nearly all stormwater runoff generated from developed pervious and impervious areas within the project site property to the greatest extent possible. Stormwater

collected in the roadway will be collected by deep sump and hooded catch bases and directed to proprietary water quality structures, bioretention basins, rain gardens and infiltration trenches. Stormwater collected on building roofs and over the underground parking garage will drainage internally and be directed to underground infiltration trenches. Stormwater on paved walkways and other impervious surfaces will be directed to bioretention basins, rain gardens, and infiltration trenches or will sheet flow directly to the Boston Inner Harbor. Stormwater in portions of the project located in the public way will be directed to the existing BWSC catch basins located in Monsignor Albert Jacobbe Road and directed to the 24-inch BWSC storm drain main in Clippership Lane and the collected by catch basins and directed to the 15-inch storm drain main in Lewis Street.

Total Maximum Daily Load (TMDL):

The site discharges to the Boston Inner Harbor. There are no TMDL's designated for the Boston Inner Harbor.

PRACTICES FOR SOURCE CONTROL AND POLLUTION PREVENTION**Good Housekeeping:**

Occupants should follow good housekeeping procedures to reduce the possibility of accidental releases and to reduce safety hazards, which will include but not be limited to the following:

- Proper handling and storage of solid wastes;
- Proper handling, storage and inventory of household chemicals;
- Prompt cleanup and removal of minor spills and releases; and
- The owner of the facility will contract for solid waste disposal and recycling.

Storing Materials and Waste Products:

All chemical and hazardous materials should be stored under cover or inside, to prevent leaks and spills. Drip pans or spill containment systems will be used to prevent chemicals from entering the drainage system. The storage areas for materials and waste products will be inspected at least once per year to determine amount and type of material on site and if the material requires disposal.

Keep liquid wastes segregated. Many fluids can be recycled through hazardous waste disposal companies, as long as they are not mixed.

Recycle motor oil, oil filters, antifreeze, batteries, solvents, lubricants, tires, and metal filings from grinding and polishing metal parts. The Owner will separate these items from common trash items. These items are not trash, and are illegal to dump. The Owner will contact a hazardous waste hauler for proper disposal or take any old or unwanted pesticides to a Household Hazardous Waste Collection Center.

All waste materials should be collected and stored in securely lidded dumpster(s) or other secure containers as applicable to the material. Said dumpsters and containers will be monitored by the property management and emptied by a licensed waste disposal contractor on a regular basis

Keep dumpster lids closed and the areas around them clean. Do not fill the dumpsters with liquid waste or hose them out.

Sweep areas around the dumpster regularly and put the debris in the garbage, instead of sweeping or hosing it into the parking lot or the street.

Vehicle Washing:

Washing personal vehicles on the property should be minimized. Vehicle washing should take place in areas where the wash water can be diverted into grassed, landscaped, or gravel areas. Shutoff nozzles should be used while washing vehicles. Any detergents that may be used for car washing should be biodegradable or phosphate free. The use of any detergents should be minimized. The Owner should educate the occupants on the impacts of outdoor washing of vehicles and its potential to release suspended solids, metals, oils, and other pollutants into the drainage system. The use of commercial car wash facilities should be encouraged.

The Owner should discourage occupants from changing automotive fluids (e.g. - oil, radiator fluid etc) on the property which could result in contamination of the drainage system and any surrounding surface or ground water sources. The dry method for spill cleanup (sweeping, absorbent materials, etc.) should be employed if any automotive fluid leaks are discovered. If automotive fluid changing is allowed, the use of drip pans will be used to prevent contamination of the drain system. Water will not be used to clean any spills.

Routine Inspections and Maintenance of Stormwater BMPs:

Information regarding stormwater BMPs, including descriptions and maintenance requirements is outlined in the Stormwater System Operations and Maintenance Plan submitted with the Notice of Intent (See Appendix E).

Spill Prevention and Response:

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

- Reportable quantities will immediately be reported to the applicable Federal, State, and local agencies as required by law.
- Applicable containment and cleanup procedures will be performed immediately. Impacted material collected during the response must be removed promptly and disposed of in accordance with Federal, State and local requirements. A licensed emergency response contractor may be required to assist in cleanup of releases depending on the amount of the release, and the ability of the Contractor to perform the required response.
- Reportable quantities of chemicals, fuels, or oils are established under the Clean Water Act and enforced through DEP.

Maintenance of Lawns, Gardens, and other Landscaped Areas:

The maintenance of lawns, gardens, and other landscaped areas should use an Integrated Pest Management (IPM) system that reduces the amount of pesticides and fertilizers used. Spot applications of pesticide should be used and fertilizer rates should be diminished or used according to manufacturer recommendations. Grass clippings, pruned branches and any other landscaped waste should be disposed of or composted in an appropriate location. Use natural, non-toxic alternatives to traditional garden chemicals. Avoid application of chemicals prior to rain fall events.

No irrigation will be used in the landscaped areas for this project. Fertilizers, herbicides, and pesticides are often carried into the storm drain system by sprinkler runoff.

No fertilizers, herbicides, or pesticides will be used within the 100-foot buffer zone or within the resource area, unless outlined in the Boston Conservation Commission's Order of Conditions.

Storage of Fertilizers, Herbicides, and Pesticides:

These chemicals should be stored inside or under cover with adequate containment. See the Storage of materials and waste products section for more guidelines.

Pet Waste Management:

Pet waste contributes to poor water quality that affects the drainage system and surrounding water bodies. The property owner will require the occupants of the site to implement a "pooper scooper" law where the pet owner must put the pet waste into bags and dispose of the waste in the trash or in the sewer system.

Management of Deicing Chemicals and Snow:

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

During typical snow plowing operations, snow will be pushed to the designated snow removal areas noted on the snow removal plan. Snow will not be stock piled in Low Impact Development areas such as rain gardens or any other drainage system as determined by the City of Boston Conservation Commission. In severe conditions where snow cannot be stockpiled on site, the snow will be removed from the site and properly disposed.

Sand and salt for parking lot and roadway deicing should not be stored onsite. These materials are supplied during snow plowing and deicing operations performed by the contractor. Small amounts to handle individual walkways can be stored on site under cover and on an impervious surface or in proper containers within the building. Deicing chemicals are not permitted within 100 feet of any wetland resource area without prior approval of the City of Boston Conservation Commission.

Alternatives to sodium chloride (commonly used salt) such as sand or calcium chloride, and reduced applications, should be considered and implemented if public safety is not jeopardized.

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

Street Sweeping

The Stormwater System Operations and Maintenance Plan (see Appendix E) is included in the Stormwater Report.

Stormwater System:

The Stormwater System Operations and Maintenance Plan (see Appendix E) is included in the Stormwater Report.

INSPECTIONS AND REPORT PREPARATION

The requirements of the Stormwater System Operation and Maintenance Plan will be implemented and the Owner will oversee the inspections and preparation of the required inspection reports for compliance with that document in conjunction with the Long-Term Pollution Prevention Plan.

COORDINATION WITH OTHER PERMITS AND REQUIREMENTS

This project is subject to a Wetlands Order of Conditions issued by the City of Boston Conservation Commission. Certain conditions of those approvals affecting the long term management of the property will be considered part of this Long-Term Pollution Prevention Plan. The Owner and property manager will become familiar with those documents and comply with the guidelines set forth in those documents.



**Boston Inspectional Services Department
Building and Structures Division**

1010 Massachusetts Avenue Boston, MA 02118 Telephone: (617) 635-5300

Martin J. Walsh
Mayor

Sean Lydon
Inspector of Buildings

ERECT PERMIT

To erect, enlarge, alter, substantially repair, move, demolish or change occupancy of building or structure:

Name of Applicant:	Robert Bellavia	Issue Date:	05/16/2017
Name of Owner:		Fees:	\$705,965.00
Location:	1-3 MONSIGNOR ALBERT A. JACOBBE RD	Declared Value:	\$67,487,761.00
Neighborhood:	East Boston Ward: 01	Legal Occupancy:	Mixed
Application/Permit No.:	ERT616863	Proposed Occupancy:	209 residential units

WORK DESCRIPTION: Clippership Wharf (Building 1) - Construct a new 6 story Mixed-Use Building. There will be a below-grade Parking Garage which will serve all 4 separate Buildings. Building 1 will consist of 209 Residential Units. Building 1 also contains a Leasing Center and a Management Office. Building 1 will also contain Resident Amenity spaces and a Landscaped Courtyard. The total Clippership Wharf Project will create 478 Residential Units. All of

- Requirements:**
1. Before any construction commences, this permit must be posted at the front of the street address, affixed to a window and open to public inspection until the completion of work.
 2. ~~Rough inspections are required for excavation~~ before concrete is poured; before foundation work is covered; when rough wiring or plumbing is completed; prior to insulating or closing of walls.
 3. Final inspections for mechanical and/or electrical shall be done prior to obtaining the final approval by the Building Inspector.
 4. The holder must call the District Inspector to arrange for all inspections: 617 635-5300.

Date	Building Inspector	Insp Type	Date	Building Inspector	Insp Type
Date	Electrical Inspector	Insp Type	Date	Electrical Inspector	Insp Type
Date	Mech Inspector	Insp Type	Date	Mech Inspector	Insp Type

**Construction work is permitted from Mon - Fri, 7am to 6pm, CBC Ord. 16-26.4
THIS PERMIT MUST BE DISPLAYED IN A CONSPICUOUS PLACE ON THE PREMISES**



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Building and Structures Division

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Martin J. Walsh
 Mayor

Sean Lydon
 Inspector of Buildings

ERECT PERMIT

To erect, enlarge, alter, substantially repair, move, demolish or change occupancy of building or structure:

Name of Applicant:	Joel Pickering	Issue Date:	05/16/2017
Name of Owner:		Fees:	\$275,176.00
Location:	55 LEWIS ST	Declared Value:	\$27,051,233.00
Neighborhood:	East Boston Ward 01	Legal Occupancy:	Mixed
Application/Permit No.:	ERT616843	Proposed Occupancy:	75 residential units

WORK DESCRIPTION: Clippership Wharf (Building 2) - Construct a 6 story Mixed-Use Building. There will be a Lower Level Parking Garage which will serve all 4 Buildings. Building 2 of 4 will consist of 75 Dwelling Units of the total projects 478 Dwelling Units spread between the 4 buildings. All of Project Construction Plans filed under ERT616843 (55 Lewis Street)

- Requirements:**
1. Before any construction commences, this permit must be posted at the front of the street address, affixed to a window and open to public inspection until the completion of work.
 2. ~~Rough inspections are required for: excavation before concrete is poured; before foundation work is covered; when rough wiring or plumbing is completed; prior to insulating or closing of walls.~~
 3. Final inspections for mechanical and/or electrical shall be done prior to obtaining the final approval by the Building Inspector.
 4. The holder must call the District Inspector to arrange for all inspections: 617 635-5300.

Date	Building Inspector	Insp Type	Date	Building Inspector	Insp Type
Date	Electrical Inspector	Insp Type	Date	Electrical Inspector	Insp Type
Date	Mech Inspector	Insp Type	Date	Mech Inspector	Insp Type

Construction work is permitted from Mon - Fri, 7am to 6pm, CBC Ord. 16-26.4
THIS PERMIT MUST BE DISPLAYED IN A CONSPICUOUS PLACE ON THE PREMISES



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 Inspector of Buildings

ERECT PERMIT

To erect, enlarge, alter, substantially repair, move, demolish or change occupancy of building or structure:

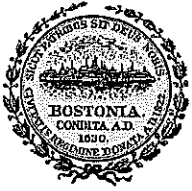
Name of Applicant:	Robert Bellavia	Issue Date:	05/16/2017
Name of Owner:		Fees:	\$317,620.00
Location:	65-69 LEWIS ST	Declared Value:	\$31,740,991.00
Neighborhood:	East Boston Ward: 01	Legal Occupancy:	Mixed
Application/Permit No.:	ERT616875	Proposed Occupancy:	80 residential units

WORK DESCRIPTION: Clippership Wharf (Building 3) - Construct a 6 story Mixed-Use Building. There will be a Lower Level Parking Garage which will serve all 4 Buildings. Building 3 of 4 will consist of 80 Dwelling Units of the total projects 478 dwelling units spread between the 4 buildings. All of Project Construction Plans filed under ERT616843 (55 Lewis Street)

- Requirements:**
1. Before any construction commences, this permit must be posted at the front of the street address, affixed to a window and open to public inspection until the completion of work.
 2. ~~Rough inspections are required for excavation before concrete is poured; before foundation work is covered; when rough wiring or plumbing is completed; prior to insulating or closing of walls.~~
 3. Final inspections for mechanical and/or electrical shall be done prior to obtaining the final approval by the Building Inspector.
 4. The holder must call the District Inspector to arrange for all inspections: 617 635-5300.

Date	Building Inspector	Insp Type	Date	Building Inspector	Insp Type
Date	Electrical Inspector	Insp Type	Date	Electrical Inspector	Insp Type
Date	Mech Inspector	Insp Type	Date	Mech Inspector	Insp Type

Construction work is permitted from Mon - Fri, 7am to 6pm, CBC Ord. 16-26.4
THIS PERMIT MUST BE DISPLAYED IN A CONSPICUOUS PLACE ON THE PREMISES



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Martin J. Walsh
Mayor

Sean Lydon
Inspector of Buildings

ERECT PERMIT

To erect, enlarge, alter, substantially repair, move, demolish or change occupancy of building or structure:

Name of Applicant:	Robert Bellavia	Issue Date:	05/16/2017
Name of Owner:		Fees:	\$373,920.00
Location:	35-45 LEWIS ST	Declared Value:	\$37,370,644.00
Neighborhood:	East Boston Ward: 01	Legal Occupancy:	Mixed
Application/Permit No.:	ERT616885	Proposed Occupancy:	114 residential units

WORK DESCRIPTION: Clippership Wharf (Building 4) - Construct a 6 story, Mixed-Use Building. There will be a Lower Level Parking Garage which will serve all 4 Buildings. Building 4 of 4 will consist of 114 Dwelling Units of the total projects 478 dwelling units spread between the 4 buildings. All of Project Construction Plans filed under ERT616843 (55 Lewis Street)

- Requirements:**
1. Before any construction commences, this permit must be posted at the front of the street address, affixed to a window and open to public inspection until the completion of work.
 2. ~~Rough inspections are required for excavation before concrete is poured; before foundation work is covered; when rough wiring or plumbing is completed; prior to insulating or closing of walls.~~
 3. Final inspections for mechanical and/or electrical shall be done prior to obtaining the final approval by the Building Inspector.
 4. The holder must call the District Inspector to arrange for all inspections: 617 635-5300.

Date	Building Inspector	Insp Type	Date	Building Inspector	Insp Type
Date	Electrical Inspector	Insp Type	Date	Electrical Inspector	Insp Type
Date	Mech Inspector	Insp Type	Date	Mech Inspector	Insp Type

**Construction work is permitted from Mon - Fri, 7am to 6pm, CBC Ord. 16-26.4
THIS PERMIT MUST BE DISPLAYED IN A CONSPICUOUS PLACE ON THE PREMISES**



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 Mayor

Gary P. Moccia
 Inspector of Buildings

FOUNDATION

The undersigned applies for special permission to construct foundation only, subject to approval of plans, under such conditions as the Commissioner may specify in his permit.

Name of Applicant: **Robert Bellavia**

Issue Date: **01/11/2017**

Location: **55 Lewis St**

Fees: **\$171,551.00**

Neighborhood: **East Boston** Ward: **01**

Declared Value: **\$17,100,000.00**

Application/Permit No.: **FND644467**

Legal Occupancy: **Mixed**

WORK DESCRIPTION

Clippership Wharf - Construction of a new below-Grade Parking Garage and foundation system which will support 4 new Residential Buildings. This Project will create 478 new Residential Units distributed between 4 new Buildings.
Foundation Only

Date	Building Inspector	Insp Type	Date	Building Inspector	Insp Type

Date	Electrical Inspector	Insp Type	Date	Electrical Inspector	Insp Type

Date	Mech Inspector	Insp Type	Date	Mech Inspector	Insp Type

Construction work is permitted from Mon - Fri, 7am to 6pm, CBC Ord. 16-26.4
THIS CARD MUST BE DISPLAYED IN A CONSPICUOUS PLACE ON THE PREMISES


PERMANENT SOLUTION STATEMENT WITH CONDITIONS
CLIPPERSHIP WHARF
25 AND 65 LEWIS STREET
EAST BOSTON, MASSACHUSETTS
RTN 3-33113

by
Haley & Aldrich, Inc.
Boston, Massachusetts

on behalf of
Lendlease Clippership Wharf LLC
Boston, Massachusetts

for
Massachusetts Department of Environmental Protection
Wilmington, Massachusetts

File No. 05903-355
September 2019





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

6 September 2019

File No. 05903-355

Massachusetts Department of Environmental Protection
Northeast Regional Office
205B Lowell Street
Wilmington, Massachusetts 01887

Attention: Bureau of Waste Site Cleanup

Subject: Permanent Solution Statement with Conditions
Clippership Wharf
25 and 65 Lewis Street
East Boston, Massachusetts
RTN 3-33113

Ladies and Gentlemen:

On behalf of our client, Lendlease Clippership Wharf LLC (Lendlease), Haley & Aldrich, Inc. (Haley & Aldrich) is pleased to submit this Permanent Solution Statement with Conditions for Release Tracking Number (RTN) 3-33113 located at 25 and 65 Lewis Street in East Boston, Massachusetts (the "Site"). The Permanent Solution relies upon the condition of an Activity and Use Limitation (AUL). This Permanent Solution Statement has been prepared in accordance with the Massachusetts Contingency Plan (MCP), 310 CMR 40.1056. The Site location and surrounding features are shown on Figure 1.

Remedial actions at the Site were recently completed under a Release Abatement Measure (RAM) Plan in order to manage and facilitate off-site removal of soil impacted with asbestos and other Site contaminants and to facilitate on-site reuse of soil containing less than 1% asbestos generated in conjunction with the proposed development.

The Site was classified as a Tier II Site on 26 August 2016 following submittal of a Tier Classification Submittal, an MCP Phase I Completion Statement, and a Phase II Conceptual Scope of Work.

A Permanent Solution Statement Transmittal Form (BWSC104) is being submitted concurrently with this Permanent Solution Statement via eDEP; an unsigned copy is provided in Appendix A. Public notice of the availability of this Permanent Solution Statement and AUL has been provided to the City of Boston Board of Health, Mayor's Office, Zoning Commission, and Inspectional Services Department, in accordance with CMR 40.1403(3)(f) and CMR 40.1403(7)(a). Copies of these notices are included in Appendix A. A copy of the Notice of AUL (Form 1075) is being submitted with this Permanent Solution Statement and is included in Appendix B.

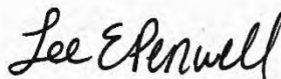
Massachusetts Department of Environmental Protection
6 September 2019
Page 2

If you have any questions or require additional information, please do not hesitate to contact the undersigned at 617-886-7400.

Sincerely yours,
HALEY & ALDRICH, INC.



Elizabeth J. Christmas, P.E.
Senior Environmental Engineer



Lee Penwell
Project Manager



Keith E. Johnson, P.E., LSP
Technical Expert

Enclosures

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1. Introduction

1.1 PURPOSE AND SCOPE

This report provides a Permanent Solution Statement for RTN 3-33113 located at 25 and 65 Lewis Street in East Boston, Massachusetts (the “Site”). This Permanent Solution Statement is supported by subsurface explorations and analyses conducted for the project, a Method 3 Risk Characterization prepared in accordance with the requirements of 310 CMR 40.0900, and a Stage I Ecological Risk Characterization. In accordance with MCP at 310 CMR 40.1041(1), the category of the Permanent Solution applicable to the Site is a Permanent Solution with Conditions. An AUL has been recorded for the Site to prevent direct exposure to soil and sediment at the Site. A copy of the AUL is provided in Appendix B.

1.2 SITE CONDITIONS

The Site consists of two adjacent parcels of land and water (Boston Harbor), totaling approximately 12 acres (6.8 acres of land and 5.2 acres of water), located at 25 and 65 Lewis Street in East Boston, Massachusetts. The general location of the Site is shown on Figure 1. As shown on Figure 2, the Site includes a portion of Boston Harbor, two large piers (North and South Finger Piers), and land recently developed for multi-family residential, commercial, and public use.

The land portion of the Site is currently occupied by three residential buildings (Buildings 1, 2 and 3), that are nearing interior completion and beginning occupancy. A partially below-grade parking garage occupies most of the Site, with a footprint of approximately 144,000 square feet. The remainder of the Site is landscaped with various hard and soft features, including a harbor walk along the shoreline. Hardscape and softscape areas outside the limits of the below-grade parking garage and building footprints include protective clean covers of at least 14 inches (in.) to 3 feet (ft) as detailed herein. In addition, excavation by the waterfront at the end of North Finger Pier has been conducted to create a water inlet, tidal marsh, kayak ramp, rocky beach and access to the shoreline (referred to as the “Living Shoreline”). Two upland areas of the Site are under construction for final site improvements, the dog park and the amphitheater; however, the required thickness of protective cover is in place. The below-grade limits of the basement, above-grade limits of the buildings, and various site features are shown on Figure 2.

Construction in the Building 4 area is ongoing. Remaining work in and around Building 4 is currently being conducted within a restricted construction zone shown on Figure 2. The excavation and foundation construction for Building 4 is complete, and the superstructure is being erected. The marker barrier has been placed; however, final protective covers are not yet in place. Access to the Building 4 construction area is separated from the completed area with a minimum 6 ft high fence or similarly restrictive barrier and construction gates that will be closed and locked when work is not occurring.

An inactive MBTA tunnel turnaround and easement extends onto the northeast corner of the Site. The MBTA Blue Line Tunnel runs along the southeast perimeter of the Site beneath Lewis Street. A MBTA Head House to Maverick Square Station is located adjacent to the northeast corner of the Site. Additionally, a MBTA Vent Building is located southeast of the Site, across Lewis Street near the harbor.

The Site is bordered by Lewis Street to the east, beyond which are multi-family apartments; Jacobee Road to the north, beyond which are Heritage Apartments (senior subsidized living); and Boston Harbor to the south and west.

1.3 SITE HISTORY

The Site was developed for commercial waterfront activities in the mid-1800s consisting of two filled piers extending out into the harbor with pile supported wood wharves along the perimeter, known as the North and South Finger Piers. Structures were present on both piers as early as the 1850s. From that period until the 1970s there have been a variety of small to large, one- to five-story wood and brick sheds, shops, warehouses and other structures present on both wharves and the filled slip between the piers. The types of buildings and operations that existed on the Site included numerous structures (warehouses, shops, sheds) related to wharf operations, flour mills, machinery shops, furniture repair, wool merchants, building materials supplier, wood working box suppliers, lime and cement sales, and lobster wholesales.

The National Dock Trust Company and National Dock and Storage Warehouse Company occupied most of the Site from the late 1800s to 1973 for storage of dry goods and commodities. Large sugar warehouses occupied the North Finger Pier area in the late 1800s and early 1900s when the Site was known as Lombard's Wharf. Records from the Boston Fire Department History organization document two large fires at the Site that destroyed a number of warehouses at the Site in 1873 and in 1955. The South Finger Pier was partially filled to its current location between 1901 and 1922. Most structures were demolished in the late 1960s and 1970s. From then until recent Site development, the Site was used for parking or remained vacant.

1.4 MCP REGULATORY STATUS AND COMPLIANCE

1.4.1 Description of Release RTN 3-33113

During due diligence sampling at the Site, the results of the soil sampling indicated the presence of metals (lead and arsenic), polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), and polychlorinated biphenyls (PCBs) in urban fill at concentrations exceeding the applicable RCS-1 Reportable Concentrations. Accordingly, a BWSC103 Release Notification Form (RNF) was submitted by the property owner, Noddle Island Limited Partnership, on 26 August 2015. MassDEP subsequently assigned Release Tracking Number (RTN) 3-33113 to the release.

In addition, asbestos in soil is present within the soil matrix throughout a majority of the Site, generally within the upper 3 to 4 ft (above El. 11¹) of fill soil ranging from non-detect or trace (<1%) to 2.1%, with localized areas ranging up to 13.8% asbestos fibers in soil. Below El. 11, samples generally indicated non-detect to 2.2% asbestos fibers in soil. The asbestos impacted soil was managed in accordance with the MCP as a Site contaminant listed under 310 CMR 40.0000 Subpart P as a hazardous material.

¹ Elevations referenced herein are in feet and reference the Boston City Base (BCB) datum unless otherwise noted.

1.4.2 Regulatory Compliance Documents

The following MCP regulatory documents were submitted to MassDEP for the RTN 3-33113 Disposal Site in support of this Permanent Solution with Conditions:

- Initial RAM Plan submitted on 15 January 2016;
- RAM Modification and Non-Traditional Asbestos Abatement Work Plan (NTAWP, dated July 2016) submitted on 22 August 2016 (conditional approval from MassDEP received on 24 August 2016) allowing for on-site reuse of soil containing less than 1% asbestos below clean cover materials;
- Tier Classification Submittal, MCP Phase I Completion Statement, and Phase II Conceptual Scope of Work submitted on 26 August 2016;
- RAM Modification No. 2 dated 7 November 2016 and Amendment to NTAWP dated 10 November 2016 (conditional approval from MassDEP received on 15 November 2016) that expanded the RAM Activity area to include the entire land portion of the subject property;
- RAM Modification No. 3 dated 28 September 2017 (conditional approval received on 29 September 2017) allowing for on-site reuse of treated toxicity characteristic leaching procedure (TCLP) lead impacted soils as backfill below the clean cover materials;
- RAM Modification No. 4 dated 24 January 2018 and Amendment to NTAWP dated 16 January 2018 (conditional approval received on 31 January 2018) allowing for a phased reduction of perimeter dust and asbestos monitoring units based on work completed at the Site;
- Seven RAM Status Reports submitted on 13 May 2016, 17 November 2016, 12 May 2017, 10 November 2017, 9 May 2018, 19 November 2018, and 14 May 2019;
- RAM Completion Report submitted concurrently with this Permanent Solution Statement.
- Notice of Activity and Use Limitation (AUL), Form 1075 and attached exhibits recorded with the Suffolk County Registry of Deeds on 5 September 2019.

A separate RAM Plan was filed for RTN 3-33113 on 26 July 2016 to conduct erosion control and site preparation activities while the August 2015 RAM Plan Modification was under review with MassDEP. MassDEP provided a conditional approval letter for the erosion control and site preparation RAM Plan on 27 July 2016. RAM activities associated with site preparation and erosion control were completed in September 2016, as documented in a RAM Completion Report dated 26 September 2016.

1.5 PREVIOUS RESPONSE ACTION OUTCOME

In 1986, a limited subsurface investigation was conducted at the Site by Haley & Aldrich, Inc. (Haley & Aldrich) (as part of a prior development that did not go forward). The results of the program indicated low concentrations of fuel oil in soil and low concentrations of PAHs in groundwater. At the time, concentrations were considered low enough to fall outside the jurisdiction of Massachusetts General Law 21E.

Briggs Associates (Briggs) collected groundwater samples in 1991 and 1992; the results indicated concentrations of metals (chromium, lead, barium, arsenic, selenium) in groundwater. Briggs concluded that the Site had been impacted by a release of oil and hazardous materials (OHM) but given the urban nature of the Site, concluded that the Site did not pose a public concern. Another round of groundwater

sampling conducted by Briggs in 1993 did not detect volatile organic compounds (VOCs), TPH, or metals in groundwater. Briggs then concluded the Site was no longer being impacted by OHM (MCP Reportable Concentrations had not yet been established at the time).

In June 1997, Rizzo Associates conducted a subsurface investigation at the Site. The results of the sampling program indicated reportable concentrations of antimony, beryllium, copper, and lead in soil. Metals, VOCs, and/or TPH were not detected in the groundwater samples; however, the detected concentrations of dissolved arsenic and selenium in groundwater samples collected by Briggs in 1991 exceeded the applicable reportable concentrations at the time. MassDEP was notified on 14 July 1998 of the detected concentrations of antimony, beryllium, copper, and lead in soil and arsenic and selenium in groundwater. MassDEP subsequently assigned RTN 3-17034 to the release. A Method 3 Human Health and Environmental Risk Characterization was conducted and concluded a condition of “No Significant Risk” of harm to public welfare, public safety, ecological receptor or the environment existed for current and future uses at the Site. On behalf of Clippership Wharf Limited Partnership, Rizzo submitted a Class B-1 Response Action Outcome (RAO) to MassDEP on 6 October 1998. The RAO for RTN 3-17034 applies to the 6.8 acres of filled land above the high tide line at the Site.

1.6 RELATIONSHIP OF PERSON TO RELEASE

Lendlease Development, Inc. (“Lendlease”), (the parent company of Lendlease Clippership Wharf LLC), purchased the property from Noddle Island Limited Partnership on 30 March 2016. Construction for the current development began in August 2016.

Response actions were conducted by Lendlease Clippership Wharf LLC, as “**Eligible Person**”:

Lendlease Clippership Wharf LLC
Contact: Nicholas Iselin
20 City Square, 2nd Floor
Boston, MA 02129
Tel: (617)-557-6400

The **Licensed Site Professional (LSP)** is:

Keith E. Johnson, LSP# 9789
Haley & Aldrich, Inc.
465 Medford Street, Suite 2200
Boston, Massachusetts 02129-1400
Tel: (617) 886-7318

2. Site Characterization

2.1 SUBSURFACE EXPLORATIONS

Multiple sampling events were conducted at the Site in conjunction with due diligence, Site characterization, permitting, and RAM activities. The results of the sampling programs for soil, groundwater, surface water and sediment were documented in the initial RAM Plan, RAM Plan Modifications, RAM Status Reports, and the RAM Completion Report.

Laboratory data reports were previously provided to MassDEP in the RAM Plan, RAM Plan Modifications, RAM Status Reports, and RAM Completion Report.

2.1.1 Soil Sampling

Subsurface explorations were conducted from test pits, test borings, direct push, stockpiles, and grab samples as part of initial Site investigations and assessment during RAM activities. Sampling was performed to characterize soils for on-site reuse and off-site disposition as well as to confirm successful TCLP treatment and localized removal of impacted soils. A summary of soil quality data remaining at the Site following completion of RAM activities is provided in Table I. Sampling locations are provided on Figure 3, and a summary of the soil sampling programs is provided below.

Program Date	Number and Type of Explorations	Number of Samples for Chemical Analyses	Number of Samples for Asbestos Analyses	Purpose
January 2014	14 Test Pits	24	9	Site Characterization
September 2015 – Upland Soils	9 Test Pits	-	89	Asbestos Assessment
September 2015 – Living Shoreline	9 Test Pits	20	21	Asbestos Assessment and Living Shoreline Characterization
November – December 2015	59 Test Pits and Test Borings	77	19	Site Characterization
February 2016	25 Geoprobos	7	54	Asbestos Assessment and Lead Hot Spot/TCLP Delineation
August – October 2016	Grab Samples	-	32	Localized Asbestos Removal Confirmation
September 2016	6 Test Pits	6	6	Asbestos Assessment at Former Slip
September 2016	2 Stockpiles	4	2	Characterization for On-Site Reuse and Disposal
October 2016	2 Test Pits	4	2	Characterization at Carlton Wharf
October 2016	Grab Samples	15	-	TCLP Confirmation
October and December 2016	3 Test Pits	1	6	Determine limits of future AUL
November 2016	Grab Samples	8	-	Lead Hot Spot/TCLP Removal Confirmation
October – December 2016	1 Stockpile	2	2	Characterization for Disposal

Program Date	Number and Type of Explorations	Number of Samples for Chemical Analyses	Number of Samples for Asbestos Analyses	Purpose
February 2017	2 Test Pits	-	2	Asbestos Assessment at Former Slip
February – May 2017	Stockpiles (Dredge and Upland)	-	24	Characterization for Disposal
March 2017	6 Test Pits	6	-	Disposal Characterization
May 2017	Stockpiles	6	-	Disposal Characterization
June 2017	Stockpiles	10	-	Disposal Characterization
July 2017	1 Test Pit	1	-	TCLP Lead Delineation
July 2017	Stockpile	-	3	Asbestos Assessment
September 2017	9 Test Pits	9	-	Disposal Characterization

The results of these sampling programs were also conveyed to MassDEP staff for review in multiple memoranda and data transmittals listed in the References section of this Permanent Solution Statement.

2.1.2 Clean Cover Sampling

Following placement of the permanent protective cover, confirmatory asbestos sampling was performed to assess if cross-contamination had occurred between underlying impacted soils and clean imported cover soils since clean cover materials were placed in phases. The sampling locations are provided on Figure 4. No asbestos was detected during the clean cover sampling program.

Program Date	Number and Type of Explorations	Number of Samples for Chemical Analyses	Number of Samples for Asbestos Analyses	Purpose
October 2018 – August 2019	64 Hand Auger	-	65	Clean Cover Confirmatory Sampling

2.1.3 Sediment Sampling

Sediment sampling was performed to assist with completion of the Water Quality Certification permit application prior to the start of construction, to characterize soils in the Living Shoreline for on-site reuse and off-site disposition, and to assess human health and ecological risk at the Living Shoreline, as summarized below. Sediment data that is representative of current conditions (post-marine construction work) is provided in Table II, and the associated sampling locations are provided on Figure 5.

Program Date	Number and Type of Explorations	Number of Samples for Chemical Analyses	Number of Samples for Asbestos Analyses	Purpose
May 2015 and October 2016	Grab Samples	11	11	Permitting Chap 91 Water Quality
September 2015 – Living Shoreline	9 Test Pits	20	21	Asbestos Assessment and Living Shoreline Characterization

Program Date	Number and Type of Explorations	Number of Samples for Chemical Analyses	Number of Samples for Asbestos Analyses	Purpose
September and November 2016	3 Test Pits 4 Grab Samples	7	-	Localized Removal Assessment and Confirmation
April 2018	16 Vibracores 16 Ponar Dredge	15	11	Risk Assessment

2.1.4 Groundwater Sampling

Groundwater sampling was performed at three locations prior to the start RAM activities as part of initial Site characterization in May 2015. Based on the sampling, groundwater is not part of the Disposal Site. A summary of groundwater quality data collected at the Site is provided in Table III, and the sampling locations are provided on Figure 3.

2.1.5 Surface Water Sampling

Surface water sampling was performed on a quarterly basis during RAM activities and following completion of marine work. Surface water samples were collected at high and low tide. A summary of surface water quality data collected at the Site is provided in Table IV, and the sampling locations are provided on Figure 5 along with the sediment samples.

Program Date	Number and Type of Explorations	Number of Samples for Chemical Analyses	Number of Samples for Asbestos Analyses	Purpose
September 2016 – November 2017	Grab Samples	10	-	Risk Assessment
April 2018	Grab Samples	2	-	Risk Assessment

2.2 GEOLOGIC CONDITIONS

Subsurface conditions encountered in the subsurface explorations are described below, generally in order of occurrence below ground surface. At some locations, strata may be missing or in a different sequence.

Fill – The fill material at the Site generally ranges from 3.5 to 29 ft thick and generally consists of tan to black sand with silt, sand gravel, oversized materials, granite blocks, timbers, and masonry debris, as well as pockets of ash, cinders, and coal. Pockets of clay and organic soils are also interbedded in the fill stratum.

Organic Deposits – The organic deposits at the Site are about 0 to 18 ft in thickness. The thickest deposits (greater than 10 ft) were detected on the South Finger Pier and within the former slip (center of the Site, Figure 3).

Marine and Glaciomarine Deposits – Marine and Glaciomarine deposits were detected in three deep borings (HA-B101 to 103). Occasional cobbles were noted in test borings HA-B101 and B102.

Glacial Till – Glacial Till was detected in some deep test borings at 89 and 77.5 ft below ground surface (El.-72.1 and -61.4). Previous explorations indicated top of bedrock from El. -53.5 to El. -116.4 within the Site limits. The layer varies from 4 to 17 ft thick where encountered. Generally, the top of glacial till decreases from El. -50 at the northeast corner of the Site along Jacobee Road to deeper than El. -115 along the South Finger Pier on southeast side (Lewis Street) of the Site.

Bedrock – Bedrock consists of moderately hard to hard slightly weathered to fresh gray aphanitic argillite. Bedrock was encountered at recent test borings HA-B101 to B103 below the glacial deposits at 80.6 to 137.8 ft below ground surface (El.-64.5 and -123.5). Previous explorations indicated top of bedrock from El. -57.5 to El. -111.5 within the Site limits. Generally, the top of rock decreases from El. -60 at the northeast corner of the Site along Jacobee Road to deeper than El. -120 along the South Finger Pier.

2.3 GROUNDWATER CONDITIONS

Historically, groundwater level measurements at monitoring wells in the vicinity of the Site ranged from El. 4 to El. 12 BCB, and the tidal water levels ranged from approximately El. 0 to El. 12.2. Groundwater level measurements are heavily influenced by daily tidal action in Boston Harbor. Area groundwater levels are also influenced by numerous other factors including below-grade structures, precipitation, surface runoff, local construction activity, pumping of dewatering systems, leakage from utilities, and seasonal variations.

3. Summary of Completed RAM Activities

3.1 COMPLETED RAM ACTIVITIES

The objectives of the RAM were to manage and facilitate off-site removal of contaminated soil impacted with asbestos and other Site contaminants and on-site reuse of soil containing less than 1% asbestos generated in conjunction with the proposed development. The RAM Modifications also included on-site treatment and reuse of TCLP lead impacted soils. RAM activities began at the Site following MassDEP conditional approval of the August 2016 RAM Plan Modification on 24 August 2016. RAM activities were completed following placement of clean covers in August 2019. RAM activities have been documented in the RAM Status Reports and RAM Completion Report previously submitted to MassDEP.

RAM activities included the following:

- Excavation and removal of 39,895 cubic yards (67,826.8 tons) of contaminated soil.
- In-situ TCLP treatment of approximately 965 cubic yards (1,640 tons) of TCLP lead impacted soil by application of Portland Cement;
- Ex-situ TCLP treatment of approximately 150 cubic yards (250 tons) of TCLP lead impacted soil which had been previously stockpiled on-site and on-site reuse of the treated soil;
- Additional assessment to meet soil disposal frequency requirements; characterize soil; sediment, and surface water for risk evaluation purposes; delineate TCLP lead impacted soils; confirm successful TCLP lead treatment; and confirm removal of localized contamination;
- On-site reuse of soil with non-detect or trace (<1%) asbestos and decontaminated debris (including granite blocks, asphalt, concrete slabs, and cobblestones as part of shore revetment construction);
- Quantitative real-time perimeter monitoring for asbestos fibers and dust;
- Stockpile management of natural soils and fill soils with non-detect or trace (<1%) levels of asbestos;
- Implementation of site controls including dust control, wetting of asbestos impacted soils, siltation control during dredging, land side erosion control and decontamination, site access control, and worker health and safety.
- Removal and off-site disposition of four buried cylinders of suspect chlorine gas;
- Management of non-Remediation Waste (soils with concentrations less than applicable MCP RCS-1 Reportable Concentrations and non-detect levels of asbestos); and
- Placement of protective covers and confirmatory sampling of the protective cover.

3.2 PROTECTIVE COVERS

3.2.1 Placement of Protective Covers During Construction

During Site development, temporary protective covers were constructed to prevent worker exposure to contaminated soils. The temporary covers consisted of orange filter fabric overlain with at least 6 in. of

imported crushed stone, and they were placed on subgrade surfaces inside the footprint of the basement, in high traffic areas, and outside the building footprint following excavation. Temporary covers are in place in the Building 4 construction area, which is also secured with a fence or similarly restrictive barrier.

3.2.2 Placement of Final Protective Covers

Following completion of soil disturbing work, final permanent covers were constructed outside building slabs as described below:

- **Utility Corridors** – Permanent utility trenches were lined with an orange geotextile marker barrier placed a minimum of 12 in. below the utility and 18 in. beyond each edge of the utility and backfilled with clean imported soil.
- **Upland Areas: Unpaved Areas (Landscaped)** – Under unpaved lawn and planting areas including the Dog Park and stone dust paths, an orange geotextile barrier and a minimum of 3 ft of clean imported planting soil or stone materials was placed on the subgrade soils to achieve final design grades.
- **Upland Area: Paved or Hardscaped Areas** – Under poured in-place concrete paving, asphalt paving, and unit pavers on asphalt, concrete, or permeable sub-base, an orange geotextile marker was placed on the subgrade soils at a minimum of 14 in. below the finished pavement or hardscape grade and backfilled with clean imported soil and hardscape material to final grade.
- **Tidal Zone: Living Shoreline and Rocky Beach** – From Mean Low Water (MLW) to Mean High Water (MHW), a heavy geotextile/orange marker barrier was placed on the subgrade soils and covered with 2 ft of clean imported cover material. Clean cover materials consist of planting soils in the salt marsh and 2 in. to 12 in. size river stones in the Rocky Beach area. Rip-rap slopes within the Living Shoreline were underlain by armor stone and a heavy geotextile/orange marker barrier.

Granite block seawalls to the north and west of the Living Shoreline remain in place and provide lateral support to underlying sediments within the tidal range. New rip-rap rock slopes were placed to provide containment, erosion control and support to the contaminated upland contaminated soils. With exception of the rip-rap slope in the Living Shoreline, no marker barriers were placed below the armor stone for rip-rap slopes.

Most of the Site is covered with an 8 to 12 in. thick reinforced concrete slab at the basement or ground surface levels that provides protective cover to underlying soils.

An AUL has been implemented at the Site to maintain and protect the protective covers. A copy of the AUL, including sketches showing the limits of each protective cover, is included in Appendix B. Future placement of final protective covers in the Building 4 construction zone will be conducted under a new RAM Plan, and a Revised Permanent Solution Statement and Amended AUL will be filed to document the changed conditions following the completion of construction.

4. Representativeness Evaluation and Data Usability Assessment

A Representativeness Evaluation and Data Usability Assessment (REDUA) has been prepared for this Permanent Solution with Conditions pursuant to 310 CMR 40.1056(2)(k) and MassDEP Policy #WSC-07-350 “MCP Representativeness Evaluations and Data Usability Assessments” and is included in Appendix C. The purpose of this policy is to evaluate the extent to which the data set has met specific Site characterization needs and data suitability objectives.

In summary, our evaluation of data available for this opinion and how it was used to support this opinion indicate that the data set is scientifically valid and defensible. We have assessed the data herein for representativeness and selected QA/QC parameters and conclude that the results are acceptable for incorporation into this Permanent Solution Statement with Conditions are of sufficient accuracy, precision, and completeness. The data were used to determine general nature and extent of contamination and assessment of risks and are considered spatially representative of current Site conditions. All data were generated in accordance with MassDEP’s Compendium of Analytical Methods.

5. Method 3 Risk Characterization

In accordance with the requirements of 310 CMR 40.0000 Subpart I of the MCP, a Method 3 Risk Characterization of harm to human health, public welfare, safety, and the environment has been completed for the Site. The results of the Risk Characterization are summarized below and included in Appendix D, together with information regarding the exposure assessment.

The results of this Risk Characterization indicate that a condition of No Significant Risk of harm to human health, public welfare, safety, and the environment exists with the implementation of an AUL. The Site AUL is in place to prevent direct exposure to soil by maintaining existing protective covers and barriers for the current and foreseeable use as multi-family residential and public access to the Living Shoreline. The protective covers and barriers consist of concrete ground floor slabs below the new garage and building footprints, hardscape features such as asphalt or concrete pavement and pavers with a total of 14 in. of clean cover material, stone rip-rap and granite block seawalls, and a minimum of 3 ft of clean cover soils or stone in landscaped areas outside the garage and building footprints. The AUL requires that protective barriers be maintained to ensure that impacted soil remains inaccessible. The AUL also restricts access to the Building 4 construction area by maintaining a fence or similarly restrictive barrier to preclude unauthorized land access.

In the restricted Building 4 construction area, cumulative risks were calculated for a trespasser assumed to be exposed to soil at depths of 0 to 3 ft. Excavation and foundation construction are complete at Building 4 and a marker barrier and temporary working cover is in place. Any future construction work will require a Soil Management Plan and a Health and Safety Plan. Accordingly, construction workers are not expected to be exposed to impacted soils at the Site.

A utility worker conducting emergency utility repair/maintenance to subsurface utilities could also be present at the Site in the future. Repairs of existing utilities will be conducted within existing clean corridors so utility workers will not be exposed.

The park visitor scenario was used to assess risk for recreational visitors who may potentially be exposed to surface water and sediment while wading in the Living Shoreline area. This scenario assumes that exposures to young children, adolescents, and adults occur 3 days per week over the warmer months of the year. Exposures to airborne dust and asbestos fibers via the inhalation pathway are not complete due to the twice daily tidal cycle, which keeps sediment saturated and therefore unable to disperse into the air.

Calculated cumulative noncancer and cancer risk estimates for all receptor scenarios evaluated are below the MCP Cumulative Cancer and Cumulative Noncancer Risk Limits. Evaluation of potential exposures to lead in sediment using the Integrated Exposure Uptake Biokinetic (IEUBK) model demonstrated that estimated geometric mean blood lead level for children 6 months to 7 years old would be 2.9 µg/dL, which is below the current United States Environmental Protection Agency (USEPA) threshold of 10 µg/dL and below the Centers for Disease Control and Prevention (CDC) reference level of 5 µg/dL.

In addition, no potential acute risks from chemical contamination at the Site were identified for utility workers who may be exposed to soil for a short period of time (i.e., 1 to 2 days) while conducting emergency repairs to the existing subsurface utilities at the Site as this work would be conducted within

the existing clean utility corridors. Finally, a complete vapor intrusion pathway does not exist for current or future unrestricted uses of the Site.

In summary, the results of the Method 3 indicate that a condition of No Significant Risk of Harm to Human Health exists, with the implementation of the AUL.

Risk of harm to public welfare was characterized in accordance with 310 CMR 40.0994. Under current and reasonably foreseeable uses, no nuisance conditions were deemed to exist or will result from the release or threat of release of OHM at the Site. In addition, Exposure Point Concentrations (EPCs) for OHM in soil at the Site do not exceed the Upper Concentration Limits (UCLs) listed in 310 CMR 40.0996(2).

A condition of No Significant Risk of harm to safety is indicated, as defined in 310 CMR 40.0960(3) and a condition of No Significant risk of harm to the environment is indicated as defined in 310 CMR 40.0995.

A Stage I Ecological Risk Characterization was conducted to assess the risk of harm to potential environmental receptors (310 CMR 40.0995) under current and reasonably foreseeable conditions. The Stage I Ecological Risk Characterization is provided as Appendix E and discussed further herein. Significant risk of harm to the environment under future Site conditions was also evaluated through comparison of soil concentrations to UCLs, pursuant to 310 CMR 40.0996.

MassDEP was provided a copy of the risk calculations and conclusions for the Living Shoreline in a memorandum titled "Initial Results of Sediment Assessment Program," dated 6 July 2018 and a follow-up memorandum titled "Updated Living Shoreline Risk Assessment," dated 24 October 2018. MassDEP indicated their approval via email on 21 November 2018.

6. Stage I Ecological Risk Characterization

A Stage I Ecological Risk Characterization was performed for the Site to evaluate if Site-related OHM in sediment have the potential to adversely affect benthic biota in Boston Harbor. The Stage I Ecological Risk Characterization compares concentrations of constituents of potential ecological concern (COPECs) in sediment to screening benchmarks developed under the MCP. These benchmarks are considered conservative and to be protective of the most sensitive organisms during their most sensitive life stage. The full Stage I Ecological Risk Characterization is provided in Appendix E.

Comparison to sediment screening values (Effects Range – Low; ERLs) showed that the sediment PAH concentrations were above the ERL screening benchmarks. Following this comparison, MassDEP recommends comparisons to Local Conditions for sediment investigations. The average concentrations of Site PAHs were approximately 4 to 5 times higher than levels of PAHs for the average levels seen in Local Conditions samples. However, several lines-of-evidence supporting the source of PAHs are not related to the Clippership Wharf Site are provided in the Phase I Ecological Risk Characterization, including:

- Evaluation of total organic carbon (TOC) in Site and Local Conditions sediments which indicates that when total PAH concentrations were normalized to TOC (which binds PAHs making them less bioavailable), there was no statistical difference seen between the Site and Local Conditions sediments.
- A forensic evaluation of the sediment PAH data show that Site and Local Conditions are nearly identical.
- An evaluation of the PAH histograms and isomer ratios show strong indications of an anthropogenic urban background signature (i.e., that PAHs are pyrogenic in origin). Ranges of isomer ratios from the Site and Local Conditions samples are uniform. The ratios indicate the PAHs in the sediment are consistent with a ubiquitous source such as combustion of coal, wood, and petroleum.
- VC-105 and VC-107 (Figure 5) have higher concentrations of PAHs, which may be due to pyrogenic sources such as the combustion of petroleum, wood, and/or coal typically seen at urban sites and historic port areas. This is consistent with the historical use of the Site as a major shipping port and the occurrence of several major fires at the Site (1873 and 1955) that destroyed the warehouse structures.
- An evaluation of the potential toxicity/bioavailability from PAHs. Except for VC-105 and VC-107, the estimated “toxic units” for each of the Site samples was consistent with Local Conditions. This is due to the protective (binding) effect of the TOC concentrations, which is unique to each sample.
- Direct visual observations of most of the screened sediment samples had no viable organisms; seaworms were encountered in three samples (one Site sample and two Local Conditions samples). The visual data are consistent with other sediment profile observations in this area of the Inner Boston Harbor which indicate a “stressed benthic habitat”.
- PAH isomer ratios for and double ratio plots for the Site and Local conditions also fall within the range presented for Boston Harbor published in available scientific literature.

From the standpoint of risk to sediment-dwelling organisms, these lines-of-evidence strongly support the notion that the large stormwater drains which discharge to both the northern and southern embayments of the Site are most likely the source of PAHs, even affecting samples selected to represent Local Conditions that are some distance away. Accordingly, the Stage I Ecological Risk Characterization concludes that the Site does not pose a risk to the benthic invertebrate community.

MassDEP reviewed the Stage I Ecological Risk Characterization in a memorandum titled "Initial Results of Sediment Assessment Program," dated 6 July 2018 and a follow-up memorandum titled "Updated Living Shoreline Risk Assessment," dated 24 October 2018. MassDEP indicated their approval via email on 21 November 2018.

7. Activity and Use Limitation

The AUL was recorded with the Suffolk County Registry of Deeds on 5 September 2019. A Registry copy of the recorded document is being submitted to MassDEP along with BWSC113 transmittal form concurrent with this submittal. A copy of the recorded AUL can be found in Appendix B. An Operation, Maintenance, and Monitoring (OMM) Plan has been prepared to establish procedures to assist the Site owner and operator in maintaining compliance with the AUL. The OMM Plan also includes a generic Soil Management Plan, a generic Health & Safety Plan, and a Wetland Maintenance Plan to be reviewed prior to and to assist with managing any subsurface activities at the Site.

In summary, the AUL allows:

- In the upland area (above mean high water line), activities and uses consistent with use for multi-family residential, school, daycare, playground, commercial, retail, passive or active recreation, dog park, open space, institutional or hotel that does not involve disturbance of the protective covers and marker barrier, protective barriers, or clean utility zones;
- In the tidal zone (mean low water to mean high water), activities and uses for public use as open space and passive recreational;
- In the Building 4 construction zone, where the work area is clearly defined by a fence or similarly restrictive barrier, activities and uses for new building construction as long as the barrier is maintained;
- Repairs of existing utilities that are located within clean corridors or above the existing marker barrier without restrictions;
- Repairs to replace or reinforce critical shore protection elements such as seawalls and stone rip-rap²;
- In the upland and tidal zones, activities related to the following that do not involve the disturbance of soil or sediment below protective covers and marker barrier, protective barriers, or outside clean utility zones: landscaping and routine maintenance of landscaping and lawn areas, including planting beds or grass and seasonal plantings; maintenance of walkways and pavement, which includes but is not limited to asphalt pavement, bituminous concrete or pavers;
- Growing of fruits and vegetables destined for human consumption, provided that the gardening is conducted in raised and contained landscaped beds in accordance with MassDEP Best Management Practices (BMPs), a copy of which is provided in Appendix F;
- Subsurface activities, including but not limited to excavation associated with installation of new utilities, new or seasonal landscape plantings, or Site improvements, provided that any such activity performed will result in disturbance or contact with contaminated soil or sediment

² Maintenance of the seawalls and rip-rap slopes are permitted to occur as necessary; exposures to airborne dust and asbestos fibers via the inhalation pathway would not be complete during maintenance work as the seawalls and rip-rap are wet and therefore unable to disperse dust or fibers into the air.

below protective covers and marker barrier, protective barriers, or outside clean utility zones is conducted in accordance with a Soil Management Plan and a Health & Safety Plan; and

- Such other activities or uses which, in the opinion of an LSP, shall present no greater risk of harm to health, safety, public welfare or the environment.

The AUL prohibits:

- Free standing single or two-family residential homes;
- Uses and activities in the tidal zone (mean low water to mean high water) other than public use as open space and passive recreation;
- Any activities and/or uses that involve disturbance or direct contact with the contaminated soil or sediment below protective covers and marker barrier, protective barriers, or outside clean utility zones without preparation of a Soil Management Plan, a Non-Traditional Asbestos Work Plan, and a Health & Safety Plan;
- Use of contaminated soils or sediments that exist beneath protective covers and marker barrier, protective barriers, or outside clean utility zones for on-site reuse above such barriers; and
- Unauthorized access to Building 4 construction area.

8. Permanent Solution Statement

This Permanent Solution Statement has been formatted in accordance with the requirements of 310 CMR 40.1056.

In summary, exposure to the contaminants in soil have been eliminated or controlled at the Site through excavation and off-site disposal and the construction of protective covers. A condition of No Significant Risk has been achieved for the Site with the implementation of an AUL.

40.1056(1)(a) Site Name, Address and MADEP Release Tracking Numbers

Clippership Wharf
25 and 65 Lewis Street
East Boston, Massachusetts 02128
RTN 3-33113

40.1056(1)(b) Permanent or Temporary Solution Category

A Permanent Solution with Conditions relying upon implementation of a Notice of Activity and Use Limitation has been achieved for the RTN 3-33113 Disposal Site.

40.1056(1)(c) Method of Risk Characterization

A Method 3 Risk Characterization has been conducted and is attached as Appendix D. Results of the Method 3 Risk Characterization indicate that a condition of No Significant Risk exists for the Site relative to human health, public welfare, and the environment for current and future foreseeable use with the implementation of an AUL.

A Stage I Ecological Risk Characterization was conducted to assess the risk of harm to potential environmental receptors under current and reasonably foreseeable conditions. The Stage I Ecological Risk Characterization is attached as Appendix E.

40.1056(1)(d) Relationship to Other Permanent Solution Statements

A Class B-1 RAO was submitted to MassDEP on 6 October 1998 for a previous release RTN 3-17034. The RTN was related to the upland portion of the property for the presence of antimony, beryllium, copper, and lead in soil and arsenic and selenium in groundwater. A Method 3 Human Health and Environmental Risk Characterization was conducted and a condition of "No Significant Risk" of harm to public welfare, public safety, ecological receptor or the environment was found to exist for current uses or future uses at the Site.

40.1056(1)(e) Implementation of Activity and Use Limitation

A condition of No Significant Risk has been achieved based on the implementation of an AUL for the Disposal Site. The AUL was recorded with the Suffolk County Registry of Deeds on 5 September 2019. A Registry copy of the recorded document is being submitted to MassDEP along with BWSC113 transmittal form. A recorded copy of the AUL can be found in Appendix B. The limits of the AUL relative to the property and Disposal Site limits are shown on Figure 2.

40.1056(1)(f) Assumptions and Conditions/Limitations on Site Activities that Do Not Require AUL

No other assumptions or conditions that are not contained in the AUL apply to the Site.

40.1056(1)(g) Need for Operation of Active Exposure Pathway Mitigation Measures

The Permanent Solution Statement with Conditions does not rely upon the operation of Active Exposure Pathway Mitigation Measures.

40.1056(1)(h) Opinion from Licensed Site Professional (LSP)

It is the opinion of the LSP-of-record, as executed on the BWSC104 and BWSC113 Forms herein, that the requirements of a Permanent Solution Statement with Conditions and Activity and Use Limitation (AUL) have been met in accordance with the MCP at 310 CMR 40.1056 and 40.1067(4)(d) at the Clippership Wharf Site.

40.1056(1)(i) Certification of Permanent Solution Statement

Certification of the Permanent Solution Statement has been provided on the BWSC104 Form which has been uploaded to MassDEP's eDEP website. An unsigned copy of transmittal form BWSC104 containing the certification is provided in Appendix A.

40.1056(1)(j) Comparison of OHM Concentrations to Upper Concentration Limits

A comparison of Contaminants of Concern (COC) (OHM) EPCs at the Site to UCLs is provided in the Method 3 Risk Assessment (Appendix D), which shows that the Exposure Points for COC (OHM) in Site soil do not exceed applicable UCLs.

40.1056(1)(k) Analytical Data Pursuant to the Compendium of Analytical Methods

The Representativeness Evaluation and Data Usability Assessment in Appendix C contains a discussion of the analytical data and demonstrates that the data are of sufficient quality to support the risk characterization and Permanent Solution Statement, as previously discussed in Section 4 herein.

40.1056(2)(a) and (b) Location and Boundaries of the Disposal Site and Conceptual Site Model

The concentrations exceeding RCS-1 (including PAHs, TPH, PCBs, and metals) were detected in fill soils. Asbestos fibers are also present in the fill soils. Based on the results of Site history evaluation and the subsurface explorations and chemical testing programs conducted at the Site, detected constituents are attributed to historical Site filling and use as well as historical fires and demolition activities. Receptors at the Site include construction workers (current) as well as residents and the public (foreseeable future). Potential exposure pathways include direct contact with contaminated soil below the protective covers or inhalation of dust from exposed soil during future intrusive activities.

The lateral limits of the Disposal Site are defined as the upland portion of the property above mean low water, as shown on Figure 2. The vertical limits have been defined to include fill soils, which generally extend to depths of approximately 3.5 to 29 feet below pre-construction ground surface.

Concentrations of compounds in groundwater were not detected above Reportable Concentrations (RCGW-2), and therefore groundwater is not considered to be part of the Disposal Site.

40.1056(2)(c) Demonstration That All Sources of OHM Contamination Have Been Eliminated or Controlled

No point source of OHM was encountered at the Site. OHM contamination including asbestos fibers were detected in fill soils overlying naturally deposited unimpacted soils at the Site. Approximately 50 percent of the impacted fill soils were removed from the Site as part of the RAM activities conducted in conjunction with Site development for use as multi-family housing. The remaining fill soils lie beneath protective covers described herein. Protective covers and barriers must be maintained in order to

maintain a Condition of No Significant Risk at the Portion of Property. Maintenance and inspection of the protective covers is subject to the requirements of the AUL. OHM in soil are attributed to Site filling, historic use, and historic fires. Based on Site characterization and remedial excavations conducted as part of RAM activities, no uncontrolled sources of OHM are known to exist at the Site. Additionally, concentrations of compounds in groundwater associated with RTN 3-33113 were not detected above Reportable Concentrations (RCGW-2), and therefore groundwater is not considered to be impacted by soil-related contamination at the Site.

The land portion of the Site is currently occupied by three residential buildings (Buildings 1, 2, and 3) with a partially below-grade garage that are nearing interior completion and beginning occupancy. The final building, Building 4, is not yet complete and remaining work is currently being conducted (building excavation and foundation construction is complete but final protective covers have not yet been placed). Receptors present at the Site under current conditions include child and adult residents, Site workers including maintenance and construction workers, landscapers, utility workers, Site visitors including Living Shoreline recreational users, and trespassers.

The primary purpose of the AUL is to prevent direct exposure to soil and sediment within upland and tidal zone area by maintaining existing protective covers and barriers for the current and foreseeable use as multi-family residential and public access. The protective covers and barriers consist of concrete ground floor slabs below the new garage and building footprints; hardscape features such as asphalt or concrete pavement and pavers with a total of 14 in. of clean cover material; stone rip-rap and granite block seawalls; and a minimum of 3 ft of clean cover soils or stone in landscaped areas outside the garage and building footprints. The AUL requires that protective barriers be maintained to ensure that impacted soil and sediment remains inaccessible. The AUL also restricts public access to the remaining construction area by maintaining a fence or similarly restrictive barrier.

40.1056(2)(d) Demonstration That Response Actions Have Been Undertaken to Adequately Assess or Control Subsurface Migration of OHM

As described in Section 2.1, multiple sampling events were conducted at the Site in conjunction with due diligence, Site characterization, permitting, and RAM activities. The results of the sampling programs for soil, groundwater, surface water and sediment were documented in the initial RAM Plan, RAM Plan Modifications, RAM Status Reports, and RAM Completion Report.

OHM at the Site consist of PAHs, TPH, PCBs, and metals (arsenic and lead) and asbestos fibers in soil. These OHM are relatively immobile in the environment. Asbestos fibers in soil are not mobile unless disturbed. Furthermore, groundwater is not part of the Disposal Site. Accordingly, subsurface migration of OHM is not a pathway of concern.

As described in Section 3, remedial activities resulted in the removal of approximately 39,895 cubic yards (roughly 50%) of the fill material impacted by OHM including asbestos fibers. The remaining fill soils lie beneath protective covers described herein.

40.1056(2)(e) Demonstration That Response Actions Have Been Undertaken to Adequately Assess and Control NAPL

No NAPL has been encountered at the Site.

40.1056(2)(f) Information Supporting That a Level of No Significant Risk Exists

A condition of No Significant Risk exists with the implementation of an AUL which requires that

protective covers and barriers be maintained in order to maintain a Condition of No Significant Risk. Protective covers as described herein were placed as part of the activities conducted under the RAM Plan and subsequent Modifications.

A Method 3 Risk Characterization and Stage I Ecological Risk Characterization were conducted in support of this Permanent Solution. Refer to Sections 5 and 6 for a discussion of each assessment which are also provided as Appendices D and E.

40.1056(2)(g) Information Documenting the Extent to Which Levels of OHM Have Been Reduced to Background

Although some compounds are present above background concentrations in soil remaining at the Site, the conclusion of the Method 3 Risk Characterization supporting this Permanent Solution is that a condition of No Significant Risk exists for current and foreseeable future Site uses with the implementation of an Activity and Use Limitation.

The feasibility of reducing the concentrations of COC in the environment at the Site to levels that achieve or approach background was evaluated using the criteria described in 310 CMR 40.0860. This evaluation is also based on MassDEP Policy #WSC-04-160, "Conducting Feasibility Evaluations Under the MCP," dated 16 July 2004.

The data presented in Table I are considered representative of fill and natural material remaining at the Site. Under current and future Site conditions, contaminated soil remains below protective covers, and maintenance of the protective covers will be required by the AUL. Under current Site use, child residents, who are present at high frequency and high intensity, are the most sensitive receptors. Under current conditions, soils beneath protective covers outside of the building footprints from depths of 0 to 15 ft are categorized as S-2. Soils beneath the building, and soils deeper than 15 ft are categorized as S-3. Groundwater is not considered part of the Disposal Site.

Naphthalene, toluene, acenaphthene, phenol, and petroleum compounds that remain in soil at the Site above background are considered to be degradable and non-persistent, as defined in Table 9-1 of MassDEP Policy #WSC-04-160. Therefore, it is considered categorically infeasible to achieve or approach background for these compounds pursuant to Section 9.3.2.3 of MassDEP Policy #WSC-04-160. Polycyclic aromatic hydrocarbons (PAHs, with the exceptions noted above), metals, PCBs, and asbestos fibers detected in Site soil are considered to be persistent, as defined in Table 9-2 of MassDEP Policy #WSC-04-160.

In accordance with Section 9.3.2.4 of MassDEP Policy #WSC-04-160, MassDEP deems it infeasible to achieve or approach background for soil categorized as S-2 or S-3. Soil remaining below the protective covers is categorized as S-2 and S-3, and an AUL has been implemented at the Site to maintain the protective covers; therefore, it is considered infeasible to achieve or approach background.

40.1056(2)(h) Copy of Activity and Use Limitation Implementation

A Registry copy of the recorded AUL is being submitted to MassDEP with BWSC113 transmittal form concurrently with this submittal. A copy of the recorded AUL can be found in Appendix B.

40.1056(2)(i) Feasibility of Achieving UCLs beneath Engineered Barrier or Depths of 15 ft

UCL comparisons are provided in the Method 3 Risk Assessment (Appendix D). Concentrations of COC in soil do not exceed their respective UCLs.

40.1056(2)(j) Documentation Related to Assumptions and Conditions for a Permanent Solution with Conditions

A Permanent Solution with Conditions has been achieved for the Site with implementation of an AUL. The AUL is in place to prevent direct exposure to soil by maintaining existing protective covers and barriers for the current and foreseeable use as multi-family residential and public access to the Living Shoreline. A copy of the AUL is provided in Appendix B.

40.1056(2)(k) Data Usability Assessment and Representativeness Evaluation

The Data Usability Assessment and Representativeness Evaluation is included in Appendix C.

40.1056(2)(l) Description of Any Operation, Maintenance, and/or Monitoring Required

The AUL requires annual inspections to confirm that protective covers are maintained. In addition, an Operation, Maintenance, and Monitoring (OMM) Plan has been prepared for the Site to establish procedures to assist the Site owner and operator in maintaining compliance with the AUL. The OMM Plan includes:

- Generic Soil Management Plan for subsurface activities disturbing less than 20 cubic yards of contaminated soil or sediment below the protective covers and marker barrier, protective barriers, or clean utility zones discussed herein.
- Generic Health and Safety Plan for subsurface activities that may disturb contaminated soil or sediment below protective covers and marker barrier, protective barriers, or clean utility zones discussed herein.
- Wetland Maintenance Plan for establishment and monitoring of the Living Shoreline.

These documents will be reviewed by all parties involved with conducting intrusive work at the Site and updated as needed prior to any subsurface activity at the Site.

Post-Closure Living Shoreline Monitoring

Access to the Living Shoreline will be restricted by signage until such time that marshland plants can be established and confirmatory sampling of the surficial sediment can be conducted. It is planned to conduct the sampling program in the year prior to allowing unrestricted access to the Living Shoreline; the timing of which will depend on the growth of the marshland plants. Sampling program timing is also dependent on sediment deposition on the Living Shoreline being present in adequate amounts and areal coverage to collect the samples.

The post-closure Living Shoreline sampling event will consist of collection of up to five area-wide representative samples of sediment deposited on the Living Shoreline and one sample of "slime-layer/sediment" from one of the sills for analysis of EPH, SVOCs, PCBs, RCRA 8 metals, asbestos, and fecal coliform bacteria. Additionally, one surface water sample will be collected and analyzed for fecal coliform, e. coli, and enterococcus bacteria. This program was discussed with MassDEP (Steven Lipman) in July and November 2018. The purpose of the confirmatory sampling is to show that a condition of No Significant Risk continues to exist after establishment of the wetland area plantings. Results of the program will be provided to MassDEP in a data report, which will include photo-documentation and weather conditions for the sampling day and at least 2 days prior.

40.0191(3)(e) CMR 40.0191(3)(e) Greener Cleanups

This Permanent Solution Report also addresses the requirements of 310 CMR 40.0191(3)(e) for conduct of Greener Cleanups as outlined in MassDEP Guidance WCS#14-150. A checklist based on ASTM Standard Guide for Greener Cleanups (ASTM E2893-13, November 2013) has been used to identify qualitative options for MassDEP Best Management Practices (BMPs) that are appropriate for the Site. These include:

- On-site reuse of up to 14,000 cy of soil, reducing impacts from off-site transportation and disposition;
- Preparation, storage, and distribution of documents electronically;
- Use of local staff when possible to minimize resource consumption;
- Mixing amendments into soil in-situ whenever possible to minimize dust generation and emissions; and
- Use of a local laboratory to minimize impacts from transportation.

9. Conclusions

A Permanent Solution with Conditions applies to the subject Site based on the following outcome:

- A level of No Significant Risk has been achieved for the Site relative to human health, public welfare, and the environment with the implementation of an AUL.
- Ecological risk has been addressed through conduct of a Stage I Ecological Risk Assessment.
- All sources of OHM contamination have been eliminated or controlled.
- Plumes of dissolved OHM or NAPL are not present at the Site.
- All threats of release have been eliminated.
- The level of OHM in the environment have been reduced to background levels to the extent feasible. The feasibility of reducing the concentrations of COC in the environment at the Site to levels that achieve or approach background was evaluated using the criteria described in 310 CMR 40.0860 and based on MassDEP Policy #WSC-04-160, "Conducting Feasibility Evaluations Under the MCP," dated 16 July 2004.
- Results of a Representativeness Evaluation and Data Usability indicate that the data obtained to support this Permanent Solution are usable for the intended purposes and are considered to be representative of existing Site conditions.
- UCLs are not exceeded at the Site. No uncontrolled sources of oil or hazardous materials are considered to exist at the Site.

10. LSP Opinion

Keith E. Johnson is the LSP for the Site. The LSP seal and signature are provided on the Permanent and Temporary Solution Statement Transmittal Form (BWSC104), which is being submitted via eDEP concurrently with this report. An unsigned copy of the form is included in Appendix A.

This document contains the material facts, data, and other information that supports the LSP Opinion that, to the best of the LSP's knowledge, information, and belief, the response actions that are the subject of this submittal (i) have been developed and implemented in accordance with the applicable provisions of M.G.L.c.21E and 310 CMR 40.0000, (ii) are appropriate and reasonable to accomplish the purposes of such response actions as set forth in the applicable provisions of M.G.L.c.21E and 310 CMR 40.0000, and (iii) comply with the identified provisions of all orders, permits, and approvals identified in this submittal.

11. Limitations

This Permanent Solution Statement was prepared by Haley & Aldrich in accordance with our Agreement with Lendlease dated 22 June 2016 and subsequent amendments. This Report was prepared for the exclusive use of Lendlease and MassDEP in connection with the subject Clippership Wharf property. There are no intended beneficiaries other than Lendlease and MassDEP.

Haley & Aldrich shall owe no duty whatsoever to any other person or entity on account of the Agreement or this Report. Use of this Report by any person or entity other than Lendlease and MassDEP for any purpose whatsoever without the express written authorization of Lendlease and Haley & Aldrich shall be at such other person's or entity's sole risk and shall be without legal exposure or liability to Lendlease or Haley & Aldrich.

References

1. Massachusetts Department of Environmental Protection (MassDEP), Bureau of Waste Site Cleanup, "The Massachusetts Contingency Plan; 310 CMR 40.0000," dated 30 July 1993, and updates (most recently 20 June 2014).
2. Response Action Outcome (RAO) Statement, Clippership Wharf Site-National Dock Parcels, 25 & 65 Lewis Street, East Boston, Massachusetts, 29 September 1998, prepared by Rizzo Associates, Inc., Prepared for Massachusetts Department of Environmental Protection.
3. Haley & Aldrich, Inc. report titled "Release Abatement Measure Plan, Clippership Wharf, 25 and 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113", dated 14 January 2016.
4. Smith & Wessel Associates report titled "Non-Traditional Asbestos Abatement Work Plan, Redevelopment of Vacant Parcel, Soil Management, 25-65 Lewis Street, Boston, Massachusetts," dated 14 January 2016.
5. Haley & Aldrich, Inc. report titled "Release Abatement Measure (RAM) Plan – Erosion Control, Clippership Wharf, 25 and 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113," dated 26 July 2016, conditionally approved by MassDEP on 27 July 2016.
6. Smith & Wessel Associates report titled "Non-Traditional Asbestos Abatement Work Plan, Redevelopment of Vacant Parcel, Soil Management, 25-65 Lewis Street, Boston, Massachusetts," dated 29 July 2016.
7. Haley & Aldrich, Inc. report titled "Release Abatement Measure (RAM) Plan Modification, Clippership Wharf, 25 and 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113," dated 22 August 2016, conditionally approved by MassDEP on 24 August 2016.
8. Haley & Aldrich, Inc. report titled "Release Abatement Measure (RAM) Status Report No. 1, Clippership Wharf, 25 and 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113," dated 13 May 2016.
9. Haley & Aldrich, Inc. report titled "Release Abatement Measure (RAM) Plan Completion Report – Erosion Control and Site Preparation, Clippership Wharf, 25 and 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113," dated 26 September 2016.
10. Haley & Aldrich, Inc. report titled "MCP Phase I Initial Site Investigation, Tier II Classification, and Conceptual Phase II Scope of Work, Clippership Wharf, 25 & 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113," dated 26 August 2016.
11. Haley & Aldrich, Inc. report titled "Recent Soil Data Collected at Clippership Wharf, 25 & 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113," dated 24 October 2016.
12. Haley & Aldrich, Inc. transmittal titled "Clippership Wharf – TCLP Lead Post-Treatment Confirmatory Data Summary," dated 26 October 2016.

13. Haley & Aldrich, Inc. memorandum titled “Conditions and Mitigation Measures at 48-Inch Drain Line Excavation, Clippership Wharf, East Boston, MA,” dated 1 November 2016.
14. Haley & Aldrich, Inc. memorandum titled “Supplemental Data Transmittal No. 2 – TP-213 Living Shoreline Area, Clippership Wharf, 25 & 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113,” dated 3 November 2016.
15. Smith & Wessel Associates, Inc. report titled “Amendment to Non-Traditional Asbestos Work Plan (NTAWP), Clippership Wharf, 25 Lewis Street, East Boston, Massachusetts”, dated 10 November 2016.
16. Haley & Aldrich, Inc. report titled “Release Abatement Measure (RAM) Modification No. 2, Clippership Wharf, 25 and 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113,” dated 7 November 2016, conditionally approved by MassDEP on 15 November 2016.
17. Haley & Aldrich, Inc. report titled “Release Abatement Measure (RAM) Status Report No. 2, Clippership Wharf, 25 and 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113,” dated 11 November 2016.
18. Haley & Aldrich, Inc. transmittal titled “Clippership Wharf – TCLP Lead Post-Excavation Confirmatory Sampling Summary,” dated 22 November 2016.
19. Haley & Aldrich, Inc. report titled “Assessment of Future Exposures at the Living Shoreline, Clippership Wharf, 25 & 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113,” dated 1 December 2016.
20. Haley & Aldrich, Inc. report titled “Recent Sampling Results, Clippership Wharf, 25 & 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113,” dated 6 March 2017.
21. Haley & Aldrich, Inc. report titled “Release Abatement Measure (RAM) Status Report No. 3, Clippership Wharf, 25 and 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113,” dated 12 May 2017.
22. Haley & Aldrich, Inc. report titled “Recent Sampling Results, Clippership Wharf, 25 & 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113,” dated 25 July 2017.
23. Haley & Aldrich, Inc. report titled “Revised Release Abatement Measure (RAM) Plan Modification No. 3, Clippership Wharf, 25 and 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113,” dated 25 September 2017, conditionally approved by MassDEP on 29 September 2017.
24. Haley & Aldrich, Inc. report titled “Recent Sampling Results, Clippership Wharf, 25 & 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113,” dated 12 October 2017.
25. Haley & Aldrich, Inc. report titled “Release Abatement Measure (RAM) Status Report No. 4, Clippership Wharf, 25 and 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113,” dated 10 November 2017.

26. Haley & Aldrich, Inc. report titled "Revised Release Abatement Measure (RAM) Plan Modification No. 4, Clippership Wharf, 25 and 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113," dated 24 January 2018, conditionally approved by MassDEP on 31 January 2018.
27. Haley & Aldrich, Inc. Memorandum dated 13 April 2018 (Revised) "Summary of Proposed Sediment Assessment Program", Clippership Wharf, East Boston, Massachusetts, RTN 3-33113.
28. Haley & Aldrich, Inc. report titled "Release Abatement Measure (RAM) Status Report No. 5, Clippership Wharf, 25 and 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113," dated 9 May 2018.
29. Haley & Aldrich, Inc. memorandum titled "Initial Results of Sediment Assessment Program, Clippership Wharf, East Boston, Massachusetts, RTN 3-33113," dated 6 July 2018.
30. Haley & Aldrich, Inc. memorandum titled "Updated Living Shoreline Risk Assessment, Clippership Wharf, East Boston, Massachusetts, RTN 3-33113," dated 24 October 2018.
31. Haley & Aldrich, Inc. report titled "Release Abatement Measure (RAM) Status Report No. 6, Clippership Wharf, 25 and 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113," dated 15 November 2018.
32. Haley & Aldrich, Inc. report titled "Release Abatement Measure (RAM) Status Report No. 7, Clippership Wharf, 25 and 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113," dated 14 May 2019.
33. Notice of Activity and Use Limitation, "Clippership Wharf, 25 and 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113," recorded with Suffolk County Registry of Deeds on 5 September 2019, Book 61700, Page 260.
34. Haley & Aldrich, Inc. report title "Release Abatement Measure Completion Report, Clippership Wharf, 25 and 65 Lewis Street, East Boston, Massachusetts, RTN 3-33113," dated 6 September 2019.

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Date: March 30, 2022
To: Nicholas Moreno, City of Boston Conservation Commission
From: Nicholas Iselin, Lendlease Clippership Wharf LLC
RE: Conservation Commission Order of Conditions No. 006-1431

Dear Mr. Moreno,

I am writing to confirm the following conditions listed below, as stated in the original Order of Conditions issued in November 2016 and amended in November 2018, have been complied with by Lendlease Clippership Wharf LLC as the owner.

Condition 19c ii, 19e, 19f and 63) Lendlease Clippership Wharf LLC accepts responsibility of the ongoing maintenance and operation of the stormwater BMPs in accordance with the Order of Conditions. We have notified our on-site Property Manager of their ongoing responsibility in this regard to operate and maintain the stormwater management BMPs, implement the Stormwater Pollution Prevention Plan, and maintain an operation and maintenance log.

Condition 27) Lendlease Clippership Wharf LLC accepts its responsibility to operate and maintain the facility so as to comply with the conditions and the Massachusetts Wetlands Protection Act.

Condition 50) Lendlease Clippership Wharf LLC has assigned responsibility for debris removal on wetland resource areas of the site to the on-site Property Manager. They are regularly removing debris as part of ongoing maintenance operations.

The following condition is not applicable, as Lendlease did not seek the Low Impact Design credit in the LEED for Homes submission for Clippership Wharf:

Condition 19k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit shall not be altered without the prior written approval of the issuing authority.

Regarding the storage of flammable materials:

Condition 95) A fuel oil tank is located in a storage room in the garage that is within the flood zone. The storage room is waterproofed to the flood height of 18.67' and is designed to contain any fuel spilled within the room. The room also includes flood planks up to level 18.67' at the doorway. There is a leak detection system in the room to notify building management in the event there is a spill.



Yours sincerely,

LENDLEASE CLIPPERSHIP WHARF LLC

By: Lendlease Development Inc., its sole member

By: 

Nicholas Iselin

Senior Vice President

ACTIVITY AND USE LIMITATION (AUL)
OPERATIONS, MONITORING, AND MAINTENANCE PLAN
SLIP 65 AND CLIPPERSHIP APARTMENTS ON THE WHARF
25 AND 65 LEWIS STREET
EAST BOSTON, MASSACHUSETTS
RTN 3-33113

by
Haley & Aldrich, Inc.
Boston, Massachusetts

for
Lendlease Clippership Wharf LLC
Boston, Massachusetts

File No. 05903-355
September 2019



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Attachment A – Activity and Use Limitation (AUL)

Attachment B – Generic Soil Management Plan

Attachment C – Generic Health & Safety Plan

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Figure No.	Title
1	Site Conditions Plan
2	Protective Cover Sketch
3	Utility Corridor Corridors Sketch

1. Introduction

1.1 PURPOSE

The Clippership Wharf property is occupied by a residential development known as Slip 65 and the Clippership Apartments on the Wharf, located at 25 and 65 Lewis Street in East Boston, Massachusetts (the “Site”). The Site is subject to the requirements of an Activity and Use Limitation (AUL) to limit potential future exposure to contaminants remaining in Site soil below surficial clean covers (“protective covers”). The purpose of this AUL Operations, Maintenance, and Monitoring (OMM) Plan is to provide information for use by the Property Manager necessary to maintain the protective covers and conduct intrusive work at the Site. This document was prepared to assist in the compliance of the Obligations and Conditions contained in the AUL. A copy of the AUL is provided in Attachment A.

The OMM Plan is designed to meet the following objectives:

- Describe the frequency and purpose of inspections of the protective covers and record keeping documentation;
- Outline the procedures for maintaining the protective covers and conducting intrusive work within and below the protective covers; and
- Outline procedures for proposing, implementing and documenting changes to the protective covers.

Specific guidelines for excavations within and below the protective cover are provided in the Soil Management Plan (SMP) included in Attachment B.

1.2 ROLES AND RESPONSIBILITIES

- **Owner** – Lendlease Clippership Wharf LLC, or any subsequent property owners
- **Property Manager** – individual(s) employed by the Owner to operate, manage, and oversee the general operations of the Site
- **Licensed Site Professional (LSP)** – Also known as a Massachusetts Licensed Hazardous Waste Site Cleanup Professional), or an individual who is authorized by the Commonwealth of Massachusetts to oversee assessment and cleanup of contamination in the environment

1.3 BACKGROUND INFORMATION

Background information regarding the AUL is provided in Exhibit C of the AUL, which is included as Attachment A. Exhibit C provides a narrative describing the basis for restrictions contained in the AUL and the oil and/or hazardous material release event(s) or site history that resulted in the contaminated media subject to the Notice of AUL, including: (a) a statement that specifies why the Notice of AUL is appropriate to maintain a Permanent Solution and condition of No Significant Risk; (b) a description of the oil and/or hazardous material release event(s) or site history that resulted in the contaminated media subject to the Notice of Activity and Use Limitation (*i.e.*, date of the release(s), to the extent known, release volumes(s), and response actions taken to address the release(s); and (c) a description of the contaminated media (*i.e.*, media type(s), approximate vertical and horizontal extent) subject to the Notice of AUL.

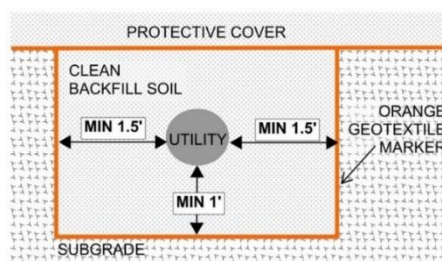
More detailed information can be obtained through the MassDEP online document viewer:
<https://eeaonline.eea.state.ma.us/EEA/fileviewer/Rtn.aspx?rtn=3-0033113>

1.4 DESCRIPTION OF THE PROTECTIVE COVERS AND BARRIERS

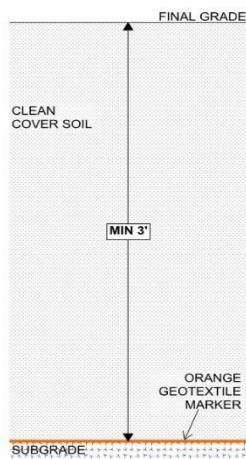
Protective covers were constructed overlying the contaminated soil during Site development activities in order to limit direct exposure to contaminated soils. The protective covers were designed according to their location and elevation relative to the tide cycle and shoreline and the intended use. The AUL Exhibit B, attached hereto as Figure 1, depicts Areas A, B, and C to aid in protective cover descriptions presented below. The three areas correspond to the Upland Area (A) for land above the mean high-water elevation; the Tidal Zone Area (B) for land below mean high water elevation and above the mean low water elevation, including the Living Shoreline and Rocky Beach; and the Restricted Construction Zone Area (C) for Building 4.

The plan location of the protective covers described below is shown on Figure 2. A utility plan is attached as Figure 3 for reference on the locations of clean utility corridors.

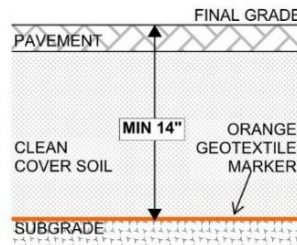
Utility Corridors – Permanent utility trenches are lined with an orange geotextile marker barrier (Marafi 180N or equivalent) placed a minimum of 1 ft below the utility and 1.5 ft beyond each edge of the utility and backfilled with clean imported soil.



Area A: Upland Areas – Unpaved Areas – Under unpaved lawn and planting areas including the Dog Park and stone dust paths, an orange geotextile barrier (Mirafi 180N or equivalent) and a minimum of 3 ft of clean imported planting soil or stone materials was placed on the subgrade soils to achieve final design grades.

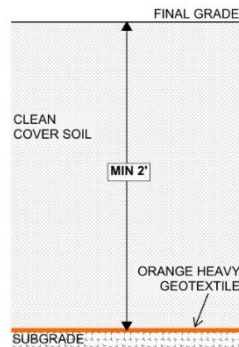


Area A: Upland Area – Paved or Hardscaped Areas – Under poured in-place concrete paving, asphalt paving, and unit pavers on asphalt, concrete, or permeable sub-base, an orange geotextile marker (Mirafi 180N or equivalent) was placed on the subgrade soils at a minimum of 14 in. below the finished pavement or hardscape grade and backfilled with clean imported soil and hardscape material to final grade.



Area A and Area C: Building Slabs – Building slabs consisting of reinforced concrete 8 to 12 in. in thickness exist at the ground floor at the Kayak Center or basement level of Buildings 1, 2, 3, and 4 to the limits shown on the attached Site Conditions Plan.

Area B: Tidal Zone – Living Shoreline and Rocky Beach – From Mean Low Water to Mean High Water, a heavy geotextile/orange marker barrier (Mirafi RS 380 I) was placed on the subgrade soils and covered with 2 ft of clean imported cover material. Clean cover materials consist of planting soils in the salt marsh and 2 in. to 12 in. size river stones in the Rocky Beach area.



Area B: Rip-Rap Slopes – Consisting of two layers of Armor Stone 12 to 24 in. in maximum diameter overlying 2 ft of Filter Stone, 2.5 to 5-in. maximum size. No marker barrier fabric was placed below the armor stone for rip-rap slopes at the edge of the upland areas or the Living Shoreline. Rip-rap slopes within the Living Shoreline were underlain by geotextile Mirafi RS 380 I.

Area C: Building 4 Restricted Construction Zone – Consisting of an orange geotextile marker barrier (Mirafi RS 180 N) and 6 inches (minimum) of crushed stone in areas outside the building slab.

Granite Block Seawall – Original granite block seawalls remain in-place at the north and west edge of the Living Shoreline. The seawall provides lateral support to underlying sediments within the tidal range and therefore, must be maintained.

1.5 REQUIREMENTS OF THE ACTIVITY AND USE LIMITATION

1.5.1 Activities Allowed under the AUL

- Utility or other repairs, landscaping, and routine maintenance within the clean cover and clean utility corridors that do not disturb contaminated soil below the protective cover;
- Repairs or other intrusive activities that disturb contaminated soil below the protective cover as long as they are conducted in accordance with a Soil Management Plan and a Health and Safety Plan developed in accordance with Obligations and Conditions of the AUL (Section 1.5.3);
- Repairs to replace or reinforce critical shore protection elements such as seawalls and stone rip-rap;
- Growing of fruits and vegetables destined for human consumption, provided that the gardening is conducted in raised and contained landscaped beds in accordance with MassDEP Best Management Practices; and
- New building construction within the designated Construction Zone for Building 4, Area C on Figure 1, as long as a fence (or similarly restrictive barrier) is maintained to prevent unauthorized (non-construction) access.

1.5.2 Activities Not Allowed

- Disturbance or direct contact with the contaminated soil or sediment below the protective covers and marker barrier unless intrusive activities are conducted in accordance with the obligations and Conditions outlined in Section 1.5.3 below;
- Movement of contaminated soils or sediments beneath the protective covers and marker barrier to within the protective cover zone; and
- Public access to Building 4 construction area, Area C on Figure 1.

1.5.3 Obligations and Conditions of the AUL

- Maintenance of the protective covers and barriers;
- Conduct routine intrusive activities involving disturbance and/or excavation of less than 20 cubic yards of contaminated soil in accordance with the Soil Management Plan and Health & Safety Plan (Attachments B and C herein), and prepare a task-specific Non-Traditional Asbestos Work Plan (NTAWP).
- Preparation of an activity-specific Release Abatement Measure (RAM) Plan and Health & Safety Plan for excavation and/or disturbance of more than 20 cubic yards of contaminated soil. The RAM Plan must also include a NTAWP;
- Repair and restoration of protective covers and marker barrier (if removed) following any intrusive activities;

- Maintenance of the protective barriers (e.g. fence) around Building 4; and
- Annual Inspections under the oversight of an LSP.

1.6 UPDATES TO AUL OMM PLAN

This document is based on Site conditions and project understanding at the time of writing. If conditions at the Site change, the document should be reviewed and updated under the supervision of an LSP who is familiar with the regulatory history of the Site, including the assumptions and methodology used in risk characterization, and the content and purpose of the AUL.

1.7 LIMITATIONS

This document was prepared by Haley & Aldrich, Inc. (Haley & Aldrich) in accordance with our Agreement with Lendlease Clippership Wharf LLC dated February 2019, and Lendlease Clippership Wharf LLC's subsequent authorization (hereinafter referred to as Agreement). This document was prepared in accordance with our Agreement for the exclusive use by Lendlease Clippership Wharf LLC in connection with the subject Clippership Wharf project. There are no intended beneficiaries other than Lendlease Clippership Wharf LLC.

Haley & Aldrich shall owe no duty whatsoever to any other person or entity on account of the Agreement or the AUL Operation, Maintenance, and Monitoring Plan. Use of this document by any person or entity other than Lendlease Clippership Wharf LLC for any purpose whatsoever without the express written authorization of Lendlease Clippership Wharf LLC and Haley & Aldrich shall be at such other person's or entity's sole risk and shall be without legal exposure or liability to Lendlease Clippership Wharf LLC or Haley & Aldrich.

2. Inspections of Protective Covers

2.1 PROPERTY MANAGER

The Property Manager, or any other individual under the direction of the Property Manager, should conduct, at a minimum, weekly inspections of the Site. These inspections should include observations of the following:

- General condition of the Living Shoreline and rocky beach areas;
- General condition of seawalls and rip-rap slopes and retaining walls;
- Inspection of pavement for cracks or other deterioration;
- Inspection of pavers for missing units, cracking, or other deterioration;
- Inspection of soft-scaped/landscaped areas for signs of excavation by animals, rodents, or humans, or other signs of deterioration to the protective cover;
- Inspection for unauthorized vegetable gardening; and
- Inspection for any signs of visible orange marker barrier.

Maintenance resulting from these inspections is discussed in Section 3. All maintenance conducted at the Site should be documented and kept on-site in a log as record for future reference. A template maintenance log is provided as Attachment E.

2.2 LICENSED SITE PROFESSIONAL (LSP)

Annual inspection of the protective covers will be performed under the oversight of an LSP who is familiar with the regulatory history of the Site, including the assumptions and methodology used in risk characterization, and the content and purpose of the AUL.

Inspections will assess whether conditions at the Site comply with AUL requirements, through visual observation of the ground surface at the Site to verify that materials below the protective covers and barriers are not exposed. The entire Site will be walked making note of surface erosion in landscaped and grassed areas and significant cracks or potholes in paved areas. Photographs will be taken of areas where AUL requirements have been compromised. These areas will be identified on a site plan. Copies of the site plan and photographs will be submitted to the Owner.

Per the AUL, LSP inspections are to be conducted annually. Additional LSP inspections will be conducted if there is a sudden breach in the protective covers or barriers resulting from a storm event or unauthorized/unplanned human activity or accident. In these scenarios, the Property Manager shall notify the Owner and the LSP.

2.3 WETLAND MAINTENANCE PLAN

Halvorson Design prepared a Wetland Maintenance Plan for the Site (Attachment D) outlining the required monitoring and maintenance for the Living Shoreline. This plan requires restricting public access to the Living Shoreline for a period of 4 years following construction to allow the wetland plants time to establish.

Note: MassDEP requires a sampling program and LSP review at the Living Shoreline prior to allowing public access, as described in the Permanent Solution Statement.

3. Maintenance of Protective Covers

3.1 ROUTINE MAINTENANCE IN OR ABOVE THE PROTECTIVE COVERS

As needed to maintain the integrity of the protective covers, minor repairs should be conducted to prevent continued degradation. These minor repairs may include sealing cracks in pavement, adding additional planting soils to maintain pre-existing grade, and replacing pavers.

Any repairs should be documented on the inspection log and kept on-site as record for future reference.

3.2 SIGNIFICANT REPAIRS TO PROTECTIVE COVERS

Plans for significant repairs to protective covers shall be reviewed and overseen by an LSP. Repairs involving removal of more than 1,000 sq. ft of protective cover component such as pavement/paver/soil to a depth greater than 25% of the protective cover thickness or disturbance of any contaminated soil below the marker barrier are considered significant. If significant repairs need to be made the following actions shall be undertaken by the person conducting the work:

- Make notification to the Owner and the LSP regarding the need or plan to conduct significant repairs. Submit complete information about the area needing repair on the inspection log and detail the area on a plan to the Owner and the LSP.
- Submit details and procedures for the proposed significant repairs.
- Conduct all repairs in accordance with the details provided in Section 1.4 and Section 4 herein.

Repairs to the protective covers shall be completed as soon as possible. Repairs that include disturbance of less than 20 cubic yards of contaminated soil or less than 1,000 sq. ft. of area within the protective covers shall be completed in less than 30 days. A schedule for the work shall be provided to the LSP and Property Manager by the persons conducting the work for any activities that disturb more than 20 cubic yards of soil or more than 1,000 sq. ft. of protective cover area. Conduct an inspection of the area following all repair/restoration activities and document on the inspection log.

3.3 MAINTENANCE OF TEMPORARY COVERS AND FENCE AT AREA C (BUILDING 4 CONSTRUCTION)

A 6 ft chain link fence or similarly restrictive barrier has been erected at Area C to restrict unauthorized land access to this area during construction of Building 4. Temporary protective covers consisting of geotextile marker barrier and 6 in. of crushed stone are present and must be maintained during construction until the permanent covers are in-place.

3.4 PROCEDURES FOR REPLACING PROTECTIVE COVERS AND BARRIERS

Alternate replacement protective cover/barrier materials may be proposed if reviewed and overseen by an LSP. Any changes to the protective covers/barriers and their location must be recorded with the Registry of Deeds as an Amended AUL.

3.5 IMPORTED MATERIAL MANAGEMENT

Any soil material proposed to be brought on-site is subject to testing and review by the LSP. Chemical sampling is required at a frequency of 1 sample per 500 cubic yards, and it must be performed by a person experienced in sample collection. The samples should be analyzed at a laboratory certified by MassDEP for the following:

- Volatile Organic Compounds, (EPA 8260, preservation method);
- Semi-Volatile Organic Compounds, (EPA 8270);
- PCBs (EPA 8080);
- Total Petroleum Hydrocarbons (GC-FID by 8015);
- MCP 14 Metals (EPA 7000 Series);
- Extractable Petroleum Hydrocarbons (EPH) and Volatile Petroleum Hydrocarbons (VPH); and
- Asbestos PLM testing per EPA-600.

The results of the chemical analysis will be submitted to the LSP for review prior to use on Site.

4. Procedures for Work Near the Protective Covers

4.1 WORKING WITHIN THE PROTECTIVE COVERS

Work within the vertical limit of the protective covers may be conducted by workers without OSHA 40 Hour HazMat training. No monitoring or personal protective equipment (PPE) is necessary for this work. Soil above the marker barrier or within utility trenches should be managed using standard engineering controls and best practices to prevent dust generation and erosion. The marker barrier should be left intact with no tears or damage. In clean utility corridors where the marker barrier sits on top of the utility trench, the marker barrier should be cut and peeled back without disturbing the contaminated soil adjacent to the clean utility corridors. Following the utility repairs, the marker barrier should be repaired and backfilled with clean cover soil in accordance with the AUL.

4.2 WORKING BENEATH THE PROTECTIVE COVERS

4.2.1 Worker and Public Protection

Procedures for appropriate PPE and air monitoring for asbestos and dust must be followed, as outlined in the Health & Safety and NTAWP. **Any work below the orange marker barrier or protective cover will involve contact with contaminated soil; therefore, appropriate procedures for PPE and air monitoring for asbestos fibers and dust must be followed, as outlined in the appended generic SMP (Attachment B) and generic health and safety plan (H&SP; Attachment C). A non-traditional asbestos work plan (NTAWP) prepared by a Massachusetts Licensed Asbestos Abatement Designer must also be prepared for work beneath the protective covers.**

4.2.2 Soil Management

For work that needs to be managed below the protective cover, the clean imported soil on top of the marker barrier should be segregated from the contaminated soil below the marker barrier. Excavated contaminated soil material should be placed in a lined roll-off container and the work area identified with orange snow fencing or other suitable barriers. Contaminated soil below the protective cover must be kept wetted and should not be left exposed overnight. Excavations should be promptly backfilled or temporarily plated and marked.

Following completion of work, the contaminated soil should be used as backfill below the marker barrier level. The marker barrier should be repaired and placed on top of the contaminated soil, and the clean imported material should be backfilled on top of the marker barrier to restore to finished grade and required protective cover thickness per the AUL. The protective cover should be restored to its original state as described in this OMM Plan and the AUL.

Excess soil excavated below the protective cover should remain segregated and removed from the site in accordance with the Remediation Waste Management Provisions of the MCP at 310 CMR 40.0030 and 310 CMR 40.0040, including the use of LSP-approved documentation for off-site reuse or disposal of excavated soils, as well as provisions of the task-specific NTAWP.

Additional requirements for management of contaminated soil can be found in the generic SMP (Attachment B).

5. Emergency Repairs

In the case of emergency repairs, the LSP and Owner must be notified as soon as practically possible following initiation of the short-term emergency repairs. The work area should be identified with orange snow fencing or other suitable barriers. Damage to the marker barrier and contact with the soil below the protective cover must be avoided to the extent possible. Excavated soil material from below the marker barrier should be placed in lined roll-off containers. Contaminated soil below the marker barrier must be kept wetted and should not be left exposed overnight.

Disturbed clean cover soils should be stockpiled separately to avoid cross-contamination and allow for reuse following the repair.

Following the emergency work, standard operating procedures for working in and beneath the protective covers should be followed as outlined in Section 4. All work should be documented as described in Sections 3 and 7.

6. Communication Procedure

During OMM procedures, the following lines of communication are expected to be maintained for each party:

Property Manager – The Property Manager is responsible for maintaining site record of any and all repairs or modifications made to the site surfaces. If any repairs (i.e. pavement patching, landscape removal/upgrades, replacement of protective cover) are needed, the Property Manager should alert the Owner to coordinate completion of this work in a timely manner.

Owner – The Owner is responsible for hiring the Property Manager to perform daily maintenance activities and maintain records of site work. The Owner is also responsible for alerting the LSP to need for major repair work at least 30 days prior to start of work or within two hours after emergency repair work has begun.

LSP – The LSP is responsible for conducting annual inspections for the AUL, reviewing details of repairs or changes to protective covers, and preparing any submittals required under the MCP for conduct or documentation of the work.

7. Record Keeping

Documentation of any minor repairs or modifications performed by the Property Manager during weekly inspections should be maintained on the inspection log and transmitted to the Owner regularly, the Owner should maintain these reports for record. A template maintenance log is provided as Attachment E.

The LSP (or LSP representative) will conduct an annual inspection of the Site as described in Section 2.2 to monitor the integrity of the protective covers and evaluate compliance with the AUL. A written annual inspection report will be provided to the Owner, and the Owner should maintain these reports for record.

Following completion of significant work in or below the protective cover, as referenced in Section 3, the Property Manager and LSP must conduct an inspection of the area following repair/restoration and document the status on the inspection log for record.

8. Summary of Attachments

ATTACHMENT A: ACTIVITY AND USE LIMITATION (AUL)

In order to maintain a condition of No Significant Risk at the Site, an AUL has been implemented at the Site. A copy of the AUL is attached for reference, and the general requirements of the AUL are provided in Section 1.5.

ATTACHMENT B: GENERIC SOIL MANAGEMENT PLAN (SMP)

The generic SMP provides best management practices for managing soil at the Site to maintain compliance with the AUL. The SMP should be reviewed and adopted prior to initiating any soil disturbing work.

ATTACHMENT C: GENERIC HEALTH & SAFETY PLAN (H&SP)

The generic H&SP provides an overview of the standard health and safety guidelines to follow when conducting soil disturbing work. The H&S Plan should be reviewed and adopted prior to initiating any soil disturbing work.

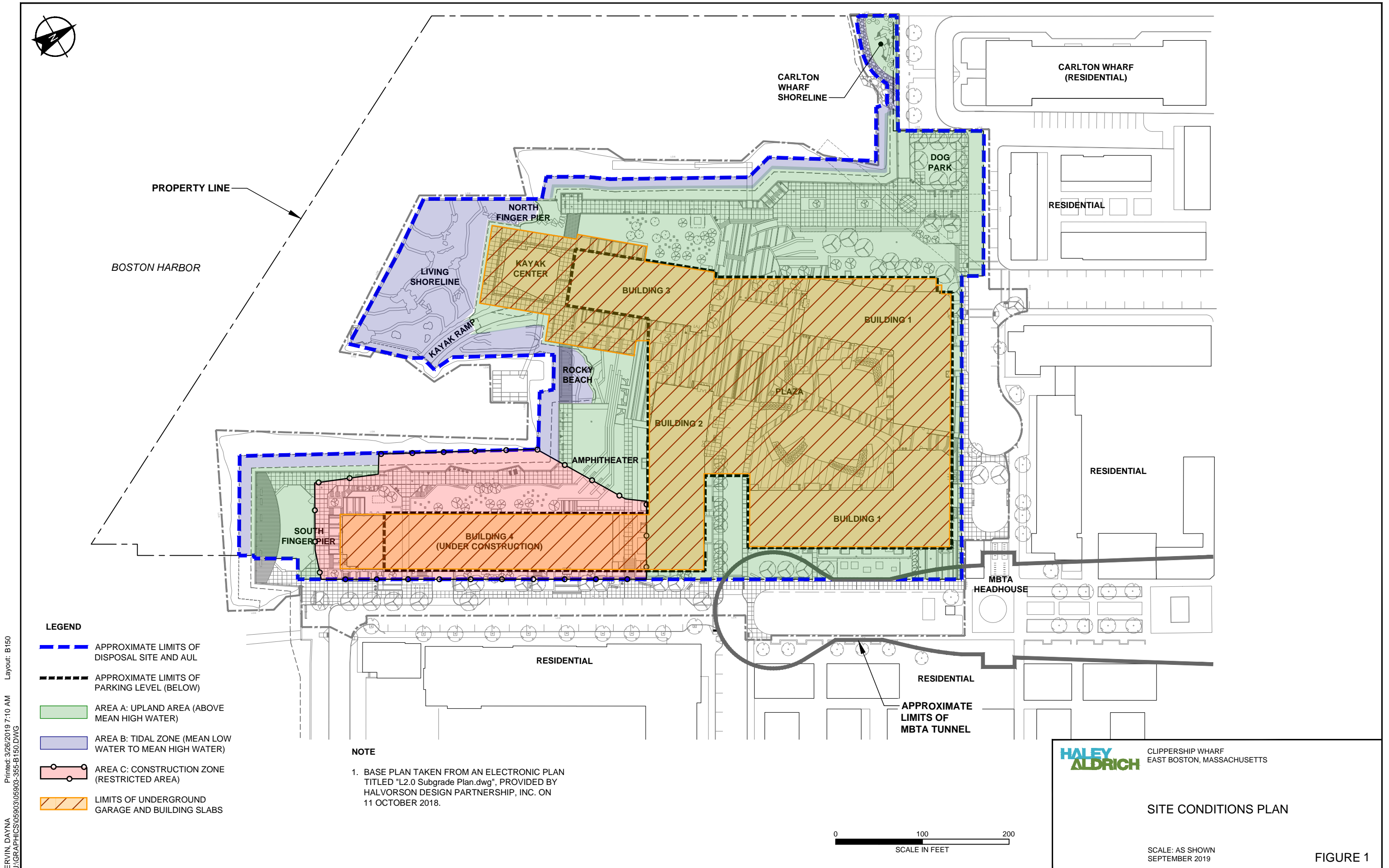
ATTACHMENT D: WETLAND MAINTENANCE PLAN

The Wetland Maintenance Plan provides guidelines for inspection and monitoring of the newly constructed Living Shoreline while the plants establish. The plan includes restricting public access for a period of 4 years after construction.

ATTACHMENT E: TEMPLATE MAINTENANCE LOG

Maintenance activities conducted at the Site should be documented on the attached or similar template, which will be kept on-site.

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PROPERTY LINE

BOSTON HARBOR

CARLTON WHARF SHORELINE

CARLTON WHARF (RESIDENTIAL)

DOG PARK

RESIDENTIAL

NORTH FINGER PIER

LIVING SHORELINE

KAYAK CENTER

BUILDING 3

BUILDING 1

KAYAK RAMP

ROCKY BEACH

PLAZA

BUILDING 2

AMPHITHEATER

RESIDENTIAL

SOUTH FINGER PIER

BUILDING 4 (UNDER CONSTRUCTION)

BUILDING 1

MBTA HEADHOUSE

RESIDENTIAL

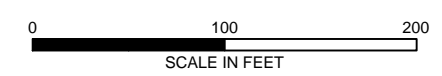
RESIDENTIAL

APPROXIMATE LIMITS OF MBTA TUNNEL

- LEGEND**
- - - - APPROXIMATE LIMITS OF DISPOSAL SITE AND AUL
 - - - - APPROXIMATE LIMITS OF PARKING LEVEL (BELOW)
 - AREA A: UPLAND AREA (ABOVE MEAN HIGH WATER)
 - AREA B: TIDAL ZONE (MEAN LOW WATER TO MEAN HIGH WATER)
 - AREA C: CONSTRUCTION ZONE (RESTRICTED AREA)
 - LIMITS OF UNDERGROUND GARAGE AND BUILDING SLABS

NOTE

1. BASE PLAN TAKEN FROM AN ELECTRONIC PLAN TITLED "L2.0 Subgrade Plan.dwg", PROVIDED BY HALVORSON DESIGN PARTNERSHIP, INC. ON 11 OCTOBER 2018.



HALEY ALDRICH

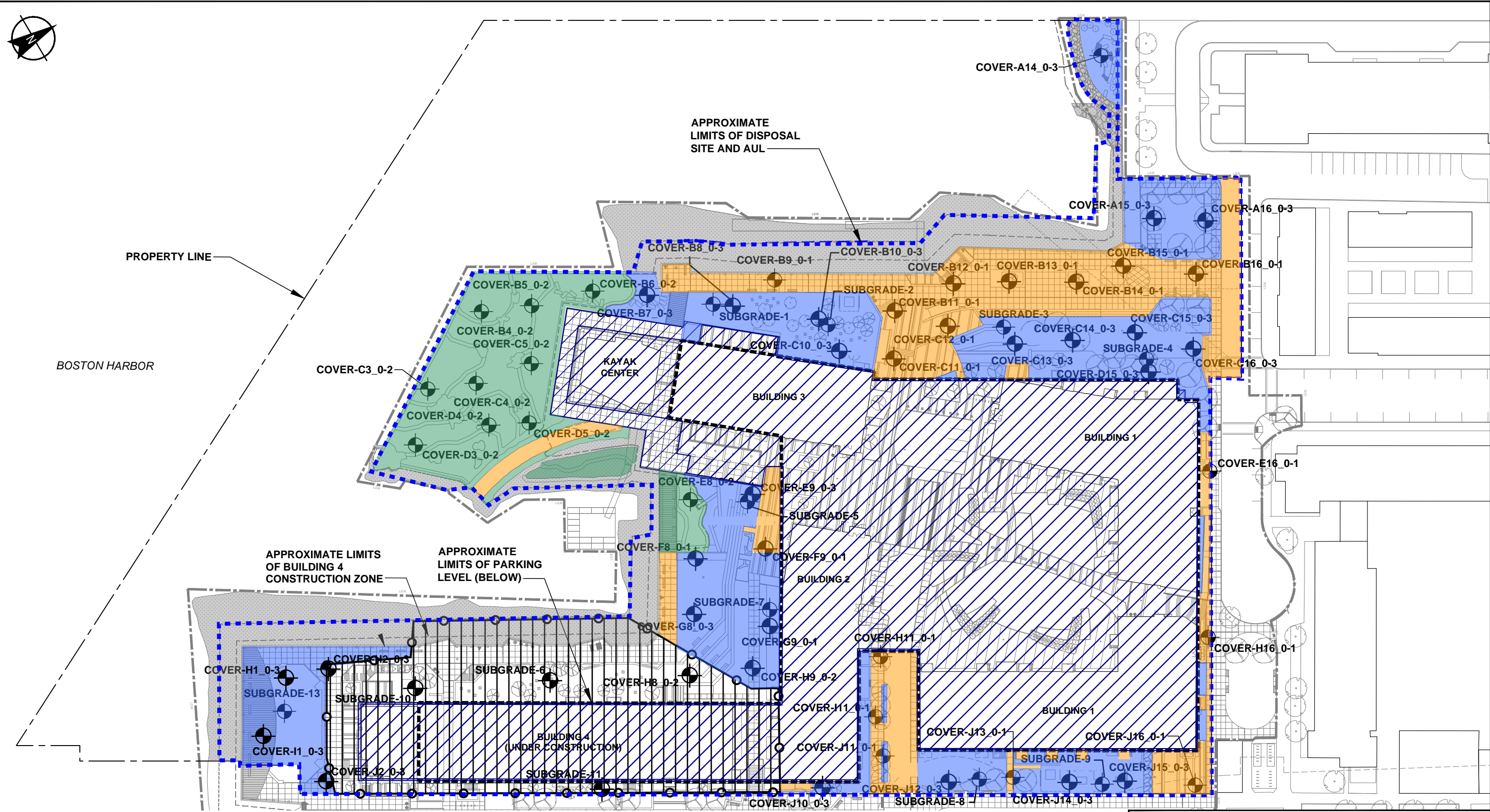
CLIPPERSHIP WHARF
EAST BOSTON, MASSACHUSETTS

SITE CONDITIONS PLAN






SCALE: AS SHOWN
SEPTEMBER 2019



FIGURE 1

ERVIN, DAYNA
 J:\GFA\PHICS\05903\05903-355-B150.DWG
 Printed: 3/26/2019 7:10 AM
 Layout: B150



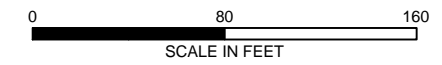
LEGEND

-  **SUBGRADE-5** DESIGNATION AND APPROXIMATE LOCATION OF HAND AUGER ADVANCED BY HALEY & ALDRICH, INC. OCTOBER 2018 TO AUGUST 2019
-  APPROXIMATE LIMITS OF SOFTSCAPE COVER (24" BELOW FINISH GRADE)
-  APPROXIMATE LIMITS OF SOFTSCAPE COVER (36" BELOW FINISH GRADE)
-  APPROXIMATE LIMITS OF HARDSCAPE COVER (14" BELOW FINISH GRADE)
-  APPROXIMATE LIMITS OF BELOW GRADE GARAGE OR BUILDING SLAB

-  APPROXIMATE LIMITS OF RIPRAP
-  APPROXIMATE LIMITS OF BUILDING 4 CONSTRUCTION AREA

NOTE

1. BASE PLAN TAKEN FROM AN ELECTRONIC PLAN TITLED "L2.0 Subgrade Plan.dwg", PROVIDED BY HALVORSON DESIGN PARTNERSHIP, INC. ON 11 OCTOBER 2018.



CLIPPERSHIP WHARF
EAST BOSTON, MASSACHUSETTS

PROTECTIVE COVER SKETCH

SCALE: AS SHOWN
SEPTEMBER 2019

FIGURE 2

ERVIN, DAYNA
 J:\GRAPHICS\05903\05903-355-B152.DWG
 Printed: 3/26/2019 7:19 AM
 Layout: B152

C-201

C-202

tat
the architectural team

The Architectural Team, Inc.
50 Commandant's Way at Admiral's Hill
Chelsea MA 02150
T 617.889.4402
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Consultant:
Nitsch Engineering
Revision:
PERMIT SET 12/01/15
REVISED 12/17/15
BWSC SUBMISSION 12/30/15
100% CONSTRUCTION DOCS 03/17/16
REVISED 100% CDS 05/04/16
ADDENDUM 02 06/30/16
ADDENDUM 03 10/21/16
ADDENDUM 04 10/31/16
Architect of Record:

Drawn: RMG
Checked: JMS
Scale: 1" = 40'
Key Plan:

BWSC FILE NO. 15322
Project Name:
CLIPPERSHIP WHARF
EAST BOSTON, MA

Sheet Name:
OVERALL SITE UTILITY PLAN

Project Number:
13166
Issue Date:
OCTOBER 28, 2016
Sheet Number:
C-200

Friday, October 28, 2016 5:38:54 PM
C:\10055 Clippership Wharf\Civil\CAD1\0055cut.dwg

HALEY ALDRICH


CLIPPERSHIP WHARF
BOSTON, MASSACHUSETTS

CLEAN UTILITY CORRIDORS
SKETCH

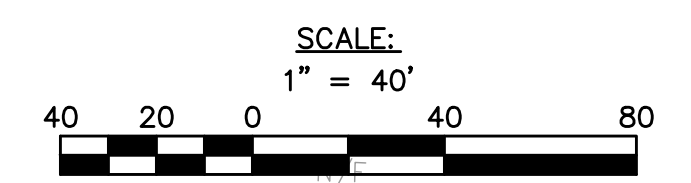
SCALE: AS SHOWN
SEPTEMBER 2019

FIGURE 3

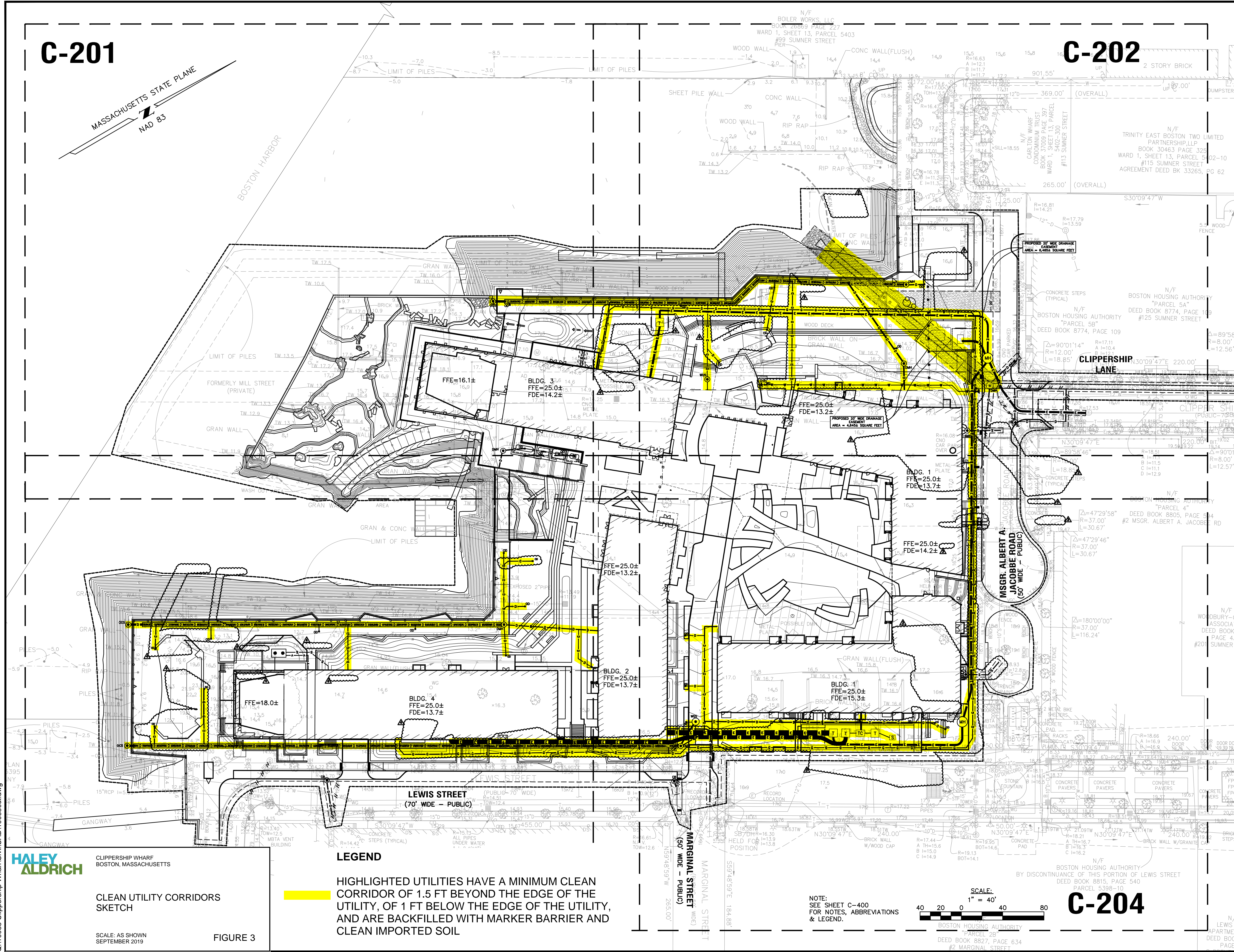
LEGEND

 HIGHLIGHTED UTILITIES HAVE A MINIMUM CLEAN CORRIDOR OF 1.5 FT BEYOND THE EDGE OF THE UTILITY, OF 1 FT BELOW THE EDGE OF THE UTILITY, AND ARE BACKFILLED WITH MARKER BARRIER AND CLEAN IMPORTED SOIL

NOTE:
SEE SHEET C-400
FOR NOTES, ABBREVIATIONS
& LEGEND.



C-204



ATTACHMENT A

Activity and Use Limitation (AUL)

AUL Forms

310 CMR 40.1099



2019 00075328

Bk: 61700 Pg: 260 Page: 1 of 22

Recorded: 09/05/2019 12:07 PM

ATTEST: Stephen J. Murphy, Register
Suffolk County Registry of Deeds

Form 1075

Note: Pursuant to 310 CMR 40.1074(5), upon transfer of any interest in or a right to use the property or a portion thereof that is subject to this Notice of Activity and Use Limitation, the Notice of Activity and Use Limitation shall be incorporated either in full or by reference into all future deeds, easements, mortgages, leases, licenses, occupancy agreements or any other instrument of transfer. Within 30 days of so incorporating the Notice of Activity and Use Limitation in a deed that is recorded or registered, a copy of such deed shall be submitted to the Department of Environmental Protection.

NOTICE OF ACTIVITY AND USE LIMITATION

M.G.L. c. 21E, § 6 and 310 CMR 40.0000

Disposal Site Name: Clippership Wharf
25 and 65 Lewis Street, East Boston
DEP Release Tracking No.(s):3-33113

This Notice of Activity and Use Limitation ("Notice") is made as of this 4th day of SEPTEMBER, 2019, by Lendlease Clippership Wharf LLC, 20 City Square, Boston, Massachusetts 02129, together with his/her/its/their successors and assigns (collectively "Owner").

WITNESSETH:

WHEREAS, Lendlease Clippership Wharf LLC, is the owner in fee simple of that certain parcel of land located in East Boston, Suffolk County, Massachusetts with the buildings and improvements thereon, pursuant to a deed recorded with the Suffolk County Registry of Deeds in Book 55911, Page 274;

WHEREAS, said parcel of land, which is more particularly bounded and described in Exhibit A, attached hereto and made a part hereof ("Property") is subject to this Notice of Activity and Use Limitation. The Property is shown on a plan recorded in the Suffolk County Registry of Deeds in Plan Book 12447, Plan 61;

WHEREAS, a portion of the Property ("Portion of the Property") is subject to this Notice of Activity and Use Limitation. The Portion of the Property is more particularly bounded and described in Exhibit A-1, attached hereto and made a part hereof. The Portion of the Property is shown on a sketch plan attached hereto and filed herewith for registration.

The language in these forms are part of promulgated regulations and cannot be modified in any way unless so noted (by brackets []) in the form itself. 5/21/14 (Effective 6/20/14)

22
25 and 65 Lewis Street, East Boston

WHEREAS, the Portion of the Property comprises all of a disposal site as the result of releases of oil and/or hazardous material.

Exhibit B is a sketch plan showing the relationship of the Portion of the Property subject to this Notice of Activity and Use Limitation to the boundaries of said disposal site existing within the limits of the Property and to the extent such boundaries have been established. The Sketch Plan establishes Areas A, B, and C to aid in descriptions presented in Sections 1, 2, and 3 below. The three Areas correspond to the Upland Area (A) for land above Mean High Water (MHW); the Tidal Zone Area (B) for land below MHW and above the Mean Low Water (MLW), including the Living Shoreline and Rocky Beach; and the Restricted Construction Zone Area (C) for land within a fenced or secured restricted-access area where permanent protective covers do not yet exist. Exhibit B is attached hereto and made a part hereof; and

WHEREAS, one or more response actions have been selected for the Disposal Site in accordance with M.G.L. c. 21E ("Chapter 21E") and the Massachusetts Contingency Plan, 310 CMR 40.0000 ("MCP"). Said response actions are based upon (a) the restriction of human access to and contact with oil and/or hazardous material in soil and/or (b) the restriction of certain activities occurring in, on, through, over or under the Portion of the Property. A description of the basis for such restrictions, and the oil and/or hazardous material release event(s) or site history that resulted in the contaminated media subject to the Notice of Activity and Use Limitation is attached hereto as Exhibit C and made a part hereof (Provide the following information in Exhibit C: (a) a statement that specifies why the Notice of Activity and Use Limitation is appropriate to maintain a Permanent Solution and condition of No Significant Risk or maintain a Temporary Solution and condition of No Substantial Hazard; (b) a description of the oil and/or hazardous material release event(s) or site history that resulted in the contaminated media subject to the Notice of Activity and Use Limitation (*i.e.*, date of the release(s), to the extent known, release volumes(s), and response actions taken to address the release(s); and (c) a description of the contaminated media (*i.e.*, media type(s), approximate vertical and horizontal extent) subject to the Notice of Activity and Use Limitation.);

NOW, THEREFORE, notice is hereby given that the activity and use limitations set forth in this Notice of Activity and Use Limitation are as follows:

1. Activities and Uses Consistent with Maintaining No Significant Risk Conditions.

The following Activities and Uses are consistent with maintaining a Permanent Solution and a condition of No Significant Risk and, as such, may occur on the Portion of the Property pursuant to 310 CMR 40.0000:

(i) In Area A, activities and uses consistent with use for multi-family residential, school, daycare, playground, commercial, retail, passive or active recreation, dog park, open space, institutional, or hotel that does not involve disturbance of the protective covers and marker barrier, protective barriers, or clean utility zones described in Exhibit C;

(ii) In Area B, activities and uses for public use as open space and passive recreational subject to paragraph iii;

The language in these forms are part of promulgated regulations and cannot be modified in any way unless so noted (by brackets []) in the form itself.

5/21/14 (Effective 6/20/14)

- (iii) In Area C, where the work area is clearly defined by a fence or similarly restrictive barrier described in Exhibit C, activities and uses for new building construction as long as the fence/barrier is maintained;
- (iv) Repairs of existing utilities that are located within clean corridors or above the existing marker barrier without restrictions;
- (v) Repairs to replace or reinforce critical shore protection elements such as seawalls and stone rip-rap;
- (vi) In Areas A or B, activities related to landscaping and routine maintenance of landscaping and lawn areas, including planting beds or grass and seasonal plantings; maintenance of walkways and pavement, which includes but is not limited to asphalt pavement, bituminous concrete or pavers; provided that said activities do not involve the disturbance of soil or sediment below protective covers and marker barrier, protective barriers, or outside clean utility zones described in Exhibit C;
- (vii) Growing of fruits and vegetables destined for human consumption, provided that the gardening is conducted in raised and contained landscaped beds in accordance with MassDEP Best Management Practices;
- (viii) Subsurface activities, including but not limited to excavation associated with installation of new utilities, new or seasonal landscape plantings, or site improvements, provided that any such activity performed within the Portion of the Property that will result in disturbance or contact with contaminated soil or sediment below protective covers and marker barrier, protective barriers, or outside clean utility zones described in Exhibit C is conducted in accordance with a Soil Management Plan (SMP) and a Health and Safety Plan developed in accordance with Obligations and Conditions hereunder;
- (ix) Such other activities or uses which, in the Opinion of a Licensed Site Professional, shall present no greater risk of harm to health, safety, public welfare or the environment than the activities and uses set forth in this Paragraph; and
- (x) Such other activities and uses not identified in Paragraph 2 as being Activities and Uses Inconsistent with maintaining No Significant Risk Conditions.

2. Activities and Uses Inconsistent with Maintaining No Significant Risk Conditions. The following Activities and Uses are inconsistent with maintaining a Permanent Solution and a condition of No Significant Risk pursuant to 310 CMR 40.0000, and, as such, may not occur on the Portion of the Property:

- (i) Free standing single, or two-family residential homes;

(ii) Uses and activities in Area B other than public use as open space and passive recreational;

(iii) Any activities and/or uses that involve disturbance or direct contact with the contaminated soil or sediment below protective covers and marker barrier, protective barriers, or outside clean utility zones described in Exhibit C without preparation of a Soil Management Plan (SMP), a Non-Traditional Asbestos Work Plan (NTAWP), and a Health and Safety Plan developed in accordance with Obligations (iii, iv, and v) hereunder;

(iv) Use of contaminated soils or sediments that exist beneath protective covers and marker barrier, protective barriers, or outside clean utility zones described in Exhibit C for on-site reuse above such barriers; and

(v) Access to Area C by non-construction related personnel.

3. Obligations and Conditions. The following obligations and/or conditions are necessary and shall be undertaken and/or maintained at the Portion of the Property to maintain a Permanent Solution and a condition of No Significant Risk:

(i) The existing protective covers and marker barrier, protective barriers, and clean utility zones described in Exhibit C must be maintained in all areas subject to this AUL except as provided in item (ii) below;

(ii) Excavations or intrusive soil sampling activities performed below protective covers and marker barrier, protective barriers, or outside clean utility zones described in Exhibit C must be restored and/or replaced with the same or comparable cover if disturbed for subsurface work permitted by the AUL;

(iii) A Soil Management Plan (SMP) must be prepared by a Licensed Site Professional (LSP) or a qualified environmental professional and implemented prior to commencement of any activity that is likely to disturb the contaminated soil or sediment located below protective covers and marker barrier, protective barriers, or outside clean utility zones described in Exhibit C. A Release Abatement Measure (RAM) Plan must be prepared by a LSP, as required pursuant to 310 CMR 40.1067(4), for all excavations greater than or equal to 20 cubic yards in accordance with 310 CMR 40.0444. The SMP must include a description of the excavation, handling, storage, on-site reuse, transport and disposal procedures as well as description of dust control and other engineering controls to preclude exposure to asbestos fibers and limit exposure to contaminated soil via inhalation of dust, dermal contact and/or ingestion.

(iv) A Non-Traditional Asbestos Work Plan (NTAWP) must be prepared by a Massachusetts Licensed Asbestos Abatement Designer in accordance with applicable state and federal regulations and implemented prior to commencement of any activity that is likely to disturb the contaminated soil or sediment located

below protective covers and marker barrier, protective barriers, or outside clean utility zones described in Exhibit C.

(v) A Health and Safety Plan (HASP) must be prepared prior to the initiation of planned (non-emergency) excavation of soil located below protective covers and marker barrier, protective barriers, or outside clean utility zones described in Exhibit C. For intrusive work conducted as part of a RAM Plan, a Site-Specific HASP must be prepared by a Certified Industrial Hygienist (CIH) or a qualified environmental professional in accordance with the procedures of 310 CMR 40.0018. The plan must clearly describe the compounds of concern at the Portion of the Property and specifically identify the types of personal protective equipment, monitoring devices, and engineering controls necessary for each activity planned to ensure that workers are not exposed to oil and hazardous materials or asbestos. Workers performing subsurface activities must be informed of the presence of compounds of concern and be adequately trained in the use of personal protective equipment, and the HASP must be available on-site through the course of the work;

(vi) A chain link fence at least 6 ft high or a similarly restrictive barrier has been erected and must be maintained around Area C, as shown on Exhibit B, to prevent unauthorized access to the construction work area where permanent covers do not yet exist;

(vii) Annual inspections shall be performed under the oversight of a LSP to document the condition of protective covers and summarize the impacts and repairs made resulting from storm events or normal maintenance during the year.

4. Proposed Changes in Activities and Uses. Any proposed changes in activities and uses at the Portion of the Property which may result in higher levels of exposure to oil and/or hazardous material than currently exist shall be evaluated by a Licensed Site Professional who shall render an Opinion, in accordance with 310 CMR 40.1080, as to whether the proposed changes are inconsistent with maintaining a Permanent Solution and a condition of No Significant Risk. Any and all requirements set forth in the Opinion to meet the objective of this Notice shall be satisfied before any such activity or use is commenced.

5. Violation of a Permanent or Temporary Solution. The activities, uses and/or exposures upon which this Notice is based shall not change at any time to cause a significant risk of harm to health, safety, public welfare, or the environment or to create substantial hazards due to exposure to oil and/or hazardous material without the prior evaluation by a Licensed Site Professional in accordance with 310 CMR 40.1080, and without additional response actions, if necessary, to maintain a condition of No Significant Risk.

If the activities, uses, and/or exposures upon which this Notice is based change without the prior evaluation and additional response actions determined to be

AUL Forms

310 CMR 40.1099

necessary by a Licensed Site Professional in accordance with 310 CMR 40.1080, the owner or operator of the Portion of the Property subject to this Notice at the time that the activities, uses and/or exposures change, shall comply with the requirements set forth in 310 CMR 40.0020.

6. Incorporation Into Deeds, Mortgages, Leases, and Instruments of Transfer. This Notice shall be incorporated either in full or by reference into all future deeds, easements, mortgages, leases, licenses, occupancy agreements or any other instrument of transfer, whereby an interest in and/or a right to use the Property or a portion thereof is conveyed in accordance with 310 CMR 40.1074(5).

Owner hereby authorizes and consents to the filing and recordation and/or registration of this Notice, said Notice to become effective when executed under seal by the undersigned Licensed Site Professional, and recorded and/or registered with the appropriate Registry(ies) of Deeds and/or Land Registration Office(s).

The language in these forms are part of promulgated regulations and cannot be modified in any way unless so noted (by brackets []) in the form itself.

5/21/14 (Effective 6/20/14)

WITNESS the execution hereof under seal this 4th day of SEPTEMBER, 2019.

Lendlease Clippership Wharf LLC;
Lendlease Development Inc., its sole member

By: *Nicholas Iselin*
Nicholas Iselin
Senior Vice President

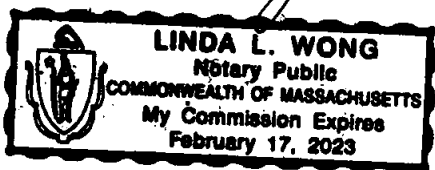
COMMONWEALTH OF MASSACHUSETTS

SUFFOLK, ss

SEPT. 4, 2019

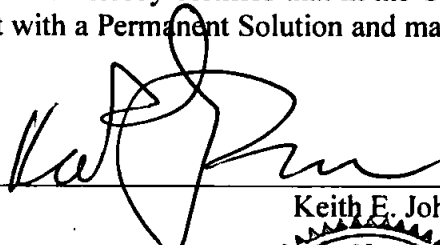
On this 4th day of SEPT., 2019, before me, the undersigned notary public, personally appeared Nicholas Iselin, proved to me through satisfactory evidence of identification, which were MA DRIVER'S LICENSE, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily as Authorized Signatory for Lendlease Clippership Wharf LLC for its stated purpose.

Linda L. Wong (official signature and seal of notary)



The undersigned Licensed Site Professional hereby certifies that in his Opinion this Notice of Activity and Use Limitation is consistent with a Permanent Solution and maintaining a condition of No Significant Risk.

Date: SEPT 4, 2019



Keith E. Johnson, LSP



COMMONWEALTH OF MASSACHUSETTS

Suffolk, ss

Sept. 4, 2019

On this 4 day of Sept., 2019, before me, the undersigned notary public, personally appeared Keith E Johnson, proved to me through satisfactory evidence of identification, which were personal knowledge, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose as Vice President for Haley & Aldrich, Inc., a Massachusetts corporation.

 (official signature and seal of notary)

Upon recording, return to:

Lendlease Clippership Wharf LLC
20 City Square
Boston, Massachusetts 02129
Attention: Nicholas Iselin

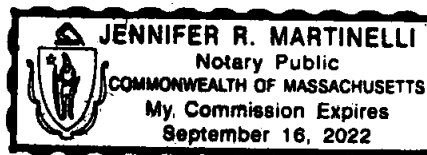


EXHIBIT A – LEGAL DESCRIPTION

A certain parcel of land in the East Boston section of Boston, Suffolk County, Massachusetts, shown a plan entitled "Plan of Land, East Boston, Mass. Surveyed for Harbor Landing Limited Partnership" dated April 10, 1986 by Linenthal Eisenberg Anderson, Inc., recorded in Book 12447, Page 61, and being bounded and according to said plan as follows:

- NORTHEASTERLY:** By Sumner Street, 110.0 feet;
- SOUTHEASTERLY:** by land of the Boston Housing Authority and by the westerly end of a way, 265.00 feet;
- NORTHEASTERLY:** by the center of line of said way, 190 feet;
- SOUTHEASTERLY:** by the westerly end of Msgr. Albert A. Jacobbe Road, 25 feet;
- NORTHEASTERLY:** by the southwesterly sideline of Msgr. Albert A. Jacobbe Road and by land of the Boston Housing Authority, 350.00 feet;
- SOUTHEASTERLY:** by land of the Boston Housing Authority by Lewis Street and by land of owners unknown, 765.63 feet;
- SOUTHWESTERLY:** by owners unknown, 24.00 feet;
- SOUTHEASTERLY:** by the same, 50.00 feet;
- SOUTHWESTERLY:** by the same, 3.50 feet;
- SOUTHEASTERLY:** by the same, 135.00 feet;
- SOUTHWESTERLY:** by the same, 13.00 feet;
- SOUTHEASTERLY:** by the same, 54.57 feet;
- SOUTHWESTERLY:** by the waters of Boston Harbor, 724.82 feet; and
- NORTHWESTERLY:** by land of John I. Lynch, et al, 903.15 feet.

Said parcel contains 12.934 acres according to said plan.

LESS AND EXCEPT the following parcels of land:

1. Lot 1 as shown on a plan entitled "Subdivision Plan Sumner Street East Boston, Massachusetts" dated December 18, 2002, recorded in Book 30463, Page 325 conveyed by deed dated December 23, 2002, recorded in Book 30463, Page 325.
2. So much of the above-described premises as was taken by virtue of that Order of Taking for the East Boston Tunnel dated March 10, 1922, recorded in Book 4532, Page 285.

Subject to and with benefit of the following licenses:

- A. License #919 dated June 30, 1886, recorded in Book 1730, Page 278.
- B. License #1650 dated April 12, 1894, recorded in Book 2199, Page 195.
- C. License #2231A dated April 12, 1899, recorded in Book 2622, Page 585.
- D. License #2831 dated April 21, 1904, recorded in Book 2964, Page 280.
- E. License #198 dated July 5, 1918, recorded in Book 4123, Page 523.
- F. License #342 dated July 19, 1923, recorded in Book 4491, Page 210.
- G. License #3089 dated July 20, 1906, recorded in Book 3148, Page 49.
- H. License #3048 dated April 11, 1906, recorded in Book 3148, Page 321.
- I. License #244 dated March 12, 1919, recorded in Book 4128, Page 441.
- J. License #2135 dated November 28, 1989, recorded in Book 15977, Page 254.
- K. License #10345 issued by the Commonwealth of Massachusetts Department of Environmental Protection dated October 4, 2005, recorded in Book 38280, Page 172.

EXHIBIT A-1

ACTIVITY AND USE LIMITATION AREA

A CERTAIN PARCEL OF LAND SITUATED IN THE CITY OF BOSTON, COUNTY OF SUFFOLK AND THE COMMONWEALTH OF MASSACHUSETTS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT AT THE INTERSECTION OF THE SOUTHERLY SIDELINE OF SUMNER STREET AND THE WESTERLY SIDELINE OF LEWIS STREET; THENCE

RUNNING S 30°09'22" W, BY SAID LEWIS STREET, A DISTANCE OF 290.00 FEET TO THE POINT OF BEGINNING;

THENCE CONTINUING S 30°09'22" W, BY SAID LEWIS STREET AND LAND NOW OR FORMERLY OF CITY OF BOSTON, A DISTANCE OF 765.63 FEET TO A POINT;

THENCE TURNING AND RUNNING N 59°49'24" W, A DISTANCE OF 24.00 FEET TO A POINT;

THENCE TURNING AND RUNNING S 30°09'22" W, A DISTANCE OF 50.00 FEET TO A POINT;

THENCE TURNING AND RUNNING N 59°49'24" W, A DISTANCE OF 3.50 FEET TO A POINT;

THENCE TURNING AND RUNNING S 30°09'22" W, A DISTANCE OF 18.08 FEET TO A POINT;

THE PREVIOUS FOUR COURSES BY LAND NOW OR FORMERLY OF CITY OF BOSTON;

THENCE TURNING AND RUNNING N 59°30'36" W, A DISTANCE OF 115.10 FEET TO A POINT;

THENCE TURNING AND RUNNING N 28°59'52" E, A DISTANCE OF 344.23 FEET TO A POINT;

THENCE TURNING AND RUNNING N 57°52'16" W, A DISTANCE OF 66.77 FEET TO A POINT;

THENCE TURNING AND RUNNING N 21°42'22" E, A DISTANCE OF 15.81 FEET TO A POINT;

THENCE TURNING AND RUNNING N 59°49'24" W, A DISTANCE OF 41.66 FEET TO A POINT;

THENCE TURNING AND RUNNING S 39°10'36" W, A DISTANCE OF 16.27 FEET TO A POINT;

THENCE TURNING AND RUNNING S 07°17'09" W, A DISTANCE OF 7.67 FEET TO A POINT;

THENCE TURNING AND RUNNING S 25°55'40" W, A DISTANCE OF 23.64 FEET TO A POINT;

THENCE TURNING AND RUNNING S 29°35'25" W, A DISTANCE OF 70.15 FEET TO A POINT;

THENCE TURNING AND RUNNING S 02°47'23" E, A DISTANCE OF 24.82 FEET TO A POINT;

THENCE TURNING AND RUNNING S 70°03'41" W, A DISTANCE OF 3.88 FEET TO A POINT;

THENCE TURNING AND RUNNING N 54°00'16" W, A DISTANCE OF 2.41 FEET TO A POINT;

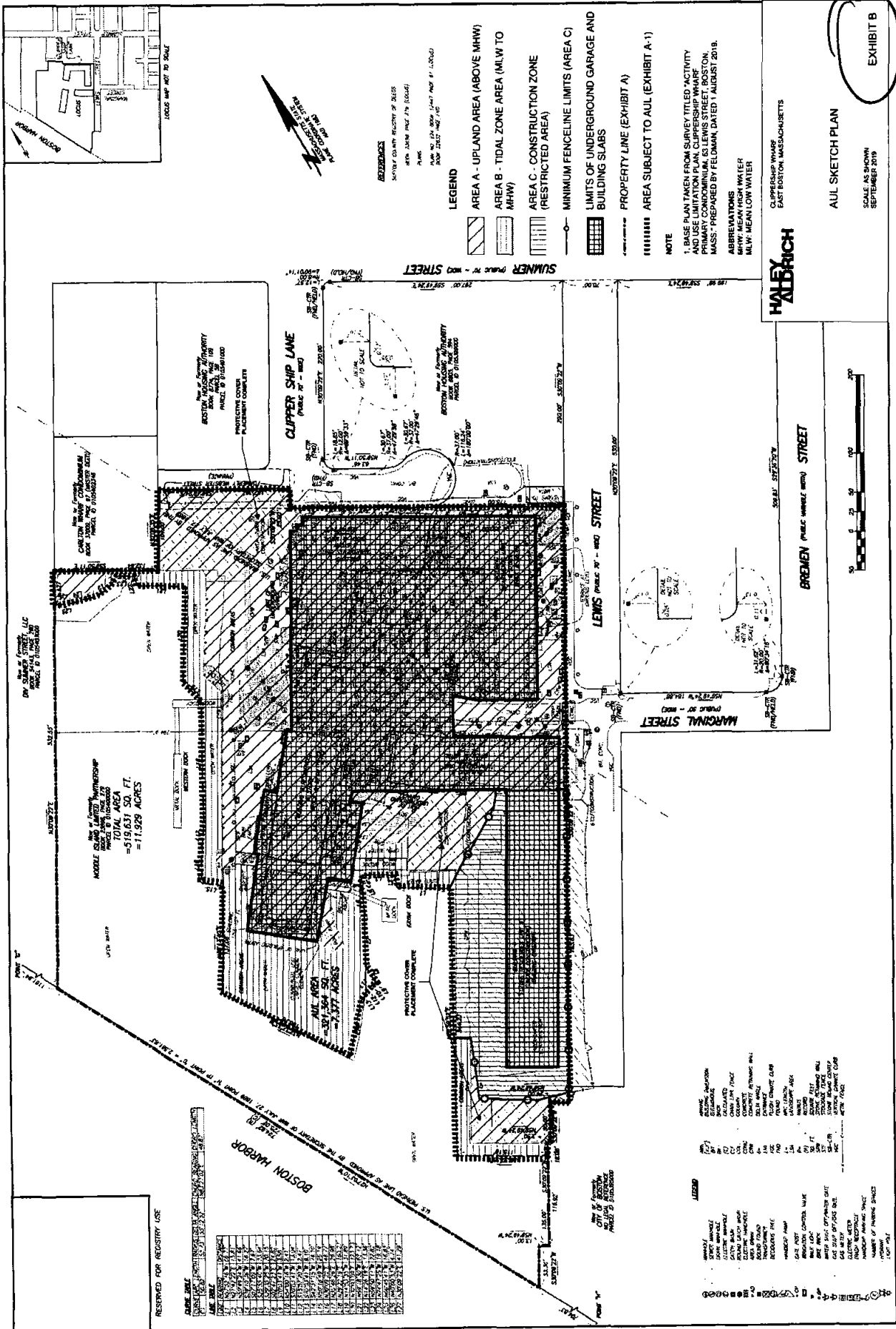
THENCE TURNING AND RUNNING S 70°03'41" W, A DISTANCE OF 13.04 FEET TO A POINT;

THENCE TURNING AND RUNNING S 15°57'20" W, A DISTANCE OF 2.47 FEET TO A POINT;

THENCE TURNING AND RUNNING S 70°03'41" W, A DISTANCE OF 9.10 FEET TO A POINT;

THENCE TURNING AND RUNNING S 42°31'15" W, A DISTANCE OF 74.10 FEET TO A POINT;

THENCE TURNING AND RUNNING N 32°37'33" W, A DISTANCE OF 180.78 FEET TO A POINT;
THENCE TURNING AND RUNNING N 30°17'40" E, A DISTANCE OF 137.06 FEET TO A POINT;
THENCE TURNING AND RUNNING N 50°18'49" W, A DISTANCE OF 26.19 FEET TO A POINT;
THENCE TURNING AND RUNNING N 30°09'22" E, A DISTANCE OF 46.77 FEET TO A POINT;
THENCE TURNING AND RUNNING N 35°46'26" E, A DISTANCE OF 26.98 FEET TO A POINT;
THENCE TURNING AND RUNNING N 29°22'19" E, A DISTANCE OF 160.27 FEET TO A POINT;
THENCE TURNING AND RUNNING N 14°53'35" W, A DISTANCE OF 31.89 FEET TO A POINT;
THENCE TURNING AND RUNNING N 32°03'09" E, A DISTANCE OF 123.73 FEET TO A POINT;
THENCE TURNING AND RUNNING N 59°18'30" W, A DISTANCE OF 62.12 FEET TO A POINT;
THENCE TURNING AND RUNNING N 14°26'19" E, A DISTANCE OF 13.36 FEET TO A POINT;
THENCE TURNING AND RUNNING N 59°50'11" W, A DISTANCE OF 22.82 FEET TO A POINT OF NON-TANGENCY;
THENCE TURNING AND RUNNING ALONG A CURVE TO THE RIGHT, HAVING A RADIUS OF 52.73 FEET, A CHORD BEARING OF S 83°27'02" W, A CHORD DISTANCE OF 48.87 FEET, A DELTA ANGLE OF 55°12'52", AND AN ARC LENGTH OF 50.82 FEET, TO A POINT OF NON-TANGENCY;
THENCE TURNING AND RUNNING N 74°47'25" W, A DISTANCE OF 19.18 FEET TO A POINT;
THENCE TURNING AND RUNNING N 66°45'41" W, A DISTANCE OF 16.82 FEET TO A POINT;
THENCE TURNING AND RUNNING N 40°00'53" W, A DISTANCE OF 4.74 FEET TO A POINT;
THENCE TURNING AND RUNNING N 30°09'22" E, BY LAND NOW OR FORMERLY OF DIV SUMNER STREET, LLC, A DISTANCE OF 41.29 FEET TO A POINT;
THENCE TURNING AND RUNNING S 59°50'11" E, BY LAND NOW OR FORMERLY OF CARLTON WHARF CONDOMINIUM, A DISTANCE OF 132.64 FEET TO A POINT;
THENCE TURNING AND RUNNING N 30°08'35" E, BY LAND NOW OR FORMERLY OF CARLTON WHARF CONDOMINIUM, A DISTANCE OF 104.00 FEET TO A POINT;
THENCE TURNING AND RUNNING S 59°49'24" E, BY NOW OR FORMERLY WEBSTER STREET, A DISTANCE OF 167.36 FEET TO A POINT ON THE WESTERLY SIDELINE OF CLIPPER SHIP LANE;
THENCE TURNING AND RUNNING S 30°09'22" W, BY SAID CLIPPER SHIP LANE, A DISTANCE OF 25.00 FEET TO A POINT;
THENCE TURNING AND RUNNING S 59°49'24" E, BY SAID CLIPPER SHIP LANE AND LAND NOW OR FORMERLY OF THE BOSTON HOUSING AUTHORITY, A DISTANCE OF 350.00 FEET TO THE POINT OF BEGINNING.
SAID PARCEL OF LAND CONTAINING AN AREA OF 321,364 SQUARE FEET OR 7.377 ACRES.



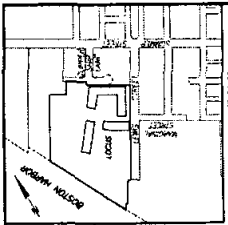
HALEY ALDRICH

CUPPERSHIP WHARF
EAST BOSTON, MASSACHUSETTS

AUL SKETCH PLAN

SCALE AS SHOWN
SEPTEMBER 2019

EXHIBIT B



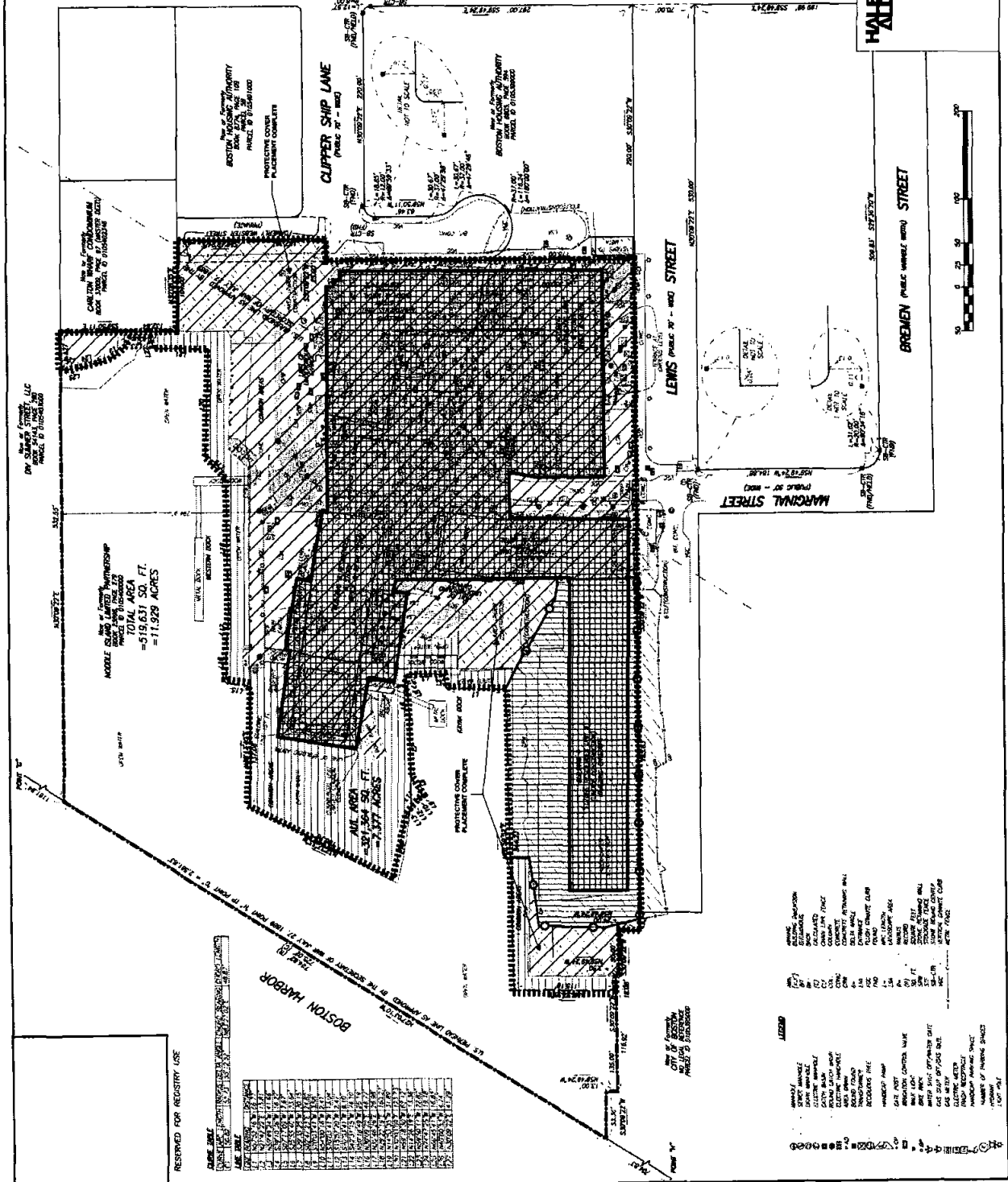
ABBREVIATIONS
 SETBACK TO THE PROPERTY OF 2019
 WITH JUNE 1977 (100%)
 PLANS
 DATE: 07/24/2009 (PLAN) AND 07/24/2009
 DATE: 2/20/2007 (REV. 10)

LEGEND

- AREA A - UPLAND AREA (ABOVE MHW)
- AREA B - TIDAL ZONE AREA (MLW TO MHW)
- AREA C - CONSTRUCTION ZONE (RESTRICTED AREA)
- MINIMUM FENCE LINE LIMITS (AREA C)
- LIMITS OF UNDERGROUND GARAGE AND BUILDING SLABS
- PROPERTY LINE (EXHIBIT A-1)
- AREA SUBJECT TO AUL (EXHIBIT A-1)

NOTE
 1. BASE PLAN TAKEN FROM SURVEY TITLED "ACTIVITY AND USE LIMITATION PLAN, CUPPERSHIP WHARF, PRIMARY CONDOMINIUM, 63 LEWIS STREET, BOSTON, MASS." PREPARED BY FELDMAN, DATED 1/8/2019.

ABBREVIATIONS
 MHW: MEAN HIGH WATER
 MFLW: MEAN LOW WATER
 MLW: MEAN LOW WATER



RESERVED FOR RECREATION USE

MOBILE HOME TRAILER PARK
 TOTAL AREA
 = 919,631 SQ. FT.
 = 21.17 ACRES

NEW CONSTRUCTION
 PROTECTIVE COVER
 PLACEMENT COMPLETE

EXISTING CONSTRUCTION
 PROTECTIVE COVER
 PLACEMENT COMPLETE

LEGEND

ADJACENT PROPERTY	EXISTING CONSTRUCTION
AREA A	AREA B
AREA C	AREA D
AREA E	AREA F
AREA G	AREA H
AREA I	AREA J
AREA K	AREA L
AREA M	AREA N
AREA O	AREA P
AREA Q	AREA R
AREA S	AREA T
AREA U	AREA V
AREA W	AREA X
AREA Y	AREA Z
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AREA AE	AREA AF
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AREA AI	AREA AJ
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AREA BI	AREA BJ
AREA BK	AREA BL
AREA BM	AREA BN
AREA BO	AREA BP
AREA BQ	AREA BR
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AREA BW	AREA BX
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AREA CQ	AREA CR
AREA CS	AREA CT
AREA CU	AREA CV
AREA CW	AREA CX
AREA CY	AREA CZ
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AREA IY	AREA IZ
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AREA QW	AREA QX
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AREA RO	AREA RP
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AREA RW	AREA RX
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AREA SC	AREA SD
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AREA SI	AREA SJ
AREA SK	AREA SL
AREA SM	AREA SN
AREA SO	AREA SP
AREA SQ	AREA SR
AREA SS	AREA ST
AREA SU	AREA SV
AREA SW	AREA SX
AREA SY	AREA SZ
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AREA TC	AREA TD
AREA TE	AREA TF
AREA TG	AREA TH
AREA TI	AREA TJ
AREA TK	AREA TL
AREA TM	AREA TN
AREA TO	AREA TP
AREA TQ	AREA TR
AREA TS	AREA TT
AREA TU	AREA TV
AREA TW	AREA TX
AREA TY	AREA TZ
AREA UA	AREA UB
AREA UC	AREA UD
AREA UE	AREA UF
AREA UG	AREA UH
AREA UI	AREA UJ
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AREA UY	AREA UZ
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AREA VC	AREA VD
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AREA ZY	AREA ZZ

EXHIBIT C – Narrative Describing the Basis for Activity and Use Limitation

4 September 2019

Clippership Wharf
25 & 65 Lewis Street
East Boston, Massachusetts
RTN 3-33113

In accordance with the requirements of 310 CMR 40.1074, this Exhibit C has been prepared to support an Activity and Use Limitation (AUL) in the form of a Notice of Activity and Use Limitation for a portion of the property located at 25 and 65 Lewis Street in Boston, Massachusetts (the "Site").

This Exhibit C provides a narrative describing the basis for restrictions contained in the AUL, and the oil and/or hazardous material release event(s) or site history that resulted in the contaminated media subject to the Notice of Activity and Use Limitation, including the following information (a) a statement that specifies why the Notice of Activity and Use Limitation is appropriate to maintain a Permanent Solution and condition of No Significant Risk; (b) a description of the oil and/or hazardous material release event(s) or site history that resulted in the contaminated media subject to the Notice of Activity and Use Limitation (*i.e.*, date of the release(s), to the extent known, release volumes(s), and response actions taken to address the release(s); and (c) a description of the contaminated media (*i.e.*, media type(s), approximate vertical and horizontal extent) subject to the Notice of Activity and Use Limitation.

DESCRIPTION OF PROPERTY AND LIMITS OF AUL AND DISPOSAL SITE

This waterfront property, which contains the area subject to the AUL, consists of two adjacent parcels of land and water (Boston Harbor) totaling approximately 12 acres (6.8 acres of land and 5.2 acres of water), located at 25 and 65 Lewis Street in East Boston fronting directly on Boston Harbor. The Disposal Site and the Portion of the Property subject to the AUL includes all of the upland and tidal portion of the Property above the mean low water mark (MLW), Boston City Base (BCB=El. 1.1), including two large earth filled piers identified as the "North Finger Pier" and "South Finger Pier", and land fronting Lewis Street and Jacobee Way. There is a small cove in the center of the Site that is formed by the filled piers.

Exhibit B, the Sketch Plan, establishes Areas A, B and C that correspond to Upland Area (A) including the harbor walk, public space (amphitheater, kayak center and ramp) and building areas, Tidal Zone Area (B) including the Living Shoreline and Rocky Beach, and Restricted Construction Zone Area (C) to aid in descriptions presented in the Notice of AUL. Upland Area A is defined as the area of land above Mean High Water (MHW), El. 10.54 Boston City Base (BCB). Tidal Zone Area B is defined as the area between MHW and MLW, El. 1.1 BCB. The Restricted Construction Area C is defined as the area inside the construction fence line or similarly restrictive barrier (e.g. building wall, rip-rap slope).

SITE CONDITIONS

The land portion of the Site is currently occupied by three residential buildings (Buildings 1, 2 and 3), shown on Exhibit B with a partially below-grade garage that encompass a footprint of approximately 120,000 square feet, that are nearing interior completion and beginning occupancy. Two upland areas of the Site are under construction for final site improvements, the dog park and the amphitheater; however, the required thickness of protective cover is in place.

Exhibit C - AUL Narrative
4 September 2019
RTN 3-33113
Page 3

The fourth and final building, Building 4, with a footprint of approximately 24,000 square feet, is not yet complete. Remaining work in and around Building 4 is currently being conducted within a restricted construction zone, designated Area C on Exhibit B. The excavation and foundation construction for Building 4 is complete, and the superstructure is being erected. The marker barrier has been placed; however, final protective covers are not yet in place.

Access to Area C is separated from the completed area with a minimum 6 ft. high fence or similarly restrictive barrier and construction gates that will be closed and locked when work is not occurring. The remainder of the Site is landscaped with various hard and soft features including a harbor walk along the shoreline. Stone rip-rap slopes and granite block seawalls exist where the land meets the water. In addition, a tidal shoreline feature known as the Living Shoreline has been constructed at the end of north finger pier to create a rocky beach, a tidal salt marsh and a portion of the kayak ramp, designated as Area B on Exhibit B. The Living Shoreline is subject to tidal action and completely inundated during each tide cycle. Access to the Living Shoreline, with the exception of the kayak ramp, is restricted by signage and fencing to allow for establishment of the marsh area.

REASON FOR ACTIVITY AND USE LIMITATION

The primary purpose of the AUL is to prevent direct exposure to soil and sediment within upland and tidal zone areas, Areas A and B, by maintaining existing protective covers and barriers for the current and foreseeable use as multi-family residential (Area A) and public access (Areas A and B). The protective covers and barriers consist of concrete ground floor slabs below the new garage and building footprints; hardscape features such as asphalt or concrete pavement and pavers with a total of 14-inches of clean cover material; stone rip-rap and granite block seawalls; and a minimum of 3 feet of clean cover soils or stone in landscaped areas outside the garage and building footprints. The AUL requires that protective barriers be maintained to ensure that impacted soil and sediment remains inaccessible. The AUL also restricts public access to the remaining construction area, Area C, by maintaining a fence or similarly restrictive barrier to preclude unauthorized land access.

PROPERTY HISTORY

The Site was developed for commercial waterfront activities in the mid-1800s. The land consists of two filled piers extending out into the harbor with pile supported wood wharves along the perimeter, known as the north and south finger piers. Structures were present on both piers as early as the 1850s. From that period until the 1970s there have been a variety of small to large, one- to five-story wood and brick sheds, shops, warehouses and other structures present on both wharves and the filled slip between the piers. The types of buildings and operations that existed on the Site included numerous structures (warehouses, shops, sheds) related to wharf operations, flour mills, machinery shops, furniture repair, wool merchants, building materials supplier, wood working box suppliers, lime and cement sales and lobster wholesales.

The National Dock Trust Company and National Dock and Storage Warehouse Company occupied most of the Site from the late 1800s to 1973 for storage of dry goods and commodities. Large sugar warehouses occupied the north finger pier area in the late 1800s and early 1900s when the Site was known as Lombard's Wharf. Records from the Boston Fire Department History organization document two large fires at the Site that destroyed a number of warehouses at the Site in 1873 and in 1955. The south dock, between the north and south finger piers, was partially filled to its current location between

Exhibit C - AUL Narrative
4 September 2019
RTN 3-33113
Page 4

1901 and 1922. Most structures were demolished in the late 1960s and 1970s. Only three buildings remained on the North Finger Pier bordering Mill Street by 1990. These building were demolished between 1990 and 1993. Since the 1970s most of the Site was used as a surface parking lot or remained vacant until the current development began construction in August 2016.

DESCRIPTION OF SITE RELEASE – RTN 3-33113

The Site release involves the presence of metals (lead and arsenic), PAHs, TPH, and polychlorinated biphenyls (PCBs) in urban fill soil at concentrations exceeding the risk-based criteria for dermal contact, ingestion and inhalation. In addition, asbestos in soil is present within the soil matrix throughout a majority of the Site. The presence of the Site contaminants originated from historical site filling, usage, historic fires and demolition of previous structures.

RELEASE REGULATORY HISTORY & REMEDIAL ACTIONS UNDERTAKEN

Conditions at the Site were reported by the previous property owner Noddle Island Limited Partnership on 26 August 2015. Lendlease Development, Inc. (the parent company of Lendlease Clippership Wharf LLC) purchased the property from Noddle Island on 30 March 2016 and undertook response actions as an “Eligible Person” under the MCP. Release Abatement Measure (RAM) activities began in August 2016 following conditional approval of the RAM Plan Modification. Remedial activities were conducted under the following documents previously submitted to Massachusetts Department of Environmental Protection (MassDEP):

- Initial RAM Plan submitted on 15 January 2016
- RAM Modification and Non-Traditional Asbestos Abatement Work Plan (NTAWP, dated July 2016) submitted on 22 August 2016 (conditional approval from MassDEP received on 24 August 2016) allowing for on-site reuse of soil which contains less than 1% asbestos.
- RAM Modification No. 2 dated 7 November 2016 and Amendment to NTAWP dated 10 November 2016 (conditional approval from MassDEP received on 15 November 2016) that expanded the RAM activity area to a portion of land owned by Lendlease and part of the subject property.
- RAM Modification No. 3 dated 28 September 2017 (conditional approval received on 29 September 2017) allowing for on-site reuse of TCLP failed soils as backfill.
- RAM Modification No. 4 dated 24 January 2018, Revised 30 January 2018, approval received on 31 January 2018 allowing for phased reduction of perimeter dust and asbestos monitors.

RAM activities were described in RAM Status Reports which were submitted to MassDEP in accordance with the timeline established in 310 CMR 40.0445(1). A RAM Completion Report is being filed concurrent with this AUL.

The Site was classified as a Tier II Site on 26 August 2016 following submittal of a Tier II Classification Submittal and a MCP Phase I Completion Statement.

RAM activities included the following:

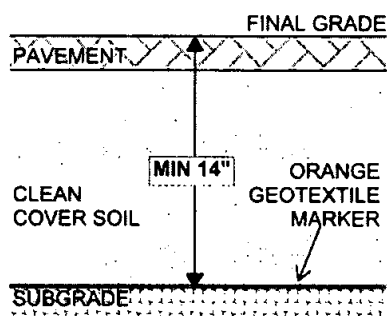
- Off-site removal of approximately 62,616 tons of ACM Remediation Waste, including treated TCLP lead soil;

Exhibit C - AUL Narrative
 4 September 2019
 RTN 3-33113
 Page 5

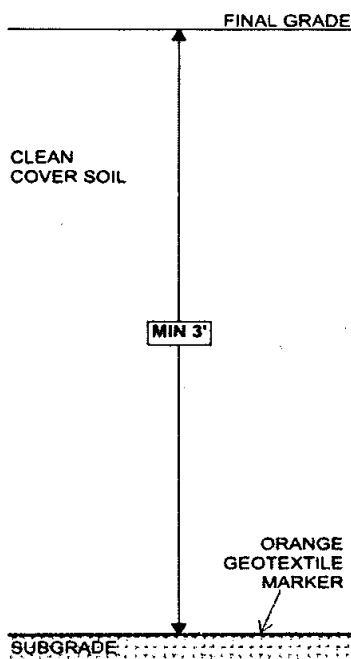
- Off-site removal of approximately 5,211 tons of non-ACM Remediation Waste, including dredge spoils;
- In-situ treatment of TCLP lead failed soil;
- Management of soil stockpiles on-site;
- On-site reuse of contaminated soil with trace (<1%) asbestos below protective cover material;
- On-site reuse of decontaminated debris including granite blocks, asphalt, concrete slabs, cobblestones as part of shore revetment construction;
- Placement of protective covers and barriers to preclude exposures to contaminated soils at the locations shown on the attached Protective Cover Sketch; and
- Confirmatory sampling of the protective cover.

DESCRIPTION AND DETAILS OF PROTECTIVE COVERS

Protective covers were placed to preclude exposure to underlying contaminated soil and sediment. Protective covers include 24 to 36 inches of clean cover soils or rock and 14-inch thickness of hardscape and clean subgrade materials as described below:

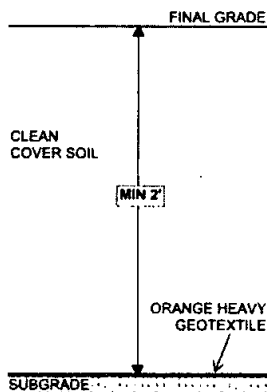


Area A (Upland) - Paved or Hardscaped Areas including poured in-place Concrete or Asphalt Paving and Unit Pavers on Asphalt, Concrete or Permeable Sub-Base: an orange geotextile marker (Mirafi 180N or equivalent) was placed on the subgrade soils at a minimum of 14 inches below the finished pavement or hardscape grade and backfilled with clean imported soil and hardscape material to final grade. [See Exhibit C-1 for plan location]



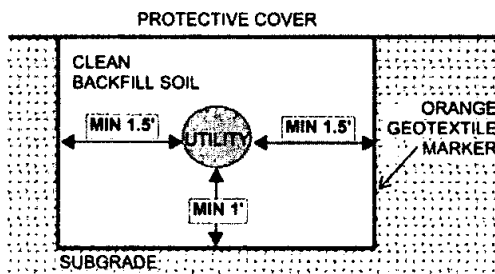
Area A (Upland) – Unpaved Lawn and Planting Areas including Dog Park and Stone Dust Paths: An orange geotextile marker (Mirafi 180N or equivalent) and a minimum of 3 ft of clean imported planting soil or stone materials was placed on the subgrade soils to achieve final design grades. [See Exhibit C-1 for plan location]

Exhibit C - AUL Narrative
 4 September 2019
 RTN 3-33113
 Page 6



Area B (Tidal Zone MLW to MHW): a heavy geotextile/orange marker barrier (Mirafi RS 380 I) was placed on the subgrade soils and covered with 2 feet of clean imported cover material. Clean cover materials consist of planting soil in the salt marsh and 2 to 12-inch size river stone in the Rocky Beach area. [See Exhibit C-1 for plan location]

DESCRIPTION OF CLEAN UTILITY ZONES



Utility Corridors: Permanent utility trenches are lined with an orange geotextile marker barrier (Mirafi 180N or equivalent) placed a minimum of 1 ft below the utility and 1.5 ft beyond each edge of the utility and backfilled with clean imported soil. [See Exhibit C-2 for plan location]

DESCRIPTION OF PROTECTIVE BARRIERS

Protective barriers include building slabs, rock rip-rap slopes, granite block seawalls and construction fencing as described below. These areas are shown Exhibit B and Exhibit C-1.

Rip-Rap Slopes – Consisting of two layers of Armor Stone 12 to 24 inches in maximum diameter overlying 2 feet of Filter Stone, 2-1/2 to 5-inch maximum size. No marker barrier fabric was placed below the armor stone for rip-rap slopes at the edge of the upland areas or the Living Shoreline. Rip-rap slopes within the Living Shoreline were underlain by geotextile Mirafi RS 380 I.

Granite Block Seawall – Original granite block seawalls remain in-place at the north and west edge of the Living Shoreline. The seawall provides lateral support to underlying sediments within the tidal range and therefore, must be maintained.

Building Slabs – Building slabs consisting of reinforced concrete 8 to 12 inches in thickness exist at the ground floor at the Kayak Center or basement level of Buildings 1, 2 and 3 to the limits shown on the attached Site Conditions Plan.

Area C Construction Barrier – A minimum 6 ft. height chain link fence or similarly restrictive barrier to preclude unauthorized access to the Building 4 construction zone, Area C.

Exhibit C - AUL Narrative
4 September 2019
RTN 3-33113
Page 7

MAINTENANCE OF PROTECTIVE COVERS AND BARRIERS

Protective covers and barriers must be maintained in order to maintain a Condition of No Significant Risk at the Portion of Property. Alternate replacement protective cover/barrier materials may be proposed if implemented and overseen by a Licensed Site Professional. Any changes to the protective covers/barriers and their location must be recorded as an Amended AUL.

AREA B LIVING SHORELINE MONITORING

Access to the Area B Living Shoreline will be restricted by signage and fencing along the public harbor walk until such time that marshland plants can be established and confirmatory sampling of the surficial sediment can be conducted. It is planned to conduct the sampling program in the year prior to allowing unrestricted access to the Living Shoreline; the timing of which will depend on the growth of the marshland plants. Sampling program timing is also dependent on sediment deposition on the Living Shoreline being present in adequate amounts and areal coverage to collect the samples.

The post-closure Living Shoreline sampling event will consist of collection of up to five area-wide representative samples of sediment deposited on the Living Shoreline and one sample of "slime-layer/sediment" from one of the sills for analysis of EPH, SVOCs, PCBs, RCRA 8 metals, asbestos, and fecal coliform bacteria. Additionally, one surface water sample will be collected and analyzed for fecal coliform, e. coli, and enterococcus bacteria. This program was discussed with MassDEP (Steven Lipman) in July and November 2018. The purpose of the confirmatory sampling is to show that a condition of No Significant Risk continues to exist after establishment of the wetland area plantings. Results of the program will be provided to MassDEP in a data report, which will include photo-documentation and weather conditions for the sampling day and at least 2 days prior.

If the post-closure Living Shoreline sampling event indicates a condition of No Significant Risk still exists at the Living Shoreline, no changes will be made to the AUL. If sampling indicates that a condition of No Significant Risk is not maintained, then public access to the Living Shoreline will continue to be restricted, and the AUL will be amended to prohibit access.

DESCRIPTION AND MAINTENANCE OF THE AREA C BARRIER

A fence or similarly restrictive barrier exists as a barrier to potentially accessible portions of Area C, the restricted construction zone for Building 4, at the approximate location shown on Exhibit B to restrict unauthorized access to areas of this area of the Disposal Site where final protective covers have not yet been placed. The fence/barrier must remain and be maintained until final clean covers and protective barriers have been placed. Temporary protective covers consisting of geotextile marker barrier and crushed stone are present throughout Area C.

AUL OPERATION, MAINTENANCE, AND MONITORING PLAN

An Operation, Maintenance, and Monitoring (OMM) Plan has been prepared for the Site to establish procedures to assist the Site owner and operator in maintaining compliance with the AUL. The OMM Plan includes:

Exhibit C - AUL Narrative
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- Generic Soil Management Plan (SMP) for subsurface activities disturbing less than 20 cubic yards of contaminated soil or sediment below the protective covers and marker barrier, protective barriers, or clean utility zones discussed herein.
- Generic Health and Safety Plan (HASP) for subsurface activities that may disturb contaminated soil or sediment below protective covers and marker barrier, protective barriers, or clean utility zones discussed herein.
- Wetland Maintenance Plan for establishment and monitoring of the Living Shoreline.

These documents should be reviewed by all parties involved with conducting intrusive work at the Site and updated as needed prior to any subsurface activity at the Site.

DESCRIPTION OF CONTAMINATED MEDIA AND EXTENT OF RELEASE SUBJECT TO THE AUL

Compounds included as contaminants of Concern in soil and sediment include metals (lead and arsenic), PAHs, TPH, polychlorinated biphenyls (PCBs) and asbestos. Impacts to soil at the Site are attributed to historic site usage, demolition of previously existing buildings and filling of former slips.

The horizontal limits of the Disposal Site that pertain to this AUL are the limits of the property above MLW (Areas A, B, and C). The area subject to this AUL is the entire limits of the Disposal Site. The vertical limits of the Site are defined by the depth of material at the Site where impacts were identified, including historic fill soils, which are approximately 5 to 35 feet thick.

Attachments:

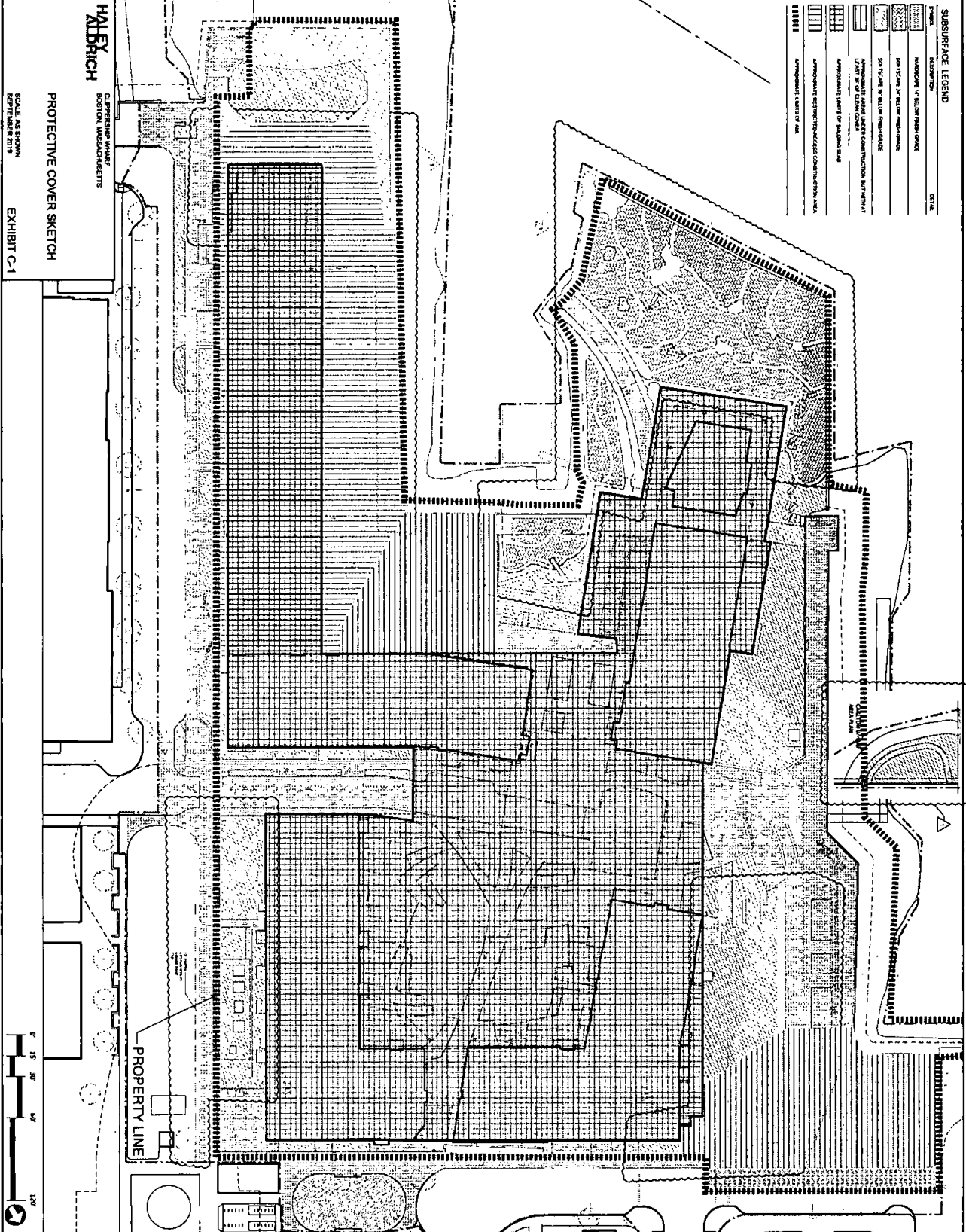
- Exhibit C-1: Protective Cover Sketch
- Exhibit C-2: Clean Utility Corridors Sketch

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Thursday, November 10, 2016 11:33:15 AM
McIClipper 2hp10_CAD35neen2.0 Subgrade Plan.rvt

SUBSURFACE LEGEND

SYMBOL	DESCRIPTION	DEPTH
[Symbol]	EXISTING GRADE	
[Symbol]	PROPOSED GRADE	
[Symbol]	PROPOSED GRADE WITH 1% SLOPE	
[Symbol]	PROPOSED GRADE WITH 2% SLOPE	
[Symbol]	PROPOSED GRADE WITH 3% SLOPE	
[Symbol]	PROPOSED GRADE WITH 4% SLOPE	
[Symbol]	PROPOSED GRADE WITH 5% SLOPE	
[Symbol]	PROPOSED GRADE WITH 6% SLOPE	
[Symbol]	PROPOSED GRADE WITH 7% SLOPE	
[Symbol]	PROPOSED GRADE WITH 8% SLOPE	
[Symbol]	PROPOSED GRADE WITH 9% SLOPE	
[Symbol]	PROPOSED GRADE WITH 10% SLOPE	



HALEY ALDRICH
CLIPPERSHIP WHARF
BOSTON, MASSACHUSETTS

PROTECTIVE COVER SKETCH

SCALE AS SHOWN
SEPTEMBER 2016

EXHIBIT C-1

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Project Name:
CLIPPERSHIP WHARF

Site Name:
EAST BOSTON, MA

Sheet Name:
SOIL SUBGRADE PLAN

Project Number:
13166

Issue Date:
April 13, 2016

Sheet Number:
L2.0

Drawn: SRL

Checked: RLM

Scale: AS NOTED

Rev: Rev 0

Author: RLM

Project: CLIPPERSHIP WHARF

Client: HALVORSON DESIGN

Contract: HALVORSON DESIGN

Phase: ARCHITECTURAL

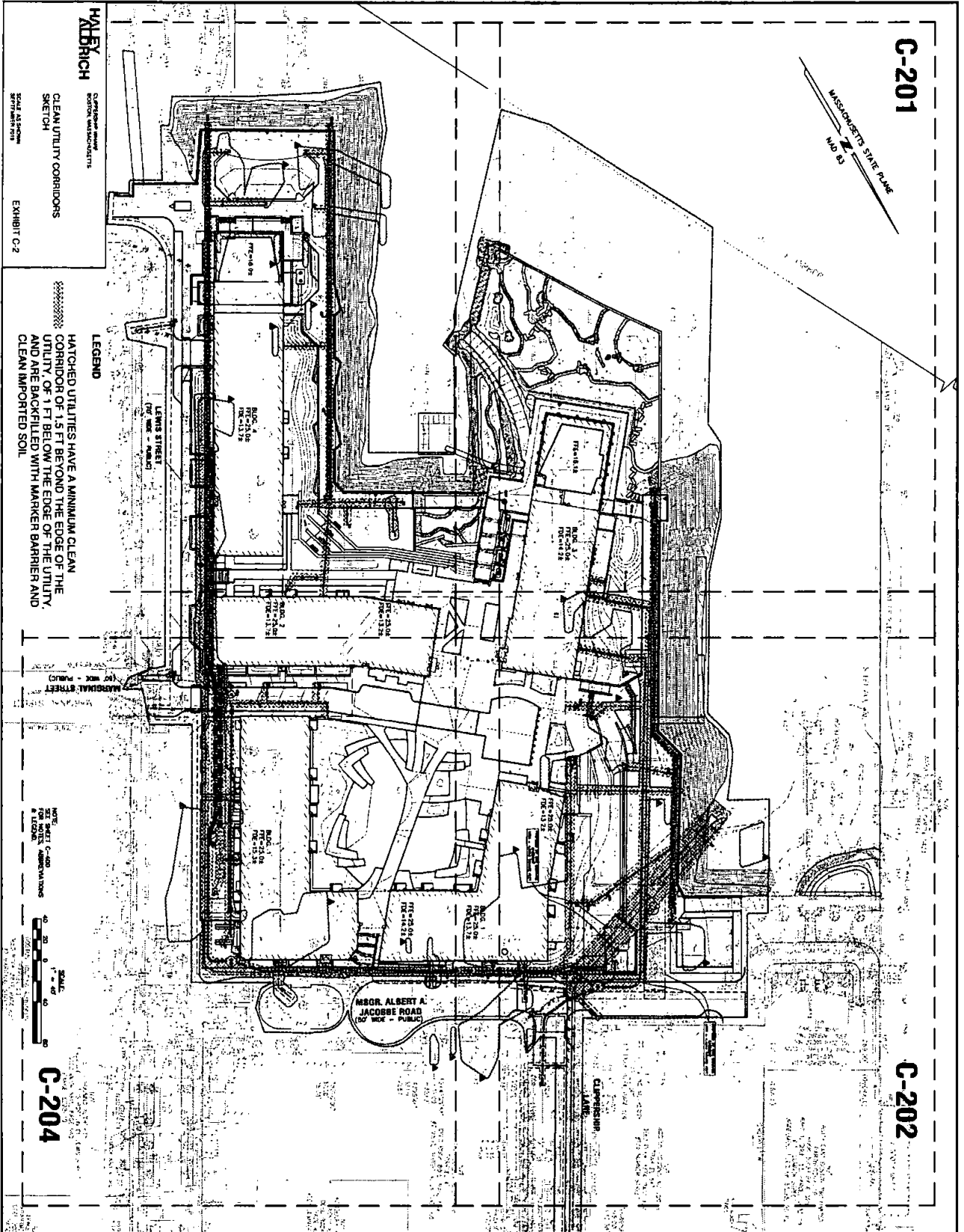
Discipline: ARCHITECTURE

Project Number: 13166

Issue Date: 11/10/2016

Sheet Number: L2.0

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HAYBRICH
 Corporation
 3077 MARKET ST
 BOSTON, MA 02118

CLEAN UTILITY CORRIDORS
 SKETCH

EXHIBIT C-2

LEGEND

HATCHED UTILITIES HAVE A MINIMUM CLEAN CORRIDOR OF 1.5 FT BEYOND THE EDGE OF THE UTILITY, OR 1 FT BELOW THE EDGE OF THE UTILITY, AND ARE BACKFILLED WITH MARKER BARRIER AND CLEAN IMPORTED SOIL.

SCALE
 1" = 4'-0"

NOTE: SEE SHEET C-200 FOR UTILITY ADJUSTMENTS & LEGEND

C-204

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Revision: 12/01/15
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 APPROVED BY 10/27/16
 Approved by Microsoft

Drawn: RMD
 Checked: JMS
 Scale: 1" = 4'-0"
 Key Plan

Project Name:
 EAST BOSTON, MA

Overall Site
 UTILITY PLAN

Project Number:
 13166

Issue Date:
 OCTOBER 28, 2016

Sheet Number:
C-200

BVSC FILE NO. 1532Z
 Project Name:
CLIPPERSHIP WHARF

ATTACHMENT B

Generic Soil Management Plan

GENERIC SOIL MANAGEMENT PLAN
SLIP 65 AND CLIPPERSHIP APARTMENTS ON THE WHARF
25 AND 65 LEWIS STREET
EAST BOSTON, MASSACHUSETTS
RTN 3-33113

by
Haley & Aldrich, Inc.
Boston, Massachusetts

for
Lendlease Clippership Wharf LLC
Boston, Massachusetts

File No. 05903-355
September 2019



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Figure 1 – Limits of AUL

1. Introduction

1.1 APPLICABILITY

This generic Soil Management Plan (SMP) specifically applies to activities that result in the excavation and handling of contaminated soils (soils below the marker barrier) within an area subject to an Activity and Use Limitation (AUL); **this document should be reviewed and adopted as necessary prior to any intrusive activity.**

This SMP has been prepared as an Attachment to the AUL Operations, Monitoring and Maintenance (OMM) Plan to accommodate intrusive activities that may be necessary for routine small scale, non-emergency upgrades or maintenance at the property involving less than 20 cubic yards of contaminated soil disturbance (soil below the protective covers). This SMP is applicable for management of contaminated soil documented under the Massachusetts Contingency Plan (MCP) for Release Tracking Number (RTN) 3-33113 for the property and residential development located at 25 and 65 Lewis Street in East Boston, currently known as Slip 65 and Clippership Apartments on the Wharf. This SMP may not be applicable to soil impacted by other releases of oil or hazardous materials that may occur at the property over time.

Documents regarding this Disposal Site are available for viewing and download through the MassDEP online document viewer:

<https://eeaonline.eea.state.ma.us/EEA/fileviewer/Rtn.aspx?rtn=3-0033113>

Management of more than 20 cubic yards of contaminated soil must be conducted in accordance with a Release Abatement Measure (RAM) Plan that has been prepared by a Licensed Site Professional (LSP) in accordance with based on the provisions of the Massachusetts Contingency Plan (MCP), 310 CMR 40.0444 for the specific planned intrusive activities.

1.2 PURPOSE

This generic SMP outlines the requirements and procedures to be undertaken by the Property Owner, Property Manager, or any other person conducting intrusive activities at the property on behalf of the Owner or Operator subcontractors for work below the marker barrier within the limits of the AUL. The limits of the AUL are shown on Figure 1.

The scope and duration of each planned activity will need to be reviewed by a LSP to assess the applicability of this plan. This plan should be provided to any contractor or utility provider who is conducting intrusive work, including work within the protective barriers prior to the planned work.

The requirements for short-term emergency repairs are also included herein. Short term emergency repairs do not require LSP review before initiating the work. The LSP should be notified as soon as practically possible following initiation of the short-term emergency repairs.

1.3 LIMITATIONS

This SMP is a generic template for management of contaminated soils based on site conditions at the time this document was prepared. Specific work activities and site conditions need to be evaluated prior to starting intrusive work, and this SMP should be updated as necessary for each intrusive activity.

2. Summary of Existing Environmental Conditions

Soil beneath the protective covers has been impacted by metals (lead and arsenic), polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), and polychlorinated biphenyls (PCBs) in the fill. Additionally, soil sampling indicated the presence of asbestos within the soil matrix throughout the site. The presence of these site contaminants has been attributed to the historic site filling, usage, and historic demolition of previous structures.

2.1 REQUIREMENTS OF THE ACTIVITY AND USE LIMITATION

The primary purpose of the AUL is to prevent direct exposure to soil at the Site and sediment within the tidal zone on Site by maintaining existing protective covers and barriers for the current and foreseeable use as multi-family residential and public access. The AUL requires that protective covers and barriers be maintained to ensure that contaminated soil and sediment remains inaccessible.

2.2 DESCRIPTION OF PROTECTIVE COVERS AND BARRIERS

A description of the protective covers, including those in clean utility corridors, the tidal zone, and upland areas, and protective barriers, including rip-rap slopes, granite block seawalls, and building slabs, is included in the AUL Operations, Monitoring, and Maintenance (OMM) Plan to which this SMP is attached.

3. Monitoring and Work Plan Requirements

3.1 GENERAL INFORMATION

This SMP applies to excavations below the marker barrier that generate less than 20 cubic yards of soil. Work conducted should utilize the generic Health & Safety (H&S) Plan appended to the OMM Plan. For excavations below the marker barrier that disturb more than 20 cubic yards, the work must be conducted under a RAM Plan prepared by an LSP.

All intrusive activities in contaminated soil below the protective covers must also be conducted in accordance with the requirements of a Non-Traditional Asbestos Work Plan (NTAWP).

Prior to the start of non-emergency work, notify the LSP; contact information is provided below. The LSP will need to review the proposed activity and scope of work, monitor the work, perform sampling and testing (if necessary), and prepare documentation necessary for management of the contaminated material.

Licensed Site Professional:

Keith E. Johnson
 Haley & Aldrich, Inc.
 465 Medford Street, Suite 2200
 Boston, MA 02129
 Phone: 617-886-7400
 Email: kjohnson@haleyaldrich.com

Or other qualified LSP

3.2 APPLICABLE REGULATIONS

Excavated soil or sediment generated by intrusive activities below the protective covers must be managed in accordance with the Remediation Waste Management provisions of the Massachusetts Contingency Plan (MCP) at 310 CMR 40.0030, 310 CMR 7.00, 7.09 and 7.15 (Asbestos Regulations) and applicable Federal Regulations pertaining to shipment of asbestos containing materials (ACM).

The RAM Plan and NTAWP must include a description of the excavation, handling, storage, on-site reuse, transport and disposal procedures. The RAM Plan and NTAWP must also include a description of air monitoring, dust control and other engineering controls to preclude exposure to asbestos fibers and limit exposure to contaminated soil via inhalation of dust, dermal contact, and/or ingestion. Workers who may come in contact with the contaminated soil must be adequately OSHA trained and informed of the requirements of the NTAWP and the RAM Plan.

3.3 HEALTH & SAFETY PLAN

A generic H&S Plan is included as an appendix to the OMM Plan provides an overview of the standard health and safety guidelines to follow when conducting soil disturbing work. The H&S Plan should be reviewed and adopted as necessary prior to initiating any soil disturbing work.

3.4 WORKER TRAINING REQUIREMENTS

Any workers conducting intrusive work in contaminated soil below the protective covers under this SMP must have a minimum of 40-hour OSHA construction worker training and a minimum of two-hour asbestos awareness training.

Worker training requirements are waived for work conducted exclusively above the marker barrier and within the protective covers.

3.5 NON-TRADITIONAL ASBESTOS WORK PLAN (NTAWP)

All work below the protective covers needs to be performed in accordance with a NTAWP prepared by a Massachusetts Licensed Asbestos Abatement Designer prior to the intrusive activity. Work under the NTAWP will require written approval by MassDEP Bureau of Waste and Air (BAW). The NTAWP describes proper decontamination procedures, air monitoring, and management practices for asbestos-impacted soil and debris.

3.6 ENGINEERING CONTROLS

During intrusive work, emissions of fugitive dust shall be prevented by wetting soils or applying other engineering controls as necessary. For work performed below the protective covers, engineering controls shall be implemented in accordance with the NTAWP.

3.7 AIR MONITORING

For work performed in the protective cover (above the marker barrier), qualitative dust monitoring can be implemented (i.e., no visible dust). For work performed below the marker barrier in contaminated soils, quantitative dust monitoring and asbestos fiber monitoring must be performed at the perimeter of the work zone. Additional personal air monitoring shall be performed in accordance with the NTAWP.

3.8 REPORTING

Following completion of any intrusive work, the Property Manager must conduct an inspection of the area following repair/restoration and document the status on the inspection log. The record shall be transmitted to the Owner, and a copy included in the reports maintained at the property by the Property Manager.

4. On-Site Contaminated Materials Management

4.1 GENERAL REQUIREMENTS

Intrusive work below the protective covers has the potential to release asbestos fibers and other dust particulates into the air resulting from disturbance or exposure of contaminated soil. The following procedures are necessary to ensure that workers or the public are not exposed to oil or hazardous material.

- Contaminated soil beneath the marker barrier will require management under the MCP 310 CMR 40.0030 Management Procedures for Remediation Waste and a NTAWP.
- Soils must be analyzed in-situ or following excavation for the presence of asbestos to determine if the material is suitable for on-site reuse (i.e. only soil with non-detect or less than 1% levels of asbestos is suitable for on-site reuse below the protective covers and marker barrier).
- Excavations should be promptly backfilled or temporarily plated and marked.
- Suspend work in the area and notify the Property Manager if the presence of potentially hazardous conditions is evident. These conditions include, but are not limited to, buried containers, drums or tanks, or explosive conditions due to contaminated vapors. Secure the area to protect against worker or public health risk or release into the environment. Notify, as necessary, the Massachusetts Department of Environmental Protection, the United States Environmental Protection Agency, the City of Boston Fire Department and the Owner and Property Manager, as appropriate.

4.2 SEGREGATION OF MATERIAL

- For excavations below the protective covers, the clean imported soil on top of the marker barrier should be segregated from the contaminated soil below the marker barrier.
- Clean cover soils may be temporarily stockpiled on and covered with 20 mil polyethylene sheeting for on-site reuse following work completion.

4.3 TEMPORARY STORAGE OF EXCAVATED SOIL MATERIAL

- Contaminated soil shall be placed in a lined roll-off container at the subject property prior to off-site removal for reuse, disposal, or treatment. Roll-off or other soil storage containers shall be covered to shed precipitation and prevent fugitive air emissions and nuisance odors.
- Roll-off containers shall be covered.
- Stockpiling of contaminated soil is not permitted at the property.
- Maintain project documentation with accurate records of environmental testing, material tracking and disposal transportation manifests, and disposal certification.

- Label roll-offs (contaminated soil below the protective covers) and soil stockpiles (clean cover materials only) as to the group classification and source identification. Place warning signs in the areas in accordance with general practices and regulations.
- Store material classified as hazardous waste material in accordance with MassDEP, RCRA and DOT provisions for the less-than-90-day storage permit exemption (40 CFR 262.34).

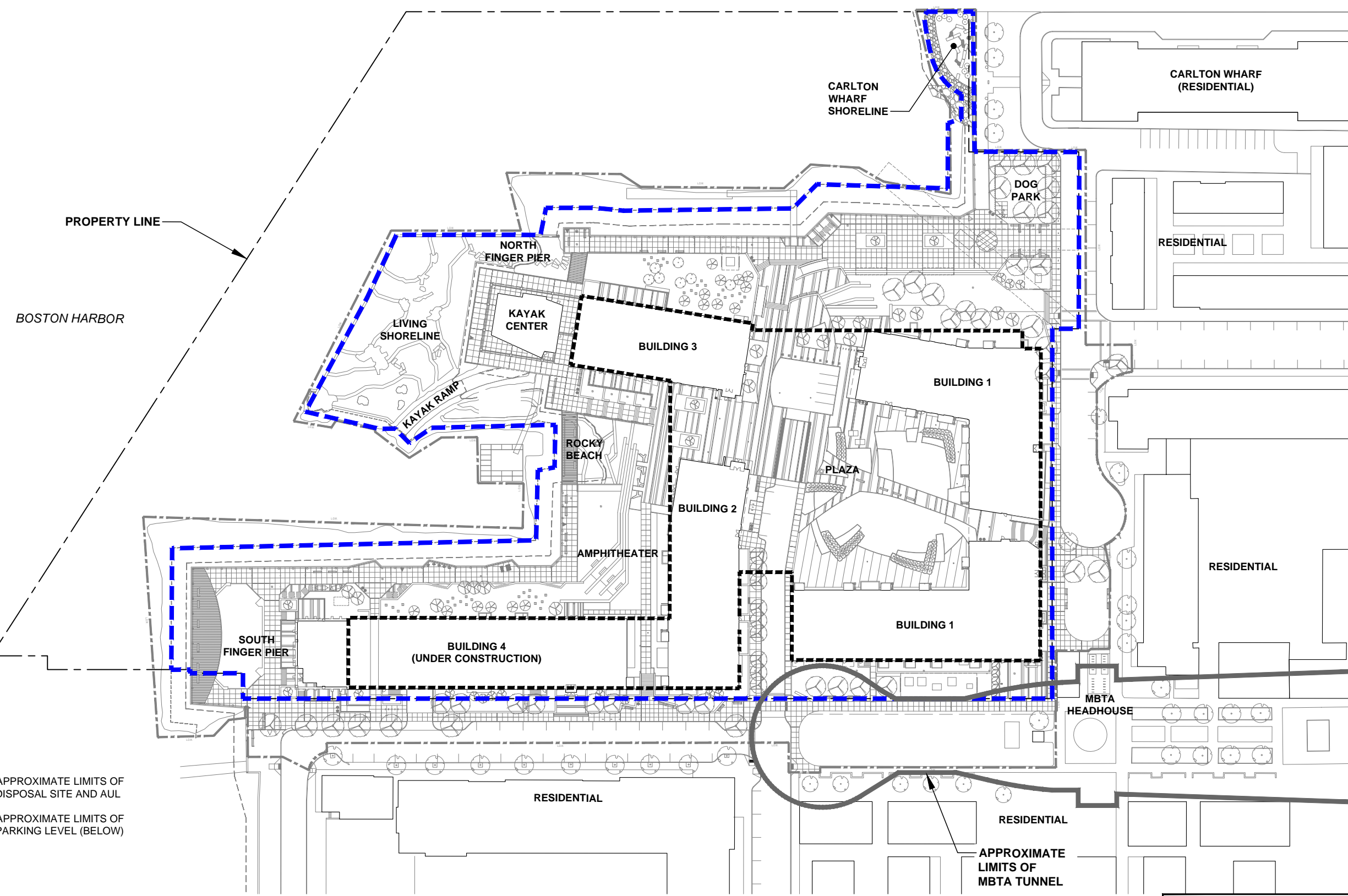
4.4 REUSE OF ON-SITE MATERIAL

- Soil excavated for repair of existing utilities within clean corridors may be reused on-site at the point of origin (both with depth and plan location).
- Excavated contaminated soils with non-detect to trace (<1%) levels of asbestos can be reused below the protective covers under a RAM Plan and NTAWP.
- Soil with greater than 1% asbestos must be transported off-site and cannot be reused on-site.


4.5 TRANSPORT OF MATERIAL


- Submit a list of facilities proposed for acceptance of the material to Owner and Owner's LSP for review and approval. No material shall leave the property without acceptance of the designated facility by the Owner.
- The Owner's LSP will prepare documentation required for facility and Owner acceptance, including shipping documents, facility specific profiles, acceptance letters, summary tables of data, and all other documents required for facility acceptance and transport. The person conducting the work should allow a minimum of four weeks for facility acceptance.
- Load material within the site limits or designated work areas. Sweep paved areas in the vicinity of the site daily during off-site transportation of material.
- Cover all trucks leaving the site and prevent debris from spilling from trucks or being tracked off-site. Covers shall be full width and length, and completely cover all portions of the load.
- Transport contaminated material in accordance with requirements for Remediation Waste or State Solid Waste, State and Federal Hazardous Waste Regulations and all applicable State and US Department of Transportation (DOT) requirements.
- The miscellaneous uncontaminated solid waste debris may be shipped to appropriate facilities without tracking documentation provided it does not require management under Bills-of-Lading, per MCP sections 310 CMR 40.0034 and 40.0035.

G:\05903\342 - MCP\MCP RTN 3-33113\Post-Closure Maintenance Documents\Soil Management Plan\2019-0906-HAI-Clippership Wharf-SMP.docx



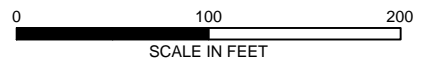
LEGEND

 APPROXIMATE LIMITS OF DISPOSAL SITE AND AUL

 APPROXIMATE LIMITS OF PARKING LEVEL (BELOW)

NOTE

1. BASE PLAN TAKEN FROM AN ELECTRONIC PLAN TITLED "L2.0 Subgrade Plan.dwg", PROVIDED BY HALVORSON DESIGN PARTNERSHIP, INC. ON 11 OCTOBER 2018.



HALEY ALDRICH CLIPPERSHIP WHARF
EAST BOSTON, MASSACHUSETTS

LIMITS OF AUL

SCALE: AS SHOWN
SEPTEMBER 2019

FIGURE 1

ERVIN, DAYNA
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ATTACHMENT C

Generic Health & Safety Plan

SITE HEALTH AND SAFETY PLAN

**EXCAVATION IN CONTAMINATED SOIL LOCATED
BELOW THE MARKER BARRIER**

**CLIPPERSHIP WHARF
25 AND 65 LEWIS STREET
EAST BOSTON, MA**

Prepared for

Lendlease Clippership, LLC
20 City Square, Second Floor
Boston, MA

Prepared by

Cathy Coe and Philip G. Terrell, CIH
Environmental Health, Inc.
Dover, MA 02030

March 11, 2019

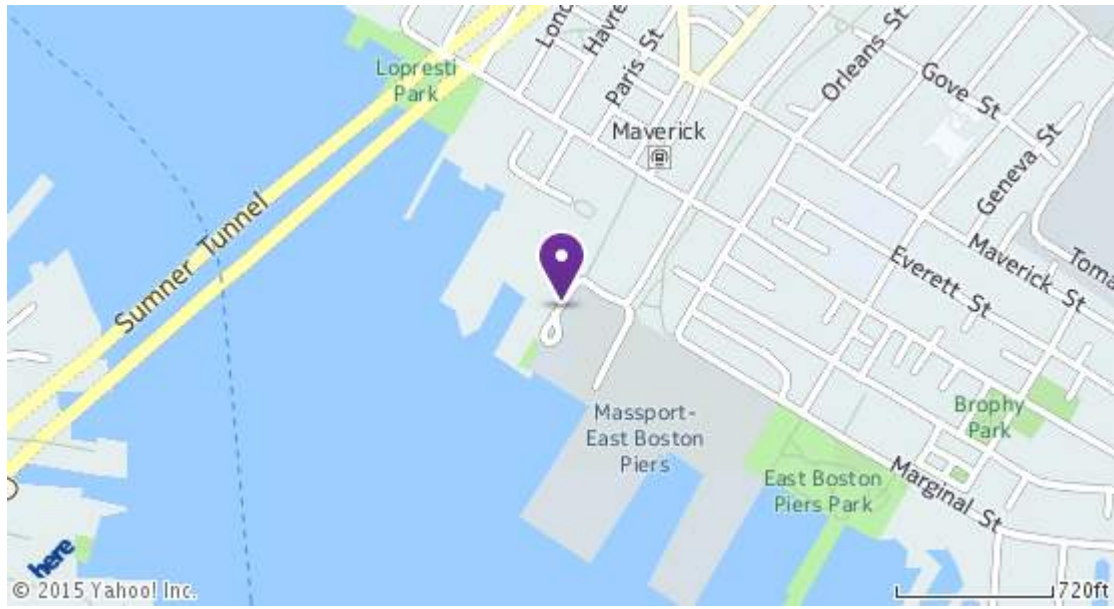
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APPENDIX D	MEDICAL CERTIFICATES
APPENDIX E	SITE SAFETY SIGNATURE SHEET

FIGURE 1. SITE LOCATION



1.0 INTRODUCTION

This site-specific Health and Safety Plan will be operational when future excavation or other construction or O&M activities impact contaminated soil as identified in *Activity and Use Limitation (AUL) Operation, Monitoring and Maintenance Plan* and *Soil Management Plan*, both dated December 2018, prepared by Haley and Aldrich. This Plan is applicable only for small excavations, less than 20 CY of contaminated soil conducted as soil management activities. **Any** excavation below the marker barrier will trigger the need for a Non-traditional Asbestos Work Plan (NTAWP) to address the potential exposure to asbestos.

This Safety and Health Plan applies to the Owner and Operator of the buildings and land at 25 and 65 Lewis Street, Slip 65 and Clippership Apartments on the Wharf and can be used as guidance for contractors, who will be working in contaminated soil on the site. Each contractor should review this site Health and Safety Plan and prepare their own work plan which should outline how they anticipate to do the work contracted and expect to protect their workers and the public during the project. This plan acknowledges the Lendlease commitment to the 2015 Global Minimum Requirements (GMRs) as shown in the appendix.

1.1 Scope and Applicability of the Site Safety and Health Plan

The purpose of this Health and Safety Plan (HASP) is to define the requirements and designate protocols to be followed during potential future excavation activities on the site. The site was developed as early as the mid-1800s, used in maritime support with warehouses, sheds and docks. The remaining buildings were demolished sometime in the 1960s and 1970s, leaving slabs and some fill materials. Primary contaminants found in site soil are urban fill, asbestos, PCBs, PAHs and lead.

During construction, contaminated soil on the site was partially removed to allow for building foundations. Contamination in discrete areas was also removed (lead, asbestos, PCBs and PAH). All utilities (water, sewer and electric) were located in clean soil corridors. Contaminated soil is isolated below “protective covers” placed above a marker barrier consisting of an orange filter fabric marked with caution labels. Information on contamination prepared by Haley and Aldrich for the Soil Management Plan and the AUL, reports soil contains measurable quantities of asbestos and other containments typical of urban fill.

Since the utilities are located in the clean layer of soil, it is not likely that workers repairing lines located above the contaminated soil would in contact with the lower contaminated layer. However, the workers need to be aware that the contaminated soil is present under the protective cover and filter fabric marker layer and ensure any of their activities do not pierce the marker layer.

Anyone who will be entering a contaminated work area, must be informed of the site emergency response procedures and potential health and safety hazards inherent to the project. This HASP summarizes those hazards and defines controls planned for the project. A copy of the HASP will be kept on-site for reference. This plan must be reviewed and an agreement to comply with the requirements must be signed by all individuals prior to entering the contaminated work area. During development of this plan, consideration was given to current safety standards as defined

by EPA, OSHA, MSEPA and NIOSH, health effects and standards for known contaminants. Specifically, the following reference sources have been consulted:

- OSHA 29 CFR 1910/1926
- USEPA, OERR ERT "Standard Operating Safety Guides"
- ACGIH Threshold Limit Values, 2018 edition
- ACoE "Safety and Health Requirements Manual EM385-1-1"
- MA Contingency Plan 310 EMR 40.0018

This site Health and Safety Plan is appropriate only for intrusive activities in the protective covers and for disturbance of soil below the marker barrier involving less than 20 cubic yards of soil. A task-specific HASP should be prepared for excavations involving more than 20 cubic yards of contaminated soil.

1.2 Historical Overview of Site

According to the RAM Plan and the Non-traditional Asbestos Work Plan, the site was cleared in the 1960s to 1970s, leaving behind slabs and buried fill. It is bordered by Jacobee Street on the north, Lewis Street on the east and Boston Harbor on the south and west.

In the mid-1800s, the site was developed to support the maritime industry. At varying times, fill materials were used on the site. Buildings were demolished or suffered fires and this has contributed to the soil contamination. This "urban fill," along with demolition debris, including old building components, granite blocks, timbers, rubble, coal and ash were buried on the site. Metals including lead and arsenic, PAHs, TPHs and PCBs were detected in site soil. Asbestos from old building materials were also detected in soil.

Contaminated soil under the buildings was over-excavated to allow a clean layer of fill material under the building slabs. This was expected to accommodate utilities, such as plumbing and electrical service, to be placed in the clean material. On the rest of the site, clean cover between 14 inches (under hardscape such as brick or stone) to 24-36 inches (under grass, shrubs and salt marsh) of clean soil and dense-grade material is over the orange or black marker barrier layer that isolates the contaminated soil.

1.3 Description of Site Activities

Construction activities are completed. Therefore, future operations and maintenance activities are at the emphasis of this plan. Excavation depths to repair utilities should range from 1 to 3 feet depending to the depth of clean soil. Since the existing utilities on the site are in clean material, there should be no extra control or PPE other that which might be required during normal, routine operations (Please refer to Exhibit C-2 of the AUL). If the project requires workers to disturb soil below the orange marker barrier (filter fabric), the worker protection would be required.

Worker protection from contaminated soil and groundwater will be directed to preventing skin contact with soil and groundwater and minimizing dust generation during soil handling.

If future construction plans or maintenance operations require deep excavation, asbestos disturbance is possible. In that event, a new task-specific asbestos Non-Traditional work plan will be submitted to the DEP and this plan will govern controls and work practices for asbestos.

2.0 KEY PERSONNEL AND RESPONSIBILITIES

Key personnel, addresses, telephone numbers and chain-of-command are listed in Table 1.

2.1 Building Owner—Lendlease Clippership Wharf LLC (LLCW): The Owner (LLCW or any subsequent property owner) will be responsible for the implementation of the HASP when maintenance or an emergency exposes the contaminated soil. The Owner responsibilities include the following:

- Ensure that all contractors conform to the HASP.
- Should conditions on the site change, the Owner will consult with the Certified Industrial Hygienist (CIH) prior to making any amendments to the HASP.

2.2 Property Manager: The Property Manager, Winn Residential will be responsible for implementing the requirements of the HASP. The Property Manager's duties are:

- Periodic inspections of the site to assess
 - the condition of the seawalls, slopes and retaining walls;
 - the condition of the pavement and pavers;
 - the condition of the landscaped areas, in particular for signs of deterioration of the protective cover due to weather or human or animal activities;
 - inspect for unauthorized gardening activities or any visible signs of the marker barrier.
- Notify the LSP and the Owner if there is a breach in the protective cover or if damage was found during the weekly inspection.
- Oversee contractors who are working on the site to make sure that they are following the requirements of the HASP, the AUL, the Operations, Monitoring and Maintenance Plan and the Soil Management Plan.
- Maintain a log for all maintenance on the site (Haley and Aldrich Operations and Maintenance Plan, Appendix E)

2.3 Licensed Site Professional (LSP): The Licensed Site Professional is responsible for the following:

- Annual inspection of the protective covers to assure that the conditions at the site conform with the AUL.
- Additional inspections will be done if there is an emergency breach in the cover or barriers by weather, human or animal activities.

2.4 Certified Industrial Hygienist (CIH):

The Certified Industrial Hygienist (CIH) is responsible for developing the HASP and providing support to the Owner and Property Manager. These duties include the following:

- Develop and review the contents of this HASP and any amendments made to this HASP. The CIH will coordinate the upgrade or downgrade of PPE, medical surveillance or air monitoring in the context of current site exposures with the Project Superintendent as necessary.
- Be readily available for consultation regarding site operations.

FIGURE 2. SITE AND SUBSURFACE EXPLORATION LOCATION PLAN

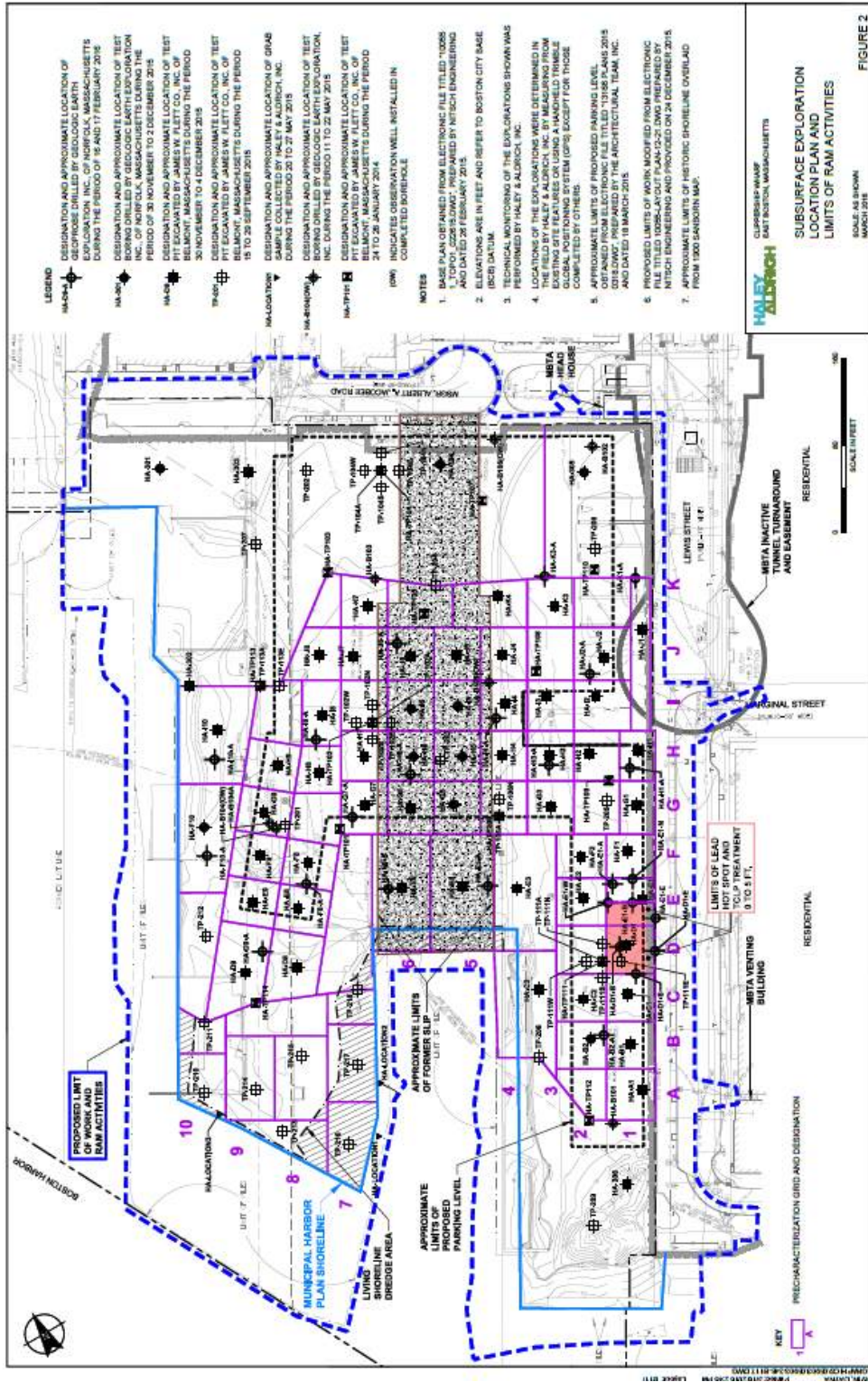


FIGURE 3. ASBESTOS IN SOIL – PART A

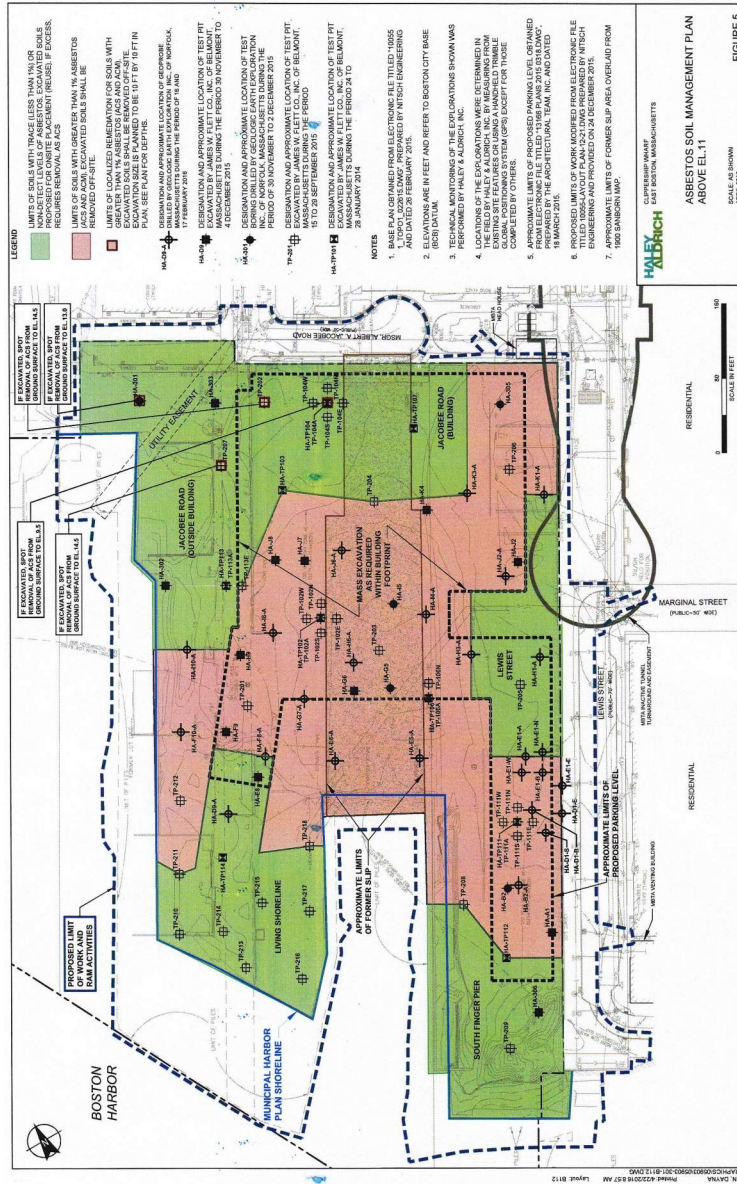


FIGURE 4. ASBESTOS IN SOIL-PART B

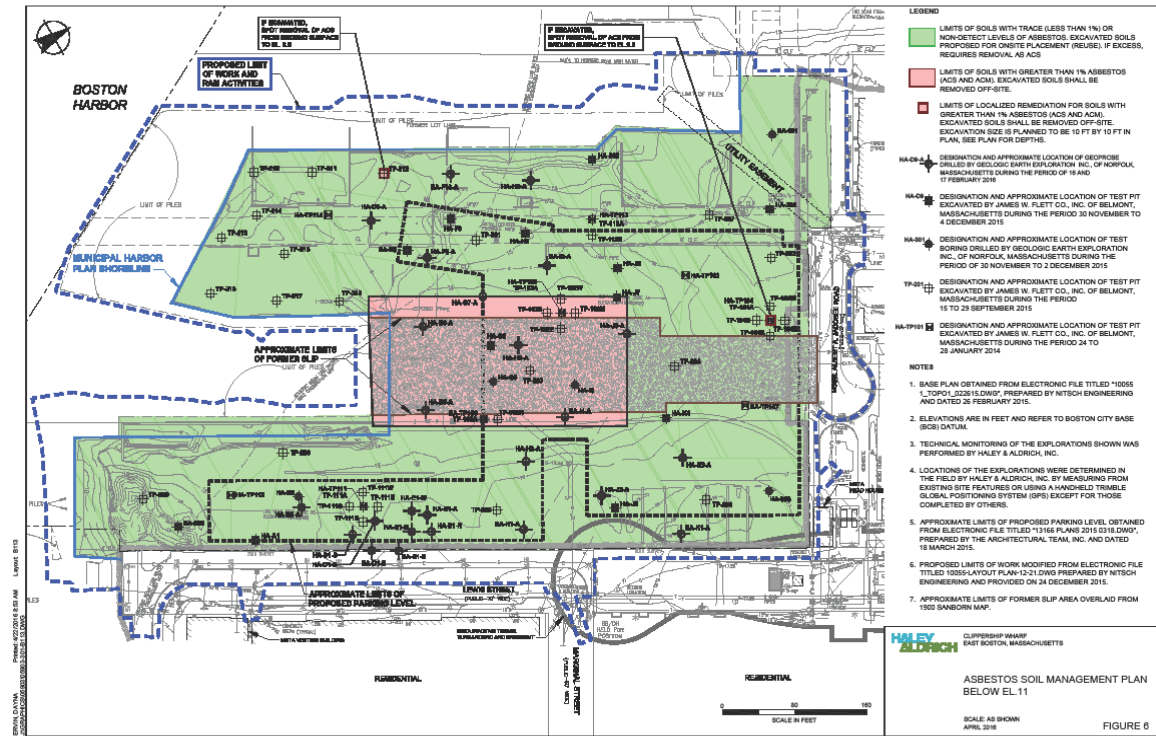


TABLE 1. KEY PERSONNEL

Telephone Numbers	
Lendlease Clippership 20 City Square, Second Floor Boston, MA	(617) 557-6413
Erik Tinkhauser, Sr. Development Manager	Cell: (646) 532-9619
Vitalia Shklovsky, Associate Development Mgr.	Cell: (508) 308-5097
Environmental Health Inc. P.O. Box 186 Dover, MA 02030	(508) 785-2258
Phil Terrell, CIH	Cell: (617) 201-7730
	Office: (508) 785-2258
C. R. Coe, CIH	Cell: (603) 494-0852
	Office: (603) 465-7284
Owner's Geotechnical Representative Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Boston, MA 02129	(617) 886-7400
Keith Johnson, LSP	Office: (617) 886-7318
	Cell: (857) 498-1230 Lee Penwell
	Office: (617) 886-7359
	Cell: (617) 686-6641
Winn Residential - Management Company Tim Burgess Chuck Patch	978-884-9260; tburgess@winnco.com 774-217-0300; cpatch@winnco.com

3.0 HAZARD EVALUATION

This section outlines the hazards which may be present during excavation activities on the site. Procedures to monitor or control these hazards are described in Section 5.0 MEDICAL SURVEILLANCE and Section 8.0 STANDARD OPERATING PROCEDURES.

3.1 Task-by-Task Risk Analysis

The evaluation of expected hazards is based upon a review of the According to the RAM Plan, the Non-traditional Asbestos Work Plan, soils analyses and the anticipated risks posed by expected tasks at the site.

3.2 Excavation in Protective Covers

Hazards that may be encountered while excavating within the protective cover above the marker barrier, include but are not limited to the following:

- Potential contact with contaminated soil should the marker barrier be breached.
- Inhalation of dust following the potential breach of the marker barrier.
- Worker contact with equipment and hand-tools; trips and falls in uneven terrain.

3.2.1 Controls

As a minimum:

- Isolate the proposed work area (exclusion zone) to limit worker and occupant access to only those actively involved in project. Use barricades and appropriate signage to prevent unauthorized access to these work areas.
- Stress the need for workers to prevent damaging the marker barrier.
- Stress the need for the workers to wear proper PPE to prevent skin contact with potentially contaminated soil or groundwater.

3.3 Excavation in Contaminated Soil Below Protective Covers

Should the need arise to conduct intrusive activities below the marker barrier, the workers, staff or residents could potentially encounter contaminated soil. PAH, EPH/TPH, asbestos and metals (lead, arsenic) were found in varying concentrations, many at reportable quantities. Inhalation of PAHs or ingestion of airborne dust with contaminants at concentrations below reportable levels (soil not requiring special disposal), can still present a hazard to workers.

Management of excavated soil will need to be conducted by a Massachusetts-licensed Site Professional (LSP) and a Massachusetts-licensed Asbestos Inspector (MA-AI) to confirm the appropriate disposal site (asphalt batch plant, landfill) based on the soils data provided in the site Soil Management Plan.

Hazards that may be encountered during excavation and transfer of contaminated soil include but are not limited to the following:

- Contact with contaminated soil or groundwater

- Inhalation dust from contaminated soil
- Worker contact with equipment and hand-tools; trips and falls in uneven terrain

	Contaminants Found
Soil onsite below barrier (filter fabric) layer	Asbestos, EPH, PCB's

The listed contaminants are those exceeding RCS-1 (reportable quantities) concentration. Other contaminants at concentrations less than reportable are expected to be present. It is expected that the soil may have other contaminants but at lower concentrations. Even though, at these levels, they may not require special handling for disposal, they may still pose a hazard to workers coming into contact with them.

TABLE 2. CHEMICAL HAZARDS OF CONCERN

Contaminant	ACGIH ^a TLV	OSHA ^b TWA-PEL	IDLH ^c	IP ^d eV	Symptoms of Exposure
CONTAMINATED SOIL					
PAH as Coal Tar	0.2 mg/M ³ e,f	0.2 mg/M ³	80 mg/M ³	--	ENT ^g irritant; carcinogen (lung, kidney, skin)
SVOCs:					
Naphthalene	10 ppm	10 ppm	250 ppm	8.12	ENT irritant, CNS, GI tract, jaundice, renal/kidney shutdown
Metals:					
Lead	0.05 mg/M ³	0.05 mg/M ³	100 mg/M ³	--	ENT irritant, CNS, lassitude, abdominal pain, colic, anemia
Arsenic	0.01 mg/M ³ f	0.01 mg/M ³	5 mg/M ³	--	Carcinogen; liver, kidneys, dermatitis
Asbestos	0.1 f/cc f	0.1 f/cc	NE f	--	Carcinogen; asbestosis, lung cancer, eye irritant
EXCAVATION/ CONSTRUCTION					
Inhalable Dust (nuisance)	10 mg/M ³	15 mg/M ³	NE	--	ENT irritant; respiratory system
Silica, crystalline (respirable)	0.025 mg/M ³	0.05 mg/M ³	50 mg/M ³	--	ENT irritant, pneumoconiosis; respiratory system
Carbon monoxide	25 ppm	50 ppm	1200 ppm	14.01	Headache, nausea, dizziness; CNS, CVS
Carbon dioxide	5000 ppm	5000 ppm	40000 ppm	13.77	Headache, dizziness, restlessness; CNS, CVS
Carbon disulfide	1 ppm	20 ppm	500 ppm	10.08	Dizziness, headache, psychosis; CNS, CVS, kidneys
Hydrogen sulfide	1 ppm/5 ppm Ceiling	20 ppm	100 ppm	10.46	Rotten eggs odor; ENT irritant; CNS, eyes and respiratory system
Nitrogen dioxide	0.2 ppm	5 ppm, Ceiling	20 ppm	9.75	ENT irritant, bronchitis; eyes, CVS, respiratory system
^a	ACGIH, <i>Documentation of the Threshold Limit Values, 2018</i>			^f	Carcinogen
^b	OSHA <i>Annotated Table Z-1, April 4, 2018</i>			^g	Eye, Nose and Throat
^c	Immediately Dangerous to Life and Health			^h	Central Nervous System
^d	Ionization Potential in Electron Volts			ⁱ	Cardiovascular System
^e	Milligrams per cubic meter of air				

4.0 PERSONNEL HEALTH AND SAFETY TRAINING REQUIREMENTS

4.1 General Training Requirements for Staff or Contractor Personnel

Prior to working with contaminated soil or in the clean protective covers, all personnel conducting intrusive work shall attend site-specific training and orientation session which will identify the contaminated soil present at the site. The attendance at this training session will be documented. All elements of the HASP will be discussed with the following objectives in mind:

- To identify actual and potential physical and chemical hazards on the site and to outline required hazard control methods and required equipment
- To recognize and understand the reason for the protective covers
- To identify restricted access areas and the need to minimize disturbance of contaminated materials below the protective covers
- To re-emphasize limitations of PPE and the need for proper decontamination procedures
- To identify emergency egress and response action required of all workers
- Exclusion zone location(s)
- To review procedure for discontinuance of work where necessary to protect public health and safety

4.1.1 Hazard Communication

The Activity and Use Limitation, Operations, Monitoring and Maintenance Plan, the Soil Management Plan and the Health and Safety Plan for this site should be kept on the site and available for reference for as long as the site is in use. These documents outline the contaminants remaining on the site and should be closely examined prior to any excavation.

4.1.2 Contact with Contaminated Soil

All personnel who will have direct contact with contaminated soil must have received training in accordance with OSHA 29 CFR 1926.65(e)(3) (hazardous waste operations) and 29 CFR 1926.1101(k)(9) (asbestos). Tasks that meet this category include but are not limited to: excavation, utilities installation and decontamination.

The hazardous waste standard requires 40 hours of employee training in identification of safety and health hazards which might be present on the site (soil and groundwater contamination), visual and odor indicators of contamination, care and use of any required PPE, emergency recognition and response procedures, areas of restricted access, confined space entry requirements, decontamination procedures, spill prevention and control procedures and general safe work practices.

The Occupational Safety and Health Administration (OSHA) 29 CFR 1926.1101 requires that workers potentially exposed to asbestos be evaluated for exposure (air monitoring) or

assumed to be exposed. A negative exposure assessment (NEA) can be performed to rule out asbestos exposure and the accompanying controls in cases where no exposure can be clearly demonstrated.

Federal OSHA and state regulations require workers who are exposed to asbestos to be trained, licensed and involved in an asbestos control program. In addition, all asbestos abatement workers will carry current MA DOL licenses, worker or supervisor, as appropriate.

Where slight exposure is possible but the intent of the work is not to abate, the asbestos associated worker designation and training course can be used to train and protect employees. This applies to trades where trace exposures are possible during the performance of non-abatement work such as plumbing, electrical or carpentry work in soils with traces of contaminants. It involves a 16-hour training course but no licensing.

Any questions regarding the extent of asbestos contamination on the site will be guided by the following plan and its updates and revisions: *Non-Traditional Asbestos Abatement Work Plan*

4.2 Training and Briefing Topics (Future Contracting, if any)

If contractor(s) are hired in the future conduct intrusive activities involving more than 20 cubic yards, the following training may be needed:

- Any problems encountered in the past day or week
- Identification of all hazards posed by that day's tasks or any unusual site conditions (heavy rain, wind)
- Air sample results and how these may affect operations
- Level of protection required for performance of site tasks
- Review of safe work practices to be followed and any accidents or near misses
- Excavation or trenching hazards and engineering controls
- Communication procedures, i.e., hand signals, etc.
- Re-familiarization with the emergency response plans
- Any changes to the HASP
- Review of HazCom Program, container labeling and storage and use requirements for materials brought on site and location of the MSDS for these materials
- Any concerns of the workers/health and safety problems identified
- Review perimeter air monitoring program protective of onsite residences

5.0 MEDICAL SURVEILLANCE REQUIREMENTS

If O&M activities require soil contact below the marker layer, workers must have appropriate medical monitoring. Medical monitoring programs are designed to track the physical condition of workers and measure pre-employment or baseline conditions prior to potential exposures.

5.1 Direct Contact with Contaminated Soil

If the degree of contamination exceeds the site action levels (Table 3) any workers who are directly involved with contaminated soil will use the recommended PPE and shall participate in a medical surveillance program as required by OSHA 29 CFR 1926.65(f) (hazardous waste operations) and 29 CFR 1101 (m) (asbestos) and be included in their employer's Medical Monitoring Program. If respirators need to be worn (Level C) the workers must be included in their employer's Respiratory Protection Program. As a minimum this medical monitoring shall include:

- Complete medical and occupational histories
- Physical examination
- Pulmonary function tests to assess their ability to wear respiratory protection
- Liver and kidney function battery blood testing
- Eye examination and audiometric testing
- Central Nervous System (CNS) function testing
- Routine urinalysis as well as screening for heavy metals
- Complete blood count (CBC)
- Stress test (as directed by physician)
- Chest x-ray (licensed asbestos abatement workers)

The medical evaluation, performed by a physician Board Certified in Occupational Medicine, shall categorize employees as "fit-for-duty" and able to wear respiratory protection, "not fit" or "fit with exceptions". All medical evaluations must have been done within the past twelve months.

5.2 Additional Medical Monitoring:

In addition, Medical Monitoring shall be provided at the following times:

- When employees have been injured, are in impaired health, develop signs or symptoms which may have resulted from an exposure.
- As soon as possible upon notification by an employee that the employee has developed signs or symptoms indicating possible overexposure to hazardous substances or was exposed above an OSHA PEL.
- As soon as possible following a possible exposure.
- Whenever there is a lost-time injury or illness.

The medical monitoring program will be reviewed against site injuries/illnesses and any air monitoring results to assess the effectiveness of the program. The Supervisor will periodically assess the timeliness of accident or incident investigation and make any changes needed in the HASP as appropriate. The Supervisor working with the CIH and medical personnel will add or delete medical tests as suggested by the existing site conditions.

6.0 PERSONAL PROTECTIVE EQUIPMENT

Selection of PPE for the site is based on the known or expected site contaminants or conditions. The primary method of control is to avoid contact with contaminated soil or groundwater and the inhalation of vapors or dust.

6.1 Personal Protective Equipment/Levels of Protection

This section describes the general requirements of the designated levels of protection (A-D) defined in 29 CFR 1926.65 Appendix B, and the specific levels of protection required for each task at the Site. The specific levels of protection and necessary components for each have been divided into four categories according to the degrees of protection afforded:

- Level A: Should be worn for the highest level of respiratory, skin, and eye protection.
- Level B: Should be worn when the highest level of respiratory protection is needed, but a lesser level of skin protection. Level B is generally the minimum level recommended when encountering unknown environments.
- Level C: Should be worn when the criteria for using air-purifying respirators are met, and a lesser level of skin protection is needed.
- Level D: Should be worn in any area where respiratory or skin hazards are essentially non-existent as it provides minimal protection against chemical hazards. Modified-Level D includes those requirements of Level D plus the addition of Tyvek or other impervious whole body covering and impervious gloves and would be suitable for situations where skin contact was an issue but airborne contaminants were not.

7.0 AIR MONITORING

If significant disturbance of soil below the marker barrier is planned, air monitoring data will be used to confirm the level of worker protection required and to verify the efficiency of engineering controls or work practices to minimize the release of dust. All monitoring equipment shall be calibrated, operated and maintained according to the manufacturer's specifications.

Residences will be present at the perimeter of any future work area so at least one perimeter air monitoring station for dust and asbestos will be required even for small excavations below the marker barrier.

7.1 Personnel Air Monitoring

Routine air sampling will be conducted by the employer's Supervisor or IH per Table 2 and on the following frequencies:

- Oxygen, H₂S, CO and flammable gases (methane): Using a CGI/O₂ meter, the atmosphere at breathing zone height will be measured prior to entry into a confined space or structure. The sides and bottom of all excavations will be screened prior to entry inside excavations. Monitoring inside confined spaces will continue until the worker leaves the confined space.
- VOCs: Using a PID, the atmosphere at the worker's breathing zone height will be measured prior to entry into a confined space, excavation or structure. The sides and bottom of excavations will also be screened prior to entry inside excavations. Monitoring for VOCs inside confined spaces will continue until the worker leaves the confined space.
- Total and Respirable Dust: Measurements at the worker breathing zone will be made as needed using a real-time aerosol monitor. The calibration of the unit will be checked at the beginning of the shift and the unit re-calibrated if necessary using the manufacturer's-recommended procedure.
- Asbestos: Measurements at the worker breathing zone will be made as needed using personal sampling pumps and MCE filters. The sampling train will be calibrated prior to and after the sampling period. The sample cassettes will be sealed and sent for onsite analysis by EHI, a MA-licensed laboratory, for analysis.

Any employees who have had measured exposures above the response level in Table 2 will either leave the work area or if their training included the use of PPE such as respiratory protection, they will be provided with upgraded PPE and engineering controls will be instituted to reduce their exposure. If results indicate exposures at or above the PEL or site-specific response limit, sampling shall be expanded to cover all employees likely to be exposed.

7.2 Perimeter Air Monitoring

Perimeter air monitoring for asbestos fibers and dust will be performed when excavations below the marker barrier are planned that could release fugitive dust. A qualified industrial hygienist will set up one downwind station for small projects disturbing less than 20 yd.³ of soil.

An area asbestos sampling pump operating between 5 and 10 L per minute will be used. A 25 mm asbestos cassette will be gathered two times a day with a minimum 3 hours per sample interval. The samples will be analyzed same-day using NIOSH 7400 analytical techniques.

A dust sampling station in the same location will gather PM₁₀ dust for both real-time review and time-weighted average analysis.

8.0 STANDARD OPERATING PROCEDURES

This section outlines the control methods that will be used for the potential physical and chemical hazards discussed in Section 3.0 HAZARD EVALUATION.

8.1 General Safe Work Practices

The following general safety procedures shall be followed by all persons involved with the excavation of contaminated soil or contact with groundwater at the site:

- All personnel conducting intrusive work shall read and sign this HASP prior to entering or working on contaminated areas of the site. The master copy (with signature sheet) of the Safety Plan will be held by the Property Manager who will in turn, notify the Owner.
- The exclusion zones must be physically defined and these zones communicated to potentially exposed workers.
- A daily briefing will be held prior to initiating site activities to discuss current site conditions, tasks assigned for the day, HASP modifications and any other work concerns.
- There will be no smoking, eating, chewing gum, chewing tobacco, drinking, taking medicine, or applying cosmetics in an area with contaminated or potentially-contaminated soil. Contact lenses will not be worn in an area with contaminated soil.
- Thoroughly wash hands, face and all other potentially contaminated areas prior to smoking, eating or leaving the site.
- Project personnel must avoid unnecessary contamination (i.e., walking through known or suspected "hot" zones or contaminated puddles, kneeling or sitting on the ground, leaning against potentially-contaminated equipment).
- All workers who are likely to wear air-purifying or air-supplied respirators must first meet the training and medical requirements of 29 CFR 1926.58, 1926.65, 1926.103 and 1926.1101. Respiratory devices may not be worn with beards, long sideburns, or under other conditions that prevent a proper seal.

- No matches or lighters may be brought into a contaminated area. No flames or fires will be allowed in underground construction areas except for permitted hot work operations.
- All excavation activities requiring construction equipment must be performed while in compliance with the applicable safety regulations in OSHA 29 CFR 1926.
- All heavy equipment will be in good condition, the engines tuned and catalytic converters or scrubbers installed to minimize the release of carbon monoxide and other contaminants. All equipment will have audible back-up alarms.
- No confined space entries shall be performed without proper permitting, air monitoring or PPE.
- If workers discover any signs of flammables or unusual conditions such extraordinary odors, hydrocarbon sheen on standing water or dead animals at the site, notify the Property Manager.
- If workers discover drums or containers or structures during excavations, notify the Property Manager.

8.2 Dust Control

If Operations and Maintenance activities generate dust from soils below the marker barrier, dust controls will be required. Dust will be minimized using water or calcium chloride and all excavations will be covered or cordoned off at the end of the shift.

9.0 Site Control Measures

Contact with contaminated soil or groundwater will be limited to those individuals who have read and understood the HASP and who have signed off that they understand the safety and health hazards associated with work activities at the site. Limiting access into the contaminated work area as a whole will reduce the chance that people will be exposed to heavy equipment and construction activities and reduce the chance that others will be exposed to any contaminants released during excavation or will track the material onto other portions of the site.

9.1 Work Zone Definition for Contaminated Soil

Three general zones will be established whenever known contaminated soil is moved or disturbed on the site. The zones are expected to be changed or modified as tasks change. These are the Exclusion Zone (EZ), Contamination Reduction Zone (CRZ), and Support Zone (SZ). The Superintendent will divide the work area into three zones based on the tasks to be performed and space availability. A drawing or map will be generated to define these areas.

The EZ is defined as the area where contamination is either known or likely to be present and potentially cause harm to personnel. On this site, it can be an excavation or the site of the stockpiled contaminated soil. Entry into the EZ requires the use of the personal protective equipment outlined in Section 6.0 of this document.

The CRZ is the buffer zone between the "contaminated" EZ and the "clean" SZ and is where workers conduct personal and equipment decontamination on leaving the work area. Additional information on decontamination of equipment and personnel will be found in Section 10.0.

The SZ is situated in clean areas where the chance to encounter hazardous substances/materials or conditions is minimal. Clean equipment is stored here, personnel take rest breaks here and personal protective equipment is therefore not normally required.

The area around the EZ will be appropriately marked. Barricades or cones can be used to mark the zones.

9.2 Site Communications Plan

Successful communications between workers in the contaminated work area and personnel in the support zone is essential. At a minimum, the following communications systems will be available during activities at the site.

- Cellular telephones and radios in the support zone
- Cellular telephones and radios in trucks and equipment on site

Visual, voice or radio communications must be maintained at all times.

10.0 DECONTAMINATION PLAN

10.1 Personnel Decontamination Procedures

Should workers come into direct contact with contaminated soil or groundwater, the following personnel decontamination procedures will apply. When leaving the work area, all workers will go through a remote three-stage decontamination facility (clean room, shower, equipment room). They will remove their protective equipment in the equipment room, shower wearing their respirators to clean any debris from their skin and their respirators, then enter the clean room to put on their street clothes.

10.2 Vehicle Decontamination Procedures

Any heavy equipment or vehicles in contact with contaminated soil must be cleaned before leaving the contaminated work area.

Vehicles driving on undisturbed soil or asphalt are not expected to contact contaminated materials.

10.3 Tools/Equipment Decontamination

The decontamination procedures for equipment brought into a contaminated work area will

vary, depending on the degree and type of contamination. In general, all equipment which comes into direct contact with potentially contaminated soil or leachate shall be decontaminated prior to leaving the CRZ. Loose soil will be brushed off equipment and returned to the excavation. Decontamination water will be returned to the site.

11.0 EMERGENCY RESPONSE PLAN

This section describes contingencies and emergency planning procedures to be implemented at the site if deep soil disturbing activities are planned. Developing a plan of action for possible emergencies will reduce confusion and response time, minimize the impact of emergencies and prevent minor events from becoming emergencies. Strict adherence to safe operating procedures is essential for the prevention of spills, leaks, fires and serious injuries.

11.1 Pre-Emergency Planning

During site briefings, all workers will be told the provisions of the emergency response plan, what constitutes an emergency, site communication systems and evacuation routes.

11.2 Personnel Roles and Lines of Authority

The following members of the Management Team are also Emergency Response Coordinators (ERCs) will have the responsibility for coordinating emergency response efforts:

Tim Burgess – 978-884-9260; tburgess@winnco.com

Chuck Patch – 774-217-0300; cpatch@winnco.com

Any individual discovering the emergency condition, either actual or potential, shall immediately report it to one of the Property Manager.

Emergency telephone numbers for Federal, State and Local agencies can be found on Table 4. Site contact telephone numbers can be found on Table 1.

The Owner/Property Manager will depend on the East Boston Fire Department for initial emergency responder support.

11.3 Emergency Recognition/Prevention

Section 3.0 HAZARD EVALUATION provides an outline of physical and chemical hazards unique to the site. Personnel will be familiar with techniques of hazard recognition from pre-assignment training and site-specific briefings.

11.4 Emergency Response Training

The Property Manager shall provide emergency response training to contractor personnel. At a minimum, the topics of this training session shall include the following:

- Location of all site emergency equipment such as eyewash facilities and fire extinguishers
- Response procedures for fires
- Response procedures for injured workers
- Response procedures for chemical releases
- Response procedures for excavated drums or tanks
- On-site/off-site response resources
- Designated on-site Emergency Response Coordinators
- Safe refuge and evacuation locations
- Evacuation signals

11.5 Emergency Equipment/Facilities

As a minimum emergency equipment shall include the following:

- Air Horns
- First Aid Kits and Eye Wash Stations
- Fire Extinguishers (4A:40B:40C, as appropriate)

The Property Manager should know the locations of the following:

- Shut-off valves for water, gas and electrical supply to the site
- Hazardous waste or materials stored on the site
- SDS for chemicals stored or used onsite

11.6 Fire Procedures

- Locate the site of the fire and ensure the area is evacuated
- Notify the fire department with the relevant facts: location, type of fire, any injuries
- Remain accessible and direct the fire department to the fire site
- Once the fire is out, prepare a report describing the cause, degree or extent of fire or collateral damage (smoke, heat)

11.7 Emergency Medical Procedures

All injuries and illnesses must immediately be reported to the Property Manager. First aid should be administered while awaiting an ambulance or paramedics.

- Call 911 and ask for medical assistance. Give the site location, the injured worker's name and describe the injuries. Meet the EMTs and direct them to the injured worker.
- Direct all witness to a safe location and begin the accident investigation. Record the time, name, contact telephone numbers, SSN, birth date and statements from each witness.

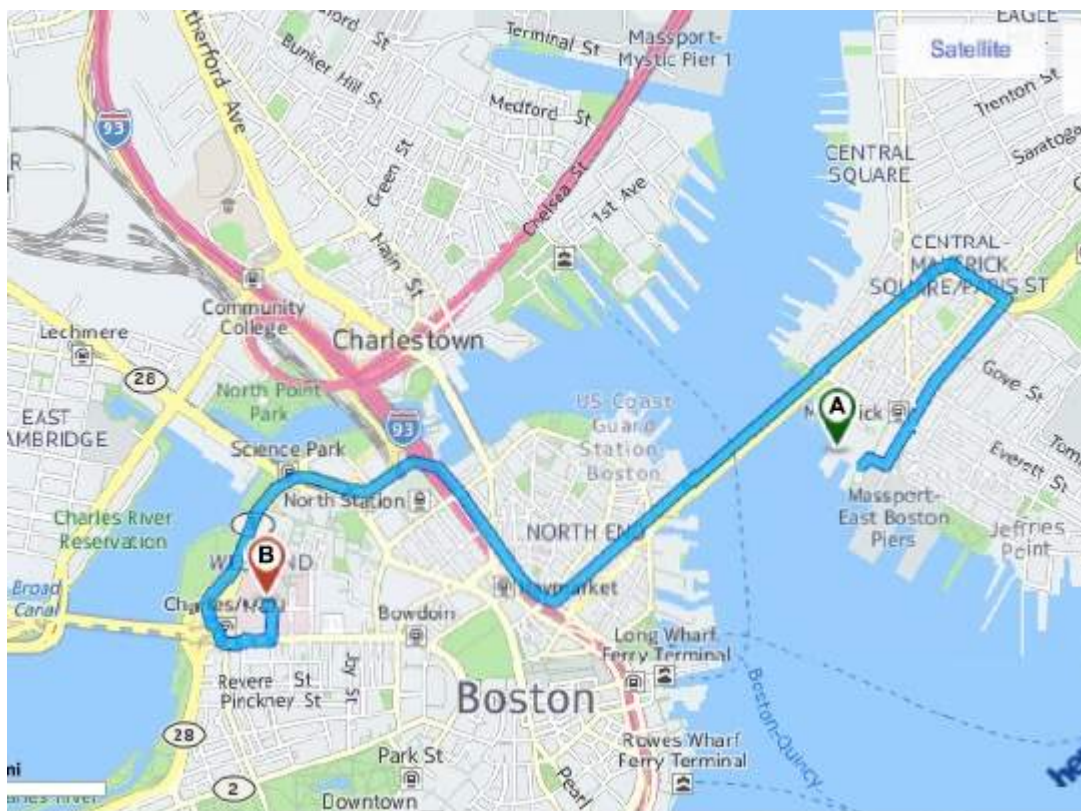
Any vehicle used to transport contaminated personnel will be treated and cleaned as necessary. Serious injuries and those requiring treatment beyond first aid will be transported to Mass General Hospital for treatment. Ambulance service can be obtained by dialing 911. The list of the emergency numbers in Table 5 will be posted prominently at each telephone

located on-site. The route to the hospital can be found in Figure 5.

TABLE 3.

EMERGENCY TELEPHONE NUMBERS

Ambulance	911
Boston Police Department	911
Boston Fire Department	911
MA DEP:	Main Number: (617) 292-2500 Report a Spill: (888) 304-1133
MA State Police:	(617) 740-7600
National Response Center:	(800) 424-8802

FIGURE 5. ROUTE TO HOSPITAL

Directions to Hospital: Take Bremen Street to MA-Route 1A south. Continue on MA-Route 1A south then take MA-3N to Charles Street. Massachusetts General Hospital Emergency Department will be at 1-31 Fruit Street on the right.

APPENDIX A

I. DAILY SITE ACTIVITY

II. CONFINED SPACE ENTRY PERMIT

III. EMPLOYER'S FIRST REPORT OF INJURY

DAILY SITE ACTIVITY

Location: 25-65 Lewis Street, East Boston, MA
Weather Conditions:

Date:
SSHO:

I. Work in Progress:

II. Personnel on Site/Company:

1.	5.	9.
2.	6.	10.
3.	7.	11.
4.	8.	12.

III. Visitors:

1.	3.	5.
2.	4.	6.

IV. Tasks Requiring Exclusion Zone Entry:

Task	Contractor	# Workers	PPE Level	# Air Samples

V. Air Monitoring Data:

Location/Worker	Time	Result (ppm/mg/M ³)

VI. Additional Activities:

Use back of form for additional space

APPENDIX B
SITE PERSONNEL QUALIFICATIONS

Philip G. Terrell, CIH, CSP, ScD

PROFESSIONAL EXPERIENCE:

Environmental Health Inc. Dover, MA	President	1987-Present
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Manages consulting practice in both occupational safety and industrial hygiene. Consulting scope includes preparing site-specific Safety and Health Plans for Superfund and other hazardous waste site remediation (levels B, C and D), safety and health management during construction activities in contaminated and non-contaminated soils, comprehensive occupational safety and industrial hygiene practice in heavy industry, industrial safety design, asbestos abatement management, OSHA-mandated 40-hour hazardous waste site and hazard communication training, and development and implementation of contaminant-specific PPE and respiratory protection programs. Former instructor at the Institute for Environmental Education teaching hazard recognition, air sampling techniques, proper use and care of PPE, toxicology and hazard communication.

Typical safety and health oversight projects are: Harvard's Charles view apartment complex in Brighton and their Fogg Museum project in Cambridge Massachusetts. EHI has written a number of site-specific health and safety plans for the Central Artery, the MWRA and other large governmental agencies

ESA Environmental Consultants Bedford, MA	Manager	1986-1987
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Responsible for managing consulting practice in safety, hazardous waste management and industrial hygiene. Scope of work included personnel and project management, marketing and specification writing.

Liberty Mutual Insurance Company Boston, MA	Supervisor--Pollution Control and Chemical Services	1985-1986
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Developed training programs for pollution inspectors, supervised inspection service for large pollution insurance carrier and monitored field evaluation of multinational pollution insurance policy holders. In addition, participated in ANZI Z88-2 "Confined Space" Committee and NFPA 49 "Hazardous Material Handling" Committee. Currently a director for the Boston chapter of the Indoor Air Quality Association.

EDUCATION:

- Doctor of Science, 2010 University of Massachusetts Lowell, Occupational and Environmental Health
- Master of Public Health--Environmental Health, 1984 Boston University School of Public Health, Boston, MA
- Bachelor of Science--Mechanized Agriculture, 1974 University of Florida, Gainesville, FL
- NIOSH Course #582 "Airborne Asbestos Sampling and Evaluation Techniques"
- OSHA "40-Hour Hazardous Waste Site Workers Basic Health and Safety"

PROFESSIONAL CERTIFICATIONS:

- ABIH Certified Industrial Hygienist in Comprehensive Practice, 1982. #2298
- BCSP Certified Safety Professional in Comprehensive Practice, 1985. #7704
- Massachusetts Asbestos Certifications: Project Designer, Inspector, Management Planner

APPENDIX C
TRAINING CERTIFICATES

NOTE: Training certificates will be inserted into the HASP prior to that worker entering an exclusion zone.

APPENDIX D
MEDICAL CERTIFICATES

NOTE: Medical certificates will be inserted into the HASP prior to that worker entering an exclusion zone.

APPENDIX E
SITE SAFETY SIGNATURE SHEET
VISITORS

I have read the Site Safety and Health Plan for the 25-65 Lewis Street Project will abide by the procedures discussed in this Health and Safety Plan as well as any amendments to the plan.

<u>Name/Company</u>	<u>Signature</u>	<u>Date</u>
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ENVIRONMENT HEALTH & SAFETY

GMRS 2015

**GLOBAL MINIMUM
REQUIREMENTS**

INTRODUCING THE GMRs

Lendlease is a leader in environment, health and safety (EH&S) and we need to constantly challenge our performance and push the boundaries so that our approach to EH&S is aligned to the evolution of the Lendlease strategy and remains effective and fit for purpose for the sectors and markets in which we operate.

The 2015 Global Minimum Requirements (GMRs) provide a focus on front-end planning, risk and innovation across the operational lifecycle and creates a simpler and more effective framework for managing EH&S at Lendlease.

The five key stages of governance, investment, design and planning, establishment and delivery replace the previous EH&S Management System and Construction and Asset GMRs and provide a specific focus on low likelihood, high impact events that have the potential to lead to catastrophic and fatal outcomes.



FIGURE 1: GENERAL DIVISION OF RESPONSIBILITY FOR GMR APPLICATION

The GMRs move away from prescribing controls for every hazard, activity and circumstance and instead shift the emphasis towards empowering people to take a risk-based approach to managing GMR risk events and implementing controls that relate to the 20 GMR risk events that are relevant to their work. In all cases, we encourage everyone to go beyond the minimum and innovate to implement even higher standards where possible.

Our aim is to create places that care and which are free of incident and injury – the safety, health and wellbeing of everyone is our priority.

The GMRs apply to all Lendlease operations. This includes all Lendlease projects, developments, assets, joint ventures (JVs), partnerships, multi-site teams, facilities and offices.

The GMR Framework consists of five elements covering the following areas:

GMR 0 GOVERNANCE (PAGE 4)

GMR 0 outlines the requirements of Group, regions and business units in the areas of governance, assurance, reporting and performance management.

GMR 1 INVESTMENT (PAGE 9)

GMR 1 is focused on investment requirements and the assessment of new work and investment opportunities in identifying EH&S risks that can directly or indirectly impact health and safety outcomes in delivery.

GMR 2 DESIGN AND PLANNING (PAGE 14)

GMR 2 outlines the mandatory design controls aimed at eliminating fatal risks through effective planning, design and procurement, set against the 20 GMR risk events.

GMR 3 ESTABLISHMENT (PAGE 22)

GMR 3 focuses on establishing locations and places that care, including minimum requirements for welfare and accommodation facilities, appropriate working hours and more broadly how personal injury risks and high likelihood, low impact events will be managed by the operations team.

GMR 4 DELIVERY (PAGE 29)

GMR 4 addresses the mandatory controls and performance standards aimed at eliminating fatal risks across the 20 GMR risk events that could result in single or multiple fatalities.

There are a range of terms used throughout the GMRs requiring clarification. Further information on implementing the GMRs and a glossary of key terms can be found on the GMRs Resources section of the EH&S microsite accessible via Pulse intranet.

GMR 0 GOVERNANCE

- 0.1 Management governance
- 0.2 Assurance
- 0.3 Reporting
- 0.4 Performance management

GMR 1 INVESTMENT

- 1.1 Risk reviews – new work and investment opportunities
- 1.2 Independent project reviews

GMR 2 DESIGN AND PLANNING

- 2.1 Design and procurement control
- 2.2 Design standards
- 2.3 Review processes
- 2.4 Procurement

GMR 3 ESTABLISHMENT

- 3.1 Establishing places that care
- 3.2 Establishing locations
- 3.3 Establishing governance

GMR 4 DELIVERY

- 4.0 Management of GMR risk events

RISK EVENTS 1-10 – CRITICAL CONTROLS AND PERFORMANCE STANDARDS

- 4.1 Fall of person
- 4.2 Fall of material/object
- 4.3 Vehicle and plant incident (work sites)
- 4.4 Uncontrolled release of electrical energy
- 4.5 Fire and explosion
- 4.6 Crane and hoisting equipment incident
- 4.7 Impact from moving parts of machines
- 4.8 Excavation and stockpile collapse
- 4.9 Failure of structures (temporary or permanent)
- 4.10 Occupational health exposure

RISK EVENTS 11-20 – CRITICAL CONTROLS ONLY

- 4.11 Public health exposure
- 4.12 Mental health and fatigue
- 4.13 Degradation and pollution of the environment
- 4.14 Vehicle and plant incident (public areas)
- 4.15 Uncontrolled release of stored energy (non-electrical)
- 4.16 Tunnel collapse
- 4.17 Failure of fixtures or fittings
- 4.18 Drowning
- 4.19 Confined space incident
- 4.20 Essential service failure

ESTABLISHMENT



GMR

lendlease

GMR 0**GOVERNANCE**

GROUP, REGION AND BUSINESS UNIT OVERSIGHT

MANAGEMENT GOVERNANCE | ASSURANCE | REPORTING | PERFORMANCE MANAGEMENT

**GMR 1
INVESTMENT
THE DEAL**

- RISK REVIEWS – NEW WORK AND INVESTMENT OPPORTUNITIES
- INDEPENDENT PROJECT REVIEWS

**GMR 2
DESIGN AND
PLANNING
APPROACH**

- EH&S DESIGN RISK MANAGEMENT
- DESIGN STANDARDS AND CONTROLS
- PROCUREMENT REVIEW PROCESSES

**GMR 3
ESTABLISHMENT
OPERATIONAL
SETUP**

- ESTABLISHING PLACES THAT CARE
- MANAGING LOGISTICS AND SET-UP
- OPERATIONAL PLANNING AND GOVERNANCE

**GMR 4
DELIVERY
DAY TO DAY RISK
MANAGEMENT**

- EH&S DELIVERY RISK MANAGEMENT
- DEFINING 20 GMR RISK EVENTS
- PERFORMANCE STANDARDS AND CONTROLS

FIGURE 5: GMR FRAMEWORK - ESTABLISHMENT

PREAMBLE

GMR 3 outlines the minimum requirements for the creation of healthy and safe workplaces.

These requirements align with the Lendlease vision to create the best places and the aspiration to establish places that care.

For any Lendlease operation a documented EH&S management plan must be developed and implemented and as a minimum outline how all EH&S risks, including those identified by the GMRs will be managed. In addition, the EH&S management plan must outline the management of access/egress, workplace hazards and risks, boundary control, emergency and evacuation planning, housekeeping, welfare and EH&S learning programs in support of the aspiration to establish places that care.

GMR 3 is comprised of the following:

3.1 ESTABLISHING PLACES THAT CARE

- 3.1.1 Working conditions
- 3.1.2 Welfare facilities
- 3.1.3 Training and competence
- 3.1.4 EH&S communications and consultation
- 3.1.5 Engagement, reward and recognition

3.2 ESTABLISHING LOCATIONS

- 3.2.1 Site layout
- 3.2.2 Site access
- 3.2.3 Security arrangements
- 3.2.4 Hazard reduction
- 3.2.5 Personal protective equipment
- 3.2.6 Emergency planning and evacuation procedures
- 3.2.7 Site induction

3.3 ESTABLISHING GOVERNANCE

- 3.3.1 EH&S management plan
- 3.3.2 Operational EH&S responsibilities
- 3.3.3 Operational EH&S governance
- 3.3.4 Reporting requirements

3.1 ESTABLISHING PLACES THAT CARE

Lendlease operations must provide best in class welfare and accommodation facilities. Workforce communication and consultation initiatives must be in place and supported by access to relevant EH&S and wellbeing learning and development opportunities. Lendlease operations must also establish controls on working hours and best in class employee engagement programs and initiatives.

3.1.1 WORKING CONDITIONS

CONTROL

All Lendlease operations must ensure that working conditions do not adversely affect people's health, safety and wellbeing or their ability to conduct their work and that those conducting high risk activities are fit for the inherent requirements of their work.

PERFORMANCE STANDARD

- i) Rules for hours of work must be established on each Lendlease operation to ensure people's health, safety and wellbeing is not adversely affected from excessive working hours (e.g. rostering, wellbeing leave and shift work).
- ii) All workers must be fit for work. Consider assessing fatigue, implementing health surveillance and health checks, duration of shifts and adequate rest between shifts, drug and alcohol related impairment or any pre-declared medical condition or injury or illness.
- iii) Protocols must be established for the management of adverse climatic conditions (e.g. heat, cold, snow, rain, storms and wind). Consider which activities should cease when threshold protocols are exceeded. Ensure early warning weather systems are established where particular climatic conditions represent a significant risk (e.g. high winds and use of a crane, lightning, earthquakes and floods).

3.1.2 WELFARE FACILITIES

CONTROL

To create the best places to work and places that care all Lendlease operations must provide amenities and welfare facilities that are best in class.

PERFORMANCE STANDARD

- i) Assess welfare requirements and provide best in class facilities prior to works starting. Ensure the facilities reflect the hazards present, number of users and their differing needs.
- ii) Provide sufficient toilet facilities within easy access of working areas. All toilets must be connected into the mains or similar, rather than chemical toilet facilities, and cleaned at least daily.
- iii) Provide hot and cold washing facilities which are appropriate for the number of employees and the work being undertaken. Ensure these facilities include water for washing and clean, cool water for drinking.
- iv) Showers and changing facilities should be provided, particularly where the work type and shift pattern increases the likelihood of these facilities providing benefits to employees.
- v) Provide appropriate break out areas that are heated, cooled or air conditioned as necessary, particularly in hot or cold climates.

- vi) Provide enhanced levels of welfare facilities for high risk works or adverse environmental conditions (e.g. showers and personal protective equipment (PPE) cleaning facilities to remove contamination from asbestos or lead removal or after work in extreme temperatures).
- vii) Where Lendlease provides site based office accommodation, the office facilities must ensure adequate ventilation, heating/cooling or air conditioning where conditions demand, daily cleaning and that office furniture meets the ergonomic requirements prescribed by relevant codes of practice.
- viii) Assess employee off-site living accommodation on Lendlease controlled operations and provide best in class facilities prior to work starting. This applies to all accommodation, whether it is owned by Lendlease or utilised by its employees.
- ix) For each operation identify and regularly implement specific welfare initiatives that demonstrate care for frontline workers.

3.1.3 TRAINING AND COMPETENCE

CONTROL

All workers with EH&S roles and responsibilities related to legal or GMR requirements must be suitably qualified and verified as competent relevant to their role.

PERFORMANCE STANDARD

- i) Familiarise all Lendlease workers with the Lendlease EH&S vision and complete any EH&S training applicable to their role (e.g. Lendlease EH&S Passport) as well as awareness and training opportunities that address the organisation's health and wellbeing framework.
- ii) Where a Lendlease employee or contractor has a position or responsibility that requires statutory training or accreditation (e.g. statutory EH&S coordinator or operator of plant and equipment) ensure the employee or contractor undertakes the relevant industry or statutory training and only fulfils the task or responsibility when certified to do so.
- iii) It is the duty of all contractors, consultants and service provider workers with EH&S roles and responsibilities related to legal or GMR requirements to ensure all key personnel are aware of their EH&S responsibilities and are suitably trained to address any competency requirements or technical qualifications relevant to their role.
- iv) Provide proof of competency (certificates, licences, training records or knowledge testing) where required by any employees of Lendlease, contractors or service providers conducting specialist work related to high risk activities.
- v) Conduct EH&S briefings, toolbox talks or other consultative initiatives at appropriate intervals on topics relevant to the activities occurring at or around the operation.
- vi) All frontline leaders must be competent for the role in which they are appointed, as determined by each Lendlease operating business unit, and must be able to assign work in a manner that increases the likelihood it will be performed without incident, recognises and reinforces compliance with the GMRs and related safe work practices and constructively corrects unsafe work. Frontline leaders overseeing high risk activities must participate in the Lendlease Frontline Leaders Program.

3.1.4 EH&S COMMUNICATIONS AND CONSULTATION

CONTROL

EH&S communications and consultation protocols must be established with identified stakeholders on each operation for high risk activities, worker feedback opportunities and change management protocols.

PERFORMANCE STANDARD

- i) Operations must communicate information detailing the location(s) and nature of high risk activities, areas or works where risks exist that could impact anyone not involved in performing the activity. Identify areas where entry is forbidden or special precautions apply.
- ii) The management team of each operation must establish arrangements for promoting worker feedback on hazard reporting and improving EH&S standards, work practices or performance.
- iii) Undertake consultation and communications with key internal and external stakeholders through signage, public meetings or forums, newsletters, emails or prior to significant changes in operations or activities.
- iv) EH&S alerts and any applicable lessons learned issued to the operation by Lendlease management are communicated with recommendations applied where applicable. Clearly communicate the requirements of EH&S alerts to all relevant organisations and work crews with standard operating procedures adjusted if required.

3.1.5 ENGAGEMENT, REWARD AND RECOGNITION

CONTROL

All Lendlease operations must identify effective programs and initiatives to engage, reward and recognise frontline personnel who work on Lendlease operations.

PERFORMANCE STANDARD

- i) Identify and implement operational wide engagement programs and initiatives to ensure the best workplaces are created.
- ii) Define the appropriate reward and recognition program and a just culture model that deals with consequence management.
- iii) Define how the operation will establish a place that cares. This includes leadership behaviours and addressing peoples' health, wellbeing and work life balance.

3.2 ESTABLISHING LOCATIONS

All Lendlease operations required to segregate the work activity from the public must ensure adequate barriers are in place, emergency planning protocols are established and briefings are included as part of any site inductions.

3.2.1 SITE LAYOUT

CONTROL

All operations must ensure the site layout considers the movement of people and vehicles, including mobile plant and equipment.

PERFORMANCE STANDARD

- i) Ensure all operations consider traffic interface risk with public roads and that suitable signage is in place to visually delineate entry and exit points, delivery areas, pedestrian crossing points, parking areas and site speed limits.
- ii) Outdoor lighting must be provided for all locations where workers or members of the public require access outside daylight hours.
- iii) Suitable indoor lighting must be provided for all task and access requirements. Temporary lighting must not represent a trip or fire hazard.
- iv) For operations with large or regular delivery requirements, implement a delivery booking system and dedicated areas for deliveries and material storage and lay down. Create truck holding areas where there is a risk of queuing inside and out of an operation.
- v) Establish protocols to determine when common plant located on the operation such as cranes, hoists, elevating work platforms, elevators and forklifts is to be used to handle deliveries and materials versus the exclusive use of individual plant and equipment owned by contractors.

3.2.2 SITE ACCESS

CONTROL

All operations where high risk activities and construction operations are being undertaken must prevent any danger to the public or unauthorised access by providing suitable physical barriers where members of the public could gain access to the works.

PERFORMANCE STANDARD

- i) All operations where high risk activities and construction operations are being undertaken must prevent any danger to the public or unauthorised access by providing suitable physical barriers where members of the public could gain access to the works. For those sites active for more than one day this barrier must be a perimeter fence. Entrances and exits must be managed to prevent unauthorised access, be clearly signed and display site rules. All hoardings, fencing and signage must be of solid construction, adequately load bearing, regularly inspected by a competent person and maintained to prevent risks to the public and workers.
- ii) Where a site is extensive in length (e.g. road and rail construction or upgrade projects, residential communities or operating assets under management such as retail centres and retirement communities) or where discrete short term activities are being undertaken (e.g. multi-site and maintenance teams) and fencing the entire site perimeter is not practicable the extent and location of any signage, fencing and physical barriers must be determined by a formal risk assessment ensuring that the public cannot readily access or interface with high risk activities or site hazards.
- iii) Erect suitable physical barriers (e.g. temporary fencing such as ATF or Heras) for locations active for less than one day or when short term activity (less than one day) needs to take place beyond the site boundary and where there is a risk presented to the public.

3.2.3 SECURITY ARRANGEMENTS

CONTROL

Security arrangements must be in place to address the risks to workers and the public from hazards and activities present on the operation or its immediate surrounding environment.

PERFORMANCE STANDARD

- i) Ensure security protocols are in place that reflect the operation type, geographic location and risks applicable to the protection or exclusion requirements for workers and the public. Where Lendlease has control over an asset office or construction location, access must be controlled to ensure there is no unauthorised access to secure areas (e.g. plant rooms, confined spaces or roof areas).
- ii) Areas closed to the public must be clearly defined and measures to prevent unauthorised entry to these areas implemented.
- iii) Any unoccupied areas on an operation (e.g. undeveloped land where no work is underway) must be subject to a risk assessment to determine if the area needs to be secured to prevent access or if it would be more appropriate to allow public access.
- iv) Where the risk of criminal activity is significant appropriate levels of physical surveillance by security guards and closed circuit television (CCTV) must be in place.
- v) Where people are required to work in locations where the risk of harm is elevated due to criminal activity, travelling or working alone or after hours work support must be in place to provide individuals with awareness of the risks, mitigation plans and protocols for communication and assistance.

3.2.4 HAZARD REDUCTION

CONTROL

All operations must effectively manage site conditions and tidiness to minimise the risk of creating unnecessary hazards or impacts on the environment that can contribute to an incident.

PERFORMANCE STANDARD

- i) Effectively manage tidiness/housekeeping and storage areas to maintain clean and tidy work areas and facilities.
- ii) Ensure all main access ways, emergency routes and passage ways are clearly lit, marked, kept clean, maintained in good condition and kept free from obstructions and debris to eliminate the risk of slips and trips.
- iii) All main access ways must have surfaces that are appropriate for their intended use and the local environment. Floor surface selection must consider the type of operation, the inspection cycles, the geographic environment, the volume of pedestrian traffic, the types of users and the ease of maintaining surfaces free from spillages and contamination to reduce the risk of slips and trips.
- iv) All hazardous substances, combustibles, flammables and other dangerous goods and materials must be safely stored and warning signs displayed.
- v) Electrical items presenting a risk of fire or electrocution (e.g. halogen light tripods and heaters under desks) are to be placed correctly or fixed into position.
- vi) Provide a sufficient number of suitable waste receptacles including for hazardous and recyclable materials. Implement processes for the regular collection of waste and recycled materials.

3.2.5 PERSONAL PROTECTIVE EQUIPMENT

CONTROL

All operations must establish protocols for PPE including general and specific application.

PERFORMANCE STANDARD

- i) All operations must establish general PPE standards depending on the operation type and activity risk. When deciding on the standards to be applied, consider the application of safety helmets, safety boots, eye protection, gloves, high visibility clothing and the areas of the operation where PPE is not required to be worn.
- ii) Other items of task specific PPE must be identified through risk assessment and must be provided and worn (e.g. hearing protection in areas where noise levels exceed 85 dB(A), sunscreen, wide-brimmed hats, long pants and long sleeved shirts with a collar for sun/ultra violet radiation protection).

3.2.6 EMERGENCY PLANNING AND EVACUATION PROCEDURES

CONTROL

All Lendlease operations must have an established emergency response plan based on the requirements of an emergency response procedure that is documented, communicated to all relevant people and routinely tested for effectiveness.

PERFORMANCE STANDARD

- i) Emergency management planning must:
 - Link with business unit business continuity planning and crisis management protocols and include details of people with key responsibilities, include potential and actual incident response protocols and contact details for liaison with relevant people within Lendlease, emergency services, external authorities and third parties such as clients.
 - Appoint and formally train sufficient wardens in emergency procedures, including the need to check areas are clear of people in an evacuation and basic firefighting techniques where appropriate.
 - Ensure that members of the emergency response team are appointed and formally trained in emergency response.
 - Ensure a risk assessment is undertaken by a competent person to determine the requirements for incident response equipment such as the number and content of first aid kits, number of fire extinguishers and their location and other equipment such as defibrillators, oxy viva, stretchers or other.
 - Ensure that all emergency response drills include a planned scenario based on potential or actual incident events identified in planning and are conducted at least annually or more frequently for higher risk workplaces such as construction operations. This can be in conjunction with local emergency services or a suitably qualified fire contractor.
- ii) Review emergency response management, emergency plans, emergency evacuation equipment and other emergency planning processes at least annually or more frequently for higher risk workplaces such as construction operations.

3.2.7 SITE INDUCTION

CONTROL

All workers and visitors entering an operation for work purposes must be given adequate EH&S instructions.

PERFORMANCE STANDARD

- i) Induct all workers and service providers before commencing work.
- ii) The induction must include content specific to the operation (e.g. details of any site rules, EH&S specific standards, safety hazards and risks, environmental aspects and impacts, emergency response, consultation arrangements, key personnel and other important information).
- iii) On operations where site access is restricted, all people (i.e. workers and visitors) entering and leaving the location must be recorded and provided with adequate EH&S instructions (e.g. visitor identification, information cards identifying risks and emergency response and site layout). If any high risk activities are taking place visitors must be escorted at all times.

3.3 ESTABLISHING GOVERNANCE

All Lendlease operations must establish effective governance to ensure there is an active plan for how EH&S risks are identified and managed on the operation with clear responsibilities defined and active leadership oversight is in place.

3.3.1 EH&S MANAGEMENT PLAN

CONTROL

All Lendlease operations must have an EH&S management plan that clearly identifies the applicable EH&S risks and how they are to be managed at the operation.

PERFORMANCE STANDARD

- i) The EH&S management plan must:
 - Identify the unique operational risks from GMRs 1 and 2 which need to be managed, address all requirements listed within GMR 3 and include plans or other methods to address all monitoring requirements from any applicable GMR risk events outlined in GMR 4.
 - Comply with all applicable legal and regulatory requirements in preparing and maintaining an operating EH&S management plan.
 - Be regularly reviewed, updated to include significant changes to risks or risk controls and continually monitored to ensure that the requirements of the GMRs are carried out to the highest standard.
- ii) For established low risk workplaces such as offices, the plan must be reviewed and updated at least annually and for high risk workplaces such as construction operations the plan must be reviewed and updated more regularly.

3.3.2 OPERATIONAL EH&S RESPONSIBILITIES

CONTROL

All Lendlease operations must ensure EH&S roles and responsibilities are clearly defined between organisations and within individuals and teams.

PERFORMANCE STANDARD

- i) Outline roles and responsibilities for the operation, including responsibilities for monitoring all applicable GMR controls, to appropriate people whether it is from within the Lendlease team, a stakeholder or a supply chain organisation, with these responsibilities clearly communicated and documented.
- ii) The most senior Lendlease leader on each operation is responsible for ensuring that all EH&S responsibilities attributed to Lendlease including responsibilities for the sign off of work relating to high risk activities are met. Any responsibilities delegated by the team leader to other employees are to be clearly documented in individual roles and responsibilities.

3.3.3 OPERATIONAL EH&S GOVERNANCE

CONTROL

All Lendlease operations must establish an EH&S leadership team or equivalent to provide governance and oversight for EH&S performance management.

PERFORMANCE STANDARD

- i) The EH&S leadership team must:
 - Meet at least quarterly, be chaired by the most senior Lendlease leader on the operation and engage with partners such as clients, contractors and service providers in reviewing progress against EH&S objectives and targets, strategic planning and other initiatives specific to the operation.
 - Monitor compliance with the GMRs and regulatory requirements and examine information from any EH&S events, incidents, trends or observations recorded.
 - Review incidents and investigations to ensure appropriate action, follow up and close out.
 - Monitor the status of the key operational risks identified in GMRs 1 and 4.
 - Monitor progress against people related requirements including but not limited to workforce consultation, engagement, training delivery, hours of work, welfare facilities and health and wellbeing initiatives.
 - Monitor and review the operational programs intended to create the best workplace.
 - Document outcomes related to the above and communicate these to the workforce where appropriate.

3.3.4 REPORTING REQUIREMENTS

CONTROL

All operations must report on EH&S incidents and compliance as a means of performance tracking and establish improvement opportunities.

PERFORMANCE STANDARD

- i) All events classified as critical must be recorded within 48 hours of the date of the event. All other event types must be recorded within 24 hours, including actual and potential incidents of injury, illness, property damage, plant damage, harm to the environment and EH&S observations. Record events using the Lendlease online EH&S reporting system and ensure statutory reporting requirements are achieved.
- ii) As a minimum, investigate any incidents classified as critical within the Lendlease online EH&S reporting system with active participation from the local business unit management to assist in identifying the causes of the incident and, where relevant, generating any EH&S alerts or lessons learned.
- iii) As part of identifying, managing and reporting on risk, each operation must report on EH&S risk and compliance as directed by their business unit.
- iv) Ensure all Lendlease operations receive independent EH&S assessments to review compliance with the requirements of all GMRs that are applicable on the operation. The independent assessment is to be undertaken at intervals set by the business unit and correspond with actual or upcoming changes in risk profile and actual EH&S performance outcomes. The independent EH&S assessment must be undertaken by a Lendlease or third party employee or competent contractor not based full-time on the operation to ensure independence from the operations team.

DELIVERY



lendlease

GMR 0**GOVERNANCE**

GROUP, REGION AND BUSINESS UNIT OVERSIGHT

MANAGEMENT GOVERNANCE | ASSURANCE | REPORTING | PERFORMANCE MANAGEMENT

**GMR 1
INVESTMENT
THE DEAL**

- RISK REVIEWS – NEW WORK AND INVESTMENT OPPORTUNITIES
- INDEPENDENT PROJECT REVIEWS

**GMR 2
DESIGN AND
PLANNING
APPROACH**

- EH&S DESIGN RISK MANAGEMENT
- DESIGN STANDARDS AND CONTROLS
- PROCUREMENT REVIEW PROCESSES

**GMR 3
ESTABLISHMENT
OPERATIONAL
SETUP**

- ESTABLISHING PLACES THAT CARE
- MANAGING LOGISTICS AND SET-UP
- OPERATIONAL PLANNING AND GOVERNANCE

**GMR 4
DELIVERY
DAY TO DAY RISK
MANAGEMENT**

- EH&S DELIVERY RISK MANAGEMENT
- DEFINING 20 GMR RISK EVENTS
- PERFORMANCE STANDARDS AND CONTROLS

FIGURE 6: GMR FRAMEWORK - DELIVERY

PREAMBLE

GMR 4 addresses the potential for fatal risk outcomes amongst the day-to-day activities, hazards and risks that occur across Lendlease operations.

Whilst many risks to people are present on a daily basis, 20 risk events have been identified that present the most significant risk to people (i.e. the risk of a single or multiple fatalities). These GMR risk events have been assessed using the bow tie risk methodology to determine potential causes and impacts.

Potential causes are addressed by implementing preventative controls which are used to prevent the occurrence of the GMR risk event, whilst the potential impacts are offset with mitigating controls designed to lessen the impact if the event was to occur.

Whilst all 20 have preventative and mitigating controls listed for application, the top 10 GMR risk events at Lendlease, which have been identified through analysis of internal incident data, also have performance standards which prescribe how the controls are to be met.

For events 11-20, no performance standards are prescribed. If further detail is required regarding how the controls outlined will be achieved this will be provided by the business unit that oversees the operation.

GMR 4 is comprised of the following:

PROTOCOLS

4.0 Management of GMR risk events

GMR RISK EVENTS 1-10:**CRITICAL CONTROLS AND PERFORMANCE STANDARDS**

- 4.1. Fall of person
- 4.2. Fall of material/object
- 4.3. Vehicle and plant incident (work sites)
- 4.4. Uncontrolled release of electrical energy
- 4.5. Fire and explosion
- 4.6. Crane and hoisting equipment incident
- 4.7. Impact from moving parts of machines
- 4.8. Excavation and stockpile collapse
- 4.9. Failure of structures (temporary or permanent)
- 4.10. Occupational health exposure

GMR RISK EVENTS 11-20: CRITICAL CONTROLS ONLY

- 4.11. Public health exposure
- 4.12. Mental health and fatigue
- 4.13. Degradation or pollution of the environment
- 4.14. Vehicle and plant incident (public areas)
- 4.15. Uncontrolled release of stored energy (non-electrical)
- 4.16. Tunnel collapse
- 4.17. Failure of fixtures or fittings
- 4.18. Drowning
- 4.19. Confined space incident
- 4.20. Essential service failure

4.0 MANAGEMENT OF GMR RISK EVENTS

For all Lendlease operations where any of the 20 GMR risk events apply, activities must be managed by implementing the controls and performance standards prescribed against each risk event. The controls outlined in the GMRs address varying elements found within the hierarchy of risk control outlined below. The hierarchy prescribes elimination as the most desirable control outcome through to administration and PPE as the least desirable control outcome.

- **Elimination:** Eliminate the hazard by removing it completely or designing it out.
- **Substitution:** Substitute the hazard with something safer.
- **Isolation:** Isolate the hazard from people.
- **Engineering:** Reduce the risks through engineering controls (i.e. controls that are physical in nature, including mechanical devices or engineering processes).
- **Administration:** Reduce exposure to the hazard using administrative actions (i.e. work methods or procedures that are designed to minimise exposure to the hazard).
- **Protection:** Use PPE to limit exposure to the harmful effects of the hazard.

All operations must address the following six steps in administering the requirements of GMR 4:

STEP 1: IDENTIFY APPLICABLE GMR RISK EVENTS

Each operation needs to identify those activities or hazards where there is a likelihood of exposure to any one of the 20 GMR risk events. Once these activities are identified, they must be planned and managed in accordance with the critical controls prescribed against each GMR risk event.

STEP 2: ENSURE ENGINEERING CONTROLS (OR ABOVE) ARE IMPLEMENTED

As a minimum, at least one preventative control set at the engineering level or above must be in place for each of the identified activities. In addition to the one preventative engineering control, at least one mitigating control must also be in place. If it is not possible to implement the controls outlined in GMR 4 the operation must demonstrate to the most senior off-site manager that they have a work methodology that addresses and manages the risk.

STEP 3: DOCUMENT THE ACTIVITY METHODOLOGY

For each activity there must be appropriate administration controls outlining the application of critical controls identified in step 2 for that work activity, including protection requirements. Note that some activities may have exposure to more than one GMR risk event.

STEP 4: BRIEF THE WORKERS INVOLVED

Through a task briefing process (e.g. pre-start or safe start) all workers that will undertake or supervise the task must be consulted and made aware of the contents of the documentation and how the critical controls and performance standards must be applied. Communication must also extend to include people other than those directly involved in the activity (e.g. members of the public) that could be potentially impacted by the activity.

STEP 5: ENSURE SUFFICIENT COMPETENT FRONTLINE LEADERS

Activities where one or more GMR risk events have been identified must adopt a frontline leader to worker ratio of

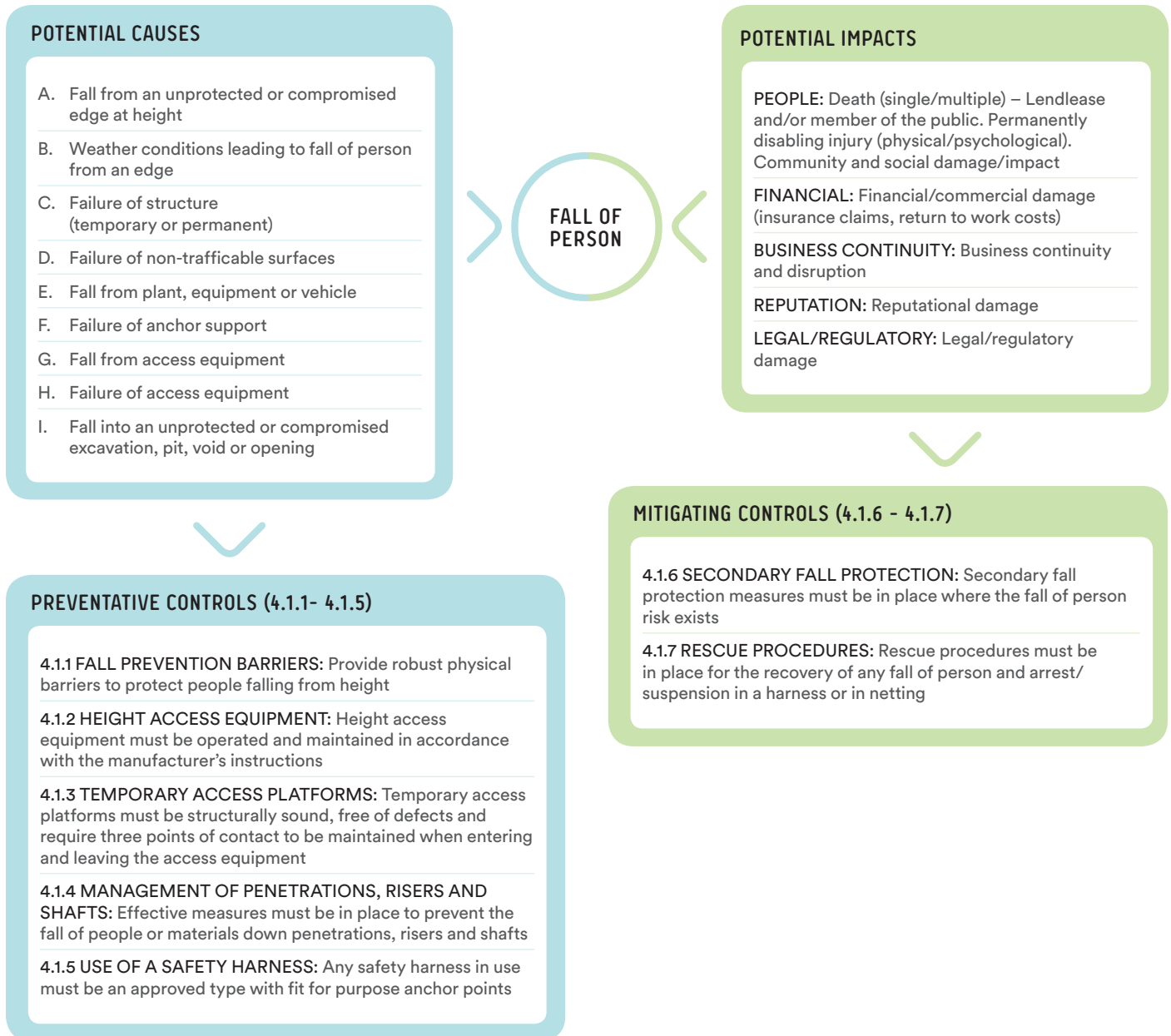
not less than 1:8. Frontline leaders and workers must provide proof of competency where it is required for the role being undertaken.

STEP 6: ACTIVITY MANAGEMENT

Adequate verification and monitoring processes must be in place to ensure each activity is being managed in accordance with the agreed methods outlined in step 3. As a minimum, verification and monitoring must occur at the commencement of each working day/shift, at regular intervals throughout the course of the day/shift and when a change to the agreed method of work or work scope is introduced. Following any such change steps 1-5 are to be repeated.

4.1 FALL OF PERSON

DESCRIPTION: These critical controls and performance standards apply to situations where there is a risk of one or more people falling off an edge, object, structure or opening with the potential risk of fatal consequences. It is not intended to apply to slips or trips on the same surface level.



RISK EVENT PREVENTATIVE CONTROLS AND PERFORMANCE STANDARDS

4.1.1 FALL PREVENTION BARRIERS

CONTROL

Provide robust physical barriers to protect people falling from height.

PERFORMANCE STANDARD

- i) All areas under construction or demolition (including deep excavations) from which a person could fall must be effectively protected by physical barriers of sufficient height and strength to prevent people from falling or being blown off the edge of the structure or into an excavation or opening (e.g. screens, handrails, scaffolds, guard rails or cable and netting systems for temporary structures).
- ii) All open edges from which a person could fall in asset operations and maintenance scenarios must also be effectively protected by barriers of sufficient height and strength to prevent people from falling (e.g. permanent climb resistant balustrades, guard rails or void screens) taking into account all relevant parameters such as the nature of the operation, likely usage, location, structural stability and weather conditions.
- iii) All mobile work platforms, temporary works platforms, equipment or machinery used for work at height must have edge protection in place to prevent the fall of a person from both the elevated work and from any potential for the platform to be destabilised from adjustment, movement or positioning manoeuvres. Restraining harnesses must be worn and secured by people working in MEWPs with booms unless when working over water where the risk of the work platform submerging beneath the water exists creating the risk of a person being unable to exit from the platform in an emergency. Note: GMR 4.18 drowning addresses related events.

4.1.2 HEIGHT ACCESS EQUIPMENT

CONTROL

Height access equipment must be operated and maintained in accordance with the manufacturer's instructions.

PERFORMANCE STANDARD

- i) Control and prevent unauthorised access to climbable building equipment (e.g. cooling or heating plants and free standing structures such as antennae, power station cooling towers, storage tanks and power transmission lines or towers).
- ii) Modify equipment or structures where worker access is required and the risk of the fall of a person exists, to eliminate or minimise the risk of a fall. Equipment requiring regular maintenance must be installed at or moved to ground level to eliminate the need to work at height.
- iii) Access to general construction work areas or floors must be provided by a full permanent solution. Where this is not practicable, temporary staircases of adequate width with suitable handrails must be provided.
- iv) Suspended access equipment such as bosun chairs, cradles, gondolas and swing stages must only be used where safer means of height access cannot be achieved.

- v) Permanent BMUs such as mechanised cradle systems must provide safe access for cleaning and maintenance. They must be fixed to the operation's structure, have the safe working load clearly marked and have sufficient, clearly designated safety harness anchor points designed to withstand the forces caused by a fall of any person(s) located anywhere on the platform.
- vi) All mast climbers, swing stage scaffolds and BMUs must be installed, maintained and inspected by an engineer or competent person(s), following the manufacturer's specifications as a minimum. Details of the design, maintenance, inspections and manufacturer's specifications must be provided.
- vii) All people using mast climbers, swing stage scaffolds, suspended access equipment and BMUs must use a suitable safety harness and lanyard at all times. Emergency retrieval rescue procedures must be established for work involving a safety harness and lanyards and static lines must be installed and attached to one of or a combination of the following elements:
 - A vertical line independent of the portable vertical access equipment and specifically engineered for the purpose of withstanding the forces likely to be experienced in a fall situation.
 - An engineered anchor point or horizontal static line fabricated and certified by the manufacturer or independent engineer for that purpose and capable of withstanding the forces likely to be experienced in a fall situation.
 - A transportable temporary independent anchor point engineered for that purpose such as a sling choked or looped around a suitable load bearing structure, an anchor strap looped around a suitable load bearing structure or an eyebolt fixed with a trigger catch mechanism for fixing through holes. In all cases these elements must be capable of withstanding the forces likely to be experienced in a fall arrest situation.

4.1.3 TEMPORARY ACCESS PLATFORMS

CONTROL

Temporary access platforms must be structurally sound, free of defects and require three points of contact to be maintained when entering and leaving the access equipment.

PERFORMANCE STANDARD

- i) Ensure effective measures are in place for the safe erection and use of all scaffolds, temporary works and working platforms.
- ii) Ensure all scaffolds are fit for use, all structural members are free from visible defects and the erected scaffold is stable and secure to prevent movement or collapse. Scaffolds must be plumb, have adequate cross-bracing, sound footings and be tied into the structure when the height/base ratio is greater than 2:1. Climbing up the outside of a scaffold is prohibited.
- iii) Working platforms must be closely boarded or planked and free from defects. Remove any damaged boards or planks, debris, materials and waste from scaffolds as soon as it is practicable.
- iv) Install guard rails, mid-rails and toe boards on all open sides of platforms representing a fall risk.

- v) The use of ladders for work at height must be minimised by effective work planning and using safer means of access consistent with the hierarchy of risk control (e.g. MEWPs, scissor lifts, scaffold towers, podium steps and working platforms).
- vi) Maintain three points of contact at all times including when entering and leaving access equipment and when using a ladder to prevent exposure to a fall.

4.1.4 MANAGEMENT OF PENETRATIONS, RISERS AND SHAFTS

CONTROL

Effective measures must be in place to prevent the fall of people or materials down penetrations, risers and shafts.

PERFORMANCE STANDARD

- i) Construct all lift and elevator shafts to physically protect both those carrying out the construction and those below carrying out the lift installation. Provide safe working platforms for all those working in lift shafts.
- ii) Fully protect openings to lift shafts with a secure full height system that prevents unauthorised entry and the risk of falls of people or materials. Ensure shaft opening protection remains in place until a safe working platform is provided or the lift doors are in place.
- iii) Check penetrations and risers have either a structural mesh cast in during construction or are fitted with other protection such as metal guard rails or covers.
- iv) Ensure all floor openings and pit covers are mechanically fixed (i.e. screwed or bolted, not nailed) and have clearly labelled covers. Covers must be constructed to minimise the risk of a trip hazard.
- v) Ensure all covers to floor openings and pits are adequately load bearing where the cover is to be subjected to mobile plant or other significant loads other than people.
- vi) Remove protective measures only when work is taking place in the opening and employ effective safety measures to prevent the potential fall of a person or fall of material. Replace the control measures immediately after the work and regularly inspect these measures.
- vii) Permanent balustrades or fencing around voids in public areas must be climb resistant (e.g. with top rails angled away from the void or similar). Climbable material or equipment must not be placed within one metre (3.3 feet) of the balustrade or fencing, unless the balustrade or fencing is extended in height to account for the material or equipment in close proximity.

4.1.5 USE OF A SAFETY HARNESS

CONTROL

Any safety harness in use must be an approved type with fit for purpose anchor points.

PERFORMANCE STANDARD

- i) If work at height is required and it is not practicable to install physical barriers (e.g. roof access or where work needs to occur outside the physical barrier) a full body safety harness must be used to provide either fall restraint (preferred) or fall arrest (least preferred) protection. If a full body safety harness is being used as the primary means of fall protection verification of competency in use is required.
- ii) Any safety harness in use must be attached to an

appropriate anchor/tie-off point(s) by means of a compatible connector that provides either sufficient fall restraint protection or incorporates a decelerator to provide appropriate fall restraint/arrest. All of these components must be fit for purpose, properly inspected, tagged and maintained in line with the manufacturer's guidelines or related standards and be used only by a competent person.

- iii) Where access to concrete or metal frame erection works cannot be avoided, a safety harness with a compatible twin-tailed or y-shaped lanyard and energy absorber to provide appropriate fall arrest must be used. Workers must be attached to the structure through an appropriate anchor or tie-off point(s), beam gliders or man locks at bolt points and must never remove both tails of the lanyard at any one time from the structure.
- iv) Where a safety harness is configured to either fall arrest or fall restraint the related free fall distance and potential pendulum effect must be allowed for.

RISK EVENT MITIGATING CONTROLS AND PERFORMANCE STANDARDS

4.1.6 SECONDARY FALL PROTECTION

CONTROL

Secondary fall protection measures must be in place where the fall of person risk exists.

PERFORMANCE STANDARD

- i) Any work at height where all work faces cannot be enclosed must have in place a horizontal catch net (e.g. a diaper net, catch fan, horizontally projecting net or any other structurally designed element) as a secondary measure to prevent a fall of person risk. Where work is conducted outside of the building envelope (e.g. where a person is positioned in an articulated MEWP basket beyond the building envelope and the MEWP is positioned to within three metres [9.8 feet] of the edge and is perpendicular to the edge) measures must be implemented to prevent both the MEWP and the person from falling (e.g. tethering the MEWP back to the structure using an engineered tie or using engineered wheel stops). All people working in the basket are to be harnessed to the MEWP at all times.
- ii) Fall protection netting must always be a minimum of one bay ahead of the area of work with the exception of the last bay when edge protection has already been fitted.
- iii) In all cases workers must deploy the use of a safety harness to provide secondary fall restraint if necessary.

4.1.7 RESCUE PROCEDURES

CONTROL

Rescue procedures must be in place for the recovery of any fall of person and arrest/suspension in a harness or in netting.

PERFORMANCE STANDARD

- i) Rescue and recovery protocols must be in place to recover any person who has fallen into a secondary fall protection element (e.g. horizontal netting or catch fan).
- ii) For all circumstances where a safety harness is in use and configured to either fall arrest or fall restraint a recovery plan must be established that addresses the requirement to reach any person suspended within 15 minutes to minimise the risk of death from suspension trauma.

4.2 FALL OF MATERIAL/OBJECT

DESCRIPTION: These critical controls and performance standards apply to events caused by work from an edge of a floor not fully enclosed, inadequate design or installation, high wind, work outside edge protection, inappropriate storage of items, disturbance or demolition leading to a falling object and/or failure of a load. This event is inclusive of demolition, deconstruction, abatement or structural alteration works where the potential for material or objects to fall has been identified. Note: GMRs 4.6 crane and hoisting equipment incident and 4.17 failure of fixtures or fittings address related events.

POTENTIAL CAUSES

- A. Worker drops an object
- B. Object is knocked from an elevated work area and falls
- C. Non-fixed object falls during high wind event
- D. Unplanned or uncontrolled fall of material
- E. Fall of an object due to improper design, installation, maintenance or use
- F. Demolition causes an uncontrolled fall of material

FALL OF MATERIAL/OBJECT

POTENTIAL IMPACTS

PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact

FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)

BUSINESS CONTINUITY: Business continuity and disruption

REPUTATION: Reputational damage

LEGAL/REGULATORY: Legal/regulatory damage

PREVENTATIVE CONTROLS (4.2.1 – 4.2.4)

- 4.2.1 ENCLOSURE OF WORK AREAS:** Elevated work areas must be enclosed with robust containment material to prevent a fall of material impacting people below
- 4.2.2 TOOL AND EQUIPMENT TETHERS/LANYARDS:** Tethers or lanyards must be used where the work area at height is not fully enclosed, or where tools or objects are required for use outside of the perimeter protection.
- 4.2.3 WIND EXPOSURE:** All objects that are not fixed and could be blown or uplifted from an elevated location must be relocated to an unexposed area or secured appropriately
- 4.2.4 STRUCTURAL ALTERATIONS:** Adjustments to structures must assess the fall of material risk

MITIGATING CONTROLS (4.2.5-4.2.6)

- 4.2.5 EXCLUSION ZONES:** An adequate exclusion zone must be in place whenever overhead work has the potential for tools, materials, objects or equipment to fall
- 4.2.6 SECONDARY PROTECTION OR CATCH MEASURES:** Overhead protection must be installed where the risk of falling object exists and wherever a public interface on site exists

RISK EVENT PREVENTATIVE CONTROLS AND PERFORMANCE STANDARDS

4.2.1 ENCLOSURE OF WORK AREAS

CONTROL

Elevated work areas must be enclosed with robust containment material to prevent a fall of material impacting people below.

PERFORMANCE STANDARD

- i) Perimeter protection addressing the fall of person risk must also address the fall of material risk posed by stored or handled tools, materials, objects or equipment to prevent these from being kicked, knocked or bumped through openings or gaps.
- ii) Any means of containment enclosure must address risks posed by the lateral movement of the largest (weight) and smallest (dimension) items used within any permanent and temporary enclosures. Any enclosure solutions must be installed prior to further work being conducted.
- iii) The fall of material risk associated with temporary voids, penetrations, openings or gaps must be managed. Fasten and display warning signage to any cover able to sustain the largest weight and prevent penetration by the smallest object.
- iv) For all vertical progressive construction, full height (floor to soffit) edge containment protection must be deployed and in place on multi-storey structures under construction prior to the installation of the facade or permanently designed edge protection solutions. For all auxiliary elements (e.g. scaffolds, hoists, MEWPs, perimeter screens or climbing formwork) a strict no gaps policy must be adopted for both horizontal and vertical gaps. Solutions relative to these scenarios must be deployed and maintained to prevent the fall of tools, equipment and materials at all times (e.g. fully boarded out platforms, rubber seals, proprietary engineered hinged flaps and appropriately designed mesh).

4.2.2 TOOL AND EQUIPMENT TETHERS/LANYARDS

CONTROL

Tethers or lanyards must be used where the work area at height is not fully enclosed, or where tools or objects are required for use outside of the perimeter protection.

PERFORMANCE STANDARD

- i) Identify scenarios where tools or objects are required to be used outside of an enclosed work area and prescribe associated controls.
- ii) A tether or lanyard must be used to separately secure each individual tool or object in use beyond any form of edge protection or enclosure where there is a risk of people below being impacted. The object must be secured prior to crossing through the edge protection or enclosure.
- iii) Each tether or lanyard and its sub-components securing an object beyond the encapsulation must be fit for purpose and manufactured to resist the falling object's forces.

4.2.3 WIND EXPOSURE

CONTROL

All objects that are not fixed and could be blown or uplifted from an elevated location must be relocated to an unexposed area or secured appropriately.

PERFORMANCE STANDARD

- i) All operations must have information available relating to maximum wind gusts and the placement of objects, either temporary or permanent and must consider the risk of objects being blown or uplifted by wind from any elevated position. Ensure early weather warning systems are in place for operations where there is the risk of windblown falls of materials.
- ii) All objects that could be blown from elevated positions must be firmly fixed, secured or relocated to a less exposed area.
- iii) Ensure protocols exist to cease work activity at height when wind thresholds are exceeded, with protocols inclusive of the need to monitor components located at height such as any pulleys, guide rollers, swing gates or maintenance units.

4.2.4 STRUCTURAL ALTERATIONS

CONTROL

Adjustments to structures must assess the fall of material risk.

PERFORMANCE STANDARD

- i) All structural rectification work or change must have a building and services survey completed by a qualified and registered structural engineer.
- ii) Document a review of any proposed changes to the planned activity or sequence during structural alterations and how associated elements could be affected.

RISK EVENT MITIGATING CONTROLS AND PERFORMANCE STANDARDS

4.2.5 EXCLUSION ZONES

CONTROL

An adequate exclusion zone must be in place whenever overhead work has the potential for tools, materials, objects or equipment to fall.

PERFORMANCE STANDARD

- i) Exclusion zones must be established below or around all areas where there is a risk of people being struck by falling materials (e.g. below works on the cladding of a building, around mobile crane works, loading/unloading activities, atriums and MEWPs in use).
- ii) Exclusion zones must be of adequate size, take into account the risks such as potential arc of fall, deflections and bounce distances, be delineated by physical barriers and have clear signage prohibiting unauthorised entry. The integrity of any exclusion zones must be regularly checked.
- iii) Under no circumstance may a person enter an exclusion zone whilst work is being carried out overhead.

4.2.6 SECONDARY PROTECTION OR CATCH MEASURES

CONTROL

Overhead protection must be installed where the risk of falling objects exists and wherever a public interface on site exists.

PERFORMANCE STANDARD

- i) Identify in construction and asset works any scenarios where overhead protection must be installed, particularly where an engineering control preventing the fall of material cannot be implemented, people below cannot be completely excluded, enclosure or tether/lanyard requirements cannot be met or where an object's position, height from next floor level and mass could cause a fatal injury if it fell onto a person.
- ii) For all structural work on any vertical progressive multi-storey construction, a secondary catch system (e.g. a diaper net, catch fan, horizontally projecting net or any other structurally designed element) must be positioned immediately below any areas where this work is being undertaken above (e.g. at the level just below the screens) and the application must consider the arc of any potential fall of material.
- iii) Where there is the potential for members of the public and/or workers to be impacted by a fall of material, a designed and engineered overhead protection (e.g. crash deck) must be appropriately positioned and of adequate strength and coverage taking into account potential material types and the arc of any potential fall of material.
- iv) Ensure overhead protection or catch systems avoid failure due to impact with the object it is designed to intercept as a result of over spilling, puncture holes, melting by hot objects, corrosion or overload by weather events (e.g. seasonal maximum wind, rain, hail or snow).
- v) Provide details of how the safe retrieval of a fallen object from overhead protection or catch systems will be achieved.

4.3 VEHICLE AND PLANT INCIDENT (WORK SITES)

DESCRIPTION: These critical controls and performance standards apply to the operation and movement of all vehicles in defined construction or engineering zones and include heavy equipment and fixed and mobile plant where the impacts of an event could result in a fatality. It does not cover traffic on Lendlease assets (e.g. retail, residential or commercial) or the use of Lendlease light vehicles on public roads.

POTENTIAL CAUSES

- A. Operator error (e.g. competency, impairment or fatigue) or use in an unsafe manner (e.g. high speeds and distractions such as spotters)
- B. Mechanical failure (e.g. tyres and brakes)
- C. Inadequate planning and methodology (e.g. lack of segregation, public transport interfaces, plant/personnel, loss of control, miscommunication and traffic control including entry/exit to sites)
- D. Sub-standard road, environmental and weather conditions (e.g. turning points, fog, unclear pedestrian/vehicle interface/management, restricted views, blind spots, poor lighting or visibility, poor road markings and obstacles)
- E. Vehicle or equipment is unfit for purpose (e.g. through lack of maintenance, poor procurement, structural fatigue and exceeding the design life)
- F. Third party event (e.g. member of public error or misuse, visitor error, animal error, unplanned medical event, co-worker error, sabotage, theft and contact with other equipment)
- G. Improper assembly or disassembly



POTENTIAL IMPACTS

PEOPLE: Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact

FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)

BUSINESS CONTINUITY: Business continuity and disruption

REPUTATION: Reputational damage

LEGAL/REGULATORY: Legal/regulatory damage

ENVIRONMENT: Environmental damage (e.g. spilt fuels)

MITIGATING CONTROLS (4.3.8)

4.3.8 HIGH VISIBILITY CLOTHING: All people working on or adjacent to traffic routes and vehicles operating on Lendlease operations must have sufficient high visibility clothing and reflective visible markings

PREVENTATIVE CONTROLS (4.3.1- 4.3.7)

- 4.3.1 TRAFFIC MANAGEMENT:** Vehicle routes on construction and haul roads must be managed to ensure risks to vehicles and people are effectively managed
- 4.3.2 PEDESTRIAN AND VEHICLE SEGREGATION:** All locations must assess the risks presented by the movement of pedestrians, materials and vehicles around or next to the site or workplace and implement appropriate safety measures to eliminate or minimise these risks
- 4.3.3 PARKING AND TRAFFIC ROUTES:** Traffic routes and parking arrangements must be in place to avoid vehicle-to-vehicle and vehicle-to-pedestrian conflict
- 4.3.4 USE OF LIGHT VEHICLES ON SITE:** Lendlease tool of trade vehicles operating in defined construction or engineering zones must be in good working order and operated in a safe manner
- 4.3.5 USE OF PLANT, EQUIPMENT AND VEHICLES:** Effective controls must be in place for managing the use of all mobile plant, equipment and vehicles used for ground and civil works, including bobcats, excavators, backhoes, graders, scrapers, bulldozers, dump trucks, rollers and compactors
- 4.3.6 INSTALLATION, INSPECTION MAINTENANCE AND DISMANTLING:** Fixed and mobile plant must be installed, erected, adjusted, inspected, maintained and dismantled in safe locations, in accordance with the manufacturer's requirements and by competent and qualified personnel
- 4.3.7 VEHICLE AND PLANT RECOVERY AND RESCUE:** Effective measures must be in place for the recovery of vehicles and plant immobilised or bogged in mud, sand or other type of similar traction resistant ground conditions

RISK EVENT PREVENTATIVE CONTROLS AND PERFORMANCE STANDARDS

4.3.1 TRAFFIC MANAGEMENT

CONTROL

Vehicle routes on construction and haul roads must be managed to ensure risks to vehicles and people are effectively managed.

PERFORMANCE STANDARD

- i) Ensure any traffic management plans are current and define the engineering controls to prevent vehicles striking another vehicle, structure or pedestrian.
- ii) Separate traffic plans are needed for each stage and area of the operation when the discrete phases of work result in changes to the operating and traffic environment.
- iii) Vehicle routes must facilitate the safe movement of the types of vehicles and levels of traffic likely to use them. This must be achieved by avoiding hazards such as steep inclines, tight bends, requirements to reverse in confined areas, inadequate lane widths and any issues related to roundabouts, one way routes and signage.
- iv) Traffic management plans must address the interface with public roads and provide effective controls addressing prohibited vehicles, access points, routes for different vehicles or plant, reversing requirements, signs and traffic control aids, technology application and site traffic maintenance.

4.3.2 PEDESTRIAN AND VEHICLE SEGREGATION

CONTROL

All locations must assess the risks presented by the movement of pedestrians, materials and vehicles around or next to the site or workplace and implement appropriate safety measures to eliminate or minimise these risks.

PERFORMANCE STANDARD

- i) Pedestrians are to be separated from vehicles and plant at all times by appropriate barriers.
- ii) Light and heavy equipment and plant must be separated using appropriate measures such as physical barriers or earth berms and demarcated using visible signage indicating routes and directions to prevent interaction.
- iii) Activities such as plant maintenance or refuelling must be undertaken in areas specifically designed to ensure that there are barriers between workers and other heavy equipment.
- iv) Route sightlines must be unobstructed and adequately lit to ensure good visibility. Blind spots and corners must be avoided, or where they do exist, have mirrors installed.
- v) Signage and road markings must provide clear instructions to pedestrian and vehicle route users and be located in positions which allow users to see them and have time to respond. Signs and road markings must be constructed and located so as not to present hazards to drivers or pedestrians.
- vi) Loading and unloading areas must be clearly defined. These areas must be separate from parking or access routes for private vehicles and away from pedestrian routes. If reversing cannot be eliminated then it must be controlled by establishing pedestrian exclusion zones.

vii) Speed limits must be set to reduce the risks associated with pedestrian movements. Speed calming measures such as raised crossings, humps on approach to crossings and rumble strips must be implemented in areas where pedestrians and vehicles could interface.

viii) Construction sites must provide separate site entrance and exit points for pedestrians and vehicles. When vehicles and pedestrians are in close proximity due to nearby locations such as security entrance points or where doors open directly onto vehicle routes, engineering controls must be provided to keep pedestrians and vehicles apart (e.g. by fitting physical barriers or providing separate routes).

ix) The use of traffic signallers must be eliminated wherever practicable, particularly around heavy equipment operations. Where traffic signallers are required such as for pedestrian access areas or to manage public road interface, only trained and competent traffic signallers are to be used. In these instances a risk assessment must be undertaken to identify where technology can be implemented to replace or remove the spotter, safe locations, hard barrier controls and adequate line of sight and radio contact.

x) Implement safety measures where work is undertaken next to active roads, train lines or similar, to protect workers from impacts with moving vehicles, trains or associated debris. For large sites like road construction or maintenance projects, physical barriers or truck mounted attenuators must be used to protect workers from road traffic. Where this cannot be achieved, low speed limits must be in place (less than or equal to 40km per hour [25mph]) in combination with traffic calming measures, hazard signage, demarcation lines and barriers to minimise risk for workers and the public.

4.3.3 PARKING AND TRAFFIC ROUTES

CONTROL

Traffic routes and parking arrangements must be in place to avoid vehicle-to-vehicle and vehicle-to-pedestrian conflict.

PERFORMANCE STANDARD

- i) Provide clear signage in carparks, along traffic routes and foot traffic areas to indicate location information, speed limits, hazards and precautions.
- ii) Provide clearly defined pedestrian routes in safe zones using hard barriers, flagging and other visual delineation to facilitate safe access and egress.
- iii) Locate height bars and signage to entrances to warn drivers of any applicable height limits. Provide safe exit routes for oversized vehicles.
- iv) Where amenities are provided, delineated fundamentally stable car parking must be provided.

4.3.4 USE OF LIGHT VEHICLES ON SITE

CONTROL

Lendlease tool of trade vehicles operating in defined construction or engineering zones must be in good working order and operated in a safe manner.

PERFORMANCE STANDARD

- i) Vehicles used as a tool of trade by Lendlease personnel must be operated in a safe manner at all times.
- ii) Light vehicles on operations must be of a high visibility colour (e.g. white) and have reflective taping, flashing lights, a first aid kit, a fire extinguisher, a spill kit and survival or emergency equipment suitable for the operating environment.
- iii) Vehicles proposed for hire or purchase must have a minimum five star Australasian New Car Assessment Program (ANCAP) rating or equivalent standard.
- iv) Vehicles provided by Lendlease as a tool of trade shall be fitted with in vehicle management systems, reversing cameras and hand brake warning systems.
- v) Seatbelts must be used at all times by all occupants and drivers of vehicles.
- vi) Vehicle journeys of two hours or more continual driving must be planned to ensure adequate rest breaks are in place and that there is provision to manage fatigue.
- vii) Mobile phones, whether hands free or not, must only be used by the driver of a tool of trade vehicle whilst the vehicle is stationary and in a parked safe location. The exception to this is for emergency and incident response vehicles, using hands free communications in a response situation, where alternative communication methods are not available.
- viii) All drivers must be appropriately licensed for the vehicle being operated and be fit for work (i.e. not impaired by medication, drugs or alcohol).
- ix) When parked all vehicles must be fundamentally stable with the engine turned off, handbrake effectively applied, placed in gear and on level ground. Wheels must be situated in spoon drains, gutters or against wheel stops. If fundamentally stable parking cannot be achieved appropriately sized wheel chocks must be available and implemented.
- x) All Lendlease vehicles must have inspection and maintenance protocols in place for all safety related items such as wheels and tyres, steering, suspension and braking systems, seats and seat belts, lamps, indicators, mirrors and reflectors, windscreen and windows including windscreen wipers and washers, the vehicle structure itself and any other safety related item on the vehicle body, chassis or engine including instrumentation.
- xi) Pre-start inspections must be completed to ensure the lighting and braking systems are in proper working order.
- xii) Vehicles must not be used above the manufacturer defined maximum load limit.
- xiii) Wheel nut indicators must be fitted to all vehicle wheels.

4.3.5 USE OF PLANT, EQUIPMENT AND VEHICLES

CONTROL

Effective controls must be in place for managing the use of all mobile plant, equipment and vehicles used for ground and civil works, including bobcats, excavators, backhoes, graders, scrapers, bulldozers, dump trucks, rollers and compactors.

PERFORMANCE STANDARD

- i) Operating mobile plant and equipment must have seat belts for all occupants, adequate lighting (e.g. headlights, tail, turn, brake, strobe and flashing lights) identified isolation or lockout points, adequate walkways, railing, steps or grab handle combinations and boarding facilities including an alternative path of disembarkation from the cabin in case of emergency, reversing alarms, wheel chocks, a horn, a handbrake alarm and effective windscreen wipers.
- ii) Technological advances must be considered for collision avoidance, fatigue management, pedestrian proximity notification and visibility improvement, particularly where personnel are required to enter the potential impact zone of operating plant, vehicles and equipment.
- iii) Ensure all mobile plant and equipment has protection where there is a risk of rollover, tip over or impact by falling objects (e.g. loading or unloading, work on stockpiles or steep inclines, work below other material or activities or where manufacturer's specifications require it).
- iv) Replace or re-certify protection gear after a rollover, tip over or falling object damage and before further use.
- v) Prohibit the use of mobile phones when the plant or equipment is in use.
- vi) Protocols must be provided for the use of plant and equipment on slopes and batters to avoid vehicle rollovers. Technology solutions must be in place to provide warning for the potential of safe working angles to be exceeded or the loss of traction.
- vii) Clearly identify minimum clearance distances for overhead cables and establish controls to prevent plant or equipment coming into contact with these cables.
- viii) If personnel are required to enter the potential impact zone of operating plant, vehicles and equipment without a physical barrier, positive eye contact, signals or radio contact must be made with the operator to cease operation and lower implements such as dipper arms, buckets and blades to the ground before entry.
- ix) Establish and maintain pedestrian exclusion zones around operating plant and equipment where there is a risk of workers being struck. Clearly identify specific exclusion zones for stationary but operating plant or equipment (e.g. an excavator with its bucket in use) for each type of plant or equipment and implement an appropriate exclusion zone, preferably a physical barrier.
- x) When parked all plant and equipment must be fundamentally stable with the engine turned off, handbrake effectively applied, placed in gear and on level ground. Wheels must be situated in spoon drains, gutters or against wheel stops. Implements and attachments such as dipper arms, buckets and blades must be lowered to the ground. If fundamentally stable parking cannot be achieved appropriately sized wheel chocks must be available and implemented for wheeled plant.

4.3.6 INSTALLATION, INSPECTION, MAINTENANCE AND DISMANTLING

CONTROL

Fixed and mobile plant must be installed, erected, adjusted, inspected, maintained and dismantled in safe locations, in accordance with the manufacturers requirements and by competent and qualified personnel.

PERFORMANCE STANDARD

- i) Fixed and mobile plant must be installed and dismantled off-site. Where this is not possible, it must be conducted in a safe location on-site. Where there is a risk of workers being struck, establish and maintain physical exclusion zones around plant that is being installed, modified or dismantled.
- ii) Where fixed and mobile plant is provided to Lendlease, suppliers must provide a complete set of the manufacturer's operating and maintenance instructions. Inspection and maintenance records must be kept with the plant and conform to the requirements of the standards applicable to the region of operation and as per the manufacturer's requirements. All plant must be installed, inspected, maintained and dismantled by competent and qualified personnel in accordance with the manufacturer's instructions.

- ii) Ensure all reflective markings on vehicles or plant on Lendlease operations are in good condition and comply with regulatory or industry standards.
- iii) When working at night ensure high visibility clothing is suitable (e.g. effective retroreflective stripes).

4.3.7 VEHICLE AND PLANT RECOVERY AND RESCUE

CONTROL

Effective measures must be in place for the recovery of vehicles and plant immobilised or bogged in mud, sand or other type of similar traction resistant ground conditions.

PERFORMANCE STANDARD

- i) In the first instance attempt to drive out the bogged vehicle or plant either through freeing up or digging out the obstructions and/or via the aid of recovery boards and planks to facilitate grip and traction.
- ii) Towing of bogged vehicles and plant can only be undertaken when engineering attachment points and/or other methods are identified and verified.
- iii) The suitability of recovery equipment such as cables, winches and hooks used to tow vehicles and plant must be fit for purpose and verified by an independent engineer.
- iv) Snatch straps and chains such as webbing slings, load resistant slings and rope must not be used for the recovery of vehicles and plant.

RISK EVENT MITIGATING CONTROLS AND PERFORMANCE STANDARDS

4.3.8 HIGH VISIBILITY CLOTHING

CONTROL

All people working on or adjacent to traffic routes and vehicles operating on Lendlease operations must have sufficient high visibility clothing and reflective visible markings.

PERFORMANCE STANDARD

- i) Ensure all people working adjacent to traffic routes or engaged in traffic management activities wear high visibility clothing that meets applicable regulatory or industry standards.

4.4 UNCONTROLLED RELEASE OF ELECTRICAL ENERGY

DESCRIPTION: These critical controls and performance standards apply to high voltage (HV) and low voltage (LV) electrical work where there is the risk of a fatality from a person being electrocuted or burned by the uncontrolled release of electrical energy. They do not apply to work such as unplugging sockets and installing dry cell batteries.

POTENTIAL CAUSES

- A. Unintentional contact with or close proximity to live exposed electrical source – HV or LV
- B. Unintentional contact with or close proximity to live overhead power lines
- C. Unintentional contact with or close proximity to live buried electrical services
- D. Unintentional contact with electricity by a qualified electrician when performing work on known live electrical services

UNCONTROLLED RELEASE OF ELECTRICAL ENERGY

POTENTIAL IMPACTS

- PEOPLE:** Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact
- FINANCIAL:** Financial/commercial damage (insurance claims, return to work costs)
- BUSINESS CONTINUITY:** Business continuity and disruption
- REPUTATION:** Reputational damage
- LEGAL/REGULATORY:** Legal/regulatory damage
- ENVIRONMENT:** Environmental damage (e.g. fire)

PREVENTATIVE CONTROLS (4.4.1- 4.4.8)

- 4.4.1 IDENTIFICATION AND SCHEMATICS:** All electrical circuits including overhead and underground services are fully identified and recorded in schematics. Procedures exist for safe work
- 4.4.2 APPROPRIATE ELECTRICAL EQUIPMENT:** All electrical equipment including insulated MEWPs, tools and PPE must be fit for purpose and compliant with local standards
- 4.4.3 ELECTRICAL SUPPLY:** All temporary electrical supply panels and boards must be sufficient in number and located in close proximity to work areas to minimise trailing cables. Permanent and temporary power sources must be secured to prevent unauthorised access
- 4.4.4 ISOLATION:** De-energise, isolate and test for dead prior to any work on electrically powered items
- 4.4.5 LIVE WORK:** Live work is authorised, planned and communicated and prohibits lone working
- 4.4.6 FAULT FINDING:** When investigating any electrical equipment to identify and rectify faults, all items must be treated as live until the fault is located
- 4.4.7 OVERHEAD CONDUCTORS:** Prevent inadvertent overhead services contact by equipment or operational activity
- 4.4.8 UNDERGROUND SERVICES:** Prior to ground disturbance, underground electrical services must be positively located with work planned accordingly

MITIGATING CONTROLS (4.4.9)

- 4.4.9 EMERGENCY RESPONSE:** Appropriate first aid and rescue equipment must be available and nearby

RISK EVENT PREVENTATIVE CONTROLS AND PERFORMANCE STANDARDS

4.4.1 IDENTIFICATION AND SCHEMATICS

CONTROL

All electrical circuits including overhead and underground services are fully identified and recorded in schematics. Procedures exist for safe work.

PERFORMANCE STANDARD

- i) Identify all electrical circuits and include schematics in a register(s) irrespective of whether the power supply arrangements are permanent or temporary.
- ii) Following installation or removal of any service, ensure comprehensive records and photographs are received from a delegated person such as a utility provider with schematics updated following changes.

4.4.2 APPROPRIATE ELECTRICAL EQUIPMENT

CONTROL

All electrical equipment including insulated MEWPs, tools and PPE must be fit for purpose and compliant with local standards.

PERFORMANCE STANDARD

- i) Ensure nationally recognised standards of manufacture and installation of electrical equipment are identified with the assistance of qualified electrical professionals.
- ii) Check all electrical equipment supplied to Lendlease operations includes documentation confirming it meets the manufacturing standard identified in the procurement list.
- iii) Ensure insulating mats are in place for risers and plant rooms that address any regulatory or applicable national or international codes or standards.
- iv) Ensure confirmation is completed post installation of any electrical systems verifying that all circuits are installed as designed.
- v) All electrical tools and equipment in the operation, including offices, must be regularly inspected, tested, tagged and marked safe for use.

4.4.3 ELECTRICAL SUPPLY

CONTROL

All temporary electrical supply panels and boards must be sufficient in number and located in close proximity to work areas to minimise trailing cables. Permanent and temporary power sources must be secured to prevent unauthorised access.

PERFORMANCE STANDARD

- i) Electrical risks associated with the temporary or permanent supply of electricity to electrical equipment through a socket outlet, including mobile generator sources, or where appliances, luminaires and other electrical equipment are supplied from a final sub-circuit of a permanent electrical installation, must be protected against by an earth leakage circuit breaker (ELCB), residual current device (RCD) or ground fault circuit interrupter (GFCI).
- ii) Ensure all electrical supply boards, cables, cords plugs and sockets are safe by design for use, appropriate for where it is to be used and located to avoid physical damage by vehicles or water (e.g. by elevation or mechanical

protection).

- iii) Implement a comprehensive inspection, testing and preventative maintenance regime covering all temporary electrical supplies, including supply panels, circuits, cables, cords, plugs and sockets. Include a process to record and remedy any identified deficiencies and align with any manufacturers' guidelines.

4.4.4 ISOLATION

CONTROL

De-energise, isolate and test for dead prior to any work on electrically powered items.

PERFORMANCE STANDARD

- i) Use a qualified electrical technician or electrical engineer to undertake any electrical work.
- ii) De-energise circuits and isolate using personal locks prior to any work.
- iii) Power sources such as uninterruptable power supplies (UPS), batteries, capacitors, solar power and generators must be identified. Once identified they must be de-energised and securely isolated at the energy source before works commence.
- iv) Develop a group isolation procedure with support equipment when multiple isolations involve multiple people.
- v) Prior to any work commencing electrical power must be tested with a known working and calibrated meter and proven as dead.

4.4.5 LIVE WORK

CONTROL

Live work is authorised, planned and communicated and prohibits lone working.

PERFORMANCE STANDARD

- i) Ensure all operations establish if work on live conductors is required before any investment or contract approvals.
- ii) Make sure work on live electrical systems is not undertaken, except where deemed absolutely necessary by a competent person for testing, fault finding and/or commissioning work, or where the electrical supply cannot be interrupted (e.g. hospital life support systems and critical utilities).
- iii) Only undertake live work on critical utilities such as distribution and/or transmission networks as directed by the utility provider. Ensure any directive to undertake such activities is supported by documented safe systems of work and in line with legislated practices.
- iv) Ensure earthing and short circuiting systems meet applicable national and/or international codes or regulations.
- v) Ensure task specific PPE is issued, in place and meets applicable national and/or international codes or regulations.
- vi) Assess the risk of electrical fires and implement appropriate precautions (e.g. fire watch, appropriate extinguishers and fire blankets).
- vii) Ensure a dedicated and appropriately qualified frontline leader is present and managing any live works relating to testing, fault finding and/or commissioning.

4.4.6 FAULT FINDING

CONTROL

When investigating any electrical equipment to identify and rectify faults, all items must be treated as live until the fault is located.

PERFORMANCE STANDARD

- i) Prior to any fault finding work commencing, all elements of the circuit must be de-energised, isolated and tested for dead.
- ii) Whilst isolated, locate and rectify the fault if found.
- iii) Re-energise to determine if the fault has been fixed.
- iv) If the fault continues, fault finding live work procedures must be followed including the use of insulating tools and gloves, insulating mats and a qualified electrical spotter trained in cardio pulmonary resuscitation (CPR).

4.4.7 OVERHEAD CONDUCTORS

CONTROL

Prevent inadvertent overhead services contact by equipment or operational activity.

PERFORMANCE STANDARD

- i) Use one of the following control options to prevent a fatality:
 - Redirect power distribution (e.g. underground)
 - Power off all the time with power proven as dead
 - Power off part time
 - Power on in conjunction with controlled movement or operations
- ii) Minimum clearance distances for overhead cables must be clearly identified with controls in place to prevent plant coming into contact with these cables.
- iii) For vehicles passing under energised conductors, ensure the power on option requires a crossing point that includes advance warning signs with signed height clearance, non-conductive goal posts and a clearly visible height line set to a safe clearance distance.

4.4.8 UNDERGROUND SERVICES

CONTROL

Prior to ground disturbance, underground electrical services must be positively located with work planned accordingly.

PERFORMANCE STANDARD

- i) Ensure a register is in place for buried electrical services on Lendlease controlled operations. The register must include a plot drawing of the route of the electrical service with grid references, description of the depth and type of service, the voltage and any auxiliary protection.
- ii) Prior to the disturbance of ground where underground network assets such as electrical or gas may be present, Lendlease operations must ensure that diagrams and plans are obtained from the relevant authority and are available and valid. Existing drawings and/or a Cable Avoidance Tool (CAT) scanner and any other suitable tool must be used to locate and mark underground services before work commences. Where any uncertainty exists regarding the location of underground services, hand digging and/or vacuum excavation must be used to identify the services.

- iii) Where Lendlease installs or oversees buried electrical services work for its own assets or projects, compile an as-built record of the service locations including:
 - Photographic reference of the asset before back filling to show cable type, depth and route.
 - In trench signage, both tape and boards at least 250mm (9.8 inches) above the service.
 - Datum signs indicating service at building ingress and every 50m (164 feet) over open ground.
 - Service markers on ground level showing service types and all changes in direction.
 - For removed services, photographic reference of the empty trench and positive permanent disconnection from supply.

RISK EVENT MITIGATING CONTROLS AND PERFORMANCE STANDARDS

4.4.9 EMERGENCY RESPONSE

CONTROL

Appropriate first aid and rescue equipment must be available and nearby.

PERFORMANCE STANDARD

- i) Provide non-conductive rescue equipment to allow separation of a person safely from an electrical supply, resuscitation and treatment of burns.
- ii) Locate rescue equipment within all plant rooms, discrete risers (construction and non-construction) and in all applicable service vehicles. They must be accessible when undertaking work.
- iii) Train all workers involved in the work and site first aiders where appropriate to use the rescue equipment.
- iv) HV and live work permits must include the provision of rescue equipment.

4.5 FIRE AND EXPLOSION

DESCRIPTION: These critical controls and performance standards apply to operations where a fire may result in the fatality of one or more people. They apply to fire systems, both technical and administrative, buildings under construction, managed operating assets, offices and underground works and are inclusive of hot works in any setting.

POTENTIAL CAUSES

- A. Plant, equipment or vehicle on fire due to inadequate maintenance, improper use or being unfit for purpose
- B. Unsafe and non-conformant hot works
- C. Ignition of flammable materials (e.g. gas, liquid or solids)
- D. Self-combustion of gases, chemicals and strata
- E. Unplanned sudden release of stored flammable materials (e.g. rupture)
- F. Failure of component or system
- G. Frictional ignition from equipment
- H. Unauthorised smoking and other open flame ignition sources
- I. Unsafe blasting activities
- J. Unsafe re-fuelling activities
- K. Utilities, electrical system or cable overheating
- L. Poor housekeeping and unsafe storage of combustible materials
- M. Intentional third party activities (e.g. arson)
- N. Adverse weather conditions
- O. Unintentional third party activities

FIRE AND EXPLOSION

POTENTIAL IMPACTS

- PEOPLE:** Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact
- FINANCIAL:** Financial/commercial damage (insurance claims, return to work costs)
- BUSINESS CONTINUITY:** Business continuity and disruption
- REPUTATION:** Reputational damage
- LEGAL/REGULATORY:** Legal/regulatory damage
- ENVIRONMENT:** Environmental damage

MITIGATING CONTROLS (4.5.8-4.5.10)

- 4.5.8 FIRE ALARM SYSTEMS:** Fire alarm systems that detect and warn of smoke and fire emergencies must be in place
- 4.5.9 MEANS OF ESCAPE:** Provide clear means of escape
- 4.5.10 FIRE FIGHTING EQUIPMENT:** Provision of adequate and suitable firefighting equipment

PREVENTATIVE CONTROLS (4.5.1-4.5.7)

- 4.5.1 PRIORITISATION OF NON-COMBUSTIBLE MATERIALS:** Substitute or minimise use of combustible materials with non-combustible or lowest combustible materials wherever possible
- 4.5.2 IGNITION SOURCES:** Identify, minimise and manage ignition sources
- 4.5.3 INSPECTION AND MAINTENANCE:** Inspect and maintain fire monitoring and mitigation systems and equipment
- 4.5.4 HOT WORK:** Permits to work must be in place for all hot works activities
- 4.5.5 REFUELLING EQUIPMENT:** Controlled refuelling areas and procedures for refuelling large equipment, plant, machinery and vehicles
- 4.5.6 EXCAVATIONS AND TUNNELLING:** Geotechnical investigations must identify gas or trapped hydrocarbons
- 4.5.7 BEHAVIOURAL CONTROLS:** Adequate policies, procedures and rules must be in place to limit unwanted behaviours

RISK EVENT PREVENTATIVE CONTROLS AND PERFORMANCE STANDARDS

4.5.1 PRIORITISATION OF NON-COMBUSTIBLE MATERIALS

CONTROL

Substitute or minimise use of combustible materials with non-combustible or lowest combustible materials wherever possible.

PERFORMANCE STANDARD

- i) Where a business unit requires a particular product for construction such as cross laminated timber (CLT), the product treatment and management practices must demonstrate that combustibility properties meet all local building regulations and material selection standards.
- ii) Ensure operations comply with local building regulations and material selection standards for design and procurement applied by the business unit.
- iii) Ensure the potential for fire at each stage of construction and asset operations, including fire from an adjoining property, is assessed given any changes to material requirements and storage.
- iv) Ensure storage locations and requirements for all combustible material, dangerous goods and hazardous substances are identified and marked on site plans and at the storage location.

4.5.2 IGNITION SOURCES

CONTROL

Identify, minimise and manage ignition sources.

PERFORMANCE STANDARD

- i) Ensure design and operational reviews assess the potential for plant and equipment to be a fire ignition source (e.g. from high heat in normal mode, overheating in fault condition, arcing or sparking).
- ii) Provide lightning protection where the risk of a strike is deemed high due to prevalence of electrical storms or data made available via meteorological agencies.

4.5.3 INSPECTION AND MAINTENANCE

CONTROL

Inspect and maintain fire monitoring and mitigation systems and equipment.

PERFORMANCE STANDARD

- i) Identify all fixed and portable systems and equipment that monitors fire initiation and mitigates fire propagation (e.g. fire suppression).
- ii) Implement a testing and maintenance regime that meets statutory guidelines, manufacturer's guidelines and any applicable codes or legislative requirements.

4.5.4 HOT WORK

CONTROL

Permits to work must be in place for all hot works activities.

PERFORMANCE STANDARD

- i) A Hot Work Permit is required for all work where there is an elevated heat source or where sparks produced have the ignition energy to ignite any combustible material.
- ii) A Hot Work Permit is to be applicable for no more than one day, with the authorising person(s) to check site conditions and specified risk controls.
- iii) During hot works, the worker to whom the permit is issued must remain at the location of hot works at all times and until all ignition or heat sources are eliminated.
- iv) Ensure the permit is issued only to individuals who are fluent in the language the permit is written in or who have been inducted in the permit requirements by a suitable interpreter.

4.5.5 REFUELLING EQUIPMENT

CONTROL

Controlled refuelling areas and procedures for refuelling large equipment, plant, machinery and vehicles.

PERFORMANCE STANDARD

- i) Off-site refuelling is preferred. However, where on-site re-fuelling facilities provide the only practicable alternative, the following applies:
 - Minimise the quantity of fuel stored and the number of re-fuelling facilities.
 - A spill kit(s) must be provided and maintained in all workplaces with contents consistent with the type, nature and scale of the potential spills that could occur and key personnel must be trained in spill response. Storage of fuel or other vessels containing hydrocarbons must be in a bunded area with an impervious floor that contains as a minimum 110% loss of the largest container in the bunded area in the event of a spill.
 - An accountable frontline leader for the area must be in place at all times and accompanied by those trained in response requirements (e.g. spill and fire response), protected by physical barriers.
 - Ensure emergency fuel flow shut off capability for bulk fuel supplies.
- ii) Operations must implement suitable controls for the refuelling of small equipment and tools such as brush cutters, generators and demolition saws so as to prevent the occurrence of fire from hot manifolds or other engine components during refuelling.
- iii) No refuelling of items that are energised is permitted.

4.5.6 EXCAVATIONS AND TUNNELLING

CONTROL

Geotechnical investigations must identify gas or trapped hydrocarbons.

PERFORMANCE STANDARD

- i) Identify geo-technical or subsurface hazards caused by flammable substances before designing, procuring or commencing any excavation or tunnel. This includes physically checking the operational site.
- ii) For tunnelling and excavations where flammable gases or hydrocarbons exist ensure the International Electrotechnical Commission (IEC) 60079 series of explosive atmosphere standards are applied.

- iii) Where other gas or hydrocarbon hazards are identified that cannot be fully mitigated using IEC60079, additional controls must be clearly identified.

4.5.7 BEHAVIOURAL CONTROLS

CONTROL

Adequate policies, procedures and rules must be in place to limit unwanted behaviours.

PERFORMANCE STANDARD

- i) Document and communicate a site protocol addressing required behaviours of any person entering the operation or construction site as it relates to fire prevention and emergency response addressing:
 - Prohibition of smoking unless designated areas are prescribed that do not pose a fire or explosion risk.
 - Fire prevention protocols (e.g. hot works, combustible materials and storage).
 - Preservation of fire sensors and alarms, firefighting equipment and emergency routes.
 - Accountabilities and emergency response protocols during a fire response.
- ii) A separate procedure is required for handling of explosives use for rock blasting.

RISK EVENT MITIGATING CONTROLS AND PERFORMANCE STANDARDS

4.5.8 FIRE ALARM SYSTEMS

CONTROL

Fire alarm systems that detect and warn of smoke and fire emergencies must be in place.

PERFORMANCE STANDARD

- i) Effective means for early detection and warning of the presence of fire must be in place that are appropriate for the level of risk. This may range from fully automated wireless or wired systems to the use of manual bells, horns or sirens with people assigned to fire watch duties. All offices and welfare areas must have fire alarm systems installed. Alarms must deliver effective warning (audible and visual) in all areas where people may be present.
- ii) All fire alarm systems must be checked and tested, including when they are moved, in line with manufacturer guidelines and applicable codes or regulations to ensure they are functional and the results recorded.

4.5.9 MEANS OF ESCAPE

CONTROL

Provide clear means of escape.

PERFORMANCE STANDARD

- i) Effective means of escape must be provided and maintained. A means of escape must be provided that does not require the use of passenger lifts and escalators and which is suitable for the number and specific needs of all people likely to use it.

- ii) At least two alternative means of escape must be provided for operations that are open to the public and must be provided for all operations. For low density residential dwellings where there is only one means of escape from upper levels, the provision of temporary emergency means of escape from elevated rooms or levels must be considered (e.g. provision of emergency ladders).
- iii) Emergency escape routes must be easily identifiable, of adequate width, kept free from obstruction and not used for storage and have emergency lighting including directional signs and exit points marked using pictograms and lights.
- iv) Emergency routes on operations under construction or temporary structures must offer a minimum of one hour fire resistance and have fire doors fitted to them.

4.5.10 FIRE FIGHTING EQUIPMENT

CONTROL

Provision of adequate and suitable firefighting equipment.

PERFORMANCE STANDARD

- i) Sufficient firefighting equipment (e.g. fire extinguishers, hose reels, fire blankets and risers) must be provided that is appropriate for the site and works and which complies with any applicable codes or regulations.
- ii) All firefighting equipment must be correctly located, readily accessible, unobstructed, clearly signed and have clear instructions on its correct use.
- iii) Risers must progress with the construction or demolition of multi-storey buildings, be no more than two floors below the construction floor, be under constant pressure and be regularly tested to ensure adequate water flow rate/pressure for the length and diameter of the riser and hose attached. An alarm advising of when there is a drop in the water flow/pressure of the system must also be fitted.
- iv) Connections for the Fire Authority must satisfy the local requirements. In exceptional circumstances where it is impracticable to provide coverage from risers and hose reels, effective means for extinguishing fires must be provided that address the risk and satisfy regulatory requirements (e.g. drench drums, fire pails and additional fire extinguishers).
- v) All firefighting equipment must be checked and serviced regularly, including testing of pump sets of wet risers and firefighting lift controls by a competent person in accordance with manufacturer guidelines or any applicable codes or regulations and the results recorded. A weekly visual check must be carried out on all firefighting equipment to ensure they have not been damaged, discharged or gone missing.
- vi) Adequate access must be maintained at all times for emergency services vehicles.

4.6 CRANE AND HOISTING EQUIPMENT INCIDENT

DESCRIPTION: These critical controls and performance standards apply to all activities where loads are raised by tower and mobile cranes, barge cranes, recovery cranes, mast climbers, goods and passenger hoists, spider cranes and gantry cranes where a failure of the equipment or operation could result in a fatality. They do not apply to lower weight hoisting activities such as hoisting with excavators, concrete placing booms, pallet trucks, forklifts or the use of gin wheels.

POTENTIAL CAUSES

- A. Failure of base, foundation or support (crane tower) including gantry rails, tie-backs and fixing points
- B. Crane and lifting equipment overload from inappropriate or poor planning
- C. Crane and lifting equipment collision (e.g. jibs)
- D. Improper assembly or disassembly including crane jumping
- E. Crane and lifting equipment is procured, used incorrectly or not to standard (e.g. insufficient locks and limit devices)
- F. Adverse conditions (e.g. extreme weather conditions, slopes and ground conditions, moisture, rain, wind and lightning)
- G. Operator misuse or incompetence
- H. Operator fatigue or impairment (e.g. as a result of drug and/or alcohol use)
- I. Inappropriate state of equipment resulting in component failure (e.g. age, lack of maintenance and base metal fatigue)
- J. Impact from other plant or equipment
- K. Fire on crane and lifting equipment
- L. Sabotage

CRANE AND HOISTING EQUIPMENT INCIDENT

POTENTIAL IMPACTS

- PEOPLE:** Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact
- FINANCIAL:** Financial/commercial damage (insurance claims, return to work costs)
- BUSINESS CONTINUITY:** Business continuity and disruption
- REPUTATION:** Reputational damage
- LEGAL/REGULATORY:** Legal/regulatory damage
- ENVIRONMENT:** Environmental damage

MITIGATING CONTROLS (4.6.10-4.6.11)

- 4.6.10 EXCLUSION ZONES:** Robust and controlled exclusion zones must be established, tested and approved
- 4.6.11 POST INCIDENT RESPONSE:** Independent verification of the safe status of crane and hoisting equipment must be undertaken following an incident and before re-use

PREVENTATIVE CONTROLS (4.6.1 – 4.6.9)

- 4.6.1 CRANES AND HOISTING EQUIPMENT IN USE:** Only use lifting and hoisting equipment that addresses all applicable usage and operating requirements
- 4.6.2 LIFT PLANS:** All crane and hoisting equipment must be in accordance with any lift plans
- 4.6.3 INSTALLATION, INSPECTION, MAINTENANCE AND DISMANTLING:** Cranes and other hoisting equipment must be installed, erected, adjusted, climbed, inspected, maintained and dismantled in accordance with the manufacturer's requirements
- 4.6.4 OVERSIGHT:** All crane and hoisting equipment must be maintained and operated in accordance with the manufacturer's operating instructions
- 4.6.5 TOWER CRANE ACCESS AND SECURITY:** Security precautions must guard against unauthorised access to tower cranes
- 4.6.6 GROUND CONDITIONS:** All cranes must be established and set up on approved ground conditions
- 4.6.7 FATIGUE MANAGEMENT:** A fatigue management program must be in place for crane/hoist operators
- 4.6.8 PREVENTING PLANT COLLISIONS:** Install hard barriers (tower crane), exclusion zones (mobile crane) or other barriers to prevent plant collisions
- 4.6.9 HANDLING OBJECTS:** Uncontrolled movement of objects must not occur

RISK EVENT PREVENTATIVE CONTROLS AND PERFORMANCE STANDARDS

4.6.1 CRANES AND HOISTING EQUIPMENT IN USE

CONTROL

Only use lifting and hoisting equipment that addresses all applicable usage and operating requirements.

PERFORMANCE STANDARD

- i) Cranes and any of the crane's components (e.g. ties, tower sections and yokes) on all operations must not exceed 20 years of age since manufacture at any point during the project to limit the risk of structural failure from base metal fatigue.
- ii) All crane and hoisting equipment must be manufactured, inspected and tested to the requirements of the standards applicable to the region of operation. Tower cranes must be assessed against any international standards that are applicable (e.g. EN 14439) or local standards where requirements are higher.
- iii) All crane and hoisting equipment in operational service must be fitted with limit switches and alarms that initiate at 95% of the original manufacturer's rated lift capacity and cease operation at 100% of the manufacturer's rated lift capacity. Note: This is not a further reduction on any regulated de-limiting applicable on cranes in some jurisdictions and only refers to the original manufacturer's lift capacity rating.
- iv) Tower cranes must be fitted with limit switches and alarms when operating in close proximity to other tower cranes and a secondary independent brake must be fitted on all winches.
- v) The crane boom/jib safe operating envelope must be identified for each item of crane hoisting equipment on a range diagram.
- vi) All crane rotating hoisting equipment must be adequately guarded by physical barriers to prevent the potential for entanglement.
- vii) Monitoring data must be made available in real time for any tower crane or hoisting equipment fitted with computer monitoring.
- viii) Crane towers must be fitted with lighting for safe access to the full height of the tower during early morning or evening hours.
- ix) The maximum height required to be climbed by a tower crane operator must not be more than sixteen frames high, past which an intermediate ramp access must be provided.
- x) Where a workbox is proposed for use to elevate people using a crane, a risk assessment must be undertaken to review safer alternatives and where determined as the only suitable means of access, its use shall be controlled by a permit to work.
- xi) Any crane that uses a workbox to elevate people must be fitted with a secondary independent brake to all winches.

4.6.2 LIFT PLANS

CONTROL

All crane and hoisting equipment must be in accordance with any lift plans.

PERFORMANCE STANDARD

- i) A lift plan, approved by a qualified engineer, must be developed for all crane lifts greater than 20 tonnes and also for any lift that requires a crane to operate at greater than 95% of the original manufacturer's rated capacity. Note: This is not a further reduction on any regulated de-limiting applicable on cranes in some jurisdictions and only refers to the original manufacturer's lift capacity rating.
- ii) It must be noted that special lifts that require a third party independent engineer to review the lift plan and where required supervise the execution of a lift to confirm the adequacy of the lifting methodology requires detailed schematics, communication plans and assessment of ground or other applicable conditions. This includes the following lift types:
 - Any lifts that require the crane to operate between 95% and 100% of the original manufacturer's rated capacity.
 - Any abnormal loads that due to their centre of gravity, unusual shape or density may be adversely affected by wind during a lift.
 - Any lifting operation that requires the load to slew or travel over public or private properties or infrastructure that requires closure or evacuation of these areas.
 - Any load that requires more than one crane (e.g. dual or tandem lifts).
- iii) No operational lifting is to be permitted that is above 100% of the original manufacturer's crane and hoisting equipment lifting capacity.

4.6.3 INSTALLATION, INSPECTION, MAINTENANCE AND DISMANTLING

CONTROL

Cranes and other hoisting equipment must be installed, erected, adjusted, climbed, inspected, maintained and dismantled in accordance with the manufacturer's requirements.

PERFORMANCE STANDARD

- i) The installation and commissioning of a tower crane or other hoisting equipment requiring assembly must be reviewed and approved by a third party independent engineer prior to the first operational lift.
- ii) A third party inspection regime must be implemented for selected lifting and hoisting equipment and included in the supply agreement. Where crane or other hoisting equipment is provided to Lendlease, suppliers must provide a complete set of the manufacturer's operating and maintenance instructions. Inspection and maintenance records must be kept with the equipment and conform to the requirements of the standards applicable to the region of operation and as per the manufacturer's requirements. All cranes and hoisting equipment must be installed, erected, adjusted, climbed, inspected, maintained and dismantled in accordance with the manufacturer's instructions.
- iii) All tower cranes that store more than 300 litres of diesel near the cab of the crane must ensure any diesel fuel supply lines and hydraulic oil supply lines are fire rated and that the crane is equipped with first response fire suppression capability, which can include an adequate fire suppression system and/or fire extinguishers in the cabin and on the machine deck.

- iv) Any panelling or modification for access or for weather protection to the crane or hoisting equipment (e.g. personnel and material hoists) shall be designed for internal fixing application only. The modifications must be installed and verified by the manufacturer or its representative.

4.6.4 OVERSIGHT

CONTROL

All crane and hoisting equipment must be maintained and operated in accordance with the manufacturer's operating instructions.

PERFORMANCE STANDARD

- i) A hoisting or crane lifting coordinator must oversee and manage the use of all crane and hoisting equipment at the operation. The hoisting or crane lifting coordinator can be a supplier's employee or a member of the crane crew. More than one coordinator may be required at a large site.
- ii) All operations with tower cranes in use are required to provide a crane management plan that outlines all tower crane operations on a project including crane locations, operating radius, exclusion zones, loading zones, overhead protection, crane climbs and the appointment of a hoisting or crane lifting coordinator to oversee inspection and maintenance to the requirements of the standards applicable to the region of operation.
- iii) All hoisting or crane lifting coordinators must have formal training in rigging applicable to their region of operation and a minimum of two years' experience as a hoisting or crane lifting coordinator if they are to work without a frontline leader.
- iv) Where required, supervision of an inexperienced hoisting or crane lifting coordinator must be provided by another hoisting or crane lifting coordinator with more than four years' experience and formal training in rigging or equivalent formal training relevant to the region of operation.
- v) The manufacturer's operating instructions must be readily available to the operator of all crane and hoisting equipment.

4.6.5 TOWER CRANE ACCESS AND SECURITY

CONTROL

Security precautions must guard against unauthorised access to tower cranes.

PERFORMANCE STANDARD

- i) Access systems for all procured tower cranes must have offset ladders designed to prevent the fall from height by a person whilst climbing or descending a tower crane.
- ii) Tower cranes and crane access towers or ramps must have security measures to guard against unauthorised access from ground level or other elevations, including anti-climb (i.e. no hand or foot holds such as plywood or fine mesh panelling) and hoarding to a minimum height of three metres (9.8 feet) at the base.
- iii) A self-closing access door or gate must be in place with a combination lock or other security locks for secure access. The door or gate access lock is to be operable from the inside without a key to enable safe egress in an emergency and have minimal gaps to the access frame surround to prevent levering and compromising the locking mechanism

at the base or other intermediate access locations.

- iv) Movement detectors must be fitted to the crane tower with operable intruder strobe lights and back to base monitoring, camera and text message alert including a backup battery in the event of a power failure.
- v) Anti-climb mesh to a minimum height of three metres (9.8 feet) in the horizontal and vertical plane above tie or access points must be used.
- vi) Any basement or floor levels where a tower crane penetration exists must include full floor to soffit protection.

4.6.6 GROUND CONDITIONS

CONTROL

All cranes must be established and set up on approved ground conditions.

PERFORMANCE STANDARD

- i) Tower cranes require a competent engineer to design the crane base and to complete any interim checks during installation, provide approval for the crane to be installed and provide written confirmation that the base is fit for purpose. The crane base must then be reviewed and certified by a third party independent engineer.
- ii) For planned mobile crane lifts, special lifts or crane lifts which require a lift plan to be approved by a qualified engineer as defined in 4.6.2, or where the crane lift supervisor is not satisfied with the adequacy of the ground condition's bearing capacity, the California bearing ratio (CBR) or equivalent testing certified by a geotechnical engineer must be completed and the results communicated and confirmed by the supplier before the lift.
- iii) The crane lift plan must define the dimensions and type of outrigger mats to be installed where applicable and the structural properties of the mats verified.
- iv) If a severe weather event occurs (e.g. significant rainfall within 48 hours of the mobile crane lift) the adequacy of the ground conditions must be re-assessed and the CBR or equivalent test repeated if necessary, with results communicated and the lift delayed until this is complete.

4.6.7 FATIGUE MANAGEMENT

CONTROL

A fatigue management program must be in place for crane/hoist operators.

PERFORMANCE STANDARD

- i) For all crane and hoisting equipment, suppliers or employers must outline how the potential for fatigue will be managed regarding the operator of the equipment and all fatigue management plans must ensure all local regulations are adhered to. In normal operating circumstances the operator's working hours must not exceed 60 hours per week and rest periods between shifts must not be less than 12 hours per day.
- ii) Details must be provided in relation to the operating hours per day and rest breaks consistent with not exceeding a 10 hour day (exclusive of breaks) and include the length and frequency of breaks, hydration, management of travel time to and from home, shift and rest pattern requirements and the application of fatigue recognition technology where

available or installed.

- iii) Where a shift exceeds the parameters outlined above, fatigue management controls can include shift rotation, split shifts, late starts and additional time off.
- iv) A record must be kept for each operator to confirm individual fatigue management requirements and protocols are in place.

4.6.8 PREVENTING PLANT COLLISIONS

CONTROL

Install hard barriers (tower crane), exclusion zones (mobile crane) or other barriers to prevent plant collisions.

PERFORMANCE STANDARD

- i) Provide engineered barrier protection for cranes or hoists that are risk assessed as having the potential to be struck by mobile plant or vehicles. The energy involved in any potential collision with that barrier must be absorbed or deflected.
- ii) Effective measures (e.g. zoning, spotters or a combination of these and other controls) must be implemented to prevent cranes coming into contact with overhead power lines or underground services, other cranes or structures.
- iii) Automated anti-collision systems must be installed on tower cranes and gantry cranes when multiple cranes are in use and their lifting radii interface or overlap with other cranes, or when encroachment over a protected area such as a rail corridor must be prevented.
- iv) A competent third party independent engineer must review and approve the out of service storage requirements for all luffing tower cranes and large mobile cranes greater than 200 tonnes. These out of service requirements must comply with the guidelines of the manufacturer and must be available at the site to prepare for a weather related event.

4.6.9 HANDLING OBJECTS

CONTROL

Uncontrolled movement of objects must not occur.

PERFORMANCE STANDARD

- i) All loads to be slung, hoisted, lifted, transported, stored or unloaded must have no uncontrolled movement or loss of the load. This can involve redundant slinging or secondary containment for small objects.
- ii) Slinging methods must manage any expected dynamic load forces (e.g. wind or sudden crane halt).
- iii) All hoisting or lifting must be completed with the slung object's centre of gravity lower than the sling attachment points where practicable.
- iv) All loads suspended by hoisting or lifting equipment must be landed onto an adequate load bearing surface and be stable (i.e. cannot roll or fall) before unslinging the hoisting or lifting gear.
- v) Objects transported through site must be adequately restrained to prevent uncontrolled movement.
- vi) Deliveries where the load has the potential to fall or roll when unshackled must be inspected by a competent person (i.e. rigger or equivalent) and restrained before removal (e.g. chocked or slung with hoisting or lifting gear).

- vii) All lifting gear and tackle (e.g. chains, wire ropes, slings and rubbish removal containers) must be inspected before use and must be structurally sound, fit for purpose, designed for lifting with certified lifting points and the rated capacity or safe working load clearly displayed.
- viii) Where secondary containment is used internal objects must be secured against movement in transit to prevent uncontrolled movement when the containment is opened.
- ix) All secondary slinging or containment must be clearly marked to show that it is a secondary means and to demonstrate what object it is designed to be used with.

RISK EVENT MITIGATING CONTROLS AND PERFORMANCE STANDARDS

4.6.10 EXCLUSION ZONES

CONTROL

Robust and controlled exclusion zones must be established, tested and approved.

PERFORMANCE STANDARD

- i) The requirement for exclusion zones for lifting or hoisting operations must be identified and included in the crane management plan.
- ii) Wherever possible for mobile crane and tower crane operations the exclusion zone must be of a radius equal to the maximum crane height and clear of all personnel not involved in the hoisting operation.
- iii) Personnel must not walk under suspended loads.
- iv) Wherever possible for tower crane erection or jumping activities, all people including the public must be clear of works through the application of exclusion zones that as a minimum includes the area below the jib along its length and the direction in which it is positioned, the area below the works around the footprint of the base of the tower of the crane or the area through which the crane tower protrudes.

4.6.11 POST INCIDENT RESPONSE

CONTROL

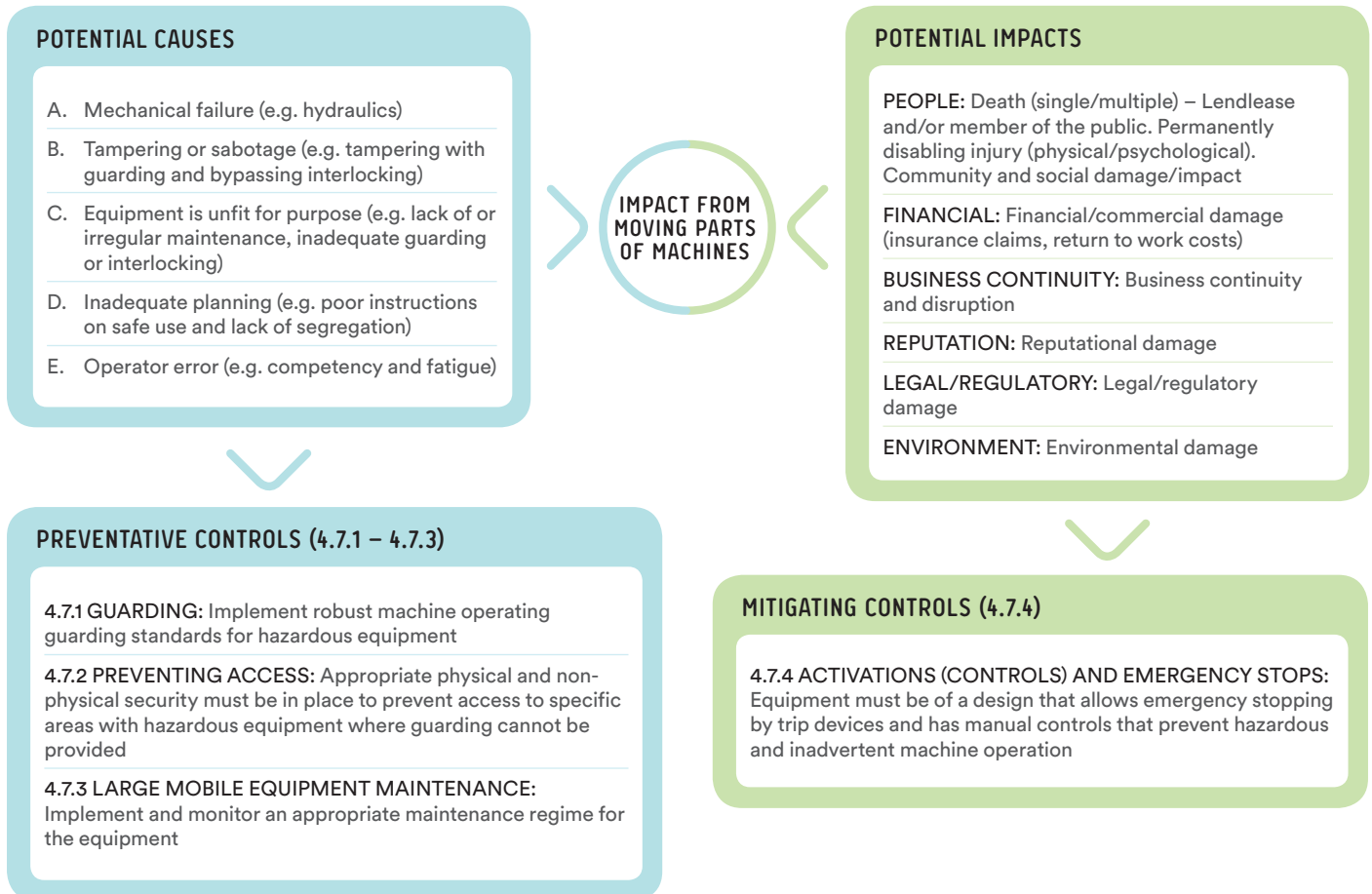
Independent verification of the safe status of crane and hoisting equipment must be undertaken following an incident and before re-use.

PERFORMANCE STANDARD

- i) Crane or other hoisting equipment must be removed from service, re-inspected and re-tested before any other lift is completed when it:
 - Strikes a structure, other piece of hoisting equipment or plant while in use.
 - Is struck by mobile plant.
 - Has any load bearing part fail while in use.
 - Is identified as operating without completing maintenance and inspections to the manufacturer's requirements or applicable standards to the region of operation.

4.7 IMPACT FROM MOVING PARTS OF MACHINES

DESCRIPTION: These critical controls and performance standards apply to hazardous equipment (i.e. mobile, fixed, large or portable) in Lendlease operations where people could be fatally injured if they come into contact with moving parts of that machine (e.g. moving tracks and large conveyors). This applies for exposure to equipment during operation, maintenance and troubleshooting e.g. escalator and lift motors.



RISK EVENT PREVENTATIVE CONTROLS AND PERFORMANCE STANDARDS

4.7.1 GUARDING

CONTROL

Implement robust machine operating guarding standards for hazardous equipment.

PERFORMANCE STANDARD

- i) Ensure guarded moving parts are retained by fasteners that adequately secure the guarding that requires the use of a tool to install and remove.
- ii) Support maintenance and troubleshooting with a documented isolation system involving personal isolation locks.
- iii) Check the guard fully protects the moving part and can withstand applied forces without dislodgement.
- iv) Identify and assess the risk of troubleshooting, cleaning and maintenance tasks that bring people in proximity to exposed energised machine components.
- v) Establish the presence and functionality of guards with regular inspections involving the machine operator.

4.7.2 PREVENTING ACCESS

CONTROL

Appropriate physical and non-physical security must be in place to prevent access to specific areas with hazardous equipment where guarding cannot be provided.

PERFORMANCE STANDARD

- i) Identify energy sources with the potential for fatal outcomes that are unable to be guarded prior to commencing the operation. Identify, implement, communicate and verify alternate controls.
- ii) Check exclusion zones use suitable physical distance, barrier type and stability to prevent accidental, unintended and casual interaction with the moving parts.
- iii) Lock access to equipment with moving parts and energy sources representing a fatality risk when usage for that day or shift ceases.
- iv) Ensure operational personnel with responsibility for access administration (e.g. security) have a list of authorised key users. Check equipment is locked and has the capacity to prevent equipment use if found unlocked.

4.7.3 LARGE MOBILE EQUIPMENT MAINTENANCE

CONTROL

Implement and monitor an appropriate maintenance regime for the equipment.

PERFORMANCE STANDARD

- i) Ensure all equipment is registered using unique identifiers.
- ii) Check maintenance is in accordance with manufacturer's recommendations or at shorter intervals if required and that maintenance manuals are provided prior to equipment arriving on site where under a supplier contract.
- iii) Ensure inspection records remain with the machine.
- iv) Check third party and manufacturer's use requirements and risk assessments are kept in the machine.
- v) If earthmoving equipment is being operated with quick hitch devices there must be a safe system of work adopted. It is essential that mechanical locking pins are used to prevent uncontrolled release.

RISK EVENT MITIGATING CONTROLS AND PERFORMANCE STANDARDS

4.7.4 ACTIVATIONS (CONTROLS) AND EMERGENCY STOPS

CONTROL

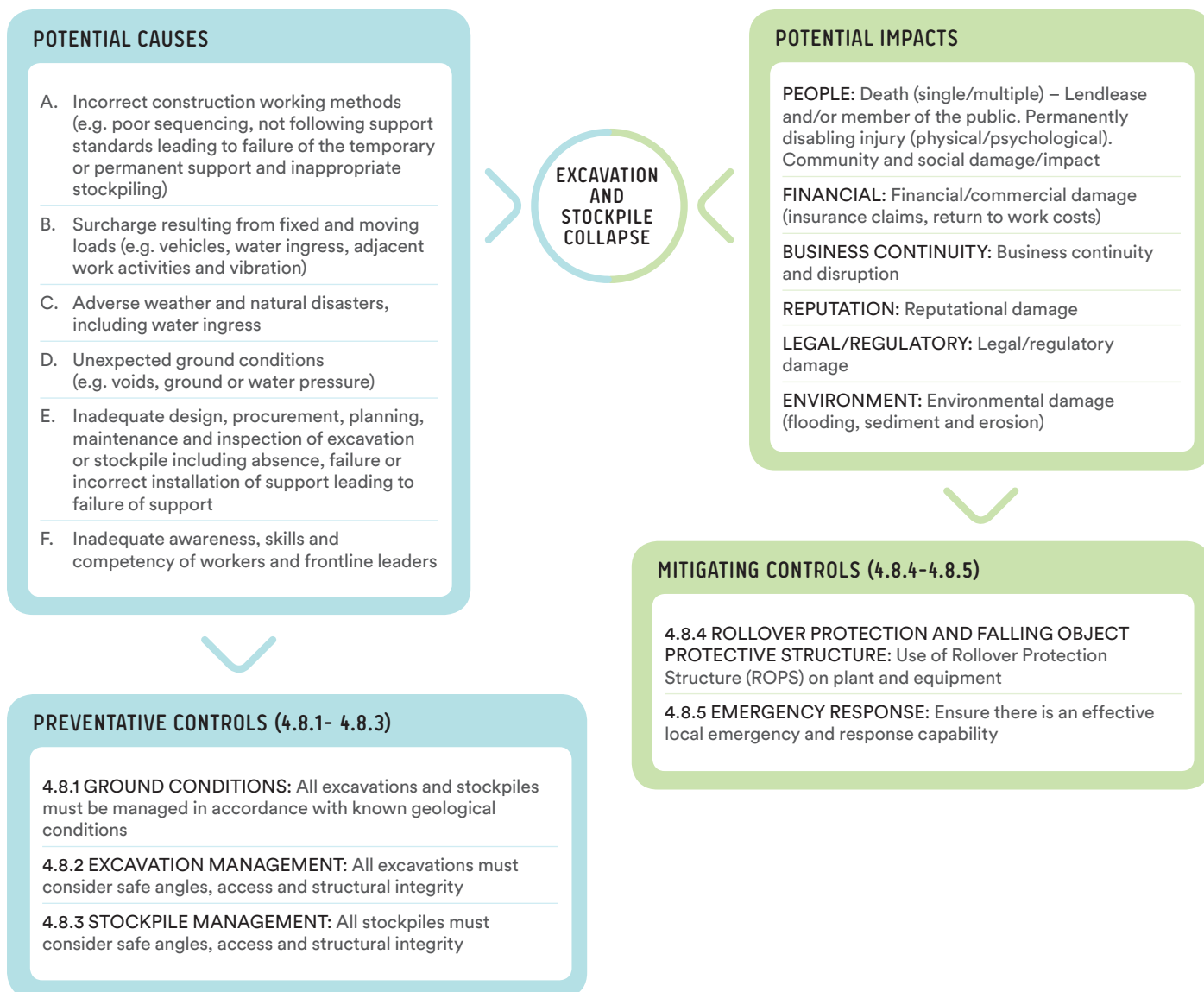
Equipment must be of a design that allows emergency stopping by trip devices and has manual controls that prevent hazardous and inadvertent machine operation.

PERFORMANCE STANDARD

- i) Review equipment brought to site to determine if it is equipped with a suitable number, type and location of trip devices or emergency stops.
- ii) Ensure manual controls are:
 - Clearly visible, identifiable and marked.
 - Their movement is consistent with their effect on machine operation.
 - In the appropriate language.
- iii) Establish an audible warning signal of sufficient duration and intensity for start-up where it is not possible to see all danger zones from the operator's console.
- iv) Check the design of machine controls prevents inadvertent or unexpected start-up.
- v) Routinely test emergency stop or trip devices.

4.8 EXCAVATION AND STOCKPILE COLLAPSE

DESCRIPTION: These critical controls and performance standards apply where unplanned collapse of an excavation or stockpile could result in a fatality on a Lendlease operation.



RISK EVENT PREVENTATIVE CONTROLS AND PERFORMANCE STANDARDS

4.8.1 GROUND CONDITIONS

CONTROL

All excavations and stockpiles must be managed in accordance with known geological conditions.

PERFORMANCE STANDARD

- i) Identify ground and underlying conditions and hazards and ensure geotechnical engineered solutions are comparable with the risk.
- ii) Assess the area for any underground services and identify as per GMRs 4.4.8 underground services and 4.15.4 underground services (non-electrical).
- iii) Agree a comprehensive plan prior to beginning physical works. The plan must cover construction methodology, support mechanisms, sequencing, use of plant and equipment to ensure stability of excavations and stockpiles.

4.8.2 EXCAVATION MANAGEMENT

CONTROL

All excavations must consider safe angles, access and structural integrity.

PERFORMANCE STANDARD

- i) Excavations greater than 1.5 metres (4.9 feet) must be benched, shored, battered back or sloped to a safe angle as determined by the qualified engineer in the excavation design process. An angle of repose of 45 degrees must not be exceeded unless designed and certified by a geotechnical engineer.
- ii) Where benching or battering is not possible, trenches and excavations must be mechanically shored to prevent collapse.
- iii) Adjacent structures, roads and sidewalks must be supported or protected where necessary to prevent collapse.
- iv) Materials and equipment must be placed at a safe distance from the edge of excavations.
- v) Adequate signage, physical barriers and lighting must be provided to prevent falls into excavations, especially for plant working on those excavations and vehicles or plant from adjacent thoroughfares. Temporary stairs must be installed to provide safe access into excavations where appropriate.
- vi) Water ingress into excavations must be controlled to ensure stability and where water is present in deep excavations an appropriate dewatering program must be in place.
- vii) Daily inspections of all excavations must be undertaken.

4.8.3 STOCKPILE MANAGEMENT

CONTROL

All stockpiles must consider safe angles, access and structural integrity.

PERFORMANCE STANDARD

- i) Maximum stockpile height must be determined by an engineer and not exceeded.
- ii) All people must be excluded from the active loading or dumping area.

- iii) Loading and dumping area ground stability must be approved by an engineer prior to commencement.
- iv) Operators are not to leave the cabin while loading or dumping is in progress.
- v) For a linear stockpile excavation must proceed along the working face and for a conical stockpile it must proceed around the toe. The working face must never be undercut or left with a hollow in it.
- vi) Barriers and berms must not be moved or altered and the crest must only be approached by a loader or bulldozer at a right angle (90 degrees) to keep the weight of the equipment away from the edge.
- vii) Prevent access from an unauthorised vehicle or person that could damage critical infrastructure or where the unauthorised person could be fatally injured due to the hazards within the operational area. Install physical barriers if required.

RISK EVENT MITIGATING CONTROLS AND PERFORMANCE STANDARDS

4.8.4 ROLLOVER PROTECTION AND FALLING OBJECT PROTECTIVE STRUCTURE

CONTROL

Use of Rollover Protection Structure (ROPS) on plant and equipment.

PERFORMANCE STANDARD

- i) Fit ROPS to all earthmoving equipment working beside or in the vicinity of excavations ensuring the cabin and canopy meet ISO 3471:2008 and excavator ROPS to ISO12117.2:2008.
- ii) Fit seat belts to all occupant positions.
- iii) Decoupling technology for dog and trailers and cabin stability technology is to be implemented.

4.8.5 EMERGENCY RESPONSE

CONTROL

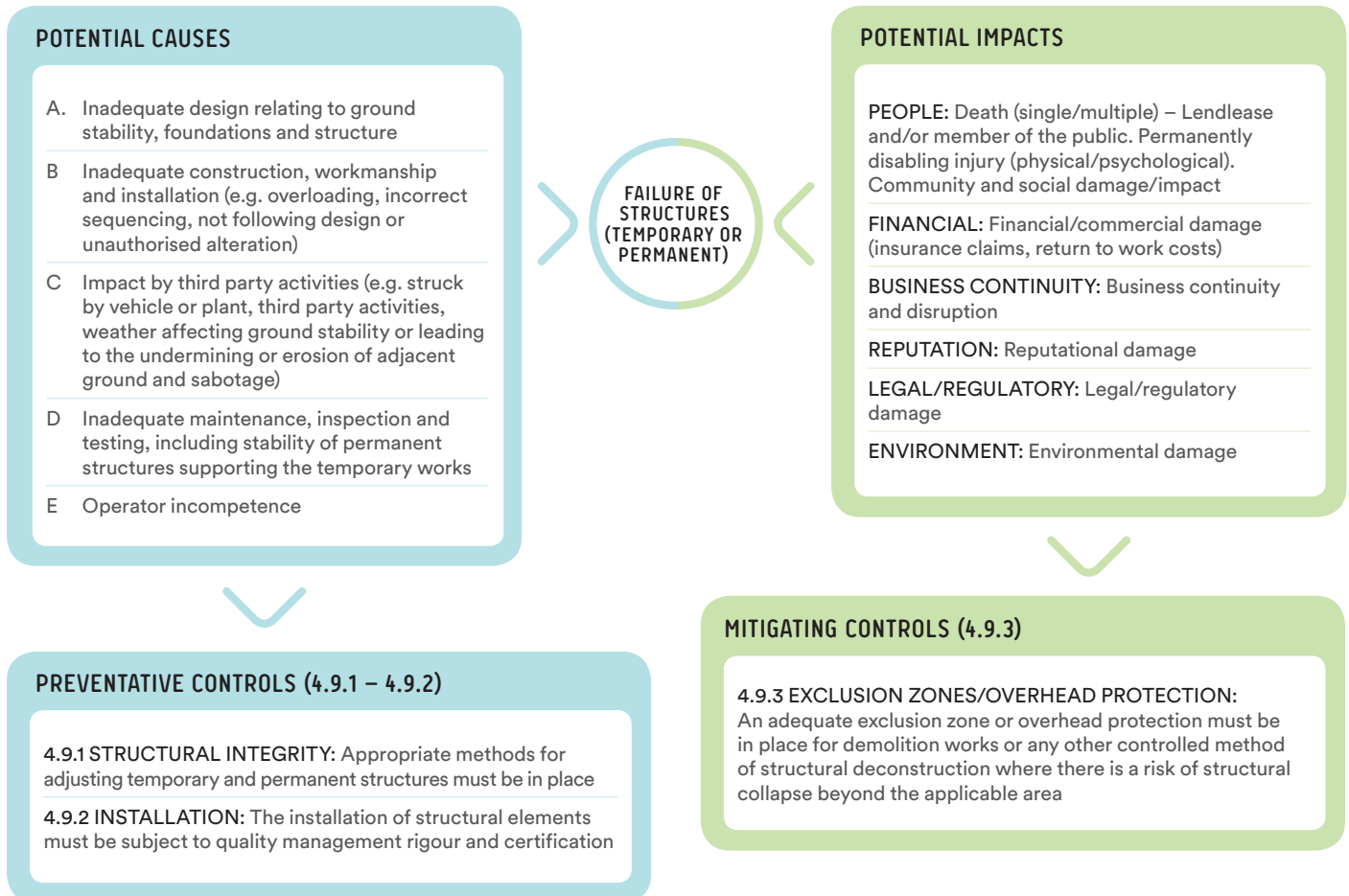
Ensure there is an effective local emergency and response capability.

PERFORMANCE STANDARD

- i) The emergency response plan must be developed prior to work commencing and be resourced, implemented, verified and reviewed quarterly.
- ii) The plan must address failure scenarios such as specific recovery equipment (e.g. type and location) and training requirements.

4.9 FAILURE OF STRUCTURES (TEMPORARY OR PERMANENT)

DESCRIPTION: These critical controls and performance standards apply where a structural failure occurs on any temporary (e.g. scaffold, formwork or temporary works/access platform) or permanent structure (e.g. completed structure or demolition works) that could cause a fatality.



RISK EVENT PREVENTATIVE CONTROLS AND PERFORMANCE STANDARDS

4.9.1 STRUCTURAL INTEGRITY

CONTROL

Appropriate methods for adjusting temporary and permanent structures must be in place.

PERFORMANCE STANDARD

- i) Ensure suppliers and installers of both temporary and permanent structures consider engineering solutions that provide the highest degree of certainty relating to structural integrity and have it independently verified by a qualified and registered structural engineer.
- ii) Pursue and implement methodologies, systems, technology or equipment that can provide early warning of any impending structural failure.
- iii) Proprietary or engineered systems certified by a qualified and registered structural engineer must be used at all times and all elements must be installed without variance to any agreed methodology and engineering tolerances.
- iv) Temporary and permanent multi-storey structures must take into consideration all climatic possibilities, ground conditions and geology including earthquake risk.

4.9.2 INSTALLATION

CONTROL

The installation of structural elements must be subject to quality management rigour and certification.

PERFORMANCE STANDARD

- i) All temporary works must be designed by a qualified, competent and registered engineer according to its intended use and be reviewed by a qualified, competent and independently registered engineer. Once installed, erected or after a change to the design the temporary works must be verified by a qualified, competent and independently registered engineer to ensure the design intent is met.
- ii) All proprietary systems must be in accordance with the manufacturer's recommendations. The mixing of components from different proprietary systems is not permitted unless the system is approved by a qualified and registered structural engineer.
- iii) Any calculations and drawings must clearly communicate requirements to those checking and constructing temporary works, including safe loading limits.
- iv) All floors under construction must ensure the maximum applicable loads that will be experienced on each floor during the construction phase (e.g. from material storage, lifting operations and waste) is considered when calculations for loading thresholds are applied.
- v) All scaffolds must be stable and secure to prevent movement and collapse. Scaffolds must be plumb, have adequate cross-bracing, sound footings and be tied into structure where height or base ratio is greater than 2:1. Before use scaffolds must be inspected by a qualified scaffolder and be tagged to show the inspection status.

- vi) All temporary works platforms and associated access must be planned and documented by a competent person to ensure equipment is appropriate for the specific use and is erected, altered or dismantled by competent people following safe methods of work.
- vii) All demolition work involving structural removal must be subject to approval from a structural engineer where any structural elements are proposed to be removed.
- viii) All temporary works must be protected to prevent impact from vehicles and plant.
- ix) Under no circumstances must any temporary works structure be modified without going through the same process as outlined in this performance standard.

RISK EVENT MITIGATING CONTROLS AND PERFORMANCE STANDARDS

4.9.3 EXCLUSION ZONES/OVERHEAD PROTECTION

CONTROL

An adequate exclusion zone or overhead protection must be in place for demolition works or any other controlled method of structural deconstruction where there is a risk of structural collapse beyond the applicable area.

PERFORMANCE STANDARD

- i) Ensure exclusion zones are of adequate size, taking into account the risks including potential arc of fall, deflections and bounce distances, are delineated by physical barriers and have clear signage prohibiting unauthorised entry where there is a likely risk of harm. The integrity of any exclusion zones must be regularly checked.
- ii) Ensure planning for both construction and asset works identify any scenarios where overhead protection must be installed, particularly where people below cannot be completely excluded. Overhead protection must be in place before the activity begins. Any overhead protection cannot allow for failure due to the impact from an object it is designed to intercept.

4.10 OCCUPATIONAL HEALTH EXPOSURE

DESCRIPTION: These critical controls and performance standards apply to any Lendlease operation where there is a risk of occupational exposure to hazardous substances, asbestos or silica, extreme temperatures, flora, fauna or allergens that could realistically result in the death of one or more people.

POTENTIAL CAUSES

- A. Exposure to identified or unidentified hazardous substances
- B. Ineffective management of known hazardous substances
- C. Existing structures containing asbestos and other hazardous materials are disturbed during inspection, maintenance, cleaning, demolition or renovation
- D. Asbestos air monitoring is ineffective
- E. Clothing or PPE is inappropriate or not used during exposure whilst working
- F. Level and duration of exposure to natural/artificial temperatures including unexpected temperature changes
- G. Inadequate or inappropriate clothing
- H. Excessive physical activity and duration
- I. Pre-existing illness or medical conditions
- J. Failure of cooling, heating or ventilation systems
- K. Insufficient consumption of water and food
- L. Falling elements (e.g. trees or tree limbs whilst clearing or working underneath)
- M. Contact with flora or fauna (e.g. toxic flora, spiders, snakes, fire ants, dogs, urine or faecal matter)



POTENTIAL IMPACTS

- PEOPLE:** Death (single/multiple) – Lendlease and/or member of the public. Permanently disabling injury (physical/psychological). Community and social damage/impact
- FINANCIAL:** Financial/commercial damage (insurance claims, return to work costs)
- BUSINESS CONTINUITY:** Business continuity and disruption
- REPUTATION:** Reputational damage
- LEGAL/REGULATORY:** Legal/regulatory damage
- ENVIRONMENT:** Environmental damage (contamination, pollution events, habitat destruction)

MITIGATING CONTROLS (4.10.7)

4.10.7 OCCUPATIONAL HEALTH EXPOSURE RESPONSE: Response mechanisms must be in place should an occupational health exposure event occur

PREVENTATIVE CONTROLS (4.10.1-4.10.6)

- 4.10.1 HAZARDOUS SUBSTANCE AND HAZARDOUS MATERIALS IDENTIFICATION:** Ensure Lendlease is knowledgeable of any known hazardous substances or hazardous materials and the implications for future management of the asset
- 4.10.2 STORAGE AND MINIMISATION:** Hazardous substances, dangerous goods and hazardous materials must not be stored on site except for small volumes in purpose built structures
- 4.10.3 ASBESTOS REGISTER AND MAINTENANCE PLAN:** Ensure Lendlease is aware of the extent of asbestos so that an informed decision can be made on the acquisition and future management of the asset
- 4.10.4 HEALTH MONITORING:** Health monitoring must be completed for all workers specifically handling or removing ACM, NOA or other hazardous material
- 4.10.5 WORK IN EXTREME TEMPERATURES:** Any work conducted in a natural or artificial environment of extreme temperatures must be proactively managed to eliminate the risk of temperature related injury or illness
- 4.10.6 INTERACTION WITH FLORA, FAUNA AND ALLERGENS:** Risks associated with potential interaction with dangerous plants and animals must be managed to minimise the risk of harm

RISK EVENT PREVENTATIVE CONTROLS AND PERFORMANCE STANDARDS

4.10.1 HAZARDOUS SUBSTANCE AND HAZARDOUS MATERIALS IDENTIFICATION

CONTROL

Ensure Lendlease is knowledgeable of any known hazardous substances or hazardous materials and the implications for future management of the asset.

PERFORMANCE STANDARD

- i) When acquiring an asset, identify retained hazardous substances and hazardous materials on site and the need for their use in managing the asset.
- ii) Identify in pre-construction reviews any hazardous substances proposed for construction or final use. Only accept hazardous substances where no effective less hazardous alternative can be demonstrated.
- iii) The following substances and materials are hazardous and their use, handling or storage is not permitted in new designs. Any of these substances must be treated as high risk if encountered:
 - Asbestos or asbestos containing products
 - Lead, or materials containing lead that may be ingested, inhaled or absorbed
 - Paints or treatments that contain arsenic, lead, copper or chromium
 - Equipment or components containing Chlorofluorocarbons (CFCs), Hydro chlorofluorocarbons (HCFCs) or Halons
 - Pesticides or herbicides containing organophosphate or organochlorins
 - Pentachlorophenol or timber treated with Pentachlorophenol
 - Polychlorinated Biphenyls (PCBs) and Polychlorinated Terphenyls (PCTs)
 - Synthetic mineral fibres
 - Lindane (gamma-HCH)
 - Tributyltin (TBT)
 - Antimony
 - Arsenic
 - Benzene
 - Beryllium
 - Cadmium
 - Carbon disulphide
 - Chromate
 - Chromium
 - Cobalt
 - Free silica
 - Tetrachloroethane
 - Other hazardous materials, substances and chemicals banned or restricted by law

4.10.2 STORAGE AND MINIMISATION

CONTROL

Hazardous substances, dangerous goods and hazardous materials must not be stored on site except for small volumes in purpose built structures.

PERFORMANCE STANDARD

- i) Only minimum amounts of hazardous substances, dangerous goods and hazardous materials are to be used. Suppliers must state why it is needed, what the minimum amount is and provide the full Safety Data Sheet (SDS).
- ii) Ensure hazardous substances, dangerous goods and hazardous materials (e.g. fuels, oils, chemicals, solvents, pesticides and fertilisers) are not stored on-site except for small volumes stored within a well-ventilated, purpose built structure with roof cover. The store must have a concrete sealed or equivalent impervious floor with bunding, isolated drainage, signage and security fencing. Position hazardous substances and dangerous goods storage locations away from high traffic areas, pedestrian zones and environmentally sensitive areas such as waterways or natural habitats.
- iii) Ensure all operations with hazardous substances and dangerous goods storage have appropriate spill kit materials and firefighting equipment and Safety Data Sheets (SDS) readily available along with adequately trained safety and first aid professionals.
- iv) Ensure operations with hazardous materials such as asbestos or lead clearly identify and label such materials and isolate and safely secure (e.g. encapsulate) any areas where hazardous materials have been damaged until a licensed contractor can remove the materials and reinstate a non-hazardous alternative.
- v) No new underground bulk fuel storage tanks are to be installed on Lendlease owned sites. Existing redundant underground storage tanks and above ground storage tanks must be decommissioned and removed by an appropriately licensed contractor in accordance with regulatory requirements.
- vi) Identify, secure and maintain existing underground or above ground fuel tanks still in use on the site in accordance with regulatory requirements.

4.10.3 ASBESTOS REGISTER AND MAINTENANCE PLAN

CONTROL

Ensure Lendlease is aware of the extent of asbestos so that an informed decision can be made on the acquisition and future management of the asset.

PERFORMANCE STANDARD

- i) Ensure that a hazardous materials survey is carried out for all assets prior to acquisition.
- ii) Ensure an asbestos register and asbestos management plan for asbestos containing material (ACM) is readily available to all inspection and maintenance people, tenants or other groups, is in place before commencement of works at the operation and is reviewed and updated annually.
- iii) Ensure all workers where ACM is present receive awareness training that addresses the type, quantity and location of ACM and its health effects, safe working practices including PPE and the combined effects of smoking and asbestos.
- iv) Ensure appropriate licences for the location and regulatory requirements are held for repairers, maintainers and removalists where needed.
- v) Ensure all people working on ACM are explicitly authorised, either by Lendlease or a supplier. The design of processes for working with ACM must include methods to prevent the creation of airborne fibres.
- vi) Where a product is identified that may contain ACM, precautions must be taken until a registered hygienist or independent testing authority confirms no ACM is present or that the ACM can be encapsulated.
- vii) Ensure suppliers proposed to work on or remove naturally occurring asbestos (NOA) or ACM demonstrate experience relating to the volume of NOA/ACM to be removed, location sensitivity (i.e. proximity to people), type of NOA/ACM to be removed and the size of the site where the scale of one or more of these determinants creates the need for particular asbestos management or removal experience.
- viii) Perform air monitoring whenever ACM and NOA is being removed or handled.

4.10.4 HEALTH MONITORING

CONTROL

Health monitoring must be completed for all workers specifically handling or removing ACM, NOA or other hazardous material.

PERFORMANCE STANDARD

- i) Record each worker's history of estimated and known exposure to ACM or other hazardous material as part of medical examinations.
- ii) Ensure all workers coming into the operations to handle or remove ACM, NOA or other hazardous material such as lead have up to date medical examinations.
- iii) Ensure all workers who work regularly and on an ongoing basis with ACM, NOA or other hazardous material have a biannual medical examination involving a lung function test.

4.10.5 WORK IN EXTREME TEMPERATURES

CONTROL

Any work conducted in a natural or artificial environment of extreme temperatures must be proactively managed to eliminate the risk of temperature related injury or illness.

PERFORMANCE STANDARD

- i) For areas or equipment where extreme temperatures are planned (e.g. freezers or boiler rooms) ensure adequate security and controlled access is in place.
- ii) Establish and implement a maintenance, inspection and testing program for heating, ventilation and cooling equipment.
- iii) For work in extreme temperatures consider remote or robotic working, equipment and materials that could artificially alter the surrounding temperature, minimising exposure to extreme temperatures (e.g. rest breaks), job rotation, undertaking work at cooler or warmer times, emergency contact and alarm systems, heat or cold management plans, monitoring of environmental conditions and weather and providing adequate clothing that protects from the elements.

4.10.6 INTERACTION WITH FLORA, FAUNA AND ALLERGENS

CONTROL

Risks associated with potential interaction with dangerous plants and animals must be managed to minimise the risk of harm.

PERFORMANCE STANDARD

- i) Before acquiring an asset or business or agreeing a contract for construction areas must be reviewed where people could be exposed to dangerous plants and animals. Ensure the review is both desktop and physically undertaken on site.
- ii) Where practicable, remove any dangerous plants and animals before commencing the work such as clearing poisonous plants before demolition.
- iii) Where dangerous plants or animals have been identified and cannot be removed (e.g. known poisonous snake habitats) consider relocation of fauna where possible, exclusion of some work areas including blocking off (e.g. long grass areas where snakes may be present) correct selection and use of PPE such as overalls and general awareness training to reduce risk of exposure.

RISK EVENT MITIGATING CONTROLS AND PERFORMANCE STANDARDS

4.10.7 OCCUPATIONAL HEALTH EXPOSURE RESPONSE

CONTROL

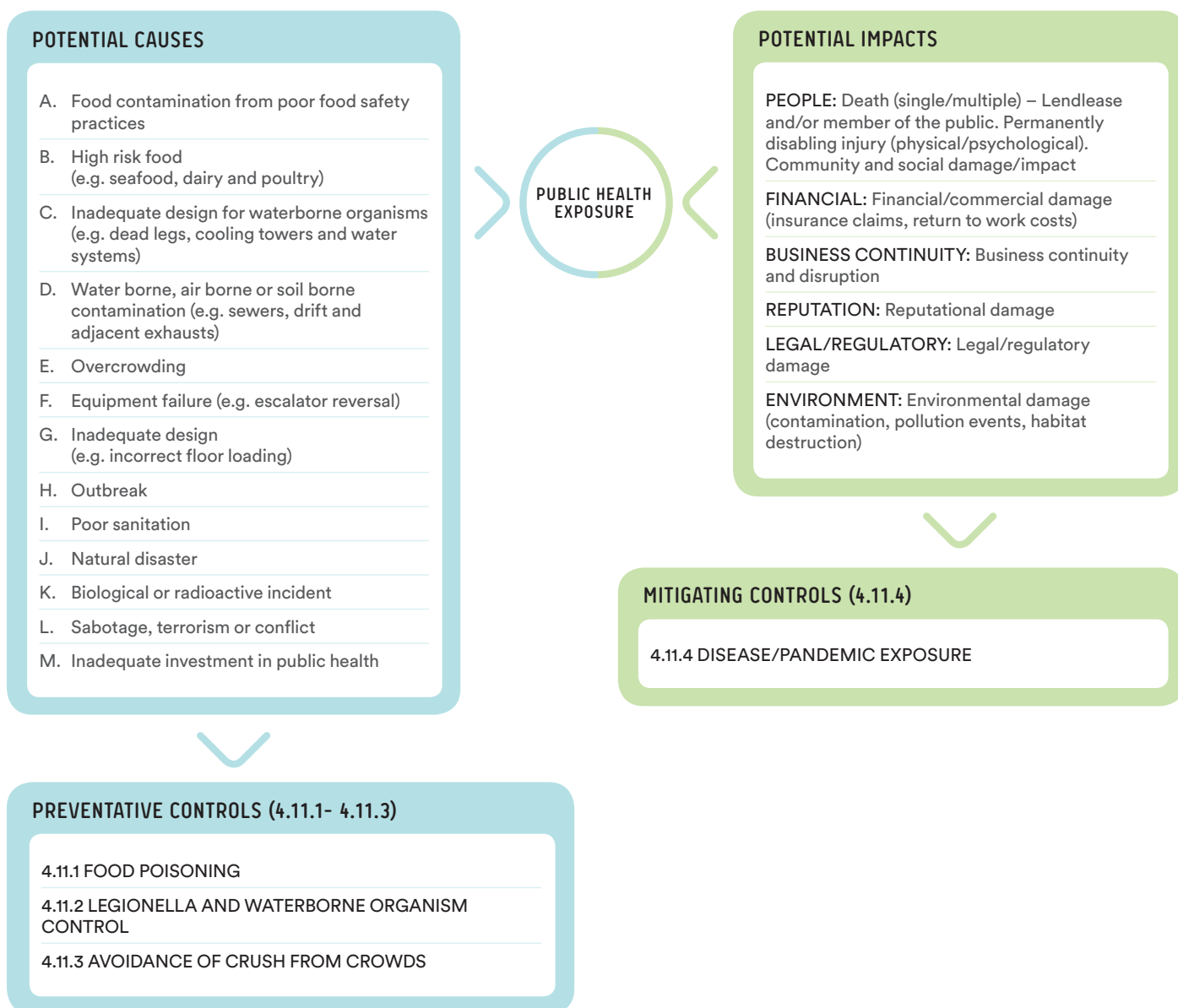
Response mechanisms must be in place should an occupational health exposure event occur.

PERFORMANCE STANDARD

- i) Emergency response and first aid requirements must be in place with trained first aiders available.
- ii) Appropriate facilities must be in place for washing and decontamination where such risks apply.
- iii) Contingency plans must be in place should an occupational health exposure event occur.

4.11 PUBLIC HEALTH EXPOSURE

DESCRIPTION: These critical controls apply to any Lendlease operation where there is potential to adversely impact public health through fatal exposure to a foodborne illness resulting from contamination caused by bacteria, viruses, parasites or chemical substances, contamination with Legionella bacteria (e.g. cooling towers, evaporative condensers, hot and cold water systems and fountains) overcrowding as a result of a large number of people gathering in a specified area or for a specified event or exposure to a disease outbreak.



RISK EVENT PREVENTATIVE CONTROLS

4.11.1 FOOD POISONING

- i) Where higher standards of hygiene are required such as in food preparation areas, medical care and treatment areas effective infection control cleaning regimes must be implemented with clear responsibilities assigned, training provided, accurate records kept and regular audits undertaken. Basic catering such as workplace BBQs must maintain general hygiene standards and food safety precautions such as adequate refrigeration of high risk foods, use of gloves and other general hygiene precautions.
- ii) Procure food and food provision services from suppliers who have recognised local or international food safety standards certification (e.g. from the local authority, HACCP or ISO 22000). This includes chain of custody food safety provisions where operations provide high risk food and drink as part of employee or customer entertainment in external venues.
- iii) Ensure commercial operations supplying food prepared and stored by Lendlease directly hold a current third party certified food safety certification.

4.11.2 LEGIONELLA AND WATERBORNE ORGANISM CONTROL

- i) Water supply systems must minimise the health risks from waterborne organisms in water systems (e.g. by avoiding any unused portion of piping such as dead legs where there is potential for the formation of biofilm).
- ii) Wet cooling towers must be located away from publicly accessible areas and be assessed with consideration of the surrounding areas to avoid vulnerable groups (e.g. playgrounds, aged care facilities and hospitals).
- iii) All water systems must be maintained, upgraded and monitored to prevent the growth and spread of waterborne organisms such as Legionella through regular dosing, inspection, cleaning, disinfection and temperature control. A water quality testing regime consistent with best practice must be implemented with appropriate records maintained.
- iv) All monitoring and maintenance must be planned and conducted by a competent person familiar with Legionella and other waterborne organisms. Effective protective clothing or equipment must be used and the correct plant maintenance safety procedures must be observed. Adverse test results must be recorded as an incident in the EH&S reporting system, acted on immediately and re-tested until safe tolerances are achieved.

4.11.3 AVOIDANCE OF CRUSH FROM CROWDS

- i) Ensure all buildings have enough space for the anticipated number of people.
- ii) Minimise pinch points and bottlenecks for the movement of people and demonstrate as suitable for the building or event.
- iii) Ensure all operations allowing public access have effective means of safely keeping people outside the building and securing access.
- iv) Identify doors and equipment that are needed to manage crowds. Proactively check for correct function and that they are on a planned preventative maintenance schedule.
- v) Train security staff in emergency response for crowd management, de-escalation of aggressive or violent visitors and the first aid treatment of crush and overheating injuries.

- vi) Complete regular scenario planning for large crowd numbers and adjust procedures to meet these needs.

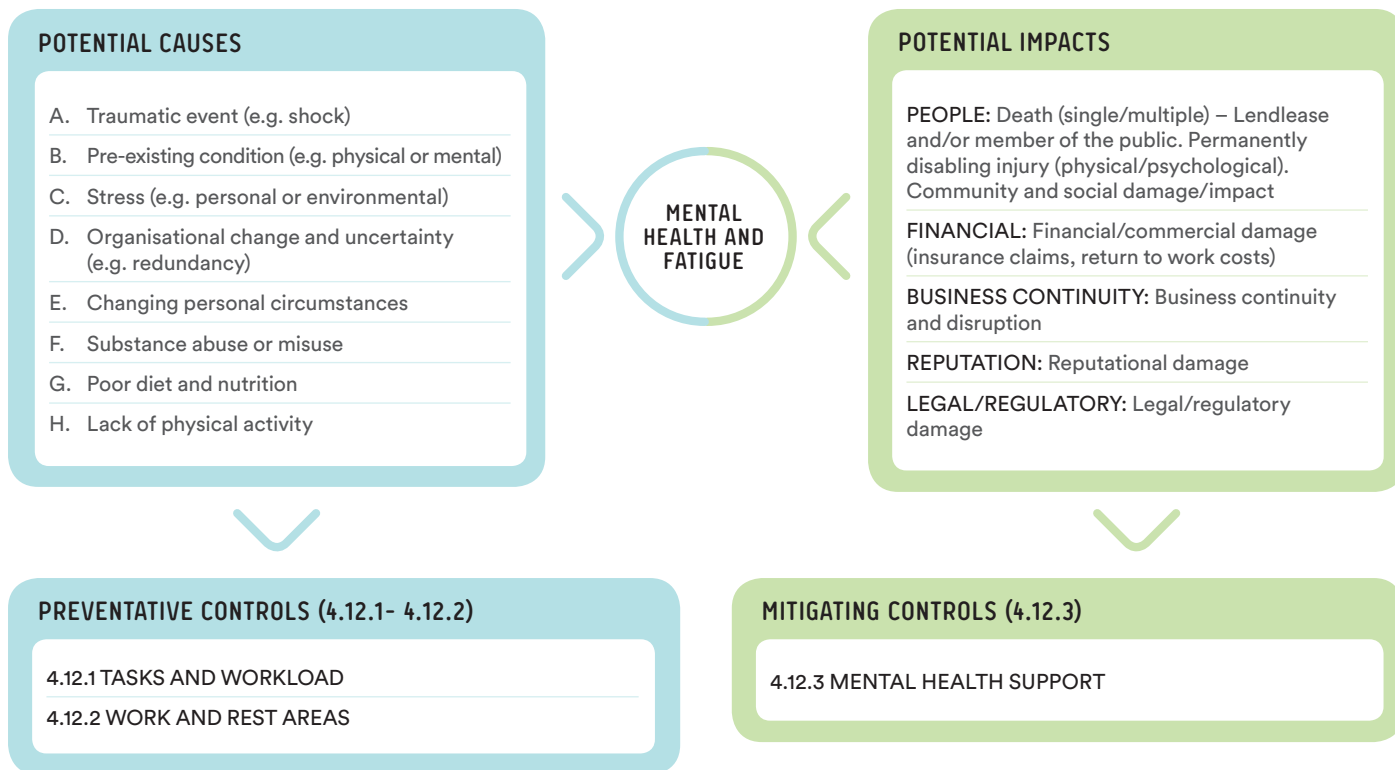
RISK EVENT MITIGATING CONTROLS

4.11.4 DISEASE/PANDEMIC EXPOSURE

- i) Subscribe to available international alert systems such as International SOS to monitor any outbreak of a potentially fatal pathogen.
- ii) Where an outbreak of a potentially fatal pathogen has been declared in the same country as any operation, create a specific local management plan to minimise the risk of exposure to all workers including at risk workers such as those who are immunity deficient or pregnant.
- iii) Provide general awareness information about the signs and symptoms of both local seasonal pathogens and outbreaks of other public health issues in areas of travel.
- iv) Communicate specific steps to be taken should people suffer from symptoms of potentially fatal pathogens and provide workers with education to recognise signs and symptoms in others.

4.12 MENTAL HEALTH AND FATIGUE

DESCRIPTION: These critical controls apply to any Lendlease operation where people may experience undue physical or mental pressures, particularly as a result of ongoing working hours more than six days per week, over 60 hours per week or shifts of more than 12 hours per day.



RISK EVENT PREVENTATIVE CONTROLS

4.12.1 TASKS AND WORKLOAD

- i) Establish the numbers of personnel, both Lendlease and suppliers, required for the safe and effective management of all activities within the operation so that the required workload does not exceed 60 hours per week. All overtime must be strictly voluntary and appropriate safeguards must be in place to protect the physical and mental health and wellbeing of workers at all times. This limit includes office based and frontline personnel. Further consideration must be given to any additional time spent working while commuting or driving between workplaces or sites. For remote projects on a FIFO roster, the maximum work hours are not to exceed an average of 60 hours per week assessed over the whole roster cycle.
- ii) Identify key tasks where worker fatigue could lead to mistakes that could cause the fatal injury of any person such as a crane or plant operator, driver or other safety critical role. Specify clear limits on weekly and daily working hours for these tasks and what rest breaks are required.
- iii) Proactively monitor actual hours spent working.
- iv) Specify and procure fatigue detection equipment where available for any vehicle, mobile plant and equipment.

4.12.2 WORK AND REST AREAS

- i) Provide suitable working areas to minimise fatigue, including but not limited to the provision of sufficient light, ventilation and air and ergonomically suitable furniture for work tasks.
- ii) Provide suitable rest areas to minimise fatigue, including but not limited to placement away from the work task in a quiet area clearly marked as a break out/rest area with sufficient seating and rest areas for peak numbers of workers.

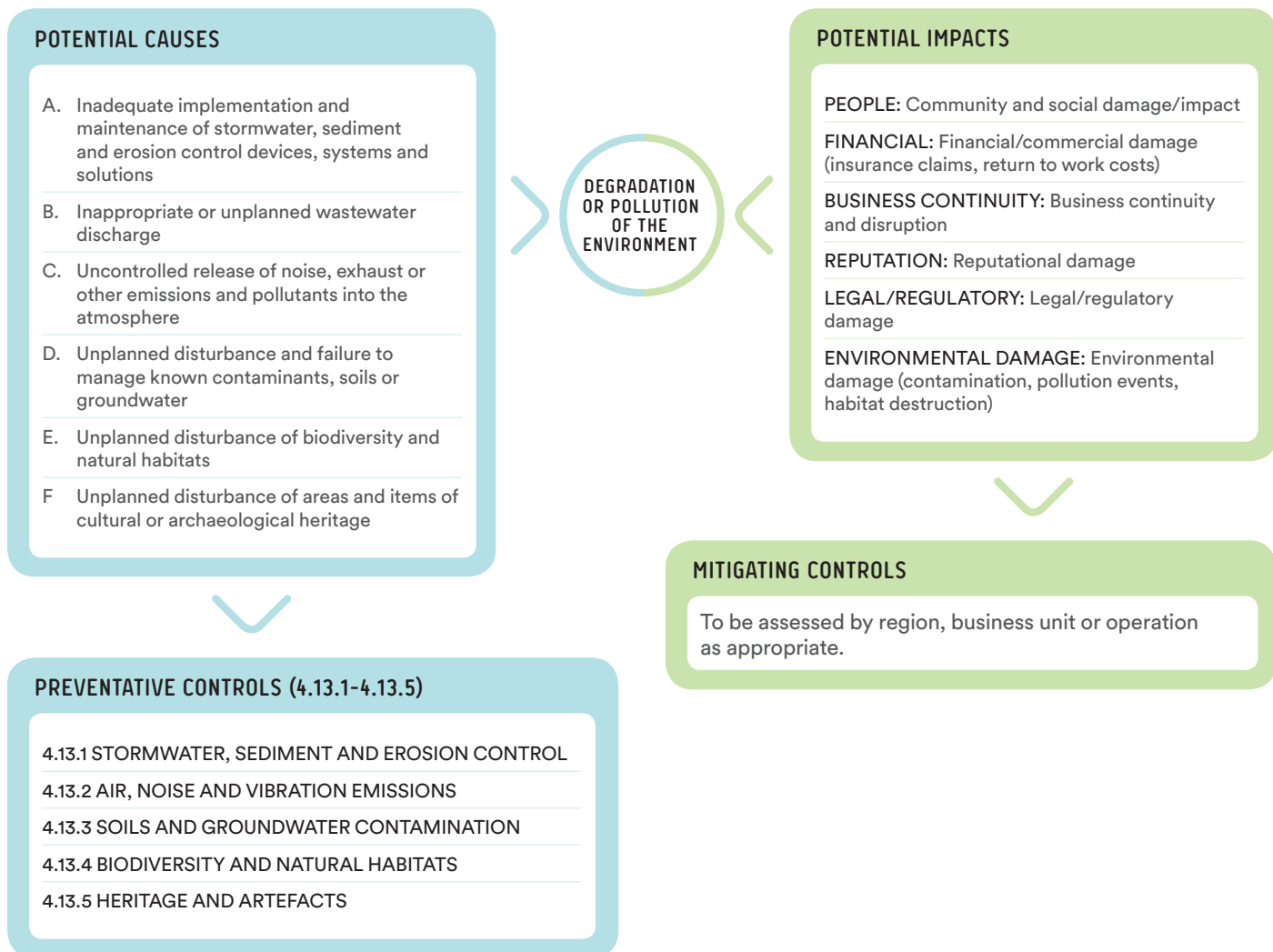
RISK EVENT MITIGATING CONTROLS

4.12.3 MENTAL HEALTH SUPPORT

- i) Provide an Employee Assistance Program (EAP), independent counselling and support for employees feeling stressed or suffering from other mental health issues.
- ii) Provide general awareness of mental health issues to employees and suppliers working for Lendlease as appropriate to their role and duration of employment.
- iii) Establish Mental Health First Aiders or equivalent employees trained to identify the likely signs of poor mental health in colleagues and suppliers and who are able to intervene and direct individuals showing signs of mental health issues to available support services.

4.13 DEGRADATION OR POLLUTION OF THE ENVIRONMENT

DESCRIPTION: These critical controls apply to any Lendlease operation where, without effective measures in place, activities being undertaken could lead to significant pollution and environmental degradation outcomes.



POTENTIAL CAUSES

- A. Inadequate implementation and maintenance of stormwater, sediment and erosion control devices, systems and solutions
- B. Inappropriate or unplanned wastewater discharge
- C. Uncontrolled release of noise, exhaust or other emissions and pollutants into the atmosphere
- D. Unplanned disturbance and failure to manage known contaminants, soils or groundwater
- E. Unplanned disturbance of biodiversity and natural habitats
- F. Unplanned disturbance of areas and items of cultural or archaeological heritage

DEGRADATION OR POLLUTION OF THE ENVIRONMENT

POTENTIAL IMPACTS

- PEOPLE: Community and social damage/impact
- FINANCIAL: Financial/commercial damage (insurance claims, return to work costs)
- BUSINESS CONTINUITY: Business continuity and disruption
- REPUTATION: Reputational damage
- LEGAL/REGULATORY: Legal/regulatory damage
- ENVIRONMENTAL DAMAGE: Environmental damage (contamination, pollution events, habitat destruction)

PREVENTATIVE CONTROLS (4.13.1-4.13.5)

- 4.13.1 STORMWATER, SEDIMENT AND EROSION CONTROL
- 4.13.2 AIR, NOISE AND VIBRATION EMISSIONS
- 4.13.3 SOILS AND GROUNDWATER CONTAMINATION
- 4.13.4 BIODIVERSITY AND NATURAL HABITATS
- 4.13.5 HERITAGE AND ARTEFACTS

MITIGATING CONTROLS

To be assessed by region, business unit or operation as appropriate.

RISK EVENT PREVENTATIVE CONTROLS

4.13.1 STORMWATER, SEDIMENT AND EROSION CONTROL

- i) Ensure that all activities where land is cleared, excavated or disturbed have sediment and erosion control devices implemented and maintained. These devices prevent topsoil loss, land degradation as well as the export of soil, silt or sediment off-site.
- ii) Stormwater and sediment control risks must be controlled with solutions appropriately designed and maintained to prevent uncontrolled discharges to air, land or water. Provide on-site treatment of any stormwater runoff where required.
- iii) Implement adequate controls on all operations to prevent water pollution and any pollutants from entering adjacent drainage areas such as watercourses, water bodies, bays or other marine environments and stormwater systems through uncontrolled discharges.
- iv) Ensure all wastewater discharged from operations such as sediment impacted stormwater or process water but excluding sewage is in accordance with any applicable planning and licence conditions (e.g. controlled discharge points where testing and monitoring is conducted). Maintain all water quality testing and individual discharge records for audit purposes.

4.13.2 AIR, NOISE AND VIBRATION EMISSIONS

- i) Determine preventative controls for all activities involving excavation, disturbance of soils or vegetation and then implement physical controls such as covering of stockpiles or water spraying to eliminate or minimise the generation of dust and to eliminate or minimise dust being introduced to the atmosphere.
- ii) Assess and implement mitigation measures for all noise and vibration related impacts on occupants, visitors, surrounding activities and owners where required to ensure operations do not adversely impact them.
- iii) Ensure all industrial process facilities or site based plant and equipment are serviced regularly in accordance with manufacturer guidelines so that noise, exhaust or other emissions generated are within the specified standards to prevent harm to people and the environment.

4.13.3 SOILS AND GROUNDWATER CONTAMINATION

- i) Identify, signpost and segregate from site activities any known contaminated soils or groundwater on the site likely to cause risk to health, safety or the environment. Erect physical barriers to prevent unauthorised entry, exposure and cross contamination.
- ii) Cease any site activities that involve soil or groundwater disturbance where the contamination levels of the soil and groundwater are either unknown or where evidence of possible contamination is presented, until a competent person is able to determine the contamination status or risk.
- iii) Plan and conduct all excavation, movement, treatment, processing or remediation of contaminated soils or groundwater in accordance with the requirements of high risk activities.
- iv) Ensure all site remediation activities are conducted in accordance with regulatory requirements including provision for any decontamination and wash/disposal facilities.

4.13.4 BIODIVERSITY AND NATURAL HABITATS

- i) Areas designated by regulatory authorities as protected habitats, including water bodies and designated habitats or wildlife corridors within the area of any operations, must be identified, signposted and protected from operational activity, including uncontrolled pedestrian access.
- ii) All operations within or immediately adjacent to areas of protected habitat must be planned and conducted in accordance with the requirements for high risk activities and include a risk assessment and description of any actions required to protect flora and fauna consistent with the findings of any ecological site assessment and regulatory requirements.
- iii) All landscaping and site grounds must be appropriately managed to prevent uncontrolled discharges and land degradation including avoiding the spread of weeds or invasive species. Where invasive species exist, physical removal or isolation is the preferred option rather than the use of non-toxic herbicides.

4.13.5 HERITAGE AND ARTEFACTS

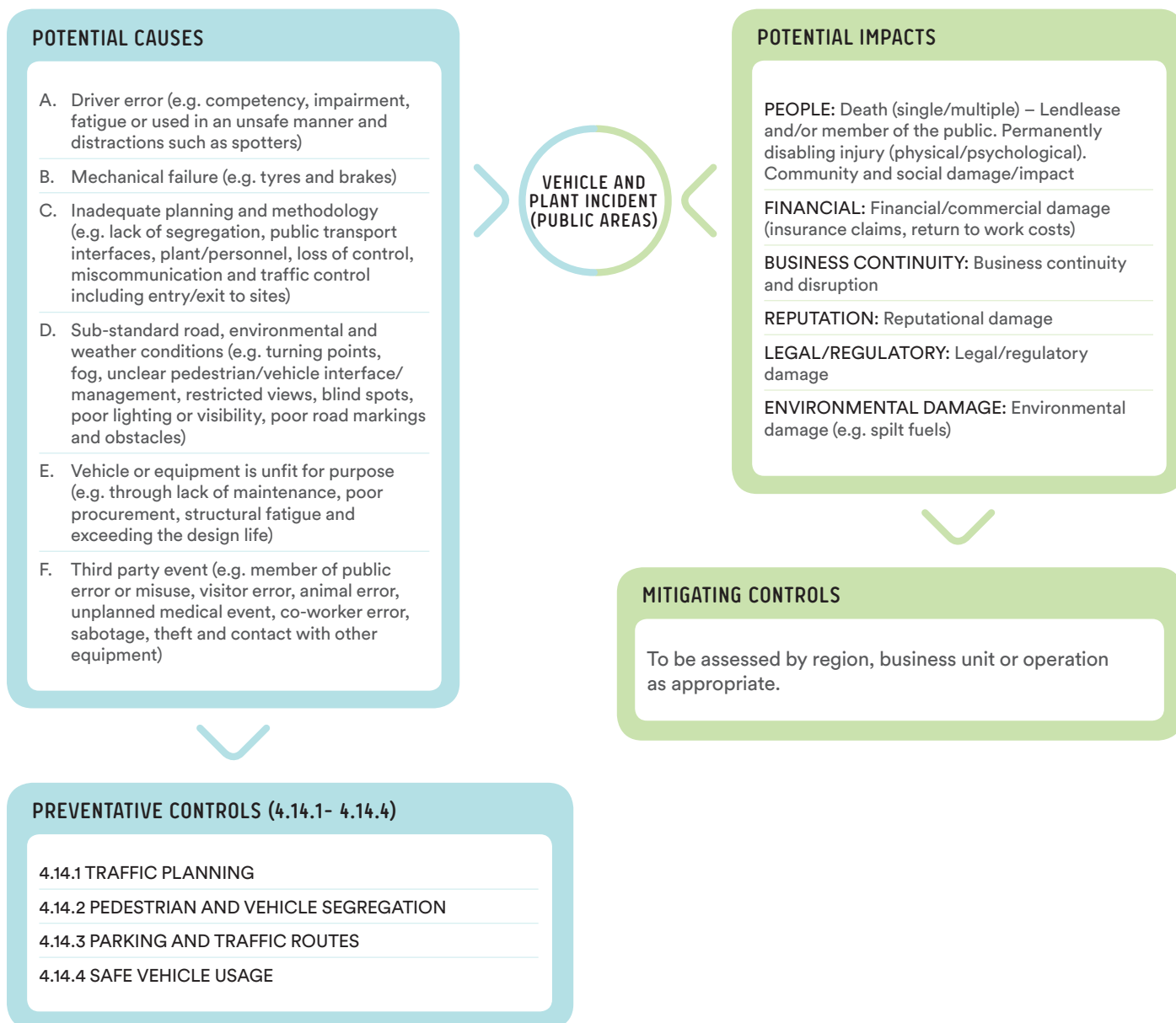
- i) Ensure all items of heritage, cultural or archaeological significance are included on construction plans, signposted and protected in accordance with regulatory requirements.
- ii) Ensure any excavations, intrusive works or other operations that have the potential to impact areas of known heritage, cultural or archaeological significance are performed in accordance with a heritage assessment and any regulatory requirements. This may include a dilapidation survey, supervision of works by a competent person and vibration monitoring.
- iii) Signpost and segregate any such areas by erecting physical barriers to prevent unauthorised entry. Plan and conduct all activities potentially impacting known areas in accordance with the requirements of high risk activities.
- iv) Cease any activities that involve the discovery of items that may be of cultural or archaeological significance until a competent person is able to determine the status of any potential artefact(s).

RISK EVENT MITIGATING CONTROLS

To be assessed by region, business unit or operation as appropriate.

4.14 VEHICLE AND PLANT INCIDENT (PUBLIC AREAS)

DESCRIPTION: These critical controls apply to the movement of both public and Lendlease vehicles on any Lendlease controlled operating asset (e.g. retail, residential, commercial parking and public vehicle access areas). They also include the use of any Lendlease tool of trade vehicles on public roads where a fatality could occur. They do not cover construction site vehicle traffic or Lendlease heavy equipment. They also do not include personal small vehicles such as bicycles, customer low speed car park manoeuvres or single drop delivery drivers.



RISK EVENT PREVENTATIVE CONTROLS

4.14.1 TRAFFIC PLANNING

- i) Ensure any applicable traffic management plans or regulatory required traffic management protocols are current and define the controls to minimise the risk of vehicles striking another vehicle, structure or pedestrian.
- ii) Controls to manage any interface with public roads must provide effective signs and traffic control aids addressing prohibited vehicles, access points, routes for different vehicles types and reversing requirements.

4.14.2 PEDESTRIAN AND VEHICLE SEGREGATION

- i) All locations must assess the risks presented by the movement of pedestrians and vehicles around or next to the site and implement appropriate controls to eliminate or minimise these risks.
- ii) Route sightlines must be unobstructed and adequately lit to ensure good visibility. Blind spots and corners must be avoided, or where they do exist, have mirrors or other controls installed.
- iii) Signage and road markings must provide clear instructions to pedestrian and vehicle route users and be located in positions which allow users to see them and have time to respond.
- iv) Loading and unloading areas for commercial vehicles (e.g. delivery trucks) must be clearly defined for loading or unloading.
- v) Speed limits must be determined to reduce the risks associated with pedestrian movements, the local environment and authority standards. Speed calming measures such as raised crossings, humps on approach to crossings and rumble strips must be implemented in areas where pedestrians and vehicles could interface.
- vi) In locations where vehicles and pedestrians are in close proximity (e.g. security entrance points or where doors open directly onto vehicle routes) engineering controls must be provided to keep pedestrians and vehicles apart (e.g. by fitting physical barriers or providing separate routes).
- vii) Where shared zones for traffic and pedestrians are in place, speed limits must be reduced to less than 10km per hour (6mph) and signage and traffic calming devices must be in place where building entry and exit points lead onto any area where vehicles can operate.

4.14.3 PARKING AND TRAFFIC ROUTES

- i) Traffic routes and parking arrangements must be in place to avoid vehicle-to-vehicle and vehicle-to-pedestrian conflicts.
- ii) Provide clear signage in car parks to indicate location information, speed limits, operating hours and conditions and any other hazards and precautions.
- iii) Provide clearly defined pedestrian routes within car parks to facilitate safe access and egress.
- iv) Locate height bars and signage to car park entrances to warn drivers of height limits. Provide safe exit routes for oversize vehicles.
- v) Use controls to manage reversing for trucks and delivery vehicles where through flow or one way systems cannot be achieved. Where reversing needs to occur, use suitable controls in response to the level of risk encountered including pedestrian exclusion zones, mirrors or traffic signallers.

4.14.4 SAFE VEHICLE USAGE

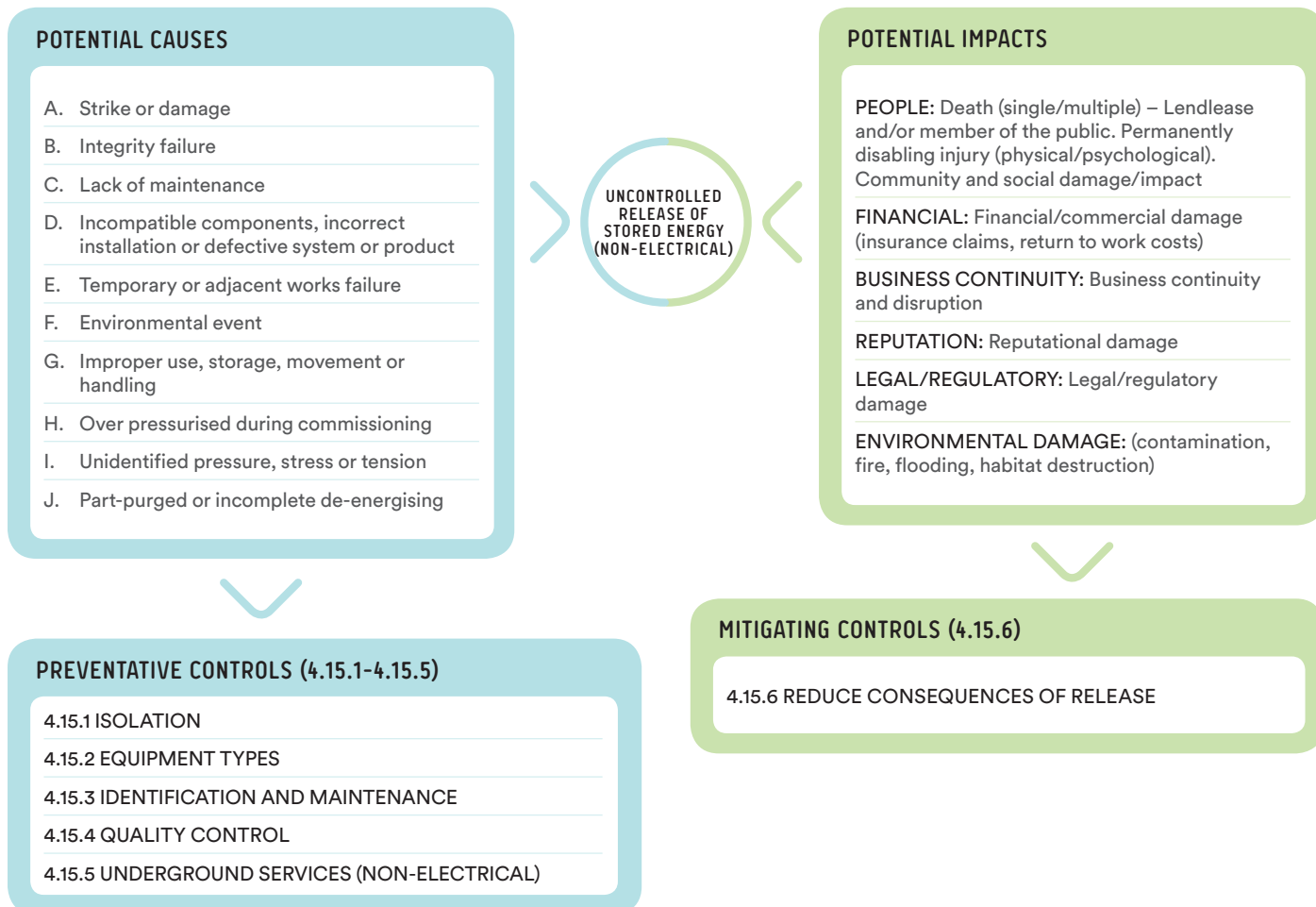
- i) Vehicles used as a tool of trade by Lendlease personnel must be operated in a safe manner at all times.
- ii) Light vehicles on operations should be of a high visibility colour (e.g. white) and have reflective taping, flashing lights, a first aid kit, a fire extinguisher, a spill kit and survival or emergency equipment suitable for the operating environment.
- iii) Vehicles proposed for hire or purchase must have a minimum five star Australasian New Car Assessment Program (ANCAP) rating or equivalent standard.
- iv) Vehicles provided by Lendlease as a tool of trade shall be fitted with in vehicle management systems, reversing cameras and hand brake warning systems.
- v) Seatbelts must be used at all times by all occupants and drivers of vehicles.
- vi) Vehicle journeys of two hours or more continual driving must be planned to ensure adequate rest breaks are in place and that there is provision to manage fatigue.
- vii) Mobile phones, whether hands free or not, must only be used by the driver of a tool of trade vehicle whilst the vehicle is stationary and in a parked safe location. The exception to this is for emergency and incident response vehicles, using hands free communications in a response situation, where alternative communication methods are not available.
- viii) All drivers must be appropriately licensed for the vehicle being operated and be fit for work (i.e. not impaired by medication, drugs or alcohol).
- ix) When parked all vehicles must be fundamentally stable with the engine turned off, handbrake effectively applied, placed in gear and on level ground. Wheels should be situated in spoon drains, gutters or against wheel stops. If fundamentally stable parking cannot be achieved appropriately sized wheel chocks must be available and implemented.
- x) All Lendlease vehicles must have inspection and maintenance protocols in place for all safety related items such as wheels and tyres, steering, suspension and braking systems, seats and seat belts, lamps, indicators, mirrors and reflectors, windscreen and windows including windscreen wipers and washers, the vehicle structure itself and any other safety related item on the vehicle body, chassis or engine including instrumentation.
- xi) Pre-start inspections must be completed to ensure the lighting and braking systems are in proper working order.
- xii) Vehicles must not be used above the manufacturer defined maximum load limit.
- xiii) Wheel nut indicators must be fitted to all vehicle wheels.

RISK EVENT MITIGATING CONTROLS

To be assessed by region, business unit or operation as appropriate.

4.15 UNCONTROLLED RELEASE OF STORED ENERGY (NON-ELECTRICAL)

DESCRIPTION: These critical controls apply to any Lendlease operation containing plant, machinery or equipment that provides energy and which, if released, could result in a permanently disabling injury, single fatality or multiple fatalities. This includes pipework located where leakage could cause catastrophic collapse of structure (e.g. ceiling), inundation of an area (e.g. the general public) or asphyxiation. Energy includes water, fuels, heat, gases, steam, fluids under pressure (e.g. hydraulic oil, stored energy (static, kinetic and potential), structural tension and radiation). It is not intended to apply to supportive elements such as crane hydraulics.



RISK EVENT PREVENTATIVE CONTROLS

4.15.1 ISOLATION

- i) Before undertaking work on systems that contain stored energy, the energy must be released (e.g. draining fluids from pipes and releasing tension in belt systems).
- ii) To prevent inadvertent or unintentional movement of mechanical systems a lock out system such as the use of keyed padlocks, belt clamps or the use of chains to secure items against movement must be implemented.
- iii) Isolation of hydraulic and gas systems is required using a physical keyed lock out isolation system and a danger tag/out of service tag with personal locks on all valves.

4.15.2 EQUIPMENT TYPES

- i) Use the smallest available unit that can complete the task when procuring portable or temporary systems (e.g. portable compressors).
- ii) Ensure systems are able to withstand specific local environmental conditions and hazards.
- iii) Select technology that provides the highest level of structural and mechanical integrity for containment of stored energy.

4.15.3 IDENTIFICATION AND MAINTENANCE

- i) When acquiring an asset, identify all stored energy systems and demonstrate their current condition and safety status. Where no records are available or where they are incomplete, provide them within three months of the transaction.
- ii) Develop a maintenance and mechanical integrity program for all stored energy systems suitable for the system, including periodic third party inspection and examination. This includes portable storage systems under the control of the operation.
- iii) Perform maintenance of portable stored energy systems in a safe location away from the workforce.
- iv) Undertake a review of all stored energy systems to identify and implement controls required to reduce the likelihood of uncontrolled release. Consider all third party external risks or events that could impact the stored energy system. Ensure written procedures are in place for the operation and maintenance of stored energy systems.
- v) Ensure procedures include methods for safe energy discharge, isolation and demonstration that energy has been removed before invasive maintenance takes place.

4.15.4 QUALITY CONTROL

- i) Implement quality control and quality assurance for the procurement and installation of any stored energy system to ensure that it meets design requirements.
- ii) Implement quality control of the design and engineering of stored energy systems to ensure that the design is fit for purpose.
- iii) All stored energy systems must be designed by a qualified, competent and registered engineer according to its intended use and be reviewed by a qualified, competent and independently registered engineer. Once installed, erected or after a change to the design the stored energy system must be verified by a qualified, competent and independently registered engineer to ensure the design intent is met.

4.15.5 UNDERGROUND SERVICES (NON-ELECTRICAL)

- i) Ensure a register is in place for all buried services across all Lendlease controlled operations (e.g. gas). The register must include a plot drawing of the route of the service with grid references or other recognised location references, description of the depth and type of service and any auxiliary protection.
- ii) Existing drawings and suitable location tools must be used to locate and mark underground services before works commence. Where any uncertainty exists regarding the location of underground services hand digging such as pot holing must be implemented to positively identify the services.
- iii) Prior to the disturbance of ground where underground network assets such as electrical or gas may be present, Lendlease operations must ensure that current diagrams and plans are available and obtained from the relevant authority.

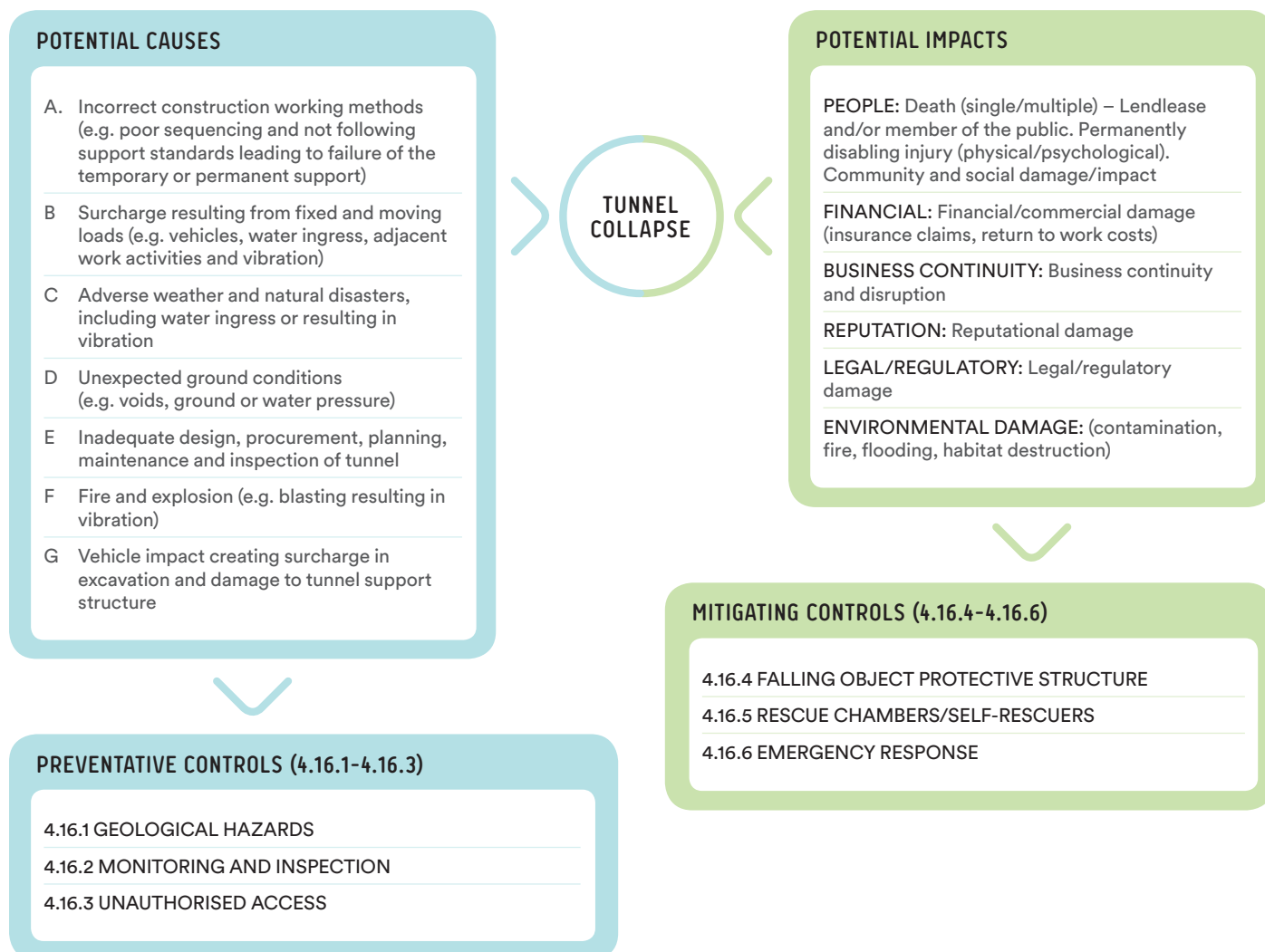
RISK EVENT MITIGATING CONTROLS

4.15.6 REDUCE CONSEQUENCES OF RELEASE

- i) Take all necessary actions to reduce the consequences of an uncontrolled release of stored energy (e.g. relocating the hazard, installing barriers or secondary containment).

4.16 TUNNEL COLLAPSE

DESCRIPTION: These critical controls apply where any Lendlease operation could result in the unplanned collapse of a tunnel resulting in a fatality.



RISK EVENT PREVENTATIVE CONTROLS

4.16.1 GEOLOGICAL HAZARDS

- i) Identify geological hazards and ensure geotechnical engineered solutions are comparable with the risk.
- ii) Ensure contractors, service providers or JV partners identify the plant and equipment intended for use.
- iii) During procurement ensure contractors, service providers or JV partners demonstrate how their plan minimises the exposure of people to potential collapse events.

4.16.2 MONITORING AND INSPECTION

- i) Ensure ground support plans address geotechnical issues, describe and illustrate methods of ground support, clarify roles and responsibilities and address inspection regimes.
- ii) Ensure engineered monitoring and warning systems are in place for tunnels where failure of the sides or roof could lead to the entrapment of people.
- iii) Ensure engineered monitoring and warning systems are supported by training people to make relevant geotechnical observations of impending failure.

4.16.3 UNAUTHORISED ACCESS

- i) Ensure all work involving tunnels identifies the people, vehicles, plant or equipment authorised to access the tunnel. Risk assessments must address unauthorised access.
- ii) Prevent access wherever an unauthorised vehicle or person could damage critical infrastructure or where the unauthorised person could be fatally injured due to the hazards within the operational area. Install physical barriers at operational perimeters and within discrete areas of the operation if required.

RISK EVENT MITIGATING CONTROLS

4.16.4 FALLING OBJECT PROTECTIVE STRUCTURE

- i) Install Falling Object Protective Structure (FOPS) to all mobile plant and equipment working in tunnels, meeting ISO 3449:2005 Level 1 or 2 or equivalent.

4.16.5 RESCUE CHAMBERS/SELF-RESCUERS

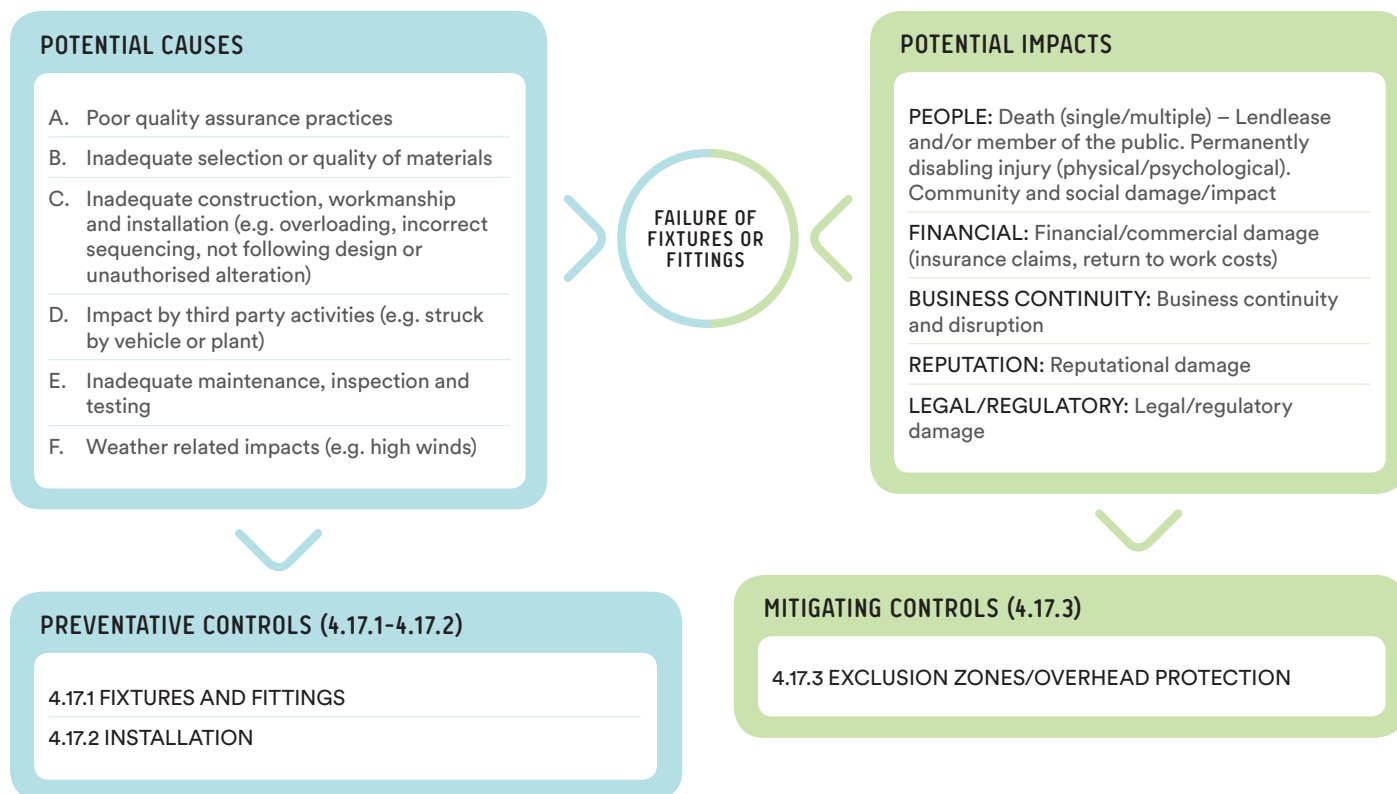
- i) Ensure the emergency response plan for tunnelling includes self-rescuers and rescue chambers.
- ii) Prepare emergency response plans with the assistance of specific expertise. Plans must address the rescue equipment required, location plans of equipment in the tunnel, rescue chamber capacity including power, water, oxygen and food requirements, training, inspection and maintenance regimes.

4.16.6 EMERGENCY RESPONSE

- i) The emergency response plan must be developed prior to work commencing and be resourced, implemented, verified and reviewed quarterly.
- ii) The plan must address failure scenarios such as specific recovery equipment (e.g. type and location) and training requirements.
- iii) Inductions must address the knowledge and skills of exposed workers to the emergency scenario.
- iv) Emergency response plans are to be regularly practiced and evaluated.

4.17 FAILURE OF FIXTURES OR FITTINGS

DESCRIPTION: These critical controls apply where a failure of any item fixed to an external wall or facade (e.g. signs, lights and architectural features), internal walls (e.g. screens, signs and brackets) or ceilings (e.g. glass or other ceiling panels and mounted projectors) could fall and result in a fatal outcome.



RISK EVENT PREVENTATIVE CONTROLS

4.17.1 FIXTURES AND FITTINGS

- i) If a building element could fall from its overhead positioning its fixings must be adequately engineered using, where possible, a tested proprietary system certified for its intended use.
- ii) Ensure suppliers and installers of fixtures and fittings consider engineering solutions that provide the highest degree of certainty relating to structural integrity for both temporary and permanent structures in the installation of fixtures and fittings.

4.17.2 INSTALLATION

- i) Install all elements without variance against agreed methodology and engineering tolerances.
- ii) Quality management processes must be implemented to determine that structural components or fittings and fixtures are installed using the documented components, adequately tensioned or fixed, free of defects, with the allocated number and type of fasteners and complete with a record of inspection and testing.
- iii) Confirm and complete inspection and testing plans where work or re-work requires approved activities to be conducted out of sequence from the original plan. This includes previously installed elements associated with or adjacent to the work area and ensuring that structural integrity has not been compromised.

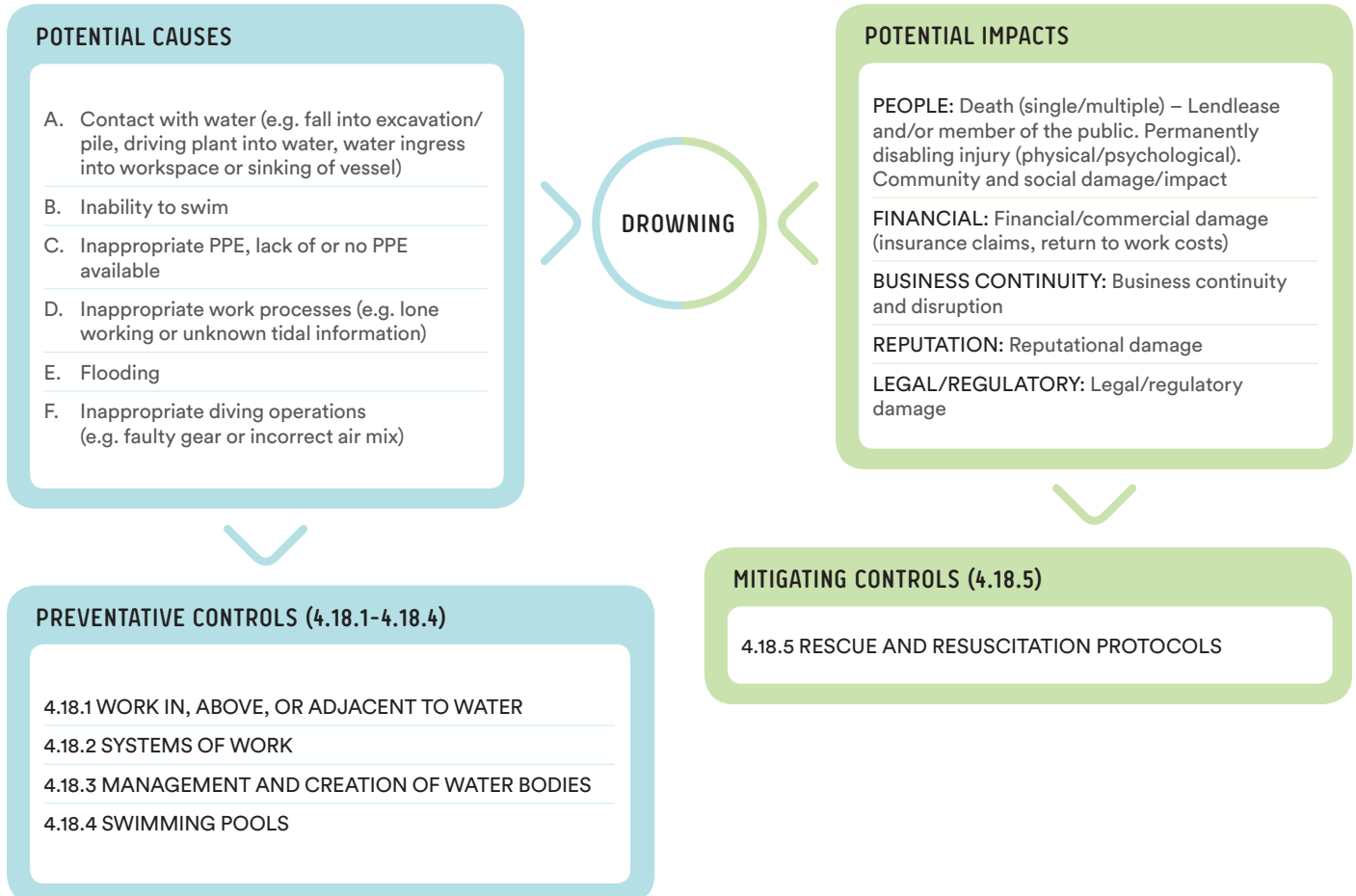
RISK EVENT MITIGATING CONTROLS

4.17.3 EXCLUSION ZONES/OVERHEAD PROTECTION

- i) Ensure exclusion zones are of adequate size taking into account the risks including potential arc of fall, deflections and bounce distances, are delineated by physical barriers and have clear warning signage prohibiting unauthorised entry where there is a likely risk of harm. The integrity of any exclusion zones must be regularly checked.
- ii) Ensure planning for both construction and asset works identifies any scenarios where overhead protection must be installed, particularly where people below cannot be completely excluded. Overhead protection must be in place before the activity begins

4.18 DROWNING

DESCRIPTION: These critical controls apply to any Lendlease operation situated on or adjacent to water into which someone could fall with the fatal risk of drowning.



RISK EVENT PREVENTATIVE CONTROLS

4.18.1 WORK IN, ABOVE, OR ADJACENT TO WATER

- i) Work activities above, in or adjacent to water (e.g. diving, work within stormwater and sewer systems, water body maintenance, boating or maritime operations, dredging, bridge and pier construction) are high risk activities and represent a drowning risk. Worker exposure to water must be assessed and minimised with work practices aligned to applicable codes and regulatory requirements.
- ii) Proof of competency for divers and all maritime plant and equipment operators must be provided.
- iii) Work activities reliant on favourable climatic conditions, flow shut-off protocols (within water and sewerage treatment facilities) and monitoring equipment and protocols must not proceed if safeguards are compromised in any way.
- iv) All excavations, including piling operations, must be inspected after significant rainfall events (i.e. greater than 20mm [0.8 inches] in 24 hours) to ensure that water ingress does not present a drowning risk. No further work is to proceed until the risk is eliminated and the removal of the excess water is complete.

4.18.2 SYSTEMS OF WORK

- i) Develop and communicate a set of procedures for drowning prevention for all operations that have standing water. As a minimum, procedures must cover:
 - Working and prefabricating components away from water wherever possible.
 - Secondary barriers or nets to prevent contact with water if the normal barriers have to be worked beyond.
 - Purpose designed and suitable gantries for safe transport of workers from vessel to vessel.
 - Fit for purpose methods for the transfer of equipment and materials to and from vessels.
 - Use of a spotter or buddy system when working near or over water and never allowing lone working near or in water.
 - All workers wearing fully functioning personal flotation devices when working near or over water.
 - Verifying that all workers are able to swim.
 - Guidelines for crossing roads flooded with moving water and identifying driving protocols where this activity is proposed to be carried out.

4.18.3 MANAGEMENT AND CREATION OF WATER BODIES

- i) All natural bodies of water (e.g. wetlands, lakes, watercourses, rivers or creeks) must be the subject of a risk assessment to determine if modifications are required to their surroundings to minimise risks to people, especially children or the elderly, or whether it would be more appropriate to preserve the natural surroundings.
- ii) Purpose built structures interfacing with these water bodies such as bridges, walkways and boardwalks must provide protection against the fall of a person into the water. Where fencing or balustrades are installed they must not be climbable.

- iii) The surroundings of all purpose built water bodies (e.g. artificial lakes or storm water reservoirs) must be designed or modified to minimise risks to people, especially children or the elderly. This must include controls to prevent public access if necessary.
- iv) Water depths at the edges of artificial water bodies must be minimised by incorporating safety benches. These safety benches must have a water depth of 0.3 to 0.6 metres (one to two feet) and extend at least three metres from the edge of the normal surface level of the water, except where transitions to culverts and other structures occur or where the water body is tidal.
- v) All boardwalks, piers, bridges, jetties and harbour edges higher than one metre (3.3 feet) from the water surface must be risk assessed to determine if handrails should be installed.
- vi) Signage communicating warnings, prohibitions and general EH&S related information must be provided using easily comprehensible words and pictograms. The placement and detail of signs must be based on a risk assessment and signage must be provided to alert people of the water hazard and the need for active supervision.

4.18.4 SWIMMING POOLS

- i) Swimming pools and spas must be surrounded by a non-climbable child resistant barrier consisting of fencing or child safe windows and doors that open onto the swimming pool area and a self-closing and locking child resistant safety latch. These barriers and their associated locks and latches must be well maintained and in working order at all times and comply with all applicable local codes, standards and legislative requirements.
- ii) Warning signage and notices which give a supervision warning and the details of resuscitation techniques and emergency contact numbers must be displayed in a prominent position within the immediate vicinity of a swimming pool.
- iii) Filtration systems must be fitted with clearly defined and easily accessible emergency stop buttons or switches and their intakes guarded to eliminate the risk of entrapment.

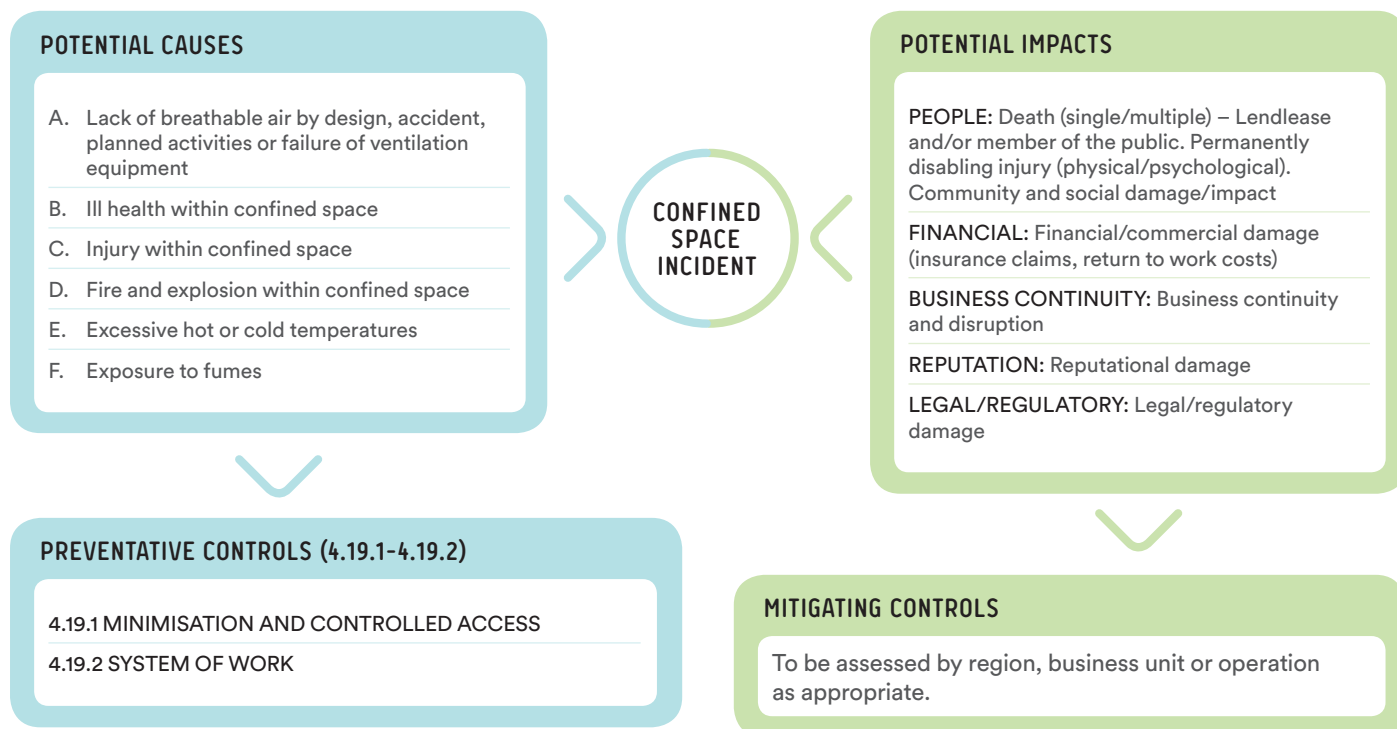
RISK EVENT MITIGATING CONTROLS

4.18.5 RESCUE AND RESUSCITATION PROTOCOLS

- i) Design and build in safe exit or life sustaining handles, rails or other access elements to allow people to readily climb out of the water.
- ii) Ensure standby emergency flotation devices are readily available.
- iii) Assess the requirement for the presence of professional life saving personnel when large numbers of workers or members of the public are in the water.
- iv) Ensure emergency response contacts and protocols are made available.

4.19 CONFINED SPACE INCIDENT

DESCRIPTION: These critical controls apply to any Lendlease operation which includes any enclosed or partially enclosed space where there is a risk of death or permanently disabling injury from hazardous substances or dangerous conditions (e.g. a lack of oxygen or a contaminated atmosphere). It is important to verify the definition of a confined space in accordance with local legislation and regulations (e.g. sewers, culverts, tunnels, chambers, tanks, vessels, silos and excavations) before work commences.



RISK EVENT PREVENTATIVE CONTROLS

4.19.1 MINIMISATION AND CONTROLLED ACCESS

- i) Identify at the acquisition of any asset any confined spaces or enclosed areas where hazards could cause the death of any person entering that area. Create and maintain the currency of a single register for future management of the asset.
- ii) Control access to all confined spaces, install and maintain physical locks to all confined space access points and display warning signs against unauthorised entry.
- iii) Any new equipment and appliances requiring access for maintenance must not be installed in a confined space. The requirement to access confined spaces must be eliminated.
- iv) Priority must be given to avoid work inside a confined space through the design and use of alternative work methodologies such as the use of remote cameras for inspections. Where work in a confined space cannot be avoided, the operation must put in place a system of work that includes risk assessments, atmospheric monitoring, training, procedures, permits, PPE requirements, rescue and monitoring arrangements and equipment specifications.

4.19.2 SYSTEM OF WORK

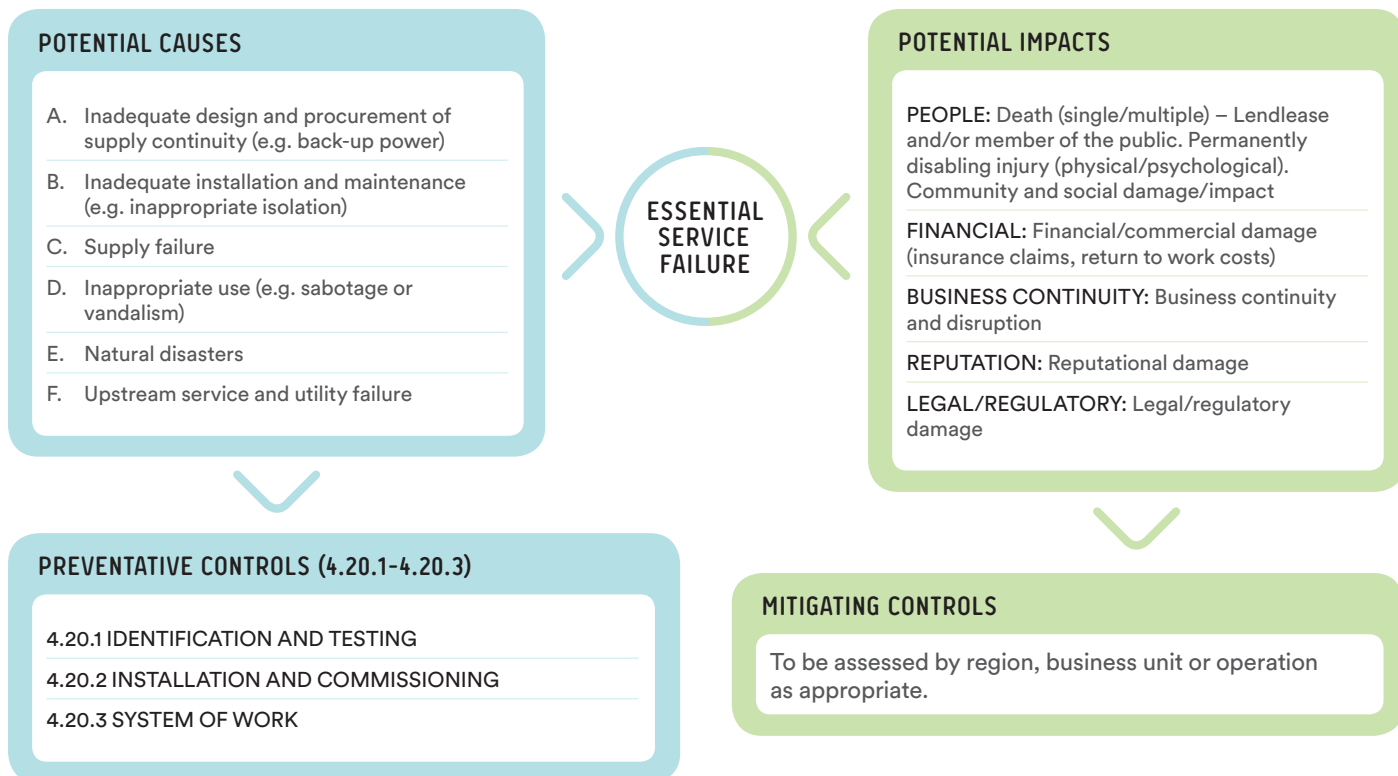
- i) Where any confined space is present it must be protected to prevent unauthorised access.
- ii) Persons must only enter a confined space when no safer alternatives are available. All work in confined spaces must only be conducted by personnel who are trained to do so, including atmospheric monitoring, use of safety equipment and rescue procedures.
- iii) A permit to work procedure must be implemented to effectively control any work in a confined space. The permit to work must only be issued by a competent person, be valid for a maximum of one shift and require the following precautions to be checked and confirmed as in place before works commence:
 - Appropriate measures to control entry and exit and which account for each person entering or leaving the space.
 - Atmospheric monitoring and rescue equipment appropriate for the situation and that is in good working order.
 - A competent person remaining on watch at all times when any person remains in a confined space to raise the alarm and provide assistance if needed and only if safe to do so.
 - On completion of the works a process is in place ensuring the confined space is closed, secured and the permit is signed off and closed-out by the issuer.

RISK EVENT MITIGATING CONTROLS

To be assessed by region, business unit or operation as appropriate.

4.20 ESSENTIAL SERVICE FAILURE

DESCRIPTION: These critical controls apply to both essential services in operating assets and where essential services are required for ongoing construction operations and interruption could lead to fatal outcomes. It is not intended to apply to circumstances where the consequence of interruption to the essential service results in business continuity or reputational disruption only.



RISK EVENT PREVENTATIVE CONTROLS

4.20.1 IDENTIFICATION AND TESTING

- i) All services that could pose a risk to life in the event of failure (e.g. electricity in hospitals and emergency lighting in offices) must be assessed and a back-up plan developed.
- ii) When acquiring an asset, identify all essential services and back-up systems and verify their current condition and reliability. Where no records are available or they are incomplete, ensure these are provided within three months of the transaction by testing back-up systems where needed.
- iii) Ensure maintenance and testing programs are in place for all essential services and that the back-up system(s) is suitable, including periodic third party inspection and examination.

4.20.2 INSTALLATION AND COMMISSIONING

- i) Procure only from suppliers who can demonstrate a positive EH&S performance record for installation and commissioning of the type of system required.
- ii) Ensure essential service systems are installed as designed and engineered with a suitable accompanying quality plan.

4.20.3 SYSTEM OF WORK

- i) Manage the safety of maintenance and testing of essential services by following the controls specified in alignment with GMRs 4.4 uncontrolled release of electrical energy and 4.15 uncontrolled release of stored energy (non-electrical).

RISK EVENT MITIGATING CONTROLS

To be assessed by region, business unit or operation as appropriate.

ATTACHMENT D

Wetland Maintenance Plan

Clippership Wharf Wetland Maintenance Plan - DRAFT

- 1- General Project Overview
- 2- Existing Condition
- 3- New Living Shoreline
- 4- Salt Marsh Monitoring
 - 4.1- Monitoring During Construction
 - 4.2- Post-Construction Monitoring and Maintenance

1- General Project Overview

Clippership Wharf is located on the Boston's inner harbor in East Boston, south of Maverick Square. The proposed project, developed by Lend Lease Development, Inc. ("Owner") will revitalize an existing vacant waterfront property consisting of residential units and associated amenities including a fitness and social club, restaurant, recreational-based retail, and a parking garage. The project will include approximately 27,276 square feet of new coastal wetland referred to in this document as a "Living Shoreline." To create a diverse new wetland community, the area will be graded with a series of terraces bracketing the daily amplitude of the tidal cycle. The lower terrace, referred to as "low marsh," will be set at approximately Elevation 5.1 (BCB). The next two terraces will be referred to as "mid-level marsh" and will be set at approximately Elevations 6.5 and 8.5, respectfully. The next terrace will be referred to as "high marsh," and will be set at approximately Elevation 11.0.



Figure 1: Proposed living shoreline at Clippership Wharf showing various planting terraces and salt marsh areas.

The terraces will be created by using predominantly salvaged Granite blocks from the project site. The blocks will create the edge of each terrace to frame and protect each level from moderate wave action. The bottom of each terrace within each level where the growing medium will be placed will be sloped by 2% to allow free movement (in and out) of tidal waters. The structure below Elevation 5.1, the lowest terrace, will be built with rip rap and general fill to support the remaining terraces that lie above. Above

Elevation 11.0, the upland will slope continuously to Elevation 24.0 to create a contiguous landscaped area, which will transition from wetland plantings to typical upland landscaping.

The terraces will be planted with a mixture of *Spartina alterniflora* and *Spartina patens*, with their location dependent upon the suitability of each terrace to support the growth of the wetland plants.

2- Existing Condition

Clippership Wharf is an approximately 11.95 acre of parcel of land and water on the East Boston waterfront that has been vacant for more than 25 years. The total project area consists of 6.78 acres of land and 5.17 acres of water sheet. The site is open and relatively flat, and does not have any buildings. The land consists of broken pavement, gravel, and deteriorated old timber wharfs (see Figure 2, Existing Conditions). The water sheet includes broken piles and deteriorated timber decks.

3- New Living Shoreline.

The proposed Living Shoreline will constitute approximately 29,276 square feet of new coastal wetland. This new resource will allow access to the water and will convert an existing upland to land under the ocean, coastal bank, rocky intertidal shore and a tidal salt marsh resource areas. This new wetland/water sheet will provide the opportunity for users to interact with the water and experience these different wetland and coastal habitats.

The Living Shoreline will be created by a series of relatively flat terraces (2% internal slope to aid in the flow of the water), from the lowest level at Elevation 5.1 (BCB) to the highest level at Elevation 11.0. Below Elevation 5.1, the Living Shoreline will be supported by coastal structures such as rock rip rap and granite blocks to provide the necessary structural support and to elevate the lowest terrace to the level where salt marsh plants can be grown. Above the top terrace at Elevation 11.0, the area will transition into an upland site landscape planting up to approximately Elevation 24. The Living Shoreline will have four (4) distinct terraces set at Elevation 5.1, 6.5, 8.5 and 11.0. Each terrace will have a containment border constructed of predominantly granite blocks repurposed from the project site. The function of the granite blocks is to create the individual terraces, provide structural stability, and prevent erosion from the daily fluctuation of the tidal cycle and wave action from Boston Harbor. The Granite blocks will be positioned next to each other, dry laid with openings of approximately 2 to 4 inches in between each block to allow the flow of



Figure 2, Existing Conditions. The existing condition of Clippership Wharf showing areas of abandoned and degraded dock and pilings and various debris.

the water in both directions, and to prevent the entrapment of any juvenile marine life that establishes itself within the Living Shoreline. The newly created terraces will be planted with saltmarsh chordgrass (*Spartina alterniflora*) and high marsh grass (*Spartina patens*) based on their natural ability to thrive within the daily tidal fluctuation of the Boston Harbor.

4. Salt Marsh Monitoring

The new Living Shoreline will be monitored for a period of five (5) years, in conjunction with the overall monitoring of site plantings, to ensure the salt marsh plants are growing and thriving, establish a dense and healthy salt marsh community, and to reach their maximum growth potential (see Figure 3).

4-1. Construction Monitoring

Monitoring during construction will be necessary to make sure the individual terraces are established properly, the daily tidal waters are flowing in and out from each level with no restriction, and the flow of water is not creating any localized erosion to the planting soil within each terrace. The marsh grasses will be planted in accordance to the required density, spacing, and controls. The contractor will be responsible for the Living Shoreline for a minimum of one year post-construction before transferring the control and maintenance responsibilities to the Owner of the project. Any irregularity or damage to the Living Shoreline will be corrected under warranty prior to the transfer of maintenance responsibility to the Owner of the project.



Figure 3, Photo of coastal New England Marsh on the North Shore of Boston showing vegetation zonation from low marsh to high marsh.

4-2. Post Construction Monitoring

Monitoring post construction will continue for a period of four (4) years until 75% coverage of the indigenous salt marsh and other approved species plants have established. The basic salt marsh monitoring plan will include the following inspections, maintenance, and reporting protocols:

- a- **Inspections.** Weekly inspections and maintenance of the area to remove debris that has floated in from the harbor, provide corrections and adjustments to any dislodged plants, and provide the basic necessary care to promote the healthy establishment of the marsh. The selected EM (Environmental Monitor) will conduct official salt marsh inspections two

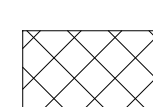
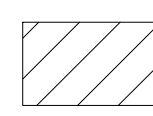
- times per year during the growing season (i.e. spring and fall) and after each significant coastal storm event, as necessary.
- b- **Reference Marsh Site.** An existing salt marsh area within the larger Boston Harbor system and nearby to the project site will be selected as a reference site for the four (4) year duration of the post construction monitoring period. The reference site will have similar morphology and vegetation zonation (i.e., restored high marsh with nearby, "natural" high marsh; restored low marsh with nearby, "natural" low marsh). The reference site and the transect locations will be selected so that all major vegetation zones of the restoration area are comparable to the reference site. For example, vegetation parameters at the restoration site will be compared with the same parameters at the reference site to determine whether an observed loss of vegetation is a restoration failure or is caused by a natural event, a coastal storm, hurricane, or Nor'easter, for instance - that has similarly affected marshes in the area.
 - c- **Vegetation Cover Measurements.** Vegetation cover percentages will be evaluated during each monitoring event. Upon completion of the salt marsh planting work, observation transects for the purpose of evaluating percentage coverage of vegetation will be established within the new planted salt marsh and the reference site.
 - d- **Recording of General Observations.** General observations will also be made during these monitoring events relative to wildlife usage, animal browse, the accumulation of debris, and any factors potentially affecting the area such as invasion by *Phragmites australis* or other invasive plant species invasions. Any debris accumulation detrimental to the wetland establishment efforts will be removed. If necessary, a remedial action plan to control *Phragmites australis* and/or other invasive plant species within the new wetland area will be developed and submitted to the Boston Conservation Commission, MassDEP, and the ACOE for their files. As necessary, remedial action plans deemed necessary will be prepared to improve other conditions that are deemed detrimental to the success of the new wetland system.
 - e- **Assessment of Erosion and Sedimentation Impacts.** The monitoring program will include erosion and scour inspection of each terrace area. Any observed scour and/or corrective measure will be described in the monitoring report. If any post construction scour, slumping, or erosion of the planting soil is observed, a mitigation plan will be developed, implemented, and provided to Boston Conservation Commission, MassDEP, and the ACOE for their files.
 - f- **Submittal of Annual Reports.** An annual report will be submitted to the Boston Conservation Commission, MassDEP, and the ACOE by December 31st of each year. The report will provide a general description of the site condition, the percentage of salt marsh establishment, any degradation or loss of planted salt marsh plantings, and any corrective measures taken. It will document the condition and success of the salt marsh establishment areas. The area will be further documented with photographs that are periodically taken from the same pre-established points.

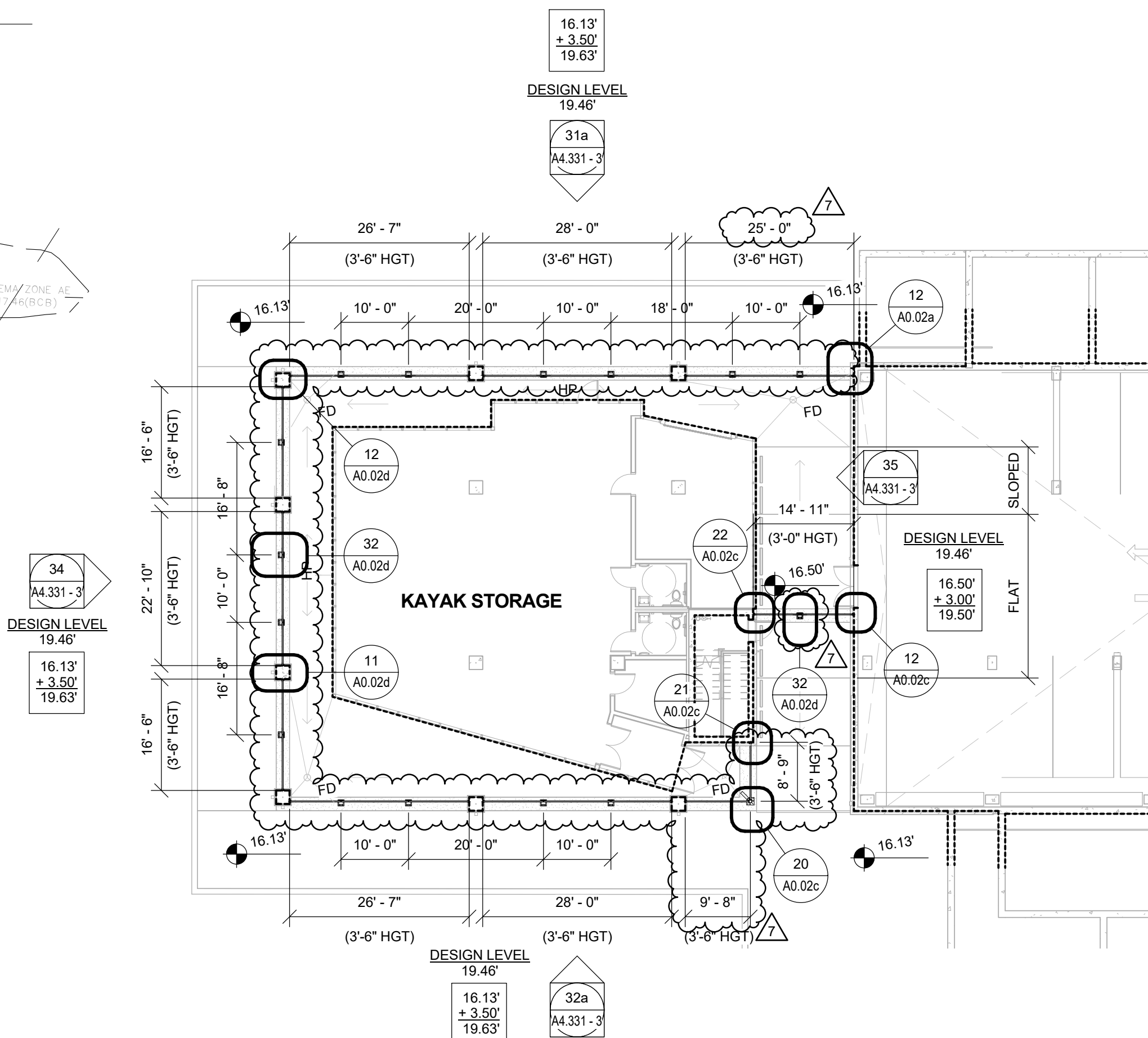
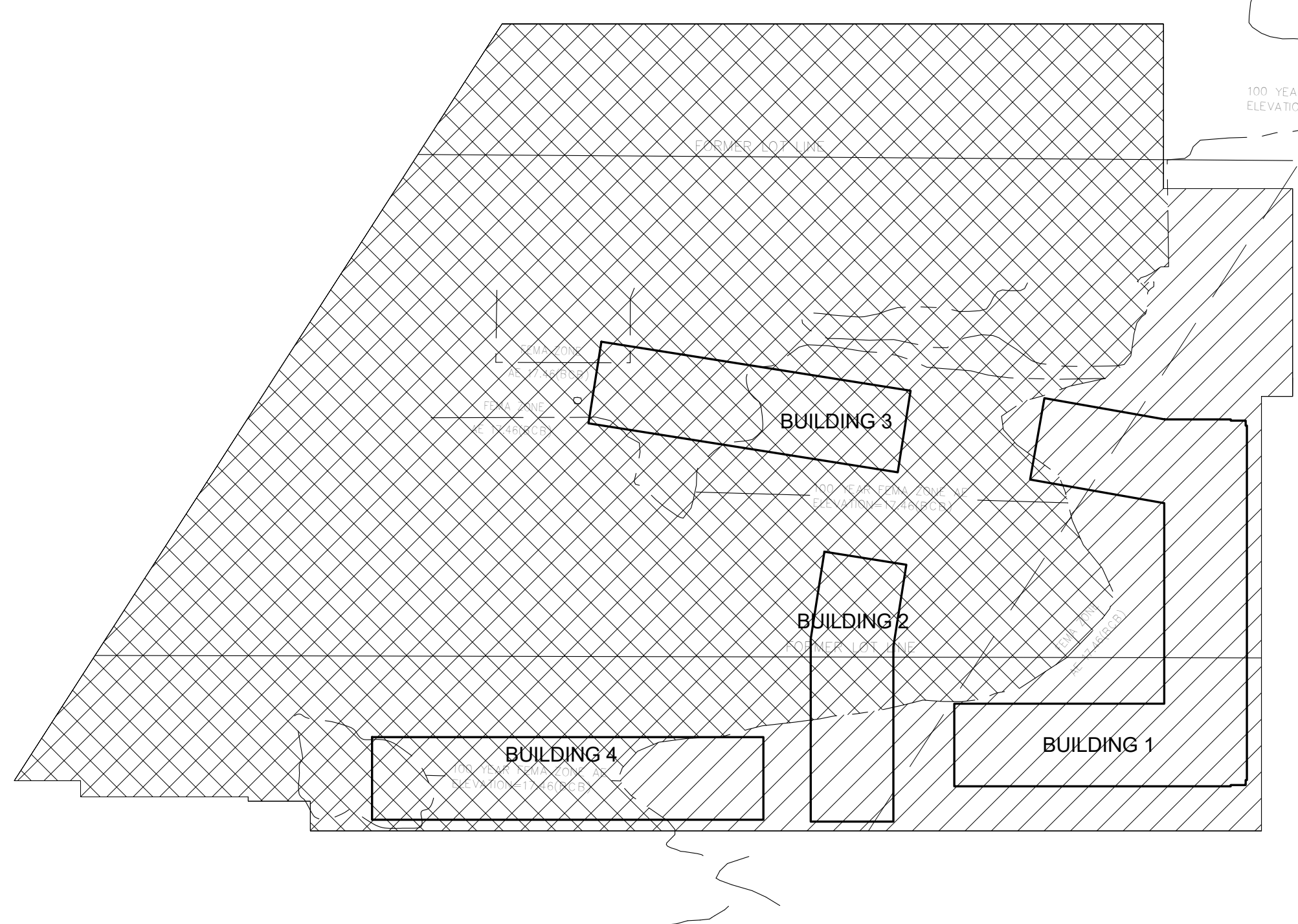
- g- **Structure of Annual Monitoring Report.** The Title Page will include the MassDEP file number; the ACOE file number, and the report number. At a minimum, the annual report will contain a summary of the following:
- 1- Dates the marsh establishment activities commenced and/or were completed, as well as monitoring activities that took place since the last report.
 - 2- Vegetation Cover Percentage, including:
 - A visual estimate of total percent cover within the various terraces, measured against the established goal of 75% areal coverage by *Spartina* and other appropriate salt marsh species.
 - A visual estimate of percent cover of invasive plants species in each terrace including, but not limited to, *Phragmites australis*.
 - 3- Remedial actions taken during the monitoring year, including those conducted to improve the success of the new salt marsh. These activities may include, but shall not be limited to, removing debris, controlling invasive plant species, adjusting grades, and adding new plantings.
 - 4- Recommendations for additional future remedial activities.

ATTACHMENT E

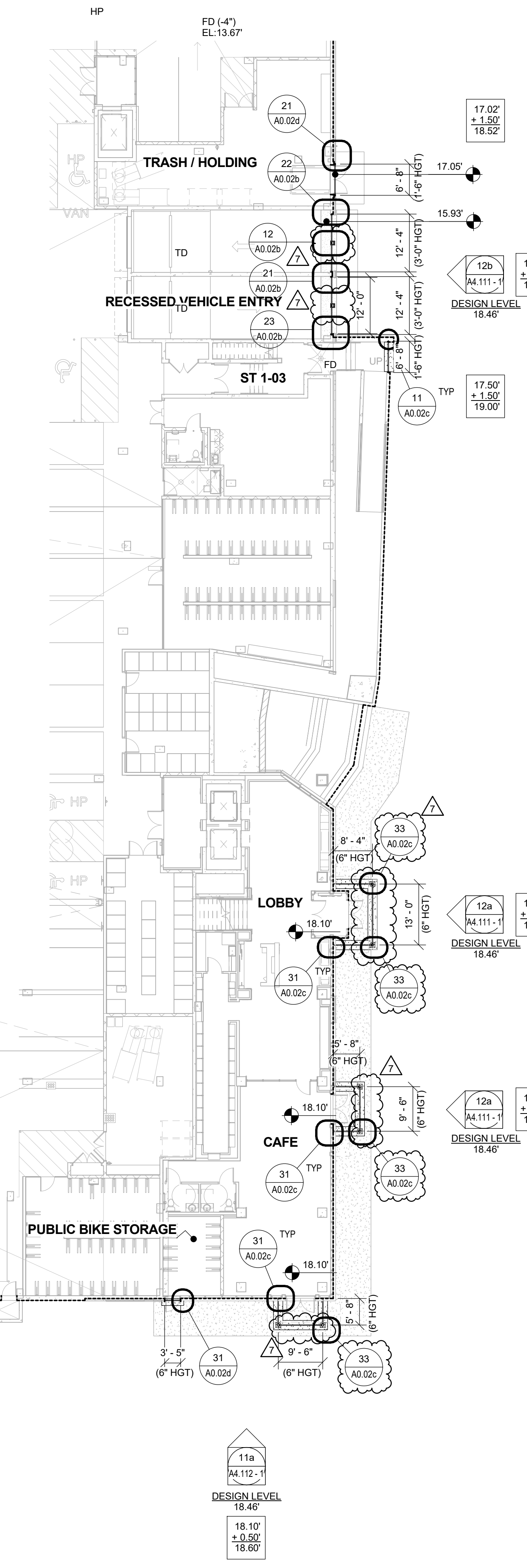
Template Maintenance Log

100 YEAR FLOOD PLAIN AND DESIGN ELEVATIONS:

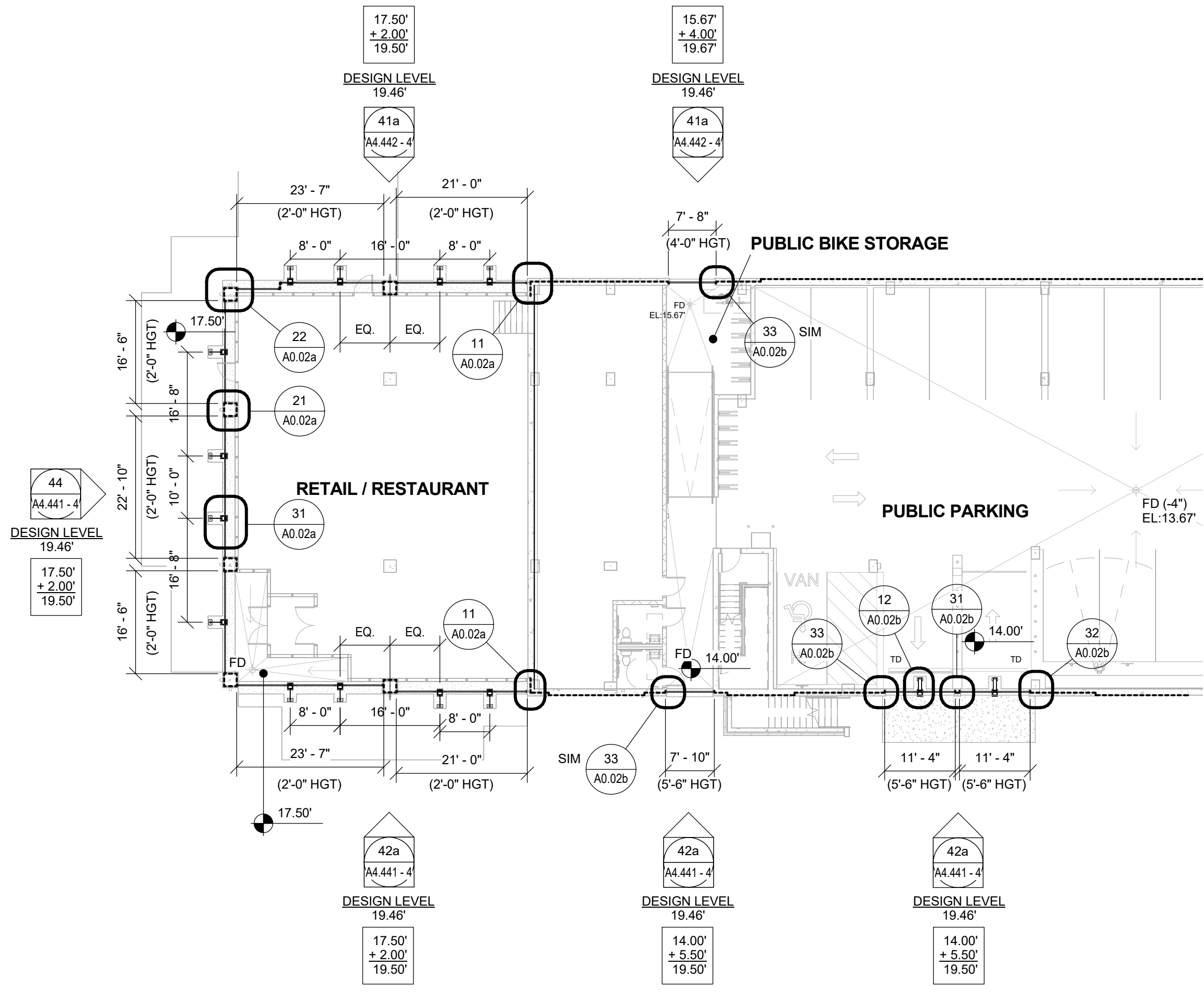
	CURRENT FEMA LEVEL:	15.46'
	JULY 2015 FEMA LEVEL - 12(NAVD88):	18.46'
	DESIGN LEVEL:	19.46'
	CURRENT FEMA LEVEL:	14.46'
	JULY 2015 FEMA LEVEL - 11(NAVD88):	17.46'
	DESIGN LEVEL:	18.46'



40 OVERALL FLOOR PLAN - 00 - FLOOD PLANK - BLDG 3
Scale: 1/16" = 1'-0"



10 OVERALL FLOOR PLAN - 00 - FLOOD PLANK - BLDG 1
Scale: 1/16" = 1'-0"



30 OVERALL FLOOR PLAN - 00 - FLOOD PLANK - BLDG 4
Scale: 1/16" = 1'-0"

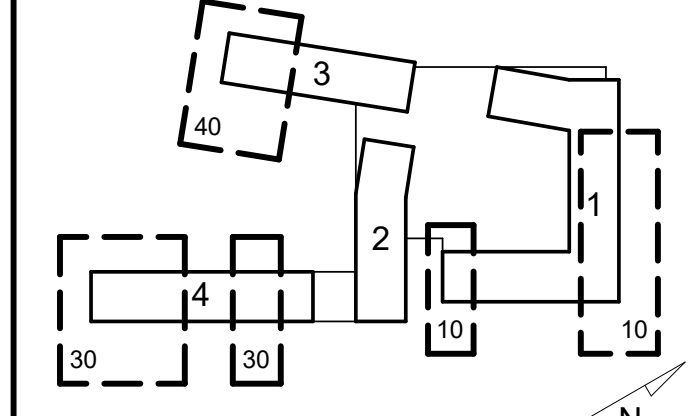


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- Consultant:
- Revision:
- OCT. 15, 2015
 - DEC. 01, 2015
 - MAY 4, 2016
 - JUNE 30, 2016 ADDENDUM 2
 - NOV 11, 2016 ADDENDUM 5
 - DEC 21, 2016 BULLETIN 009
 - DEC 01, 2017 BULLETIN 061

Architect of Record:

Drawn: SJR
Checked: SJR
Scale: As indicated
Key Plan:



Project Name:
CLIPPERSHIP WHARF
25-65 Lewis Street
East Boston, MA 02128

Sheet Name:
FLOOD PLANK INFO - FLOOR PLAN

Project Number:
13166

Issue Date:
JUNE 12, 2015

Sheet Number:
A0.02

SITE :Clippership Wharf 3157

BUILDING ADDRESS: 63 Lewis St. East Boston, MA. 02128

DATE: 1/29/2021

NUMBER OF APARTMEN 284

A= Acceptable

C= Corrective Action required within 30 days

I= Immediate Action is required

BUILDING INTERIOR	A	C	I
1. Lobby-floors, carpets, tiles	x		
2. Lobby - walls and ceilings, lighting	x		
3. Elevator cabs - lighting, ceilings, floors, buttons	x		
4. Community rooms - walls, ceilings, floors	x		
5. Public bathrooms - walls, ceilings, floors, lighting	x		
6. Hallways - walls, ceilings, floors, lighting	x		
7. Laundry rooms - machines, walls, floors, ceiling	NA		
8. Intercom - labeled with resident names, buttons	x		
9. Trash rooms - floors, walls, ceiling, chute	x		
10. Elevator lobbies - floors, walls, ceilings, buttons	x		
11. Stairwells - walls, ceiling, floors	x		
12. Windows - operable, screens, seals, clean	x		
13. Plantings - flowers, shrubs, planters	x		
14. Furniture - Common area	x		
15. Office - floors, walls, ceiling	x		
16. Electrical switches, outlets, controls	x		
17. Trash compactor room	x		
18. Electrical room	x		
19. Storage room	x		
20. Apartment doors	x		
21. Fire extinguishers properly charged	x		
22. Burglar alarms	NA		
23. Pest Evidence/Exterminating	x		
24. Garage		x	
25. Peeling, chipping, flaking painted surface(s)	x		
Location:			

SAFETY	A	C	I
54. Blocked Egress	NA		
55. Chemical/Flammable storage and safety	x		
56. Electrical cords in good condition	x		
57. Fire Doors operating properly	x		
58. Golf carts and Power Equipment in good shape	x		
59. Handrails are solid/not missing	x		
60. Mold issues	NA		
61. Motor/pump guards in place	x		
62. Roof ladders are secure	NA		
63. Roof doors latched/locked -Alarms operable	x		
64. Roof safety rails if needed	x		
65. Safety guards for saws/equipment	x		
66. Sharp edges	NA		
67. Vehicle condition	NA		
68. Reflective Coats	NA		
69. Trip Hazards	NA		
70. Ladders in good condition	x		

MECHANICAL	A	C	I
26. Elevator Mechanical room and penthouse	x		
27. Trash compactor dumpsters emptied properly	x		
28. Emergency lighting - battery check	x		
29. Fire alarm system operating properly	x		
30. Hot water system operation	x		
31. Heating system operation	x		
32. Boilers - pumps, valves, and controls operating	NA		
33. AC system operating properly	x		
34. Water treatment program	NA		
35. Potable water pumps	NA		
36. Sump pumps operating properly	x		
37. Air compressor operating properly	x		
38. Fire pump operating properly	x		
39. Emergency generator operating properly	x		
40. HVAC log completed daily	x		
41. Boiler Rooms	NA		
42. Shop - appearance and organization	x		
43. Stock room - appearance and organization	x		
44. Proper supplies in stock	x		
45. Maintenance equipment operating properly	x		
46. Condition of exposed piping	x		
47. Sewer system	x		
48. All mechanical shut-off valves working	x		
49. Walls and foundations-cracks, leaks	x		
50. Water leaks - location	NA		
51. Sprinkler	x		
52. CO & Fire Alarms	x		
53. Maintenance equipment areas	x		

BUILDING EXTERIOR AND GROUNDS	A	C	I
71. Exterior lighting/time clock-evening PM check lighting (daylight savings change)	x		
72. Exterior doors	x		
73. Playground equipment	NA		
74. Exterior benches	x		
75. Fences	x		
76. Roadway & parking lots - curbs	x		
77. Signage program	x		
78. Sidewalks, walkways, steps, railings	x		
79. Irrigation system/ abatement meter	x		
80. Ground drainage	x		
81. Storm drainage system	x		
82. Trees, shrubs, plantings	x		
83. Grass - watering, weeds, fertilizer, cutting	x		
84. Exterior trash receptacles	x		
85. Fire hydrants	x		
86. Hose bibs	x		
87. Roof - flashing, vents, gutters, downspouts	x		
88. Swimming pool -tennis courts	NA		
89. Exterior painting, window trim, staining, doors	x		
90. Security gate arms/guard shack		x	
91. Pest Evidence	x		
92. Peeling, chipping, flaking painted surface(s)	x		
Location:			

Inspection made by: **Property Manager:**
 Signature: *[Signature]*
 Date: 1/29/21

Reviewed by Maintenance Supervisor:
 Signature: *[Signature]*
 Date: 1/29/21

Sent to Director of Facilities & Senior Maintenance Personnel:
 Date:

ENERGY EFFICIENCY ITEMS INSPECTED	A	C	I
93. Heating system - loop temp:	NA		
94. Domestic hot water temp:	NA		
95. Outside temperature:	NA		
96. Caulking and weather-stripping	x		
97. Energy efficient lighting - interior and exterior	x		

PERSONAL PROTECTION EQUIPMENT	A	C	I
98. Fire and safety hazards	x		
99. Eye Wash Station	x		
100. Gloves: rubber, latex, leather	x		
101. Safety Goggles, Hearing Protection	x		
102. First Aid Kit	x		
103. Back Brace	x		
104. Wet Floor Signs	x		
105. Safety Data Sheets	x		
106. Bodily Fluid Clean Up Kit	x		

Shaded column not to be used per the policy, only Acceptable or Immediate Action Required.

SITE :Clippership Wharf 3157

BUILDING ADDRESS: 63 Lewis St. East Boston, MA. 02128

DATE: 2/26/2021

NUMBER OF APARTMEN 284

A= Acceptable

C= Corrective Action required within 30 days

I= Immediate Action is required

BUILDING INTERIOR	A	C	I
1. Lobby-floors, carpets, tiles	x		
2. Lobby - walls and ceilings, lighting	x		
3. Elevator cabs - lighting, ceilings, floors, buttons	x		
4. Community rooms - walls, ceilings, floors	x		
5. Public bathrooms - walls, ceilings, floors, lighting	x		
6. Hallways - walls, ceilings, floors, lighting	x		
7. Laundry rooms - machines, walls, floors, ceiling	NA		
8. Intercom - labeled with resident names, buttons	x		
9. Trash rooms - floors, walls, ceiling, chute	x		
10. Elevator lobbies - floors, walls, ceilings, buttons	x		
11. Stairwells - walls, ceiling, floors	x		
12. Windows - operable,screens, seals, clean	x		
13. Plantings - flowers, shrubs, planters	x		
14. Furniture - Common area	x		
15. Office - floors, walls, ceiling	x		
16. Electrical switches, outlets, controls	x		
17. Trash compactor room	x		
18. Electrical room	x		
19. Storage room	x		
20. Apartment doors	x		
21. Fire extinguishers properly charged	x		
22. Burglar alarms	NA		
23. Pest Evidence/Exterminating	x		
24. Garage		x	
25. Peeling, chipping, flaking painted surface(s) Location:	x		

SAFETY	A	C	I
54. Blocked Egress	NA		
55. Chemical/Flamable storage and safety	x		
56. Electrical cords in good condition	x		
57. Fire Doors operating properly	x		
58. Golf carts and Power Equipment in good shape	x		
59. Handrails are solid/not missing	x		
60. Mold issues	NA		
61. Motor/pump guards in place	x		
62. Roof ladders are secure	NA		
63. Roof doors latched/locked -Alarms operable	x		
64. Roof safety rails if needed	x		
65. Safety guards for saws/equipment	x		
66. Sharp edges	NA		
67. Vehicle condition	NA		
68. Reflective Coats	NA		
69. Trip Hazards	NA		
70. Ladders in good condition	x		

BUILDING EXTERIOR AND GROUNDS	A	C	I
71. Exterior lighting/time clock-evening PM check lighting (daylight savings change)	x		
72. Exterior doors	x		
73. Playground equipment	NA		
74. Exterior benches	x		
75. Fences	x		
76. Roadway & parking lots - curbs	x		
77. Signage program	x		
78. Sidewalks, walkways, steps, railings	x		
79. Irrigation system/ abatement meter	x		
80. Ground drainage	x		
81. Storm drainage system	x		
82. Trees, shrubs, plantings	x		
83. Grass - watering, weeds, fertilizer, cutting	x		
84. Exterior trash receptacles	x		
85. Fire hydrants	x		
86. Hose bibs	x		
87. Roof - flashing, vents, gutters, downspouts	x		
88. Swimming pool -tennis courts	NA		
89. Exterior painting, window trim, staining, doors	x		
90. Security gate arms/guard shack		x	
91. Pest Evidence	x		
92. Peeling, chipping, flaking painted surface(s) Location:	x		

MECHANICAL	A	C	I
26. Elevator Mechanical room and penthouse	x		
27. Trash compactor dumpsters emptied properly	x		
28. Emergency lighting - battery check	x		
29. Fire alarm system operating properly	x		
30. Hot water system operation	x		
31. Heating system operation	x		
32. Boilers - pumps, valves, and controls operating	NA		
33. AC system operating properly	x		
34. Water treatment program	NA		
35. Potable water pumps	NA		
36. Sump pumps operating properly	x		
37. Air compressor operating properly	x		
38. Fire pump operating properly	x		
39. Emergency generator operating properly	x		
40. HVAC log completed daily	x		
41. Boiler Rooms	NA		
42. Shop - appearance and organization	x		
43. Stock room - appearance and organization	x		
44. Proper supplies in stock	x		
45. Maintenance equipment operating properly	x		
46. Condition of exposed piping	x		
47. Sewer system	x		
48. All mechanical shut-off valves working	x		
49. Walls and foundations-cracks, leaks	x		
50. Water leaks - location	NA		
51. Sprinkler	x		
52. CO & Fire Alarms	x		
53. Maintenance equipment areas	x		

ENERGY EFFICIENCY ITEMS INSPECTED	A	C	I
93. Heating system - loop temp: _____	NA		
94. Domestic hot water temp: _____	NA		
95. Outside temperature: _____	NA		
96. Caulking and weather-stripping	x		
97. Energy efficient lighting - interior and exterior	x		

PERSONAL PROTECTION EQUIPMENT	A	C	I
98. Fire and safety hazards	x		
99. Eye Wash Station	x		
100. Gloves: rubber, latex, leather	x		
101. Safety Goggles, Hearing Protection	x		
102. First Aid Kit	x		
103. Back Brace	x		
104. Wet Floor Signs	x		
105. Safety Data Sheets	x		
106. Bodily Fluid Clean Up Kit	x		

Inspection made by: _____ Property Manager:
 Signature: *[Signature]*
 Date: 2/26/21

Reviewed by Maintenance Supervisor:
 Signature: *[Signature]*
 Date: 2/26/21

Sent to Director of Facilities & Senior Maintenance Personnel:
 Date: _____

Shaded column not to be used per the policy, only Acceptable or Immediate Action Required.

SITE :Clippership Wharf 3157

BUILDING ADDRESS: 63 Lewis St. East Boston, MA. 02128

DATE: 3/30/2021

NUMBER OF APARTMEN 284

A= Acceptable

C= Corrective Action required within 30 days

I= Immediate Action is required

BUILDING INTERIOR	A	C	I
1. Lobby-floors, carpets, tiles	x		
2. Lobby - walls and ceilings, lighting	x		
3. Elevator cabs - lighting, ceilings, floors, buttons	x		
4. Community rooms - walls, ceilings, floors	x		
5. Public bathrooms - walls, ceilings, floors, lighting	x		
6. Hallways - walls, ceilings, floors, lighting	x		
7. Laundry rooms - machines, walls, floors, ceiling	NA		
8. Intercom - labeled with resident names, buttons	x		
9. Trash rooms - floors, walls, ceiling, chute	x		
10. Elevator lobbies - floors, walls, ceilings, buttons	x		
11. Stairwells - walls, ceiling, floors	x		
12. Windows - operable, screens, seals, clean	x		
13. Plantings - flowers, shrubs, planters	x		
14. Furniture - Common area	x		
15. Office - floors, walls, ceiling	x		
16. Electrical switches, outlets, controls	x		
17. Trash compactor room	x		
18. Electrical room	x		
19. Storage room	x		
20. Apartment doors	x		
21. Fire extinguishers properly charged	x		
22. Burglar alarms	NA		
23. Pest Evidence/Exterminating	x		
24. Garage		x	
25. Peeling, chipping, flaking painted surface(s)	x		
Location:			

SAFETY	A	C	I
54. Blocked Egress	NA		
55. Chemical/Flamable storage and safety	x		
56. Electrical cords in good condition	x		
57. Fire Doors operating properly	x		
58. Golf carts and Power Equipment in good shape	x		
59. Handrails are solid/not missing	x		
60. Mold issues	NA		
61. Motor/pump guards in place	x		
62. Roof ladders are secure	NA		
63. Roof doors latched/locked -Alarms operable	x		
64. Roof safety rails if needed	x		
65. Safety guards for saws/equipment	x		
66. Sharp edges	NA		
67. Vehicle condition	NA		
68. Reflective Coats	NA		
69. Trip Hazards	NA		
70. Ladders in good condition	x		

BUILDING EXTERIOR AND GROUNDS	A	C	I
71. Exterior lighting/time clock-evening PM check lighting (daylight savings change)	x		
72. Exterior doors	x		
73. Playground equipment	NA		
74. Exterior benches	x		
75. Fences	x		
76. Roadway & parking lots - curbs	x		
77. Signage program	x		
78. Sidewalks, walkways, steps, railings	x		
79. Irrigation system/ abatement meter	x		
80. Ground drainage	x		
81. Storm drainage system	x		
82. Trees, shrubs, plantings	x		
83. Grass - watering, weeds, fertilizer, cutting	x		
84. Exterior trash receptacles	x		
85. Fire hydrants	x		
86. Hose bibs	x		
87. Roof - flashing, vents, gutters, downspouts	x		
88. Swimming pool -tennis courts	NA		
89. Exterior painting, window trim, staining, doors	x		
90. Security gate arms/guard shack		x	
91. Pest Evidence	x		
92. Peeling, chipping, flaking painted surface(s)	x		
Location:			

MECHANICAL	A	C	I
26. Elevator Mechanical room and penthouse	x		
27. Trash compactor dumpsters emptied properly	x		
28. Emergency lighting - battery check	x		
29. Fire alarm system operating properly	x		
30. Hot water system operation	x		
31. Heating system operation	x		
32. Boilers - pumps, valves, and controls operating	NA		
33. AC system operating properly	x		
34. Water treatment program	NA		
35. Potable water pumps	NA		
36. Sump pumps operating properly	x		
37. Air compressor operating properly	x		
38. Fire pump operating properly	x		
39. Emergency generator operating properly	x		
40. HVAC log completed daily	x		
41. Boiler Rooms	NA		
42. Shop - appearance and organization	x		
43. Stock room - appearance and organization	x		
44. Proper supplies in stock	x		
45. Maintenance equipment operating properly	x		
46. Condition of exposed piping	x		
47. Sewer system	x		
48. All mechanical shut-off valves working	x		
49. Walls and foundations-cracks, leaks	x		
50. Water leaks - location	NA		
51. Sprinkler	x		
52. CO & Fire Alarms	x		
53. Maintenance equipment areas	x		

ENERGY EFFICIENCY ITEMS INSPECTED	A	C	I
93. Heating system - loop temp: _____	NA		
94. Domestic hot water temp: _____	NA		
95. Outside temperature: _____	NA		
96. Caulking and weather-stripping	x		
97. Energy efficient lighting - interior and exterior	x		

PERSONAL PROTECTION EQUIPMENT	A	C	I
98. Fire and safety hazards	x		
99. Eye Wash Station	x		
100. Gloves: rubber, latex, leather	x		
101. Safety Goggles, Hearing Protection	x		
102. First Aid Kit	x		
103. Back Brace	x		
104. Wet Floor Signs	x		
105. Safety Data Sheets	x		
106. Bodily Fluid Clean Up Kit	x		

Inspection made by: Property Manager:
 Signature: _____
 Date: 4/2/21

Reviewed by Maintenance Supervisor:
 Signature: Charles Pate
 Date: 3/30/21

Sent to Director of Facilities & Senior Maintenance Personnel:
 Date: 4/2/21

Shaded column not to be used per the policy, only Acceptable or Immediate Action Required.

SITE :Clippership Wharf 3157

BUILDING ADDRESS: 63 Lewis St. East Boston, MA. 02128

DATE: 4/29/2021

NUMBER OF APARTMEN 284

A= Acceptable

C= Corrective Action required within 30 days

I= Immediate Action is required

BUILDING INTERIOR	A	C	I
1. Lobby-floors, carpets, tiles	x		
2. Lobby - walls and ceilings, lighting	x		
3. Elevator cabs - lighting, ceilings, floors, buttons	x		
4 . Community rooms - walls, ceilings, floors	x		
5. Public bathrooms - walls, ceilings, floors, lighting	x		
6. Hallways - walls, ceilings, floors, lighting	x		
7. Laundry rooms - machines, walls, floors, ceiling	NA		
8. Intercom - labeled with resident names, buttons	x		
9. Trash rooms - floors, walls, ceiling, chute	x		
10. Elevator lobbies - floors, walls, ceilings, buttons	x		
11. Stairwells - walls, ceiling, floors	x		
12. Windows - operable,screens, seals, clean	x		
13. Plantings - flowers, shrubs, planters	x		
14. Furniture - Common area	x		
15. Office - floors, walls, ceiling	x		
16. Electrical switches, outlets, controls	x		
17. Trash compactor room	x		
18. Electrical room	x		
19. Storage room	x		
20. Apartment doors	x		
21. Fire extinguishers properly charged	x		
22. Burglar alarms	NA		
23. Pest Evidence/Exterminating	x		
24. Garage		x	
25. Peeling, chipping, flaking painted surface(s)	x		
Location:			

SAFETY	A	C	I
54. Blocked Egress	NA		
55. Chemical/Flamable storage and safety	x		
56. Electrical cords in good condition	x		
57. Fire Doors operating properly	x		
58. Golf carts and Power Equipment in good shape	x		
59. Handrails are solid/not missing	x		
60. Mold issues	NA		
61. Motor/pump guards in place	x		
62. Roof ladders are secure	NA		
63. Roof doors latched/locked -Alarms operable	x		
64. Roof safety rails if needed	x		
65. Safety guards for saws/equipment	x		
66. Sharp edges	NA		
67. Vehicle condition	NA		
68. Reflective Coats	NA		
69. Trip Hazards	NA		
70. Ladders in good condition	x		

MECHANICAL	A	C	I
26. Elevator Mechanical room and penthouse	x		
27. Trash compactor dumpsters emptied properly	x		
28. Emergency lighting - battery check	x		
29. Fire alarm system operating properly	x		
30. Hot water system operation	x		
31. Heating system operation	x		
32. Boilers - pumps, valves, and controls operating	NA		
33. AC system operating properly	x		
34. Water treatment program	NA		
35. Potable water pumps	NA		
36. Sump pumps operating properly	x		
37. Air compressor operating properly	x		
38. Fire pump operating properly	x		
39. Emergency generator operating properly	x		
40. HVAC log completed daily	x		
41. Boiler Rooms	NA		
42. Shop - appearance and organization	x		
43. Stock room - appearance and organization	x		
44. Proper supplies in stock	x		
45. Maintenance equipment operating properly	x		
46. Condition of exposed piping	x		
47. Sewer system	x		
48. All mechanical shut-off valves working	x		
49. Walls and foundations-cracks, leaks	x		
50. Water leaks - location	NA		
51. Sprinkler	x		
52. CO & Fire Alarms	x		
53. Maintenance equipment areas	x		

BUILDING EXTERIOR AND GROUNDS	A	C	I
71. Exterior lighting/time clock-evening PM check lighting (daylight savings change)	x		
72. Exterior doors	x		
73. Playground equipment	NA		
74. Exterior benches	x		
75. Fences	x		
76. Roadway & parking lots - curbs	x		
77. Signage program	x		
78. Sidewalks, walkways, steps, railings	x		
79. Irrigation system/ abatement meter	x		
80. Ground drainage	x		
81. Storm drainage system	x		
82. Trees, shrubs, plantings	x		
83. Grass - watering, weeds, fertilizer, cutting	x		
84. Exterior trash receptacles	x		
85. Fire hydrants	x		
86. Hose bibs	x		
87. Roof - flashing, vents, gutters, downspouts	x		
88. Swimming pool -tennis courts	NA		
89. Exterior painting, window trim, staining, doors	x		
90. Security gate arms/guard shacks		x	
91. Pest Evidence	x		
92. Peeling, chipping, flaking painted surface(s)	x		
Location:			

Inspection made by: Property Manager:
 Signature: _____
 Date: 4/29/21

Reviewed by Maintenance Supervisor:
 Signature: Charles Pater
 Date: 4/29/21

Sent to Director of Facilities & Senior Maintenance Personnel:
 Date: _____

ENERGY EFFICIENCY ITEMS INSPECTED	A	C	I
93. Heating system - loop temp: _____	NA		
94. Domestic hot water temp: _____	NA		
95. Outside temperature: _____	NA		
96. Caulking and weather-stripping	x		
97. Energy efficient lighting - interior and exterior	x		

PERSONAL PROTECTION EQUIPMENT	A	C	I
98. Fire and safety hazards	x		
99. Eye Wash Station	x		
100. Gloves: rubber, latex, leather	x		
101. Safety Goggles, Hearing Protection	x		
102. First Aid Kit	x		
103. Back Brace	x		
104. Wet Floor Signs	x		
105. Safety Data Sheets	x		
106. Bodily Fluid Clean Up Kit	x		

Shaded column not to be used per the policy, only Acceptable or Immediate Action Required.

MONTHLY PROPERTY AND SAFETY INSPECTION REPORT

SITE :Clippership Wharf 3157

BUILDING ADDRESS: 63 Lewis St. East Boston, MA. 02128

DATE: 5/27/2021

NUMBER OF APARTMEN 284

A= Acceptable

C= Corrective Action required within 30 days

I= Immediate Action is required

BUILDING INTERIOR	A	C	I
1. Lobby-floors, carpets, tiles	x		
2. Lobby - walls and ceilings, lighting	x		
3. Elevator cabs - lighting, ceilings, floors, buttons	x		
4. Community rooms - walls, ceilings, floors	x		
5. Public bathrooms - walls, ceilings, floors, lighting	x		
6. Hallways - walls, ceilings, floors, lighting	x		
7. Laundry rooms - machines, walls, floors, ceiling	NA		
8. Intercom - labeled with resident names, buttons	x		
9. Trash rooms - floors, walls, ceiling, chute	x		
10. Elevator lobbies - floors, walls, ceilings, buttons	x		
11. Stairwells - walls, ceiling, floors	x		
12. Windows - operable,screens, seals, clean	x		
13. Plantings - flowers, shrubs, planters	x		
14. Furniture - Common area	x		
15. Office - floors, walls, ceiling	x		
16. Electrical switches, outlets, controls	x		
17. Trash compactor room	x		
18. Electrical room	x		
19. Storage room	x		
20. Apartment doors	x		
21. Fire extinguishers properly charged	x		
22. Burglar alarms	NA		
23. Pest Evidence/Exterminating	x		
24. Garage	x		
25. Peeling, chipping, flaking painted surface(s)	x		
Location:			

SAFETY	A	C	I
54. Blocked Egress	NA		
55. Chemical/Flamable storage and safety	x		
56. Electrical cords in good condition	x		
57. Fire Doors operating properly	x		
58. Golf carts and Power Equipment in good shape	x		
59. Handrails are solid/not missing	x		
60. Mold issues	NA		
61. Motor/pump guards in place	x		
62. Roof ladders are secure	NA		
63. Roof doors latched/locked -Alarms operable	x		
64. Roof safety rails if needed	x		
65. Safety guards for saws/equipment	x		
66. Sharp edges	NA		
67. Vehicle condition	NA		
68. Reflective Coats	NA		
69. Trip Hazards	NA		
70. Ladders in good condition	x		

MECHANICAL	A	C	I
26. Elevator Mechanical room and penthouse	x		
27. Trash compactor dumpsters emptied properly	x		
28. Emergency lighting - battery check	x		
29. Fire alarm system operating properly	x		
30. Hot water system operation	x		
31. Heating system operation	x		
32. Boilers - pumps, valves, and controls operating	NA		
33. AC system operating properly	x		
34. Water treatment program	NA		
35. Potable water pumps	NA		
36. Sump pumps operating properly	x		
37. Air compressor operating properly	x		
38. Fire pump operating properly	x		
39. Emergency generator operating properly	x		
40. HVAC log completed daily	x		
41. Boiler Rooms	NA		
42. Shop - appearance and organization	x		
43. Stock room - appearance and organization	x		
44. Proper supplies in stock	x		
45. Maintenance equipment operating properly	x		
46. Condition of exposed piping	x		
47. Sewer system	x		
48. All mechanical shut-off valves working	x		
49. Walls and foundations-cracks, leaks	x		
50. Water leaks - location	NA		
51. Sprinkler	x		
52. CO & Fire Alarms	x		
53. Maintenance equipment areas	x		

BUILDING EXTERIOR AND GROUNDS	A	C	I
71. Exterior lighting/time clock-evening PM check lighting (daylight savings change)	x		
72. Exterior doors	x		
73. Playground equipment	NA		
74. Exterior benches	x		
75. Fences	x		
76. Roadway & parking lots - curbs	x		
77. Signage program	x		
78. Sidewalks, walkways, steps, railings	x		
79. Irrigation system/ abatement meter	x		
80. Ground drainage	x		
81. Storm drainage system	x		
82. Trees, shrubs, plantings	x		
83. Grass - watering, weeds, fertilizer, cutting	x		
84. Exterior trash receptacles	x		
85. Fire hydrants	x		
86. Hose bibs	x		
87. Roof - flashing, vents, gutters, downspouts	x		
88. Swimming pool -tennis courts	NA		
89. Exterior painting, window trim, staining, doors	x		
90. Security gate arms/guard shack	x		
91. Pest Evidence	x		
92. Peeling, chipping, flaking painted surface(s)	x		
Location:			

Inspection made by [Signature] Property Manager:
 Signature: _____
 Date: 5/27/21

Reviewed by Maintenance Supervisor:
 Signature: Charles Patel
 Date: 5/27/21

Sent to Director of Facilities & Senior Maintenance Personnel:
 Date: _____

ENERGY EFFICIENCY ITEMS INSPECTED	A	C	I
93. Heating system - loop temp: _____	NA		
94. Domestic hot water temp: _____	NA		
95. Outside temperature: _____	NA		
96. Caulking and weather-stripping	x		
97. Energy efficient lighting - interior and exterior	x		

PERSONAL PROTECTION EQUIPMENT	A	C	I
98. Fire and safety hazards	x		
99. Eye Wash Station	x		
100. Gloves: rubber, latex, leather	x		
101. Safety Goggles, Hearing Protection	x		
102. First Aid Kit	x		
103. Back Brace	x		
104. Wet Floor Signs	x		
105. Safety Data Sheets	x		
106. Bodily Fluid Clean Up Kit	x		

Shaded column not to be used per the policy, only Acceptable or Immediate Action Required.

SITE :Clippership Wharf 3157

BUILDING ADDRESS: 63 Lewis St. East Boston, MA. 02128

DATE: 6/30/2021

NUMBER OF APARTMEN 284

A= Acceptable

C= Corrective Action required within 30 days

I= Immediate Action is required

BUILDING INTERIOR	A	C	I
1. Lobby-floors, carpets, tiles	x		
2. Lobby - walls and ceilings, lighting	x		
3. Elevator cabs - lighting, ceilings, floors, buttons	x		
4. Community rooms - walls, ceilings, floors	x		
5. Public bathrooms - walls, ceilings, floors, lighting	x		
6. Hallways - walls, ceilings, floors, lighting	x		
7. Laundry rooms - machines, walls, floors, ceiling	NA		
8. Intercom - labeled with resident names, buttons	x		
9. Trash rooms - floors, walls, ceiling, chute	x		
10. Elevator lobbies - floors, walls, ceilings, buttons	x		
11. Stairwells - walls, ceiling, floors	x		
12. Windows - operable, screens, seals, clean	x		
13. Plantings - flowers, shrubs, planters	x		
14. Furniture - Common area	x		
15. Office - floors, walls, ceiling	x		
16. Electrical switches, outlets, controls	x		
17. Trash compactor room	x		
18. Electrical room	x		
19. Storage room	x		
20. Apartment doors	x		
21. Fire extinguishers properly charged	x		
22. Burglar alarms	NA		
23. Pest Evidence/Exterminating	x		
24. Garage	x		
25. Peeling, chipping, flaking painted surface(s)	x		
Location:			

SAFETY	A	C	I
54. Blocked Egress	NA		
55. Chemical/Flamable storage and safety	x		
56. Electrical cords in good condition	x		
57. Fire Doors operating properly	x		
58. Golf carts and Power Equipment in good shape	x		
59. Handrails are solid/not missing	x		
60. Mold issues	NA		
61. Motor/pump guards in place	x		
62. Roof ladders are secure	NA		
63. Roof doors latched/locked -Alarms operable	x		
64. Roof safety rails if needed	x		
65. Safety guards for saws/equipment	x		
66. Sharp edges	NA		
67. Vehicle condition	NA		
68. Reflective Coats	NA		
69. Trip Hazards	NA		
70. Ladders in good condition	x		

MECHANICAL	A	C	I
26. Elevator Mechanical room and penthouse	x		
27. Trash compactor dumpsters emptied properly	x		
28. Emergency lighting - battery check	x		
29. Fire alarm system operating properly	x		
30. Hot water system operation	x		
31. Heating system operation	x		
32. Boilers - pumps, valves, and controls operating	NA		
33. AC system operating properly	x		
34. Water treatment program	NA		
35. Potable water pumps	NA		
36. Sump pumps operating properly	x		
37. Air compressor operating properly	x		
38. Fire pump operating properly	x		
39. Emergency generator operating properly	x		
40. HVAC log completed daily	x		
41. Boiler Rooms	NA		
42. Shop - appearance and organization	x		
43. Stock room - appearance and organization	x		
44. Proper supplies in stock	x		
45. Maintenance equipment operating properly	x		
46. Condition of exposed piping	x		
47. Sewer system	x		
48. All mechanical shut-off valves working	x		
49. Walls and foundations-cracks, leaks	x		
50. Water leaks - location	NA		
51. Sprinkler	x		
52. CO & Fire Alarms	x		
53. Maintenance equipment areas	x		
Inspection made by: Property Manager:			
Signature: <i>[Signature]</i>			
Date: 6/30/21			
Reviewed by Maintenance Supervisor:			
Signature: <i>[Signature]</i>			
Date: 6/30/21			
Sent to Director of Facilities & Senior Maintenance Personnel:			
Date:			

BUILDING EXTERIOR AND GROUNDS	A	C	I
71. Exterior lighting/time clock-evening PM check lighting (daylight savings change)	x		
72. Exterior doors	x		
73. Playground equipment	NA		
74. Exterior benches	x		
75. Fences	x		
76. Roadway & parking lots - curbs	x		
77. Signage program	x		
78. Sidewalks, walkways, steps, railings	x		
79. Irrigation system/ abatement meter	x		
80. Ground drainage	x		
81. Storm drainage system	x		
82. Trees, shrubs, plantings	x		
83. Grass - watering, weeds, fertilizer, cutting	x		
84. Exterior trash receptacles	x		
85. Fire hydrants	x		
86. Hose bibs	x		
87. Roof - flashing, vents, gutters, downspouts	x		
88. Swimming pool -tennis courts	NA		
89. Exterior painting, window trim, staining, doors	x		
90. Security gate arms/guard shack	x		
91. Pest Evidence	x		
92. Peeling, chipping, flaking painted surface(s)	x		
Location:			

ENERGY EFFICIENCY ITEMS INSPECTED	A	C	I
93. Heating system - loop temp: _____	NA		
94. Domestic hot water temp: _____	NA		
95. Outside temperature: _____	NA		
96. Caulking and weather-stripping	x		
97. Energy efficient lighting - interior and exterior	x		

PERSONAL PROTECTION EQUIPMENT	A	C	I
98. Fire and safety hazards	x		
99. Eye Wash Station	x		
100. Gloves: rubber, latex, leather	x		
101. Safety Goggles, Hearing Protection	x		
102. First Aid Kit	x		
103. Back Brace	x		
104. Wet Floor Signs	x		
105. Safety Data Sheets	x		
106. Bodily Fluid Clean Up Kit	x		

Shaded column not to be used per the policy, only Acceptable or Immediate Action Required.

SITE :Clippership Wharf 3157

BUILDING ADDRESS: 63 Lewis St. East Boston, MA. 02128

DATE: 7/29/2021

NUMBER OF APARTMEN 284

A= Acceptable

C= Corrective Action required within 30 days

I= Immediate Action is required

BUILDING INTERIOR	A	C	I
1. Lobby-floors, carpets, tiles	x		
2. Lobby - walls and ceilings, lighting	x		
3. Elevator cabs - lighting, ceilings, floors, buttons	x		
4. Community rooms - walls, ceilings, floors	x		
5. Public bathrooms - walls, ceilings, floors, lighting	x		
6. Hallways - walls, ceilings, floors, lighting	x		
7. Laundry rooms - machines, walls, floors, ceiling	NA		
8. Intercom - labeled with resident names, buttons	x		
9. Trash rooms - floors, walls, ceiling, chute	x		
10. Elevator lobbies - floors, walls, ceilings, buttons	x		
11. Stairwells - walls, ceiling, floors	x		
12. Windows - operable, screens, seals, clean	x		
13. Plantings - flowers, shrubs, planters	x		
14. Furniture - Common area	x		
15. Office - floors, walls, ceiling	x		
16. Electrical switches, outlets, controls	x		
17. Trash compactor room	x		
18. Electrical room	x		
19. Storage room	x		
20. Apartment doors	x		
21. Fire extinguishers properly charged	x		
22. Burglar alarms	NA		
23. Pest Evidence/Exterminating	x		
24. Garage	x		
25. Peeling, chipping, flaking painted surface(s)	x		
Location:			

MECHANICAL	A	C	I
26. Elevator Mechanical room and penthouse	x		
27. Trash compactor dumpsters emptied properly	x		
28. Emergency lighting - battery check	x		
29. Fire alarm system operating properly	x		
30. Hot water system operation	x		
31. Heating system operation	x		
32. Boilers - pumps, valves, and controls operating	NA		
33. AC system operating properly	x		
34. Water treatment program	NA		
35. Potable water pumps	NA		
36. Sump pumps operating properly	x		
37. Air compressor operating properly	x		
38. Fire pump operating properly	x		
39. Emergency generator operating properly	x		
40. HVAC log completed daily	x		
41. Boiler Rooms	NA		
42. Shop - appearance and organization	x		
43. Stock room - appearance and organization	x		
44. Proper supplies in stock	x		
45. Maintenance equipment operating properly	x		
46. Condition of exposed piping	x		
47. Sewer system	x		
48. All mechanical shut-off valves working	x		
49. Walls and foundations-cracks, leaks	x		
50. Water leaks - location	NA		
51. Sprinkler	x		
52. CO & Fire Alarms	x		
53. Maintenance equipment areas	x		

Inspection made by: **Property Manager:**
 Signature: [Signature]
 Date: 7/29/21

Reviewed by **Maintenance Supervisor:**
 Signature: [Signature]
 Date: 7/29/21

Sent to Director of Facilities & Senior Maintenance Personnel:
 Date:

SAFETY	A	C	I
54. Blocked Egress	NA		
55. Chemical/Flammable storage and safety	x		
56. Electrical cords in good condition	x		
57. Fire Doors operating properly	x		
58. Golf carts and Power Equipment in good shape	x		
59. Handrails are solid/not missing	x		
60. Mold issues	NA		
61. Motor/pump guards in place	x		
62. Roof ladders are secure	NA		
63. Roof doors latched/locked -Alarms operable	x		
64. Roof safety rails if needed	x		
65. Safety guards for saws/equipment	x		
66. Sharp edges	NA		
67. Vehicle condition	NA		
68. Reflective Coats	NA		
69. Trip Hazards	NA		
70. Ladders in good condition	x		

BUILDING EXTERIOR AND GROUNDS	A	C	I
71. Exterior lighting/time clock-evening PM check lighting (daylight savings change)	x		
72. Exterior doors	x		
73. Playground equipment	NA		
74. Exterior benches	x		
75. Fences	x		
76. Roadway & parking lots - curbs	x		
77. Signage program	x		
78. Sidewalks, walkways, steps, railings	x		
79. Irrigation system/ abatement meter		x	
80. Ground drainage	x		
81. Storm drainage system	x		
82. Trees, shrubs, plantings	x		
83. Grass - watering, weeds, fertilizer, cutting	x		
84. Exterior trash receptacles	x		
85. Fire hydrants	x		
86. Hose bibs	x		
87. Roof - flashing, vents, gutters, downspouts	x		
88. Swimming pool -tennis courts	NA		
89. Exterior painting, window trim, staining, doors	x		
90. Security gate arms/guard shack	x		
91. Pest Evidence	x		
92. Peeling, chipping, flaking painted surface(s)	x		
Location:			

ENERGY EFFICIENCY ITEMS INSPECTED	A	C	I
93. Heating system - loop temp: _____	NA		
94. Domestic hot water temp: _____	NA		
95. Outside temperature: _____	NA		
96. Caulking and weather-stripping	x		
97. Energy efficient lighting - interior and exterior	x		

PERSONAL PROTECTION EQUIPMENT	A	C	I
98. Fire and safety hazards	x		
99. Eye Wash Station	x		
100. Gloves: rubber, latex, leather	x		
101. Safety Goggles, Hearing Protection	x		
102. First Aid Kit	x		
103. Back Brace	x		
104. Wet Floor Signs	x		
105. Safety Data Sheets	x		
106. Bodily Fluid Clean Up Kit	x		

Shaded column not to be used per the policy, only Acceptable or Immediate Action Required.

SITE :Clippership Wharf 3157

BUILDING ADDRESS: 63 Lewis St. East Boston, MA. 02128

DATE: 8/30/2021

NUMBER OF APARTMEN 284

A= Acceptable

C= Corrective Action required within 30 days

I= Immediate Action is required

BUILDING INTERIOR	A	C	I
1. Lobby-floors, carpets, tiles	x		
2. Lobby - walls and ceilings, lighting	x		
3. Elevator cabs - lighting, ceilings, floors, buttons	x		
4. Community rooms - walls, ceilings, floors	x		
5. Public bathrooms - walls, ceilings, floors, lighting	x		
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11. Stairwells - walls, ceiling, floors	x		
12. Windows - operable, screens, seals, clean	x		
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14. Furniture - Common area	x		
15. Office - floors, walls, ceiling	x		
16. Electrical switches, outlets, controls	x		
17. Trash compactor room	x		
18. Electrical room	x		
19. Storage room	x		
20. Apartment doors	x		
21. Fire extinguishers properly charged	x		
22. Burglar alarms	NA		
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24. Garage	x		
25. Peeling, chipping, flaking painted surface(s)	x		
Location:			

MECHANICAL	A	C	I
26. Elevator Mechanical room and penthouse	x		
27. Trash compactor dumpsters emptied properly	x		
28. Emergency lighting - battery check	x		
29. Fire alarm system operating properly	x		
30. Hot water system operation	x		
31. Heating system operation	x		
32. Boilers - pumps, valves, and controls operating	NA		
33. AC system operating properly	x		
34. Water treatment program	NA		
35. Potable water pumps	NA		
36. Sump pumps operating properly	x		
37. Air compressor operating properly	x		
38. Fire pump operating properly	x		
39. Emergency generator operating properly	x		
40. HVAC log completed daily	x		
41. Boiler Rooms	NA		
42. Shop - appearance and organization	x		
43. Stock room - appearance and organization	x		
44. Proper supplies in stock	x		
45. Maintenance equipment operating properly	x		
46. Condition of exposed piping	x		
47. Sewer system	x		
48. All mechanical shut-off valves working	x		
49. Walls and foundations-cracks, leaks	x		
50. Water leaks - location	NA		
51. Sprinkler	x		
52. CO & Fire Alarms	x		
53. Maintenance equipment areas	x		

Inspection made by: **Property Manager:**
 Signature: [Signature]
 Date: 8/30/21

Reviewed by Maintenance Supervisor:
 Signature: [Signature]
 Date: 8/30/21

Sent to Director of Facilities & Senior Maintenance Personnel:
 Date: _____

SAFETY	A	C	I
54. Blocked Egress	NA		
55. Chemical/Flamable storage and safety	x		
56. Electrical cords in good condition	x		
57. Fire Doors operating properly	x		
58. Golf carts and Power Equipment in good shape	x		
59. Handrails are solid/not missing	x		
60. Mold issues	NA		
61. Motor/pump guards in place	x		
62. Roof ladders are secure	NA		
63. Roof doors latched/locked -Alarms operable	x		
64. Roof safety rails if needed	x		
65. Safety guards for saws/equipment	x		
66. Sharp edges	NA		
67. Vehicle condition	NA		
68. Reflective Coats	NA		
69. Trip Hazards	NA		
70. Ladders in good condition	x		

BUILDING EXTERIOR AND GROUNDS	A	C	I
71. Exterior lighting/time clock-evening PM check lighting (daylight savings change)	x		
72. Exterior doors	x		
73. Playground equipment	NA		
74. Exterior benches	x		
75. Fences	x		
76. Roadway & parking lots - curbs	x		
77. Signage program	x		
78. Sidewalks, walkways, steps, railings	x		
79. Irrigation system/ abatement meter		x	
80. Ground drainage	x		
81. Storm drainage system	x		
82. Trees, shrubs, plantings	x		
83. Grass - watering, weeds, fertilizer, cutting	x		
84. Exterior trash receptacles	x		
85. Fire hydrants	x		
86. Hose bibs	x		
87. Roof - flashing, vents, gutters, downspouts	x		
88. Swimming pool -tennis courts	NA		
89. Exterior painting, window trim, staining, doors	x		
90. Security gate arms/guard shack	x		
91. Pest Evidence	x		
92. Peeling, chipping, flaking painted surface(s)	x		
Location:			

ENERGY EFFICIENCY ITEMS INSPECTED	A	C	I
93. Heating system - loop temp: _____	NA		
94. Domestic hot water temp: _____	NA		
95. Outside temperature: _____	NA		
96. Caulking and weather-stripping	x		
97. Energy efficient lighting - interior and exterior	x		

PERSONAL PROTECTION EQUIPMENT	A	C	I
98. Fire and safety hazards	x		
99. Eye Wash Station	x		
100. Gloves: rubber, latex, leather	x		
101. Safety Goggles, Hearing Protection	x		
102. First Aid Kit	x		
103. Back Brace	x		
104. Wet Floor Signs	x		
105. Safety Data Sheets	x		
106. Bodily Fluid Clean Up Kit	x		

Shaded column not to be used per the policy, only Acceptable or Immediate Action Required.

Clippership Wharf Primary Condominium Trust

Cunniff Landscape Contractor

Snow Removal Contract

Standard Vendor Agreement

THIS AGREEMENT ("Agreement") is entered into and effective this 16th day of November, 2020 by Clippership Wharf Primary Condominium Trust dba Clippership Wharf Primary Condominium Trust (herein "Owner") located at 83 Lewis St. East Boston, MA, 02128, and Cunniff Landscape Contractor located at PO Box 760111, Arlington, MA, 02475 and its designated subsidiaries and affiliates (herein collectively referred to as "Vendor", "Contractor" or "Consultant").

TERMS AND CONDITIONS

1. TERM AND TERMINATION.

- 1.1. Term. Beginning on 11/15/2020, this Agreement shall be and continue in effect and the Scope of Work described herein shall be completed by Vendor no later than 4/15/2021, unless extended by Owner in writing or unless this Agreement is earlier terminated pursuant to Section 1.2 below.
- 1.2. Termination. This Agreement may be terminated by either party, with or without cause, upon thirty (30) days' prior written notice to the other party. If Vendor breaches this Agreement, Owner may terminate the Agreement upon one (1) day' prior written notice.
- 1.3. Obligations Upon Termination. Following the termination or expiration of this Agreement for any reason, each of the parties shall, except as otherwise provided in this Agreement:
- Return, within thirty (30) days of such termination or expiration, any and all property in its possession or control that is owned by the other party or any of its agents; and
 - Refrain from referencing or disclosing, except to its professional advisors, any of the terms of this Agreement or the prior business relationship under this Agreement unless required to do so by legal process in which event the disclosing party shall use commercially reasonable efforts to give written notice to the other party prior to disclosure.

2. **SCOPE OF WORK**. Scope of Work is defined as the services to be performed or provided by Vendor pursuant to this Agreement which are described in Appendix A, attached hereto.
3. **CONTRACT SUM**. The maximum compensation to which Vendor is due under this Agreement for performing the Scope of Work is \$ N/A (Insert N/A, if cost and scope of work will vary and/or compensation is described on Appendix A or in one or more work orders) and be determined when the Agent or Owner authorizes service or work to the Vendor as an amendment to this Agreement or by an Owner-approved Work Order. Vendor shall perform the full Scope of Work within the required time period(s), if any, described in Appendix A and/or any subsequent Work Orders governing this Agreement. Vendor shall enroll with the WinnResidential Limited Partnership and its affiliates

("Winn") electronic payment service, which provides for electronic payment of invoices. Vendor shall submit all invoices electronically to paygreenap@winco.com or other electronic invoice system as advised by Winn. Such service may charge Vendor a fee for such payment processing.

4. **VENDOR INSURANCE REQUIREMENTS.** Prior to starting any work under this Agreement, Vendor shall satisfy Owner's and Winn's insurance and compliance requirements, administered by Compliance Depot, throughout the Term of this Agreement or any other compliance company Owner and/or Winn may designate as their representative. Such insurance requirements as well as certain other Vendor covenants are described in the Vendor Requirements Acknowledgment Agreement and Undertaking ("VRAA") attached hereto as Appendix B. The VRAA shall also be executed by Vendor. The VRAA executed by Vendor in connection with this Agreement are hereby incorporated into and made a part of this Agreement for all purposes. No work shall be performed until all compliance qualifications are approved by Compliance Depot.
5. **NOTICES.** Any invoice, notice, request, instruction or other document to be given to a party pursuant to this Agreement, shall be in writing and shall be given to the address set forth below via overnight mail.

Clippership Wharf Primary Condominium Trust

Legal Entity Name

Adriana Guzzo

Attn: Contact Name

65 Lewis St.

Address

East Boston, MA. 02128

City, State, Zip Code

Cunniff Landscape Contractor

Vendor Company Name

Robert Cunniff

Attn: Contact Name

PO Box 750111,

Address

Arlington, MA. 02475

City, State, Zip Code

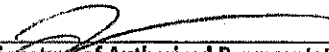
With copy to: WinnCompanies
Attn: Legal Department
One Washington Mall, Suite 500
Boston, MA 02108

6. **ENTIRE AGREEMENT.** This Agreement including Appendix A and Appendix B, (the VRAA), once separately executed and any other document attached hereto constitutes the entire agreement between the parties. The VRAA contains additional terms and conditions which govern the relationship between the parties, which terms and conditions shall apply to that relationship to the same degree and effect as if such terms and conditions were fully set forth in this Agreement. To the extent that any terms and conditions in this Agreement conflict with or are inconsistent with those in this Agreement, the terms and conditions in the Appendix B, VRAA shall govern. Any prior negotiations, agreements, or representations that may have been made or relied upon that are not expressly set forth herein as continuing, shall have no force or effect. Further, the terms of the VRAA shall apply to any approved additional subsequent work performed by Vendor, which may be

accepted on Vendor's proposal approval forms, or any other document for work or services including but not limited to, work orders or change orders.

IN WITNESS WHEREOF, each of the parties has executed and delivered this Agreement as of the day and year first set forth below.

Clippership Wharf Multifamily LLC
By: Winn Management Company LLC,
as Management Agent for the Owner


(Signature of Authorized Representative)

Terri Benskin
Print Name

Chief Operating Officer
Title

10/19/2020
Date

Cunniff Landscape Contractor

Vendor

By: 

Print Name: P. Cunniff

Title: President

Date: 10/19/2020

Phone: 957-926-2201

Email: pcunniff@cunnifflandscape.com

APPENDIX A**SCOPE OF WORK**

- A. **Project Objective:** Example: Provide snow removal services for the property's entrances, roadways, and parking lots during the 2017-2019 winter seasons. Include any additional details relative to the scope of work
- B. **Schedule and Frequency:** Include schedule and frequency.
- C. **Deliverables:** In addition to the objectives specified above, the contractor shall provide all necessary supervision, labor, materials, permits, equipment and supplies as required to complete the following work in according to all applicable codes. Project deliverables include:
1. Deliverable 1
 2. Deliverable 2
- D. **Duration/Timeline:** Identify expected timeframe or duration of service or project or a start and end date.
- E. **Pricing:** Identify the Pricing you want the contractor to fill in here.

APPENDIX B**VENDOR REQUIREMENTS ACKNOWLEDGEMENT AGREEMENT AND UNDERTAKING
(VRAA)**

Compliance Depot will provide Vendor a copy of the VRAA to execute via DocuSign. This agreement stipulates additional terms and conditions which must be met as part of being awarded work or service by Owner and Winn. No work shall be performed at an Owned or managed property until all compliance qualifications as administered by Compliance Depot on Winn and Owner's behalf are approved by Compliance Depot. Any awarded work to be performed is conditioned on being compliant with the VRAA.

Appendix A

CUNNIFF

landscape contractors

October 13, 2020

SNOW MAINTENANCE SERVICES AGREEMENT

CLIENT NAME: Clippership Wharf
CLIENT ADDRESS: 63 Lewis Street
 East Boston, Massachusetts 02128
TERM OF AGREEMENT: November 15th, 2020 – April 15th, 2021
SITE(S): CLippership Wharf

SCOPE OF SERVICES: Provide snow maintenance services to all sidewalks and parking areas.
 *Any hauling of snow from the site or within the site boundaries is not included in this pricing and shall be completed on a time and material basis as outlined below:

RATES:	4x4 Pickup with Plow:	\$95
	1 Ton Truck with Plow and Spreader	\$95
	2 Ton Truck with Plow and Spreader	\$100
	Tri-Axle Dump Truck	\$135
	Rubber Tire Loader	\$275
	Backhoe Loader	\$185
	Skld steer Loader	\$95
	Track Loader	\$150
	Snow Blower	\$85
	Laborer	\$65
	Calcium Chloride (per bag)	\$35
	Bulk Salt (per ton)	\$180
	0-2"	\$3,085
	2-4"	\$4,910
	4-6"	\$5,775
	6-8"	\$6,650
	8-10"	\$7,425
	10-12"	\$8,505
	12"+ (per inch):	\$1,850

PAYMENT:

Client shall pay Contractor immediately upon receipt of an invoice for Services. Contractor shall have the right to terminate this Agreement upon written notice to Client if Client fails to pay Contractor in full within thirty (30) days of the date of the invoice.

*** This per inch contract does not include ice storms or freezing rain.**

CUNNIFF
landscape contractors

October 13, 2020

Client agrees to pay Contractor a service charge of 1.5% per month or 18% per annum or the highest rate permitted by applicable law on invoices not paid by Client within thirty (30) days of the date of invoice. Client further agrees to pay Contractors costs of collection including attorneys' fees, court costs and any other expenses incurred by Contractor in collecting amounts past due.

CONTRACTOR: CUNNIFF LANDSCAPE, INC

By: _____

Name: Robert Cunniff

Title: President

CLIENT: Clippership Wharf

By: _____

Name: _____

Title: _____



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
10/7/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Eastern Insurance Group LLC 155B Otis Street Northborough MA 01532 INSURED Cunniff Landscape P.O. Box 750111 Arlington MA 02475	CONTACT NAME: Kara Sandook PHONE (A/C No, Ext): (508) 393-7744 FAX (A/C No): E-MAIL ADDRESS: ksandook@easterninsurance.com <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%;">INSURER(S) AFFORDING COVERAGE</th> <th style="width: 20%;">NAIC #</th> </tr> </thead> <tbody> <tr> <td>INSURER A: Continental Casualty Company</td> <td style="text-align: center;">20443</td> </tr> <tr> <td>INSURER B: Continental Ins Co</td> <td style="text-align: center;">35289</td> </tr> <tr> <td>INSURER C: AmGuard</td> <td style="text-align: center;">42390</td> </tr> <tr> <td>INSURER D:</td> <td></td> </tr> <tr> <td>INSURER E:</td> <td></td> </tr> <tr> <td>INSURER F:</td> <td></td> </tr> </tbody> </table>	INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A: Continental Casualty Company	20443	INSURER B: Continental Ins Co	35289	INSURER C: AmGuard	42390	INSURER D:		INSURER E:		INSURER F:	
INSURER(S) AFFORDING COVERAGE	NAIC #														
INSURER A: Continental Casualty Company	20443														
INSURER B: Continental Ins Co	35289														
INSURER C: AmGuard	42390														
INSURER D:															
INSURER E:															
INSURER F:															

COVERAGES **CERTIFICATE NUMBER: Master 2019-20** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSD	WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY	X		6056581336	10/11/2019	10/11/2020	EACH OCCURRENCE \$ 1,000,000	
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000	
	GENL AGGREGATE LIMIT APPLIES PER:						MED EXP (Any one person) \$ 5,000	
	<input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOG						PERSONAL & ADV INJURY \$ 1,000,000	
OTHER:							GENERAL AGGREGATE \$ 2,000,000	
B	AUTOMOBILE LIABILITY	X		6056581367	10/11/2019	10/11/2020	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000	
	<input type="checkbox"/> ANY AUTO						<input checked="" type="checkbox"/> SCHEDULED AUTOS	BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS						<input checked="" type="checkbox"/> NON-OWNED AUTOS	BODILY INJURY (Per accident) \$
	<input checked="" type="checkbox"/> HIRED AUTOS							PROPERTY DAMAGE (Per accident) \$
								PIP-Basic \$
B	<input checked="" type="checkbox"/> UMBRELLA LIAB						EACH OCCURRENCE \$ 5,000,000	
	<input type="checkbox"/> EXCESS LIAB						AGGREGATE \$ 5,000,000	
	DED <input checked="" type="checkbox"/> RETENTIONS \$ 10,000	X		60569204E0	10/11/2019	10/11/2020	\$	
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	Y/N	N/A	CWC035100	10/11/2019	10/11/2020	E.L. EACH ACCIDENT \$ 1,000,000	
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$ 1,000,000	
A	POLLUTION LIABILITY			6056581336	10/11/2019	10/11/2020	AGGREGATE/OCCURRENCE \$2MM/\$1MM	
A	LEASED/RENTED EQUIPMENT			6056581336	10/11/2019	10/11/2020	LIMIT \$250,000	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Vendor ID: 587782
 THE PROPERTY OWNER, WINNRESIDENTIAL LIMITED PARTNERSHIP, WINNDEVELOPMENT COMPANY LIMITED PARTNERSHIP AND EACH OF THEIR AFFILIATED ENTITIES are included as Additional Insureds with respects to the general liability policy solely in regard to work/service provided by the named insured. Excess policy to follow form; where required by a written contract or agreement.

CERTIFICATE HOLDER

CANCELLATION

WinnResidential
 a/o Compliance Depot
 PO Box 115006
 Carrollton, TX 75011

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
 John Koegel/KSANDO



Competitive Bid Procedure Cover Page

This checklist summarizes a request for approval for a purchase between \$4,999 and \$9,999 requiring one written bid and a minimum of three written bids for purchases greater than \$9,999 (see Purchasing Principles Manual, Appendix 4). This form and the attachments must be processed through the appropriate workflow for approval of both final selection of vendor and approval of expense. Approval Authority levels are outlined in the Signature Authority Matrix.

Site Name Clippothip Wharf Primary Condominium Trust City East Boston Site # 3167
 Submitted by Chucklo Patchi Date 10/14/2020
 SVP Toni Benaldi D/RVP Adriana Guzzo
 Scope of Work Snow Removal Contract

List Names and Bid Amounts of All Bidders – Check Recommended Bid.

<input checked="" type="checkbox"/>	Bidder #1 <u>Cunniff Landscape Contractors</u>	\$ 0-2" <u>\$3,066.00</u>	*M/WBE	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Bidder #2 <u>BrightView Landscapes, LLC</u>	\$ 0-2" <u>\$3,160.00</u>	*M/WBE	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Bidder #3 <u>Sunny Meadow Contracting</u>	\$ 0-2" <u>\$3,886.00</u>	*M/WBE	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/>
<input type="checkbox"/>	Bidder #4	\$	*M/WBE	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/>
<input type="checkbox"/>	Bidder #5	\$	*M/WBE	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/>

* M/WBE - Minority & Women Business Enterprise (MassHousing Properties ONLY)

The following documentation must be attached to this completed Competitive Bid Procedure Checklist:

- Original Specification and Appendices
- Bid Package for each bidder (to include cover letter, signed RFP document, signed Appendix A, Certificate of Insurance, and references as outlined in Request for Proposals)
- Building Permits required? Yes No
- Schedule A reviewed? Yes No

Source of funding

Budgeted Item Yes No \$ 46,000.00 Budgeted Amount
 Budgeted from Cash
 Budgeted from Replacement Reserve
 ■ If from Replacement Reserve, what is the Draw Down Amount \$ _____
 Other (explain) _____

Approval / Request for Additional Information

Approved as submitted Approved as noted
 Returned for additional information Pending Agency Review
 _____ Date to Agency Approved by Agency (attach approval documentation)

Comments: _____

Approved for Vendor Selection

Regional Maintenance Manager *Timothy D. Brennan* Date 10-16-20
 Director of Facilities (required if > \$10,000) _____ Date _____

Approved for Expense (based on approval matrix)

[Signature] COO Date 10/19/20
 Name / Title _____ Date _____

If approved, Property Manager should use the Request for Proposals Award Letter to Inform winning bidder and request insurance certificate naming appropriate parties. The Contract Document must be completed and submitted. Work may not begin until certificate and Contract has been received. A copy of this complete package must be filed in site Purchasing Requirement folder as noted in the Purchasing Principles Manual.



Schedule "A"

The examples below require a permit, please note that this list is not all inclusive and will vary by region.

General Contracting:

- ✓ New Construction
- ✓ Additions
- ✓ Renovations
- ✓ Demolitions
- ✓ Prefabricated Structures
- ✓ Temporary Buildings
- ✓ Manufactured Homes
- ✓ Exterior Painting

Flood Plains:

- ✓ All work in a Flood Plain

Trade Specific:

- ✓ Electrical Systems
- ✓ Plumbing Systems
- ✓ HVAC Systems
- ✓ Replacement of Fire Doors
- ✓ Fireplaces
- ✓ Pools
- ✓ Decks
- ✓ Fences, etc.
- ✓ Paving
- ✓ Ground Drainage
- ✓ Commercially, in addition to all the previous types, any changes of occupancy, parking, health issues, etc. may also require a permit.

Clippership Wharf Primary Condominium Trust
63 Lewis St.
East Boston, MA. 02128

10/01/2020

RE: Request for Proposal – Snow Removal Contract

Dear Interested Bidder,

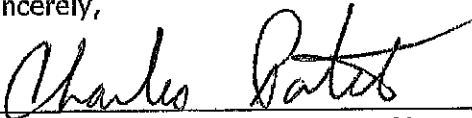
On behalf of Clippership Wharf Primary Condominium Trust, we would like to thank you for your time, effort, and interest in this project. Our Request for Proposal (RFP) is attached and we look forward to your response. We will strive to conduct a fair, competitive process which results in the best value for our property. This RFP is confidential. You must not disclose this RFP, or any related part of it, to any outside party. This obligation does not apply to information that is in the public domain.

Proposals are due no later than **5:00pm on Friday, 10/9/2020** to:

For questions regarding this RFP, please contact the Property Contact

Chuckie Patch
Sr. Maintenance Manager
63 Lewis St.
East Boston, MA. 02128
cpatch@winnco.com

Sincerely,



Chuckie Patch, Sr. Maintenance Manager

Snow Removal Contract
10/9/2020

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Snow Removal Contract
10/9/2020

I. Introduction

Clippership Wharf Primary Condominium Trust located in East Boston, MA., invites qualified and experienced Bidders to submit a proposal for at the above property. Qualified bidders will be able to at minimum to display the following characteristics:

- It has a minimum of three years consecutive work experience for the type of work outlined in the Scope of Work and Specifications described in Appendix A (the "**Scope of Work**");
- All licenses will be maintained current and valid for the initial term and any renewal of this Agreement;
- There are no pending or threatened proceedings or actions to remove the aforementioned licenses;
- Upon request, Contractor will provide proper documentation
- Compliance: WinnResidential works with a third-party vendor compliance management firm, Compliance Depot. Prior to starting work on this project, the successful bidding party will be required to enroll with Compliance Depot and obtain an 'Approved' status. More information can be found at www.compliancedepot.com.

For further details, please refer to the Scope of Work.

II. Instructions to Bidders

- A. Familiarization with the Scope of Work:** Before submitting a proposal, Bidder shall familiarize itself with the Scope of Work, laws, regulations and other factors affecting its ability to perform under the requirements of the RFP as well as complying with the terms and conditions, including the insurance requirements, contained in the **Standard Vendor Agreement** (see Appendix B). The submission of a proposal will constitute a representation by the Bidder of its ability to comply with its proposal including executing and complying with the terms and conditions of the Vendor Agreement.
- B. Inquiries:** Any questions related to RFP requirements shall be directed via email to the Property Representative whose name appears on the previous page of this document.
- C. Exceptions to RFP Requirements:** If Bidder wishes to propose modifications to any of the RFP requirements, the proposed deviations and any proposed substitute provisions must be clearly identified in the Bidder's proposal. Any proposed modifications are not binding unless agreed to by us in writing and may disqualify a Bidder from being considered for this project.
- D. Submitting Proposal: In order to be considered, Bidder must submit the following items to the Property Contact before the due date indicated.**
- a. A cover letter on company letterhead including company contact information
 - b. Section 5 of this RFP document, completed and signed
 - c. All pages of the Scope of Work (**Appendix A**), signed and completed
 - d. Proof of adequate Insurance (**See Standard Vendor Agreement**)
 - e. A minimum of two (2) references for which you have provided similar services
- E. Withdrawal of Proposal:** At any time prior to the specified due date and time, Bidder may formally withdraw its proposal with a written letter or email to the Property Contact on the previous page of this RFP.
- F. Contract:** Upon receipt of written acceptance of this bid, Bidder must execute the Vendor Agreement and return to the Property Representative within 30 days.

Snow Removal Contract
10/9/2020

III. Scope and Specifications

- A. Scope of Work:** The Scope of Work includes furnishing all labor, material, tools and equipment and services to perform **Snow Removal Contract**. Please refer to **Appendix A** for specific Scope of Work details.
- B. Contractor Responsibility:** It is to be understood that all contracted staff are employees of the contractor. The contractor is responsible to properly screen their employees to be sure that they can legally work in this environment. Proof of screening must be produced upon request of the owner. Additionally, it is the responsibility of the contractor to establish health and safety practices appropriate to the specific circumstances involved. Neither the Property Owner (the "**Owner**"), the Property's Management Agent nor the Property Representative makes any representations with regard to health and safety issues and the use of the project documents. The contractor/vendor must make its own determination the applicable law and regulations, including but not limited to, OSHA and other health and safety standards.
- C. Equipment & Supplies:** Contractor must supply all necessary equipment and materials except to the extent the Vendor Agreement specifies that certain materials will be provided by the Owner. Equipment and materials placed on the job site that are not owned by the Owner shall remain the property of the Contractor. The Contractor is responsible for:
- Keeping materials secure during non-working hours and for the protection of such equipment and materials against any damage or loss. Neither the Owner, the Property's Management Agent nor the Property Representative shall have any liability whatsoever for lost or damaged equipment or materials.
 - Replacing damaged or stolen equipment/ materials with identical equipment/ materials. Such replacement shall be at no additional cost to Owner.
 - Notifying the Property Representative of the delivery schedule and storage plan in advance.
 - Complying with manufacturer's written instructions for proper material storage and handling.
 - Properly maintaining and operating all equipment and accessories throughout the term of the Vendor Agreement. Company vehicle identification is required on all equipment.
- D. Identification and Uniforms:** All contracted employees must be in a full company uniform and ID at all times. Uniforms may include approved attire including clothing that is appropriate for working in inclement weather. All workers must visibly display nametag and/or ID while on site and sign in/out of the property at each site visit.
- E. Rules of Conduct:** All contractor employees and agents shall act in a way that is respectful to the property, the residents and the property staff including but not limited to:
- No loud music or other disruptive noises or behavior.
 - No smoking in any property building at any time, whether vacant or occupied. Smoking is also prohibited within 15 feet of any building on the property.
 - At any time during the term of the Vendor Agreement, the Owner, the Property's management agent or the Property Representative shall have the right to request removal of any employee or other agent of Contractor from the property and the Contractor will see to the prompt removal of such employee or agent.
- F. Environmental Performance Requirements:** All work shall use environmentally friendly practices to the extent reasonably possible. This includes maximizing energy efficiency, utilizing green materials and products and practicing sustainable maintenance procedures after project completion. All preparation, work, clean-up, disposal, and related activities must adhere to these practices to the extent reasonably possible. Waste disposal and recycling receipts, as required per local regulations.

Snow Removal Contract
10/9/2020

- G. Trash Removal:** The contractor is responsible for the proper removal and disposal of all contract work-related debris. The use of the property's containers is forbidden and could result in a back charge or fine from the site.
- H. Safety and Security:** The property is currently occupied and will continue to be, therefore the safety and security of everyone is of paramount concern. All work must be scheduled, staged and carried out in such a manner that all life safety and egress ways are maintained. Job-site safety practices must include the following where applicable:
- a. Personal Protection Equipment (PPE): Workers must wear appropriate PPE for the task and could include: eye protection, protective gloves, hardhat, hearing protection, foot protection and other PPE necessary to prevent injury as specified by OSHA.
 - b. Fall Prevention: Working at height should be eliminated whenever possible. While working at elevation, the contractor will use the proper equipment for the job and follow all operating and safety standards to prevent the fall of people and materials. To the extent reasonably possible, harnesses and tie offs must also be used to provide a means of fall restraint.
 - c. Housekeeping: Housekeeping must be effectively managed to maintain a clean and safe work site. All areas must be left clean of trash and construction debris at the end of each working day.
 - d. Electrical: All electrical systems will be de-energized before any work on the circuit occurs and Lock Out Tag Out (LOTO) procedures implemented following OSHA standards. Any de-energized circuits will be tested to ensure it is de-energized. If energized electrical work must be performed (no other option to de-energize exists), work must be performed by a qualified Electrician as defined by OSHA 1910.333(c) (2).
 - e. Perimeter Protection and Egress: Contractor shall provide temporary, clearly marked barricades around all work areas to provide a safe path for the general public. The Contractor shall coordinate placement of barricades, scaffolding, ladders, work equipment, etc. and keep the general public out of work zones. An emergency egress must remain available. In the event that an emergency means of egress is blocked by the work area, the Contractor shall provide clearly marked, temporary postings with easily noted markings directing the residents to the nearest alternate emergency means of egress. Work areas must be locked/protected to prevent access by residents.
 - f. Ventilation: Confirm that adequate ventilation is available in closed spaces before operating equipment or using chemicals or materials that may create a hazardous atmosphere.
 - g. Hazardous Materials: Contractor's repair, renovation, use, handling, disturbance, storage and/or disposal of any hazardous materials are strictly prohibited, unless specifically authorized by WinnResidential and performed by a certified contractor. Hazardous materials include asbestos containing building materials (such as, but not limited to, wall boards, joint compounds, mastics, floor tiles, floor backing, plaster, ceiling tiles, insulation, pipes, duct connections and shingles), paints or treatments that contain arsenic, lead, copper or chromium; and other hazardous materials, substances and chemicals as defined by local, state or Federal laws and regulations.
 - h. Safety Data Sheets (SDS): Applicable SDS should be on hand and in an accessible location.
 - i. Storage: Contractor shall not store materials, tools and equipment on site unless approved by Property Representative. If approved, items shall be neatly stacked, safely secured and stored in a mutually agreeable location. The Property will not be responsible for any loss or damaged construction tools, material or equipment.

Snow Removal Contract
10/9/2020

- I. Compliance With Applicable Laws** – Contractor shall comply with all Federal, state and local environmental, and occupational safety and health laws and regulations, which govern the notification, repair, renovation, handling, disturbance, use, storage and disposal of hazardous materials, including, but not limited to, asbestos, lead, arsenic, copper, chromium or other hazardous material, substance or chemical as defined by applicable environmental laws.
- J. Diversity Employer:** Contractor must be an Equal Opportunity Employer that will make every effort to hire minority employees. If certified as a Veteran, Minority, or Women Owned Enterprise, include specification and documentation in the bid package.
- K. Communication:**
- a. Report any emergency, accident or other circumstance that may hinder health and safety or alter project schedule must be reported to Property Representative immediately.
 - b. Notify the Property If, for any reason, the scheduled work will not be completed and schedule/agree upon an alternative timeline.
 - c. Exchange contact information with the Property Representative and Maintenance Director before the commencement of any work.
- L. Conflict Resolution:** In the case that any conflict or damage arises in connection with the work of the Scope of Work, the Property Representative must be notified immediately. All parties must work to reach a timely resolution of conflicts. All parties shall proceed with Work while the dispute is being resolved. Arbitration shall be according to the state law in which the Work is being done. If for any reason the scheduled Work will not be completed, Contractor must notify the Property and a time must be scheduled and agreed upon.

IV. Evaluation

The following criteria (in relative order of importance) will be used to evaluate the Bidder's proposal:

- Pricing Proposal
- Work methods
- Qualifications and Experience
- Extent of Bidder Modifications.

Note, the property reserves the right to select a vendor that it deems appropriate at its sole discretion without regard to these criteria.

Snow Removal Contract
10/9/2020

V. Offer

To :

The undersigned hereby offers to furnish the products and services outlined in the attached Scope and Specifications on the terms and conditions set forth in the RFP. The undersigned also agrees that the price outlined in Appendix A includes all products and services associated with the specified Work outlined in the Scope and Specifications. The Bidder agrees that their bid shall be good and may not be withdrawn for a period of fifteen (15) days after the scheduled closing time for receiving bids. The Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informality in bidding. Undersigned agrees that submission of Offer does not legally bind either party until a Bidder is chosen and Contract Document is executed by Owner and Bidder. Upon receipt of written notice of acceptance of this bid, Bidder must execute the formal contract as required by the Instructions to Bidders.

Bidding Company Name

Address

City

State

Zip Code

Signature of Person Authorized to Sign Date

Printed Name

Title

Email Address

Phone Number

Total Cost (Must match Appendix A)

Appendix A

Clippership Wharf Snow Removal Scope of Work

- (1) One-year contract
- (2) Term of Agreement November 15, 2020 – April 15, 2021

Provide snow maintenance services to all sidewalks and parking areas.

*Any hauling of snow from the site or within the site boundaries are not included in this pricing and shall be completed on a time and material basis. Please provided pricing for the listings below:

RATES: 4x4 Pickup with Plow:

- 1 Ton Truck with Plow and Spreader
- 2 Ton Truck with Plow and Spreader
- Tri-Axle Dump Truck
- Rubber Tire Loader
- Backhoe Loader
- Skid steer Loader
- Track Loader
- Snow Blower
- Laborer
- Calcium Chloride (per bag)
- Bulk Salt (per ton)

0-2"

2-4"

4-6"

6-8"

8-10"

10-12"

12" + (per inch):

Snow Removal Contract
10/9/2020

V. Offer

To :

The undersigned hereby offers to furnish the products and services outlined in the attached Scope and Specifications on the terms and conditions set forth in the RFP. The undersigned also agrees that the price outlined in Appendix A includes all products and services associated with the specified Work outlined in the Scope and Specifications. The Bidder agrees that their bid shall be good and may not be withdrawn for a period of fifteen (15) days after the scheduled closing time for receiving bids. The Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informality in bidding. Undersigned agrees that submission of Offer does not legally bind either party until a Bidder is chosen and Contract Document is executed by Owner and Bidder. Upon receipt of written notice of acceptance of this bid, Bidder must execute the formal contract as required by the Instructions to Bidders.

Cumtiff Landscape
Bidding Company Name

110 Bldg 750111 Andover MA 02475
Address City State Zip Code

[Signature]
Signature of Person Authorized to Sign Date

John Cumtiff President
Printed Name Title

John.Cumtiff@CumtiffLandscape.com 617-991-2221
Email Address Phone Number

Total Cost (Must match Appendix A)

CUNNIFF

landscape contractors

October 13, 2020

SNOW MAINTENANCE SERVICES AGREEMENT

CLIENT NAME: Clippership Wharf
CLIENT ADDRESS: 63 Lewis Street
 East Boston, Massachusetts 02128
TERM OF AGREEMENT: November 15th, 2020 – April 15th, 2021
SITE(S): CLippership Wharf

SCOPE OF SERVICES: Provide snow maintenance services to all sidewalks and parking areas.
 *Any hauling of snow from the site or within the site boundaries is not included in this pricing and shall be completed on a time and material basis as outlined below:

RATES:	4x4 Pickup with Plow:	\$95
	1 Ton Truck with Plow and Spreader	\$95
	2 Ton Truck with Plow and Spreader	\$100
	Tri-Axle Dump Truck	\$135
	Rubber Tire Loader	\$275
	Backhoe Loader	\$185
	Skid steer Loader	\$95
	Track Loader	\$150
	Snow Blower	\$85
	Laborer	\$65
	Calcium Chloride (per bag)	\$35
	Bulk Salt (per ton)	\$180
	0-2"	\$3,085
	2-4"	\$4,910
	4-6"	\$5,775
	6-8"	\$6,650
	8-10"	\$7,425
	10-12"	\$8,505
	12"+ (per Inch):	\$1,850

PAYMENT:

Client shall pay Contractor immediately upon receipt of an invoice for Services. Contractor shall have the right to terminate this Agreement upon written notice to Client if Client fails to pay Contractor in full within thirty (30) days of the date of the invoice.

*** This per Inch contract does not include ice storms or freezing rain.**

CUNNIFF
landscape contractors

October 13, 2020

Client agrees to pay Contractor a service charge of 1.5% per month or 18% per annum or the highest rate permitted by applicable law on invoices not paid by Client within thirty (30) days of the date of invoice. Client further agrees to pay Contractors costs of collection including attorneys' fees, court costs and any other expenses incurred by Contractor in collecting amounts past due.

CONTRACTOR: CUNNIFF LANDSCAPE, INC

By: _____

Name: Robert Cunniff

Title: President

CLIENT: Clippership Wharf

By: _____

Name: _____

Title: _____

Snow Removal Contract
10/9/2020

V. Offer

To :

The undersigned hereby offers to furnish the products and services outlined in the attached Scope and Specifications on the terms and conditions set forth in the RFP. The undersigned also agrees that the price outlined in Appendix A includes all products and services associated with the specified Work outlined in the Scope and Specifications. The Bidder agrees that their bid shall be good and may not be withdrawn for a period of fifteen (15) days after the scheduled closing time for receiving bids. The Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informality in bidding. Undersigned agrees that submission of Offer does not legally bind either party until a Bidder is chosen and Contract Document is executed by Owner and Bidder. Upon receipt of written notice of acceptance of this bid, Bidder must execute the formal contract as required by the Instructions to Bidders.

BrightView Landscapes, LLC

Bidding Company Name

70 Ceylon Street

Address

Boston

City

MA

State

02121

Zip Code

Virgil McClendon

Signature of Person Authorized to Sign Date

Virgil McClendon

Printed Name

Regional Finance Manager

Title

Cara.christopher@brightview.com

Email Address

617-201-1153

Phone Number

See proposal below

Total Cost (Must match Appendix A)

Snow Removal Contract
10/9/2020

Appendix F: Snow Removal Pricing

Clippership Wharf (does not include building 4)

BrightView's comprehensive proposal includes all labor, equipment, materials, and resource management necessary to provide snow and ice management services to your property.

Per Inch Snow Plowing and Shoveling Services:

0.0" – 2.0"	\$ 3,150.00
2.1" – 4.0"	\$ 5,085.00
4.1" – 6.0"	\$ 7,620.00
6.1" – 8.0"	\$ 8,910.00
8.1" – 10.0"	\$ 9,915.00
10.1" – 12.0"	\$ 10,895.00
Over 12.1"	\$ 10,895.00 plus \$615.00 per Inch

Salting Services:

Salt application asphalt	\$ 125.00 per application
Premium ice melt for paver areas	\$ 590.00 per application

Any relocation or snow hauling will be performed at the request of the property management and will be billed on an hourly basis at the rates below.

Time and Materials and Snow Relocation/Hauling Rates: Any relocation or snow hauling will be performed at the request of property management and billed on an hourly basis.

Laborer	\$ 60.00 per hour
4 x 4 Pick-Up w/ Plow & Supervisor	\$ 135.00 per hour
6 Wheel Dump Truck w/ Plow	\$ 150.00 per hour
Bobcat Loader	\$ 142.00 per hour
3 Cubic Yard Loader	\$ 200.00 per hour
5 Cubic Yard Loader	\$ 288.00 per hour
Tri-Axle / Roll-Off / Trailer Dump Truck	\$ 180.00 per hour
Road Salt	\$ 285.00 per ton applied

Snow Disposal Rates:

10 Wheel Dump	\$ 129.00 /load
30 C.Y. Roll-Off	\$ 175.00 /load
Tri-Axle/Trailer Dump	\$ 175.00 /load

ALL RATES ARE CHARGED PORTAL TO PORTAL 3 HOUR MINIMUM



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
10/7/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Eastern Insurance Group LLC 155B Otis Street Northborough MA 01532		CONTACT NAME: Kara Sandock PHONE (A/C No, Ext): (508) 393-7744 E-MAIL ADDRESS: ksandock@easterninsurance.com FAX (A/C No):	
INSURED Cunniff Landscape P.O. Box 750111 Arlington MA 02475		INSURER(S) AFFORDING COVERAGE INSURER A: Continental Casualty Company NAIC # 20443 INSURER B: Continental Ins Co 35289 INSURER C: AmGuard 42390 INSURER D: INSURER E: INSURER F:	

COVERAGES CERTIFICATE NUMBER: Master 2019-20 REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GENL. AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:	X		6056581336	10/11/2019	10/11/2020	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 Employee Benefits \$ 1,000,000
B	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input checked="" type="checkbox"/> ALL OWNED AUTOS <input checked="" type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS	X		6056581367	10/11/2019	10/11/2020	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ PIP-Baefc \$
B	<input checked="" type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> EXCESS LIAB DED <input checked="" type="checkbox"/> RETENTION \$ 10,000			6056820450	10/11/2019	10/11/2020	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N	N/A	CWVC035100	10/11/2019	10/11/2020	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
A	POLLUTION LIABILITY			6056581336	10/11/2019	10/11/2020	AGGREGATE OCCURRENCE \$2MM/\$1MM
A	LEASED/RENTED EQUIPMENT			6056581336	10/11/2019	10/11/2020	LIMIT \$250,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
 Vendor ID: 587782
 THE PROPERTY OWNER, WINNRESIDENTIAL LIMITED PARTNERSHIP, WINNDEVELOPMENT COMPANY LIMITED PARTNERSHIP AND EACH OF THEIR AFFILIATED ENTITIES are included as Additional Insureds with respects to the general liability policy solely in regard to work/service provided by the named insured. Excess policy to follow form; where required by a written contract or agreement.

CERTIFICATE HOLDER WinnResidential a/o Compliance Depot PO Box 115006 Carrollton, TX 75011	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE John Koegel/KSANDO
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Snow Removal Contract
10/9/2020

V. Offer

To :

The undersigned hereby offers to furnish the products and services outlined in the attached Scope and Specifications on the terms and conditions set forth in the RFP. The undersigned also agrees that the price outlined in Appendix A includes all products and services associated with the specified Work outlined in the Scope and Specifications. The Bidder agrees that their bid shall be good and may not be withdrawn for a period of fifteen (15) days after the scheduled closing time for receiving bids. The Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informality in bidding. Undersigned agrees that submission of Offer does not legally bind either party until a Bidder is chosen and Contract Document is executed by Owner and Bidder. Upon receipt of written notice of acceptance of this bid, Bidder must execute the formal contract as required by the Instructions to Bidders.

Sunny Murnan Contracting

Bidding Company Name

A Box 503 *Tyngboro* *MA* *01879*
Address City State Zip Code

Jay Alexa
Signature of Person Authorized to Sign Date

JAY Alexa *President*
Printed Name Title

SMC.JAYALEXA@gmail.com *978-265-7177*
Email Address Phone Number

Total Cost (Must match Appendix A)

Jay M. Alexa
 DBA Sunny Meadow Contracting
 P.O. Box 558
 Tyngsboro, MA 01879
 978-265-7177 (Jay)
 978-649-4443 (Fax)
Sunnymc76@verizon.net

Clippership Wharf
 63 Lewis Street,
 East Boston, Ma 02128
 2020-2021
 Snow Maintenance Proposal

October 13, 2020

Provide snow maintenance services for the 2020-2021 season for all parking areas and sidewalks.

2020-2021 Snow season per inch costs:

0-2"	\$3,985
2-4"	\$5,250
4-6"	\$5,975
6-8"	\$6,850
8-10"	\$7,982
10-12"	\$8,975
12"+ per inch:	\$1,995

Hauling of snow off site is not included in this proposal. Freezing rain is not included in this proposal. Hauling and freezing rain to be done using time and material rates as outlined:

Tri Axle Dump Truck:	\$150
Ten Wheel Dump Truck:	\$135
Six Wheel Dump Truck:	\$105
Wheel Loader:	\$285
Mini Loader:	\$185
Skid Steer Loader:	\$125

Client agrees to pay contractor within (30) days of the receipt of an invoice.

Client agrees to hold contractor harmless.

This proposal must be accepted within (15) days of the proposal date

Respectfully submitted by Jay Alexa

Clippership Wharf Wetland Maintenance Plan - DRAFT

- 1- General Project Overview
- 2- Existing Condition
- 3- New Living Shoreline
- 4- Salt Marsh Monitoring
 - 4.1- Monitoring During Construction
 - 4.2- Post-Construction Monitoring and Maintenance

1- General Project Overview

Clippership Wharf is located on the Boston's inner harbor in East Boston, south of Maverick Square. The proposed project, developed by Lend Lease Development, Inc. ("Owner") will revitalize an existing vacant waterfront property consisting of residential units and associated amenities including a fitness and social club, restaurant, recreational-based retail, and a parking garage. The project will include approximately 27,276 square feet of new coastal wetland referred to in this document as a "Living Shoreline." To create a diverse new wetland community, the area will be graded with a series of terraces bracketing the daily amplitude of the tidal cycle. The lower terrace, referred to as "low marsh," will be set at approximately Elevation 5.1 (BCB). The next two terraces will be referred to as "mid-level marsh" and will be set at approximately Elevations 6.5 and 8.5, respectfully. The next terrace will be referred to as "high marsh," and will be set at approximately Elevation 11.0.



Figure 1: Proposed living shoreline at Clippership Wharf showing various planting terraces and salt marsh areas.

The terraces will be created by using predominantly salvaged Granite blocks from the project site. The blocks will create the edge of each terrace to frame and protect each level from moderate wave action. The bottom of each terrace within each level where the growing medium will be placed will be sloped by 2% to allow free movement (in and out) of tidal waters. The structure below Elevation 5.1, the lowest terrace, will be built with rip rap and general fill to support the remaining terraces that lie above. Above

Elevation 11.0, the upland will slope continuously to Elevation 24.0 to create a contiguous landscaped area, which will transition from wetland plantings to typical upland landscaping.

The terraces will be planted with a mixture of *Spartina alterniflora* and *Spartina patens*, with their location dependent upon the suitability of each terrace to support the growth of the wetland plants.

2- Existing Condition

Clippership Wharf is an approximately 11.95 acre of parcel of land and water on the East Boston waterfront that has been vacant for more than 25 years. The total project area consists of 6.78 acres of land and 5.17 acres of water sheet. The site is open and relatively flat, and does not have any buildings. The land consists of broken pavement, gravel, and deteriorated old timber wharfs (see Figure 2, Existing Conditions). The water sheet includes broken piles and deteriorated timber decks.

3- New Living Shoreline.

The proposed Living Shoreline will constitute approximately 29,276 square feet of new coastal wetland. This new resource will allow access to the water and will convert an existing upland to land under the ocean, coastal bank, rocky intertidal shore and a tidal salt marsh resource areas. This new wetland/water sheet will provide the opportunity for users to interact with the water and experience these different wetland and coastal habitats.



Figure 2, Existing Conditions. The existing condition of Clippership Wharf showing areas of abandoned and degraded dock and pilings and various debris.

The Living Shoreline will be created by a series of relatively flat terraces (2% internal slope to aid in the flow of the water), from the lowest level at Elevation 5.1 (BCB) to the highest level at Elevation 11.0. Below Elevation 5.1, the Living Shoreline will be supported by coastal structures such as rock rip rap and granite blocks to provide the necessary structural support and to elevate the lowest terrace to the level where salt marsh plants can be grown. Above the top terrace at Elevation 11.0, the area will transition into an upland site landscape planting up to approximately Elevation 24. The Living Shoreline will have four (4) distinct terraces set at Elevation 5.1, 6.5, 8.5 and 11.0. Each terrace will have a containment border constructed of predominantly granite blocks repurposed from the project site. The function of the granite blocks is to create the individual terraces, provide structural stability, and prevent erosion from the daily fluctuation of the tidal cycle and wave action from Boston Harbor. The Granite blocks will be positioned next to each other, dry laid with openings of approximately 2 to 4 inches in between each block to allow the flow of

the water in both directions, and to prevent the entrapment of any juvenile marine life that establishes itself within the Living Shoreline. The newly created terraces will be planted with saltmarsh chordgrass (*Spartina alterniflora*) and high marsh grass (*Spartina patens*) based on their natural ability to thrive within the daily tidal fluctuation of the Boston Harbor.

4. Salt Marsh Monitoring

The new Living Shoreline will be monitored for a period of five (5) years, in conjunction with the overall monitoring of site plantings, to ensure the salt marsh plants are growing and thriving, establish a dense and healthy salt marsh community, and to reach their maximum growth potential (see Figure 3).

4-1. Construction Monitoring

Monitoring during construction will be necessary to make sure the individual terraces are established properly, the daily tidal waters are flowing in and out from each level with no restriction, and the flow of water is not creating any localized erosion to the planting soil within each terrace. The marsh grasses will be planted in accordance to the required density, spacing, and controls. The contractor will be responsible for the Living Shoreline for a minimum of one year post-construction before transferring the control and maintenance responsibilities to the Owner of the project. Any irregularity or damage to the Living Shoreline will be corrected under warranty prior to the transfer of maintenance responsibility to the Owner of the project.



Figure 3, Photo of coastal New England Marsh on the North Shore of Boston showing vegetation zonation from low marsh to high marsh.

4-2. Post Construction Monitoring

Monitoring post construction will continue for a period of four (4) years until 75% coverage of the indigenous salt marsh and other approved species plants have established. The basic salt marsh monitoring plan will include the following inspections, maintenance, and reporting protocols:

- a- **Inspections.** Weekly inspections and maintenance of the area to remove debris that has floated in from the harbor, provide corrections and adjustments to any dislodged plants, and provide the basic necessary care to promote the healthy establishment of the marsh. The selected EM (Environmental Monitor) will conduct official salt marsh inspections two

- times per year during the growing season (i.e. spring and fall) and after each significant coastal storm event, as necessary.
- b- **Reference Marsh Site.** An existing salt marsh area within the larger Boston Harbor system and nearby to the project site will be selected as a reference site for the four (4) year duration of the post construction monitoring period. The reference site will have similar morphology and vegetation zonation (i.e., restored high marsh with nearby, "natural" high marsh; restored low marsh with nearby, "natural" low marsh). The reference site and the transect locations will be selected so that all major vegetation zones of the restoration area are comparable to the reference site. For example, vegetation parameters at the restoration site will be compared with the same parameters at the reference site to determine whether an observed loss of vegetation is a restoration failure or is caused by a natural event, a coastal storm, hurricane, or Nor'easter, for instance - that has similarly affected marshes in the area.
 - c- **Vegetation Cover Measurements.** Vegetation cover percentages will be evaluated during each monitoring event. Upon completion of the salt marsh planting work, observation transects for the purpose of evaluating percentage coverage of vegetation will be established within the new planted salt marsh and the reference site.
 - d- **Recording of General Observations.** General observations will also be made during these monitoring events relative to wildlife usage, animal browse, the accumulation of debris, and any factors potentially affecting the area such as invasion by *Phragmites australis* or other invasive plant species invasions. Any debris accumulation detrimental to the wetland establishment efforts will be removed. If necessary, a remedial action plan to control *Phragmites australis* and/or other invasive plant species within the new wetland area will be developed and submitted to the Boston Conservation Commission, MassDEP, and the ACOE for their files. As necessary, remedial action plans deemed necessary will be prepared to improve other conditions that are deemed detrimental to the success of the new wetland system.
 - e- **Assessment of Erosion and Sedimentation Impacts.** The monitoring program will include erosion and scour inspection of each terrace area. Any observed scour and/or corrective measure will be described in the monitoring report. If any post construction scour, slumping, or erosion of the planting soil is observed, a mitigation plan will be developed, implemented, and provided to Boston Conservation Commission, MassDEP, and the ACOE for their files.
 - f- **Submittal of Annual Reports.** An annual report will be submitted to the Boston Conservation Commission, MassDEP, and the ACOE by December 31st of each year. The report will provide a general description of the site condition, the percentage of salt marsh establishment, any degradation or loss of planted salt marsh plantings, and any corrective measures taken. It will document the condition and success of the salt marsh establishment areas. The area will be further documented with photographs that are periodically taken from the same pre-established points.

- g- **Structure of Annual Monitoring Report.** The Title Page will include the MassDEP file number; the ACOE file number, and the report number. At a minimum, the annual report will contain a summary of the following:
- 1- Dates the marsh establishment activities commenced and/or were completed, as well as monitoring activities that took place since the last report.
 - 2- Vegetation Cover Percentage, including:
 - A visual estimate of total percent cover within the various terraces, measured against the established goal of 75% areal coverage by *Spartina* and other appropriate salt marsh species.
 - A visual estimate of percent cover of invasive plants species in each terrace including, but not limited to, *Phragmites australis*.
 - 3- Remedial actions taken during the monitoring year, including those conducted to improve the success of the new salt marsh. These activities may include, but shall not be limited to, removing debris, controlling invasive plant species, adjusting grades, and adding new plantings.
 - 4- Recommendations for additional future remedial activities.

Special Condition 67:

Any new or reconstructed catch basins, or any new or replaced sections of sidewalk or pavement adjacent to surface drains on the project site, must have a permanent plaque within one foot of the structure that states "Don't Dump - Drains to Boston Harbor."



Special Condition 79:

Exterior trash receptacles must be secured to the ground and must be covered or designed to prevent pollution of adjacent resource areas by vandalism or wind-blown litter. Trash receptacles will be emptied daily from Memorial Day to Columbus Day, and at least weekly during all other months.



Special Condition 80:

In the interest of pollution prevention, the Applicant must install pet waste bag dispensers at the entrance to the proposed dog park subject to this Order. Said dispensers must be installed in visible locations at park entrances. The trash barrels for the dog waste must be emptied on a regular basis as needed- no less frequently in the summer months than every other day, and in the winter, no less than once a week or as needed.



PT-01



**Ghisamestieri
"Lampara FLA48 LED
A"**

Description: 23'-10"
Single Post Top with 20'-
0" Pole.

Specification : #FLA48LEDA-RAL7024-
120/227V-108W-8600L-Type3-3000K
Pole : #Vasto12-RAL7024-20'
Arm : Large Bracket #ACI-RAL7024
Approved Equal : Neri
Lamping : LED (Included)
Wattage (W) : 108W
Output (lm) : 8600lm
CCT (K) : 3000K
Voltage (V) : 120-277V
Distribution : Type 3
Finish : Graphite (RAL 7024)
Height (ft) : 23'-10"
Location : Per Site Plan

1. All components (pole, arm, luminaire) to be
provided in RAL 7024 finish.
2. Install per Landscape Architects details.

PT-01A








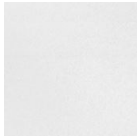




**Ghisamestieri
"Lampara FLA48 LED
A"**

Description: 23'-10"
Single Post Top with 20'-
0" Pole and 2 Flood
Lights.


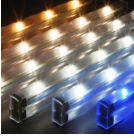
Specification : #FLA48LEDA-RAL7024-
120/227V-108W-8600L-Type3-3000K
(Qty 1)
Pole : #Vasto12-RAL7024-20' (Qty 1)
Arm : Large Bracket #ACI-RAL7024 (Qty
1)
Floodlight : Bega #77 705-RAL7024-K3
(Qty 2); Hood: #70-757 (Qty 2); Mounting
Block: #79-511 (Qty 2)
Approved Equal : Neri
Lamping : LED (Included)
Wattage (W) : Post: 108W; Flood: 30W
(each)
Total Wattage (W) : 168W
Output (lm) : Post: 8600lm; Flood:
1723lm (each)
CCT (K) : 3000K
Voltage (V) : 120-277V
Distribution : Type 3 and 40°
Finish : Graphite (RAL 7024)
Height (ft) : 23'-10"
Location : Per Site Plan

1. Flood lights to be mounted at 19'-6" AFF.
2. Mount flood lights via mounting block.
3. Mounting blocks to be welded to pole by
manufacturer.
4. Mount flood lights 60 degrees apart, per plan.
5. All components (pole, arm, luminaire, flood lights,
mounting blocks, glare hood) to be provided in RAL
7024 finish.
6. Install per Landscape Architects details.

Code/Tag	Image	Product / Manufacturer	Attributes	Notes
PT-01B		Ghisamestieri "Lampara FLA32 LED A" Description: Building Mounted LED Luminaire	Specification : #FLA32LEDA-RAL7024-120/227V-72W-5800L-Type3-3000K Arm : Wall Bracket #LP-10-S-RAL7024 Approved Equal : Neri Lamping : LED (Included) Wattage (W) : 72W Output (lm) : 5800lm CCT (K) : 3000K Voltage (V) : 120-277V Distribution : Type 3 Finish : Graphite (RAL 7024) Location : Per Site Plan	485 1. EC to coordinate mounting to building with lighting manufacturer. 2. Shop drawings required for all components, prior to fabrication. 3. All components (backplate, arm, luminaire) to be provided in RAL 7024 finish. 4. Install per Architects details.
PT-02		ERCO Lighting "Minipoll Bollard" Description: Pedestrian LED Bollard	Specification : #33309.000-33981.000-MOD (205mm concrete anchor length, below plate) Approved Equal : Bega or Selux Lamping : LED (Included) Wattage (W) : 27W Output (lm) : 2400lm CCT (K) : 3000K CRI : >90 Voltage (V) : 120-277V Distribution : Type 5 Label/IP : IP65 Finish : Graphite Height (ft) : 40" Location : Per Site Plan	1. Install per Landscape Architects details. 2. Manufacturer to provide concrete anchor threaded bars with standard length threaded bars above mounting plate, to facilitate mounting of bollard, and provide additional length below the plate (205mm) to allow for mounting, per Landscape Architects detail.
PT-03		Spring City "K11" Description: City of Boston - Single Acorn	Specification : #K11-B2PPR-III-75W(SSL)-40K-BOSTON Pole : 'Washington Single'-13' 4 3/4" (Dwg # LP-28474) Approved Equal : No approved equal Lamping : LED (Included) Wattage (W) : 75W CCT (K) : 4000K Distribution : Type 3 Finish : Black Height (ft) : 13'-4" Location : Site Adj. Roadways	
PT-04		Ghisamestieri "Lampara FLA32 LED A" Description: 19'-2" Single Post Top with 16'-0" Pole.	Specification : #FLA32LEDA-RAL7024-120/227V-72W-5800L-Type3-3000K Pole : #Vasto10-RAL7024-16' Arm : Small Bracket #ACI-RAL7024 Approved Equal : Neri Lamping : LED (Included) Wattage (W) : 72W Output (lm) : 5800lm CCT (K) : 3000K Voltage (V) : 120-277V Distribution : Type 3 Height (ft) : 19'-2" Finish : Graphite (RAL 7024) Location : Per Site Plan	1. All components (pole, arm, luminaire) to be provided in RAL 7024 finish. 2. Install per Landscape Architects details.
PT-05		Ghisamestieri "Lampara FLA16 LED C" Description: Single 14'-8" LED Post Top with 12'-0" Pole.	Specification : #FLA16LEDC-RAL7024-120/227V-36W-2800L-Type3-3000K Pole : #Vasto10-RAL7024-12' Approved Equal : Neri Lamping : LED (Included) Wattage (W) : 36W Output (lm) : 2800lm CCT (K) : 3000K Voltage (V) : 120-277V Distribution : Type 3 Finish : Graphite (RAL 7024) Height (ft) : 14'-8" Location : Per Site Plan	1. All components (pole and luminaire) to be provided in RAL 7024 finish. 2. Install per Landscape Architects details.

Code/Tag	Image	Product / Manufacturer	Attributes	Notes
PT-06		TBD "Post Top" Description: Match existing FER-3 (By EC)	Specification : EC to Verify Accessories : EC to Verify Lamping : EC to Verify Wattage (W) : EC to Verify Output (lm) : EC to Verify CCT (K) : EC to Verify CRI : EC to Verify Voltage (V) : EC to Verify Distribution : EC to Verify Label/IP : EC to Verify Finish : EC to Verify Height (ft) : EC to Verify Location : EC to Verify	486 1. EC to verify voltage (prior to ordering). 2. EC to verify and coordinate manufacturer, lamping, CCT, CRI, distribution, finish, and height of existing FER-3 and provide matching fixture.
PT-07		BK Lighting "CUS-1204" Description: Power Pedestal w/ GFCI Duplex Receptacle	Specification : #CUS-1204-20-BLW Approved Equal : Pedoc or Bega GFCI Duplex Outlet : Eaton or Leviton (Qty 1) Voltage : 120V Finish : Black Location : Site	1. EC to provide and install one duplex GFCI Outlet per pedestal. 2. Install per Landscape Architects details.
PT-08		Hess America "Toledo" Description: Utility Bollard - Power Supply	Specification : #TOL250-GS-PB-MOD (RAL 7024) Approved Equal : Bega or BK Lighting GFCI Duplex Outlet : Eaton or Leviton (Qty 4) Voltage (V) : 120V Finish : Graphite (RAL 7024) Location : Site	1. Provide in graphite finish. 2. Electrical contractor to provide and install four (4) GFCI duplex outlets, per pedestal. 3. Install per Landscape Architects details.
PT-09A		Lumenpulse "Mobilia" Description: 18' Vertical LED color changing light pipe pole	Specification : MOB-COLUMN-120-L28-RGBW-S-18FT-CC (RAL7024)-CRC-3GV-SPL009896A-WO Accessories : DMX Programming: LCU & LID; DMX Distribution: CBX-ST Commissioning & Programming : 2 Days (On Site) Approved Equal : Structura, Hess Lamping : LED (Included) Wattage (W) : 120W CCT (K) : RGBW Voltage (V) : 120-277V (Verify) Distribution : Type V Label/IP : Wet Location Finish : Graphite (RAL 7024) Height (in) : 18' Location : Per Site Plan	1. EC to verify voltage (prior to ordering). 2. Install per Landscape Architect's details. 3. Control gear to be located in NEMA 4 weatherproof enclosure, to be located in the field under the supervision of Landscape Architect. 4. Fixture to be installed under the supervision of the Landscape Architect. 5. EC to coordinate and verify with manufacturer that fixture is ordered and provided with all necessary power feeds, jumper cables, and connectors for installation of a complete system. 6. Manufacturer to provide with 'WO' base plate cover.
PT-09B		Lumenpulse "Mobilia" Description: 18' Vertical LED color changing light pipe pole w/ 10 degree tilt towards walking path.	Specification : MOB-COLUMN-120-L28-RGBW-S-18FT-CC (RAL7024)-CRC-3GV-SPL009896B-WO (MOD: Angled Pole) Accessories : DMX Programming: LCU & LID; DMX Distribution: CBX-ST Commissioning & Programming : 2 Days (On Site) Approved Equal : Structura, Hess Lamping : LED (Included) Wattage (W) : 120W CCT (K) : RGBW Voltage (V) : 120-277V (Verify) Distribution : Type V Label/IP : Wet Location Finish : Graphite (RAL 7024) Height (in) : 18' w/ 10 degree tilt Location : Per Site Plan	1. EC to verify voltage (prior to ordering). 2. Install per Landscape Architect's details. 3. Control gear to be located in NEMA 4 weatherproof enclosure, to be located in the field under the supervision of Landscape Architect. 4. Fixture to be modified to tilt 10 degrees on base. 5. Fixture to be installed to lean towards walking surface, under the supervision of the Landscape Architect. 6. EC to coordinate and verify with manufacturer that fixture is ordered and provided with all necessary power feeds, jumper cables, and connectors for installation of a complete system. 7. Manufacturer to provide with 'WO' base plate cover, modified with oval opening to accept angled pole and sit flush w/ grade.

Code/Tag	Image	Product / Manufacturer	Attributes	Notes
PT-09C		Lumenpulse "Mobilia" Description: 18' Vertical LED color changing light pipe pole w/ 10 degree tilt away from walking path.	Specification : MOB-COLUMN-120-L28-RGBW-S-18FT-CC (RAL7024)-CRC-3GV-SPL009896B-WO (MOD: Angled Pole) Accessories : DMX Programming: LCU & LID; DMX Distribution: CBX-ST Commissioning & Programming : 2 Days (On Site) Approved Equal : Structura, Hess Lamping : LED (Included) Wattage (W) : 120W CCT (K) : RGBW Voltage (V) : 120-277V (Verify) Distribution : Type V Label/IP : Wet Location Finish : Graphite (RAL 7024) Height (in) : 18' w/ 10 degree tilt Location : Per Site Plan	487 1. EC to verify voltage (prior to ordering). 2. Install per Landscape Architect's details. 3. Control gear to be located in NEMA 4 weatherproof enclosure, to be located in the field under the supervision of Landscape Architect. 4. Fixture to be modified to tilt 10 degrees on base. 5. Fixture to be installed to lean away from walking surface, under the supervision of the Landscape Architect. 6. EC to coordinate and verify with manufacturer that fixture is ordered and provided with all necessary power feeds, jumper cables, and connectors for installation of a complete system. 7. Manufacturer to provide with 'WO' base plate cover, modified with oval opening to accept angled pole and sit flush w/ grade.
RB-01		Jesco Lighting Group "DL FLEX UP" Description: Modular LED tape for 2700K 1.3 W/lf LEDs with mounting channel, frosted acrylic lens, driver, and power connectors	Specification : #DL-FLEX-UP-27-LENGTH Accessories : Power Connector: #DL-FLEX-PC-2-HW; Mounting Channel: #CH-ME-21; Lens: #DL-FLEX-FL-6; Driver: #DL-PS-100/24-JB-M; Dead End Cap # CH-ME-21-DEC; Live End Cap # CH-ME-21-LEC Lamping : LED (Included) Wattage (W) : 1.3w/lf Output (lm) : 115 lm/ft CCT (K) : 2700K CRI : 85 Voltage (V) : 24V Distribution : 120° Label/IP : Dry Location Location : Amenity Spaces: Coves	1. Fixture to be recessed into ceiling cove. See architectural drawings for mounting details. 2. Fixture shall be ordered with all necessary power feeds, jumper cables and connectors for installation of a complete system. 3. Contractor to verify runs per plan, prior to ordering. 4. Fixture is field cuttable. 5. Contractor shall verify load and driver, prior to ordering and coordinate. 6. Manufacturer's rep is available to assist installer with system installation and coordination. 7. Electrical Contractor shall verify voltage. 8. Location of driver to be confirmed and verified in the field with architect/owner, prior to installation.
RB-02		Prolume "Series RIA" Description: Linear LED Strip	Specification : #RIA150-Length (Per Plan)-W830-OPG-T-VHB-005-1037-Fuse (secondary)-MOD(Side Entry) Driver : PSX24-100/O (EC to Coordinate) Approved Equal : LED Linear, iLight Lamping : LED (Included) Wattage (W) : 3.5W/lf Output (lm) : 242lm/ft CCT (K) : 3000K CRI : 85 Voltage (V) : 24V/120V Label/IP : Wet Location Finish : Clear Location : Under Bench	1. Contractor to coordinate lengths per plan, prior to ordering. 2. Contractor to verify voltage, prior to ordering. 3. Fixture shall be ordered with all necessary power supplies, drivers, connectors, mounting brackets, and power feeds for installation of a complete system. 4. All drivers to be located within 50' of fixture(s), within a secure, concealed, and accessible NEMA 4 enclosure (location TBD in field by Landscape Architect). 5. Fixture to be U.L. listed and labeled "suitable for wet locations." 6. Manufacturer to provide fixture with fuse on secondary side of driver 7. Manufacturer to provide wiring with tray cable and all connections to be plug and go. Wire to enter fixture from side. Manufacturer to strip wire prior to entry into fixture and encapsulate any wire jackets within epoxy, prior to entering fixture.

Code/Tag	Image	Product / Manufacturer	Attributes	Notes
RB-02A		Prolume "Series CPT" Description: Linear LED High Power Sign Strip	Specification : #CPT5/1-Length (Per Plan)-W830-E-OPG-T-VHB-005-1140-Fuse (secondary) Driver : PSX24-100/O (EC to Coordinate) Approved Equals : LED Linear, Ecosense Lamping : LED (Included) Wattage (W) : 17W/lf Output (lm) : 1004lm/ft CCT (K) : 3000K CRI : 85 Voltage (V) : 24V/120V Distribution : 50°x10° Label/IP : Wet Location Finish : Clear Location : Signage	<ol style="list-style-type: none"> 1. Contractor to coordinate lengths per plan, prior to ordering. 2. Contractor to verify voltage, prior to ordering. 3. Fixture shall be ordered with all necessary power supplies, drivers, connectors, mounting brackets, and power feeds for installation of a complete system. 4. All drivers to be located within 50' of fixture(s), within a secure, concealed, and accessible NEMA 4 enclosure (location TBD in field by Landscape Architect). 5. Fixture to be U.L. listed and labeled "suitable for wet locations." 6. Manufacturer to provide fixture with fuse on secondary side of driver 7. Manufacturer to provide wiring with tray cable and all connections to be plug and go. Wire to enter fixture from side. Manufacturer to strip wire prior to entry into fixture and encapsulate any wire jackets within epoxy, prior to entering fixture.
RB-02B		Prolume "Series RIA" Description: Linear LED Strip	Specification : #RIA150-Length (Per Plan)-W830-OPG-T-VHB-005-1054-Fuse (secondary)-MOD(Side Entry) Approved Equal : LED Linear, iLight Driver : PSX24-100/O (EC to Coordinate) Lamping : LED (Included) Wattage (W) : 3.5W/lf Output (lm) : 242lm/ft CCT (K) : 3000K CRI : 85 Voltage (V) : 24V/120V Label/IP : Wet Location Finish : Clear Location : Underneath Raised Overlook	<ol style="list-style-type: none"> 1. Contractor to coordinate lengths per plan, prior to ordering. 2. Contractor to verify voltage, prior to ordering. 3. Fixture shall be ordered with all necessary power supplies, drivers, connectors, mounting brackets, and power feeds for installation of a complete system. 4. All drivers to be located within 50' of fixture with a secure, concealed, and accessible NEMA 4 enclosure (location TBD in field by Landscape Architect). 5. Fixture to be U.L. listed and labeled "suitable for wet locations." 6. Manufacturer to provide fixture with fuse on secondary side of driver 7. Manufacturer to provide wiring with tray cable and all connections to be plug and go. Wire to enter fixture from side. Manufacturer to strip wire prior to entry into fixture and encapsulate any wire jackets within epoxy, prior to entering fixture.


Special Condition 102:

The proponent has agreed to install and maintain as a perpetual condition at least one binocular.



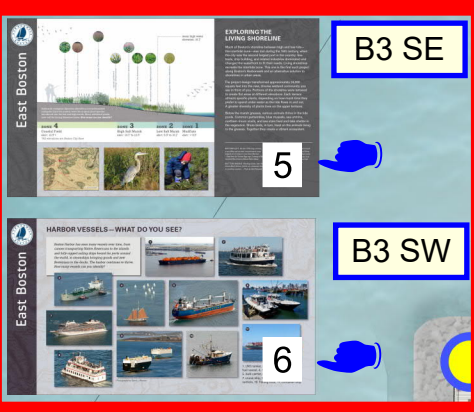
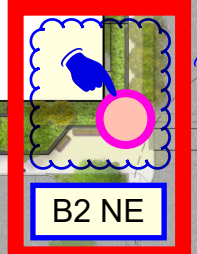
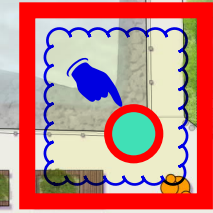
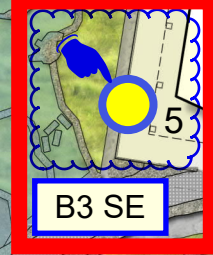
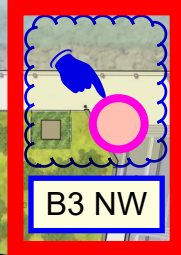
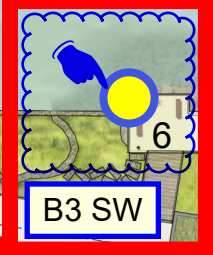
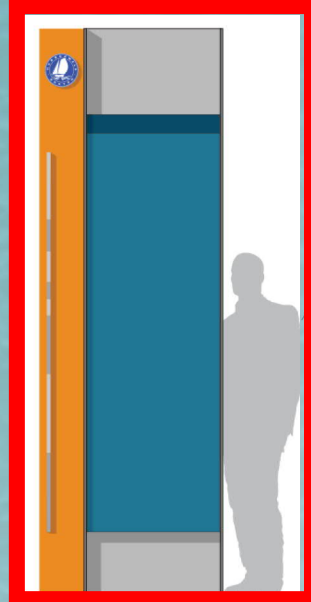
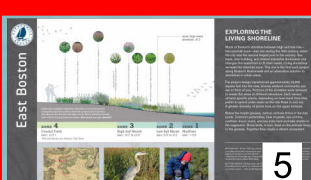
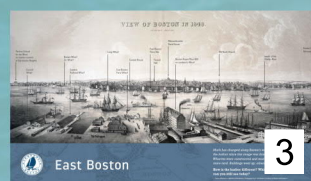
G2's 

G3's 

G4's 

G6's 

 Installed in Phase 1



- 6 TOTAL** G2 - Ch 91 required interpretive
- 2 TOTAL** G3 - EBHW wayfinding
- 2 TOTAL** G4 - Clippership Entry/Identity sign
- 3 TOTAL** G6 - Clippership ammenity wayfinding

Special Condition 103:

The proponent will provide to the Commission a copy of the signage plan, which will include wayfinding signs as well as the interpretive signage, as well as signage visible from the outside indicating where the public restrooms are, indicating they are open to the public regardless of patronage or residency.



**SECTION 329115
PLANTING SOILS****PART 1 - GENERAL**

1.01 GENERAL PROVISIONS

- A. Attention is directed to the Contract and General Conditions and all Sections within Division 01 – General Requirements which are hereby made a part of this Section of the Specifications.

1.02 DESCRIPTION OF WORK

- A. This Section specifies administrative and procedural requirements for manufactured planting soils (planting soils) in Upland and Salt Marsh Planting Areas including, but not limited, to the following:
 1. Evaluation of rough subgrade water infiltration.
 2. Planting soil material acquisition.
 3. Testing and analysis for specification conformance.
 4. Preparation of mixes and testing for conformance.
 5. Mock Up.
 6. Installation and placement of soils.
 7. De-compaction and re-compaction of soils.
 8. Final in-place testing of soils.
 9. Coordination with other contractors.
 10. Clean-up.
- B. References to other Sections are given that would duplicate provisions in this Section.

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. Section 312300 – Earthwork
- B. Section 312216 – Fine Grading
- C. Section 328400 – Irrigation
- D. Section 329200 – Sod Lawn
- E. Section 329300 – Planting
- F. Section 329310 – Landscape Maintenance

1.04 QUALITY ASSURANCE/DEFINITIONS

- A. Definitions:
 1. ASA: American Society of Agronomy.
 2. Soil Scientist: The project Soil Scientist shall be Pine and Swallow Environmental, 867 Boston Rd., Groton, MA 01450, 978-448-9511, www.pineandswow.com
 3. Subgrade: Soil material and levels resulting from the approved rough grading work. Cultivation of subgrade areas prior to placing planting soil is included in this Section.

4. Planting Soils: Horticultural soils including Upland Plantings Soil, Horticultural Subsoil, High Use Lawn Soil, Bioretention Planting Soil, Salt Marsh Planting Soil, Sand-Compost Blend for Rejuvenated Lawn and Sand Based Structural Soil and are composed of a blend of three base components: base loam, organic material and sand. The quality of the blend depends on the quality of the original components. Locate and obtain approval of sources for base loam, organic material and sand that meet the Specification requirements. Contractor is then responsible for mixing the components. Approximate mixing ratios are provided, but may require adjustment, depending on the final materials and with the approval of the Architect or their representative, in order to meet Specification requirements for each blend.
- B. Testing/Testing Agency
1. Refer to Section 312300 – Earthwork.
 2. Refer to Section 329300 - Planting
 3. Refer to this section, 1.5 B.
- C. Contractor is solely responsible for quality control of the Work.
- D. The installer shall be a firm having at least 5 years of successful experience of a scope similar to that required for the Work, including the preparation, mixing and installation of custom Planting Soil and planting mixes in urban locations.
1. The installing Contractor shall be the same firm that is installing planting as described in Section 329300 – Planting.
 2. Installer Field Supervision: Installer to maintain an experienced full-time supervisor on Project site when any Planting Soil preparation work is in progress.
 3. The installer's crew shall be experienced in the installation of soil, grading and interpretation of grading plans in urban areas.
- E. Soil work shall be performed by a firm that has sufficient earthwork machinery at the job site simultaneously to amply provide for the vigorous execution of the site work without interruption or delay, except for unforeseen circumstances, such as weather. Machinery operators shall be well experienced in this type of work.
- F. Comply with applicable requirements of the laws, codes, ordinances and regulations of Federal, State and municipal authorities having jurisdiction. Obtain necessary approvals from authorities having jurisdiction.
- G. Comply with requirements for control of silt and sediment during soil installation work as indicated in the contract documents. Provide additional silt and sediment control to maintain silt and sediments within the working area as required by the progress of the work or as directed by the Landscape Architect and Soil Scientist.
- H. Pre-installation Conference: Conduct conference at project site prior to the start of any work related to Planting Soil preparation and shall meet the requirements of this Section 3.1(D).
- I. Layout and Grading:

1. Permanent benchmarks shall be established by a registered land surveyor or professional civil engineer, at the Contractor's expense. The Contractor shall maintain established bounds and benchmarks and replace them, if any are destroyed or disturbed.
2. The Contractor shall maintain at the site, sufficient surveying equipment to accurately excavate to the required subgrade and install soil to the required finish grade. The Contractor shall be responsible to install soil profiles at the elevations and thickness shown on the Plans.

1.05 TESTING, SUBMITTALS, MOCK-UPS AND INSPECTIONS

- A. Submittals: in accordance with Section 011000 – General Requirements, 1.11.
- B. The Contractor shall, prior to the delivery of any incoming soil to be used at the project site, provide the contact information for the facility in which the soil originates and the results of analytical testing of representative samples of the material for review and acceptance. The Contractor shall demonstrate that the incoming soil is naturally deposited soil and the analyte concentrations do not exceed the Reportable Concentrations RCS-1 of the Massachusetts Contingency Plan (310 CMR 40.0000).
 1. The Contractor shall provide the name and address of the source from which the soil originates, type and operation of the facility where the soil originates, volume of soil coming from each source area, and the name of the qualified firm and analytical laboratory that performed the material sampling and testing.
 2. The Contractor shall provide soil analyses for the following parameters: 8 RCRA metals; TCLP for any RCRA metal with a total concentration in excess of the "20X rule"; Extractable and Volatile Petroleum Hydrocarbons (EPH/VPH) by Mass DEP methodologies; Volatile and Semi-Volatile Organic Compounds (by EPA Method 8260B with Method 5035 and EPA Method 8270, respectively), herbicides/pesticides and PCBs. The soil shall not contain any visual evidence of asbestos containing materials (ACMs).
 3. The Contractor shall collect one soil sample for analysis stated above from each soil source identified. For project extending beyond one year, annual analysis of the soil source shall be required.
 4. For non-borrow pit source material the Contractor shall test the backfill at a frequency of one sample for every 500 cubic yards (cy) for the first 5,000 cy of material, and then one sample per 1,000 cy of material thereafter for the analysis stated above. The Contractor shall demonstrate that the soil does not exceed Reportable Concentrations RCS-1 of the MCP.
 5. No backfill will be accepted from off-site sources that are now or were formerly listed as sites regulated under the MCP, unless approved by the Project Owner's LSP, and under other corrective actions including CERCLA and RCRA.
 6. Urban backfill will not be accepted from off-site sources.
 7. Test results must be submitted a minimum of four (4) weeks prior to use of borrow to provide for data review by Owner.
 8. The Contractor shall provide an LSP opinion indicating the backfill material meets the criteria established above.
 9. Tests for Base Components (Sand, Base Loam and Compost) shall be submitted prior to approval of such Base Components. Tests of soil blends shall be submitted if required after review of results of tests on Base Components.

10. If sources of Base Components change after initial approvals, new testing and approval shall be required.
- C. Testing for Subgrade, Planting Soil Components and Planting Soil Mixes: Testing is required at the following intervals:
1. Testing of individual components (Base Loam, Sand, and Compost) for planting soil mixes prior to blending of any soils for use at the Project Site. Tests are as described in this Section.
 2. After test results for components have been accepted, create sample Planting Soil Mixes of each planting soil mix and perform tests described in this Section.
 3. After the test results for each Planting Soil Mix have been accepted, and during the production of planting soils, test every 200 cubic yards of every Planting Soil Mix blended for: organic matter content, gradation, and pH. Before shipping of any Planting Soil Mix, the Contractor shall confirm that the Soil Scientist has accepted the mix. Testing applies to soil layers of the planting profile. After three consecutive compliant tests, the Contractor may increase the interval of testing to 500 cubic yards.
 4. After horticultural tests have been approved, contractor shall submit representative samples of each soil blend to a geotechnical testing laboratory for ASAM 698 Standard Proctor tests to obtain optimum moisture content and maximum dry density values.
 5. In-place tests: Compaction tests of each type of material (soil layer) placed shall be in accordance with this Section. Infiltration tests shall be in accordance with this Section.
 6. Testing of Subgrade: Prior to placement of the planting soil profile, test the subgrade as described in this Section. Coordinate the testing of the subgrade with the Earthwork Contractor before the planting soil profile is placed.
- D. Test Reports: Submit certified reports for tests as described in this Section.
1. Mechanical gradation (sieve analysis) shall be performed for sand, silt, and clay content and compared to the USDA Soil Classification System using sieve size numbers: 10, 18, 35, 60, 140 and 270. The silt and clay (0.002 mm) content shall be determined by a Hydrometer Test (ASTM D-422-63) of soil passing the #270 sieve.
 2. Chemical analysis shall be undertaken for Phosphorus, Potassium, Calcium, Magnesium, Aluminum, Iron, Manganese, Lead, Cation Exchange Capacity, Soluble Salts, organic matter content, acidity (pH) and buffer pH.
 3. Tests shall be conducted in accordance with Recommended Soil Testing Procedures for the Northeastern United States, 2nd Edition, Northeastern Regional Publication No. 493; Agricultural Experiment Stations of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont and West Virginia. Tests include the following:
 - a. Test for soil Organic Matter by loss of weight on ignition, as described in Northeastern Regional Publication No. 493.
 - b. Test for soil CEC by exchangeable acidity method as described in Northeastern Regional Publication No. 493.
 - c. Test for soil Soluble Salts shall be by the 1:2 (v:v) soil:water Extract Method as described in Northeastern Regional Publication No. 493.

- d. Test for Buffer pH by the SMP method as described in Northeastern Regional Publication No. 493.
 - e. Tests for pH shall be conducted on a 1:1 soil to distilled water ratio.
4. Certified reports on analyses from producers of composted organic materials shall be required and new test reports shall be submitted when compost sources are changed. Analyses shall include tests for criteria specified in 2.1, K.
 5. Saturated Hydraulic Conductivity: Test procedure ASTM D5856-95 (2000).
 - a. Hydraulic Conductivity tests shall be performed on samples during QA/QC testing at the Soil Supplier's facility.
 6. Testing Agencies: The following firms are acceptable testing agencies for the various components and blends.
 - a. Leaf Yard Waste Compost Stability Test and Pathogens/ Metals/ Vector Attraction: Woods End Research Laboratory, P.O. Box 297, Mt. Vernon, ME, 04352, tel: 201.293.2457, fax: 201.293.2488.
 - b. Leaf Yard Waste Compost/ other tests except those listed above: University of Massachusetts, West Experiment Station, Amherst, MA 01003, tel: 413.545.2311, fax: 413.545.1931 or approved equal.
 - c. Mechanical Gradation, Chemical Analysis and Organic Matter Content, Soil Components and Planting Soil Mixes: University of Massachusetts, West Experiment Station, Amherst, MA 01003, tel: 413.545.2311, fax: 413.545.1931 or approved equal.
 7. Laboratory Density Testing: ASTM D698 - 12 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort
 - a. Density tests shall be performed on samples collected at the Soil Supplier's facility, to obtain the optimum moisture content and maximum dry density values.
- E. In-Place Testing
1. Density Tests: ASTM D1556 Density of soil and rock in place using "Sand Cone Method" or ASTM D6938-08a Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Show Depth). ASTM D698 Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort. (Standard Proctor).
 - a. In-place density tests shall be carried out at a rate of one test per each bed or separate tree planting location for each type of soil blend, i.e., for each placed layer in the soil profile and subgrade within each bed.
 - b. Soil density shall meet the requirements specified herein, see Part 3 - Execution.
 2. In-place infiltration tests shall be performed using Turf-Tec IN2-W Infiltrometer utilizing manufacturer's operating instructions. Turf-Tec IN2-W Infiltrometer as manufactured by Turf Tec International, 1471 Capital Circle NW, Suite #13,

Tahassee, FL 32303. Order Line 800-258-7477, Phone 850-580-4026, Fax 850-580-4027.

- a. In-place infiltration tests shall be carried out at a rate of one test per each bed or separate tree planting location for each type of soil blend placed and subgrade within each bed.
3. At the direction of the Landscape Architect and Soil Scientist, in-place planting soil blends shall be sampled and tested by the Owner's Representative for compliance with gradation and organic matter content as specified herein. Non-compliant materials shall be removed from the site or amended as specified by the Soil Scientist.
- F. Samples: Prior to ordering the below listed materials, submit representative composite samples to the Landscape Architect and Soil Scientist for selection and approval. Representative composite samples shall be composed of at least five equal-sized subsamples mixed thoroughly and resampled for submittal. Do not order materials until Landscape Architect's, and Soil Scientist's acceptance has been obtained. Delivered materials shall closely match the approved samples.
1. Components
 - a. Compost: duplicate samples of 1 gallon.
 - b. Imported Base Loam: duplicate samples of 1 gallon.
 - c. Medium to Coarse Sand: duplicate samples 1 gallon.
 2. Test Blends
 - a. Upland Planting Soil: duplicate samples of 1 gallon.
 - b. Horticultural Subsoil: duplicate samples of 1 gallon.
 - c. High Use Sod Lawn Soil: duplicate samples of 1 gallon.
 - d. Salt Marsh Planting Soil: duplicate samples of 1 gallon
 - e. Sand Based Structural Soil: duplicate samples of 1 gallon
 3. Production Stockpiles
 - a. Upland Planting Soil: duplicate samples of 1 gallon.
 - b. Horticultural Subsoil: duplicate samples of 1 gallon.
 - c. High Use Sod Lawn Soil: duplicate samples of 1 gallon.
 - d. Salt Marsh Planting Soil: duplicate samples of 1 gallon
 - e. Sand-Compost Blend for Rejuvenated Lawn: duplicate samples of 1 gallon
 - f. Sand Based Structural Soil: duplicate samples of 1 gallon
 4. Materials
 - a. 3/4" Crushed Stone: duplicate samples of 1 gallon
 - b. Filter Fabric Mirafi 140N or equal: duplicate one square foot samples.
 - c. Perforated Aeration 4-inch pipe: duplicate one foot samples.
 - d. Nonperforated 4-inch pipe: duplicate one foot samples.

- G. Sources for Base Loam, Sand, and Compost: Submit information identifying sources for soil components and the firm responsible for mixing of planting soil mixes.
1. Landscape Architect, Soil Scientist, and Owner's Representative shall have the right to reject soil suppliers or mixing facilities.
 2. Soil mix supplier shall have a minimum of five years' experience at supplying custom planting soil mixes.
 3. Submit supplier name, address, telephone and fax numbers and contact name.
 4. Submit certification that accepted supplier/ mixer is able to provide sufficient quantities and qualities of materials for the entire project.
 5. Final approval of soil supplier/ mixer shall be made after on-site review of supplier's and mixer's facility (ies) by the Soil Scientist.
- H. Subgrade Survey
1. Contractor shall submit for approval by the Landscape Architect a survey of final subgrade in areas where planting soils will be placed. Placement of sand protection layer or planting soil shall not precede acceptance by the Landscape Architect.
- I. Mock Up and Inspection
1. At the beginning of site work, the contractor shall demonstrate, in the presence of the Soil Scientist, subgrade preparations, including de-compaction and re-compaction methods and placement of sand blanket and drain lines that achieve the requirements of this Section. Subsequent subgrade preparations shall be in accordance with approved methods.
 2. Contractor shall not place Planting Soils on prepared subgrade or drainage layer prior to inspection and approval of Landscape Architect and Soil Scientist for compliance with depth, compaction and percolation rate. The Contractor shall request inspection before proceeding at least ten working days prior to placement of soils.
 3. The Contractor shall not plant plant material prior to inspection and approval of Landscape Architect and Soil Scientist for compliance with soil depth and compaction specifications. Contractor shall request inspection before proceeding at least ten working days prior to placement of soils.
 4. Contractor shall coordinate mock up with Landscape Architect, Soil Scientist, geotechnical testing agency, and all appropriate other parties.
 - a. Soil must be between 60% and 100% optimal moisture content prior to beginning Mock-up as described in this Section.
 - b. Geotechnical testing agency must have appropriate equipment on-site to conduct density tests as described in this Section.
 - c. Approved Horticultural Tests and Approved Test report for ASTM 698 Standard Proctor test must be submitted and approved by the Soil Scientist prior to beginning Mock-up as described in this Section.
 - d. Allow sufficient time for Mock Up to be reviewed and approved prior to continuing with additional soil work.
 5. Upon acceptance of materials and drainage preparations and prior to installing Sand-Based Structural Soil, the Contractor shall construct mock-up on site as indicated

below. Build mock-up of Structural Soil that will support Concrete Pavement 10 feet long to allow the Landscape Architect to review the installation methods. Approved materials required include Drainage Layer, Sand-Based Structural Soil, 3/8" Crushed Stone and Aeration Pipe as specified.

6. Contractor shall provide for moisture and density testing at the time of the mock up and subsequent installations as provided in this Section.
7. If the original mock-up is not approved, the Contractor shall provide additional mock-ups, as required, at no cost to the Owner until an approved mock-up is obtained. Mock-up shall be approved before final soil placement is begun. The approved mock-up shall become the standard for the entire job. Mock-up shall be built in a location as directed by Landscape Architect and may be constructed on a location becoming part of the final work, unless otherwise noted, and shall remain undisturbed until work is completed. When so requested, build mock-ups of different materials simultaneously to allow the Landscape Architect to review all elements at once. Demolish and remove mockups when directed. Build mockups to comply with the following requirements, using materials indicated for the completed Work, including the same base construction.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Refer to Section 312300 - Earthwork for over material handling requirements.
- B. In addition, the following provision is established: Material shall not be handled or hauled, placed or compacted when it is wet as after a heavy rain, early spring or if frozen. Soil shall be handled only when the moisture content is compliant with Section 329115 1.6.H. The Landscape Architect and Soil Scientist, the Soil Scientist and the Owner's Representative shall be consulted to determine if the soil is too wet to handle.
- C. Store and handle packaged materials in strict compliance with manufacturer's instructions and recommendations. Protect materials from weather, damage, injury and theft.
- D. Sequence deliveries to avoid delay. On-site storage space is permissible only with written notice from Construction Manager. Deliver materials only after preparations for placement of planting soil have been completed.
- E. Prohibit vehicular and pedestrian traffic on or around stockpiled planting soil.
- F. Planting Soil that is to be stockpiled longer than two weeks, whether on or off site, shall not be placed in mounds greater than six feet high.
- G. Vehicular access to the site is restricted. Before construction, the Contractor shall submit for approval a plan showing proposed routing for deliveries and site access.
- H. Soil Moisture Content
 1. Contractor shall not move, blend or grade soil when moisture content is so great that free moisture is apparent, nor when it is so dry that dust will form in the air or that clods will not break readily, nor when it is frozen. Apply water, if necessary, or to bring dry to bring soil moisture between 60% of optimum moisture content and

optimum moisture content as determined by ASTM D698 prior to compaction, grading or planting.

2. Field Soil Moisture Test procedure is applicable for general soil moving and placement only and shall not be considered appropriate for compaction of soils, nor is a replacement for the above testing procedure.
 - a. Form soil in palm of hand, if soil retains shape and crumbles upon touching, the soil may be worked.
 - b. If the soil will not retain shape it is too dry and should not be worked.
 - c. If the soil retains shape and will not crumble, it is too wet and should not be worked.
 - d. If the soil glistens or free water is observed when the sample is patted in the palm of hand the soil is too wet and should not be worked.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

A. General

1. Plant mix material shall be imported and fulfill the requirements as specified and be tested to confirm the specified characteristics.
2. Samples of individual components of soil mixes in addition to blended soil mixes including mulch materials shall be submitted by the Contractor for testing and analysis to the approved testing laboratory. Comply with specific materials requirements specified.
 - a. No base component material or soil components for soil mixes shall be used until certified test reports by an approved soil testing laboratory and have been received and approved by the Landscape Architect and Soil Scientist.
 - b. As necessary, make any and soil mix amendments and resubmit test reports indicating amendments until approved.
3. The Landscape Architect and Soil Scientist may request additional testing by Contractor for confirmation of mix quality and/or soil mix amendments at any time until completion. Changes in mix ratios may be required.

B. Soil Testing and Soils Testing Report Submittal

1. Testing of the soil mix components shall be carried out by the Soils Testing Laboratory. Recommendations for amending and/or correcting the soil mix will be provided to the Contractor by the Soil Scientist after approval by the Landscape Architect and Soil Scientist.
2. Failure of any material by testing and/or amendment procedure to meet Specification requirements shall require the Contractor to seek another source for the failed material and the initiation of testing procedures for the new replacement material shall immediately take place.
3. The Contractor shall be responsible for recognizing that these critical project materials warrant timely and serious attention, that the testing process to achieve Approved materials should be considered a lead time item, and that under no circumstance shall failure to comply with specification requirements be an excuse for "staying on project construction schedule."

C. Soil Samples: Contractor is responsible for paying costs for testing. Submit 1 gallon planting soil samples in two phases. Submit samples concurrent with horticultural soil test reports in both phases. Submit as phase one, planting soil base components for approval. Only after approval of phase one components, submit as phase two, soil blend mixes / mediums for approval. Reports must be from recent analyses, less than 90 days old, and represent materials that are available for delivery to the site.

1. Phase One Submittals of Planting Soil Base Components:
 - a. Base Loam (Imported Base Loam)
 - b. Organic Amendment Materials (Compost)

- c. Coarse Sand for Amending Soil
2. Phase Two Submittals of Planting Mediums: mixing and batching of soil mediums to be submitted in the same manner as bulk soils and will be prepared prior to delivery to site.
 - a. Upland Planting Soil: duplicate samples of 1 gallon.
 - b. Horticultural Subsoil: duplicate samples of 1 gallon.
 - c. High Use Sod Lawn Soil: duplicate samples of 1 gallon.
 - d. Salt Marsh Planting Soil: duplicate samples of 1 gallon.
 - e. Sand Based Structural Soil: duplicate samples of 1 gallon
 3. Phase Three Submittals shall be identical to Phase Two Submittals and be conducted for each 500 cubic yards of soil material prepared for the project site.
 4. Submit reports for each of the above samples: Submit sample from each proposed source for testing and approval. Deliver samples to both the testing laboratory and the project soil scientist and pay costs. Send report directly to Owner's Representative.
 5. Soil Sample Submittals: Sampling shall be done by the Contractor. The size of the samples and method of sampling shall be as follows: Samples shall be representative of the material to be brought to the site. Each sample shall be a Composite Sample, which consists of 5 separate sub samples taken from a minimum of (5) different locations at each source and mixed together to make the test sample.
 6. Contractor shall schedule this testing in order to permit reasonable time for testing, evaluation, and approvals prior to scheduled installation. Allow for a minimum of 4 weeks to perform testing and obtain approvals.

D. Imported Base Loam

1. Imported Base Loam, as required for blending with sand and compost, shall be a naturally occurring A-Horizon soil formed from geologic soil forming processes without admixtures of sand or organic matter sources (composts). Base Loam, which has been contaminated by incorporation of subsoil, shall not be acceptable for use. Base Loam as required for the work shall be free of subsoil, large stones, earth clods, sticks, stumps, clay lumps, roots or other objectionable, extraneous matter or debris. Base Loam shall also be free of quack-grass rhizomes, Agropyron Repens, and the nut-like tubers of nutgrass, Cyperus Esculentus, and other primary noxious weeds. Base Loam shall not be delivered or used for planting while in a frozen or muddy condition. Base Loam for mixing shall conform to the following grain size distribution for material passing the #10 sieve:

U.S. Sieve Size Number	Percent Passing	
	Minimum	Maximum
10	---	100
18	85	100
35	70	95
60	50	85
140	36	53
270	32	42

0.002mm 3 6

2. The ratio of the particle size for 80% passing (D_{80}) to the particle size for 30% passing (D_{30}) shall be 8 or less ($D_{80}/D_{30} < 8$).
3. Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample. Tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.
4. The organic content shall be between 4.0 and 8.0 percent by weight.
5. pH shall be between 5.8 and 7.0.
6. Chemical analysis shall be undertaken for Phosphorus, Potassium, Calcium Magnesium, Aluminum, Iron, Manganese, Lead, Cation Exchange Capacity, Soluble Salts, acidity (pH) and buffer pH.

E. Coarse Sand

1. Sand for Planting Soil Blends, protection of filter fabric and for drainage layer as required, shall be uniformly graded medium to coarse sand consisting of clean, inert, rounded to sub-angular grains of quartz or other durable rock free from loam or clay, mica, surface coatings and deleterious materials with the following grain size distribution for material passing the #10 sieve:

U.S. Sieve Size Number	Percent Passing	
	Minimum	Maximum
10	100	--
18	60	80
35	25	45
60	8	20
140	0	8
270	0	3
0.002mm	0	0.5

2. Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.
3. The ratio of the particle size for 70% passing (D_{70}) to the particle size for 20% passing (D_{20}) shall be 2.8 or less ($D_{70}/D_{20} < 2.8$). Tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422.
4. pH shall be less than 7.5.

F. Organic Amendment (Compost)

1. Organic Matter for amending planting soils shall be a stable, humus-like material produced from the aerobic decomposition and curing of Leaf Yard Waste Compost, composted for a minimum of one year (12 months). The leaf yard waste compost shall be free of debris such as plastics, metal, concrete or other debris. The leaf yard waste compost shall be free of stones larger than 1/2", larger branches and roots. Wood chips over 1" in length or diameter shall be removed by screening. The compost shall be a dark brown to black color and be capable of supporting plant growth with appropriate management practices in conjunction with addition of

fertilizer and other amendments as applicable, with no visible free water or dust, with no unpleasant odor, and meeting the following criteria as reported by laboratory tests.

- a. The ratio of carbon to nitrogen shall be in the range of 12:1 to 25:1.
- b. Stability shall be assessed by the Solvita procedure. Protocols are specified by the Solvita manual (version 4.0). The compost must achieve a maturity index of 6 or more as measured by the Solvita scale. Stability tests shall be conducted by Woods End Research Laboratory, Mt. Vernon, Maine.
- c. Pathogens/Metals/Vector Attraction reduction shall meet 40 CFR Part 503 rule and Commonwealth of Massachusetts 310 CMR 32.00 (for applications to soils with human activity).
- d. Organic Content shall be at least 20 percent (dry weight). One hundred percent of the material shall pass a 1/2-inch (or smer) screen. Debris such as metal, glass, plastic, wood (other than residual chips), asphalt or masonry shall not be visible and shall not exceed one percent dry weight. Organic content shall be determined by weight loss on ignition for particles passing a number 10 sieve according to procedures performed by the West Experiment Station at the University of Massachusetts, Amherst or equal.
- e. pH: The pH shall be between 6.5 to 7.4 as determined from a 1:1 soil-distilled water suspension using a glass electrode pH meter American Society of Agronomy Methods of Soil Analysis.
- f. Salinity: Electrical conductivity of a one to five soil to water ratio extract shall not exceed 2.5 mmhos/cm (dS/m).
- g. The compost shall be screened to 1/2-inch maximum particle size and shall contain not more that 3 percent material finer than 0.002mm as determined by hydrometer test on installed material.
- h. Nutrient content shall be determined by the University of Massachusetts Soil Testing Laboratory or equivalent laboratory and utilized to evaluate soil-required amendments for the mixed soils. Chemical analysis shall be undertaken for Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Aluminum, Magnesium, Iron, Manganese, Lead, Soluble Salts, Cation Exchange Capacity, soil reaction (pH), and buffer pH.

G. Gravel Borrow as specified in Section 312300 – Earthwork.

2.02 PLANTING SOIL MIXES

- A. Existing vegetation shall be removed from stockpiles prior to blending. Uniformly mix ingredients by windrowing/tilling on an approved hard surface area or by alternately processing materials through a screening plant. Soil components and Organic Amendment shall be maintained moist, not wet, during mixing. Amendments shall not be added unless approved to extent and quantity by the Owner's Representative and additional tests have been conducted to verify type and quantity of amendment is acceptable. Percentages of components are approximate, and will be verified upon completion of individual test results for components of the various mixes. Due to variability of soil materials, mix ratios may require adjustment and re-submittal at the expense of the Contractor.
- B. After component percentages are determined by the Soil Scientist, each planting soil mix shall be tested for physical and chemical analysis. Component percentages may be

modified at any time by the soil scientist dependent upon the results of testing of the various components or final blends.

C. Upland Planting Soil

1. Upland Planting Soil shall consist of a combination of approximately one part Imported Base Loam, 1.5 parts Coarse Sand and one part Organic Amendment/Compost (1L:1.5S:1C) to create a uniform blend which meets the following requirements.
2. Gradation for material passing a Number 10 Sieve shall be achieved in the final mix.

U.S. Sieve Size No.	Percent Passing	
	Minimum	Maximum
10	100	
18	85	95
35	60	85
60	42	65
140	20	42
270	16	20
0.002 mm	2	4

3. Maximum size shall be one half-inch largest dimension. The maximum retained on the #10 sieve shall be 10% by weight of the total sample.
4. The ratio of the particle size for 80% passing (D₈₀) to the particle size for 30% passing (D₃₀) shall be 6 or less (D₈₀/D₃₀ <6).
5. The final mix shall have an organic content between 5 and 7 percent by weight.
6. The final mix shall have a hydraulic conductivity of not less than 1.5 inches per according to test procedure ASTM D5856-95 (2000) hour when compacted to a minimum of 84 percent Standard Proctor ASTM D 698. Tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.
7. Chemical analysis shall be undertaken for Phosphorus, Potassium, Calcium Magnesium, Aluminum, Iron, Manganese, Lead, Cation Exchange Capacity, Soluble Salts, acidity (pH) and buffer pH.

D. Horticultural Subsoil

1. Horticultural Subsoil for the lower layer of planting soil in Upland Planting Beds shall consist of a combination of approximately 2 parts by volume Coarse Sand to one part by volume Imported Base Loam to one half part Compost (2S:1L:0.5C).
2. Gradation for material passing the #10 sieve:

U.S. Sieve Size No.	Percent Passing	
	Minimum	Maximum
10	100	--
18	85	95
35	55	80

60	30	60
140	16	30
270	12	16
0.002mm	1	3

3. Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.
4. Ratio of the particle size for 80% passing (D_{80}) to the particle size for 30% passing (D_{30}) shall be 6.5 or less ($D_{80}/D_{30} < 6.5$).
5. Saturated hydraulic conductivity of the mix: not less than 2 inches per hour according to ASTM D5856-95 (2000) when compacted to a minimum of 86% Standard Proctor, ASTM 698.
6. Organic content: between 2.0 and 3.0 percent by weight.
7. pH shall be between 6.0 and 6.8

E. High Use Sod Lawn Soil

1. Imported Base Loam, Sand and Compost, each as specified above, shall be combined in an approximate mix ratio of two parts by volume Sand to one part by volume Base Loam to one and one half parts by volume Compost (2S:1L:1.5C) to create a uniform blend which meets the following requirements for Sod Lawn Areas.
2. Gradation for Material Passing the Number 10 Sieve:

U.S. Sieve Size No.	Percent Passing	
	Minimum	Maximum
10	100	100
18	70	90
35	45	72
60	26	40
140	14	20
270	11	14
0.002mm	2	4

3. Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.
4. Ratio of the particle size for 70% passing (D_{70}) to the particle size for 20% passing (D_{20}) shall be 4.2 or less ($D_{70}/D_{20} < 4.2$).
5. Saturated hydraulic conductivity of the mix shall not be less than 4.0 inches per hour according to ASTM D5856-95 (2000) when compacted to a minimum of 88% Standard Proctor, ASTM 698.
6. Organic content shall be between 4.5 and 6.0 percent by weight.
7. pH shall be between 6.2 and 6.8
8. Chemical analysis shall be undertaken for Phosphorus, Potassium, Calcium Magnesium, Aluminum, Iron, Manganese, Lead, Cation Exchange Capacity, Soluble Salts, acidity (pH) and buffer pH.

F. Sod Farm Growing Medium

1. Sod shall meet the following sod farm growing media requirements.

2. Soil in which sod was grown at the Sod Farm shall be USDA classified as sand and shall conform to the following grain size distribution for material passing the #10 sieve:

U.S. Sieve Size Number	Percent Passing	
	Minimum	Maximum
10	100	-
18	85	100
35	60	85
80	25	40
140	6	26
270	4	12
0.002mm	2	8

3. The maximum particle size shall be 1/2 inch.
 4. The maximum retained on the #10 sieve shall be 10% by weight of the total sample. Tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422.
 5. Sod shall have no greater than 3/8 inch of thatch.

G. Sand-Based Structural Soil

1. Sand-Based Structural Soil shall be used as planting soil beneath pavements.
 2. Base Loam, Sand and Compost, each as specified above, shall be combined in an approximate mix ratio of four parts by volume Sand to one part by volume Base Loam to one and one half parts by volume Compost (4S:1L:1.5C) to create a uniform blend which meets the following requirements.
 3. Gradation for Material Passing the Number 10 Sieve:

U.S. Sieve Size Number	Percent Passing	
	Minimum	Maximum
10	100	-
18	68	90
35	38	63
60	18	39
140	9	18
270	7	10
0.002mm	1	2

4. Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 15% by weight of the total sample.
 5. Ratio of the particle size for 70% passing (D70) to the particle size for 20% passing (D20) shall be 3.0 or less. (D70/D20 <3.0).
 6. Saturated hydraulic conductivity of the mix: not less than 4 inches per hour according to ASTM D 2434 when compacted to a minimum of 96% Standard Proctor, ASTM 698.
 7. Organic content: between 2.5 and 3.5 percent by weight.
 8. The pH shall be between 6.0 and 6.5.

H. Bioretention Soil

1. Sand-Based Structural Soil shall be used as Bioretention Soil.

I. Salt Marsh Planting Soil

1. Salt marsh planting soil for living shore line planting areas shall consist of a blend of sand, compost and base loam as specified in an approximate mix ratio of three parts by volume to sand to one part by volume base loam to one and three parts by volume compost, (3S:1 L:3C) to create a uniform blend which meets the following requirements.

U.S. Sieve Size Number	Percent Passing	
	Minimum	Maximum
10	100	-
18	60	85
35	32	65
60	20	35
140	12	22
270	9	15
0.002mm	0.5	2.0

2. Maximum size shall be one inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample. The ratio of the particle size for 70% passing (D70) to the particle size for 20% passing (D20) shall be 6.0 or less (D70/D20 <6.0). The final mix shall have a saturated hydraulic conductivity of not less than 3.0 inches per hour according to test procedure ASTM D5856-95 (2000) when compacted to a minimum of 85 percent Standard Proctor ASTM D698. Tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition. The organic content shall be between 7.0 and 10.0 percent.

J. Sand-Compost Blend for Rejuvenated Lawn Areas

1. Sand and Compost, each as specified above, shall be combined in equal parts by volume to create a uniform blend for lawn restoration.
2. After blending, the Sand-Compost Blend shall be approved by for use by the Soil Scientist.

2.02 FILTER FABRIC

- A. Mirafi 140N or approved equivalent.

2.03 SUBSURFACE UNDERDRAINAGE PIPE WITH FILTER FABRIC

- A. 4" diameter ADS Single Wall Corrugated Polyethylene Pipe, manufactured by ADS Company, 4640 Trueman Boulevard, Hilliard, OH 43026 Tel: 800-821-6710, or approved equal. Pipe shall be manufacturer's standard perforated configuration. Jointing shall be made using manufacturer's standard snap coupling type fittings.

- B. 12" wide AdvanEdge panel-shaped piping with Drain Sock fabric as manufactured by ADS, Inc., 4640 Trueman Boulevard, Hilliard, OH 43026 Tel: 800-821-6710 or approved equal. Pipe shall be manufacturer's standard perforated configuration. Jointing shall be made using manufacturer's standard snap coupling type fittings.
 - C. Filter Fabric Covering for Corrugated Piping: Piping shall be factory-fitted with a filter fabric covering around piping. Filter fabric shall be Drain Sock filter fabric manufactured by ADS Company, Columbus, OH 43221, or approved equal.
- 2.04 COIR FABRIC FOR SALT MARSH PLANTING AREAS
- A. Geocoir 400 manufactured by Belton Industries, Inc., beltonindustries.com, (800) 845-8753, or approved equal. Fabric is 100% biodegradable, open weave with 65% open area, 11.8 oz per square yard.
- 2.05 JUTE NETTING FOR SALT MARSH PLANTING AREAS
- A. Jute Netting: Natural fiber jute mesh of a uniform plain weave of undyed and unbleached 2.05 single jute yarn Weight of 1.2 lbs/ yard with approximately 78 warp ends per 48 inches width of cloth and 41 weft ends per linear yard (Earth Saver ® Jute Mesh or equivalent).
- 2.06 ANCHORS
- A. Anchors: Turf reinforcement aluminum anchor locks, approximately 6.5" long (Duckbill Earth Anchor Model 88 with ¼-inch cable and UV protective plastic disc or equivalent).
- 2.07 GRAVEL BORROW
- A. See Section 312300 – Earthwork.
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PART 3 – EXECUTION

3.01 PRE-INSTALLATION EXAMINATION AND PREPARATION

- A. Reference Other Sections.
- B. Coordinate activities with other project contractors so that there is no soil disturbance from traffic or other construction activities subsequent to placement.
- C. Pre-Installation Examination Required: The Contractor shall examine previous work, related work, and conditions under which this work is to be performed and shall notify Landscape Architect and Soil Scientist in writing of deficiencies and conditions detrimental to the proper completion of this work. Beginning work means Contractor accepts substrates, previous work, and conditions. The Contractor shall not place any planting soil until work in adjacent areas is complete and approved by the Landscape Architect and Soil Scientist and Soil Scientist.
- D. Kickoff Meeting: At least 10 working days prior to the start of work, the contractor shall request a landscape construction kickoff meeting with the Owner's representative, landscape architect, soil scientist and any other parties involved with landscape construction. The contractor must demonstrate familiarity with this Section 329115 - Planting Soils, and other relevant sections of the construction documents. The contractor shall articulate the means and methods of soil blending, subgrade preparation, soil placement and other steps outlined in the Specification.
- E. Examination of Subgrade: The subgrade shall be examined by the Contractor prior to the start of subgrade preparation, soil placement and planting. Deficiencies shall be noted and related to the Landscape Architect and Soil Scientist in writing prior to acceptance of the subgrade by the Landscape Contractor. Deficiencies include, but shall not be limited to the following:
 - 1. Construction debris present within the planting areas.
 - 2. The subgrade is at incorrect depths for installing the designed soil profile.
 - 3. Incomplete irrigation and/or subsurface drainage installation.
 - 4. Incomplete lighting and exterior electrical installation.
 - 5. Conflict with underground utilities.
 - 6. Subgrade contaminated with oils, compressible material, silt or clay
 - 7. Subgrade must infiltrate water at the rate of at least one inch per hour.
- F. Confirm that the subgrade is at the proper elevation and compacted as required. Subgrade elevations shall slope parallel to the finished grade and/or toward the subsurface drain lines as shown on the drawings.
 - 1. Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace slopes where required and maintain sides of slopes of excavations in safe condition until completion of backfilling. Provide protection measures as required for public safety.
 - 2. Subgrade areas to be filled with Gravel Borrow, Upland Planting Soil, Salt Marsh Planting Soil, High Use Sod Lawn Soil and Horticultural Subsoil shall be free of construction debris, refuse, vegetation, compressible or decay able materials, stones

greater than 6 inches, concrete washout or soil crusting films of silt or clay that reduces or stops drainage from the Lawn or Planting Soil into the subsoil; and/or standing water. Such material shall be removed from the site.

3. The subgrade must slope at a minimum of two percent towards the bottom of slopes and subdrains. Subgrade levels shall be adjusted as required to ensure that planting and lawn areas have adequate drainage.
- G. Do not proceed with the installation of Gravel Borrow, Drainage Layer, Upland Planting Soil, Salt Marsh Planting Soil, High Use Sod Lawn Soil and Horticultural Subsoil, or Sand-Based Structural Soil until utility work in the area has been instead.
1. The Contractor shall identify the locations of underground utilities prior to proceeding with soil work and shall protect utilities from damage.
- H. Planting Soil Preparation: Refer to Section 329115, 2.2 for planting soil and mixtures. Examine soil and remove foreign materials, stones and organic debris over 1/2" in size. Remove vegetation from stockpiles prior to blending. Mix-in fertilizers and amendments as required by tests and as approved by the Landscape Architect and Soil Scientist. Preparation and mixing shall be accomplished when the soil moisture content is compliant with Section 329115, 1.6.H and at a moisture content approved by the Landscape Architect and Soil Scientist. If lime is to be added, it shall be mixed with dry soil before fertilizer is added and mixed.
- 3.02 MIXING OF PLANTING SOIL MIXES
- A. Soil blends shall be produced with equipment that blends together each component in a thorough and uniform manner. This may be accomplished by a minimum of three handling events on a hard surfaced area with earth moving equipment or by alternately passing soil components through a screener.
 - B. Base components and Soil Mix stockpiles should be protected from wind and rain and shall not be permitted to be stored in standing water.
- 3.03 WORKING AROUND UTILITIES
- A. Carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging.
 - B. Known underground and surface utility lines are indicated on the utilities drawings – See Civil and Architect's plans. Contact the local Dig Safe organization and give them their required time to respond and mark the property. Determine location of underground utilities and perform work in a manner that will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until parties concerned mutually agree upon removal.
 - C. Perform work in a manner that will protect utilities from damage. Hand excavate as required and provide adequate means of support and protection of utilities during soil installation operations. Maintain grade stakes set by others until parties concerned mutually agree upon removal. The Contractor shall repair utilities damaged by soil operations at the Contractor's expense.

3.04 SUBGRADE PREPARATION, INSPECTION AND PERCOLATION TESTING

- A. After subgrade levels have been reached, the Landscape Architect or Soil Scientist shall observe de-compaction and preparation of the subgrade according to this Section and inspect soil conditions to evaluate subsurface drainage conditions.
- B. Coordinate the following scarification work to eliminate subgrade compaction when located in lawn and planting areas. Maintain 12" clearance from any underground utilities during subgrade de-compaction.
 - 1. General Site Subgrade Compaction Mitigation for general lawn and planting areas that are not heavily compacted, or would be mitigated as specified in Item 1 above:
 - a. Immediately prior to placing Planting Soils, the entire subgrade shall be loosened to a minimum depth of 3-inches using the teeth of a backhoe or other suitable equipment, then re-compacted as below. Vibratory compaction of subgrade in planted areas is prohibited.
- C. After Subgrade has been scarified as described above, it shall be recompressed by using the tracks of a wide-tracked bulldozer. Verify the subgrade passes water at or greater than the minimum requirement.
- D. Remove stones or debris greater than 6" in any dimension from the subgrade prior to placing Drainage Layer or Planting Soils.
- E. After the subgrade has been prepared, Percolation Tests shall be performed according to the following test procedures.
 - 1. Utilize perforated canisters or buckets seven to ten inches in diameter and a minimum of six inches high.
 - 2. A test hole shall be hand dug at the soil horizon to be tested approximately one-inch larger than the diameter of the test canister and approximately six inches deep. The sides of the test hole shall not be smoothed.
 - 3. Place one-half inch of clean coarse sand in the bottom of the hole and place the canister firmly into the hole. The space around the canister shall then be filled with coarse sand. Tamp the coarse sand to firmly fill any void space around the test canister.
 - 4. Fill the canister with water to the soil horizon level and allow to drain until approximately one inch of water remains, or a minimum of 1 hour.
 - 5. Refill the canister to the soil horizon level. After the water level drops approximately one inch, start the test. Record time versus water level as the water level drops. The percolation rate is the length of time for the water level to drop per inch. The field scientist shall record the rate of percolation for a minimum of two hours or until the water level has dropped a minimum of three inches after the start of measurements.
 - 6. Subgrade with no drainage blanket must be capable of infiltration water at a minimum rate of one inch per hour. Areas that fail to meet the minimum requirement shall be re-worked, and/or provide for alternate drainage provisions per direction of the project engineer.

3.05 PREPARATION AND PLACEMENT OF PREPARED SUBGRADE AND GRAVEL BORROW

- A. See Section 312320 - Excavated Soil and Materials Management Plan and Section 312300 – Earthwork.

3.06 BACKFILLING OF HORTICULTURAL SOIL LAYERS

- A. Soil Placement Preparation:

1. Verify that the plumbing for the irrigation system has been installed and accepted.
 2. Verify that the subgrade preparations have been reviewed and accepted, including de-compaction and removal of large stones.
 3. Notify the Landscape Architect and Soil Scientist of soil placement operations at least seven calendar days prior to the beginning of work.
 4. Verify that the subgrade passes the minimum water infiltration requirement.
 5. Do not proceed with the installation of Planting Soils, until utility work in the area has been installed.
 6. The Contractor shall identify the locations of underground utilities prior to proceeding with soil work and shall protect utilities from damage.
 7. Do not begin Planting Soil installation until drainage, irrigation main lines, lateral lines, subgrade preparations and irrigation risers shown on the drawings are viewed and approved by the Landscape Architect and Soil Scientist.
 8. Protect adjacent walls, walks and utilities from damage or staining by the soil. Use plywood and/or plastic sheeting as directed to cover existing asphalt, concrete, metal and masonry work.
 - a. Clean up soil or dirt spilled on paved surfaces, including at the end of each working day.
 - b. Damage to the paving or architectural work shall be repaired by the Contractor at the Contractor's expense.
- B. After the subgrade soils have been loosened, re-compressed and inspected, Planting Soils may be spread by using a wide track bulldozer size D-5 or smaller or may be dumped and spread with the bucket of a backhoe from the edge of the loosened area. No rubber-tired equipment or heavy equipment except for a small bulldozer shall pass over the subsoils (subgrade) after they have been loosened and recompressed. If the Contractor plans to utilize such areas for any use of heavy equipment, this work should be carried out prior to beginning the process of loosening soils or filling in that area.
 - C. In over-structure areas, place one inch of sand over the filter fabric covering of drainboards.
 - D. Placement of Upland Planting Soil, Horticultural Subsoil, High Use Sod Lawn Soil, Bioretention Planting Soil and Salt Marsh Planting Soil:
 1. Placement of planting soils and plant stock shall be carried out simultaneously to prevent excessive traffic over soil lifts and to maintain the integrity of the soil layers. The contractor shall install plants simultaneously with the installation of the lower soil layers. The upper soil layers shall not be installed before plants are installed and before the acceptance by the Landscape Architect and Soil Scientist.

- a. After subgrade preparation and placement of gravel borrow, in areas of tree and shrub planting with rootballs 12" in diameter or greater, create a transition layer and place and compact Horticultural Subsoil as described in this Section.
 - b. After inspection and approval of Horticultural Subsoil, place trees and shrubs in locations shown on the plans and at the proper elevations.
 - c. Create a transition layer as described in this Section. Place and compact Upland Planting Soil around trees and shrubs as described in this Section.
2. Upland Planting Soil, Horticultural Subsoil, Salt Marsh Planting Soil, High Use Lawn Soil, and Bioretention Soil and shall be placed in lifts not to exceed 8 inches in thickness and compacted to meet minimum and maximum requirements as specified below:
 - a. A transition zone shall be formed between the Gravel Borrow, Horticultural Subsoil, High Use Lawn Soil and Planting Bed Soil and Bioretention Soil by placing one inch of the upper-layer soil and raking into the lower soil to a two-inch thickness.
 - b. Horticultural Subsoil shall be compacted to between 82 and 85 percent Standard Proctor, except soils beneath the rootballs shall be compacted to between 87 and 90 percent Standard Proctor to create a firm pedestal and prevent settlement of the rootballs.
 - c. Upland Planting Soils shall be compacted to between 80 and 84 percent Standard Proctor.
 - d. Salt Marsh Planting Soils shall be compacted to between 86 and 88 percent Standard Proctor.
 - e. High Use Sod Lawn Soil shall be compacted to between 84 and 86 percent Standard Proctor.
 - e. Bioretention Soils shall be compacted to between 84 and 86 percent Standard Proctor.
 - f. Planting Soils shall not be compacted with vibratory equipment.
 3. The soil being placed shall be in a dry to damp condition. No wet soils shall be placed. Soil moisture content must be compliant with Section 329115 1.6.H prior to compaction. Testing of in-place density for planting materials shall be made by the soil scientist or according to ASTM D1556 Density of soil and rock in place using Sand Cone Method, ASTM D6938-10 Nuclear Methods, ASTM D2167-08 Rubber Boon Method, after conducting ASTM D698 Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort.
 4. Prevention of compacted soils can be accomplished by beginning the work in corner, against walls, or the center of isolated beds, and progressing outwards towards the borders.
 5. Soils shall never be moved or worked when wet or frozen.
 6. Contractor shall place barricades or steel plates as required to prevent any unnecessary compaction of planting soil from vehicles, equipment, or pedestrian traffic.
 7. After soils have been spread, it shall be carefully prepared by hand raking. Stones and debris over one inch in any direction shall be removed from the premises. Fine grade planting beds to a smooth even surface with loose uniformly fine texture. Remove ridges and fill depressions as required to meet finish grades. Limit fine grading to areas that can be planted immediately after grading. Maintain the finished surfaces at the grades shown and spread additional soil to correct settlement or

erosion. Surface drainage shall be maintained. Soil shall be damp and free from frost during fine grading operations.

3.07 BACKFILLING OF SOILS AND INSTALLATION OF COIR IN SALT MARSH

- A. Salt Marsh Planting Soils shall be installed and graded to the proposed contours and take into account the surrounding salt marsh conditions.
- B. After Salt Marsh Planting Soils have been placed and compacted, cover with a double layer of jute netting. Overlap successive lengths of jute netting by 12 inches. Anchor the jute netting-wrapped soil every 4 feet along the length of the salt marsh, as indicated on the Drawings. Drive the anchor with cable 1.5 feet into the existing ground with a rod, remove rod, and attach protective plastic disc. Terminate the cable with a hand-crimping tool. Coir fabric shall be installed along the entire length of the salt marsh planting area prior to installation of salt marsh plugs.
- C. Install Coir fabric to facilitate the trapping and retention of salt marsh seed and organic material that will be distributed during each tide cycle. The seed and organic material will serve to build organic soils within the planted and transplanted areas and facilitate the colonization of salt marsh adapted species within the restoration areas.
- D. Secure Coir fabric with wooden dead stout stakes at least 18 inches in length. Position stakes 3 inches apart with three per square yard of fabric. Drive stakes until 1 inch of crown is in the ground. Overlap fabric at least 18 inches in water flow direction.

3.08 INSTALLATION OF PLANT PLUGS IN SALT MARSH

- A. See Section 329300 – Planting.

3.09 PREPARATION AND PLACEMENT OF SAND-BASED STRUCTURAL SOIL

- A. Placement of Sand-Based Structural Soil
 - 1. Prior to placement of Sand-Based Structural Soil the horticultural tests and Standard Proctor curve and optimal moisture content according to ASTM D-698 shall be submitted and approved. The moisture content of the material must be checked and be compliant immediately prior to placement and during placement. For best results, moisture content should be as close to optimum moisture content as possible.
 - 2. After subgrade levels have been reached, and immediately prior to placing Sand-Based Structural Soil the entire subgrade or drainage blanket area shall be thoroughly compacted. Create a transition zone between the sand and gravel drainage blanket and Sand-Based Structural Soil. Sand-Based Structural Soil shall be spread in lifts not greater than 8 (eight) inches and compacted with a minimum of two passes of medium to heavy vibratory compaction equipment to a density between 94 and 96 percent Standard Proctor. Sand-Based Structural Soil shall be placed within the areas shown on the Drawings.
 - 3. After compaction and approval of compaction level for each lift of Sand-Based Structural Soil, scarify the surface of the lift by raking to break up the skin effect from compactor.

4. A layer of 3/8" Crushed Stone or 3/4" Crushed Stone as shown on the Drawings shall be placed over the Sand-Based Structural Soil to thicknesses as shown on the Drawings and compacted to a minimum 95% Standard Proctor. Irrigation and ventilation lines shall be installed according to the drawings.
- B. Sand-Based Structural Soil shall never be moved or worked when wet or frozen.
 - C. The Contractor shall place barricades as required to prevent any unnecessary compaction of planting soil from vehicles, equipment, or pedestrian traffic.
 - D. Percolation tests of all Sand-Based Structural Soil shall be performed using Turf-Tec IN2-W Infiltrometer utilizing manufacturer's operating instructions.
 1. In-place infiltration tests shall be carried out at a rate of one test per each bed or separate tree planting location for each type of material placed.
 2. Landscape Architect or the Owner's Representative may direct additional testing in locations subject to compaction or adverse Contractor operations.
 3. Placed planting soils exhibiting noncompliant percolation values shall be removed or restored to compliant conditions.
 4. In-place field tests must meet or exceed Saturated Hydraulic Conductivity standards specified for Sand-Based Structural Soil.
 5. If test results are less than specified standards, the Landscape Architect and Soil Scientist will evaluate possible solutions including removal of the soil blend and installation of new compliant blend soil. Any repair/replace operation by the Contractor shall be at no additional charge.
- 3.10 REJUVENATION OF EXISTING LAWN
- A. Soil Placement Preparation
 1. Obtain a composite sample of the upper three inches of topsoil within the restoration area. Combine equal volumes of the composite sample the Sand-Compost blend and send to UMass Soils Laboratory for testing to nutrients and pH.
 - B. In-Place Soil Blending
 1. Rip the entire area to a depth of eighteen inches with a ripper approved by the Soil Scientist.
 2. Spread three inches of Sand-Compost blend. Spread amendments as recommended by the UMass soils laboratory.
 3. Rototill to six inches with a total of two passes in perpendicular directions. Compress with the tracks of a bulldozer, size D-5 or smaller.
- 3.11 PROTECTION
- A. Contractor to protect landscape work and materials from damage due to landscape operations, operations by other Contractors or trespassers. Maintain protection during installation until acceptance. Treat, repair or replace damaged Planting Soil installation work immediately.

- B. Provide means necessary, including fences, to protect soil areas from compaction and contamination by trash, dust, debris, and any toxic material harmful to plants or humans after placement. Any area that becomes compacted shall be de-compacted and tilled to the extent determined by the soil scientist and recompressed to the density ranges specified. Any uneven or settled areas shall be filled, re-graded and re-compacted to meet the requirements of this Specification. Soil that becomes contaminated shall be removed and replaced with specified soil material.
 - C. Phase the installation of the planting soil blends such that equipment does not have to travel over already installed planting soil. Use of haul roads is acceptable provided that the haul road is completely re-worked to meet the requirements of this Specification.
 - D. Apply filter fabric covering and planking or other engineering controls over soil to minimize compaction and collect dust and debris in any area where the Contractor must work after the installation of Planting Soil.
 - E. Till compacted Planting Soil and replace Planting Soil that has become contaminated as determined by the Landscape Architect. Planting Soil shall be tilled or replaced by the Contractor at no expense to the Owner.
- 3.12 CLEAN-UP
- A. During installation, keep pavements clean and work area in an orderly condition.
 - B. Keep the site free of trash and debris. Immediately dispose of wrappings or waste materials associated with products necessary for the completion of the work.
 - C. Trash and debris shall be kept in a central collection container. Do not bury trash and debris in back-fill.
 - D. Once installation is complete, remove any excess soil from pavements or embedded in fixtures.
- 3.13 COORDINATION AND EXCESS MATERIALS
- A. Coordinate activities with other project contractors so that there is no soil disturbance from traffic or other construction activities subsequent to placement.
 - B. Excess Planting Soil Mixtures and Materials: Remove the excess planting soil mixture and materials from the site at no additional cost to the Owner unless otherwise requested.
- 3.14 POST-INSTALLATION TESTING
- A. In-place density testing is required in areas. Placed planting soils must be inspected for compaction level by the soil scientist or by the following acceptable Density Test Methods: ASTM D1556 Density of soil and rock in place using Sand Cone Method, ASTM D6938-10 Nuclear Methods, ASTM D2167-08 Rubber Boon method, after ASTM D698 Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort.

- B. Density testing for Sand Based Structural Soil must be by ASTM D1556 Density of soil and rock in place using Sand Cone Method, ASTM D6938-10 Nuclear Methods, ASTM D2167-08 Rubber Boon Method, after ASTM D698 Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort. Density testing shall be conducted at a minimum of one test for each lift in each plant bed or a minimum of every 300 square feet.
 - C. Placed Upland and Salt Marsh Planting Soils must be capable of infiltrating water at the minimum rate provided in this Specification for each type of planting soil.
- 3.15 MAINTENANCE OF UPLAND AND SALT MARSH PLANTS
- A. Maintenance and Aftercare: See Section 329310 – Landscape Maintenance.

END OF SECTION

SECTION 329223
SOD LAWN**PART 1 - GENERAL**

1.01 GENERAL PROVISIONS

- A. Attention is directed to the Contract and General Conditions and all Sections within Division 01 – General Requirements which are hereby made a part of this Section of the Specifications.

1.02 DESCRIPTION OF WORK

- A. Provide labor, materials, equipment, services and transportation to complete work.
 - 1. Sod Lawn.
 - 2. Watering, fertilizing and mowing and maintenance of sodded lawn.

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. Section 312000 – Earthwork
- B. Section 312216 – Fine Grading
- C. Section 328400 – Irrigation
- D. Section 319115 – Planting Soils
- E. Section 329300 – Planting
- F. Section 329310 – Landscape Maintenance

1.04 REFERENCES

- A. Comply with applicable requirements of:
 - 1. Commonwealth of Massachusetts, Standard Specifications for Highways and Bridges, Department of Public Works, latest edition, Boston, Massachusetts.
 - 2. American Association of Nurserymen, American Standards for Nursery Stock, (ANSI Z60.1), latest edition, published by the American Association of Nurserymen, 1250 I Street, N.W., Suite 500 Washington, D.C. 20005.
 - 3. ASTM: American Society of Testing Materials.
 - 4. ANSI: American National Standards Institute.
 - 5. AOAC: Association of Official Agricultural Chemists.
 - 6. USDA: United States Department of Agriculture.

1.05 SUBMITTALS

- A. Submittals: in accordance with Section 011000 – General Requirements, 1.11.
- B. Product Data: Submit manufacturer's information for:
 - 1. Maintenance Fertilizer
 - 2. Protective fencing materials.
 - 2. Erosion control blanket.
- C. Certificates: Submit:
 - 1. Sod grower's certification. Submit certificate with each shipment of sod indicating certification of grass species, source, grower location, date of harvest and shipment. No sod may be placed until certificates have been submitted.
- D. Schedules: Submit:
 - 1. Sod installation schedule for approval.

1.06 QUALITY ASSURANCE

- A. Qualifications: contractor shall have minimum five years experience in seed and sod installation.
- B. Regulatory Requirements
 - 1. Secure permits, licenses, and pay fees including traffic control.
 - 2. Comply with laws, regulations, and quarantines for agricultural and horticultural products.

1.07 DELIVERY, STORAGE AND HANDLING OF SOD

- A. Cut, deliver, and install sod within a 24-hour period.
- B. Do not harvest or transport sod when moisture content may adversely affect sod survival.
- C. Protect sod from sun, wind, and dehydration prior to installation.
- D. Do not tear, stretch, or drop sod during handling and installation.

1.08 DELIVERY, STORAGE AND HANDLING OF FERTILIZER AND SOIL AMENDMENTS

- A. Packing and Shipping: deliver materials in unopened containers bearing the manufacturer's name and guaranteed statement of analysis. Transport materials without damage. Protect finishes from abrasion, dirt, oils, grease, and chemicals. Pack materials to protect from weather.

- B. Acceptance at Site: verify in writing that delivered materials conform to specifications and approved submittals.
- C. Storage and Protection:
 - 1. Materials shall be uniform in composition, dry and free flowing.
 - 2. Store materials in dry place, on pallets, off the ground; protect from sun. Store materials in a manner, which does not diminish their usability and effectiveness.
 - 2. Protect materials from theft, damage, weather, dirt, oils, grease, and construction.

1.09 PROJECT CONDITIONS

- A. Environmental Requirements: do not deliver, handle or place soils when dry, wet, or frozen.
 - 1. Field Test
 - a. Form soil in palm of hand, if soil retains shape and crumbles upon touching, the soil may be worked.
 - b. If soil will not retain shape it is too dry and should not be worked.
 - c. If soil retains shape and will not crumble, it is too wet and should not be worked.
- B. Sod Planting Seasons:
 - 1. Spring (April 15 to July 15)
 - 2. Autumn (August 15 to November 1)
 - 3. Sodding outside of the above seasons shall be permitted when ordered by Owner's Representative or when Contractor submits written request and permission is granted. Seeding outside dates established above shall be at Contractor's risk.

1.10 SEQUENCING AND SCHEDULING

- A. Perform sodding work only after planting and other work affecting ground surface has been completed.
- B. The irrigation system will be relocated prior to sodding. Locate, protect, and maintain irrigation system during sodding operations. Repair irrigation system components damaged during operations at Contractor's expense.

1.11 SUBSTANTIAL COMPLETION

- A. Upon completion of sod installation, request Landscape Architect's review to determine if work is substantially complete. Submit request a minimum of five days prior to anticipated inspection date. If work is substantially complete, Landscape Architect will issue a Substantial Completion letter identifying commencement of 90 day Maintenance Period.
 - 1. If work is not substantially complete, Landscape Architect will issue a written list of outstanding work to be done on a timely schedule agreed upon by Contractor and Landscape Architect.
 - 2. Contractor shall notify Landscape Architect when outstanding work is completed and ready for review. When outstanding work is complete, as determined by Landscape Architect, a letter of Substantial Completion will be issued.

1.12 90 DAY MAINTENANCE PERIOD

- A. Maintain sodded lawn areas until Final Acceptance.

1.13 FINAL ACCEPTANCE

- A. After the 90 day maintenance period sodded lawn areas will be reviewed for final acceptance.
- B. Conditions of Final Acceptance
 - 1. Lawn acceptance shall be given for entire lawn area. No partial acceptance shall be given.
 - 3. Lawns shall exhibit uniform, thick, well- developed stand of grass. Lawn areas shall have no bare spots in excess of four inches in diameter and bare spots shall comprise no more than two percent of total area of lawn.
 - 5. No lawn areas shall exhibit signs of damage from erosion, washouts, gullies, or other causes.
 - 6. Pavement surfaces and site improvements adjacent to lawn areas shall be clean and free of spills from placing or handling of loam borrow and sodding operations.
- C. Inspection and Final Acceptance
 - 1. Upon completion of 90 Day Maintenance Period, request Landscape Architect's review to determine if work is acceptable. Submit request a minimum of five days prior to anticipated inspection date. If work is acceptable, Landscape Architect will issue a Final Acceptance letter. From this date forward, lawn maintenance will be the responsibility of the Owner. Following acceptance of lawns, Owner will be given access to lawn areas for maintenance work.
 - 1. If work is not accepted, Landscape Architect will issue a written list of outstanding work. Maintenance period to be extended until completion of work.

2. Contractor shall notify Landscape Architect when outstanding work is completed and ready for review. When work is complete, as determined by Landscape Architect, a letter of Final Acceptance will be issued.

PART 2 - PRODUCTS

2.01 GRAVEL BORROW

- A. See Section 313000 – Earthwork

2.02 LANDSCAPE SOILS AND AMENDMENTS

- A. See Section 329115 – Planting Soils

2.03 MAINTENANCE FERTILIZER

- A. Maintenance Fertilizer to be mixed with soil:

1. Complete, fertilizer made from all-natural ingredients complying with State and Federal fertilizer laws. Fertilizer shall contain the following available plant food by weight, unless soils test indicate a need for different composition:

	Nitrogen	Phosphorus	Potash
Lawns	5%	3%	4%

2. Fertilizer: Pro Gro 5-3-4 manufactured by North Country Organics, Bradford, Vermont 05033, ph# 802.222.4277.
3. Fertilizer to be delivered in original unopened standard size bags showing weigh, analysis ingredients and manufacturer's name.

2.04 WATER

- A. Water: furnished by Contractor, suitable for irrigation and free from ingredients harmful to plant life. Hose and other watering equipment furnished by Contractor.

2.05 SOD

- A. Sod: nursery grown sod composed of a minimum of 50% turf-type tall fescue, a minimum of 20 percent red fescue and a maximum of 10% bluegrass. Submit cultivar names to Owner's Representative for approval. Sod to be 1 year old minimum from time of original seeding.
- B. Provide well-rooted, healthy sod, free of diseases, nematodes and soil borne insects. Provide sod uniform in color, leaf texture, density, free of weeds, undesirable grasses, stones, roots, thatch and extraneous material; viable and capable of growth and development when planted.
- C. Machine cut sod at uniform soil thickness of 3/4 inch, plus or minus 1/4 inch at time of cutting. Thickness measurement excludes top growth and thatch. Cut individual pieces to supplier's

standard width and length with maximum allowable deviation of 5%. Broken pads and torn or uneven ends are unacceptable.

- D. Install sod in one of the following dimensions:
1. In linear sod strips measuring 12 inches or 16 inches in width and 4 feet to 6 feet long. Stored in rolls with grass topside inverted so topsoil is to the exterior.
 2. In rectangular sod strips termed "Big Rolls", consisting of 3: 16" wide sod strips, maximum 50 feet, rolled and stored on specially fabricated heavy duty tubes furnished by sod supplier. Overall dimensions of "Big Roll" are 48 inches wide by maximum 50 feet long.
- E. If sod is installed by "Big Roll" method, the following provisions apply:
1. Harvest sod with "Big Roll" (Sod-o-matic) harvester, as utilized by Tuckahoe Turf Farm or Kingston Turf Farm or equal.
 2. Store, deliver and unload while rolled on manufacturer's specially made tubes permitting rolling and storage of "Big Rolls" stored side by side.

2.06 PROTECTIVE FENCING

- A. Protect areas adjacent to walks with snow fencing or other approved temporary fencing material.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions: in the event field conditions are not in conformance with Contract Documents, notify Owner's Representative in writing.
1. Spot and Invert Elevations: verify field elevations of site improvements such as drainage and utility fixtures, pavements, existing plantings, and subsurface piping conform to Drawings.
 2. Finish Grades: verify specified elevations to ensure that fine grading operations have shaped, trimmed, and finished sod bed true to elevation with smooth sloped parallel to finished grade.

3.02 PREPARATION AND PLACEMENT OF PREPARED SUBGRADE AND GRAVEL BORROW

- A. See Section 312320 - Excavated Soil and Materials Management Plan and Section 312300 – Earthwork.

3.03 PREPARATION AND PLACEMENT OF PLANTING SOIL

- A. See Section 329115 – Planting Soil.

3.04 PREPARATION FOR SOD INSTALLATION

A. Protection:

1. Dust Control: upon acceptance of finish grade provide dust control.
2. Erosion Control: upon acceptance of finish grade provide erosion control.
3. Agricultural Chemicals: protect site improvements from contact with agricultural chemicals, soil amendments, and fertilizers.

B. Surface Preparation:

1. Clean sod bed, pavement or other site improvements prior to installation.

3.05 SOIL PREPARATION

A. See Section 329115 – Planting Soil.

B. Thoroughly irrigate areas to receive sod.

C. Scarification: cross rake areas to receive sod so surface of soil will be receptive to holding seed and to associating with sod roots.

D. Grade lawn areas smooth, free draining and even surface with a loose, uniformly fine texture. Roll and rake; remove ridges and fill depressions as required to drain.

E. Restore prepared areas to specified condition if eroded, settled, or otherwise disturbed after fine grading and prior to sodding.

3.06 APPLICATION OF PRE PLANTING FERTILIZER

A. Preplant Fertilizer application: specified in Section 329115 – Planting Soil.

3.07 SOD INSTALLATION

A. Install initial row of sod in a straight line and place subsequent rows parallel to previously installed row. Lay sod edge to edge with tightly fitted joints with longest dimension parallel to contours. Stagger strips to offset joints in adjacent courses. Top of sod thatch line to be flush with surface of adjacent finished grade.

B. On sloped areas (slopes greater than 4:1), lay sod with length perpendicular to slope, starting at base and continuing upwards with every length pegged.

C. Immediately after laying, roll sod firmly into contact with sod bed with 100 pound per foot of width hand roller or other approved method to eliminate air pockets.

D. Finish surface to be uniformly, smooth and even.

- E. Water sod with a fine spray at a rate of 5 gallons per square yard until the underside of new sod pad and soil below sod are thoroughly wet.
- F. If sod is installed by "Big Roll" method, the following provisions apply:
 - 1. Install with Big Roll Laying Device manufactured by Beck Manufacturing Company, Auburn, Alabama or equal. This device is available in both mechanical and hydraulic models.
 - 2. Laying Device to utilize a tandem wheel tractor or one equipped with high flotation tires with a 3 point hitch.
 - 3. Lay sod with personnel instructed by and in presence of sod supplier's representative until representative is satisfied Contractor's forces are experienced in proper use of tractor, Laying Device and supplementary sod-laying procedures.
 - 4. Prepared soil to be compacted to permit use of tractor and laying device without causing depressions or ruts in smooth finished surface to receive sod. Fill and regrade depressions and ruts caused by tractor and laying device to provide smooth surface.

3.08 WATERING

- A. First Week: Water to establish acceptable lawn. In absence of adequate rainfall, water daily during first week to maintain moist soil to two inch minimum depth.
- B. Second and Subsequent Weeks: Water lawn to maintain moisture in upper 5 inches of soil.
- C. Water with uniform coverage while preventing erosion due to application of excessive quantities over small areas, and prevent damage to finished surface by watering equipment. Provide sufficient watering equipment to apply one complete coverage to seeded areas in eight-hour period.

3.09 MAINTENANCE

- A. Maintenance begins immediately after sod is installed and continues until Final Acceptance as follows:
 - 1. a uniform, thick, well-developed stand of grass is established.
 - 2. Mow sod at seven-day intervals.
 - a. First mowing: when grass has grown to 2" to 2 1/4" height. Cut grass to 1 3/4" height.
 - b. Subsequent mowings shall cut grass to 1 3/4" height.
 - c. Mow in Autumn until growth of grass ceases, and resume in Spring when grass grows to 2 1/4" height.
 - 3. Mow sloped areas a minimum of once during maintenance period. 90 day maintenance period shall be extended to include required cutting. Cut grass to 3" height.
 - 4. Apply uniform application of maintenance fertilizer (5-3-4) at rate of 20 per 1000 square feet 30 days after new lawn has been installed.

5. Continue watering as described above.
6. After grass has started, areas failing to show uniform, thick, well-developed stand of grass shall be immediately resodded until areas are covered with satisfactory growth of grass as determined by Owner's Representative.
7. Repair damage from erosion, gullies, washouts, or other causes immediately by filling with loam borrow, tamping, re-fertilizing and re-seeding.

3.10 CLEANING

- A. Wash and sweep clean paving, site improvements and building surfaces. Clean spills and oversprays immediately. Remove and dispose off-site excess planting mixture, soil and debris.
- B. Following Final Acceptance of lawn areas, remove materials and equipment not required for other planting or maintenance work. Materials and equipment remaining on site shall be stored in locations that do not interfere with Owner's maintenance of accepted lawns or other construction operations.

3.11 PROTECTION

- A. Protect lawn areas until Final Acceptance.

END OF SECTION

**SECTION 329300
PLANTING****PART 1 – GENERAL**

1.01 GENERAL PROVISIONS

- A. Attention is directed to the Contract and General Conditions and all Sections within Division 01 – General Requirements which are hereby made a part of this Section of the Specifications.

1.02 DESCRIPTION OF WORK

- A. Provide labor, materials, equipment, services and transportation required to complete work.
 - 1. Upland planting including trees, shrubs, groundcovers, and other woody and herbaceous plant materials.
 - 2. Tree stabilization.
 - 3. Incorporating of planting additives, biostimulants, pruning, mulching, fertilizing and watering plantings.
 - 4. Salt marsh planting including plugs.

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. Section 312300 – Earthwork
- B. Section 312216 – Fine Grading
- C. Section 319113 – Planting Soils
- D. Section 328400 – Irrigation
- E. Section 329310 – Landscape Maintenance

1.04 REFERENCES

- A. Comply with applicable requirements of:
 - 1. Commonwealth of Massachusetts, Standard Specifications for Highways and Bridges, Department of Public Works, latest edition, Boston, Massachusetts.
 - 2. ASTM: American Society of Testing Materials.
 - 3. AAN: American Association of Nurserymen.
 - 4. ISA: International Society of Arboriculture.
 - 5. ANSI: American National Standards Institute.
 - 6. AOAC: Association of Official Agricultural Chemists.
 - 7. USDA: United States Department of Agriculture.

1.05 DEFINITIONS

- A. Balled and Burlapped Stock: Exterior plants dug with firm, natural balls of earth in which they are grown, with ball size not less than diameter and depth recommended by ANSI Z60.1 for type and size of tree or shrub required; wrapped, tied, rigidly supported, and drum-laced as recommended by ANSI Z60.1.
- B. Container-Grown Stock: Healthy, vigorous, well-rooted exterior plants grown in a container with well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for kind, type, and size of exterior plant required.
- C. Finish Grade: Elevation of finished surface of planting soil..
- D. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill, before placing planting soil.

1.06 SUBMITTALS

- A. Submittals: in accordance with Section 011000 – General Requirements, 1.11.
- B. Product Data: Submit most recent printed information from manufacturers for:
 - 1. Antidesiccant
 - 2. Liquid Seaweed Concentrate
 - 3. Plant Growth Biostimulant
 - 4. Mycorrhizae Granules
 - 5. Tree Staples for staking
 - 6. Non-biodegradable flagging tape for marking Tree Staples.
- C. Samples: Submit samples of:
 - 1. Organic Mulch: Submit one cubic foot sample and manufacturer/supplier's name.
 - 2. Tree Stabilization System.
- D. Certificates:
 - 1. Submit manufacturer's certificates of compliance listing analysis for:
 - a. Bulb Booster
 - 2. Submit certification of Massachusetts state arborist.
- E. Landscape Contractor:
 - 1. Submit in writing planting subcontractor including name, address and telephone number.
 - 2. Submit written proof of at least ten years' experience with projects similar in size with a similar level of complexity in material, design and detailing.

3. Submit a complete list of projects completed over the past two years with project construction value, contact names and phone numbers.
4. Submit a list of current project backlog.
5. Submit a description of the largest project completed in scale and construction budget.
6. Submit evidence of Contractor's safety record
7. Submit a list of three reference and name of supervisor for landscape subcontractor.
8. Submit Experience Modification Rate number

F. Plant List:

1. Within 30 days of award of Contract, submit plant list for review by Owner's Representative which includes:
 - a. plant materials proposed for project and corresponding nursery source where plants are to be selected.
 - b. written documentation indicating nursery(s) have available the plants in the species, quantity and size(s) shown on Drawings.
 - c. for plants indicating names of plants in accordance with American Joint Committee on Horticultural Nomenclature.
2. Schedule for review at nursery source by Owner's Representative with Contractor present.
3. Substitutions: plant list shall indicate unavailable materials and document a thorough search for materials. For unavailable materials list sources contacted with telephone number, date and person's name at source.

G. Schedules

1. Submit planting schedule for approval.

1.07 QUALITY ASSURANCE

- A. Planting shall be performed by a certified landscape contractor with a minimum of five years planting work experience on projects of a similar size, quality, complexity, construction detailing and schedule and under full time supervision of a qualified supervisor.
- B. Pruning shall be performed by a Massachusetts certified and/or an International Society of Arboriculture certified arborist. Pruning shall comply with ANSI A300 pruning standards.

1.08 PRE-CONSTRUCTION MEETING

- A. At the project pre-construction meeting, the following items relating to the work of this Item shall be specifically discussed:
1. Nursery sources for plant materials.
 2. Schedule of plant tagging, delivery and installation.
 3. Review benchmark dates at which time Owner's Representative's designated Landscape Architect should make site visits.

1.09 SELECTION AND INSPECTION OF PLANTS

- A. Plants shall be selected by Owner's Representative at place of growth for conformity to specification requirements as to quality, size and variety prior to purchase and planting. Such approval shall not impair right of inspection and rejection upon delivery at site or during progress of work. Cost of replacement shall be borne by Contractor.
- B. Source Limitations:
1. Plants shall come from the same nursery.
 2. Plants shall have been grown under climatic conditions similar to those in the locality of the project for at least the previous two years. Unless approved by the Owner's Representative, plants shall have been grown at a latitude not more than 325 km (200 miles) north or south of the latitude of the project unless the provenance of the plant can be documented to be compatible with the latitude and cold hardiness zone of the planting location.
 3. B&B plants shall have been freshly dug (during the most recent favorable harvest season).
 4. Initial sources for procuring of trees shall be as follows. If the Owner's Representative deems trees from these sources unacceptable, the Contractor must find alternate nursery sources of un-dug plant material.
 - a. Select Horticulture, Lancaster, MA (T 978-365-6555)
 - b. Halka Nursery, Englishtown, NJ (T 732-462-8450).
 - c. Kaneville Tree Farms, Inc. 3 S 320 Harter Road, Kaneville, Illinois 60144 (T 630- 557-2793)
 5. Color photographs of representative plant material shall be submitted for initial review of alternate nursery sources. Photographs are to include a scale rod or other measuring device and be taken from an angle that depicts the size and condition of the typical plant to be furnished. Photographs must show actual plant material available for selection at that time.

C. Plant Selection / Coordination

1. For trees, within 90 days of the Notice to Proceed, submit tree sources and schedule selection and tagging of trees so Owner's Representative can tag trees for project at place of growth. Owner's Representative will perform on trip to the nursery(s) to select and tag trees and a second trip to the nursery(s) to review and confirm the acceptability of the trees immediately prior to digging for delivery to the site. Source information shall state the place of growth and the approximate quantity of trees available for inspection. The Owner's Representative may refuse inspection at this time if, in his or her judgment, sufficient quantities of plants are not available for inspection.
2. For shrubs and other plants, submit plant sources by January 1 of the planting year for Spring plantings, and July 1 for Fall plantings, schedule selection and tagging of shrubs so Owner's Representative can tag representative shrubs for project at place of growth. Source information shall state the place of growth and the approximate quantity of trees available for inspection. The Owner's Representative may refuse inspection at this time if, in his or her judgment, sufficient quantities of plants are not available for inspection.
3. Inform Owner's Representative of selection schedule a minimum of one month (30 day minimum) in advance of selection/tagging dates so Owner's Representative can make proper travel arrangements. If Contractor fails to provide one month (30 day minimum) notice, any additional travel expenses shall be back-charged to Contractor. If Owner's Representative has to make additional trips to select/tag plants in the event that inadequate, insufficient or unacceptable plant material was available at the inspection location, then additional travel expenses to be backcharged to Contractor.
4. If nurseries and/or stock submitted for review are not acceptable to Owner's Representative, submit alternate sources within seven (7) business days.
5. If Contractor cannot locate the plant material specified in the Drawings, Contractor shall enlist a plant broker to locate the material. Submit a report from the plant broker describing alternate sources of availability or lack thereof for the specified plant material and sizes.
 - a. Trips to nurseries shall be efficiently arranged to allow Owner's Representative to maximize his/her viewing time. Four (2) days of viewing/tagging have been allotted for the materials listed on the Drawings. Only undug trees (trees that are in the ground) shall be considered for approval. Owner's Representative may choose to attach their seal to each plant, or representative samples. Each tree may have a specific location and orientation on the proposed plan that the Contractor shall follow closely during installation.
 - b. Plant material that has been sealed shall be secured by Contractor within ten (10) business days of Owner's Representative having reviewed or sealed the material.
 - c. Landscape Architect's seals shall not be removed until plantings have been approved by Owner's Representative. Removal of seals prior to Landscape Architect's review of plantings shall be considered grounds for rejection of plant material.

D. Expenses

1. Contractor to pay for Owner's Representative travel expenses: air fare, car rental, automobile mileage and tolls; meals and overnight accommodations if necessary, for Owner's Representative during time period required to select and tag plant material. Planting subcontractor shall provide representative to travel with Owner's Representative while tagging plant material.

E. Plant Shipment to Site/ On Site Review

1. Notify Owner's Representative a minimum of five business days prior to each shipment of proposed arrival of plant material on site.
2. Layout tree locations, bed outlines and individual planting on site for inspection by Owner's Representative prior to planting. Arrange for adequate manpower and equipment on site at time of plant material inspection and installation to provide complete staked layout and to unload, open and handle plant material during inspection.

1.10 DELIVERY, STORAGE AND HANDLING OF FERTILIZER AND MULCH

- A. Packing and Shipping: deliver materials in unopened containers bearing manufacturer's name and guaranteed statement of analysis. Transport materials without damage. Protect finishes from abrasion, dirt, oils, grease, and chemicals. Pack materials to protect from weather.
- B. Acceptance at Site: verify in writing that delivered materials conform to specifications and approved submittals.
- C. Storage and Protection:
 1. Materials shall be uniform in composition, dry and free flowing. Store materials in dry place, on pallets, off ground; protect from sun. Store materials in a manner, which does not diminish their usability and effectiveness.
 2. Protect materials from theft, damage, weather, dirt, oils, grease, and construction.

1.11 DELIVERY, STORAGE AND HANDLING OF PLANTS

- A. Plants during shipping and delivery and plants requiring storage on site shall be properly wrapped and covered to prevent wind drying and desiccation of branches, leaves, or buds. Plant balls shall be firmly bound, unbroken, and reasonably moist to indicate watering prior to delivery and during storage. Trees shall be free from fresh scars and damage in handling. Root masses of container grown plants shall be kept moist and containers screened from direct sun.

- B. Wrap tree trunks at nursery prior to shipping then unwrap for inspection by Owner's Representative prior to installation. Report damaged plants to Architect/ Owner's Representative.
- C. Apply antidesiccant to plants before digging at nursery and/or as directed by Owner's Representative once plants are delivered to site.

1.12 PROJECT/SITE CONDITIONS

- A. Environmental Requirements: do not deliver or handle soils when dry, wet, or frozen.
 - 1. Field Test
 - a. Form soil in palm of hand, if soil retains shape and crumbles upon touching, the soil may be worked.
 - b. If the soil will not retain shape it is too dry and should not be worked.
 - B. If the soil retains shape and will not crumble, it is too wet and should not be worked.
 - C. Planting Season: planting seasons shall be those indicated below. Plants planted out-of-season shall receive special attention as directed. Out-of-season planting and or transplanting shall be at Contractor's risk and expense. No planting shall be done in frozen or muddy ground or when snow covers ground, or soil is otherwise in an unsatisfactory condition for planting.
 - 1. Seasons for Planting:

Spring:	Deciduous materials – April 1 to June 15 Evergreen Materials – April 1 to June 15
Fall:	Deciduous materials – September 1 - October 15 Evergreen Materials – September 1 - October 15
 - 2. Variance: If special conditions exist that warrant a variance in the above planting dates, a written request shall be submitted to the Owner's Representative a minimum of 4 weeks prior to the scheduled planting date stating the special conditions and the proposed variance. Permission for the variance will be given if warranted in the opinion of the Owner's Representative and upon condition that the Guarantee Period be extended for an additional period of up to 24 months at no additional cost to the Owner.

1.13 SEQUENCING AND SCHEDULING

- A. Plant after acceptance of fine grading.
- B. Trees to be installed first.
- C. Shrubs to be located by architect prior to arrival of perennials/groundcovers on site.
- D. Perennials to be located by architect after installation of shrubs.

1.14 SUBSTANTIAL COMPLETION

- A. See Section 329310 - Landscape Maintenance.

1.15 MAINTENANCE

- A. See Section 329310 - Landscape Maintenance.

1.16 ACCEPTANCE

- A. See Section 329310 - Landscape Maintenance.

1.17 GUARANTY

- A. Start of Guaranty Period: when Owner's Representative issues Letter of Acceptance.
- B. Term: two years for plants.
- C. Requirements: plant material to be alive and in healthy, vigorous condition.
 - 1. Quarterly reviews will be made with Contractor and Owner's Representative during guaranty period. Reviews will assess condition of installed plant materials.
 - 2. Replace plants that are dead or, as determined by Owner's Representative, are in an unhealthy or unsightly condition, and have lost their natural shape due to dead branches, or other causes.
- D. End of Guaranty Period: when Owner's Representative issues letter of Final Acceptance, two years from date of substantial completion.
- E. If a Planting Season Variance is granted, the Guarantee Period for the affected plant materials shall extend through the spring (June 30) of the 12-month period following the initial Guarantee Period, without further cost to the City.

1.18 FINAL ACCEPTANCE

- A. Owner's Representative reviews work and finds it complete and in accordance with Drawings and Specifications.
- B. Owner's Representative will issue a letter of Final Acceptance, at which time project becomes responsibility of Owner.

PART 2 - PRODUCTS

2.01 UPLAND PLANTS

- A. Plant Identification and Standards: Nomenclature conforms to current edition of Standardized Plant Names, published by American Joint Committee on Horticultural Nomenclature. Plants conform to varieties and sizes specified in plant list, and to code of standards set forth by American Association of Nurserymen, Inc. in American Standard for Nursery Stock, ANSI Z60.1 - latest edition. Substitutions shall not be permitted without consent of Architect/ Owner's Representative. Plants shall be properly identified with plant labels securely attached to plants, in order to identify plants on site. Information regarding sources of plant material shall be furnished to Architect/ Owner's Representative.
- B. Plant List: If there are discrepancies between the quantities shown on plant list and work shown on Drawings, Contractor shall supply plants necessary to complete work as intended on Drawings. Where size of plant on the plant list is a variation between a minimum and maximum dimension, the sizes of plants furnished shall be equal to average of two dimensions. Where a single dimension is given, dimension represents the minimum size of plants to be furnished.
- C. General Plants: Unless specified otherwise, plants shall be nursery grown under climatic conditions similar to those in locality of project and shall have been previously transplanted or root pruned at least once in last three years. Plants shall possess a normal balance between height and spread. Plants shall be typical of their species and variety with a normal habit of growth, densely foliated when in leaf, and a well-developed branch structure with a fibrous, healthy root system with no girdling roots. Plants shall be sound and healthy, free from dead wood, defects, disfiguring knots, sun scald, injuries or abrasions of roots or bark. Plants shall be freshly dug. No heeled-in plants or plants from cold storage shall be used. Parts of plant shall be moist and show active green cambium when cut. Plants shall be free of plant diseases, insects, pests, eggs, larvae, and forms of infestations.
- D. Plant relationship between Root Flare and Finished Grade: nursery source shall properly plant, maintain and dig plants to maintain the natural relationship of the plants root flare slightly above the soil of the root ball. Plants which have or show signs of previously having soil placed over their root flares from planting too deep when initially lined out, maintenance practices that turn over and mound up the soil to keep down weeds and or placing excavated soils over original root flare and root ball soil level will be rejected.
- E. Balled and Burlapped Plants: Plants designated on plant list as "B&B" shall be dug with root systems as solid units. Diameter and depth of balls of soil must be sufficient to encompass fibrous and feeding root system necessary for healthy development of plants. Balls shall be wrapped firmly with biodegradable material, and bound carefully with twine or cord. Tree balls may also be placed in a wire basket of diameter suitable for the size of the root ball. No plant shall be accepted when ball of earth surrounding roots has been badly cracked or broken, either before or during process of planting, or after burlap, ropes, etc., required for transplanting have been unfastened. Plants and

- root balls shall remain intact as a unit during operations. Plants that cannot be planted at once must be protected and watered.
- F. Bare Root Plants: Plants designated "BR" on the plant list shall be dug while dormant. Bare root plants shall be maintained in a healthy condition during storage, transportation, and operations.
- G. Container-Grown Plants: Container plants shall have been acclimatized for one growing season in container. Container plants shall be well established in container, and shall have sufficient roots to hold earth intact after removal, without being in a rootbound condition. Plants shall remain in container until planted.
- H Trees:
1. tree branching height to begin at 7' above finished grade without adversely impacting the overall appearance of the tree.
 2. Tree canopies, except when a clump form is designated should be straight and symmetrical with a crown having a persistent single, main leader, tapered trunk free of co-dominant stems and growing from a single, unmutilated crown of roots, and typical of the species or cultivar. No part of trunk shall be conspicuously crooked as compared with normal trees of same variety. Crown shall be free of large voids and not be significantly deformed by wind, pruning practices, pests, or other factors. Live crown ratio (distance which supports healthy foliage from bottom of canopy to the top/tree height) should be at least 60%.
 3. Trunk shall be free of wounds (except for properly-healed pruning wounds), damaged bark or branches, abrasions, disfiguring knots, sunscald, conks, bleeding, galls, signs of insects or disease, and girdling ties, sunscald, frost cracks, or wounds resulting from abrasions, fire, or other causes. No pruning wounds shall be present having diameter of more than two inches (2") and wounds must show vigorous bark on edges. Pruning wounds over 3/4 inch in diameter must be completely calloused over.
 4. Trees shall stand erect without a supporting stake.
 5. Main scaffold branches shall be less than 2/3 the trunk diameter, free of bark inclusions (places where bark is embedded within the crotch preventing the formation of a normal branch bark ridge), and well-spaced. They should be distributed radially around and vertically along the trunk, forming a generally symmetrical crown typical for the species.
 6. Evergreen trees shall be branched to within one foot of ground. Height of trees, measured from crown of roots to top of top branch, and caliper, measured as specified herein, shall not be less than minimum size designated in plant list.
 7. Take caliper measurements 6 in. above ground on trees up to and including 4 in. caliper, and at 12 in. above ground for larger sizes.
- I. Shrubs and Small Plants: Shrubs and small plants, unless otherwise designated, shall be well-formed and bushy with well-spaced side branches, and shall have a crown and stem(s) typical of species and variety. Plants shall be well-branched to ground. Plants shall meet requirements for spread and/or height stated in Plant List. Measurements for height are to be taken from ground level to average height of top of shrub and not to

longest branch. Thickness of each shrub shall correspond to trade classification "No. 1". Single stemmed or thin plants will not be accepted.

- J. Plants larger than those specified in the Plant List may be used if approved by Architect/ Owner's Representative, but use of such plants shall not increase the Contract Price. If use of larger plants is approved, spread of roots or ball of earth shall be increased in proportion to size of plant.

2.02 PLANT PLUGS FOR SALT MARSH

- A. Low Marsh: Plugs of *Spartina alterniflora* (Saltmarsh Chordgrass) will be installed throughout the deeper sections of the planted areas and void spaces of the transplanted areas. These plants are adapted to deeper salt water areas and will tolerate greater inundation of salt water during daily tidal changes. Efforts should be made to plant this species within the same tidal range as that observed by adjacent chordgrass stands at the site.
- B. High Marsh: 80% of the plugs shall be *Spartina patens* (Salt Meadow Grass) and 20% of the plugs shall be *Limonium latifolium* (Sea Lavender). The High Marsh shall be installed throughout the higher sections of the planted areas and void spaces of the transplanted areas. These plants are adapted to shallower salt water areas and will tolerate less inundation of salt water during daily tidal changes. Efforts should be made to plant this species within the same tidal range as that observed by adjacent salt meadow grass (high marsh) stands at the site.
- C. Transitional Marsh: 50% of the plugs shall be *Spartina patens* (Salt Meadow Grass) and 50% of the plugs shall be *Limonium latifolium* (Sea Lavender). The Transitional Marsh shall be installed between the Low Marsh and High Marsh plug plantings. This will allow each species to adapt to the change in water elevation during establishment and each will spread and develop a transition zone across the tidal range.

2.03 PLANTING ADDITIVES

- A. Liquid Seaweed Concentrate: Dry, water soluble seaweed extract powder from *Ascophym nodosum*. Stress-X as manufactured by North Country Organics, Bradford, Vermont 05033, ph# 802.222.4277, or equal.
- B. Plant Growth Biostimulant: Dry, water soluble plant growth biostimulant made form beneficial bacteria humic extracts, cold water sea kelp extract, essential amino acids, vitamins, root growth factors and sugars. Bio- Magic as manufactured by North Country Organics, Bradford, Vermont 05033, ph# 802.222.4277, or equal.
- C. Mycorrhizae granules: transplant granules for inoculating plants with beneficial mycorrhizal fungi prior to planting. Myco-Magic as manufactured by North Country Organics, Bradford, Vermont 05033, ph# 802.222.4277, or equal.

2.04 BULB BOOSTER

- A. Bulb booster: fine ground, organic source of phosphate and shall contain the following available plant food by weight:

<u>Nitrogen</u>	<u>Phosphorus</u>	<u>Potash</u>	
%	12%	0%2.05	MULCH

- A. Mulch: 1/8" toprock as specified in Section 319113 – Planting Soils.

2.06 POST PLANTING FERTILIZER

- A. Post Planting Fertilizer:

1. Complete, fertilizer made from all-natural ingredients complying with State and Federal fertilizer laws. Fertilizer shall contain the following available plant food by weight, unless soils test indicate a need for different composition
2. Pro Start 5-3-4 manufactured by North Country Organics, Bradford, Vermont 05033, ph# 802.222.4277.
3. Fertilizer to be delivered in original unopened standard size bags showing weigh, analysis ingredients and manufacturer's name.

2.07 WATER

- A. Water: furnished by Contractor, unless otherwise specified, and suitable for irrigation and free from ingredients harmful to plant life. Hose and other watering equipment required for work shall be furnished by Contractor.

2.08 TREE STABILIZATION MATERIALS

- A. Tree Stabilization: Contractor responsible for providing a subsurface tree stabilization system which uses below grade shed anchors/ ground stakes at four corners augered to a 4' minimum depth with straps located below grade over the root ball, connected to the anchors/ stakes to secure the tree and root ball in place. Maintain planting in plumb condition and in order to withstand the environmental conditions of the site. Submit system to Owner's Representative for approval.

2.09 ANTIDESSICANT

- A. Antidessiccants: emulsions or materials which provide a protective film over plant surfaces permeable enough to permit transpiration and specifically manufactured for that purpose. Antidesiccant shall be delivered in manufacturer's containers and used according to manufacturer's instructions.

2.10 CHEMICALS, HERBICIDES, FUNGICIDES AND INSECTICIDES

- A. Provide chemicals, herbicides, fungicides and insecticides as needed for fungus or pest control. Chemicals and insecticides shall be approved by Massachusetts Department of Environmental Protection for intended use and application rates. No pesticides shall be used on site without knowledge and approval of Owner's Representative. Pesticides shall be handled by State licensed operators only.

2.11 PLANT LABELS

- A. Plant labels shall be provided by Contractor and shall be durable, legible labels, stating correct plant name and size, in weather-resistant ink or embossed process lettering, and are easily removable.

2.12 COIR FABRIC, JUTE NETTING FOR SALT MARSH PLANTING AREAS

- A. See Section 329115 – Planting Soils.

2.13 GRAVEL BORROW

- A. See Section 312300 – Earthwork.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions: in the event field conditions are not in conformance with Contract Documents, notify Owner's Representative in writing.
 - 1. Spot and Invert Elevations: verify field elevations of site improvements such as drainage and utility fixtures, pavements, existing plantings, and subsurface piping conform to Drawings.
 - 2. Finish Grade: verify specified elevations and prior grading operations have shaped, trimmed, and finished gradients.

3.02 PREPARATION

- A. Protection:
 - 1. Contact "Dig Safe" prior to doing excavation on site. If work is to be done around underground utilities, appropriate authority of utility must be notified of impending work. Hand excavate areas adjacent to utilities. Contractor shall be responsible for damages done by himself or his personnel to existing utilities, which shall be repaired or paid for by Contractor.

2. Dust Control: upon acceptance of finish grades provide dust control.
3. Erosion Control: upon acceptance of finish grades provide erosion control.
4. Agricultural Chemicals: protect site improvements from contact with agricultural chemicals, soil amendments, and fertilizers.

3.03 DIGGING, HANDLING, AND PROTECTION OF PLANTS

- A. Dig balled and burlapped (B & B) plants with firm natural balls of earth, of sufficient diameter and depth to include fibrous roots and conforming to standards of American Nurserymen Association. No synthetic burlap will be accepted. No plant moved with a ball will be accepted if ball is cracked or broken before or during planting operations.
- B. Protect roots or balls of plants from sun and drying winds.
- C. Set plants on ground in shady location and protect with soil, bark mulch, or other acceptable materials, balled and burlapped plants which cannot be planted immediately upon delivery. Water stored plants and regularly verify rootballs are moist. Owner's Representative will reject stored plants found with dried rootballs.
- D. Open bundles of plants immediately and plants and separate before roots are covered. Care shall be taken to prevent air pockets among roots. During planting operations, bare roots shall be covered with canvas, hay or other suitable material. No plant shall be bound with wire or rope as to damage the bark or break branches.

3.04 OBSTRUCTIONS BELOW GROUND OFF STRUCTURE

- A. If rock, underground construction work, or other obstructions are encountered in plant pit excavation work, alternate locations may be selected by Owner's Representative at no additional cost to Owner.
- B. Where locations cannot be changed, obstruction shall be removed, subject to Owner's Representative's approval, to a depth of not less than three feet (3') below grade and no less than six inches (6") below bottom of ball or roots when plant is properly set at required grade.
- C. Removal of rock and underground obstructions encountered as specified in Section 312300 – Earthwork.

3.05 PREPARATION AND PLACEMENT OF PREPARED SUBGRADE AND GRAVEL BORROW

- A. See Section 312320 - Excavated Soil and Materials Management Plan and Section 312300 – Earthwork.

3.06 PLANTING OPERATIONS OVER STRUCTURE

- A. In planting areas over structure, provide protective measures and perform planting operations in a manner which does not damage the waterproofing assembly and subsurface drainage and does not adversely affect the planting soil profiles.
- B. For planting operations over structure, confirm weight limitations of structure and weights of proposed equipment prior to commencing planting operations.

3.07 PREPARATION AND PLACEMENT OF PLANTING SOILS AND UNDERDRAINAGE COMPONENTS

- A. See Section 319115 – Planting Soils.

3.08 FINE GRADING

- A. See Section 311216 – Fine Grading.

3.09 PLANTING OPERATIONS OF UPLAND PLANTINGS

- A. Stake out locations of plants and secure Owner's Representative's approval before excavating plant pits.
- B. Excavating
 - 1. Place tree next to tree pit excavation and remove burlap from top of root ball. If trunk flair is not visible gently loosen and remove soil with a blunt tool or air spade until trunk flair and large horizontal lateral roots are located. Use care not to damage root system. Following removal of excess soil over root ball measure depth of root ball to determine depth of tree pit excavation.
 - 2. Dig tree pits and plant pits by hand and take care not to disturb utilities. If utilities are disturbed during planting operation, Contractor shall repair damage at Contractor's expense.
 - 3. Excavate plant pits with sloping sides so planting hole is saucer shaped. Plant pit shall be no deeper than root ball.
 - 4. Tree pits shall be four times diameter of soil ball in width.
- C. Setting, Backfilling and Fertilizing
 - 1. In the event trees are containerize in wire baskets, lay tree on its side and cut the bottom of the cage off, roll the tree into the hole and remove the sides of the wire basket.
 - 2. Solar Orientation: Trees marked on the north side of the trunk while growing at the Nursery shall be planted with the same orientation as they originally grew to reduce trunk damage due to sun-scald, wherever feasible.

3. Set plants in center of pits plumb, straight and at an elevation where after settlement the root flare and lateral roots of plant will be at surrounding finished grade. Root ball shall not be broken. When trees are set, compact base material under the root balls to fill voids and support plants at proper height. Remove burlap and rope from upper two thirds of balls and have Owner's Representative inspect removal prior to backfilling.
 4. Remove groundcovers and perennials from containers immediately before planting. Handle plants carefully to prevent damaging roots. Groundcover plants may be planted after bark mulch is placed.
 5. Following removal of top 1/3 of burlap in accordance with manufacturer's recommendations, sprinkle michorrhizal granules continuously around perimeter of root ball as well as incorporating granules into top of rootball.
 6. Mix liquid seaweed concentrate or plant growth bio-stimulant with water at a rate of 3 grams of liquid seaweed concentrate powder per gallon of water or 1 teaspoon of plant growth biostimulant per gallon of water.
 7. Before backfilling around root balls and with the burlap removed, roughen the surface of the nursery ball sides. This action will serve to break and score any glazing of the nursery soil which frequently occurs through digging and handling. The micro-fissures so created help to decrease hydraulic barriers between these soils.
 8. Backfill hole around plants to two-thirds full, sprinkle michorrhizal granules continuously around perimeter of root ball and on top of rootball, firm soil, flood with water mixed with additives, after water has drained away backfill to finished grade without additional firming. Immediately after plant pit is backfilled, a shallow basin slightly larger than pit shall be formed with ridge of soil to facilitate and contain water. After planting, cultivate soil in shrub beds between shrub pits, rake smooth and outline beds neatly.
- 3.10 DRAINAGE TEST FOR UPLAND PLANTING AREAS
- A. Perform drainage test on trees and in representative shrub beds.
 1. After excavation, fill pit twice successively with water.
 2. Water shall drain out of plant pit minimum 2 inches per hour.
 3. Plant pits draining slower than 2 inches per hour will require provision for drainage.
 - B. Documentation: note on the planting plan, pits that pass drainage test and plants that fail drainage test.

3.11 FIELD QUALITY CONTROL FOR UPLAND PLANTING AREAS

- A. Observation:
1. Owner's Representative to review plant pits without positive drainage.
 2. Owner's Representative to review plant pit excavation and planting.

3.12 GUYING, AND STAKING OF UPLAND PLANTS

- A. Guying and staking plants is required and the Contractor responsible for maintaining plants in upright, vertical position and for maintaining guying and staking materials. If Contractor determines below grade guying and staking is preferred, Contractor shall submit recommendations for Owner's Representative's approval.

3.13 PRUNING

- A. Pruning to be performed to American Nurserymens' Association Standards to and will be overseen by an MCLP or certified Arborist. Pruning to preserve natural character of plant and as directed by Owner's Representative. No leaders shall be cut.
- B. Prune trees and shrubs only with approval of Owner's Representative to remove remove limbs that are below 7' above finished grade to maintain pedestrian clearance, dead, broken and crossing branches. Plants shall not be heavily pruned at the time of planting. In no case shall more than one-quarter of the branching structure be removed.
- B. Pruning is required at planting time to correct defects in the tree structure, including removal of injured branches, double leaders, waterspouts, suckers, and interfering branches. Healthy lower branches and interior small twigs should not be removed except as necessary to clear walks and roads. Retain the normal or natural shape of the plant.
- C. Prune according to American Nurserymens' Association Standards to preserve natural character of plant and as directed by Owner's Representative. No leaders shall be cut.
- D. Prune with clean, sharp tools. Dead wood or suckers and broken or badly bruised branches shall be removed back to live bud, branch, or stem.
- E. Pruning above head height shall be done from a hydraulic man-lift or using other mechanisms such that it is not necessary to climb the tree.

3.14 MULCHING OF UPLAND PLANTS

- A. After planting operations are completed, provide top rock mulch between tree trunk and metal tree edging.

3.15 WATERING OF UPLAND PLANTS

- A. Flood plants with water twice within first 24 hours of time of planting, and water plants during the maintenance period at least twice per week. At each watering thoroughly saturate the soil around each tree or shrub. If sufficient moisture is retained in soil, as determined by Owner's Representative, required watering may be reduced. Each tree will require a minimum of ten gallons of water.

3.16 POST PLANTING FERTILIZER OF UPLAND PLANTS

- A. Apply uniform application of Post Planting Fertilizer (5-3-4) at rate of 5 lbs. per 1000 square feet, 30 days after planting.

3.17 PLANTING OPERATIONS OF SALT MARSH PLANTINGS

- A. Site Review of Salt Marsh Restoration Area by Owner's Representative and site Owner's Representative and/or wetland restoration specialist shall occur at the following milestones in the project:

1. At placement of Salt Marsh Planting Soils for planted salt marsh areas
2. At placement of coir matting over salt marsh planting areas
3. At installation of salt marsh plugs and other salt marsh plantings.

3.18 INSTALLATION OF PLANT PLUGS IN SALT MARSH

- A. Plugs of *Spartina alterniflora* (Saltmarsh Chordgrass - Low Marsh) will be installed throughout the deeper sections of the planted areas and void spaces of the transplanted areas. These plants are adapted to deeper salt water areas and will tolerate greater inundation of salt water during daily tidal changes. Efforts should be made to plant this species within the same tidal range as that observed by adjacent chordgrass stands at the site.
- B. Plugs of *Spartina patens* (Salt Meadow Grass - High Marsh) will be installed throughout the higher sections of the planted areas and void spaces of the transplanted areas. These plants are adapted to shallower salt water areas and will tolerate less inundation of salt water during daily tidal changes. Efforts should be made to plant this species within the same tidal range as that observed by adjacent salt meadow grass (high marsh) stands at the site.
- C. Plugs of each species can overlap over most of each of their ranges with greater density at the mean high water elevation. This will allow each species to adapt to the change in water elevation during establishment and each will spread and develop a transition zone across the tidal range.
- D. Plugs should be installed by hand or with the aid of a pointed stake or pole.
- E. Prepare the hole within the planting soil for the plug to be installed to a depth of approximately 2 to 4 inches based on the size of the plug. Cutting the coir matting is

- not usually necessary but it can be cut if needed. Simply spreading the braded chords should allow access to the soil below and appropriate area to plant.
- F. Place the plug within the void of the prepared hole and firmly compress planting soil around the plug. Be sure to water plugs after planting with salt water from the local area.
 - G. Planting should take place soon after low tide and on an incoming tide to reduce the time the area will be saturated with sea water.
 - H. It is oftentimes best to have many hands available on planting day to move quickly through the area as planting will be time dependent on the tide cycle.
 - I. The Contractor is responsible for judging the full extent of the work requirements, including equipment and materials for providing transplanting, planting and installation of coir fabric and planting plugs.
 - J. Hand tools only are to be used for salt marsh plantings.
 - K. Hand work will be conducted by hand tools consistent with the work being conducted and may include various shovels, iron rakes, spring rakes, grading rakes, hand trowels and any other hand tool that may be deemed appropriate for the job at hand.
- 3.19 CLEANING
- A. Wash and sweep clean paving, site improvements and building surfaces. Clean spills and oversprays immediately. Remove and dispose off-site excess planting mixture, soil and debris.
 - B. Following Acceptance at the end of 90 Maintenance Period of planting areas, remove materials and equipment not required for other planting or maintenance work. Materials and equipment remaining on site shall be stored in locations which do not interfere with Owner's maintenance of accepted lawns or other construction operations.
- 3.20 MAINTENANCE/ AFTERCARE FOR UPLAND AND SALT MARSH PLANTS
- A. Maintenance and Aftercare: see Section 329310 – Landscape Maintenance.

END OF SECTION

**SECTION 329310
LANDSCAPE MAINTENANCE****PART 1 - GENERAL**

1.01 GENERAL PROVISIONS

- A. Attention is directed to the Contract and General Conditions and all Sections within Division 01 – General Requirements which are hereby made a part of this Section of the Specifications.

1.02 DESCRIPTION OF WORK

- A. Provide labor, materials, equipment, services and transportation to complete work.
1. Upland Planting and Tree Care, Pruning, Monitoring and Aftercare
 2. Integrated Pest Management Program
 3. Irrigation System Maintenance, Monitoring and Aftercare
 4. Maintenance and Aftercare of Salt Marsh
 5. Guaranty and replacement of unacceptable plants.
 6. Maintenance Manual.

1.03 RELATED WORK UNDER OTHER SECTIONS

- A. Section 312000 – Earthwork for Site Improvements
B. Section 312216 – Fine Grading
C. Section 319115 – Planting Soils
D. Section 321000 – Bases, Ballasts and Paving
E. Section 321400 – Unit Pavers
F. Section 328400 – Irrigation
G. Section 329300 – Planting

1.04 REFERENCES

- A. Comply with applicable requirements of:
1. Commonwealth of Massachusetts, Standard Specifications for Highways and Bridges, Department of Public Works, latest edition, Boston, Massachusetts.
 2. American Association of Nurserymen, American Standards for Nursery Stock, (ANSI Z60.1), latest edition, published by the American Association of Nurserymen, 1250 I Street, N.W., Suite 500 Washington, D.C. 20005.
 3. Best Management Practices: Tree Planting. International Society of Arboriculture, P.O. Box 3129, Champaign, IL 61826-3129. 2005.
 4. American Standard for Pruning, ANSI A300-2001. American National Standards Institute, Inc. 1819 L Street, NW, Sixth Floor, Washington, DC 20036.

1.05 DEFINITIONS

- A. Maintenance: consists of keeping plants in healthy growing condition including watering, weeding, cultivating, remulching, tightening and repairing of guys, removal and replacement of dead plant material, pest and disease control, resetting plants to proper grades or upright positions and maintaining saucer.

1.06 SUBMITTALS

- A. Submittals: in accordance with Section 011000 – General Requirements, 1.11.
- B. Materials List: provide list of materials to be used in maintenance; materials shall be the same as approved in related sections:
 - 1. Fertilizers, soil amendments, testing see Section 319115 – Planting Soils.
 - 2. Plant materials, mulch, and related materials, see Section 329300 - Planting.
- C. Integrated Pest Management and Disease Treatment
 - 1. Submit registrations and permits for application of materials from the Commonwealth of Massachusetts to Engineer.
 - 2. Submit copies of permits in connection with materials to Engineer. Spraying to be considered only after full consideration has been given to alternative pest control strategies. The least toxic approach to pest control shall be used.
 - 3. Submit plan for integrated pest management and disease treatment; identify proposed materials and methods.
- D. Maintenance Manual
 - 1. Submit a Maintenance Manual to Owner describing schedule and operations for on-going upkeep of the installed plants for the entire Guaranty Period. The manual shall address itself to:
 - a. Pervious Paving System Monitoring and Aftercare
 - b. Integrated Pest Management Program
 - c. Post Planting Tree Care, Pruning, Monitoring and Aftercare including addressing care and long-term maintenance of the specified plants
 - d. Irrigation System Maintenance, Monitoring, Winterize system, Spring restart and Aftercare
 - e. Guaranty and replacement of unacceptable plants.
 - 2. Provide specific information on the following items:
 - a. Pervious Paving System Monitoring and Aftercare: including addressing maintenance of paver joint material permeability.
 - b. Post Planting Tree Care Monitoring and Aftercare including addressing care and long-term maintenance of the specified plants and Integrated Pest Management Program.
 - c. Irrigation System Maintenance, Monitoring and Aftercare: Watering season; diagnosis of watering need; frequency of watering; amount; time of day; methods and equipment; monitoring and adjusting moisture sensors,

- monitoring equipment operation and equipment maintenance, winterize system and spring restart.
 - d. Fertilization: Fertilizing seasons; analysis for fertilizer selection; application rates and methods; preparation and conditions; application times; application equipment; post-application operations and care; precautions for fertilizer use.
 - e. Liming: Liming season; analysis for liming; application rate; method and equipment for application.
 - f. Pruning: Pruning goals and purposes; methods and techniques (relate to species); equipment; season; cleanup and disposal; precautions.
 - g. Miscellaneous plant maintenance: Weeding and weed control; pest and disease control; leaf and litter removal; professional assistance for plant care;
 - h. Replacement of unacceptable plants.
3. Include a month-by-month calendar of maintenance procedures, indicating operations listed above. Include health and safety procedures for handling and applying fertilizer and chemicals.
 4. Submit a copy of maintenance manual to Engineer for approval. Submit prior to planting completion. Engineer may request revisions to manual to meet intent of project design.
 5. Submit three copies of manual to Owner at acceptance meeting for planting work. Acceptance shall not be granted until manual has been submitted and approved.

1.07 QUALITY ASSURANCE

- A. Qualifications: contractor shall have minimum five years experience in landscape maintenance.
- B. Regulatory Requirements
 1. Secure permits, licenses, and pay fees including traffic control.
 2. Comply with laws, regulations, and quarantines for agricultural and horticultural products.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Packing and Shipping: deliver materials in unopened containers bearing the manufacturer's name. Transport materials without damage. Protect finishes from abrasion, dirt, oils, grease, and chemicals. Pack materials to protect from weather.
- B. Acceptance at Site: verify in writing that delivered materials conform to specifications and approved submittals.
- C. Storage and Protection:
 1. Store materials in dry place, on pallets, off the ground; protect from sun.
 2. Protect materials from theft, damage, weather, dirt, oils, grease, and construction.

1.09 PROJECT/SITE CONDITIONS

- A. Environmental Requirements: do not work soils when dry, wet, or frozen.
 - 1. Field Test
 - a. Form soil in palm of hand, if soil retains shape and crumbles upon touching, the soil may be worked.
 - b. If soil will not retain shape it is too dry and should not be worked.
 - c. If soil retains shape and will not crumble, it is too wet and should not be worked.
- B. Planting Seasons: see Section 329300 - Planting

1.10 SUBSTANTIAL COMPLETION

- A. Upon completion of planting, request Architect/ Owner's Representative's review to determine if work is Substantially Complete. If work is determined to be Substantially Complete, Engineer will issue a Letter of Substantial Completion that establishes the effective date of the start of the two year Maintenance Period and two year Guaranty Period.
 - 1. If work is not substantially complete, Engineer will make a list of outstanding work to be done on a timely schedule agreed upon by Contractor and Architect/ Owner's Representative.
 - 2. Contractor shall notify Engineer when outstanding work is accomplished and ready for review. When outstanding work is complete, in the judgment of Engineer, a Letter of Substantial Completion will be issued.

1.11 MAINTENANCE PERIOD

- A. Maintain plantings until the end of two year Maintenance Period and two year Guaranty Period and Final Acceptance.

1.12 FINAL ACCEPTANCE

- A. After the (2) two-year Guaranty Period, plantings will be reviewed for acceptance.
- B. Plantings shall be in thriving and vigorous condition at the time of review for Final Acceptance. If plantings are acceptable, Engineer will issue a Letter of Final Acceptance.
 - 1. If plantings are not thriving, in the judgment of Engineer, remedial actions by Contractor will be required to replace plantings.
 - 2. Remedial work shall be done immediately and in accordance with related work of other sections.
 - 3. At the conclusion of remedial work, Engineer will review work and extend the Guaranty Period until plantings are deemed acceptable.

CLIPPERSHIP WHARF
EAST BOSTON, MA
TAT PROJECT
MAY 4, 2016

PART 2 - MATERIALS

2.01 POST PLANTING TREE CARE, PRUNING, MONITORING AND AFTERCARE

A. Materials for Planting Maintenance

1. Materials utilized during the maintenance period shall be the same specified in the work of the related sections:
 - a. Fertilizers, soil amendments, testing, see Section 319115 – Planting Soils.
 - b. Plants and related materials, see Section 329300 - Planting.

B. Biological, Herbicidal and Other Pest Control

1. Materials and Specifications shall be by a licensed pest control operator, with authority to purchase, utilize, and specify agricultural chemicals and agricultural products.
2. Use the least hazardous, least intrusive materials and methods.

2.02 EQUIPMENT

- A. Vehicles: in good working order so oil and grease does not stain pavements and poison plantings. Signs identifying the vehicles shall be clearly displayed.
- B. Machinery: in coastal environments use vegetable oil in lieu of hydraulic oil and maintain machinery in good working order so oil and grease does not stain pavements and poison plantings.

2.03 WATER

- A. Water: Furnished by Contractor, suitable for irrigation and free from ingredients harmful to plant life. Hose and other watering furnished by Contractor.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions: in the event field conditions are not as shown on Drawings and outlined in the Specifications, notify Engineer in writing.

3.02 INTEGRATED PEST MANAGEMENT PROGRAM

- A. Schedule a site visit and inspect trees every 6 weeks. Provide a detailed report following each site visit and report observations and remedial recommendations.
- B. Provide treatments to suppress insects, mites, nematodes, and diseases as prescribed by their manufacturer and in accordance with The Commonwealth of Massachusetts laws with permission of Engineer.

3.03 PROTECTION FROM AGRICULTURAL CHEMICALS

- A. Protect site improvements from contact with agricultural chemicals, soil amendments, and fertilizers.

3.04 PLANTS

- A. Maintain plants in vigorous condition throughout the Maintenance and Guaranty Periods.
- B. Replace plants that are missing, dead, not true to name or size as specified, or not in satisfactory growth, as determined by Engineer. Replace plants found unacceptable within one month or in first month of next growing season, whichever comes first.
- C. Plants must show a minimum of 75% healthy head with obvious growth since planting. Signs of disease, injury, or damage shall have been successfully treated or plant shall be rejected as determined by Engineer.
- D. Replacements plants shall be same kind and size as specified in plant list. Furnish and plant. Cost of replacement borne by Contractor except where it can be shown loss resulted from vandalism, fire, theft, or other causes beyond Contractor's control. Restore areas damaged or disturbed by replacement operations to their original condition.

3.05 SOIL DRAINAGE

- A. Observe drainage in plant soil areas with hand soil augur.
- B. Verify plant soil areas are draining; plant soils that are not draining shall be identified on the plan and brought to the attention of Engineer.

3.06 TREE CARE TREATMENTS FOR UPLAND PLANTS

- A. Inspect and treat trees two times per year to suppress phytophthora root rot and bleeding canker.
- B. Inspect two times per year and treat oaks a minimum of once every other year to suppress two line chestnut borer.

3.07 PRUNING OF UPLAND PLANTS

- A. Pruning to be performed to American Nurserymens' Association Standards to and will be overseen by an MCLP or certified Arborist. Pruning to preserve natural character of plant and as directed by Engineer. No leaders shall be cut.
- B. Prune trees and shrubs only with approval of Engineer to remove limbs that are below 7' above finished grade to maintain pedestrian clearance, remove dead, broken and crossing branches. Plants shall not be heavily pruned at the time of planting. In no case shall more than one-quarter of the branching structure be removed.
- C. Pruning is required at planting time to correct defects in the tree structure, including removal of injured branches, double leaders, waterspouts, suckers, and interfering branches. Healthy lower branches and interior small twigs should not be removed except as necessary to clear walks and roads. Retain the normal or natural shape of the plant.

- D. Prune according to American Nurserymens' Association Standards to preserve natural character of plant and as directed by Engineer. No leaders shall be cut.
- B. Prune with clean, sharp tools. Dead wood or suckers and broken or badly bruised branches shall be removed back to live bud, branch, or stem.
- C. Pruning above head height shall be done from a hydraulic man-lift or using other mechanisms such that it is not necessary to climb the tree.

3.08 WATERING OF UPLAND AND SALT MARSH PLANTS DURING ESTABLISHMENT PERIOD

- A. Water at a rate of one inch of water every five to seven days. Apply water such that it penetrates the soil to a depth of 6". Trees require a minimum of ten gallons each and shrubs a minimum of five gallons each per week. If spring or fall months experience below average rainfall, periodic watering could be extended as requested by Owner or Engineer. If natural rainfall provides water to meet watering requirements, weekly watering could be reduced but only at the request of Owner or Engineer.
- B. Water planted and transplanted vegetation to remain within limits of contract work as required in order to maintain their health during the duration of construction operations.
- C. Water shall be free from ingredients harmful to plant life. Provide hoses and other watering equipment required for work. On site water source may be used if available.
- C. Salt water only should be used and only when necessary during initial grow in period for salt marsh plantings. It is not expected that watering of these planted areas will be necessary as elevations conform to the known tidal cycle of Boston Harbor in this area.

3.09 IRRIGATION SYSTEM MAINTENANCE, MONITORING AND AFTERCARE

- A. Irrigation water for trees will be supplied primarily by infiltration of naturally occurring storm water through porous pavements and by storm water harvesting and direct infiltration through subsurface perforated pipes. As soil moisture requirements for each area are anticipated to be different, supplemental drip irrigation is controlled by separate soil moisture sensors placed in the soil of the root ball and the sand based structural soil around between the trees. Maintenance personnel shall be trained to understand the function and operation of the irrigation system.
- B. Annual Spring Start-up shall be overseen by a professional irrigation consultant and consist at a minimum of, but not be limited to, turning on water and checking for proper flow and pressure, exercising isolation valves and operating each controller zone to insure proper on/off operation. Drip tubing shall be checked for leaks and filters shall be cleaned. Set irrigation program and soil moisture sensor thresholds for proper watering. Remove valve box covers to check emitter equipment and operate each zone for a minimum of 5 minutes to determine if any repairs are needed. Submit a written report to the Engineer documenting findings from Spring Start-up.
- C. Annual Winterization shall include but not be limited to shutting down the water supply at the point of connection, blowing out system with compressed air and making sure vault covers are secure. Controller shall be shut off, but left powered up to generate heat and elevate moisture build up during the winter. Quick coupling valves shall be activated during blow out

- to remove water. Drip zone air release valves shall be pushed down to evacuate water during winterization.
- D. As a general rule, water at a rate of one inch of water every five to seven days. Apply water such that it penetrates the soil to a minimum depth of 6". Trees require a minimum of ten gallons each and shrubs a minimum of five gallons each per week. If spring or fall months experience below average rainfall, periodic watering could be extended as requested by Engineer. If natural rainfall provides water to meet watering requirements, weekly watering should be reduced but only at the request of Engineer.
 - E. The soil composition of the tree root balls and the sand based structural soils between the root balls is expected to be different. Monitor each soil moisture sensor through the controller interface to assure proper watering. Upper threshold of soil moisture content shall be adjusted as required to prevent over watering of the trees. Treeway soil moisture sensors shall have lower threshold set to provide for a consistent soil moisture level in the treeways.
 - F. Monitor soil moisture sensors on a bi-weekly basis during seasons of operation and adjust irrigation schedule to allow soil moisture sensors to control watering.
- 3.10 TREE STABILIZATION SYSTEM
- A. Trees: maintain plumb; adjust flexible ties.
 - B. Each tree shall be stabilized with a subsurface stabilization system approved by the Engineer immediately following planting. Plants shall stand be maintained plumb.
- 3.11 FINISH GRADE
- A. Maintain finish grades around plantings, at pavement edges, and at irrigation fixtures.
- 3.12 FIELD QUALITY CONTROL
- A. Post Plant Soil Tests: see Section 329300 - Planting
- 3.13 ADJUSTING
- A. Re-set settled plants to proper grade and position.
 - B. Restore planting saucer and adjacent material.
- 3.14 MONITORING OF SALT MARSH
- A. Monitoring of the completed salt marsh planting areas will be made on a routine basis and follow the approved Order of Conditions issued by the City of Boston Conservation Commission and other issuing authorities, as may be required.
 - B. Reporting and other deliverables will conform to the various requirements of the appropriate permits.

3.15 CLEANING

- A. Clean up, remove and dispose off-site excess planting mixture, soil and debris generated under work of this section.
- B. Remove and dispose of stakes, guys and other accessories at end of Guaranty Period.
- C. Wash and sweep clean site improvements and building surfaces. Clean spills and oversprays immediately.
- D. Repair damage caused by maintenance operations.

3.15 PROTECTION

- A. Protect work of this section until Final Acceptance.
- B. Protect planted areas and soils from compaction by construction traffic and from contamination by construction materials.

END OF SECTION

ELEVATION CERTIFICATE

Important: Follow the instructions on pages 1–9.

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

SECTION A – PROPERTY INFORMATION				FOR INSURANCE COMPANY USE	
A1. Building Owner's Name Clippership Wharf Multifamily LLC				Policy Number:	
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 15 Jacobbe Road, Building #1				Company NAIC Number:	
City Boston		State Massachusetts		ZIP Code 02128	
A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) Parcel ID 0105400022, Clippership Wharf Multifamily LLC					
A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) <u>Residential</u>					
A5. Latitude/Longitude: Lat. <u>42° 22' 06.1"</u> Long. <u>71° 02' 28.3"</u> Horizontal Datum: <input type="checkbox"/> NAD 1927 <input checked="" type="checkbox"/> NAD 1983					
A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.					
A7. Building Diagram Number <u>2A</u>					
A8. For a building with a crawlspace or enclosure(s):					
a) Square footage of crawlspace or enclosure(s) <u>N/A</u> sq ft					
b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade <u>N/A</u>					
c) Total net area of flood openings in A8.b <u>N/A</u> sq in					
d) Engineered flood openings? <input type="checkbox"/> Yes <input type="checkbox"/> No					
A9. For a building with an attached garage:					
a) Square footage of attached garage <u>N/A</u> sq ft					
b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade <u>N/A</u>					
c) Total net area of flood openings in A9.b <u>N/A</u> sq in					
d) Engineered flood openings? <input type="checkbox"/> Yes <input type="checkbox"/> No					
SECTION B – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION					
B1. NFIP Community Name & Community Number City of Boston, 250286			B2. County Name Suffolk		B3. State Massachusetts
B4. Map/Panel Number 0081	B5. Suffix J	B6. FIRM Index Date 03-16-2016	B7. FIRM Panel Effective/ Revised Date 03-16-2016	B8. Flood Zone(s) AE	B9. Base Flood Elevation(s) (Zone AO, use Base Flood Depth) 12, 11
B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9: <input type="checkbox"/> FIS Profile <input checked="" type="checkbox"/> FIRM <input type="checkbox"/> Community Determined <input type="checkbox"/> Other/Source: _____					
B11. Indicate elevation datum used for BFE in Item B9: <input type="checkbox"/> NGVD 1929 <input checked="" type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other/Source: _____					
B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Designation Date: _____ <input type="checkbox"/> CBRS <input type="checkbox"/> OPA					

ELEVATION CERTIFICATE

OMB No. 1660-0008
Expiration Date: November 30, 2018

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 15 Jacobbe Street, Building #1			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

SECTION C – BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)C1. Building elevations are based on: Construction Drawings* Building Under Construction* Finished Construction

*A new Elevation Certificate will be required when construction of the building is complete.

C2. Elevations – Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO. Complete Items C2.a–h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.

Benchmark Utilized: Elevation Established by GPS Vertical Datum: NAVD 1988

Indicate elevation datum used for the elevations in items a) through h) below.

 NGVD 1929 NAVD 1988 Other/Source: _____

Datum used for building elevations must be the same as that used for the BFE.

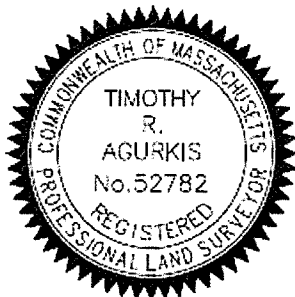
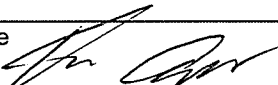
Check the measurement used.

- | | | | |
|---|-------------|--|---------------------------------|
| a) Top of bottom floor (including basement, crawlspace, or enclosure floor) | <u>6.6</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| b) Top of the next higher floor | <u>11.6</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| c) Bottom of the lowest horizontal structural member (V Zones only) | <u>N/A</u> | <input type="checkbox"/> feet | <input type="checkbox"/> meters |
| d) Attached garage (top of slab) | <u>N/A</u> | <input type="checkbox"/> feet | <input type="checkbox"/> meters |
| e) Lowest elevation of machinery or equipment servicing the building
(Describe type of equipment and location in Comments) | <u>-2.9</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| f) Lowest adjacent (finished) grade next to building (LAG) | <u>9.0</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| g) Highest adjacent (finished) grade next to building (HAG) | <u>18.4</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support | <u>9.0</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |

SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.

Were latitude and longitude in Section A provided by a licensed land surveyor? Yes No Check here if attachments.

Certifier's Name Tim Agurkis	License Number 52782		
Title Professional Land Surveyor/ Senior Project Manager			
Company Name Feldman			
Address 152 Hampden Street			
City Boston	State Massachusetts		ZIP Code 02119
Signature 	Date 6/16/19	Telephone (617) 357-9740	Ext.

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

Comments (including type of equipment and location, per C2(e), if applicable) Clippership Wharf Primary Condominium has an under ground garage that attaches to and services 3 buildings, #1, #2 and #3. This building attaches to and has access to the garage through an elevator. (C2a) Elevation of the top of bottom floor is the lowest floor in the garage. (C2b) Elevation for the next higher floor is a reception area. The first floor for occupancy is at 18.6. There is an elevator landing room in the garage at elevation 7.9 (C2f) Elevation for the lowest adjacent grade is at the entrance to the garage. The bottom of the elevator shaft pit is at 2.8 feet (elevator pit only at this level) (C2e) Elevation of the lowest machinery servicing the building is at a ground water pump in the garage. The lowest utility service servicing this building is the gas meter at 10.8 feet. There are 8 engineered flood barriers around the footprint of Building #1, the specifications of which are attached, the measured elevation of the top of the installed barriers range from 12.0 feet to 12.7 feet. There are 3 air intake vents circulating air into the garage the lowest points on these openings are at 13.0 feet. (See also Elevation Certificate for the Garage)

ELEVATION CERTIFICATE

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 15 Jacobbe Street, Building #1			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

**SECTION E – BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED)
FOR ZONE AO AND ZONE A (WITHOUT BFE)**

For Zones AO and A (without BFE), complete Items E1–E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B, and C. For Items E1–E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.

- E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).
 - a) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ feet meters above or below the HAG.
 - b) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ feet meters above or below the LAG.
- E2. For Building Diagrams 6–9 with permanent flood openings provided in Section A Items 8 and/or 9 (see pages 1–2 of Instructions), the next higher floor (elevation C2.b in the diagrams) of the building is _____ feet meters above or below the HAG.
- E3. Attached garage (top of slab) is _____ feet meters above or below the HAG.
- E4. Top of platform of machinery and/or equipment servicing the building is _____ feet meters above or below the HAG.
- E5. Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance? Yes No Unknown. The local official must certify this information in Section G.

SECTION F – PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION

The property owner or owner's authorized representative who completes Sections A, B, and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. The statements in Sections A, B, and E are correct to the best of my knowledge.

Property Owner or Owner's Authorized Representative's Name _____

Address _____	City _____	State _____	ZIP Code _____
Signature _____	Date _____	Telephone _____	

Comments

Check here if attachments.

ELEVATION CERTIFICATE

OMB No. 1660-0008 **560**
 Expiration Date: November 30, 2018

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 15 Jacobbe Street, Building #1			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

SECTION G – COMMUNITY INFORMATION (OPTIONAL)

The local official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Complete the applicable item(s) and sign below. Check the measurement used in Items G8–G10. In Puerto Rico only, enter meters.

- G1. The information in Section C was taken from other documentation that has been signed and sealed by a licensed surveyor, engineer, or architect who is authorized by law to certify elevation information. (Indicate the source and date of the elevation data in the Comments area below.)
- G2. A community official completed Section E for a building located in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.
- G3. The following information (Items G4–G10) is provided for community floodplain management purposes.

G4. Permit Number	G5. Date Permit Issued	G6. Date Certificate of Compliance/Occupancy Issued
-------------------	------------------------	---

- G7. This permit has been issued for: New Construction Substantial Improvement
- G8. Elevation of as-built lowest floor (including basement) of the building: _____ feet meters Datum _____
- G9. BFE or (in Zone AO) depth of flooding at the building site: _____ feet meters Datum _____
- G10. Community's design flood elevation: _____ feet meters Datum _____

Local Official's Name	Title
Community Name	Telephone
Signature	Date

Comments (including type of equipment and location, per C2(e), if applicable)

Check here if attachments.

BUILDING PHOTOGRAPHS

See Instructions for Item A6.

561

OMB No. 1660-0008

Expiration Date: November 30, 2018

ELEVATION CERTIFICATE

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 15 Jacobbe Street, Building #1			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

If using the Elevation Certificate to obtain NFIP flood insurance, affix at least 2 building photographs below according to the instructions for Item A6. Identify all photographs with date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8. If submitting more photographs than will fit on this page, use the Continuation Page.



Photo One

Photo One Caption Photo looking Northeast

Clear Photo One



Photo Two

Photo Two Caption Photo looking Northwest

Clear Photo Two

BUILDING PHOTOGRAPHS

Continuation Page

562

OMB No. 1660-0008

Expiration Date: November 30, 2018

ELEVATION CERTIFICATE

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 15 Jacobbe Street, Building #1			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8.



Photo Three

Photo Three Caption Photo looking Southeast

Clear Photo Three

Photo Four

Photo Four

Photo Four Caption

Clear Photo Four

Code Summary
November 11, 2016

- o Massachusetts State Building Code - 780 CMR, 8th Edition (2009 IBC with MA Amendments)
- o Massachusetts Architectural Access Board - 521 CMR, Effective January 27, 2006
- o MA Elevator Regulations, 524 CMR
- o MA State Sanitary Code, 105 CMR
- o Fair Housing Accessibility Guidelines, March 6, 1991
- o Introduction: The Clippership Wharf is a mixed-use development located on the waterfront in East Boston, Massachusetts. It is on a site bounded by the Boston Harbor on the North-West and South West sides, by Jacobbe Road on the North-East side, and Lewis Street to the South East.
- o The "project" consists of the following:
 1. A "closed" parking garage (S-2), located at Level "G", which will serve residents in all buildings. There will be 250 parking spaces for condo and rental tenants and an additional 20 parking spaces for the public. The public will enter the parking garage from Lewis Street. Renters will enter the parking garage from Jacobbe Road. Condo Owners can enter the garage from Jacobbe Road or through an interior garage door shortly after the public entry on Lewis Street.
 2. Approximately 4,100 SF of retail space (A-3) at Level "G", below Building #4, adjacent to Lewis Road. The retail space faces the waterfront and is currently being planned for a restaurant.
 3. Public toilet facilities and public bike storage are located in the public section of the garage below Building 4.
 4. Approximately 2,700 SF of retail space (M) at Level "G", below Building #3. The retail space faces the waterfront and is currently being planned for a kayak rental with kayak launch
 5. Approximately 1,200 SF of retail space (A-2) at Level "G", below Building #1. The retail space faces North - East currently being planned as a Café.
 6. Other garage areas include tenant and bike storage, trash rooms, residential elevator lobbies, etc.
 7. Four separate buildings consisting of 478 rental and For-Sale Dwelling Units built over a below grade "closed" parking garage.
 - A. Building 1 consisting of 209 rental dwelling units and leasing center and management offices.
 - B. Building 2 consisting of 75 rental dwelling units and amenity areas.
 - C. Building 3 consisting of 80 For-Sale Condominium dwelling units, amenity areas, and public areas.
 - D. Building 4 consisting of 114 rental dwelling units and lounge.
 8. Public harbor walk, public boat launch, public beach, and public event lawn.
 9. Amenity courtyard at Building 1 constructed over the parking garage.
- o The base of the building shall be constructed as a podium with a 3-hour rated concrete horizontal assembly above the closed air parking garage and the first floor residential and amenity areas.
- o Residential levels on floors two through six shall be constructed as wood. (Construction Type 3A) These buildings shall be referred to as Building 1(Apartments), Building 2 (Apartments), Building 3 (Condominiums) and Building 4. (Apartments)
- o All buildings shall be equipped with an automatic sprinkler system installed in accordance with Section 903.1.1. (NFPA 13)

CHAPTER 3 - USE AND OCCUPANCY

- o Occupancy Classifications:
 - Use Group R-2 Multiple Dwellings (IBC 2009 - 310.1)
 - Use Group S-2 Parking Garage (IBC 2009 - 311.3)
 - Use Group M Retail or Wholesale Stores (IBC 2009 - 309.1)
 - Use Group A-2 Restaurants, Night Clubs, Taverns and bars (IBC 2009 - 303.1)

BUILDING HEIGHT CALCULATIONS

- Building #1
 - o Average Grade Plane: Elev. 22.99'
 - o Average Height of Highest Roof Surface: Elev. 90.33'
 - o Building #1 Height (feet): 67.34'
 - o Building #1 Height (stories above horizontal separation*): 5-stories
- Building #2
 - o Average Grade Plane: Elev. 24.35'
 - o Average Height of Highest Roof Surface: Elev. 90.33'
 - o Building #2 Height (feet): 65.98'
 - o Building #2 Height (stories above horizontal separation*): 5-stories
- Building #3
 - o Average Grade Plane: Elev. 21.10'
 - o Average Height of Highest Roof Surface: Elev. 90.83'
 - o Building #3 Height (feet): 69.73'
 - o Building #3 Height (stories above horizontal separation*): 5-stories
- Building #4
 - o Average Grade Plane: Elev. 21.04'
 - o Average Height of Highest Roof Surface: Elev. 90.50'
 - o Building #4 Height (feet): 69.46'
 - o Building #4 Height (stories above horizontal separation*): 5-stories

* Refer to section IBC 2009 - 509.2 Horizontal building separation allowance.
 * Refer to section IBC 2009 - 509.4 Parking beneath Group R.

TYPES OF CONSTRUCTION

- o Construction Classification:
 - Type 3A (IBC 2009 - 602.3) - Residential floors
 - Type 1A (IBC 2009 - 602.2) - Parking Garage, Restaurant, Mercantile, Amenity Areas

Table 601
Fire Resistance Rating Requirements for Building Elements: (Hours)

Building Element	Fire resistance Rating (Hours)	
	Type 3A ^a (residential floors above concrete transfer deck)	Type 1A (Parking garage and first floor areas)
Primary structural frame (see Section 202)	1	3 ^b
Bearing walls - Exterior ^{d,e} - Interior	2 1	3 3 ^b
Nonbearing walls and partitions - Exterior - Interior ^d	0	0
Floor construction and secondary members (see Section 202)	1	2
Roof construction and secondary members (see Section 202)	1 ^{b,e}	1 1/2 ^b
Stair and Elevator Shafts (connecting 4 or more stories) ^f	2	2
Mechanical and Other Shafts (connecting more than 4 stories) ^g	2	2
Mechanical and Other Shafts (connecting less than 4 stories) ^g	1	1
Corridor Fire-Resistance Rating (Table 1018.1) R-2 (With Sprinkler system)	1/2	1/2
Corridor Fire-Resistance Rating (Table 1018.1) S-2 (With Sprinkler system)	0	0
Corridor Fire-Resistance Rating (Table 1018.1) M (With Sprinkler system)	0	0
Corridor Fire-Resistance Rating (Table 1018.1) A-2 (With Sprinkler system)	0	0
Dwelling Unit Separations (709.3 Exception 2)	1	N/A

TYPES OF CONSTRUCTION (Continued)

^a Per IBC 2009 - 1022.1, "Enclosures required. Interior exit stairways and interior exit ramps shall be enclosed with fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 712, or both. Exit enclosures shall have a fire resistance rating of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than 4 stories. The number of stories connected by the exit enclosure shall include any basements but not any mezzanines. Exit enclosures shall have a fire resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours....."
^b Per IBC 2009 - 708.4, "Shaft enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more, and not less than 1 hour where connecting less than four stories. The number of stories connected by the shaft enclosure shall include any basements but not any mezzanines. Shaft enclosures shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours. Shaft enclosures shall meet the requirements of Section 703.2.1".
^c Except in Group F-1, H, M, and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.
^d In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.
^e An approved automatic sprinkler system in accordance with 903.3.1.1 shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 506.3 or an allowable height increase in accordance with Section 504.2. The 1-hour substitution for the fire-resistance of exterior walls shall not be permitted.
^f Not less than the fire-resistance rating required by other sections of this code.
^g Not less than the fire-resistance rating based on fire-separation distance (see Table 602).
^h Not less than the fire-resistance rating as referenced in Section 704.10.

OCCUPANT LOAD

IBC 2009 Table 1004.1.1
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

Floor	Area	Floor Area (gsf)	Floor Area Per Occupant (gsf/occupant)	Occupant Load
Level G - BLDG 5	Parking (S-2)	126,720	200 gross	633.60
Level 0 - BLDG 1	Assembly(A2)	1195	15 net	79.67
Level 0 - BLDG 2	Mercantile (M)	3,051	30 gross	101.66
Level 0 - BLDG 4	Assembly(A2)	4,130	15 net	275.33
Level 1 - BLDG 1	Residential	35,621	200 gross	178.10
Level 1 - BLDG 2	Residential	14,126	200 gross	70.63
Level 1 - BLDG 3	Assembly(A3)	10,910	15 net	727.33
Level 1 - BLDG 4	Residential	17,382	200 gross	86.91
Level 2 - BLDG 1	Residential	35,948	200 gross	179.74
Level 2 - BLDG 2	Residential	13,826	200 gross	69.13
Level 2 - BLDG 3	Residential	16,538	200 gross	82.69
Level 2 - BLDG 4	Residential	20,698	200 gross	103.49
Level 3 - BLDG 1	Residential	37,423	200 gross	187.12
Level 3 - BLDG 2	Residential	13,826	200 gross	69.13
Level 3 - BLDG 3	Residential	16,538	200 gross	82.69
Level 3 - BLDG 4	Residential	20,698	200 gross	103.49
Level 4 - BLDG 1	Residential	37,423	200 gross	187.12
Level 4 - BLDG 2	Residential	13,826	200 gross	69.13
Level 4 - BLDG 3	Residential	16,538	200 gross	82.69
Level 4 - BLDG 4	Residential	20,698	200 gross	103.49
Level 5 - BLDG 1	Residential	37,423	200 gross	187.12
Level 5 - BLDG 2	Residential	13,826	200 gross	69.13
Level 5 - BLDG 3	Residential	16,538	200 gross	82.69
Level 5 - BLDG 4	Residential	20,698	200 gross	103.49
Level 6 - BLDG 1	Residential	37,423	200 gross	187.12
Level 6 - BLDG 2	Residential	13,826	200 gross	69.13
Level 6 - BLDG 3	Residential	16,538	200 gross	82.69
Level 6 - BLDG 4	Residential	20,698	200 gross	103.49

Table 1021.1
MINIMUM NUMBER OF EXITS FOR OCCUPANT LOAD

Floor	Occupant Load	Required Number of Exits	Number of Exits Provided
Level G - BLDG 5	633.60	3	3+
Level 0 - BLDG 1 (A-2)	79.67	2	2
Level 0 - BLDG 3 (M)	101.66	2	2
Level 0 - BLDG 4 (A-2)	275.33	2	2
Level 1 - BLDG 1(R-2)	178.10	2	2+
Level 1 - BLDG 2 (R-2)	70.63	2	2+
Level 1 - BLDG 3 (A-3)	727.33	3	3+
Level 1 - BLDG 4 (R-2)	86.91	2	2
Level 2 - BLDG 1	179.74	2	2
Level 2 - BLDG 2	69.13	2	2
Level 2 - BLDG 3	82.69	2	2
Level 2 - BLDG 4	103.49	2	2
Level 3 - BLDG 1	187.12	2	2
Level 3 - BLDG 2	69.13	2	2
Level 3 - BLDG 3	82.69	2	2
Level 3 - BLDG 4	103.49	2	2
Level 4 - BLDG 1	187.12	2	2
Level 4 - BLDG 2	69.13	2	2
Level 4 - BLDG 3	82.69	2	2
Level 4 - BLDG 4	103.49	2	2
Level 5 - BLDG 1	187.12	2	2
Level 5 - BLDG 2	69.13	2	2
Level 5 - BLDG 3	82.69	2	2
Level 5 - BLDG 4	103.49	2	2
Level 6 - BLDG 1	187.12	2	2
Level 6 - BLDG 2	69.13	2	2
Level 6 - BLDG 3	82.69	2	2
Level 6 - BLDG 4	103.49	2	2

Flood Protocol

Residential uses occur at the first floor (25.00') well above the flood plain; however the parking garage (13.50' - 15'-8") and retail areas (16.13', 17.50', 18.10') occur below the flood plain. Ownership and the project team have elected to keep water out of these areas during a flood event as allowed by Exception 2 of 63.01.3.

The 100 year flood plain at the site is at elevations 14.46' and 15.46'. This sets code design levels at 15.46' and 16.46'. In anticipation of the raising of these levels by FEMA, the Owner has directed the flood protection measures to be designed at elevations 18.46' and 19.46', one foot above the projected new levels.

At garage door openings, retail storefront and curtain wall, and pedestrian openings below design level there will be a system of removable flood protection barriers that will provide waterproofing. These systems will consist of removable posts and removable 6" flood planks. Flood planks and all appurtenances will be stored within the garage or the retail areas.

Management will monitor the weather and tides and deploy the system in advance of a weather event. Once the system has been deployed vehicles will not be able to enter the garage until flood waters have receded and the barriers have been removed. Retail spaces will be shut down any time flood barriers are in place. At a few locations emergency egress will be altered to coincide with the natural disaster.

In addition to these waterproofing and removable flood control measures the garage slab will be installed with a hydrostatic relief system to relieve water pressure from underneath the slab. This system will be tied to the emergency generator in the event of power loss.

Table 503 - ALLOWABLE BUILDING HEIGHTS AND AREAS

Code Reference	Construction Type 3A & Use Group R-2	Area
Table 503	4 Stories (65 feet)	24,000 sf
Section 504.2 Sprinkler Height Increase ^a	+ 1 Story (20 feet)	N/A
Section 506.3 Sprinkler Area Increase ^b	N/A	+ 48,000 sf
Total Allowable Area		72,000 sf
Total Allowable Height	5 Stories (85 feet)	N/A
BLDG 1 - Proposed Height & Maximum Allowable Area	5 Stories (67.34')	Approx. 37,423 sf
BLDG 2 - Proposed Height & Maximum Allowable Area	5 Stories (65.98')	Approx. 13,826 sf
BLDG 3 - Proposed Height & Maximum Allowable Area	5 Stories (69.73')	Approx. 16,538 sf
BLDG 4 - Proposed Height & Maximum Allowable Area	5 Stories (69.46')	Approx. 20,698 sf

^a Per IBC 2009 - 504.2 "Automatic Sprinkler System Increase - Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the value specified in Table 503 for maximum building height is increased by 20 feet and the maximum number of stories is increased by one....."
^b Per IBC 2009 - 506.3 "Automatic sprinkler system increase - Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the building area limitation in Table 503 is permitted to be increased by an additional 200 percent for buildings with more than one story above grade plane....."

The following table summarizes the building height and area limitations for the closed parking garage

Code Reference	Construction Type 1A & Use Groups R-2, S-2, M, & A-2	Area
Table 503	Unlimited	Unlimited
Residential (R-2)	3 Stories (69.73')	Approx 37,423 SQFT
Garage (S-2)	1 Stories (11.50')	Approx 126,720 SQFT
Mercantile (M)	1 Stories (20.37')	Approx 3,050 SQFT
Restaurant (A-2)	1 Stories (18.00')	Approx 4,130 SQFT

Table 602
Fire-Resistance Rating Requirement For Exterior Walls Based on Fire Separation Distance

Fire Separation Distance=X (feet)	Type of Construction	Occupancy Group A, R, S-2	Occupancy Group M
X<5	All	1	2
5≤X<10	IA Others	1 1	2 1
10≤X<30	IA Others	1 1	1 1
X≥30	All	0	0

CHAPTER 11 - ACCESSIBILITY

Per Massachusetts State Building Code - 780 CMR, 8th Edition 1101.1 Scope. In accordance with M.G.L. c. 22 & 13A all public buildings shall be designed to be accessible to, and functional and safe for use by, physically disabled persons, and conform to the requirements of 521 CMR. In accordance with M.G.L. c. 143, & 3, 521 CMR shall be enforced by the building official or the state inspector, as applicable.

Massachusetts Architectural Access Board (521 CMR)

- o Group 1 Dwelling Units - Buildings #1 & #2:
 - Group 1 Dwelling Units: In multiple dwellings for which building permits for new construction are issued on or after September 1, 1996, that are for rent, hire, lease, or sale and that are equipped with an elevator, all dwelling units must be constructed as Group 1 Dwelling Units, except those covered as Group 2 Dwelling Units.
 - Buildings 1, 2, 3, & 4 are proposed new buildings equipped with elevators. All dwelling units must be constructed as Group 1 Dwelling Units, except those covered as Group 2 Dwelling Units.
- o Group 2A Dwelling Units - Building 1, 2, & 4:
 - In multiple dwellings that are for rent, hire, or lease (but not for sale) and contain 20 or more units, at least 5% of the dwelling units must be constructed as Group 2A units. The proposed Building #1 & #2 dwelling units are for rent. As such, at least 5% of the dwelling units must be constructed as Group 2A units.
 - Buildings 1, 2, 4 are for rent and will contain Group 2A units.
 - Total Units in Buildings 1, 2, & 4 = 398. 398 Units X 5% = 20 Group 2A Units
 - Distribution: Group 2A dwelling units shall be proportionally distributed across the total number of units according to number of bedrooms, size, quality, price and location. Group 2A units have been proportionally distributed across the total number of units and shall be provided as follows; Refer to chart on UNIT SCHEDULES for distribution.
- o Sleeping Accommodations for Deaf or Hard of Hearing Persons - Buildings 1, 2, 3, & 4.
 - In addition to those units required to be accessible by 521 CMR 9.4, Group 2 Dwelling Units, 2% of the total number of dwelling units in the complex or project, but not less than one shall comply with 521 CMR, Section 9.7.
 - Ten of the 478 total units in the project are proposed as units for deaf or hard of hearing persons, per 521 CMR, Section 9.7.
- o Fair Housing Amendments Act - Buildings 1, 2, 3, & 4:
 - The Fair Housing Act Design Requirements apply to buildings built for first occupancy after March 13, 1991, which fall under the definition of "covered multifamily dwellings." Covered multifamily dwellings are:
 - a. All dwelling units in buildings containing four or more dwelling units if such buildings have one or more elevators, and
 - b. All ground floor dwelling units in other buildings containing four or more units.
 - Buildings 1, 2, 3, & 4 are proposed new buildings equipped with elevators and contain more than 4 dwelling units. All dwelling units must be constructed according to the Fair Housing Act Design Requirements. All 478 of the units in Buildings 1, 2, 3, & 4 are proposed as units complying with the Fair Housing Act Design Requirements.



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Consultant:

Revision:

- 1 DEC. 01, 2015
- 2 MAY 4, 2016
- 3 JUNE 30, 2016 ADDENDUM 2
- 4 NOV 11, 2016 ADDENDUM 5

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Checked: AS

Scale: 12" = 1'-0"

Key Plan:

Project Name:

CLIPPERSHIP WHARF

25-65 Lewis Street
East Boston, MA 02128

Sheet Name:

CODE SUMMARY

Project Number:

13166



Issue Date:

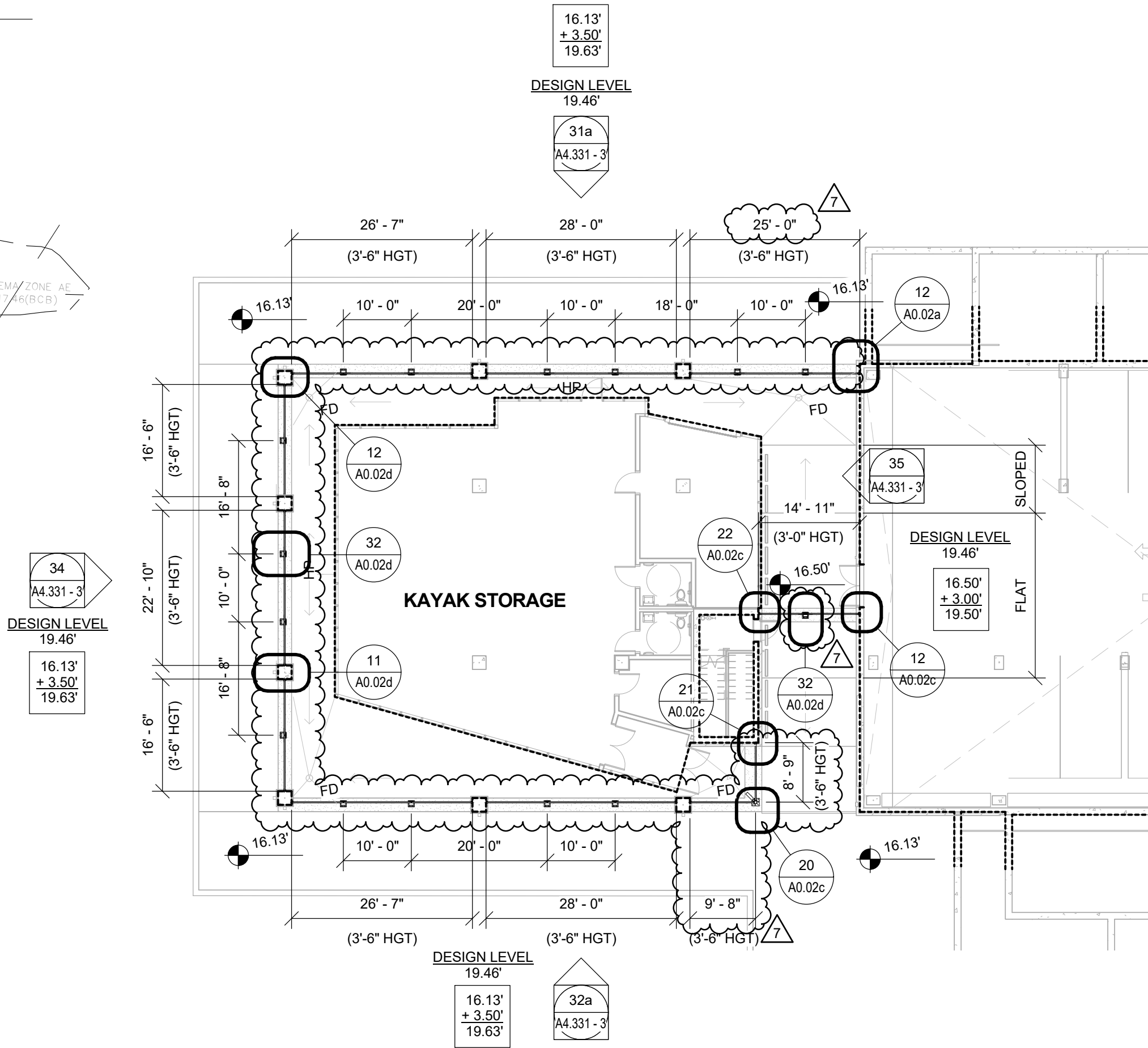
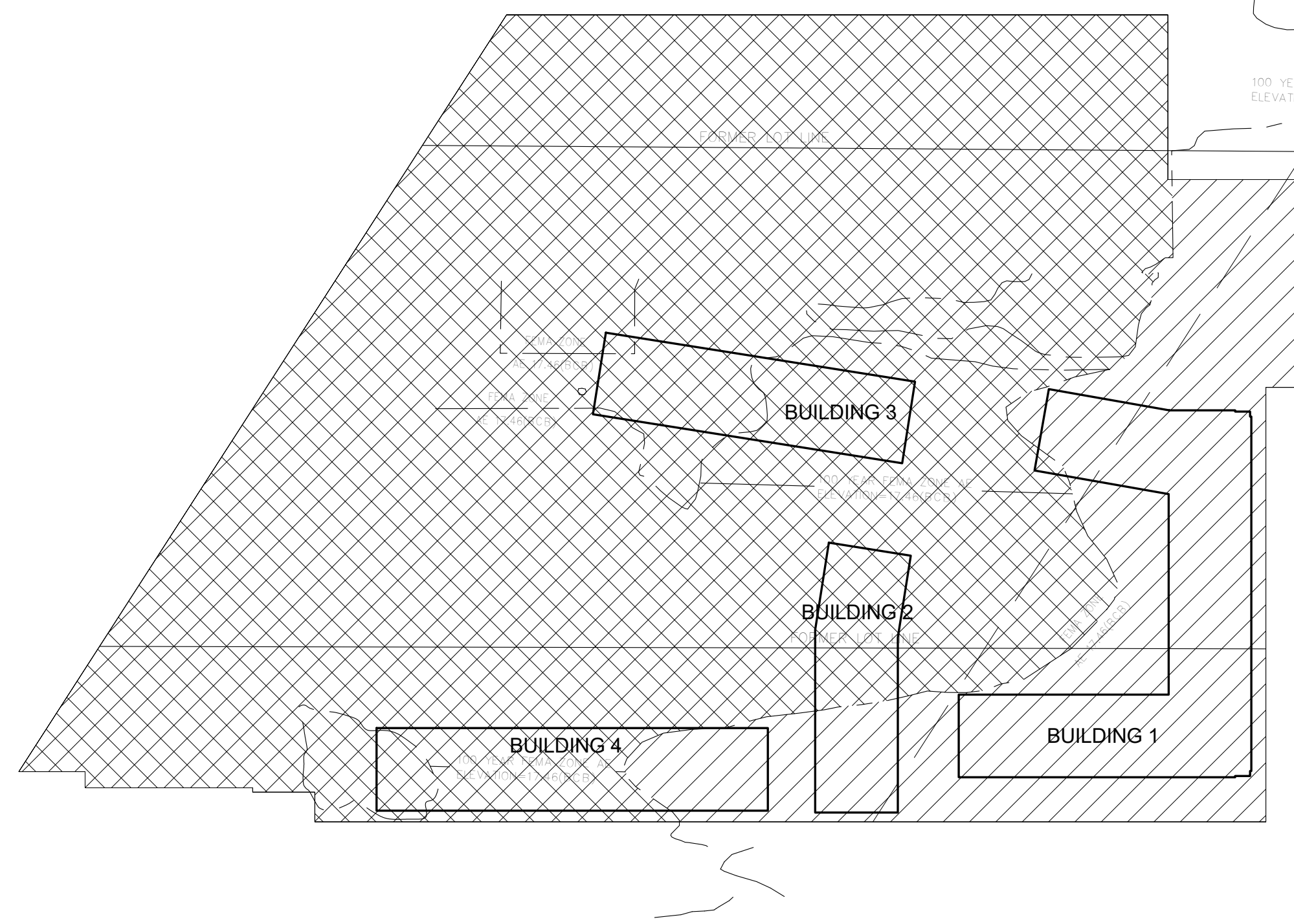
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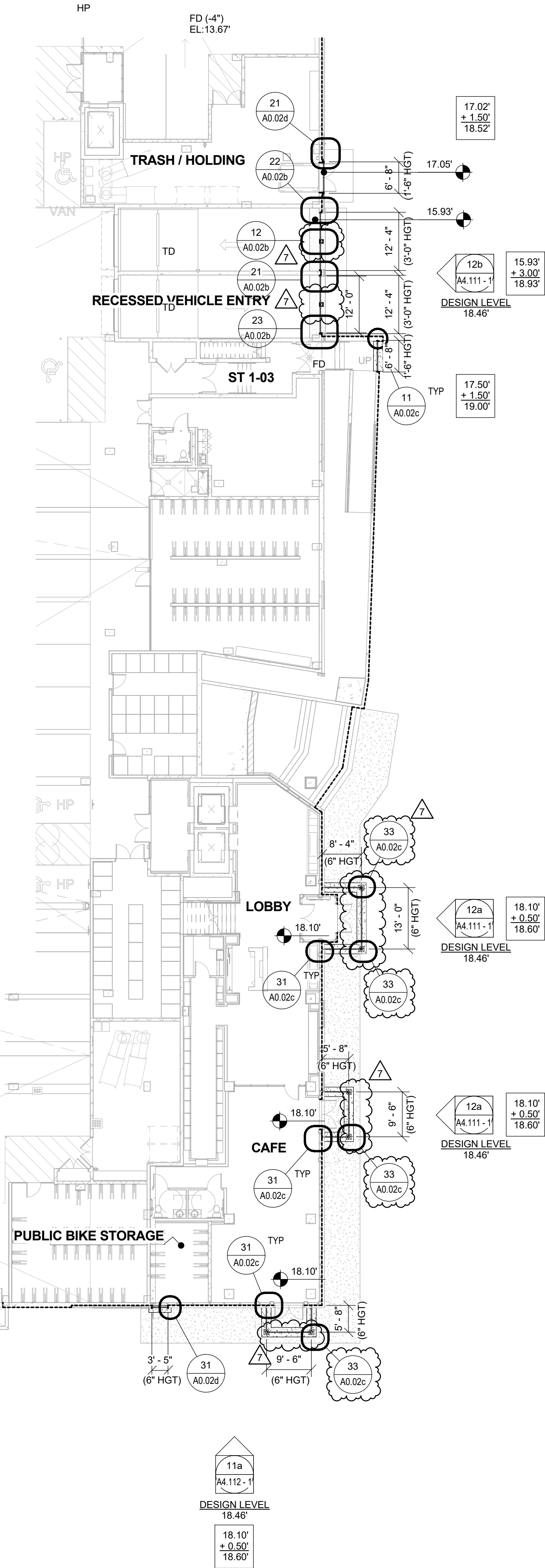
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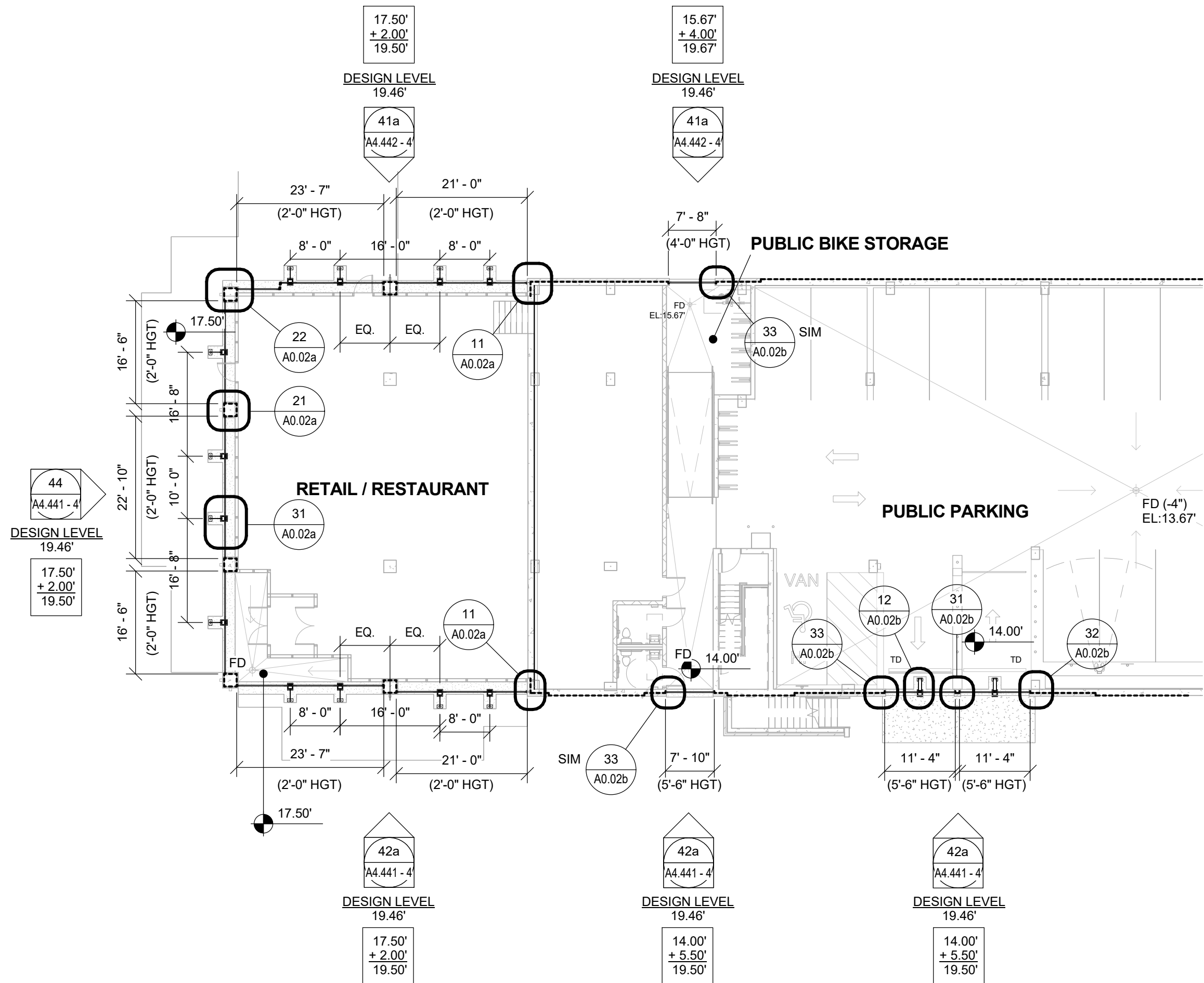
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	DESIGN LEVEL: 18.46'



40 OVERALL FLOOR PLAN - 00 - FLOOD PLANK - BLDG 3
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10 OVERALL FLOOR PLAN - 00 - FLOOD PLANK - BLDG 1
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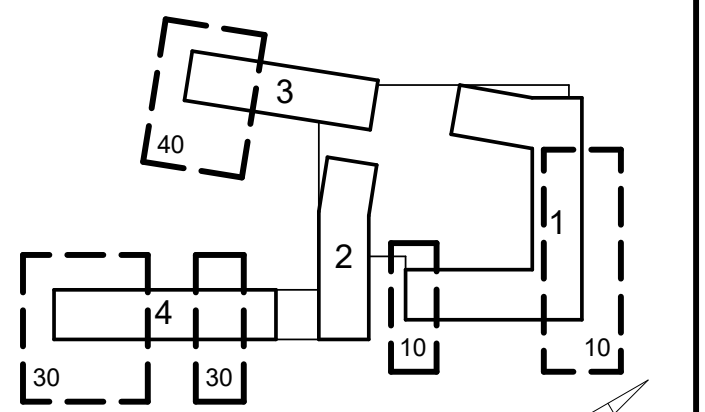
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 - NOV 11, 2016 ADDENDUM 5
 - DEC 21, 2016 BULLETIN 009
 - DEC 01, 2017 BULLETIN 061

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Scale: As indicated
Key Plan:



Project Name:
CLIPPERSHIP WHARF

25-65 Lewis Street
East Boston, MA 02128

Sheet Name:
FLOOD PLANK INFO - FLOOR PLAN

Project Number:
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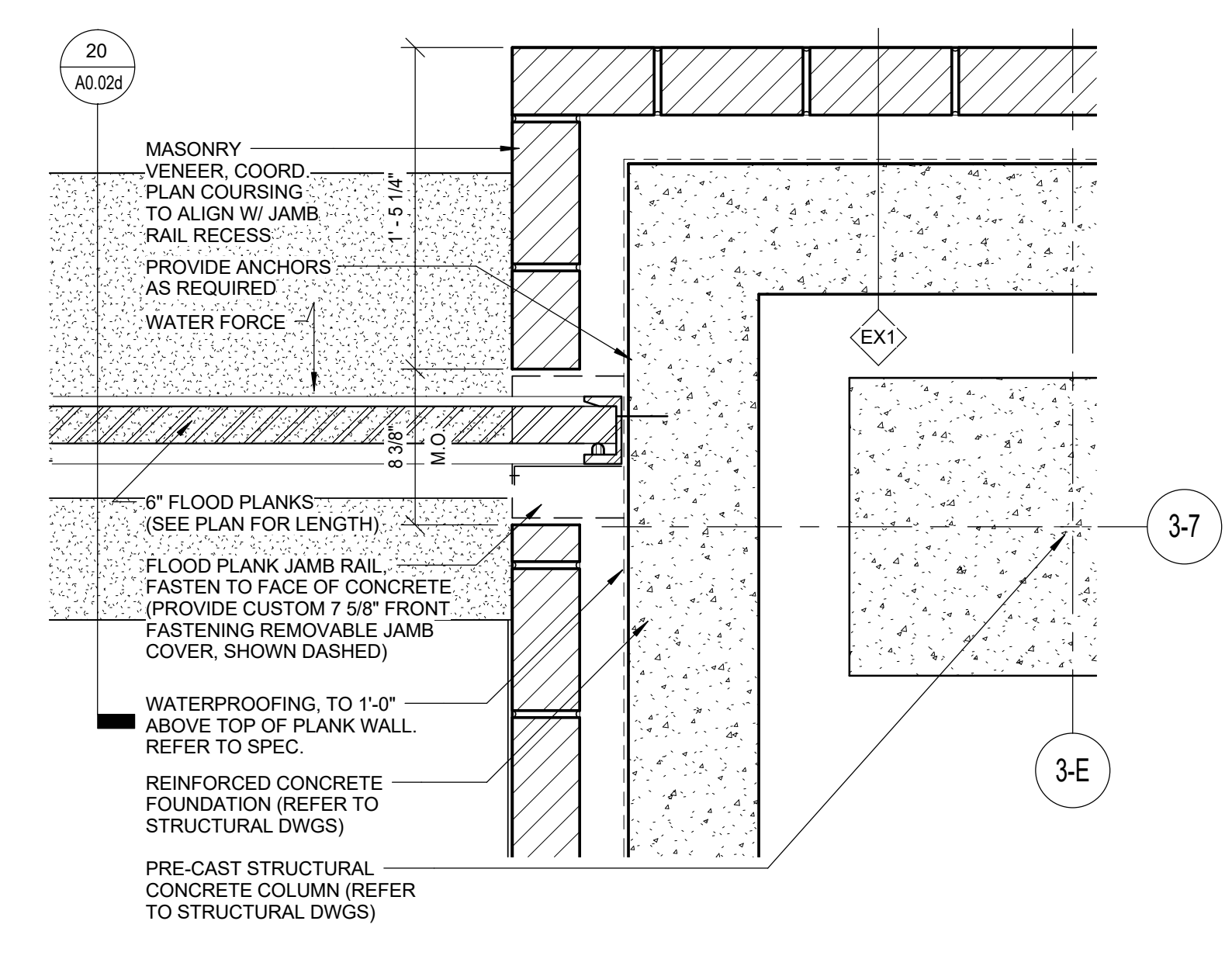
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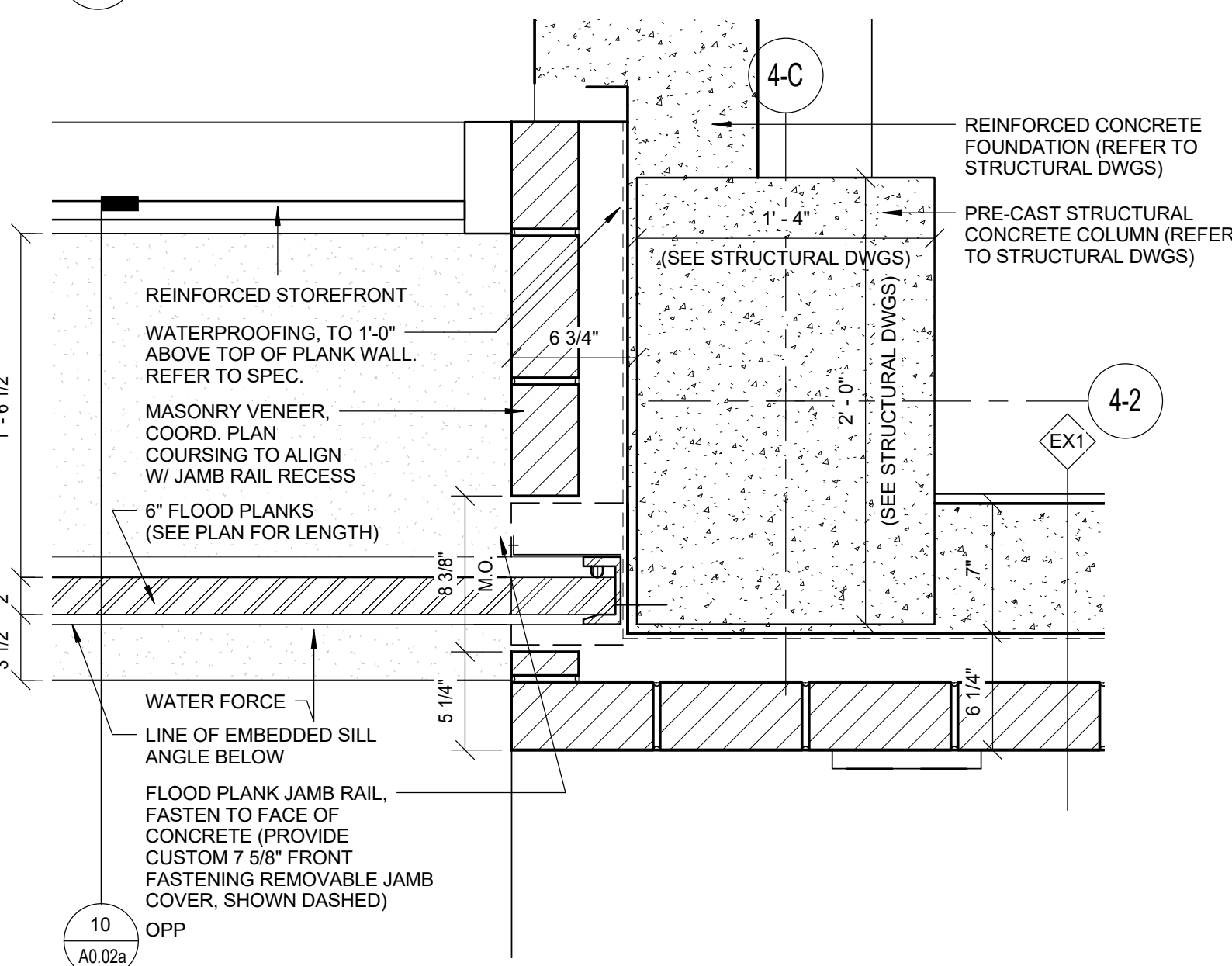
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Project Number: 13166 Issue Date: DECEMBER 01, 2015

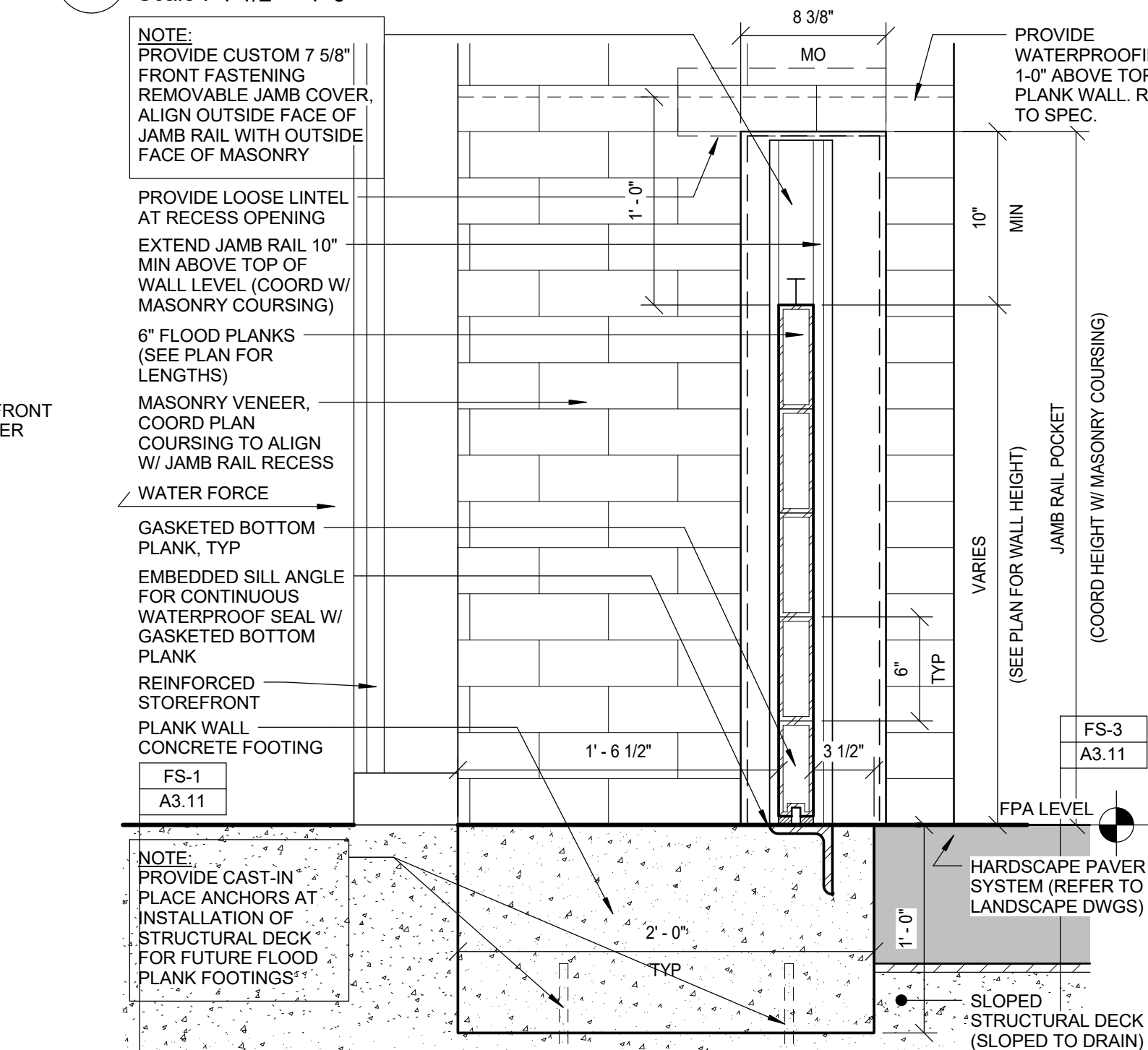
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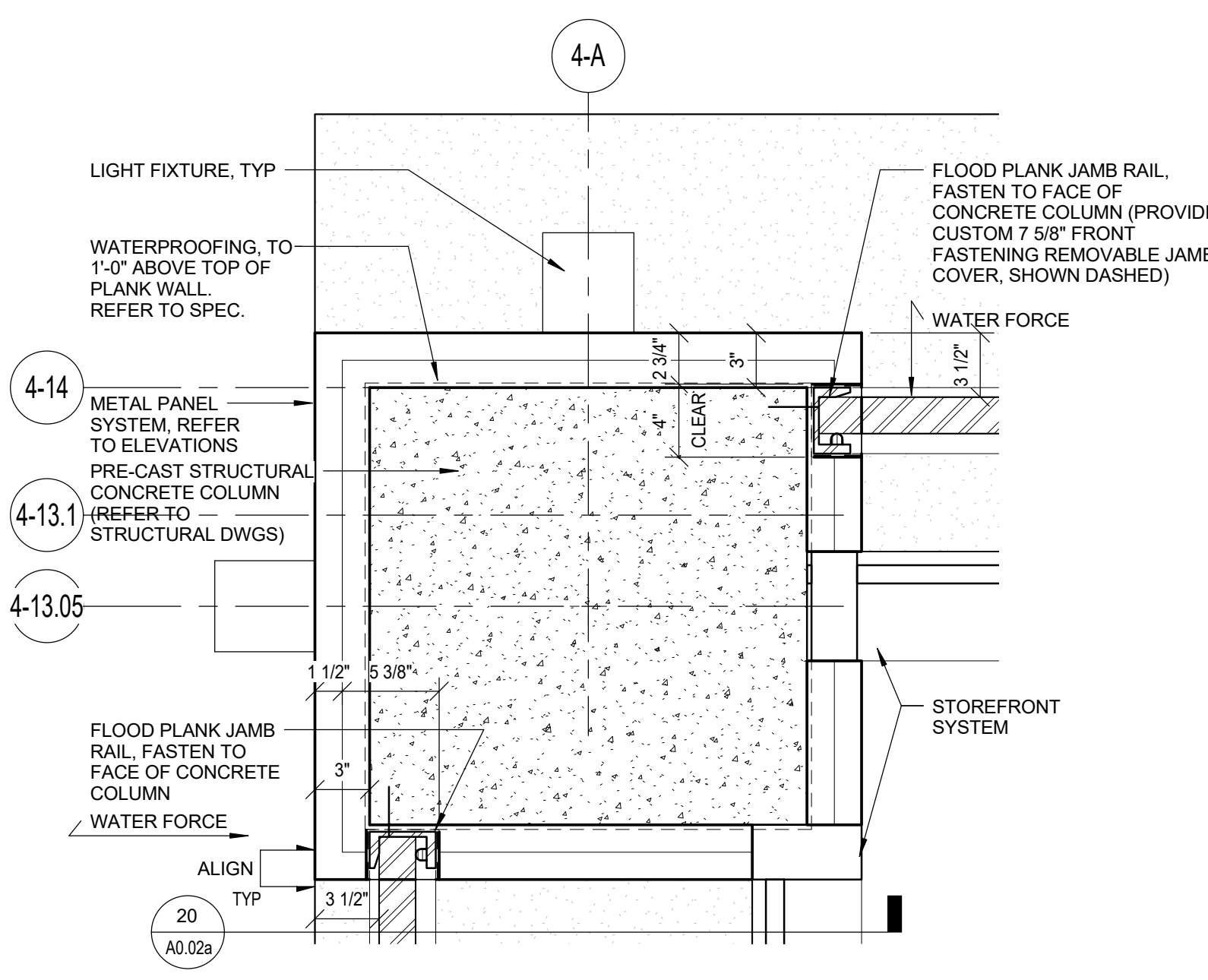
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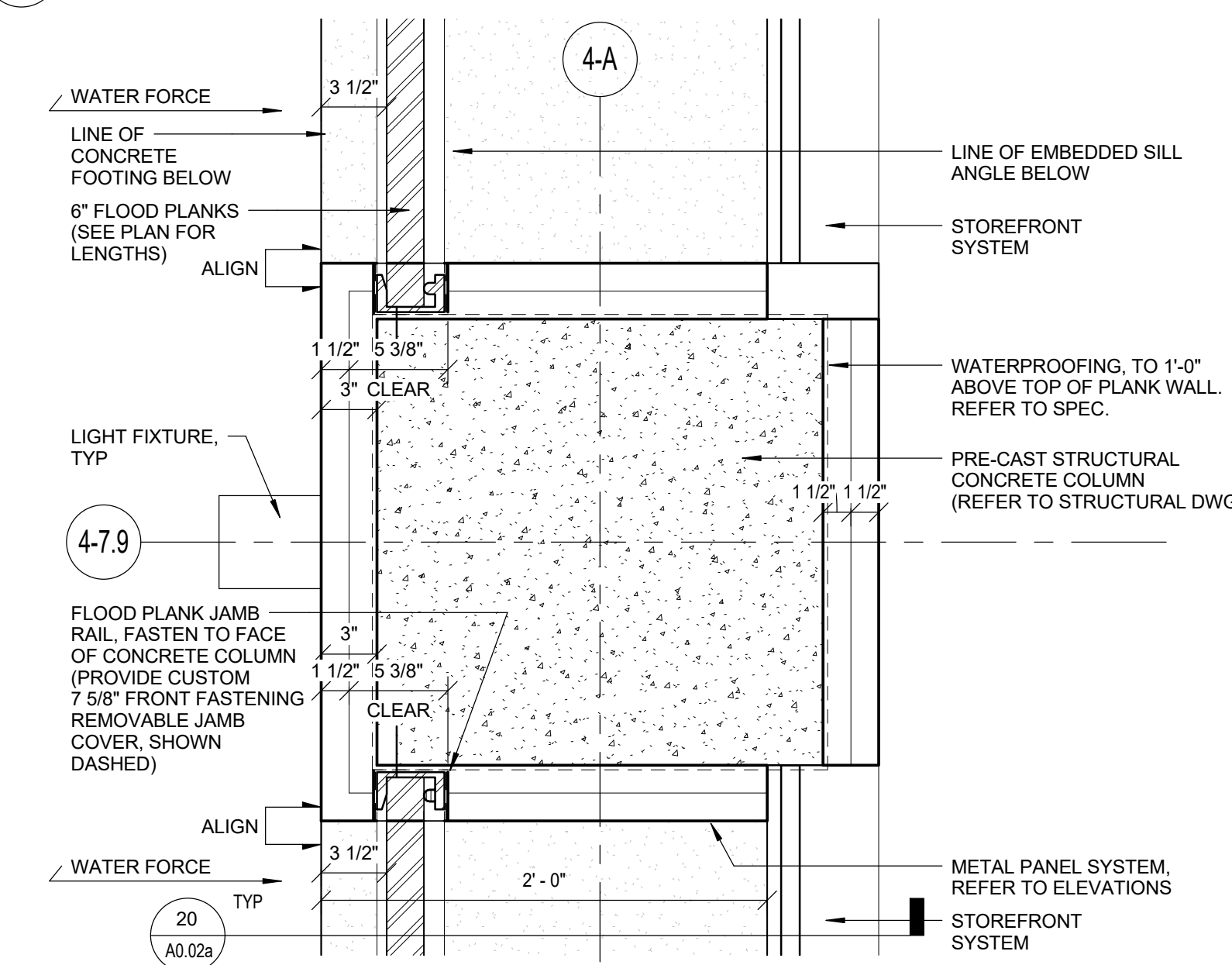
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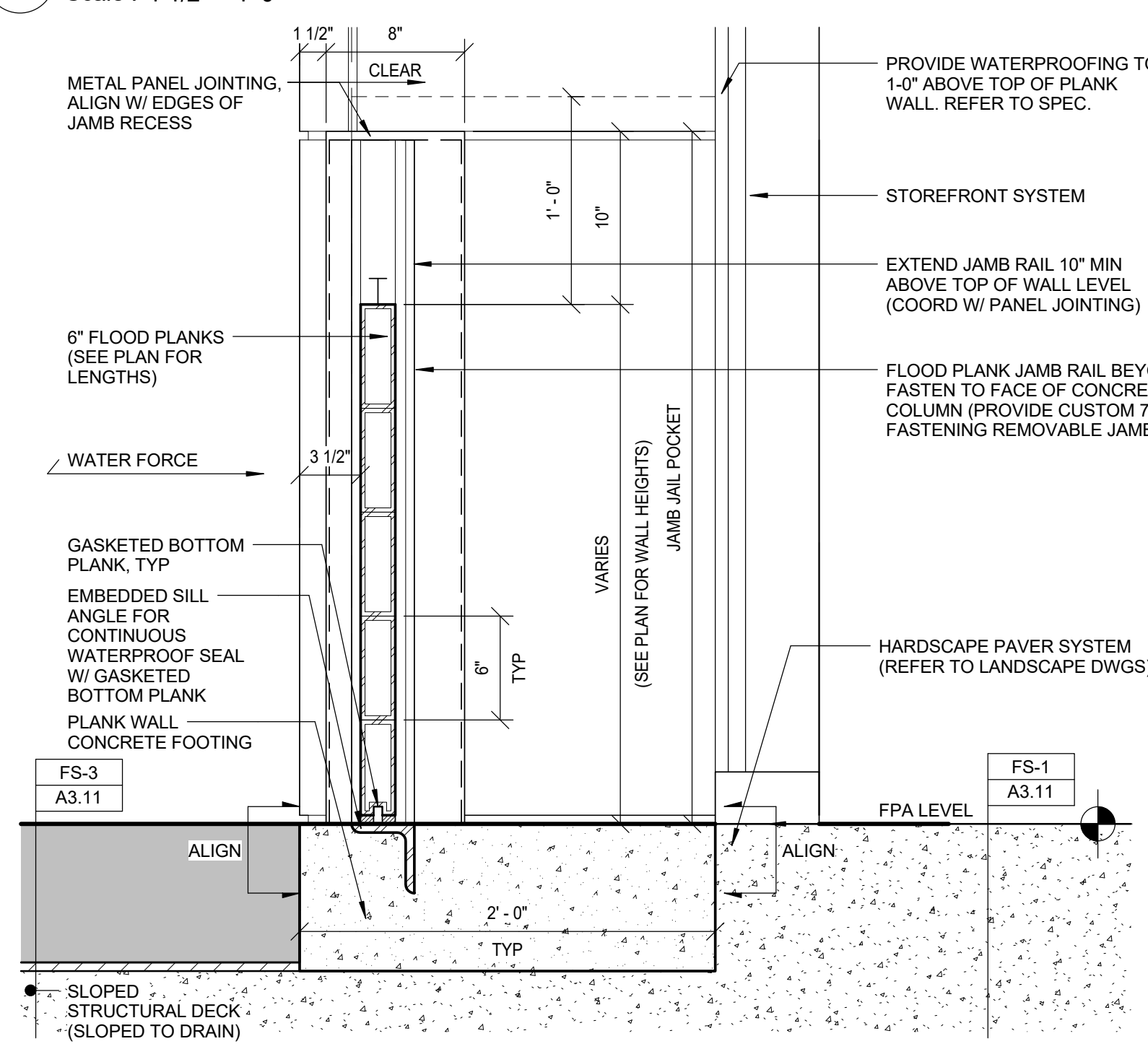
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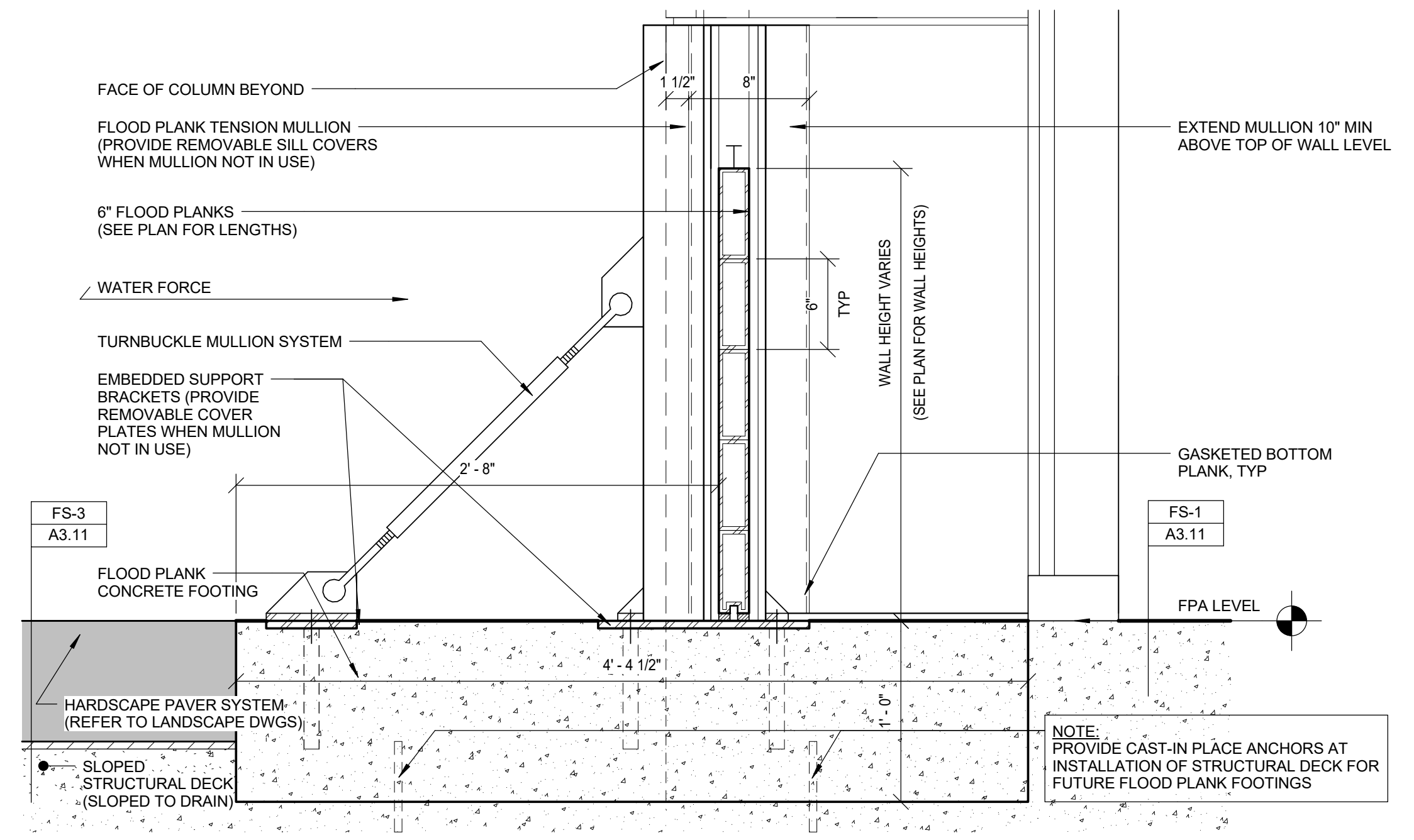
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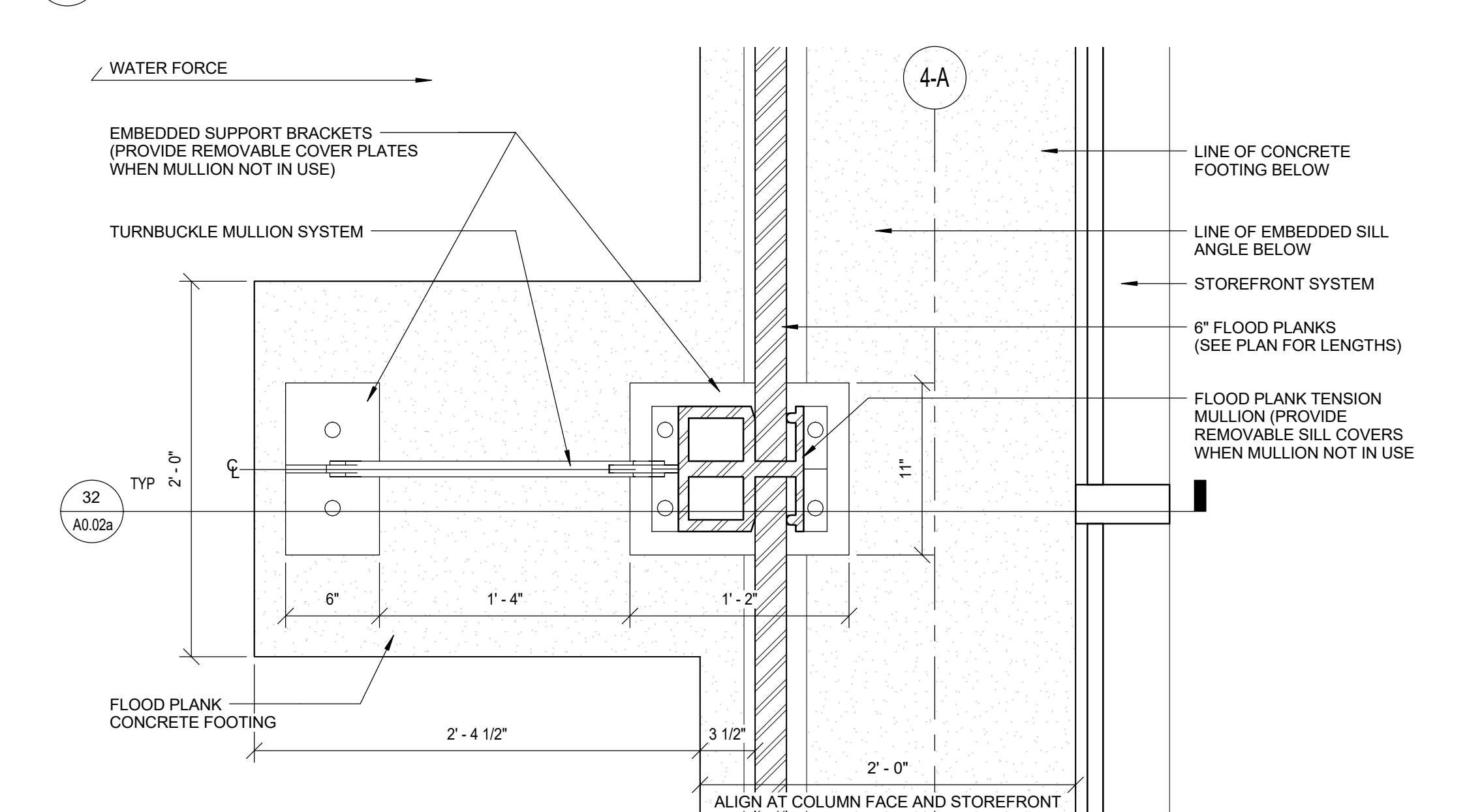
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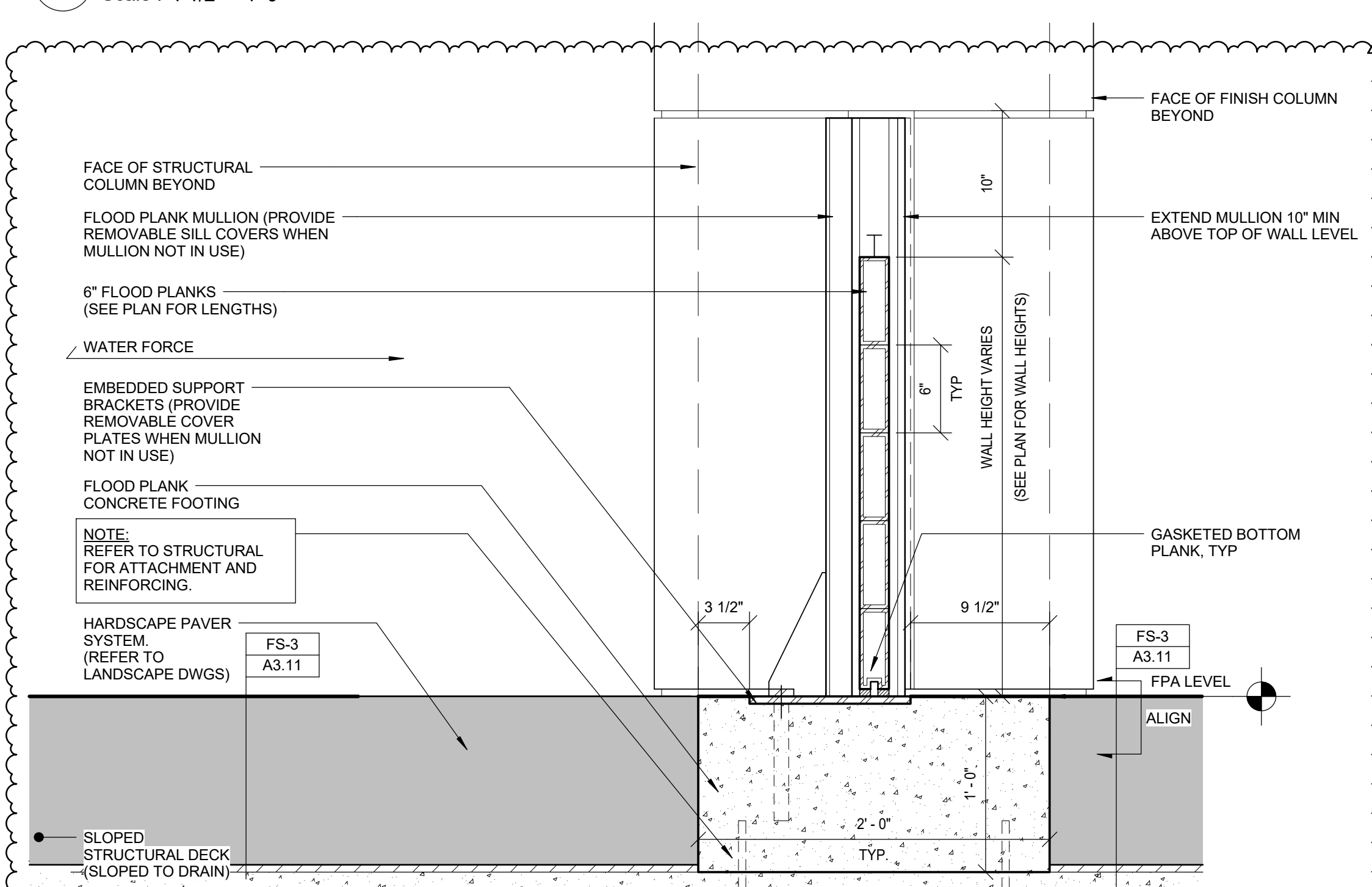
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 - 4 FEB 24, 2017 BULLETIN 027
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 Key Plan:

Project Name: CLIPPERSHIP WHARF

25-65 Lewis Street East Boston, MA 02128

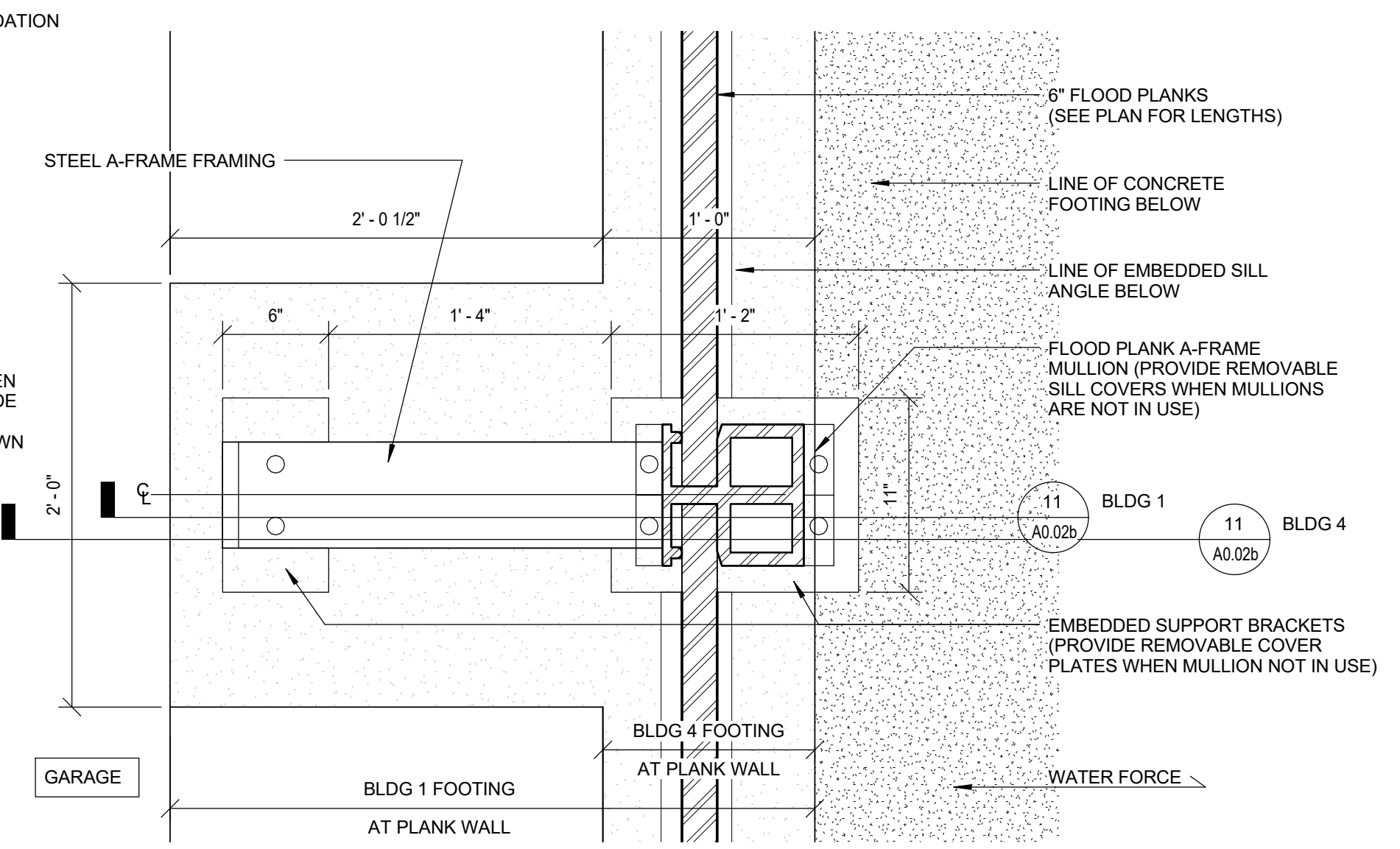
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Project Number: 13166

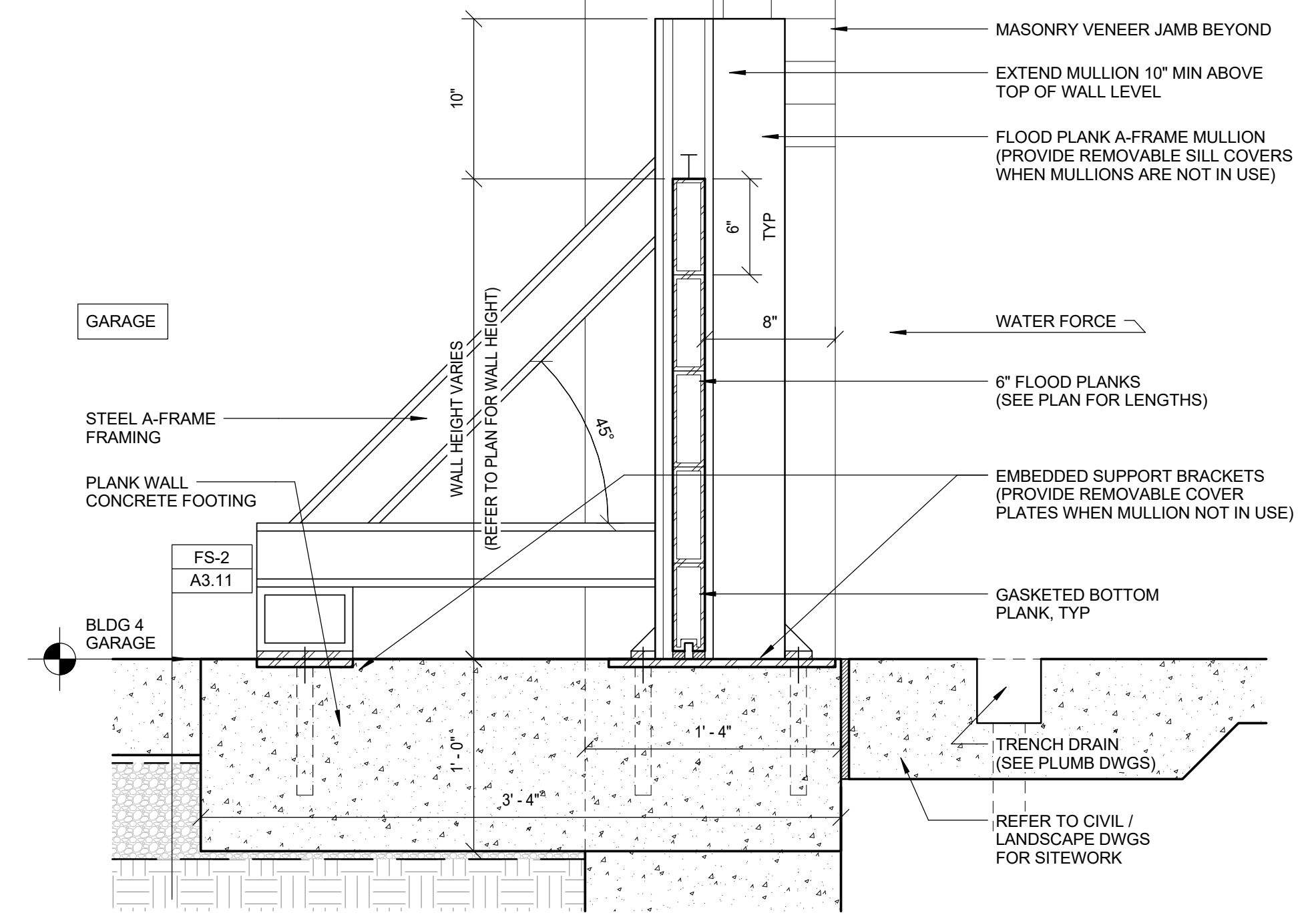
Issue Date: DECEMBER 01, 2015

Sheet Number:

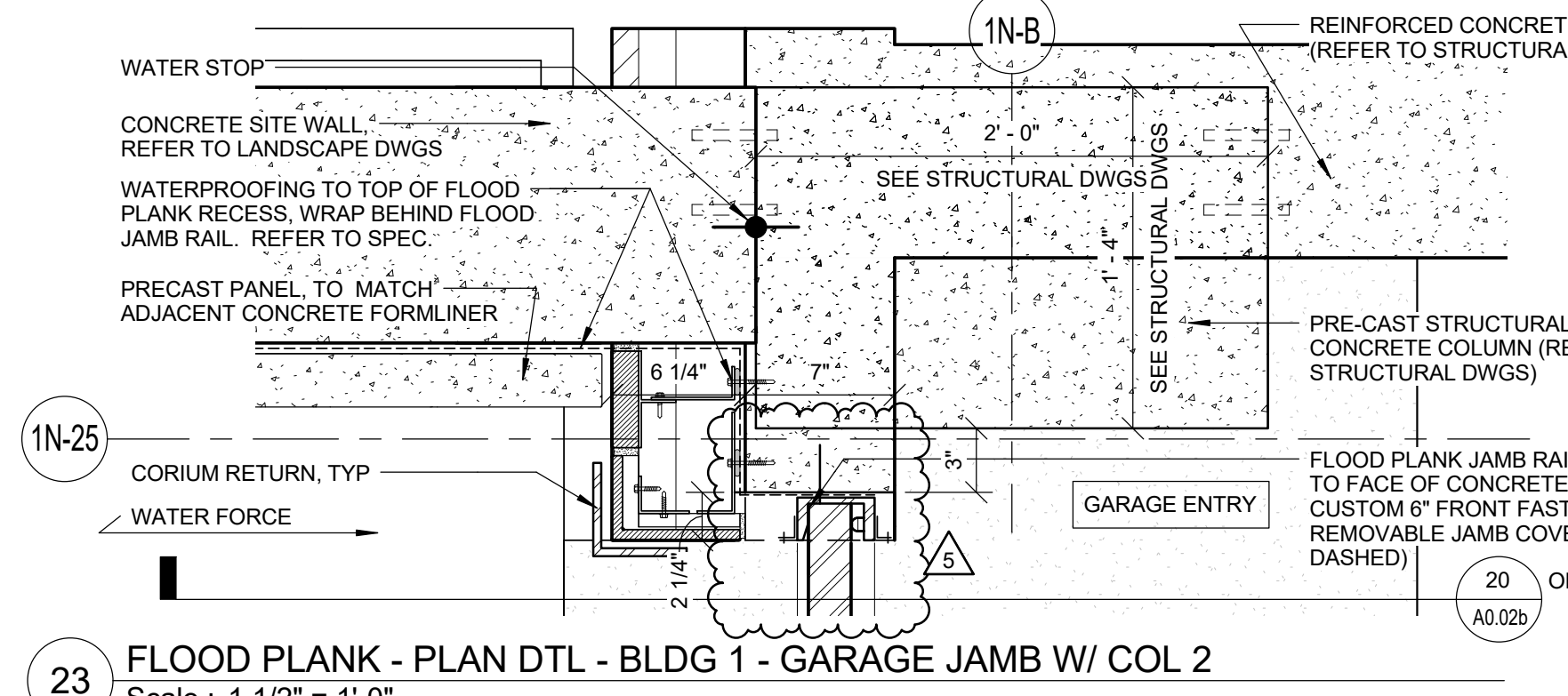
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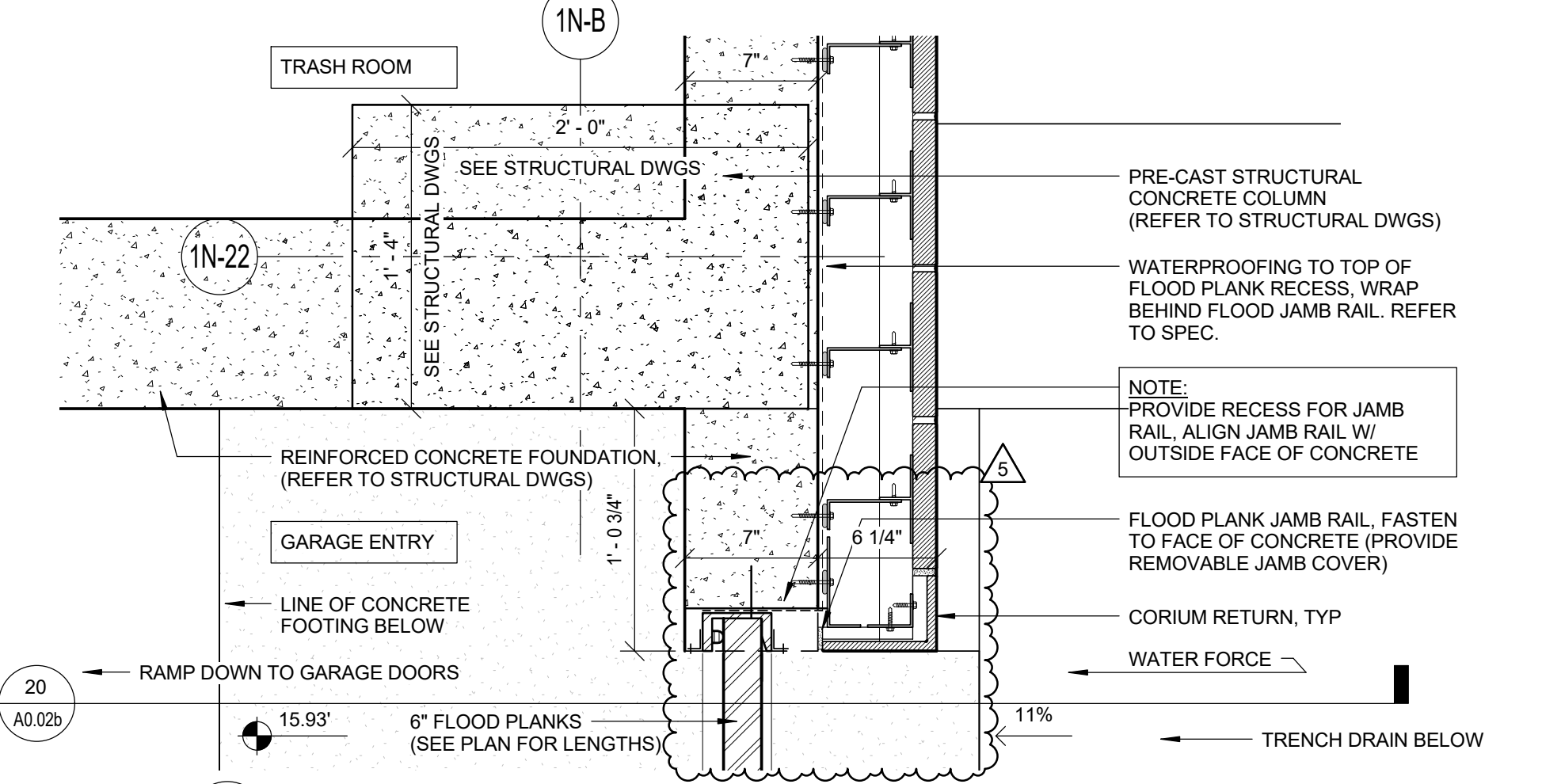
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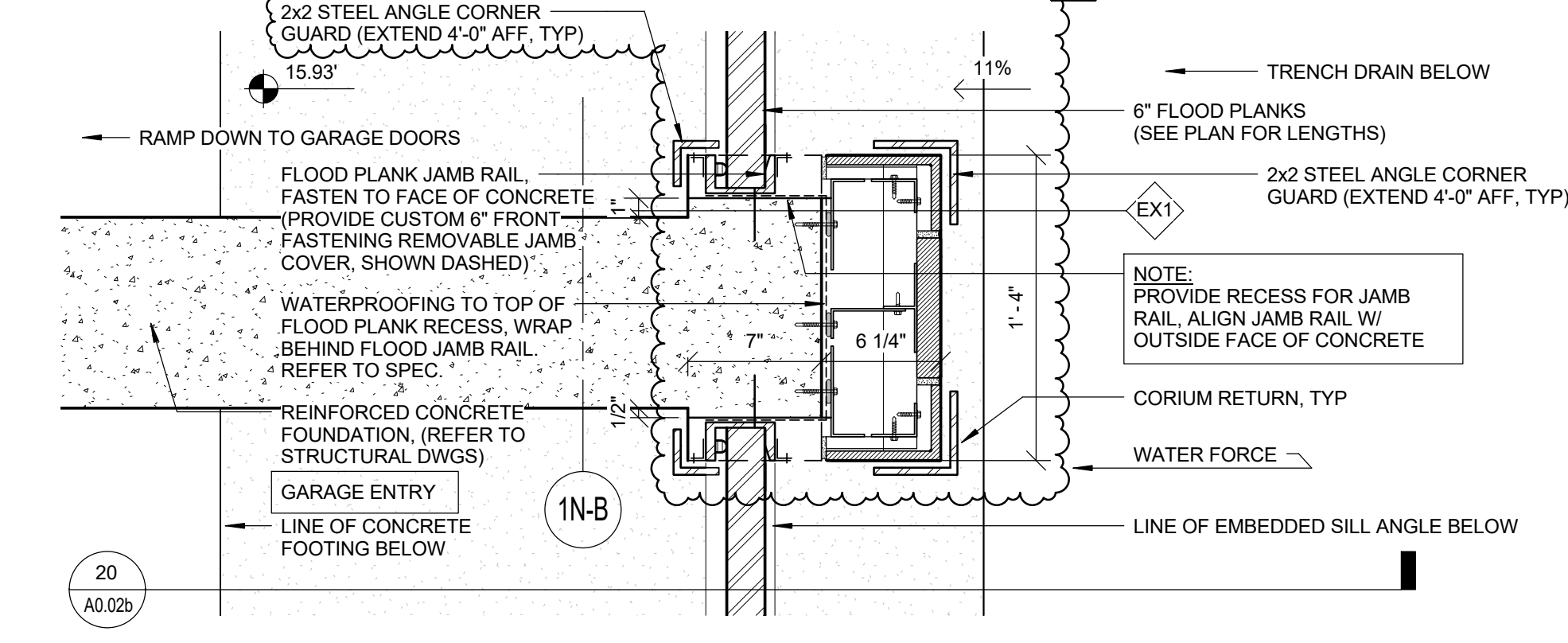
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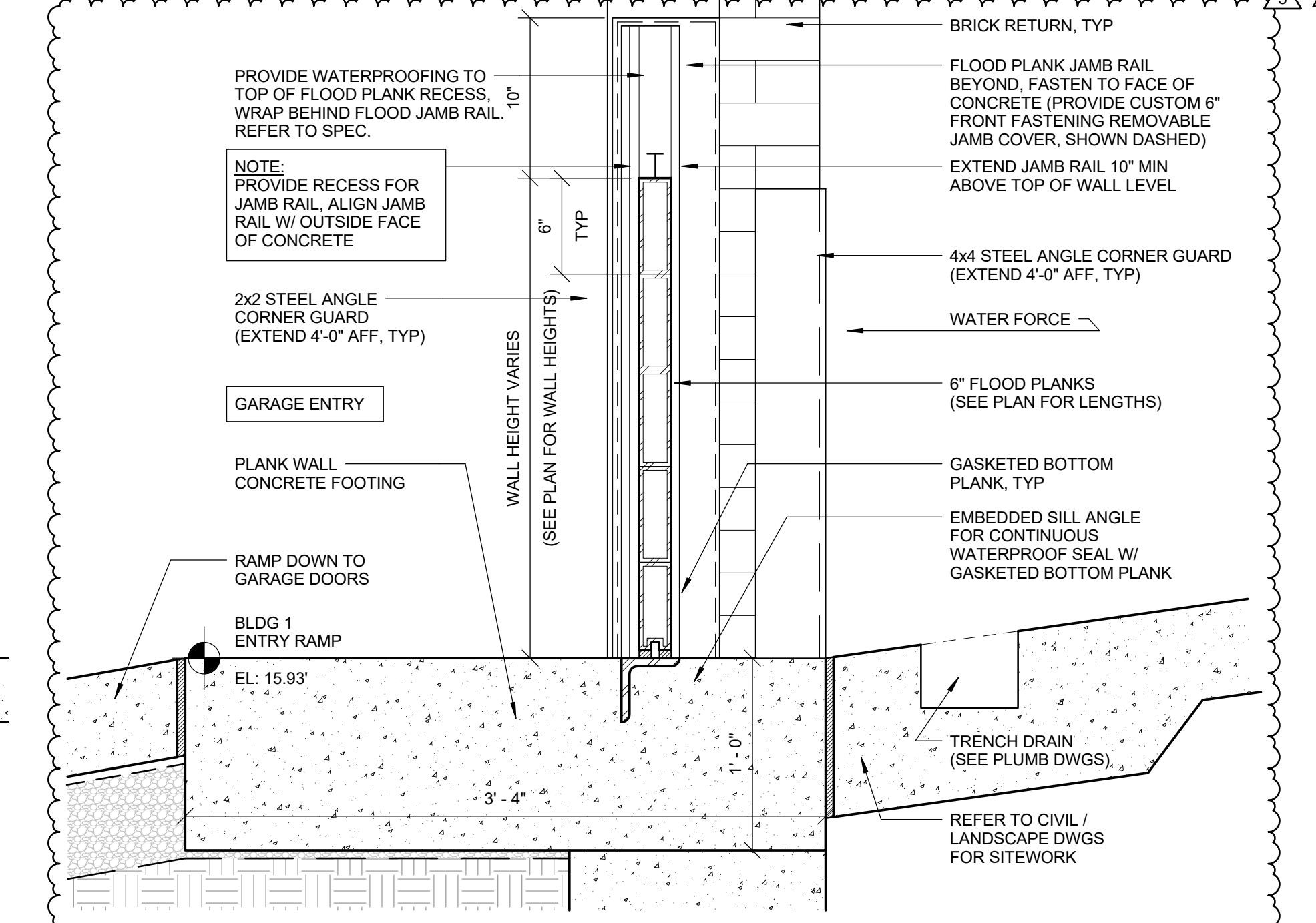
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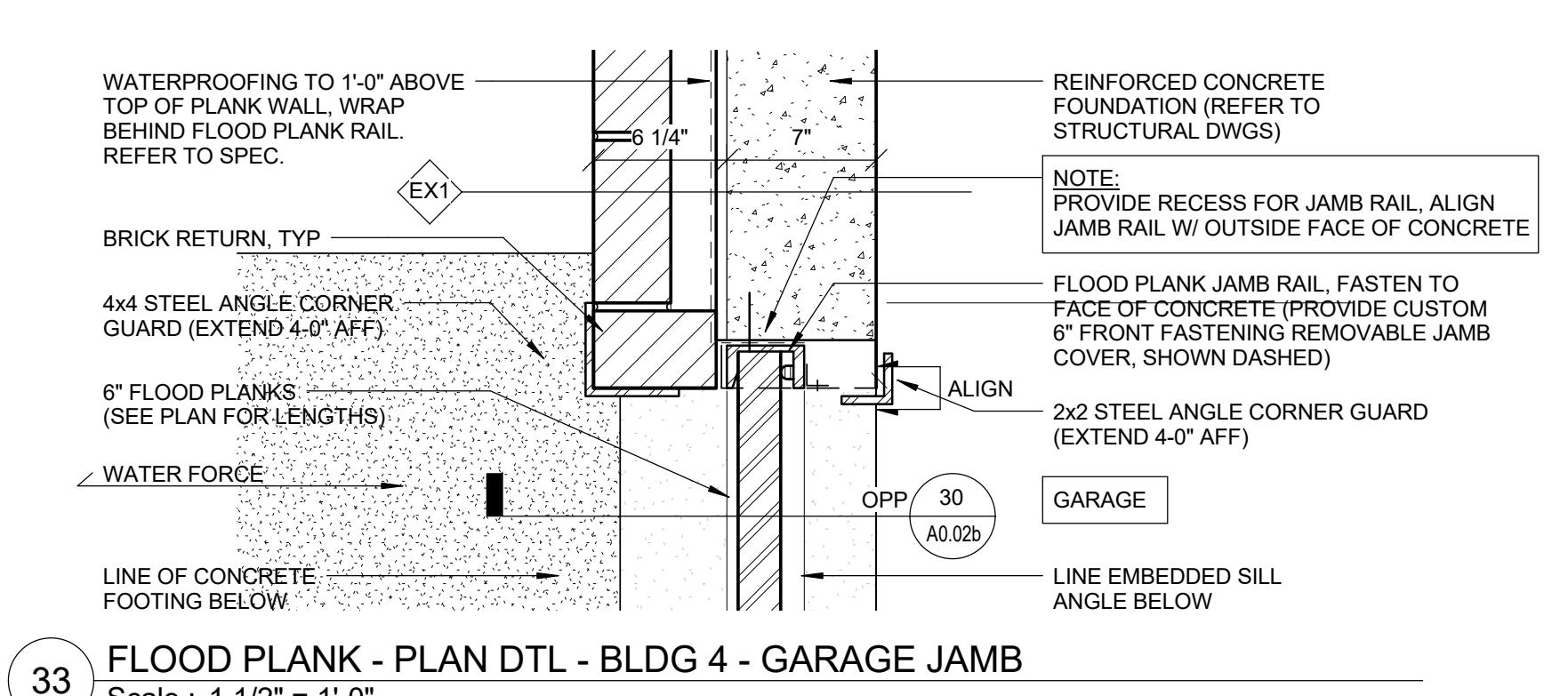
22 FLOOD PLANK - PLAN DTL - BLDG 1 - GARAGE JAMB W/ COL Scale : 1 1/2" = 1'-0"



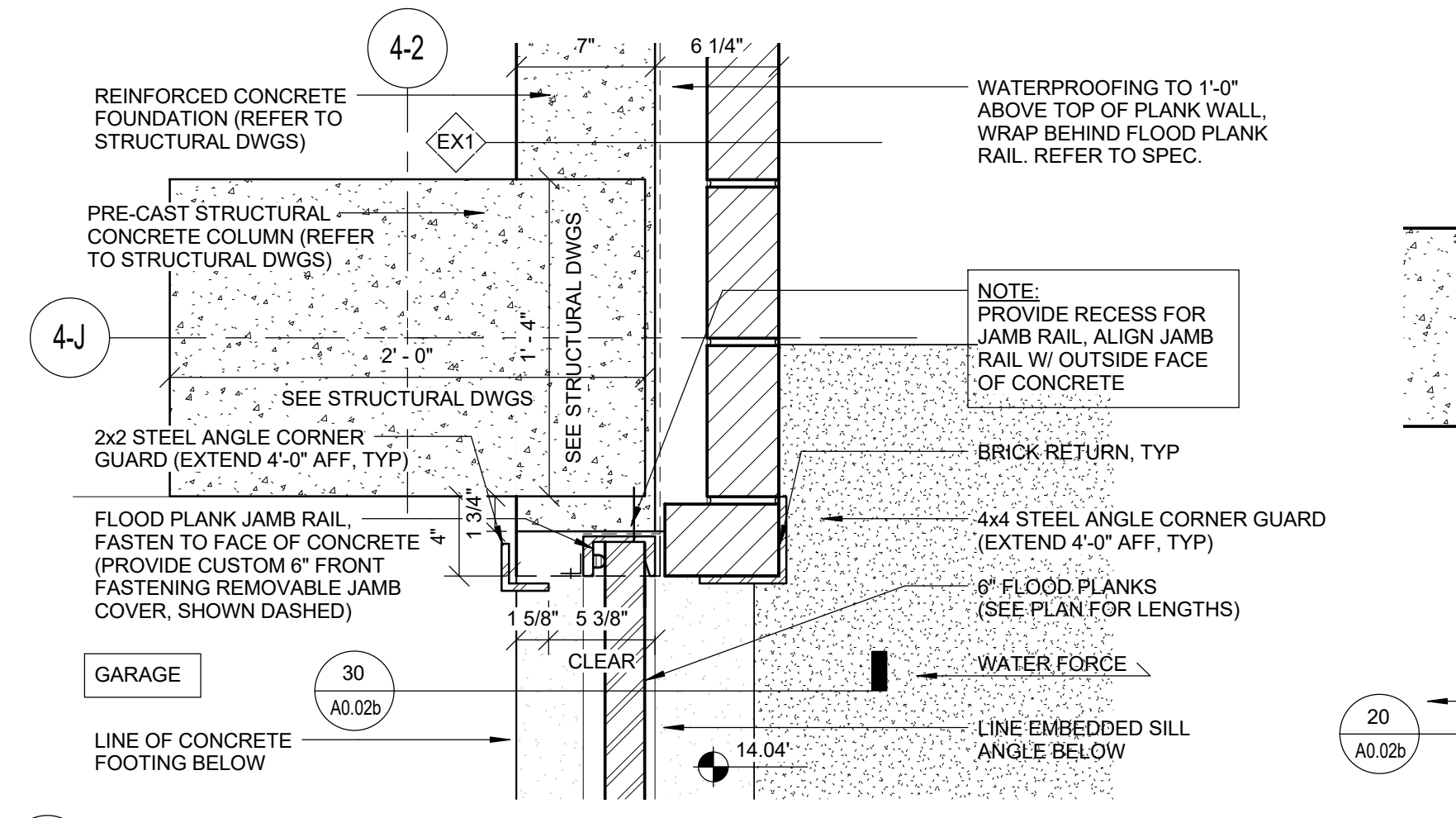
21 FLOOD PLANK - PLAN DTL - BLDG 1 - GARAGE PIER Scale : 1 1/2" = 1'-0"



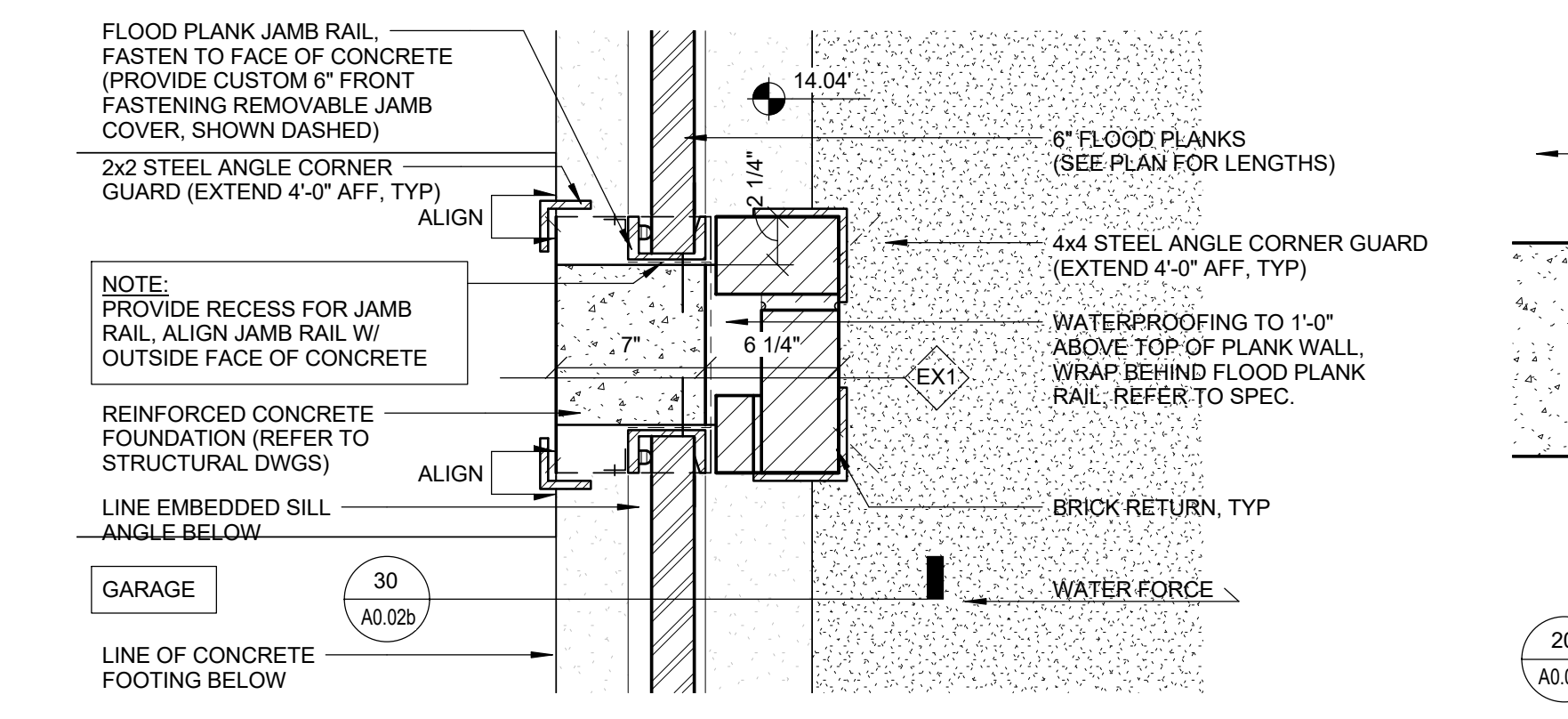
20 FLOOD PLANK - SECTION - BLDG 1 - JAMB POCKET AT GARAGE Scale : 1 1/2" = 1'-0"



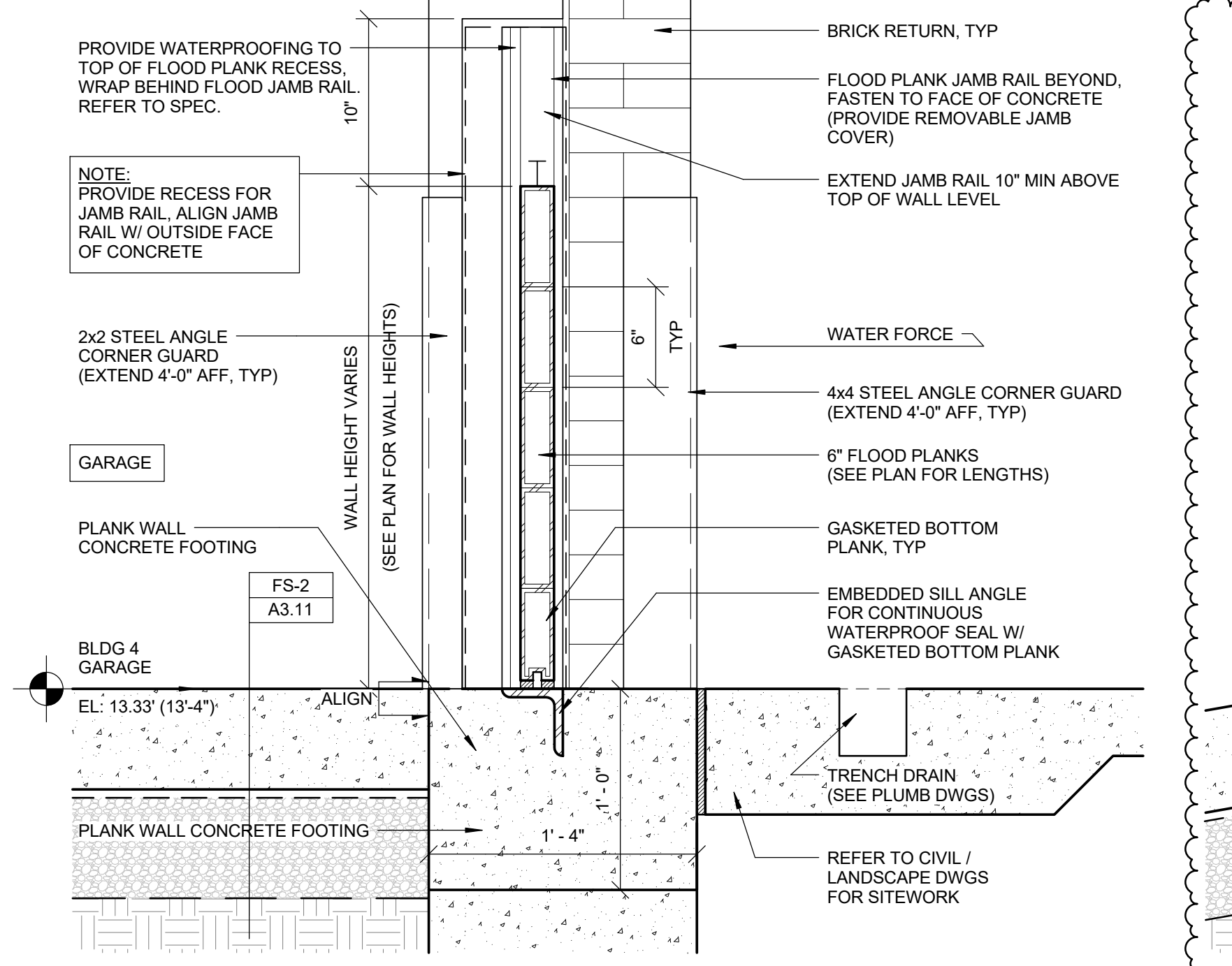
33 FLOOD PLANK - PLAN DTL - BLDG 4 - GARAGE JAMB Scale : 1 1/2" = 1'-0"



32 FLOOD PLANK - PLAN DTL - BLDG 4 - GARAGE JAMB w/COL Scale : 1 1/2" = 1'-0"



31 FLOOD PLANK - PLAN DTL - BLDG 4 - GARAGE PIER Scale : 1 1/2" = 1'-0"



30 FLOOD PLANK - SECTION - BLDG 4 - JAMB POCKET AT GARAGE Scale : 1 1/2" = 1'-0"

Consultant:

- Revision: 1 MAY 4, 2016 2 JUNE 30, 2016 ADDENDUM 2 3 DEC 21, 2016 BULLETIN 009 4 DEC 01, 2017 BULLETIN 061

Architect of Record:

Drawn: SFM Checked: SJR Scale: 1 1/2" = 1'-0" Key Plan:

Project Name: CLIPPERSHIP WHARF

25-65 Lewis Street East Boston, MA 02128

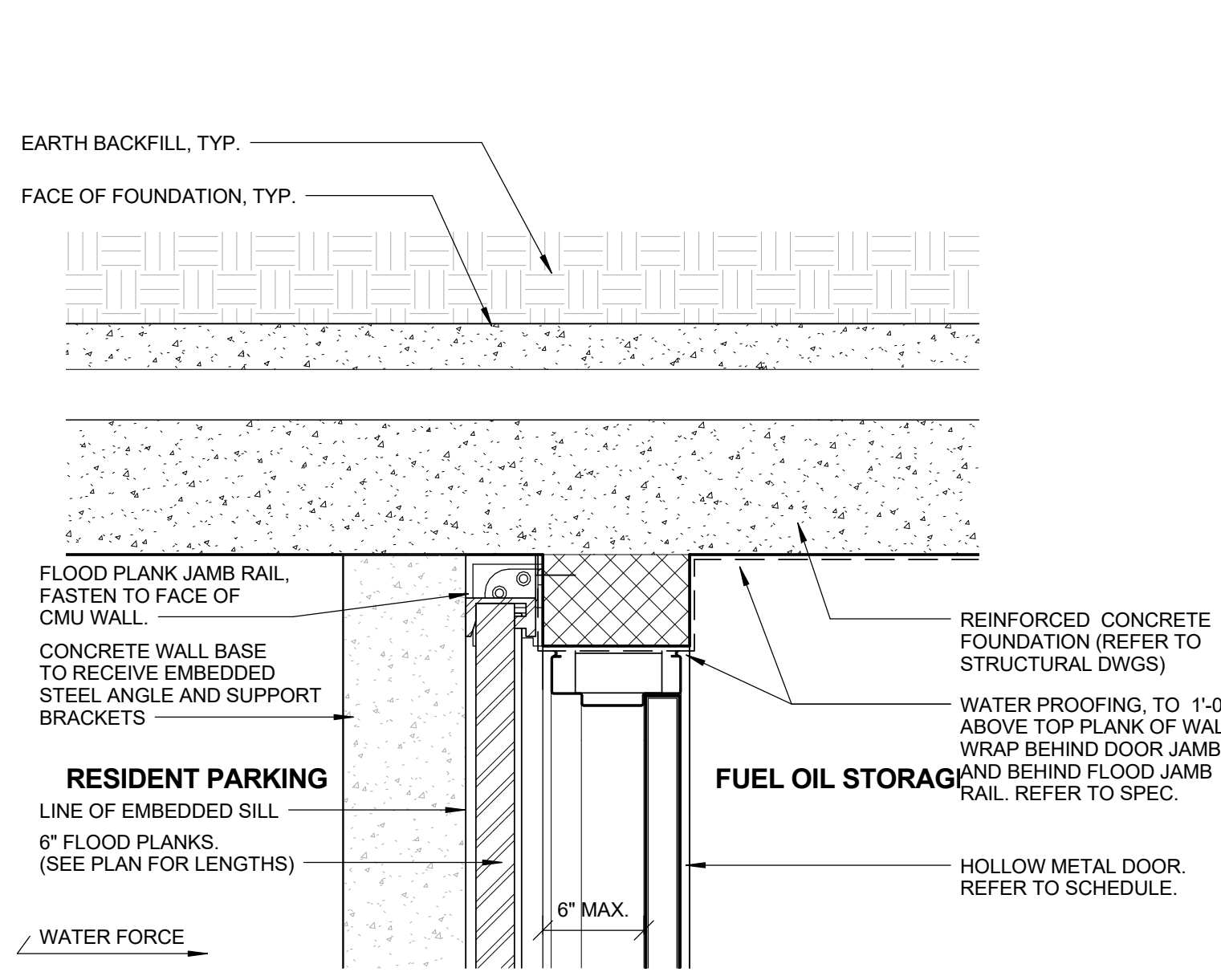
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Project Number: 13166

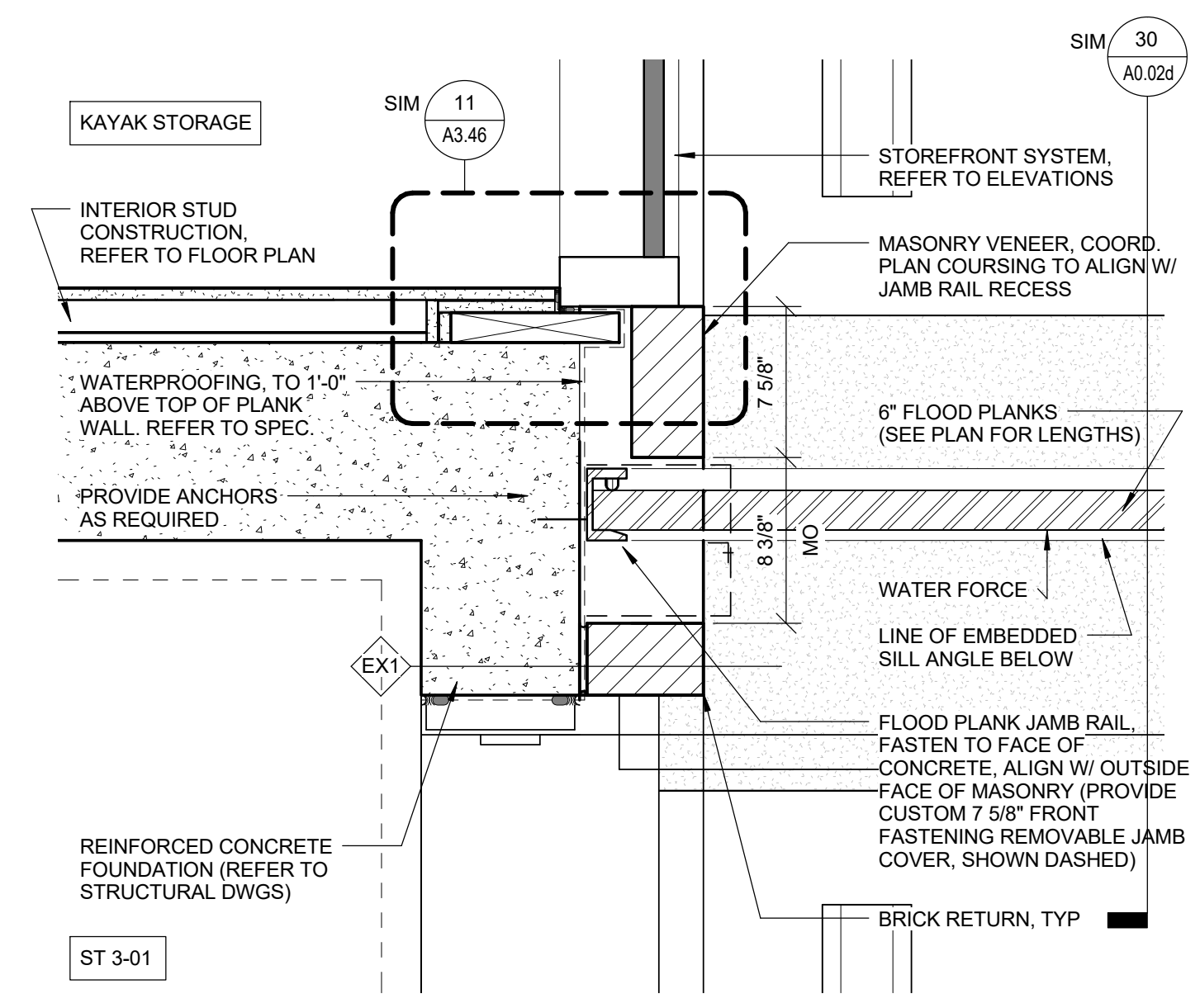
Issue Date: DECEMBER 01, 2015

Sheet Number:

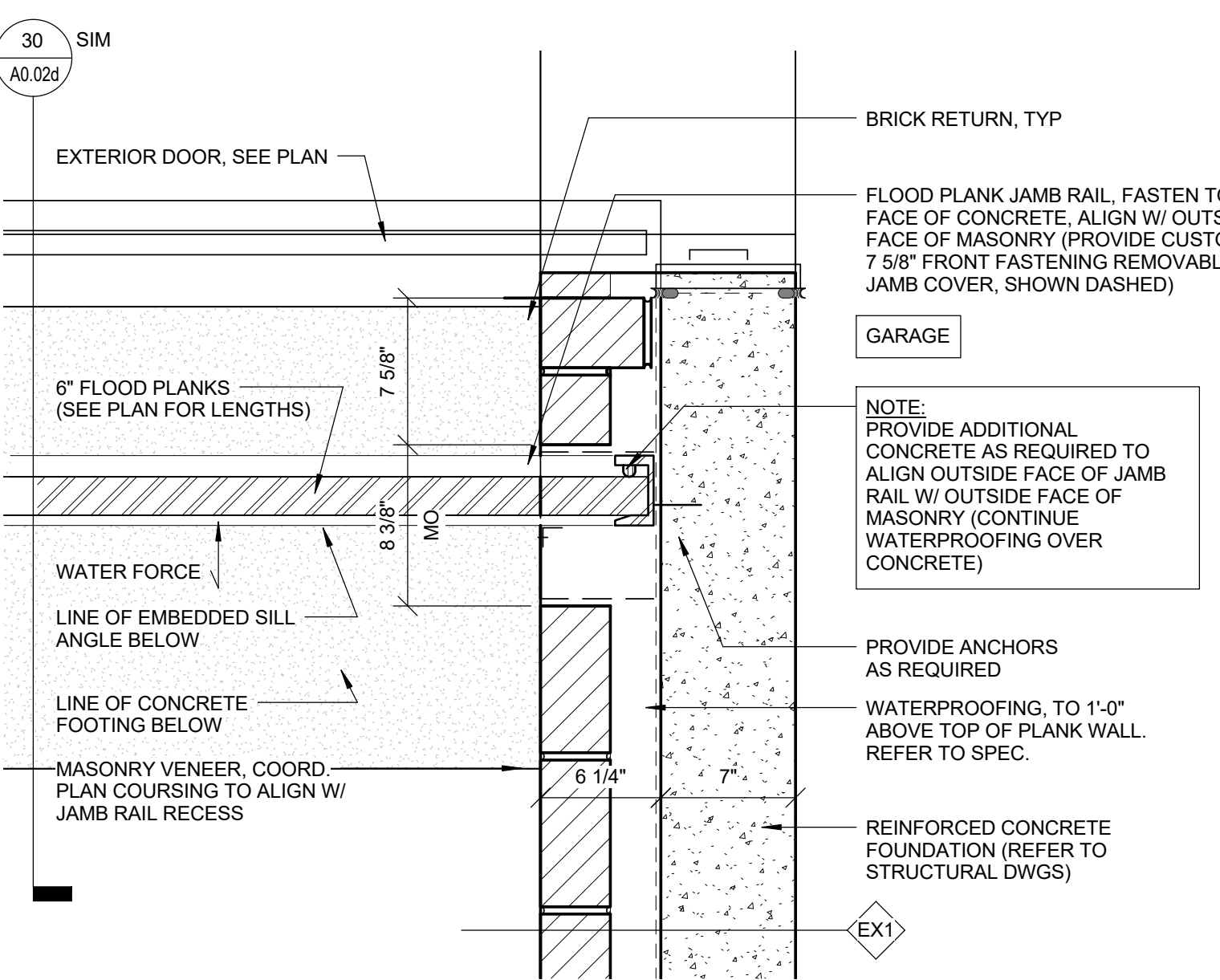
A0.02c



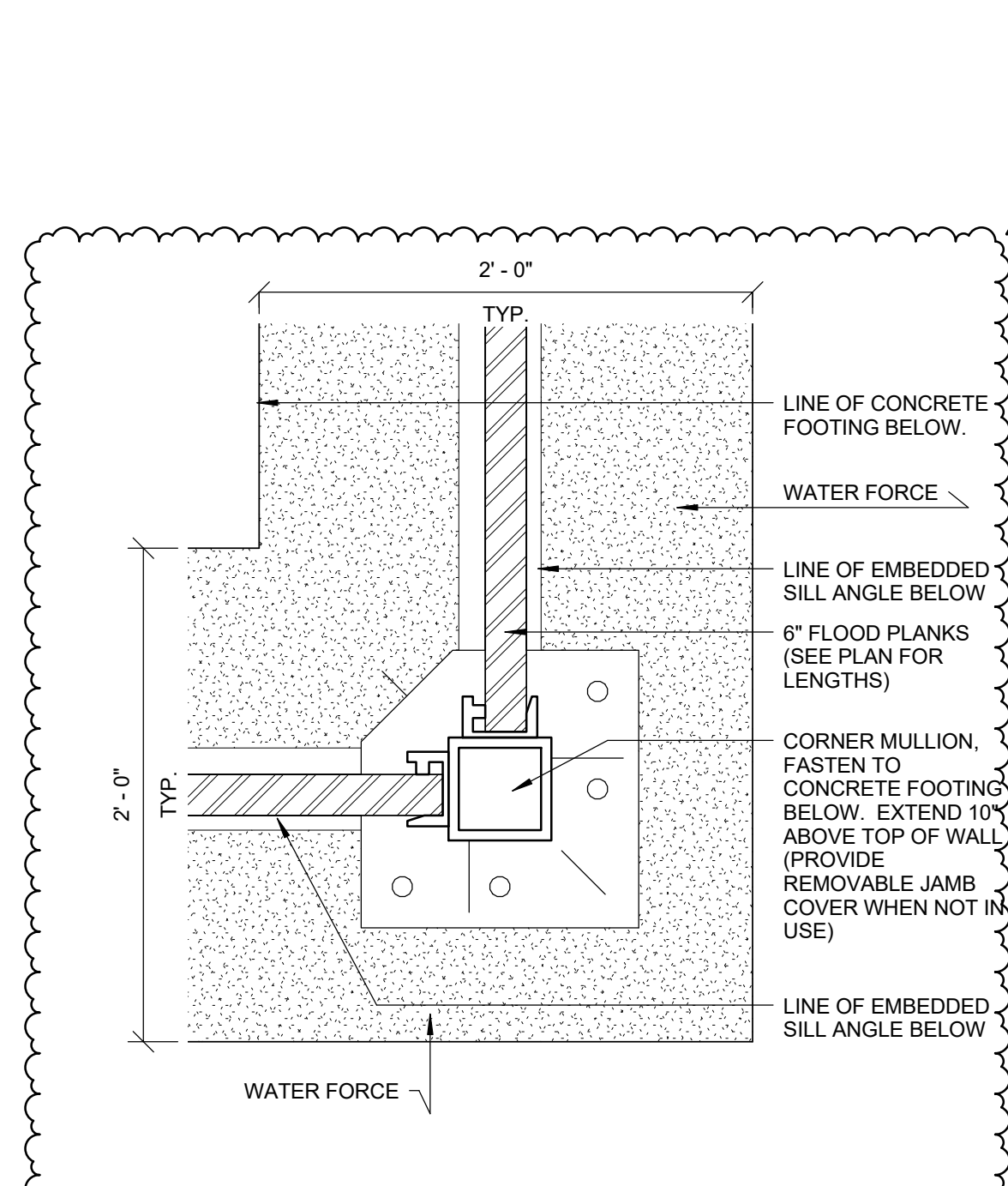
32 FLOOD PLANK - PLAN DTL - BLDG 1 - AT FUEL OIL STORAGE Scale : 1 1/2" = 1'-0"



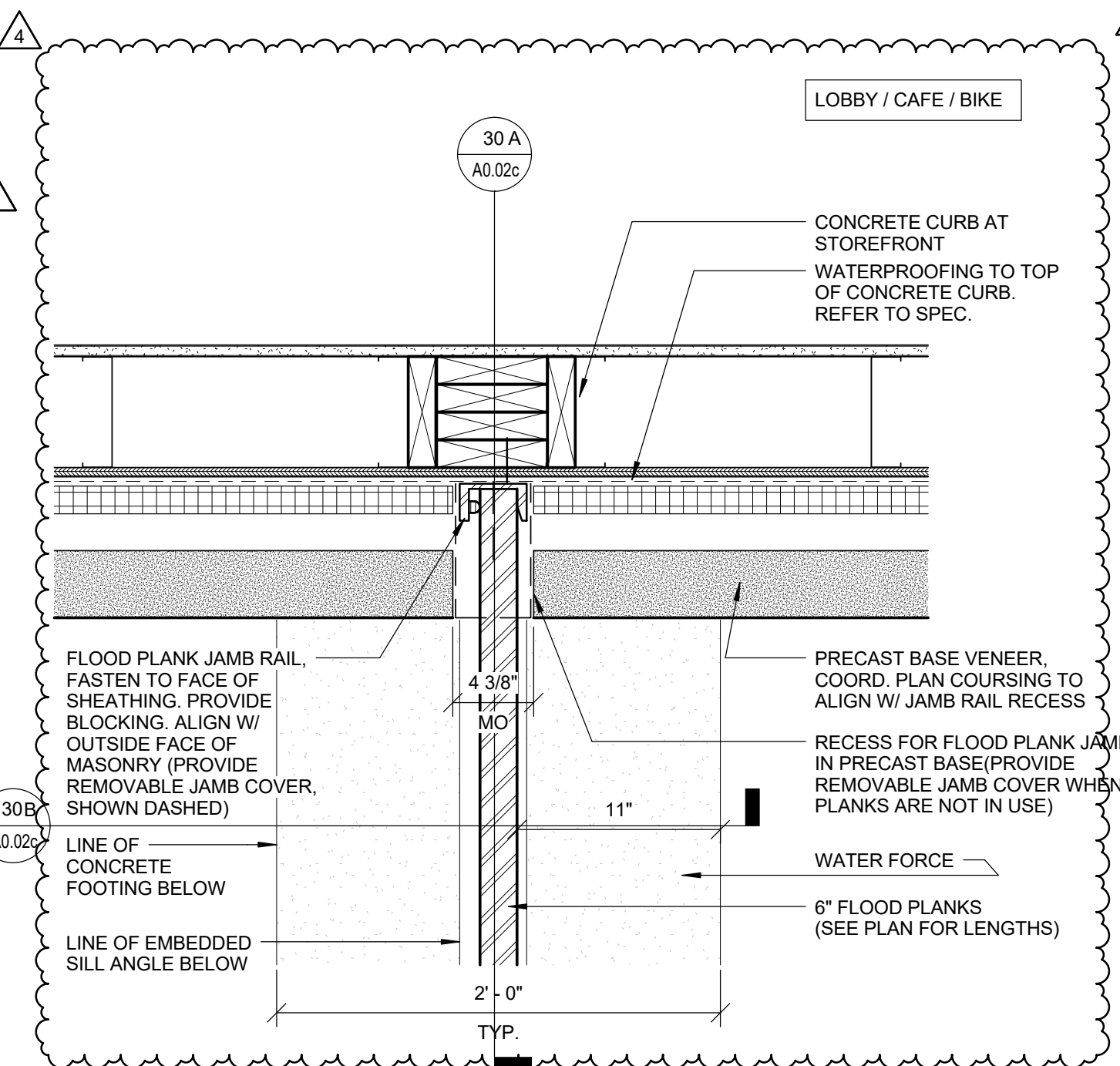
22 FLOOD PLANK - PLAN DTL - BLDG 3 - AT BRICK (FPA) Scale : 1 1/2" = 1'-0"



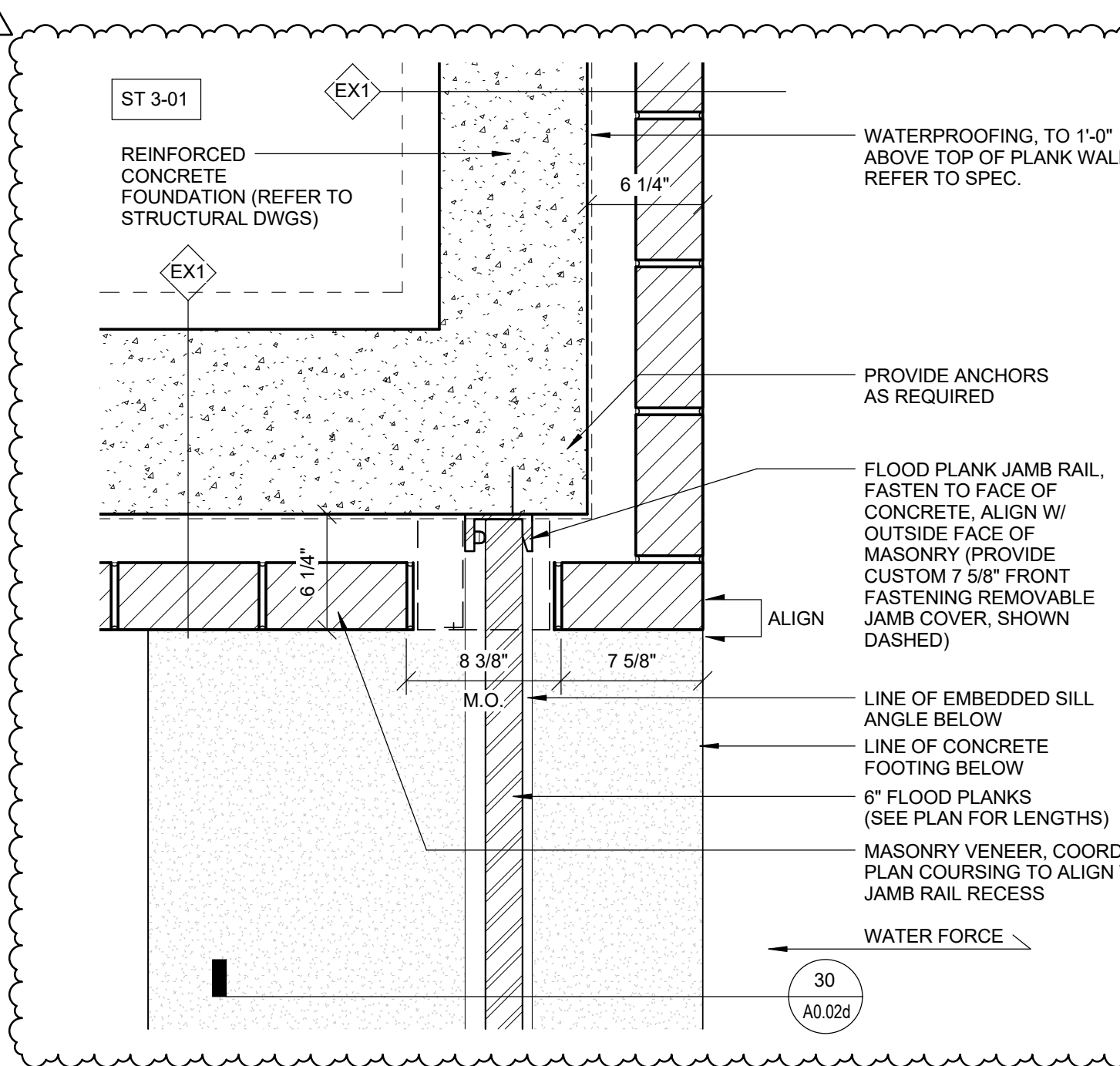
12 FLOOD PLANK - PLAN DTL - BLDG 3 - AT BRICK (GARAGE) Scale : 1 1/2" = 1'-0"



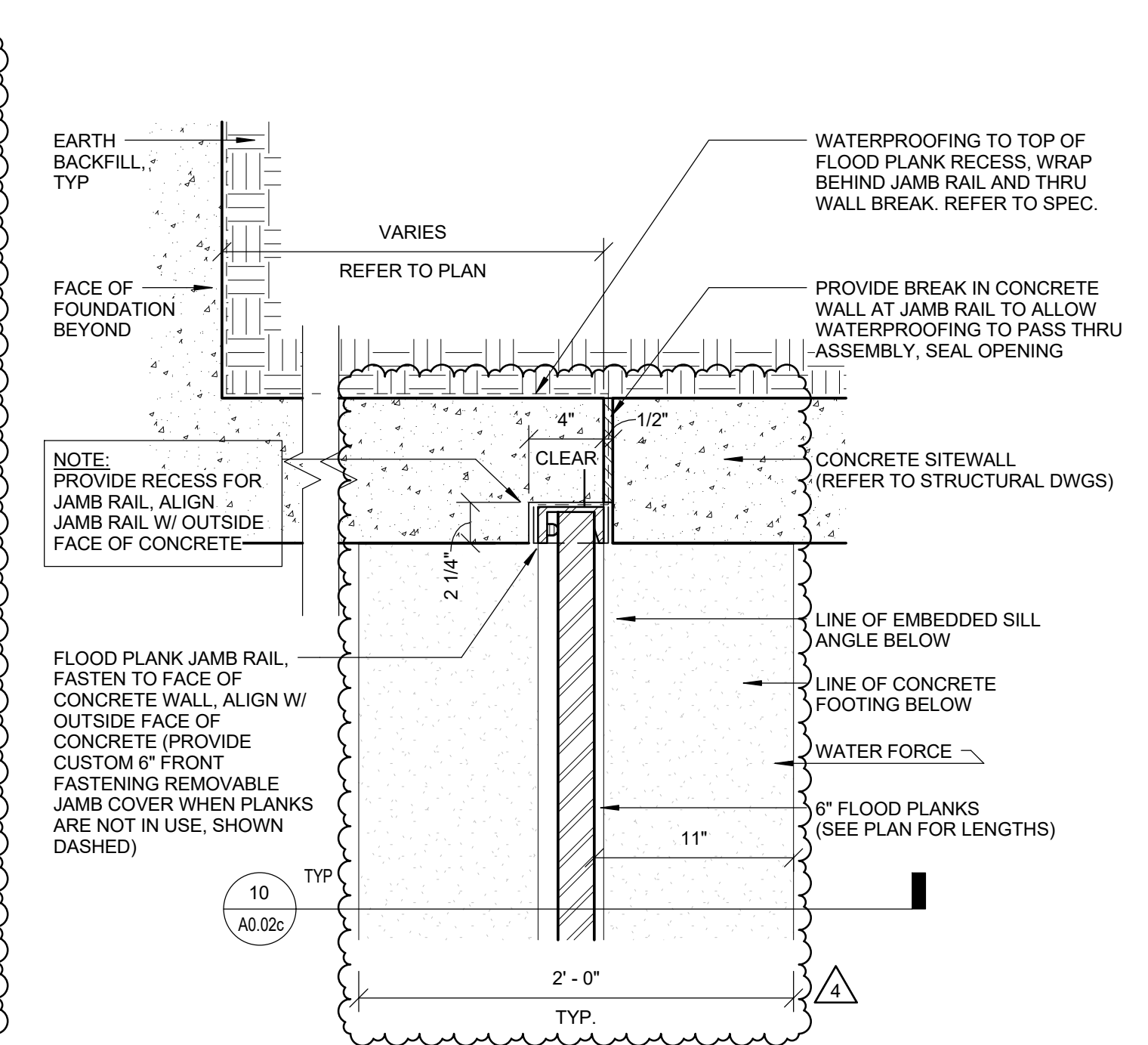
33 FLOOD PLANK - PLAN DTL - PLANK RAIL CORNER Scale : 1 1/2" = 1'-0"



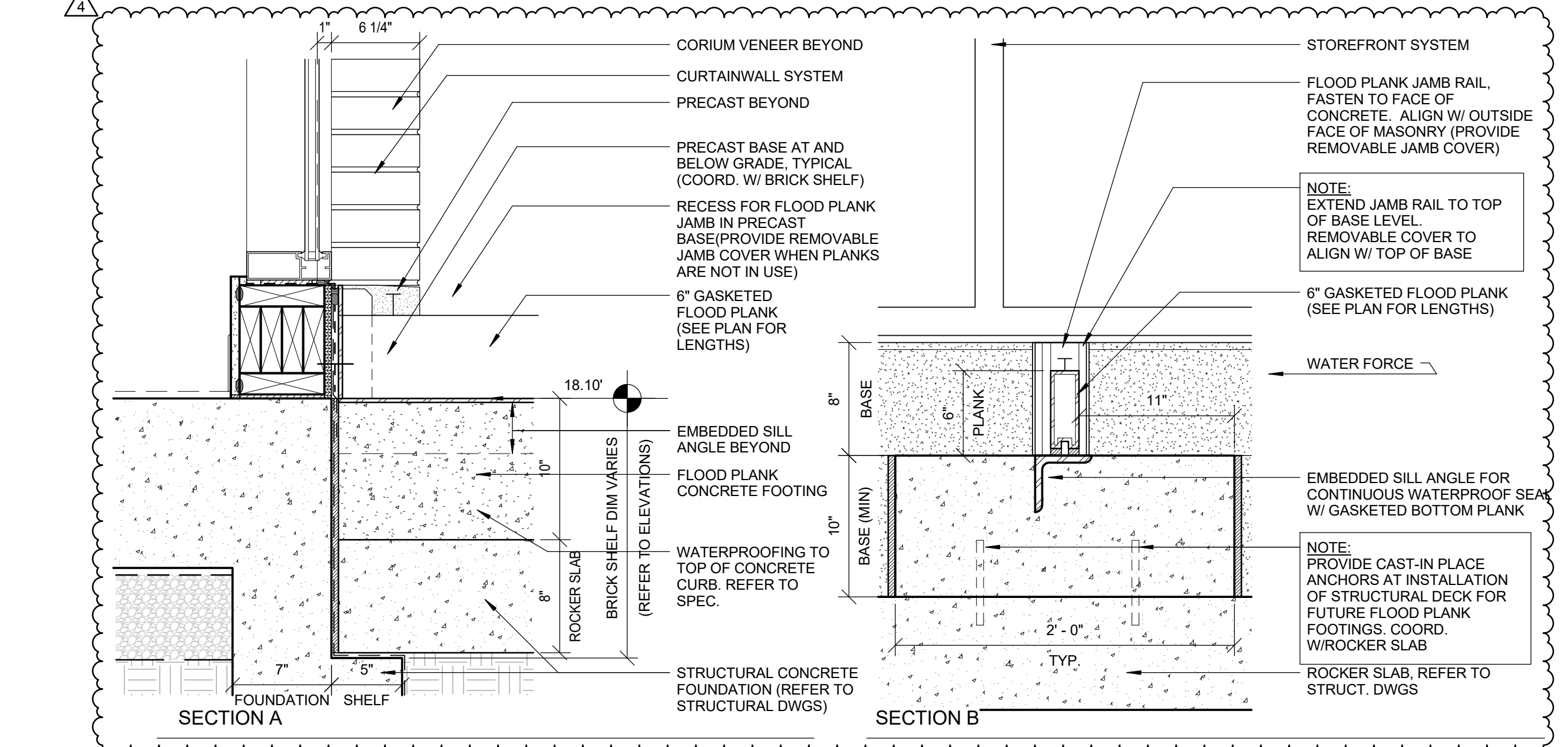
31 FLOOD PLANK - PLAN DTL - JAMB POCKET AT CURTAINWALL BASE Scale : 1 1/2" = 1'-0"



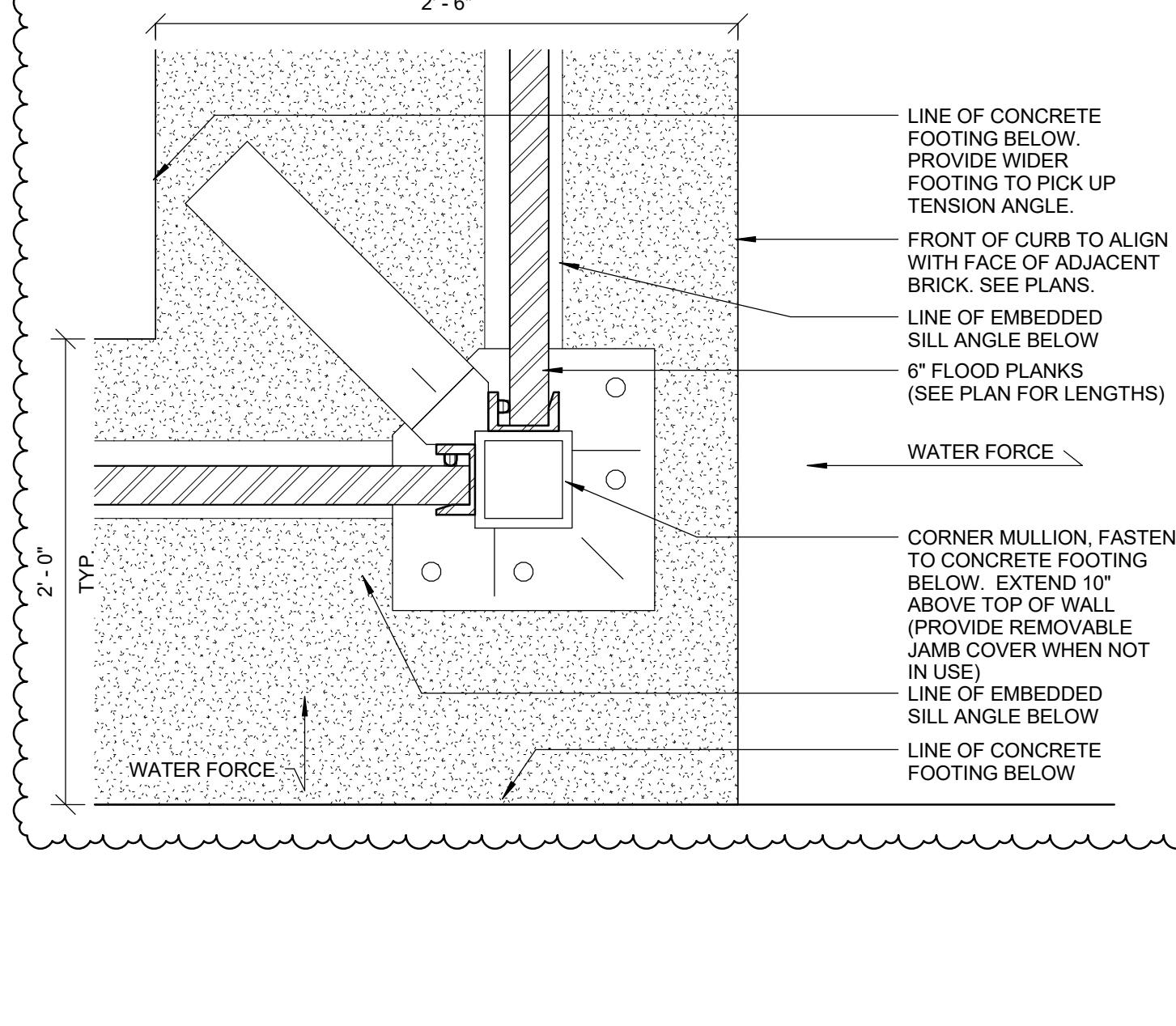
21 FLOOD PLANK - PLAN DTL - BLDG 3 - AT CORNER W/ BRICK Scale : 1 1/2" = 1'-0"



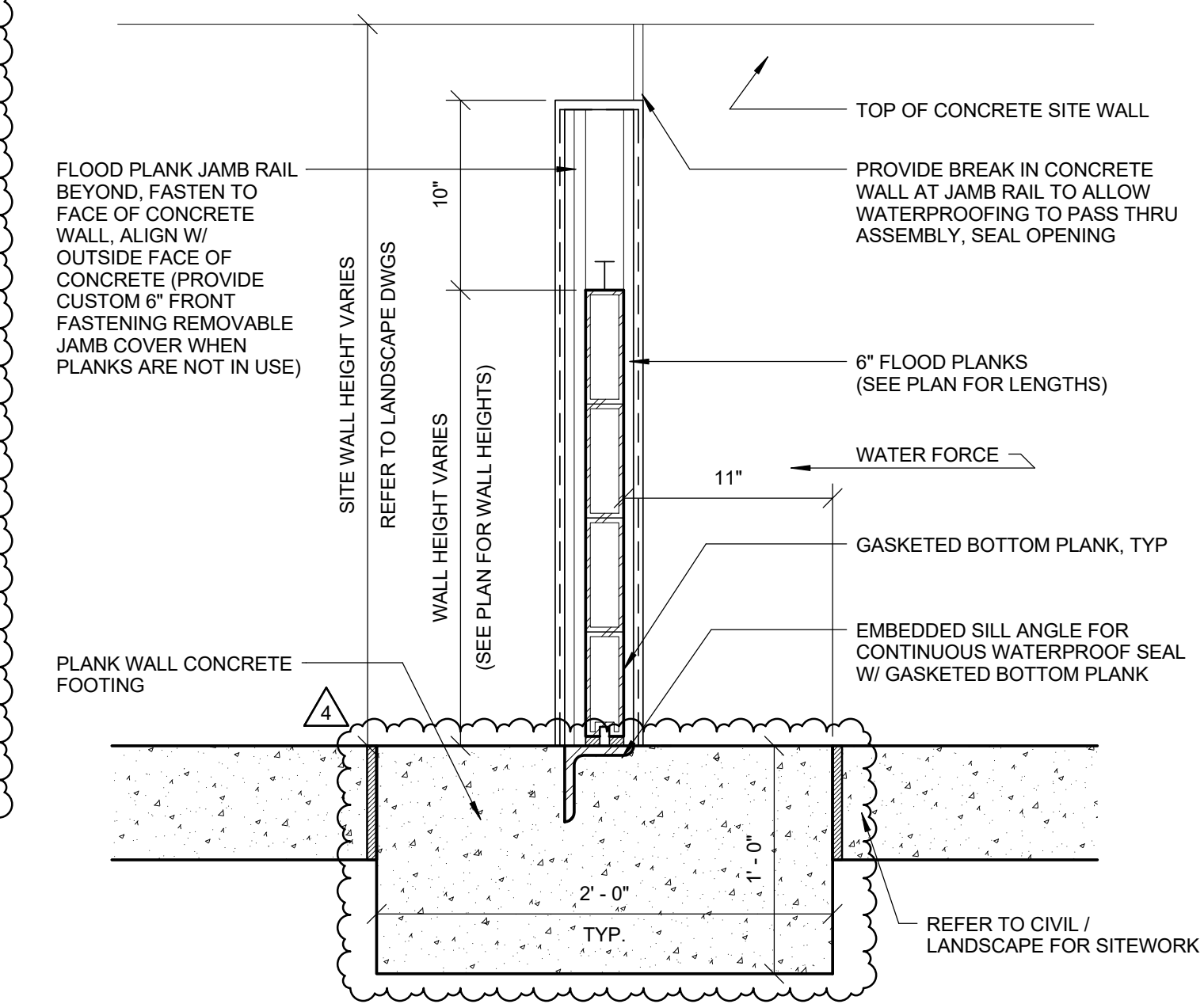
11 FLOOD PLANK - PLAN DTL - JAMB POCKET AT CONC SITE WALL Scale : 1 1/2" = 1'-0"



30 FLOOD PLANK - SECTION DTL - JAMB POCKET AT CURTAINWALL BASE Scale : 1 1/2" = 1'-0"



20 FLOOD PLANK - PLAN DTL - BLDG 3 - AT PLANK RAIL CORNER Scale : 1 1/2" = 1'-0"



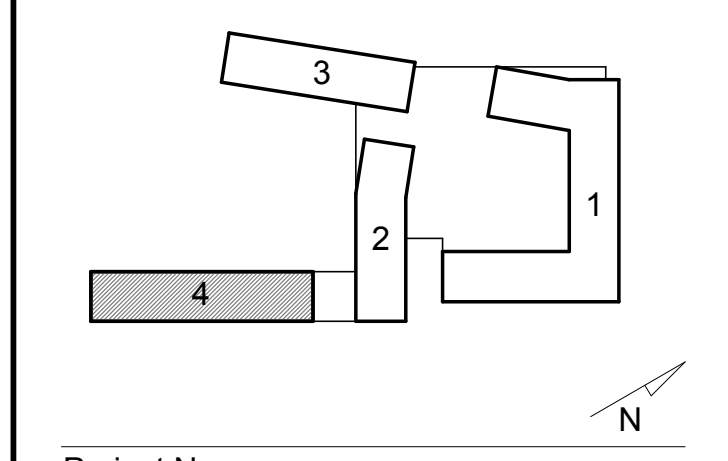
10 FLOOD PLANK - SECTION DTL - JAMB POCKET AT CONC SITE WALL Scale : 1 1/2" = 1'-0"

Consultant:

Revision:
1 JUNE 30, 2016 ADDENDUM 2

Architect of Record:

Drawn: KLV
Checked: SJR
Scale: As indicated
Key Plan:



Project Name:
CLIPPERSHIP WHARF

25-65 Lewis Street
East Boston, MA 02128

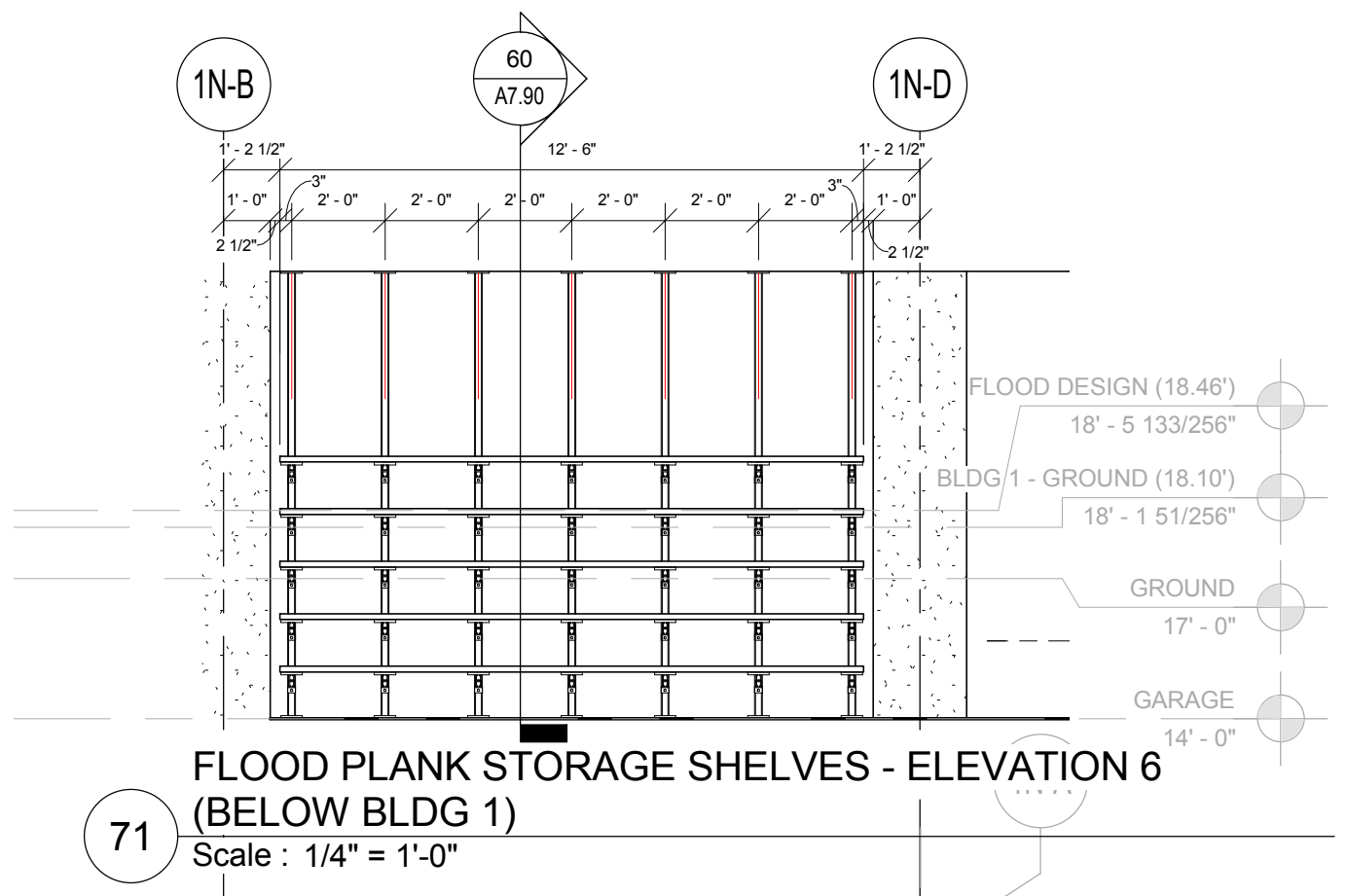
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FLOOD PLANK STORAGE AREAS WITHIN GARAGE LEVEL

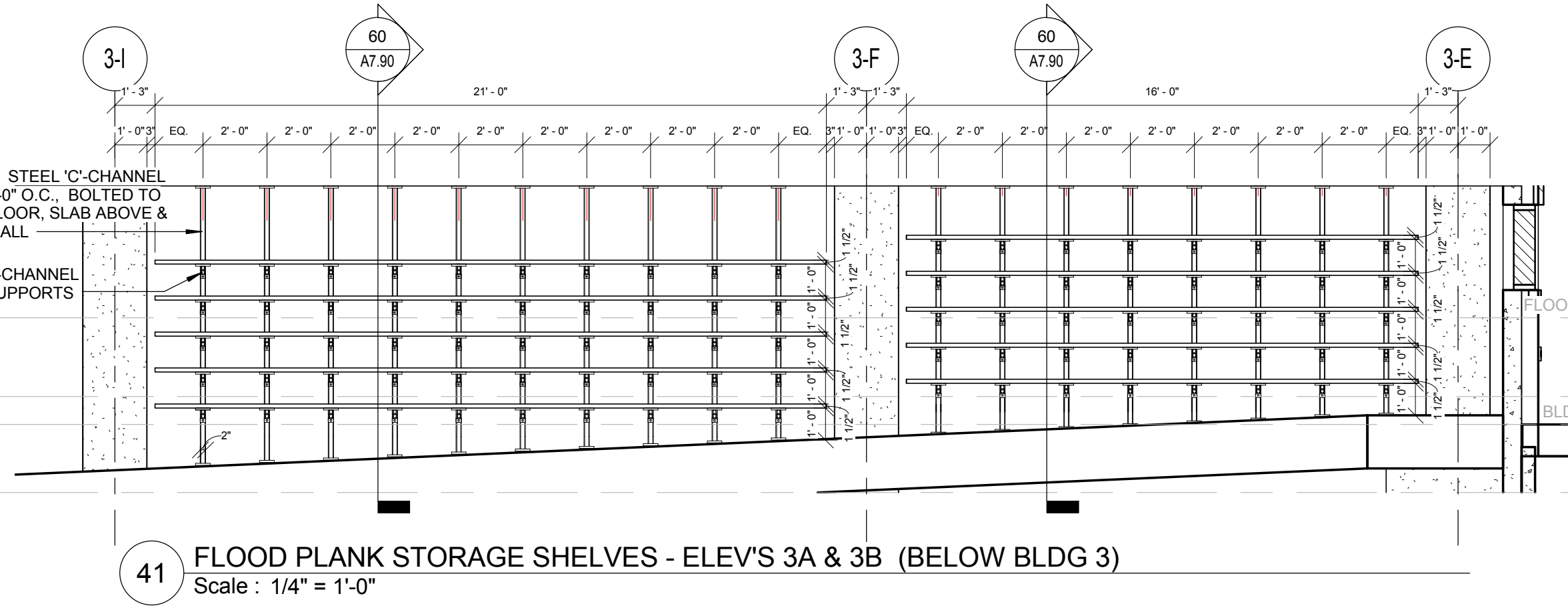
Project Number:
13166

Issue Date:
JUNE 30, 2016

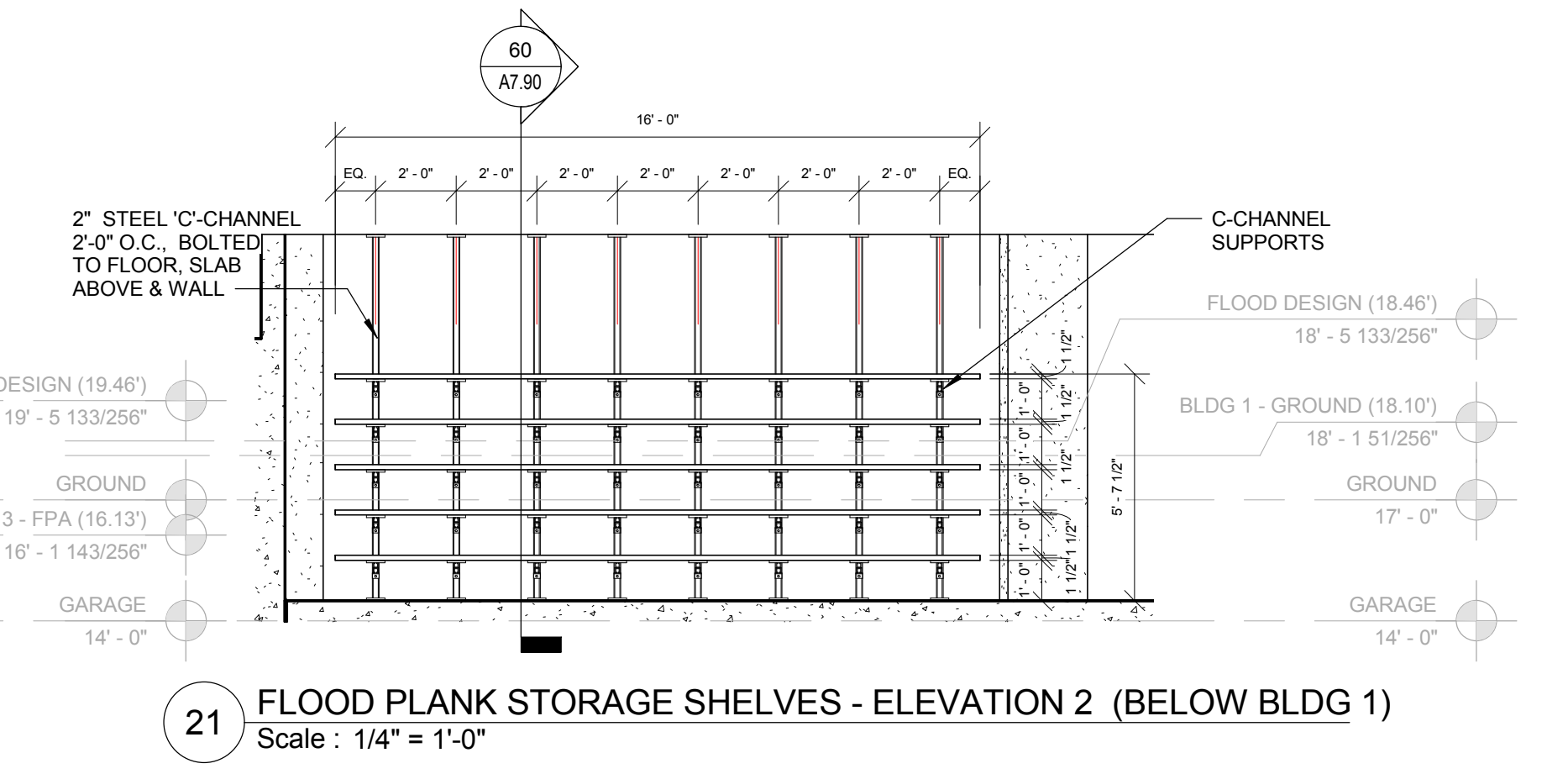
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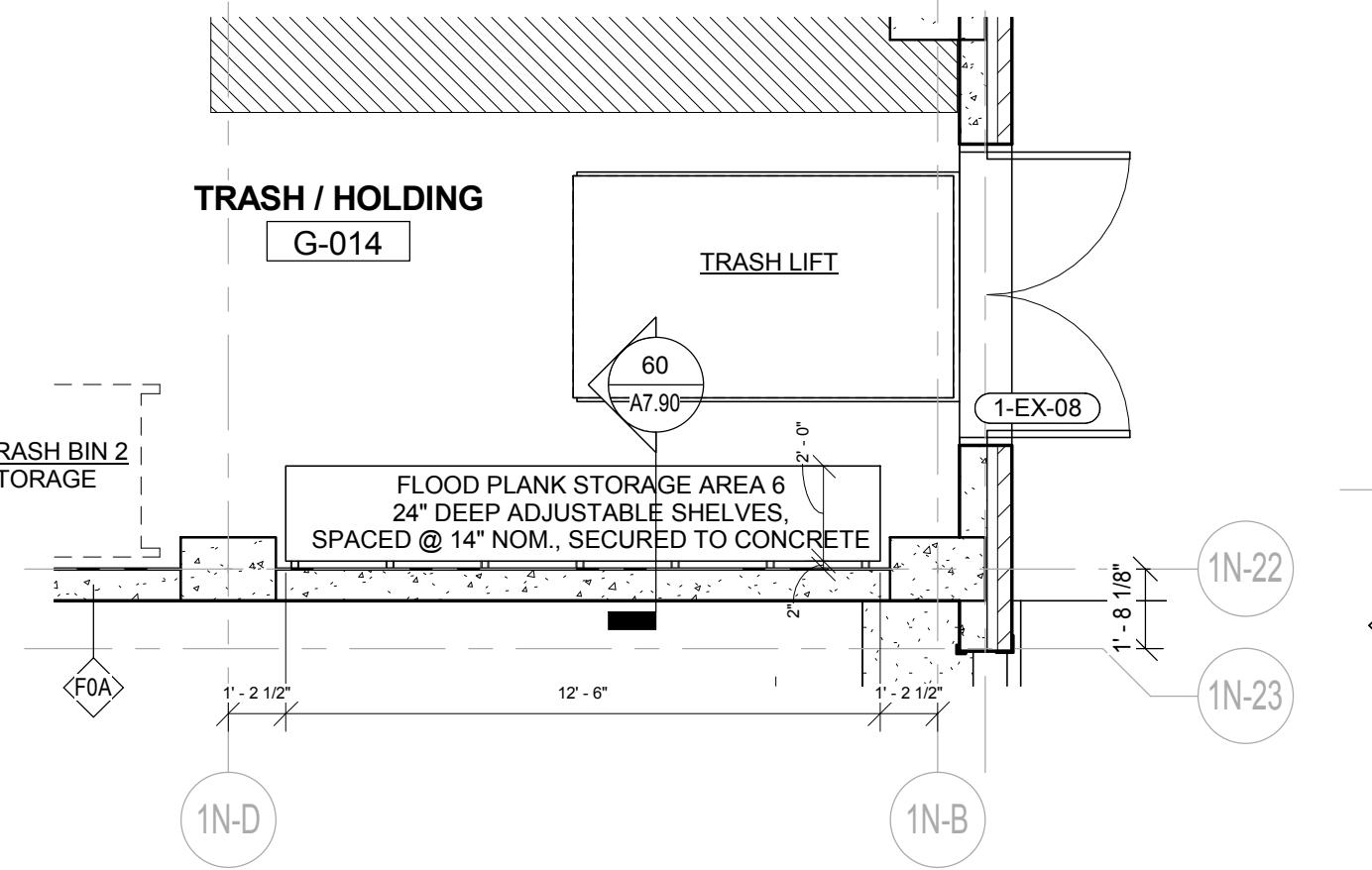
71 FLOOD PLANK STORAGE SHELVES - ELEVATION 6 (BELOW BLDG 1)
Scale: 1/4" = 1'-0"



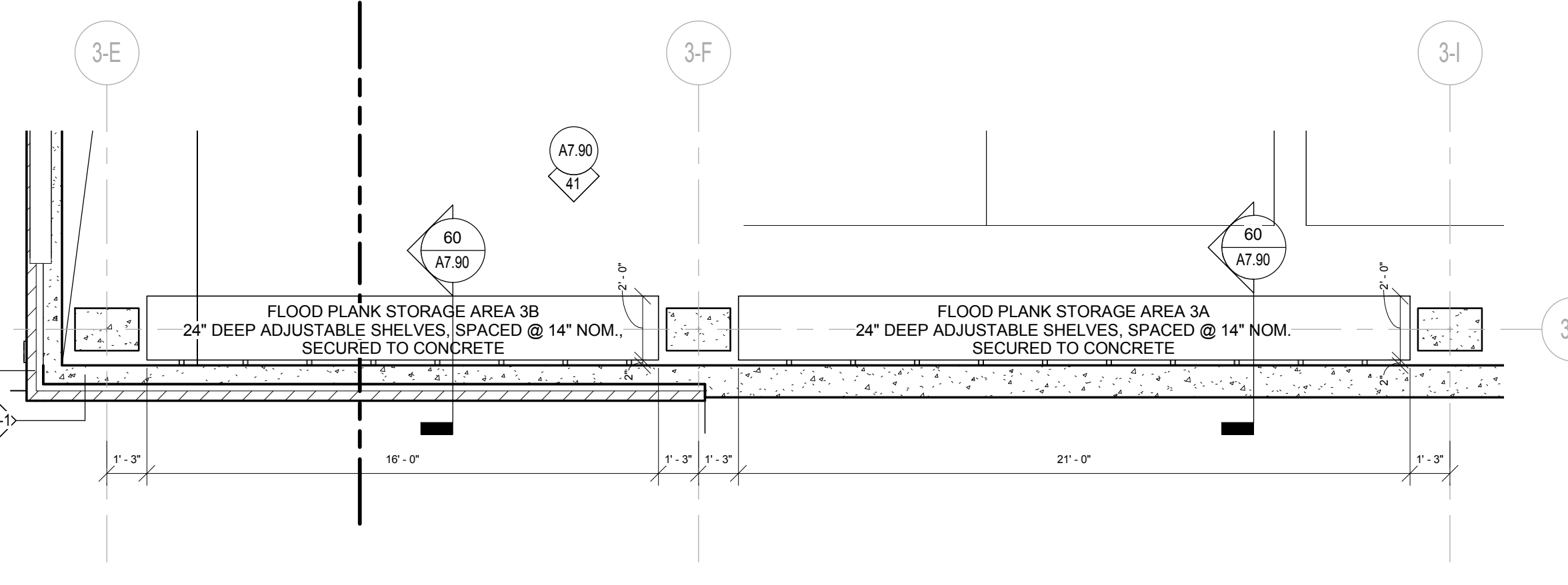
41 FLOOD PLANK STORAGE SHELVES - ELEV'S 3A & 3B (BELOW BLDG 3)
Scale: 1/4" = 1'-0"



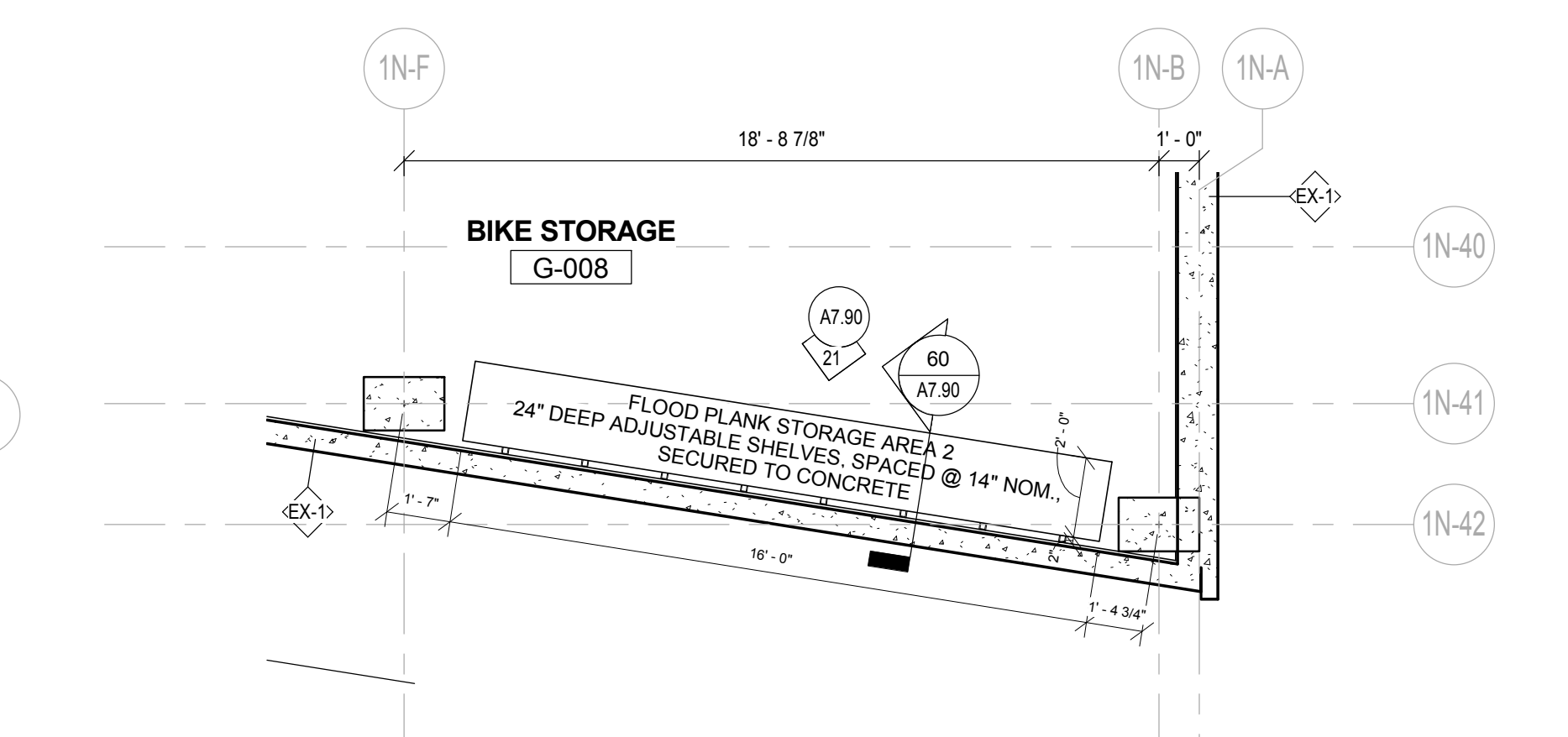
21 FLOOD PLANK STORAGE SHELVES - ELEVATION 2 (BELOW BLDG 1)
Scale: 1/4" = 1'-0"



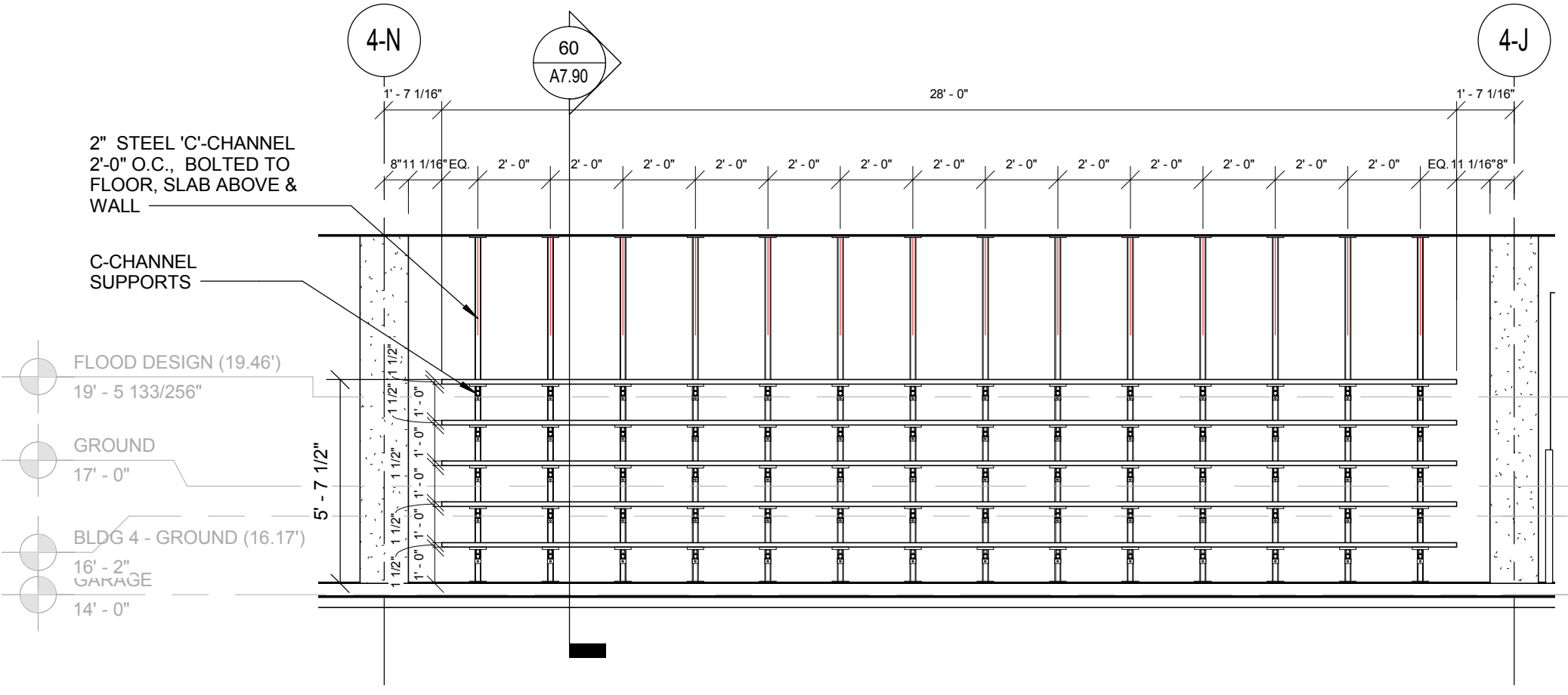
70 BLDG 1 - GARAGE - FLOOD PLANK STORAGE PLAN 6
Scale: 1/4" = 1'-0"



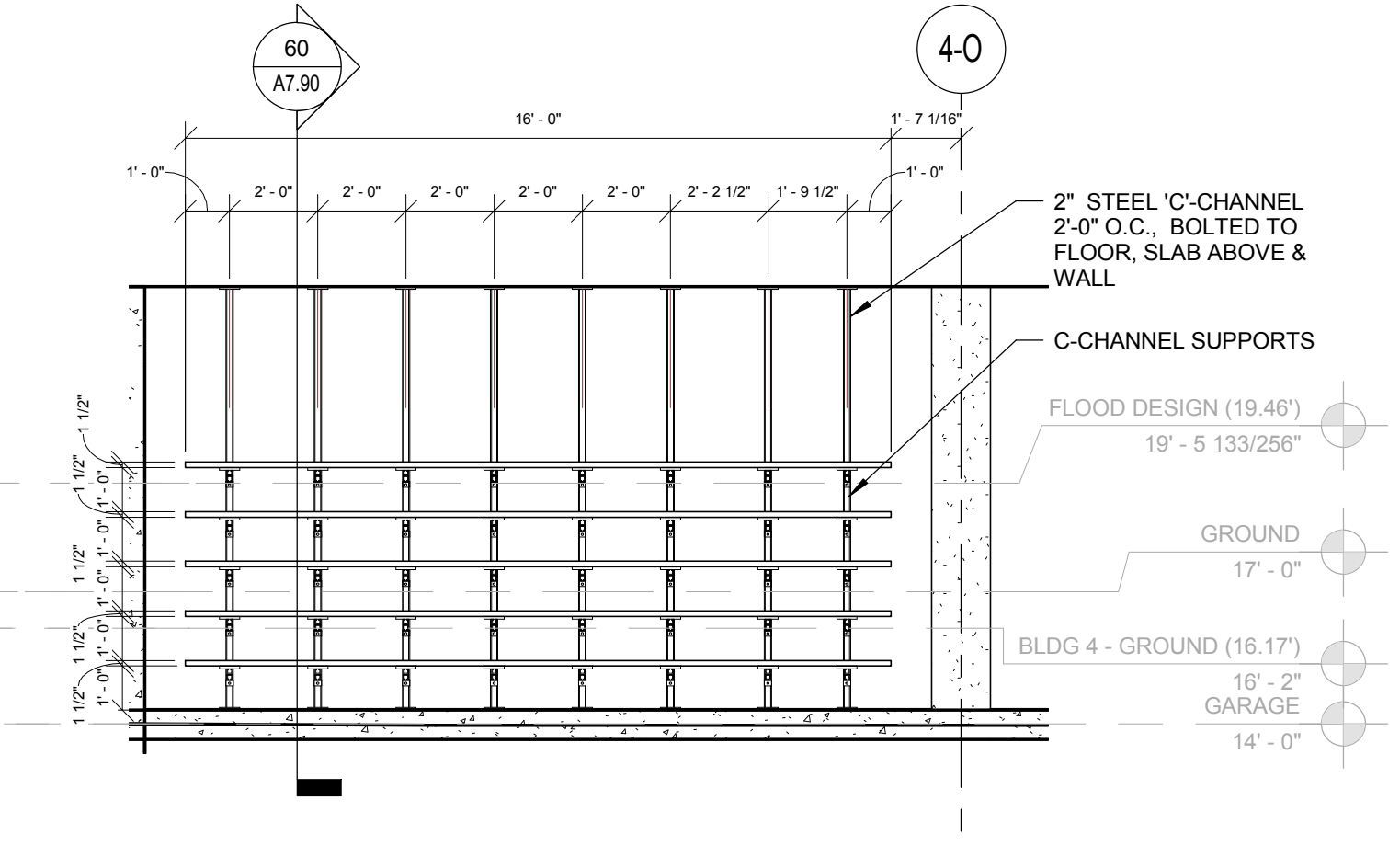
40 BLDG 3 - GARAGE - FLOOD PLANK STORAGE PLAN 3A & 3B
Scale: 1/4" = 1'-0"



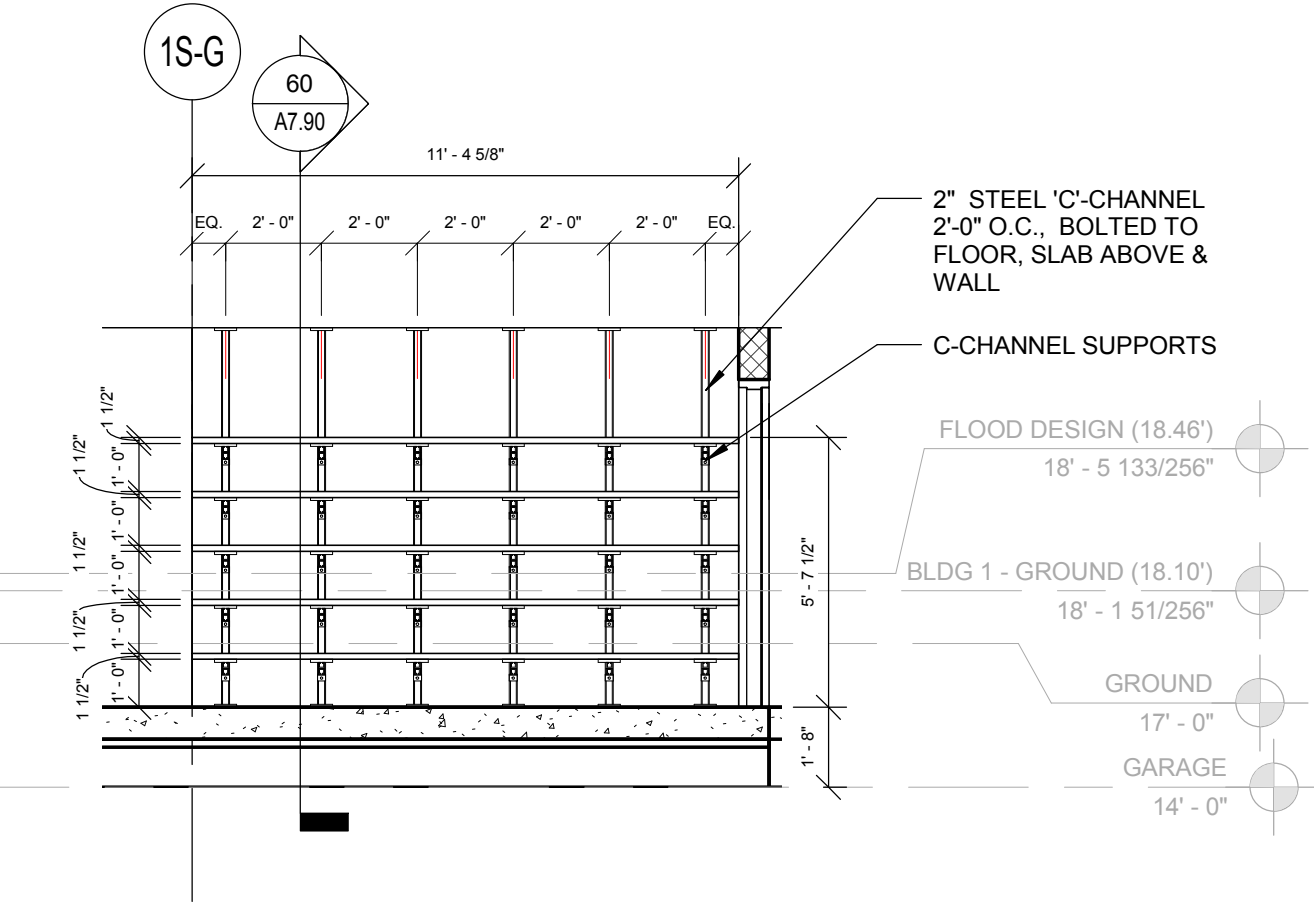
20 BLDG 1 - GARAGE - FLOOD PLANK STORAGE PLAN 2
Scale: 1/4" = 1'-0"



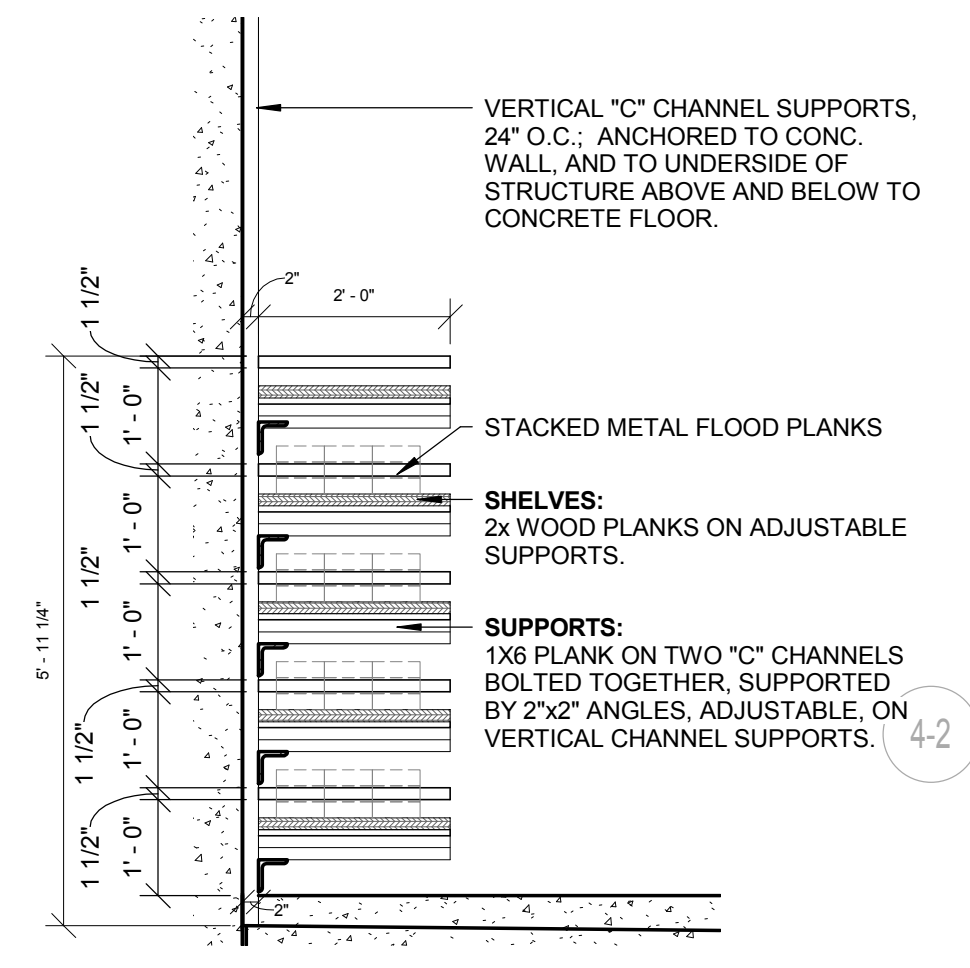
51 FLOOD PLANK STORAGE SHELVES - ELEVATION 5 (BELOW BLDG 4)
Scale: 1/4" = 1'-0"



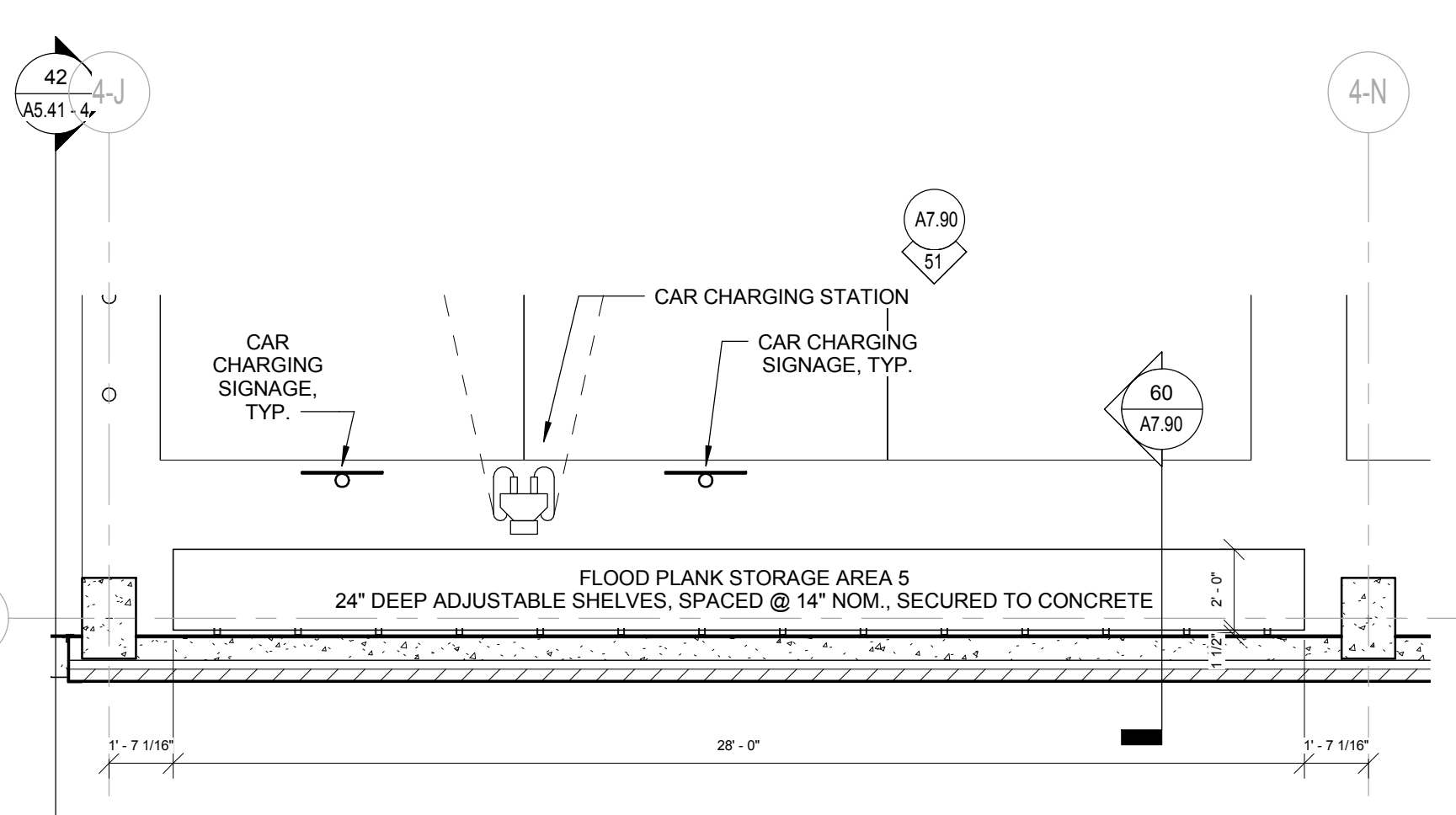
31 FLOOD PLANK STORAGE SHELVES - ELEVATION 4 (BELOW BLDG 4)
Scale: 1/4" = 1'-0"



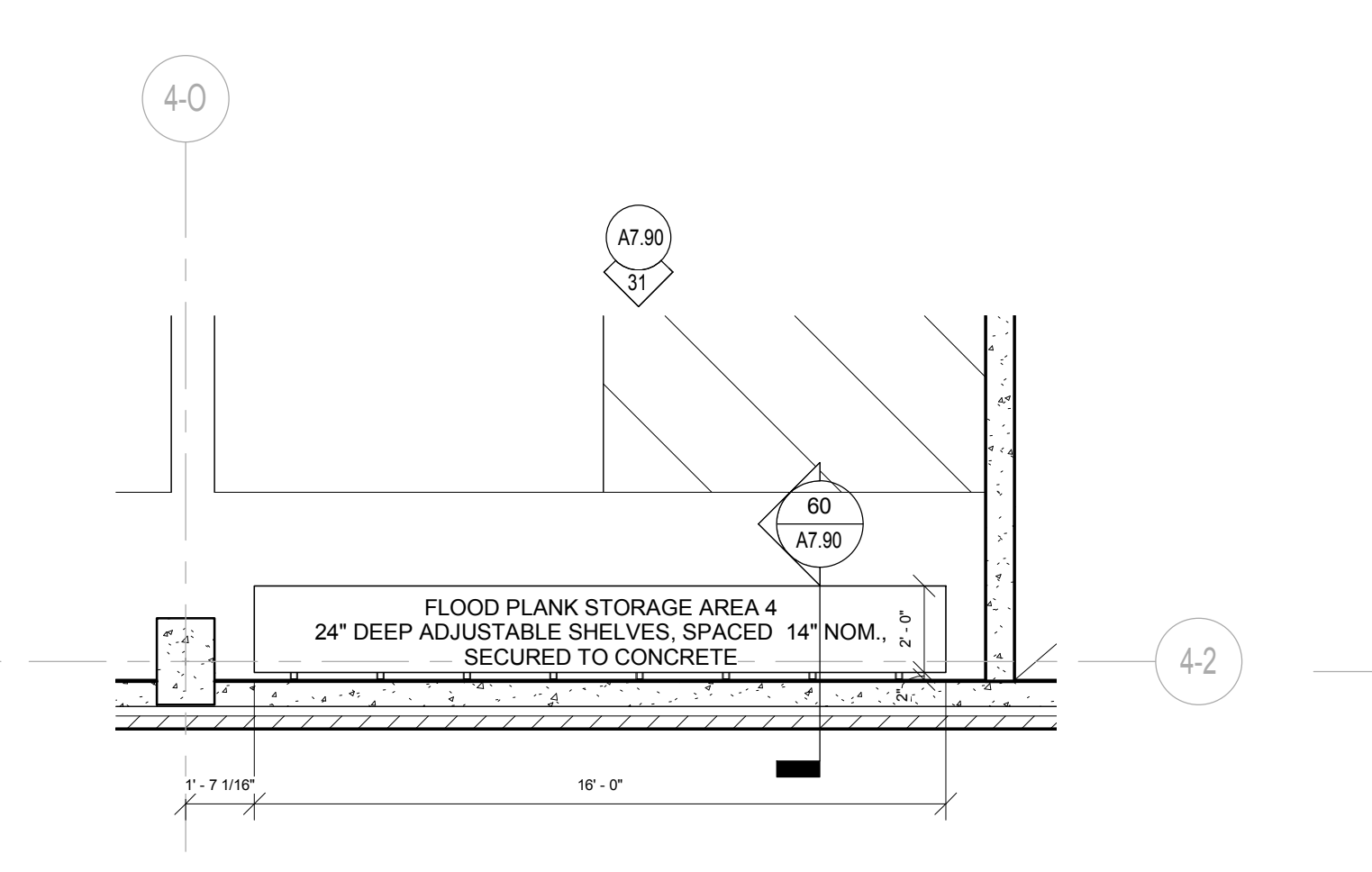
11 FLOOD PLANK STORAGE SHELVES - ELEVATION 1 (BELOW BLDG 1)
Scale: 1/4" = 1'-0"



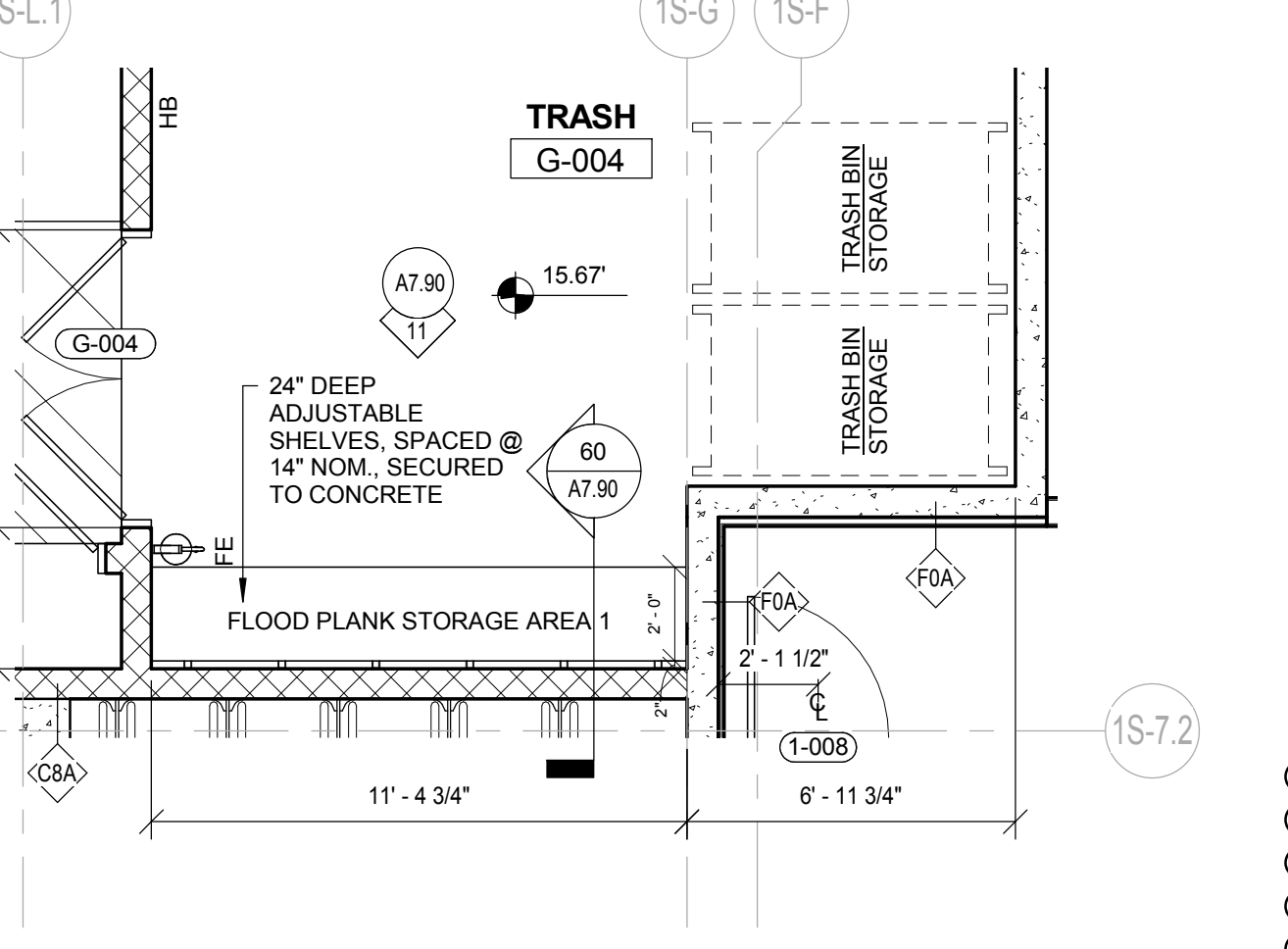
60 SECTION @ FLOOD PLANK SHELVEING
Scale: 1/2" = 1'-0"



50 BLDG 4 - GARAGE - FLOOD PLANK STORAGE PLAN 5
Scale: 1/4" = 1'-0"



30 BLDG 4 - GARAGE - FLOOD PLANK STORAGE PLAN 4
Scale: 1/4" = 1'-0"



10 BLDG 1 - GARAGE - FLOOD PLANK STORAGE PLAN 1
Scale: 1/4" = 1'-0"



FEMA

NATIONAL FLOOD INSURANCE PROGRAM

ELEVATION CERTIFICATE

AND

INSTRUCTIONS

2019 EDITION

U.S. DEPARTMENT OF HOMELAND SECURITY
Federal Emergency Management Agency
National Flood Insurance Program**ELEVATION CERTIFICATE AND INSTRUCTIONS****Paperwork Reduction Act Notice**

Public reporting burden for this data collection is estimated to average 3.75 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and submitting this form. You are not required to respond to this collection of information unless a valid OMB control number is displayed on this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing the burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street SW, Washington, DC 20742, Paperwork Reduction Project (1660-0008). **NOTE: Do not send your completed form to this address.**

Privacy Act Statement

Authority: Title 44 CFR § 61.7 and 61.8.

Principal Purpose(s): This information is being collected for the primary purpose of estimating the risk premium rates necessary to provide flood insurance for new or substantially improved structures in designated Special Flood Hazard Areas.

Routine Use(s): The information on this form may be disclosed as generally permitted under 5 U.S.C. § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA-003 – National Flood Insurance Program Files System or Records Notice 73 Fed. Reg. 77747 (December 19, 2008); DHS/FEMA/NFIP/LOMA-1 – National Flood Insurance Program (NFIP) Letter of Map Amendment (LOMA) System of Records Notice 71 Fed. Reg. 7990 (February 15, 2006); and upon written request, written consent, by agreement, or as required by law.

Disclosure: The disclosure of information on this form is voluntary; however, failure to provide the information requested may result in the inability to obtain flood insurance through the National Flood Insurance Program or the applicant may be subject to higher premium rates for flood insurance. Information will only be released as permitted by law.

Purpose of the Elevation Certificate

The Elevation Certificate is an important administrative tool of the National Flood Insurance Program (NFIP). It is to be used to provide elevation information necessary to ensure compliance with community floodplain management ordinances, to determine the proper insurance premium rate, and to support a request for a Letter of Map Amendment (LOMA) or Letter of Map Revision based on fill (LOMR-F).

The Elevation Certificate is required in order to properly rate Post-FIRM buildings, which are buildings constructed after publication of the Flood Insurance Rate Map (FIRM), located in flood insurance Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, and AR/AO. The Elevation Certificate is not required for Pre-FIRM buildings unless the building is being rated under the optional Post-FIRM flood insurance rules.

As part of the agreement for making flood insurance available in a community, the NFIP requires the community to adopt floodplain management regulations that specify minimum requirements for reducing flood losses. One such requirement is for the community to obtain the elevation of the lowest floor (including basement) of all new and substantially improved buildings, and maintain a record of such information. The Elevation Certificate provides a way for a community to document compliance with the community's floodplain management ordinance.

Use of this certificate does not provide a waiver of the flood insurance purchase requirement. Only a LOMA or LOMR-F from the Federal Emergency Management Agency (FEMA) can amend the FIRM and remove the Federal mandate for a lending institution to require the purchase of flood insurance. However, the lending institution has the option of requiring flood insurance even if a LOMA/LOMR-F has been issued by FEMA. The Elevation Certificate may be used to support a LOMA or LOMR-F request. Lowest floor and lowest adjacent grade elevations certified by a surveyor or engineer will be required if the certificate is used to support a LOMA or LOMR-F request. A LOMA or LOMR-F request must be submitted with either a completed FEMA MT-EZ or MT-1 package, whichever is appropriate.

This certificate is used only to certify building elevations. A separate certificate is required for floodproofing. Under the NFIP, non-residential buildings can be floodproofed up to or above the Base Flood Elevation (BFE). A floodproofed building is a building that has been designed and constructed to be watertight (substantially impermeable to floodwaters) below the BFE. Floodproofing of residential buildings is not permitted under the NFIP unless FEMA has granted the community an exception for residential floodproofed basements. The community must adopt standards for design and construction of floodproofed basements before FEMA will grant a basement exception. For both floodproofed non-residential buildings and residential floodproofed basements in communities that have been granted an exception by FEMA, a floodproofing certificate is required.

Additional guidance can be found in FEMA Publication 467-1, Floodplain Management Bulletin: Elevation Certificate, available on FEMA's website at <https://www.fema.gov/media-library/assets/documents/3539?id=1727>.

ELEVATION CERTIFICATE

Important: Follow the instructions on pages 1–9.

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

SECTION A – PROPERTY INFORMATION				FOR INSURANCE COMPANY USE	
A1. Building Owner's Name Slip45 Owner LLC				Policy Number:	
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 45 Lewis Street (Building 4)				Company NAIC Number:	
City Boston		State Massachusetts		ZIP Code 02128	
A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) Parcel ID 0105400000, CLippership Wharf Primary Condominium					
A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) <u>Residential</u>					
A5. Latitude/Longitude: Lat. <u>42°22'0.85"</u> Long. <u>71° 2'29.48"</u> Horizontal Datum: <input type="checkbox"/> NAD 1927 <input checked="" type="checkbox"/> NAD 1983					
A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.					
A7. Building Diagram Number <u>2A</u>					
A8. For a building with a crawlspace or enclosure(s):					
a) Square footage of crawlspace or enclosure(s) <u>N/A</u> sq ft					
b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade <u>N/A</u>					
c) Total net area of flood openings in A8.b <u>N/A</u> sq in					
d) Engineered flood openings? <input type="checkbox"/> Yes <input type="checkbox"/> No					
A9. For a building with an attached garage:					
a) Square footage of attached garage <u>N/A</u> sq ft					
b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade <u>N/A</u>					
c) Total net area of flood openings in A9.b <u>N/A</u> sq in					
d) Engineered flood openings? <input type="checkbox"/> Yes <input type="checkbox"/> No					
SECTION B – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION					
B1. NFIP Community Name & Community Number City of Boston, 250286			B2. County Name Suffolk		B3. State Massachusetts
B4. Map/Panel Number 0081	B5. Suffix J	B6. FIRM Index Date 03-16-2016	B7. FIRM Panel Effective/ Revised Date 03-16-2016	B8. Flood Zone(s) AE	B9. Base Flood Elevation(s) (Zone AO, use Base Flood Depth) 12, 13
B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9: <input type="checkbox"/> FIS Profile <input checked="" type="checkbox"/> FIRM <input type="checkbox"/> Community Determined <input type="checkbox"/> Other/Source: _____					
B11. Indicate elevation datum used for BFE in Item B9: <input type="checkbox"/> NGVD 1929 <input checked="" type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other/Source: _____					
B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Designation Date: _____ <input type="checkbox"/> CBRS <input type="checkbox"/> OPA					

ELEVATION CERTIFICATE

OMB No. 1660-0008 ⁵⁷²
 572
 Expiration Date: November 30, 2022

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 45 Lewis Street (Building 4)			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

SECTION C – BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

C1. Building elevations are based on: Construction Drawings* Building Under Construction* Finished Construction
 *A new Elevation Certificate will be required when construction of the building is complete.

C2. Elevations – Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO. Complete Items C2.a–h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.

Benchmark Utilized: Elevation Established by GPS Vertical Datum: NAVD 1988

Indicate elevation datum used for the elevations in items a) through h) below.

NGVD 1929 NAVD 1988 Other/Source: _____

Datum used for building elevations must be the same as that used for the BFE.

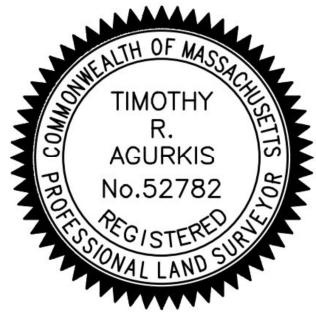

Check the measurement used.

- | | | | | |
|---|-------|------|--|---------------------------------|
| a) Top of bottom floor (including basement, crawlspace, or enclosure floor) | _____ | 6.6 | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| b) Top of the next higher floor | _____ | 9.5 | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| c) Bottom of the lowest horizontal structural member (V Zones only) | _____ | N/A | <input type="checkbox"/> feet | <input type="checkbox"/> meters |
| d) Attached garage (top of slab) | _____ | N/A | <input type="checkbox"/> feet | <input type="checkbox"/> meters |
| e) Lowest elevation of machinery or equipment servicing the building
(Describe type of equipment and location in Comments) | _____ | -2.9 | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| f) Lowest adjacent (finished) grade next to building (LAG) | _____ | 7.3 | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| g) Highest adjacent (finished) grade next to building (HAG) | _____ | 18.1 | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support | _____ | 7.3 | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |

SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.

Were latitude and longitude in Section A provided by a licensed land surveyor? Yes No Check here if attachments.

Certifier's Name Timothy Agurkis	License Number 52782		
Title Professional Land Surveyor/Senior Project Manager			
Company Name Feldman Land Surveyors			
Address 152 Hampden Street			
City Boston	State Massachusetts		ZIP Code 02119
Signature 	Date 9/23/2020	Telephone (617) 357-9740	Ext.

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

Comments (including type of equipment and location, per C2(e), if applicable)

C2(a) - Underground garage. C2(b) - First floor lobby. C2(e) - Ground water pump in garage, Telephone and electric services on first floor, Elevation = 18.4. C2(f) - Dirt at easterly side of building, construction not final. C2(g) - Crushed stone at northeast corner of building, construction not final. C2(h) - Dirt at entry to building on easterly side of building, construction not final. There are 6 engineered flood barriers protecting the floor listed in C2(b), the specifications of which are attached, the measured elevation of the top of the installed barriers range from 12.9 feet to 13.0 feet.

ELEVATION CERTIFICATE

OMB No. 1660-0008 ⁵⁷³
 573
 Expiration Date: November 30, 2022

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 45 Lewis Street (Building 4)			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

**SECTION E – BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED)
 FOR ZONE AO AND ZONE A (WITHOUT BFE)**

For Zones AO and A (without BFE), complete Items E1–E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B, and C. For Items E1–E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.

E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).

a) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ feet meters above or below the HAG.

b) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ feet meters above or below the LAG.

E2. For Building Diagrams 6–9 with permanent flood openings provided in Section A Items 8 and/or 9 (see pages 1–2 of Instructions), the next higher floor (elevation C2.b in the diagrams) of the building is _____ feet meters above or below the HAG.

E3. Attached garage (top of slab) is _____ feet meters above or below the HAG.

E4. Top of platform of machinery and/or equipment servicing the building is _____ feet meters above or below the HAG.

E5. Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance? Yes No Unknown. The local official must certify this information in Section G.

SECTION F – PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION

The property owner or owner's authorized representative who completes Sections A, B, and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. The statements in Sections A, B, and E are correct to the best of my knowledge.

Property Owner or Owner's Authorized Representative's Name _____

Address _____	City _____	State _____	ZIP Code _____
Signature _____	Date _____	Telephone _____	

Comments

Check here if attachments.

ELEVATION CERTIFICATE

OMB No. 1660-0008 ⁵⁷⁴
⁵⁷⁴
 Expiration Date: November 30, 2022

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 45 Lewis Street (Building 4)			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

SECTION G – COMMUNITY INFORMATION (OPTIONAL)

The local official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Complete the applicable item(s) and sign below. Check the measurement used in Items G8–G10. In Puerto Rico only, enter meters.

- G1. The information in Section C was taken from other documentation that has been signed and sealed by a licensed surveyor, engineer, or architect who is authorized by law to certify elevation information. (Indicate the source and date of the elevation data in the Comments area below.)
- G2. A community official completed Section E for a building located in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.
- G3. The following information (Items G4–G10) is provided for community floodplain management purposes.

G4. Permit Number	G5. Date Permit Issued	G6. Date Certificate of Compliance/Occupancy Issued
-------------------	------------------------	---

G7. This permit has been issued for: New Construction Substantial Improvement

G8. Elevation of as-built lowest floor (including basement) of the building: _____ feet meters Datum _____

G9. BFE or (in Zone AO) depth of flooding at the building site: _____ feet meters Datum _____

G10. Community's design flood elevation: _____ feet meters Datum _____

Local Official's Name	Title
-----------------------	-------

Community Name	Telephone
----------------	-----------

Signature	Date
-----------	------

Comments (including type of equipment and location, per C2(e), if applicable)

Check here if attachments.

BUILDING PHOTOGRAPHS

See Instructions for Item A6.

OMB No. 1660-0008 ⁵⁷⁵
 575
 Expiration Date: November 30, 2022

ELEVATION CERTIFICATE

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 45 Lewis Street (Building 4)			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

If using the Elevation Certificate to obtain NFIP flood insurance, affix at least 2 building photographs below according to the instructions for Item A6. Identify all photographs with date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8. If submitting more photographs than will fit on this page, use the Continuation Page.



Photo One

Photo One Caption South Side of Building Looking East

Clear Photo One

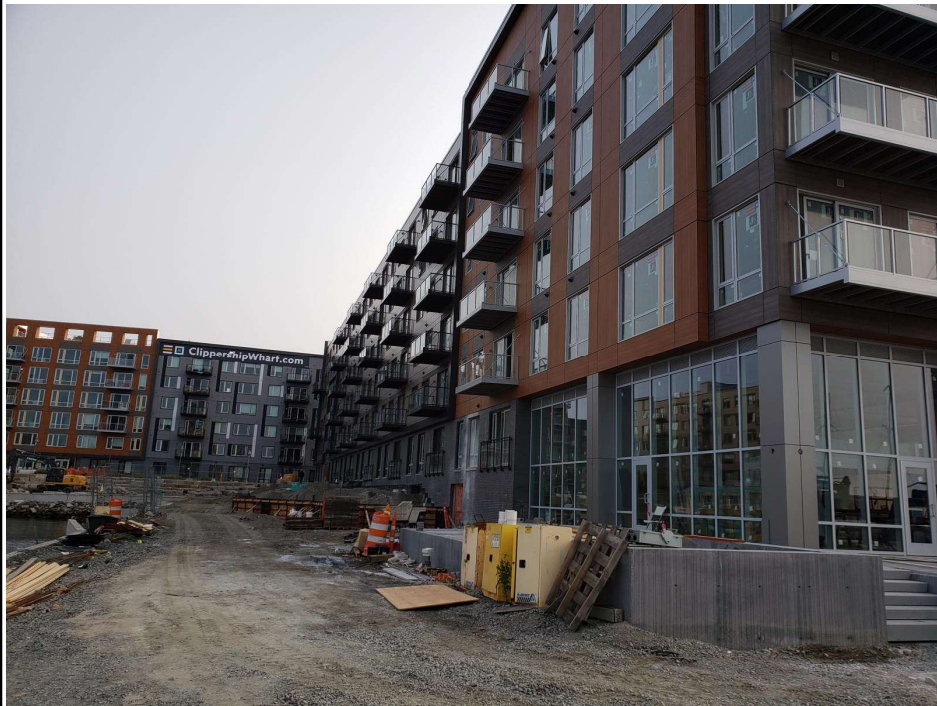


Photo Two

Photo Two Caption West Side of Building Looking North

Clear Photo Two

BUILDING PHOTOGRAPHS

Continuation Page

OMB No. 1660-0008 ⁵⁷⁶
 576
 Expiration Date: November 30, 2022

ELEVATION CERTIFICATE

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 45 Lewis Street (Building 4)			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8.

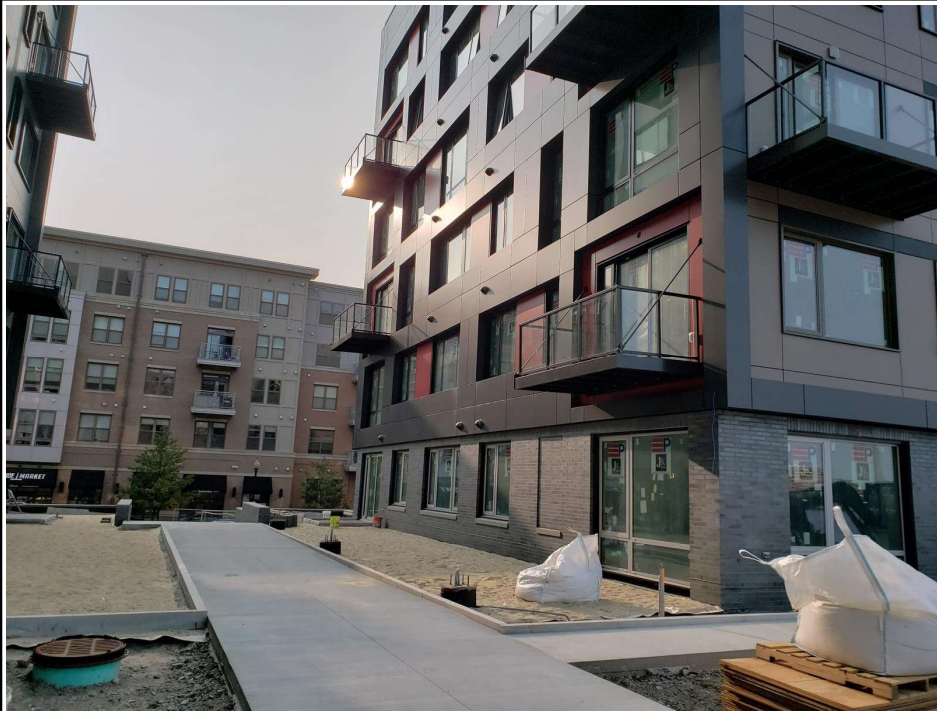


Photo Three

Photo Three Caption North Side of Building Looking East

Clear Photo Three



Photo Four

Photo Four Caption East Side of Building Looking North

Clear Photo Four

Code Summary
November 11, 2016

- Massachusetts State Building Code - 780 CMR, 8th Edition (2009 IBC with MA Amendments)
 - Massachusetts Architectural Access Board - 521 CMR, Effective January 27, 2006
 - MA Elevator Regulations, 524 CMR
 - MA State Sanitary Code, 105 CMR
 - Fair Housing Accessibility Guidelines, March 6, 1991
- Introduction: The Clippership Wharf is a mixed-use development located on the waterfront in East Boston, Massachusetts. It is on a site bounded by the Boston Harbor on the North-West and South West sides, by Jacobbe Road on the North-East side, and Lewis Street to the South East.
- The "project" consists of the following:
- A "closed" parking garage (S-2), located at Level "G", which will serve residents in all buildings. There will be 250 parking spaces for condo and rental tenants and an additional 20 parking spaces for the public. The public will enter the parking garage from Lewis Street. Renters will enter the parking garage from Jacobbe Road. Condo Owners can enter the garage from Jacobbe Road or through an interior garage door shortly after the public entry on Lewis Street.
 - Approximately 4,100 SF of retail space (A-3) at Level "G", below Building #4, adjacent to Lewis Road. The retail space faces the waterfront and is currently being planned for a restaurant.
 - Public toilet facilities and public bike storage are located in the public section of the garage below Building 4.
 - Approximately 2,700 SF of retail space (M) at Level "G", below Building #3. The retail space faces the waterfront and is currently being planned for a kayak rental with kayak launch
 - Approximately 1,200 SF of retail space (A-2) at Level "G", below Building #1. The retail space faces North - East currently being planned as a Café.
 - Other garage areas include tenant and bike storage, trash rooms, residential elevator lobbies, etc.
 - Four separate buildings consisting of 478 rental and For-Sale Dwelling Units built over a below grade "closed" parking garage.
 - Building 1 consisting of 209 rental dwelling units and leasing center and management offices.
 - Building 2 consisting of 75 rental dwelling units and amenity areas.
 - Building 3 consisting of 80 For-Sale Condominium dwelling units, amenity areas, and public areas.
 - Building 4 consisting of 114 rental dwelling units and lounge.
 - Public harbor walk, public boat launch, public beach, and public event lawn.
 - Amenity courtyard at Building 1 constructed over the parking garage.
- The base of the building shall be constructed as a podium with a 3-hour rated concrete horizontal assembly above the closed air parking garage and the first floor residential and amenity areas.
- Residential levels on floors two through six shall be constructed as wood. (Construction Type 3A) These buildings shall be referred to as Building 1 (Apartments), Building 2 (Apartments), Building 3 (Condominiums) and Building 4. (Apartments)
- All buildings shall be equipped with an automatic sprinkler system installed in accordance with Section 903.1.1. (NFPA 13)

CHAPTER 3 - USE AND OCCUPANCY

- Occupancy Classifications:
 - Use Group R-2 Multiple Dwellings (IBC 2009 - 310.1)
 - Use Group S-2 Parking Garage (IBC 2009 - 311.3)
 - Use Group M Retail or Wholesale Stores (IBC 2009 - 309.1)
 - Use Group A-2 Restaurants, Night Clubs, Taverns and bars (IBC 2009 - 303.1)

BUILDING HEIGHT CALCULATIONS

- Building #1
 - Average Grade Plane: Elev. 22.99'
 - Average Height of Highest Roof Surface: Elev. 90.33'
 - Building #1 Height (feet): 67.34'
 - Building #1 Height (stories above horizontal separation*): 5-stories
- Building #2
 - Average Grade Plane: Elev. 24.35'
 - Average Height of Highest Roof Surface: Elev. 90.33'
 - Building #2 Height (feet): 65.98'
 - Building #2 Height (stories above horizontal separation*): 5-stories
- Building #3
 - Average Grade Plane: Elev. 21.10'
 - Average Height of Highest Roof Surface: Elev. 90.83'
 - Building #3 Height (feet): 69.73'
 - Building #3 Height (stories above horizontal separation*): 5-stories
- Building #4
 - Average Grade Plane: Elev. 21.04'
 - Average Height of Highest Roof Surface: Elev. 90.50'
 - Building #4 Height (feet): 69.46'
 - Building #4 Height (stories above horizontal separation*): 5-stories

* Refer to section IBC 2009 - 509.2 Horizontal building separation allowance.
 * Refer to section IBC 2009 - 509.4 Parking beneath Group R.

TYPES OF CONSTRUCTION

- Construction Classification:
 - Type 3A (IBC 2009 - 602.3) - Residential floors
 - Type 1A (IBC 2009 - 602.2) - Parking Garage, Restaurant, Mercantile, Amenity Areas

Table 601
Fire Resistance Rating Requirements for Building Elements: (Hours)

Building Element	Fire resistance Rating (Hours)	
	Type 3A ^a (residential floors above concrete transfer deck)	Type 1A (Parking garage and first floor areas)
Primary structural frame (see Section 202)	1	3 ^b
Bearing walls - Exterior ^{c,d}	2	3
- Interior	1	3 ^b
Nonbearing walls and partitions - Exterior	See Table 602	See Table 602
- Interior ^e	0	0
Floor construction and secondary members (see Section 202)	1	2
Roof construction and secondary members (see Section 202)	1 ^{b,e}	1 1/2 ^b
Stair and Elevator Shafts (connecting 4 or more stories) ^f	2	2
Mechanical and Other Shafts (connecting more than 4 stories) ^g	2	2
Mechanical and Other Shafts (connecting less than 4 stories) ^g	1	1
Corridor Fire-Resistance Rating (Table 1018.1) R-2 (With Sprinkler system)	1/2	3/8
Corridor Fire-Resistance Rating (Table 1018.1) S-2 (With Sprinkler system)	0	0
Corridor Fire-Resistance Rating (Table 1018.1) M (With Sprinkler system)	0	0
Corridor Fire-Resistance Rating (Table 1018.1) A-2 (With Sprinkler system)	0	0
Dwelling Unit Separations (709.3 Exception 2)	1	N/A

TYPES OF CONSTRUCTION (Continued)

^a Per IBC 2009 - 1022.1, "Enclosures required. Interior exit stairways and interior exit ramps shall be enclosed with fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 712, or both. Exit enclosures shall have a fire resistance rating of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than 4 stories. The number of stories connected by the exit enclosure shall include any basements but not any mezzanines. Exit enclosures shall have a fire resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours....."

^b Per IBC 2009 - 708.4, "Shaft enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more, and not less than 1 hour where connecting less than four stories. The number of stories connected by the shaft enclosure shall include any basements but not any mezzanines. Shaft enclosures shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours. Shaft enclosures shall meet the requirements of Section 703.2.1."

^c Roof Supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

^d Except in Group F-1, H, M, and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

^e In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.

^f An approved automatic sprinkler system in accordance with 903.3.1.1 shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 505.3 or an allowable height increase in accordance with Section 504.2. The 1-hour substitution for the fire-resistance of exterior walls shall not be permitted.

^g Not less than the fire-resistance rating required by other sections of this code.

^h Not less than the fire-resistance rating based on fire-separation distance (see Table 602).

ⁱ Not less than the fire-resistance rating as referenced in Section 704.10.

OCCUPANT LOAD

IBC 2009 Table 1004.1.1
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

Floor	Area	Floor Area (gsf)	Floor Area Per Occupant (gsf/occupant)	Occupant Load
Level G - BLDG 5	Parking (S-2)	126,720	200 gross	633.60
Level 0 - BLDG 1	Assembly(A2)	1195	15 net	79.67
Level 0 - BLDG 2	Mercantile (M)	3,051	30 gross	101.66
Level 0 - BLDG 4	Assembly(A2)	4,130	15 net	275.33
Level 1 - BLDG 1	Residential	35,621	200 gross	178.10
Level 1 - BLDG 2	Residential	14,126	200 gross	70.63
Level 1 - BLDG 3	Assembly(A3)	10,910	15 net	727.33
Level 1 - BLDG 4	Residential	17,382	200 gross	86.91
Level 2 - BLDG 1	Residential	35,948	200 gross	179.74
Level 2 - BLDG 2	Residential	13,826	200 gross	69.13
Level 2 - BLDG 3	Residential	16,538	200 gross	82.69
Level 2 - BLDG 4	Residential	20,698	200 gross	103.49
Level 3 - BLDG 1	Residential	37,423	200 gross	187.12
Level 3 - BLDG 2	Residential	13,826	200 gross	69.13
Level 3 - BLDG 3	Residential	16,538	200 gross	82.69
Level 3 - BLDG 4	Residential	20,698	200 gross	103.49
Level 4 - BLDG 1	Residential	37,423	200 gross	187.12
Level 4 - BLDG 2	Residential	13,826	200 gross	69.13
Level 4 - BLDG 3	Residential	16,538	200 gross	82.69
Level 4 - BLDG 4	Residential	20,698	200 gross	103.49
Level 5 - BLDG 1	Residential	37,423	200 gross	187.12
Level 5 - BLDG 2	Residential	13,826	200 gross	69.13
Level 5 - BLDG 3	Residential	16,538	200 gross	82.69
Level 5 - BLDG 4	Residential	20,698	200 gross	103.49
Level 6 - BLDG 1	Residential	37,423	200 gross	187.12
Level 6 - BLDG 2	Residential	13,826	200 gross	69.13
Level 6 - BLDG 3	Residential	16,538	200 gross	82.69
Level 6 - BLDG 4	Residential	20,698	200 gross	103.49

Table 1021.1
MINIMUM NUMBER OF EXITS FOR OCCUPANT LOAD

Floor	Occupant Load	Required Number of Exits	Number of Exits Provided
Level G - BLDG 5	633.60	3	3+
Level 0 - BLDG 1 (A-2)	79.67	2	2
Level 0 - BLDG 3 (M)	101.66	2	2
Level 0 - BLDG 4 (A-2)	275.33	2	2
Level 1 - BLDG 1 (R-2)	178.10	2	2+
Level 1 - BLDG 2 (R-2)	70.63	2	2+
Level 1 - BLDG 3 (A-3)	727.33	3	3+
Level 1 - BLDG 4 (R-2)	86.91	2	2
Level 2 - BLDG 1	179.74	2	2
Level 2 - BLDG 2	69.13	2	2
Level 2 - BLDG 3	82.69	2	2
Level 2 - BLDG 4	103.49	2	2
Level 3 - BLDG 1	187.12	2	2
Level 3 - BLDG 2	69.13	2	2
Level 3 - BLDG 3	82.69	2	2
Level 3 - BLDG 4	103.49	2	2
Level 4 - BLDG 1	187.12	2	2
Level 4 - BLDG 2	69.13	2	2
Level 4 - BLDG 3	82.69	2	2
Level 4 - BLDG 4	103.49	2	2
Level 5 - BLDG 1	187.12	2	2
Level 5 - BLDG 2	69.13	2	2
Level 5 - BLDG 3	82.69	2	2
Level 5 - BLDG 4	103.49	2	2
Level 6 - BLDG 1	187.12	2	2
Level 6 - BLDG 2	69.13	2	2
Level 6 - BLDG 3	82.69	2	2
Level 6 - BLDG 4	103.49	2	2

Table 602
Fire-Resistance Rating Requirement For Exterior Walls Based on Fire Separation Distance

Fire Separation Distance=X (feet)	Type of Construction	Occupancy Group A, R, S-2	Occupancy Group M
X<5	All	1	2
5<=X<10	IA Others	1 1	2 1
10<=X<30	IA Others	1 1	1 1
X>=30	All	0	0

CHAPTER 11 - ACCESSIBILITY

Per Massachusetts State Building Code - 780 CMR, 8th Edition 1101.1 Scope. In accordance with M.G.L. c. 22 & 13A all public buildings shall be designed to be accessible to, and functional and safe for use by, physically disabled persons, and conform to the requirements of 521 CMR. In accordance with M.G.L. c. 143, & 3, 521 CMR shall be enforced by the building official or the state inspector, as applicable.

Massachusetts Architectural Access Board (521 CMR)

- Group 1 Dwelling Units - Buildings #1 & #2:
 - Group 1 Dwelling Units: In multiple dwellings for which building permits for new construction are issued on or after September 1, 1996, that are for rent, hire, lease, or sale and that are equipped with an elevator, all dwelling units must be constructed as Group 1 Dwelling Units, except those covered as Group 2 Dwelling Units.
 - Buildings 1, 2, 3, & 4 are proposed new buildings equipped with elevators. All dwelling units must be constructed as Group 1 Dwelling Units, except those covered as Group 2 Dwelling Units.
- Group 2A Dwelling Units - Building 1, 2, & 4:
 - In multiple dwellings that are for rent, hire, or lease (but not for sale) and contain 20 or more units, at least 5% of the dwelling units must be constructed as Group 2A units. The proposed Building #1 & #2 dwelling units are for rent. As such, at least 5% of the dwelling units must be constructed as Group 2A units.
 - Buildings 1, 2, 4 are for rent and will contain Group 2A units.
 - Total Units in Buildings 1, 2, & 4 = 398. 398 Units X 5% = 20 Group 2A Units
 - Distributions: Group 2A dwelling units shall be proportionally distributed across the total number of units according to number of bedrooms, size, quality, price and location. Group 2A units have been proportionally distributed across the total number of units and shall be provided as follows; Refer to chart on UNIT SCHEDULES for distribution.
- Sleeping Accommodations for Deaf or Hard of Hearing Persons - Buildings 1, 2, 3, & 4.
 - In addition to those units required to be accessible by 521 CMR 9.4, Group 2 Dwelling Units, 2% of the total number of dwelling units in the complex or project, but not less than one shall comply with 521 CMR, Section 9.7.
 - Ten of the 478 total units in the project are proposed as units for deaf or hard of hearing persons, per 521 CMR, Section 9.7.
- Fair Housing Amendments Act - Buildings 1, 2, 3, & 4:
 - The Fair Housing Act Design Requirements apply to buildings built for first occupancy after March 13, 1991, which fall under the definition of "covered multifamily dwellings." Covered multifamily dwellings are:
 - All dwelling units in buildings containing four or more dwelling units if such buildings have one or more elevators, and
 - All ground floor dwelling units in other buildings containing four or more units.
 - Buildings 1, 2, 3, & 4 are proposed new buildings equipped with elevators and contain more than 4 dwelling units. All dwelling units must be constructed according to the Fair Housing Act Design Requirements. All 478 of the units in Buildings 1, 2, 3, & 4 are proposed as units complying with the Fair Housing Act Design Requirements.

Flood Protocol

Residential uses occur at the first floor (25.00') well above the flood plain; however the parking garage (13.50' - 15'-8") and retail areas (16.13', 17.50', 18.10') occur below the flood plain. Ownership and the project team have elected to keep water out of these areas during a flood event as allowed by Exception 2 of 63.01.3.

The 100 year flood plain at the site is at elevations 14.46' and 15.46'. This sets code design levels at 15.46' and 16.46'. In anticipation of the raising of these levels by FEMA, the Owner has directed the flood protection measures to be designed at elevations 18.46' and 19.46', one foot above the projected new levels.

At garage door openings, retail storefront and curtain wall, and pedestrian openings below design level there will be a system of removable flood protection barriers that will provide waterproofing. These systems will consist of removable posts and removable 6" flood planks. Flood planks and all appurtenances will be stored within the garage or the retail areas.

Management will monitor the weather and tides and deploy the system in advance of a weather event. Once the system has been deployed vehicles will not be able to enter the garage until flood waters have receded and the barriers have been removed. Retail spaces will be shut down any time flood barriers are in place. At a few locations emergency egress will be altered to coincide with the natural disaster.

In addition to these waterproofing and removable flood control measures the garage slab will be installed with a hydrostatic relief system to relieve water pressure from underneath the slab. This system will be tied to the emergency generator in the event of power loss.

Building 1:
Stair 1 at Building 1 will egress above flood waters. (21.17)
Stair 2 at Building 1 will egress above flood waters to the landscape courtyard. (25.00')

Building 2:
Stair 1 at Building 2 will egress above flood waters. (25.00')
Stair 2 at Building 2 will egress above flood waters. (21.58')

Building 3:
Stair 1 at Building 3 will egress through the lobby above flood waters. (25.00')
Stair 2 at Building 3 will egress below flood waters. (16.50') However at this location only, as allowed by G301.3, water will be allowed to enter this stairway through a louvered door. An additional door will be located above flood waters (20.75') to allow egresses to discharge above flood waters.

Building 4:
Stair 1 at Building 4 will egress above flood waters. (21.17)
Stair 2 at Building 4 will egress above flood waters. (21.17)

Garage:
Stair 1 at Building 1 - Garage level will egress above flood waters. (21.17)

Pedestrian Door at Building 1 Garage - This egress is below the design flood level. Flood control measures will be deployed outside the building to allow egresses to gain access to the landscape courtyard (25.00') via an accessible ramp.

Stair 2 at Building 2 - Garage level will egress above flood waters. (21.58')

Pedestrian Door at Building 3 Garage - This egress is behind flood barriers and will be taken off line during a flood emergency. (Exit signage blanked off, additional signage provided for inhabitants)
Occupant loads, travel distances, and common path of egress travel have been calculated for the garage in the event that this egress is taken off line.

Stair 1 at Building 4 will egress above flood waters. (21.17)

Stair 2 at Building 4 - Garage level will egress above flood waters. (21.17)

Table 503 - ALLOWABLE BUILDING HEIGHTS AND AREAS

Code Reference	Construction Type 3A & Use Group R-2	Area
Table 503	4 Stories (65 feet)	24,000 sf
Section 504.2 Sprinkler Height Increase ^a	+ 1 Story (20 feet)	N/A
Section 506.3 Sprinkler Area Increase ^b	N/A	+ 48,000 sf
Total Allowable Area	5 Stories (85 feet)	72,000 sf
Total Allowable Height	5 Stories (85 feet)	N/A
BLDG 1 - Proposed Height & Maximum Allowable Area	5 Stories (67.34')	Approx. 37,423 sf
BLDG 2 - Proposed Height & Maximum Allowable Area	5 Stories (65.98')	Approx. 13,826 sf
BLDG 3 - Proposed Height & Maximum Allowable Area	5 Stories (69.73')	Approx. 16,538 sf
BLDG 4 - Proposed Height & Maximum Allowable Area	5 Stories (69.46')	Approx. 20,698 sf

^a Per IBC 2009 - 504.2 "Automatic Sprinkler System Increase - Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the value specified in Table 503 for maximum building height is increased by 20 feet and the maximum number of stories is increased by one....."

^b Per IBC 2009 - 506.3 "Automatic sprinkler system increase - Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the building area limitation in Table 503 is permitted to be increased by an additional 200 percent for buildings with more than one story above grade plane....."

The following table summarizes the building height and area limitations for the closed parking garage

Code Reference	Construction Type 1A & Use Groups R-2, S-2, M, & A-2	Area
Table 503	Unlimited	Unlimited
Residential (R-2)	3 Stories (69.73')	Approx 37,423 SQFT
Garage (S-2)	1 Stories (11.50')	Approx 126,720 SQFT
Mercantile (M)	1 Stories (20.37')	Approx 3,050 SQFT
Restaurant (A-2)	1 Stories (18.00')	Approx 4,130 SQFT



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Consultant:

Revision:

- DEC. 01, 2015
- MAY 4, 2016
- JUNE 30, 2016 ADDENDUM 2
- NOV 11, 2016 ADDENDUM 5

Architect of Record:

Drawn: SR

Checked: AS

Scale: 12" = 1'-0"

Key Plan:

Project Name:

CLIPPERSHIP WHARF

25-65 Lewis Street
East Boston, MA 02128

Sheet Name:

CODE SUMMARY

Project Number:

13166



Issue Date:

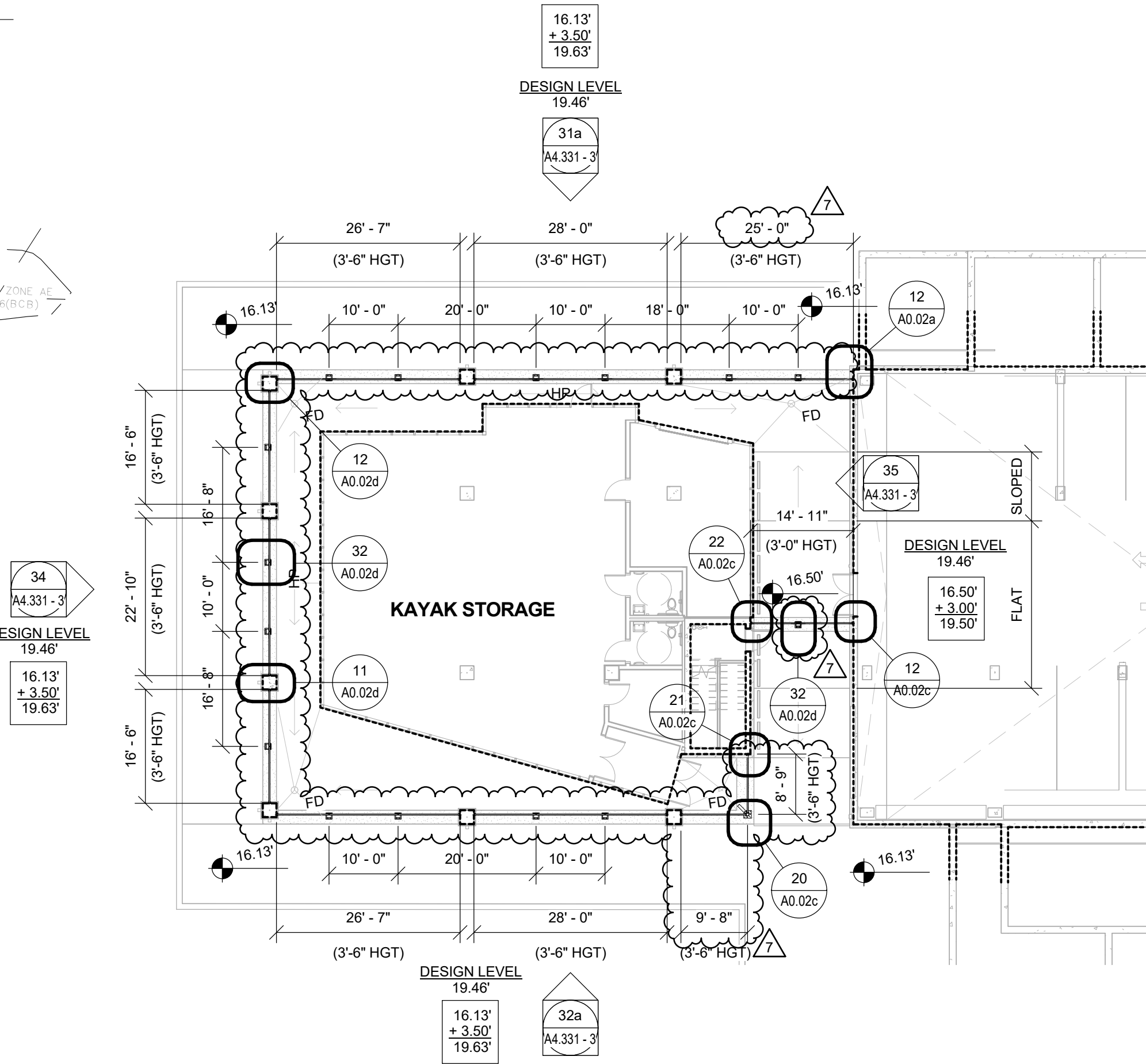
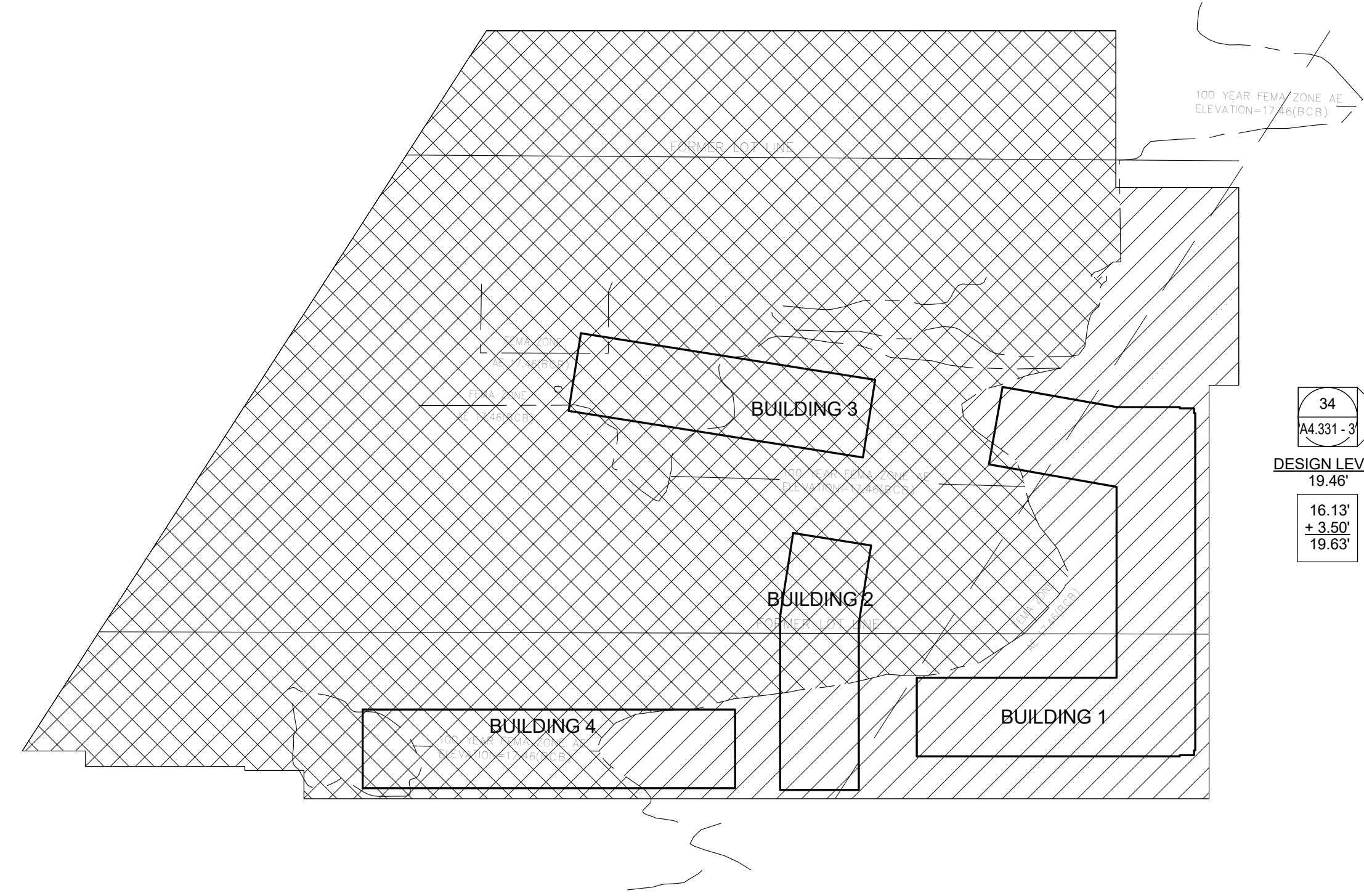
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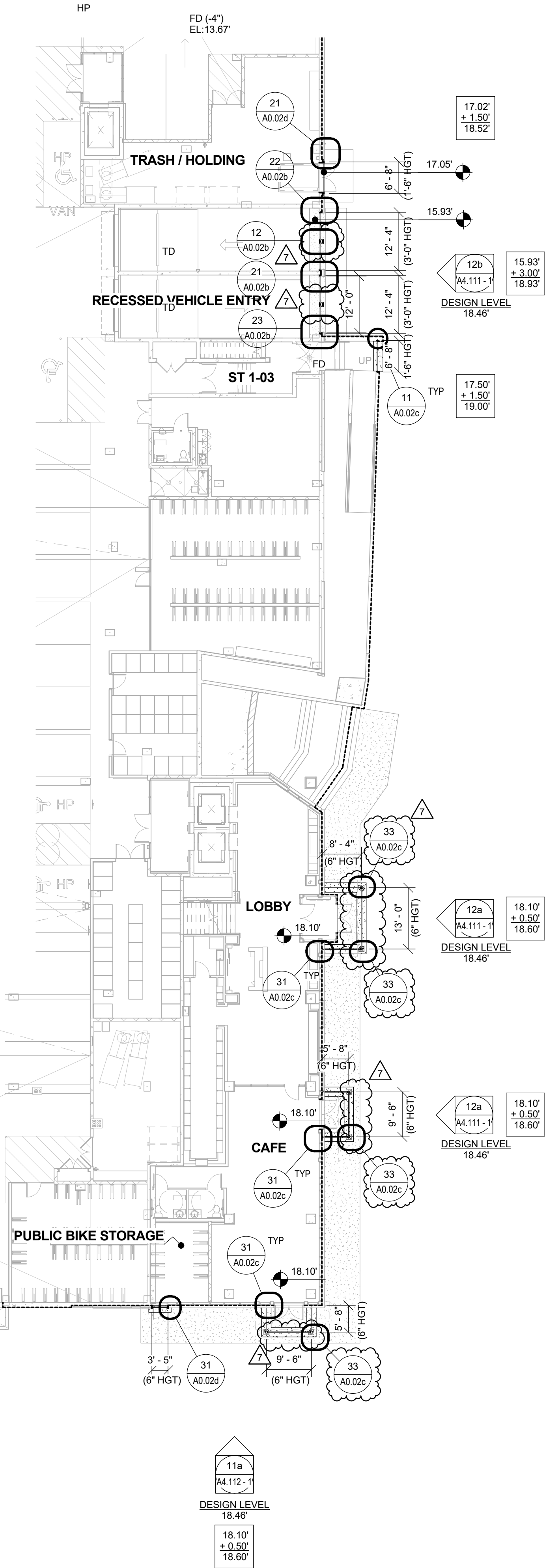
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100 YEAR FLOOD PLAIN AND DESIGN ELEVATIONS:

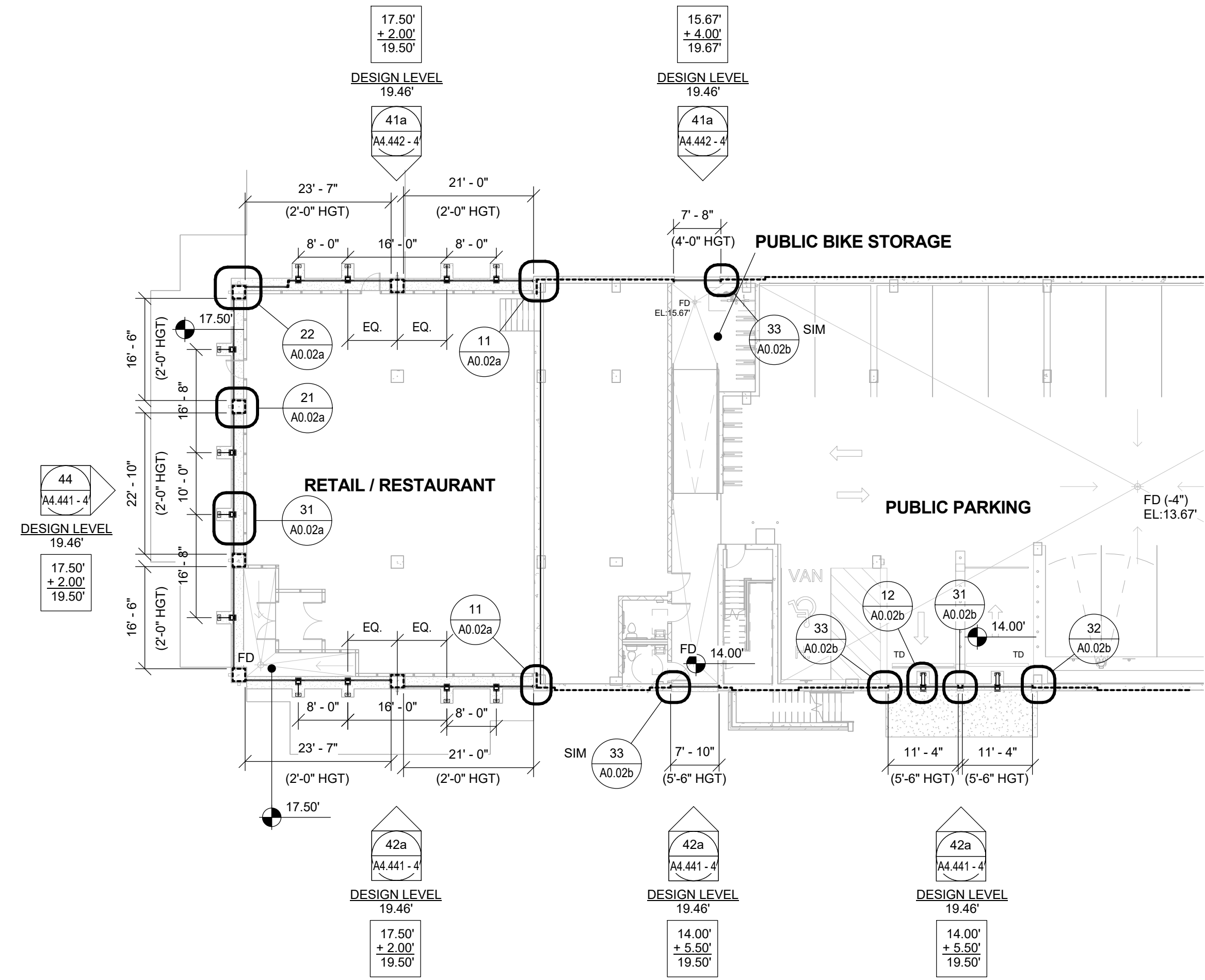
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	DESIGN LEVEL: 19.46'
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	JULY 2015 FEMA LEVEL - 11(NAVD88): 17.46'
	DESIGN LEVEL: 18.46'



40 OVERALL FLOOR PLAN - 00 - FLOOD PLANK - BLDG 3
Scale: 1/16" = 1'-0"



10 OVERALL FLOOR PLAN - 00 - FLOOD PLANK - BLDG 1
Scale: 1/16" = 1'-0"



30 OVERALL FLOOR PLAN - 00 - FLOOD PLANK - BLDG 4
Scale: 1/16" = 1'-0"



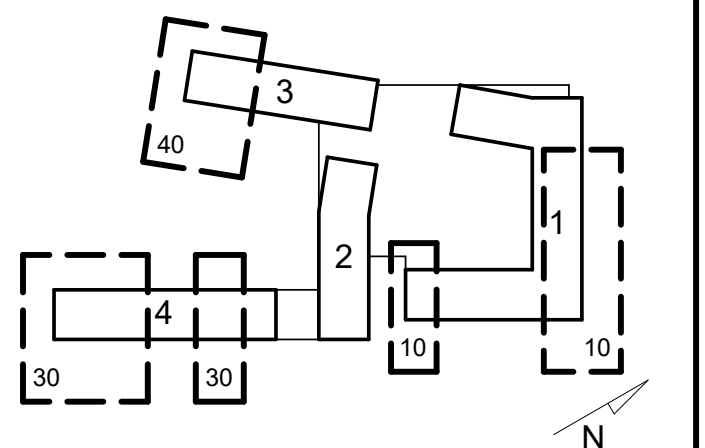
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Consultant:

- Revision:
- 1 OCT. 15, 2015
 - 2 DEC. 01, 2015
 - 3 MAY 4, 2016
 - 4 JUNE 30, 2016 ADDENDUM 2
 - 5 NOV 11, 2016 ADDENDUM 5
 - 6 DEC 21, 2016 BULLETIN 009
 - 7 DEC 01, 2017 BULLETIN 061

Architect of Record:

Drawn: SJR
Checked: SJR
Scale: As indicated
Key Plan:



Project Name:
CLIPPERSHIP WHARF

25-65 Lewis Street
East Boston, MA 02128

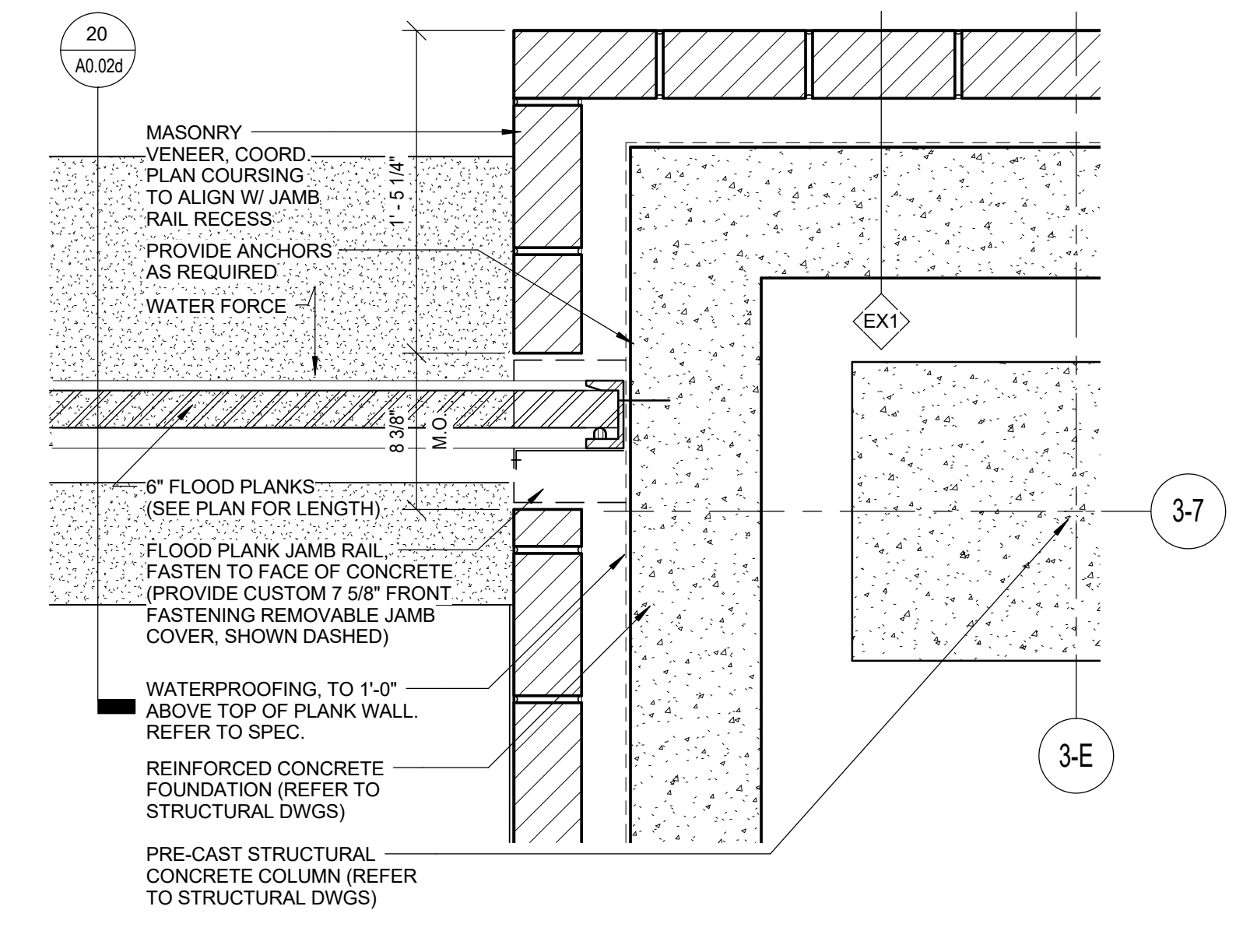
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Project Number:
13166

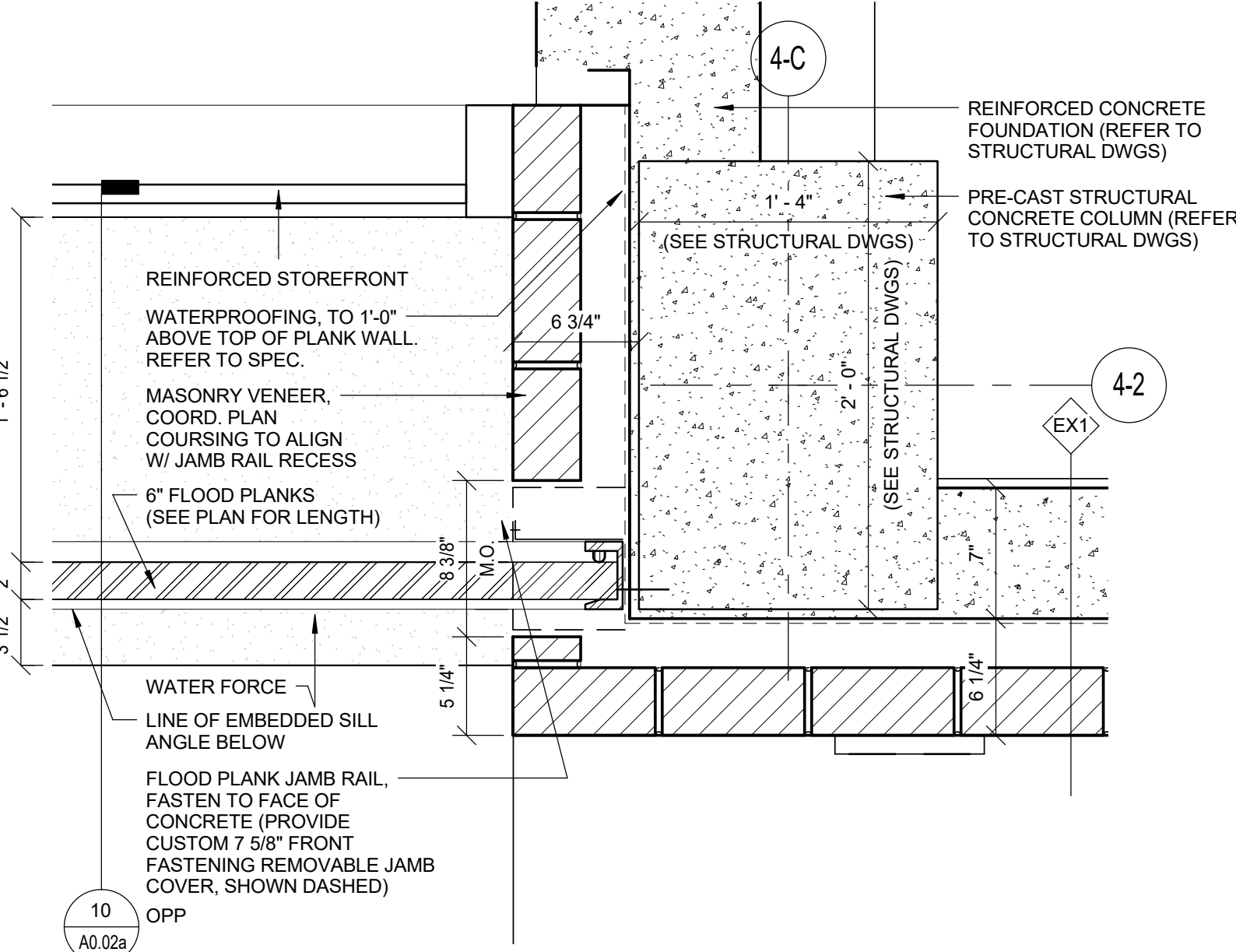
Issue Date:
JUNE 12, 2015

Sheet Number:

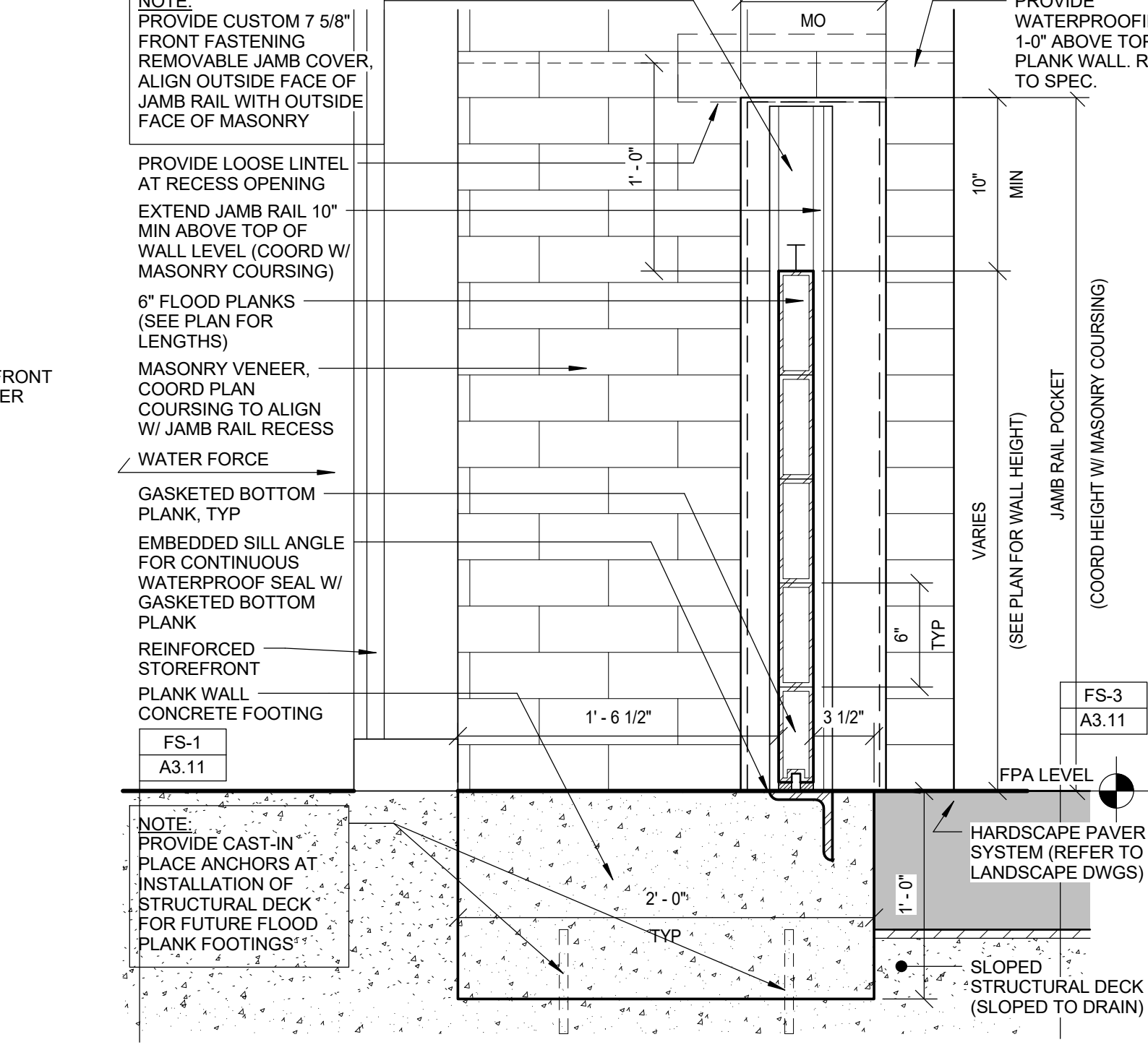
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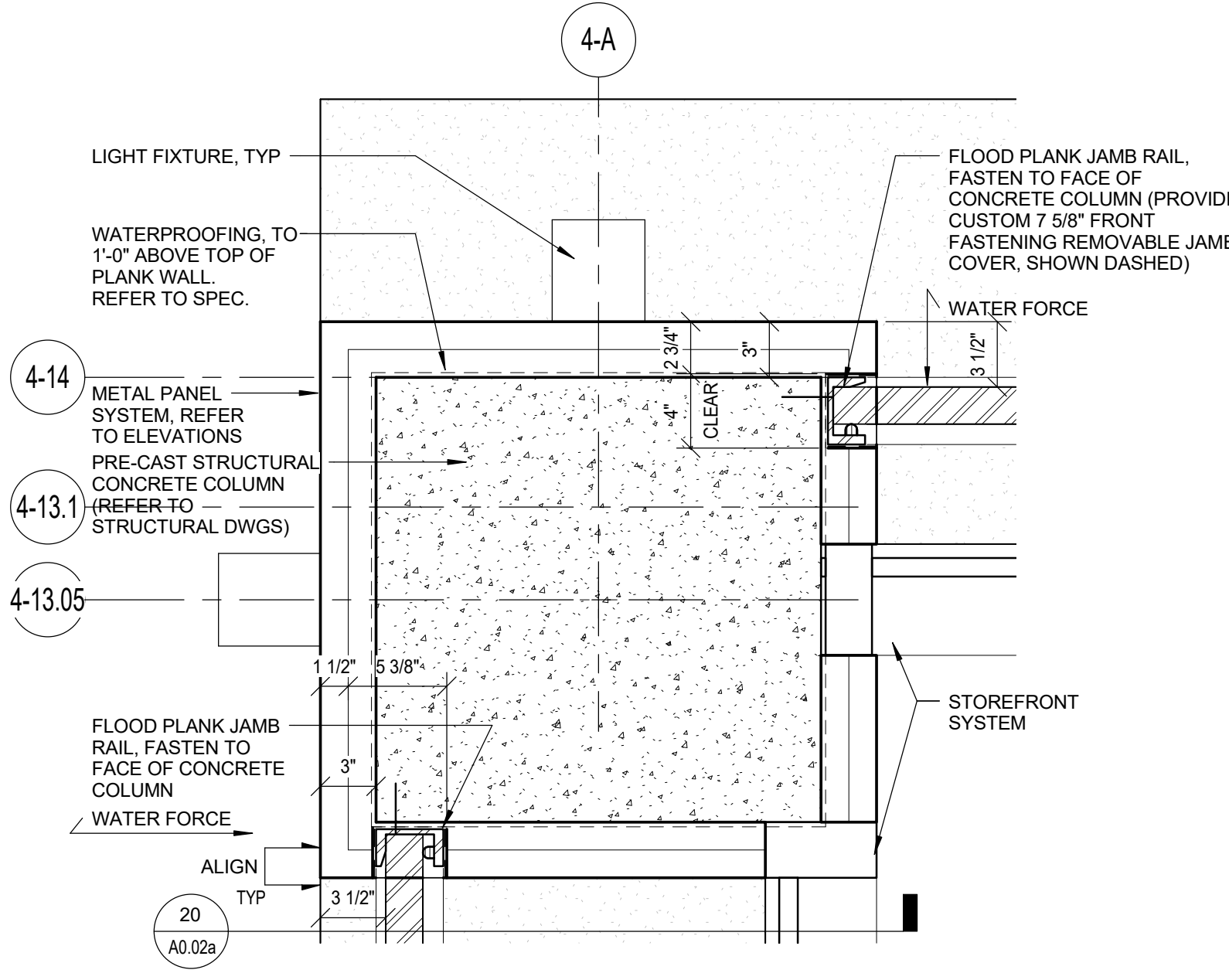
12 FLOOD PLANK - PLAN DTL - BLDG 3 - AT BRICK Scale : 1 1/2" = 1'-0"



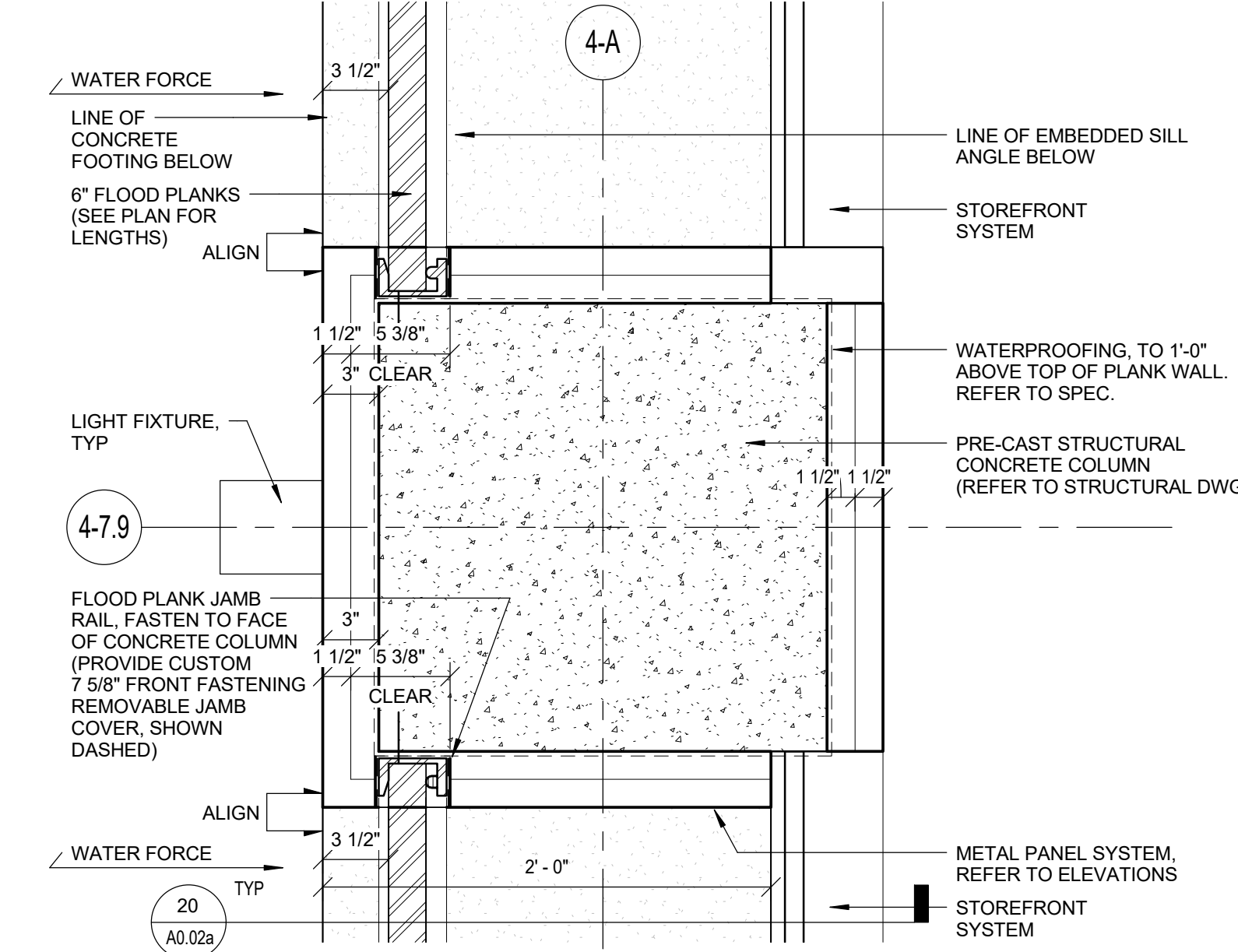
11 FLOOD PLANK - PLAN DTL - BLDG 4 - AT BRICK Scale : 1 1/2" = 1'-0"



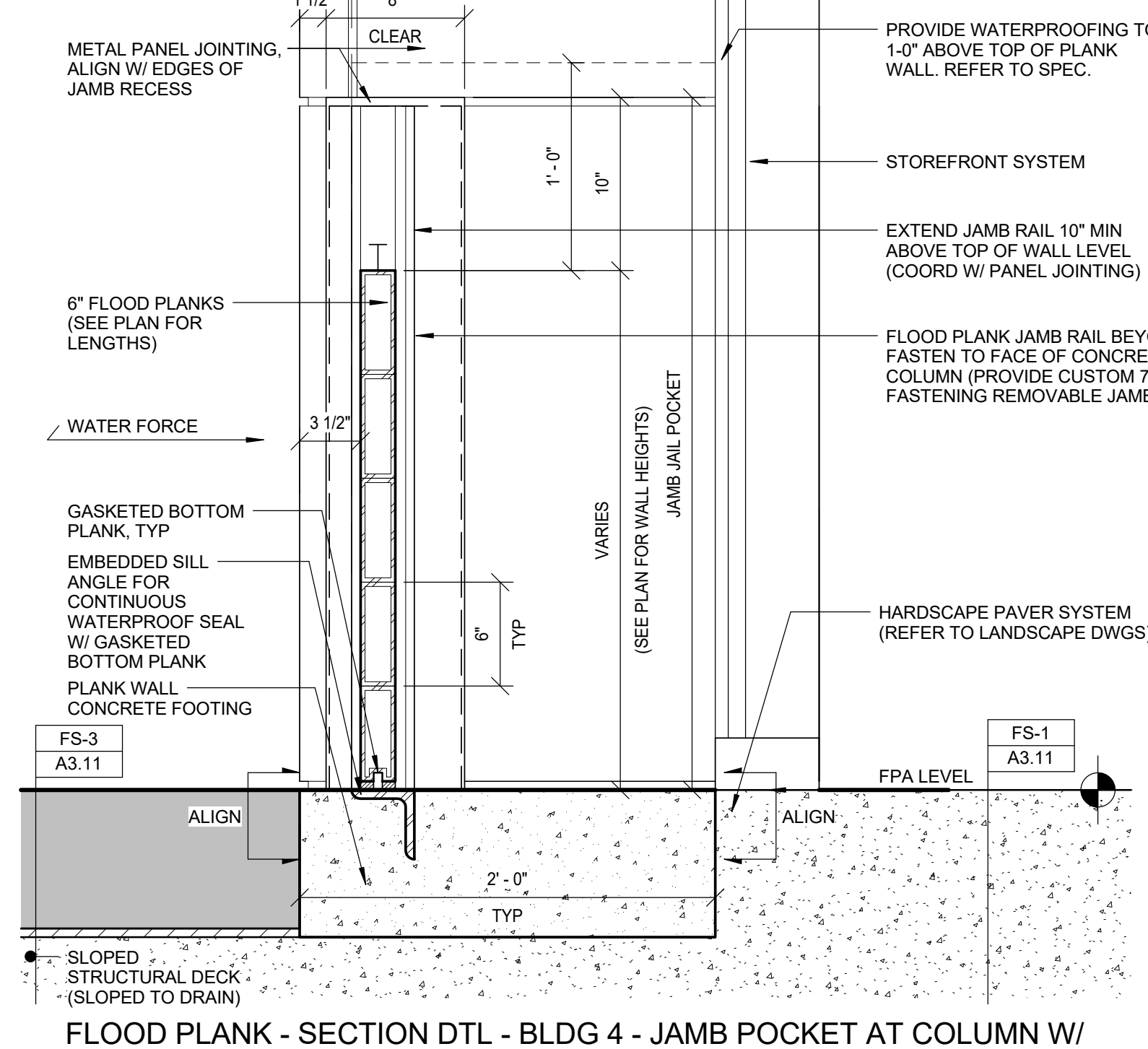
10 FLOOD PLANK - SECTION DTL - BLDG 4 - JAMB POCKET AT BRICK Scale : 1 1/2" = 1'-0"



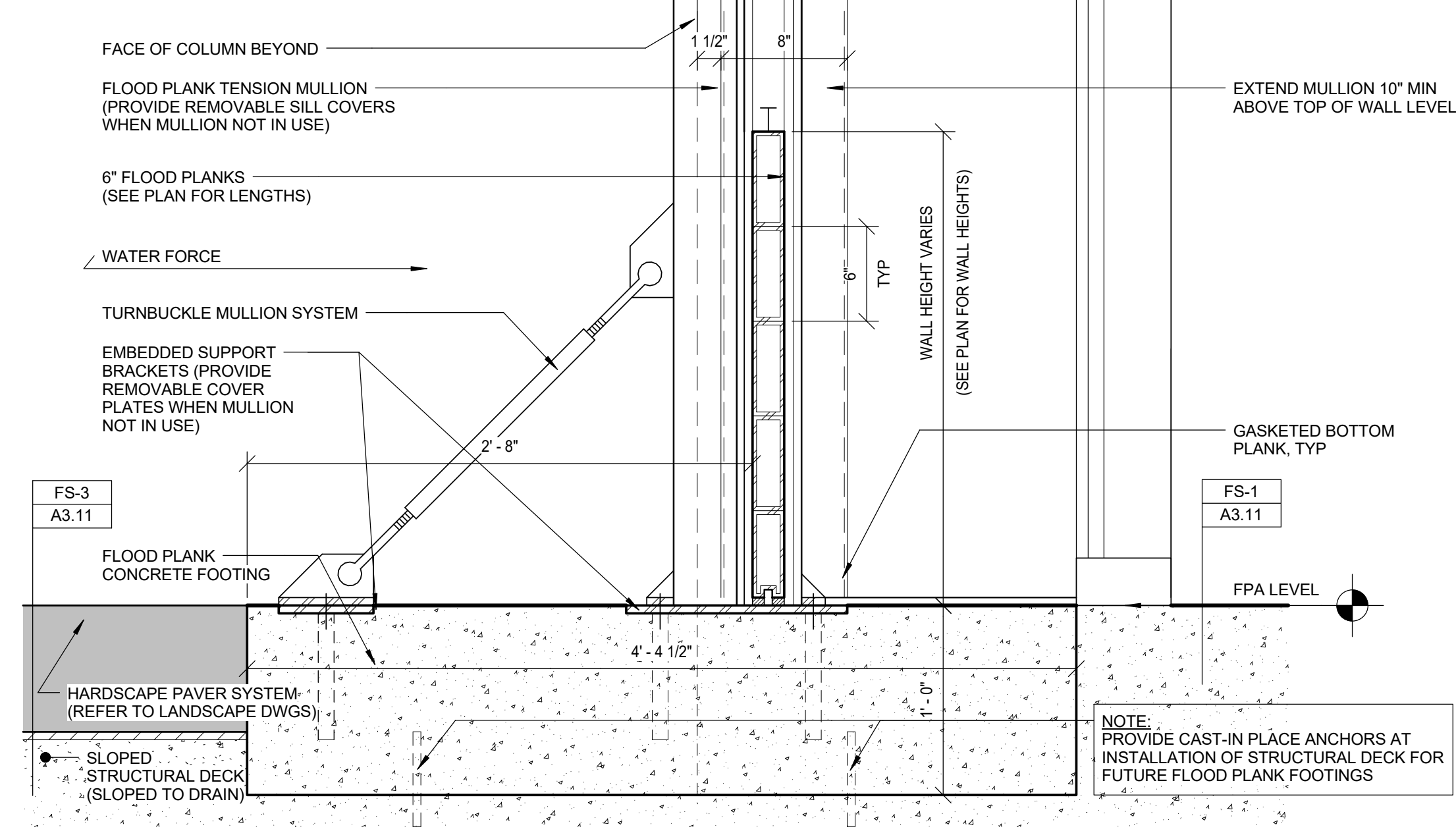
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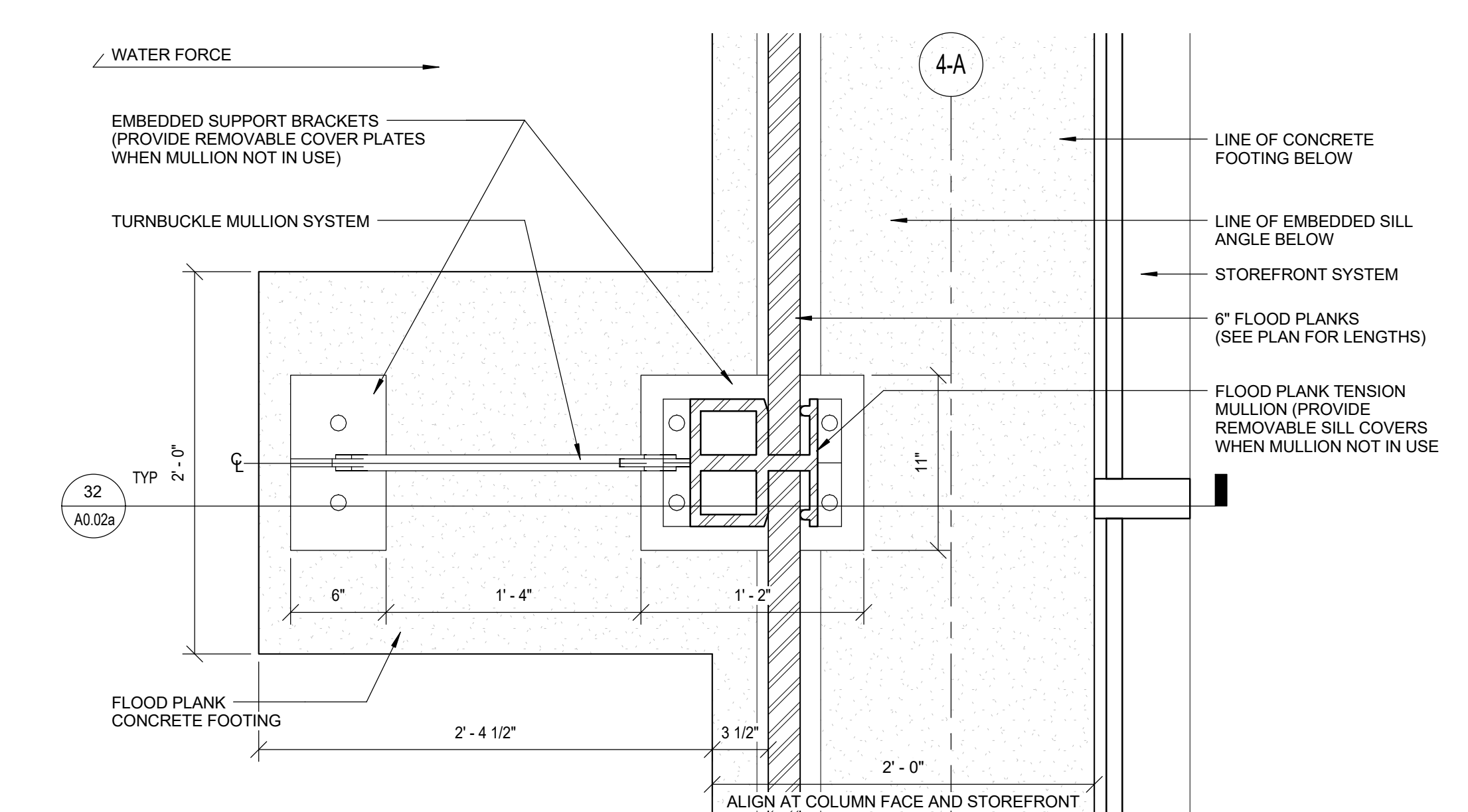
21 FLOOD PLANK - PLAN DTL - BLDG 4 - AT TYP COLUMN W/ MTL Scale : 1 1/2" = 1'-0"



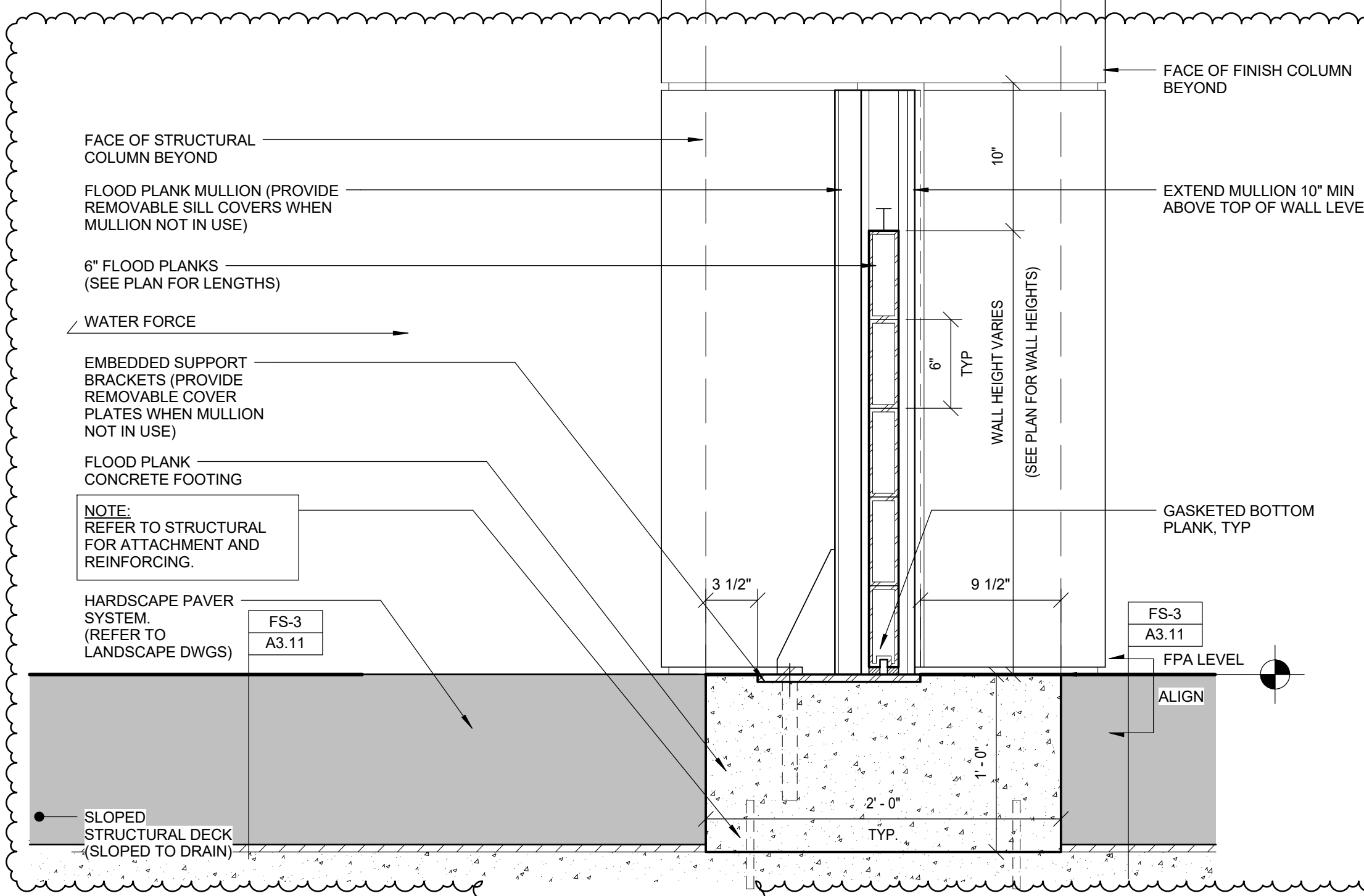
20 FLOOD PLANK - SECTION DTL - BLDG 4 - JAMB POCKET AT COLUMN W/ MTL Scale : 1 1/2" = 1'-0"



32 FLOOD PLANK - SECTION DTL - TENSION MULLION AT BLDG 4 Scale : 1 1/2" = 1'-0"



31 FLOOD PLANK - PLAN DTL - BLDG 4 - AT TYP TENSION MULLION Scale : 1 1/2" = 1'-0"



30 FLOOD PLANK - SECTION DTL - MULLION AT BLDG 3 Scale : 1 1/2" = 1'-0"

Consultant:

- Revision: 1 MAY 4, 2016 2 JUNE 30, 2016 ADDENDUM 2 3 DEC 21, 2016 BULLETIN 009 4 FEB 24, 2017 BULLETIN 027 5 DEC 01, 2017 BULLETIN 061

Architect of Record:

Drawn: SFM Checked: SJR Scale: 1 1/2" = 1'-0" Key Plan:

Project Name: CLIPPERSHIP WHARF

25-65 Lewis Street East Boston, MA 02128

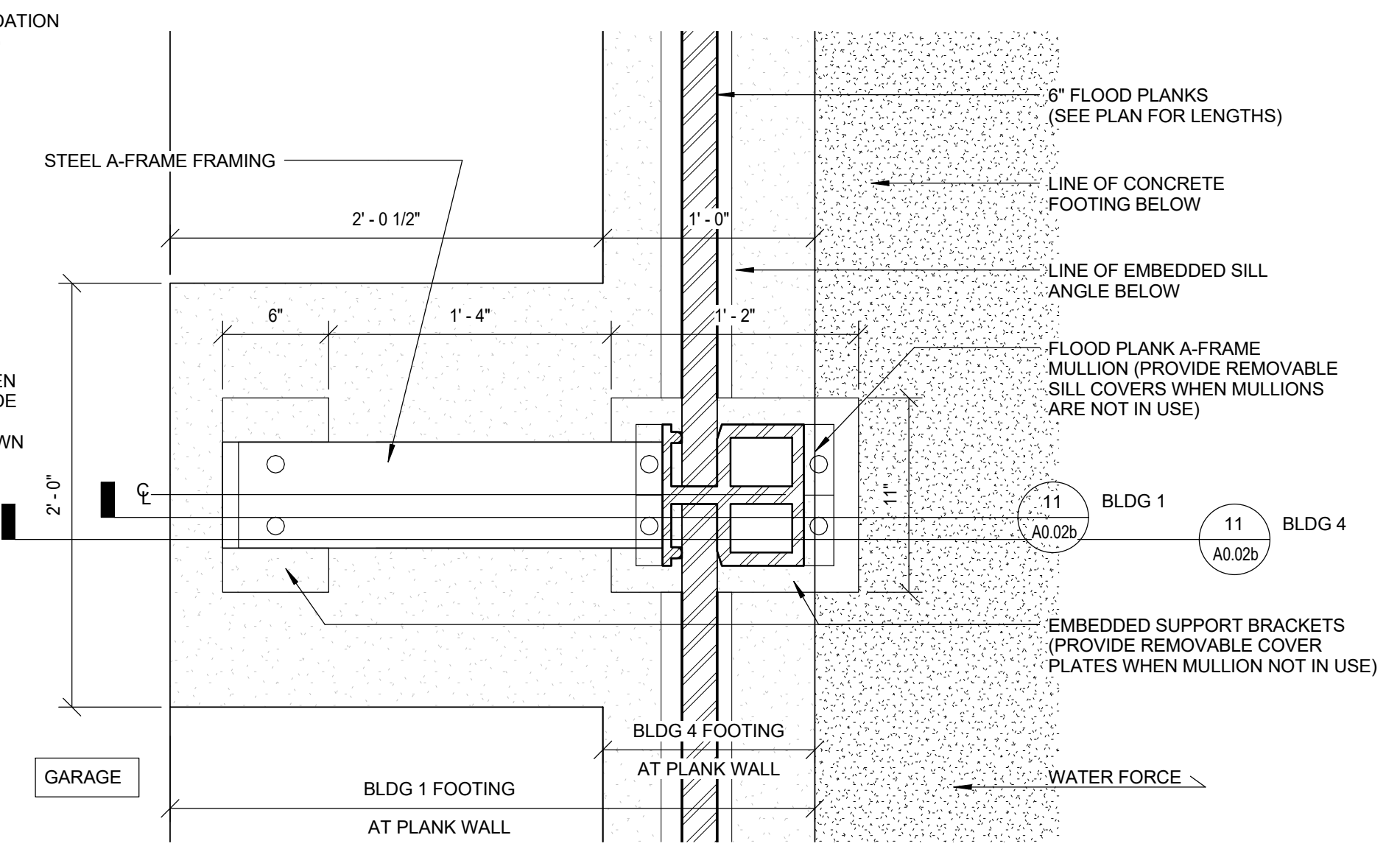
Sheet Name: FLOOD PLANK - DETAILS

Project Number: 13166

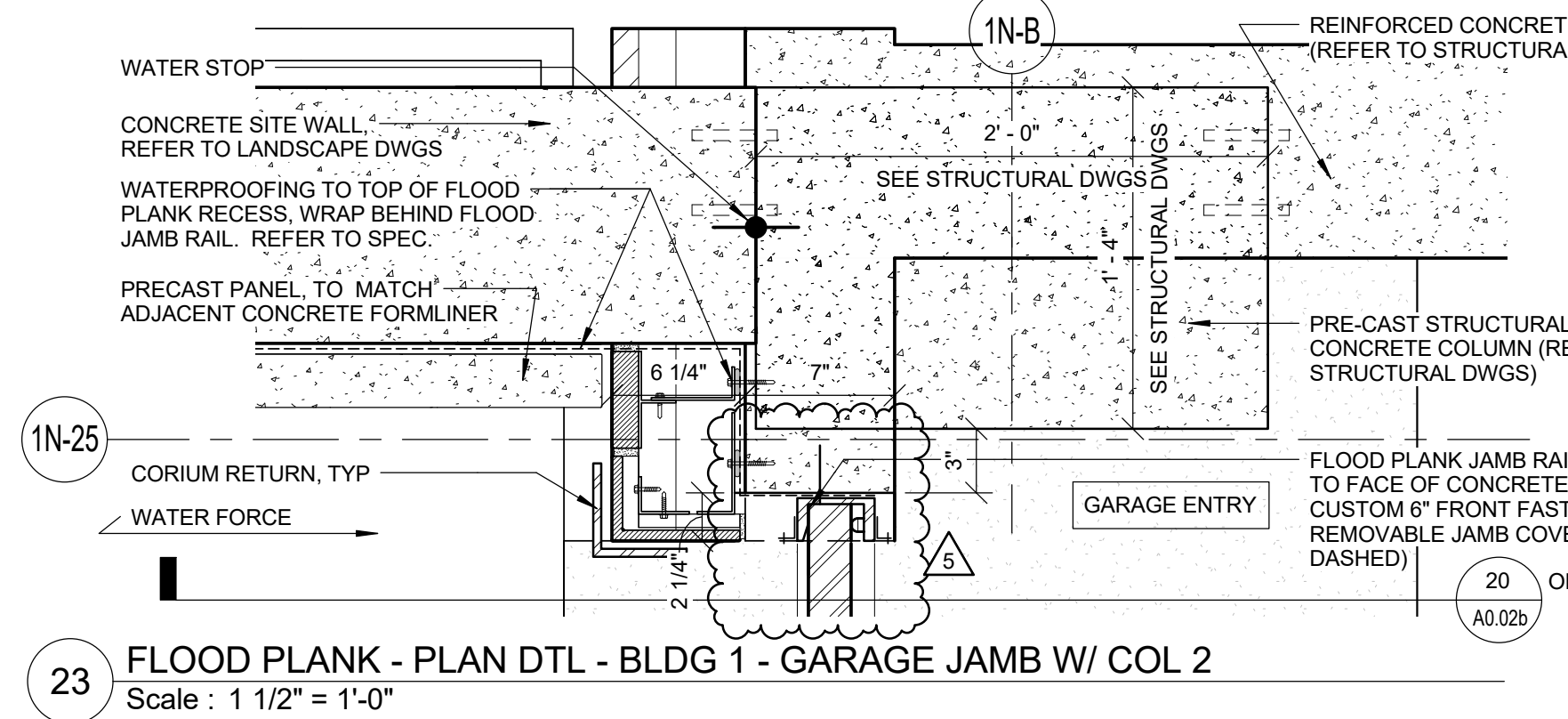
Issue Date: DECEMBER 01, 2015

Sheet Number:

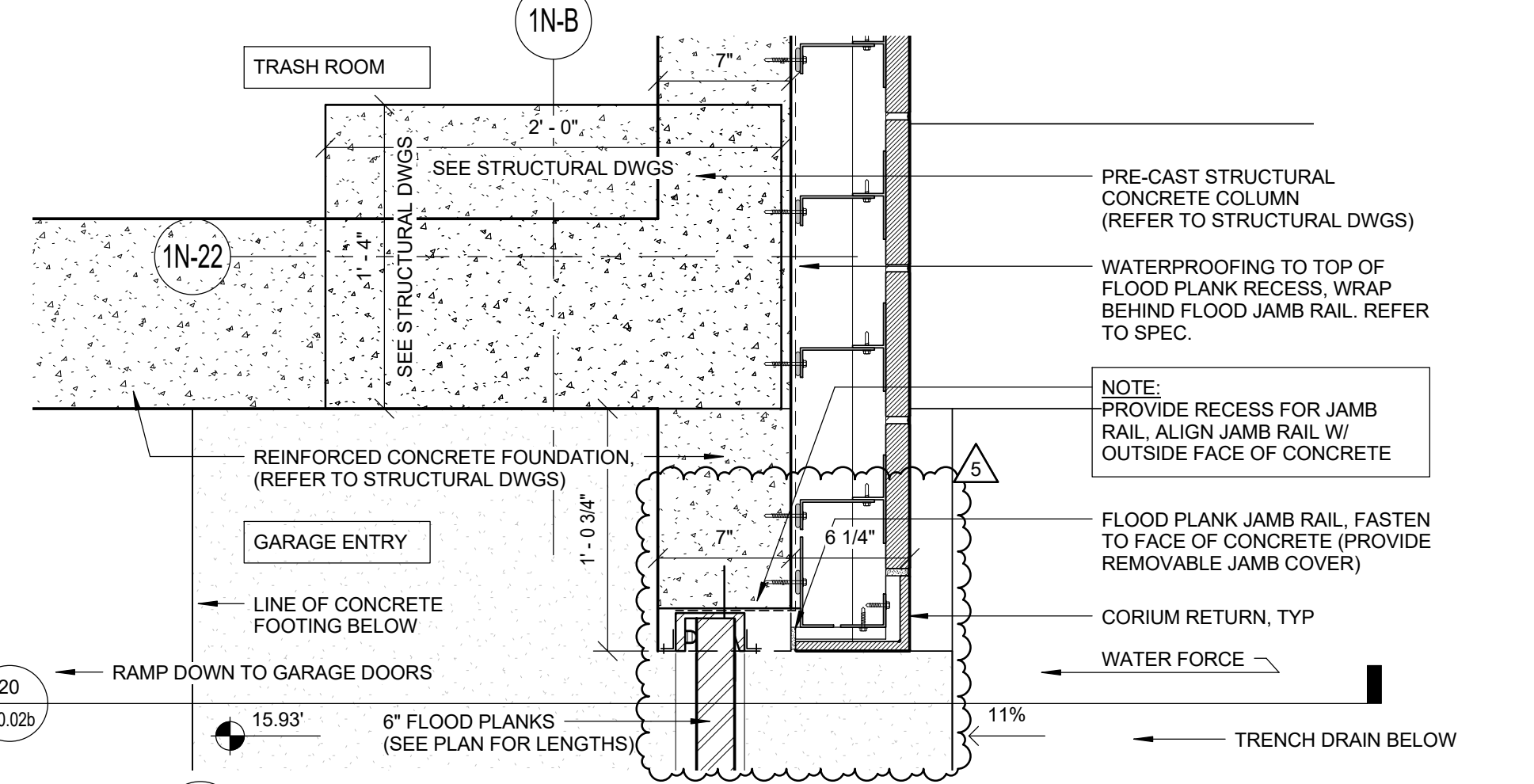
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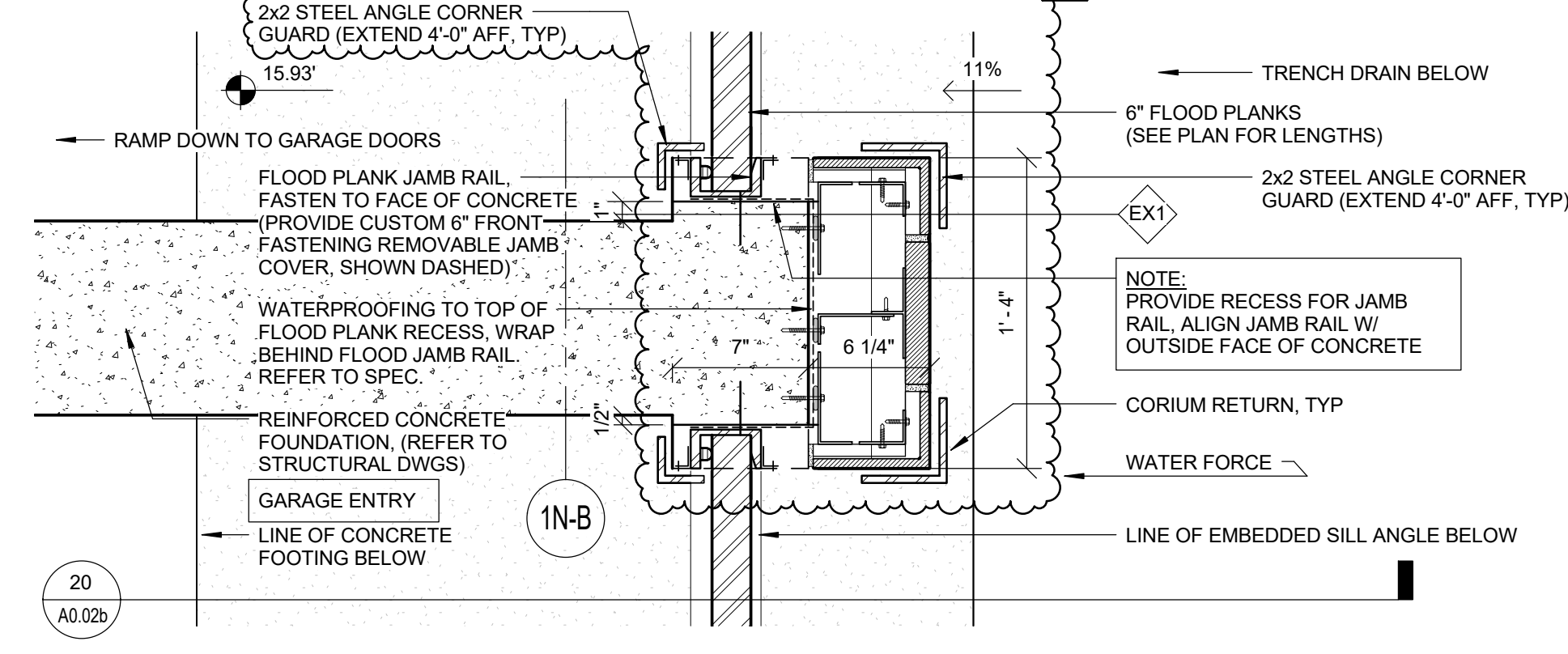
12 FLOOD PLANK - PLAN DTL - A-FRAME MULLION AT GARAGE Scale : 1 1/2" = 1'-0"



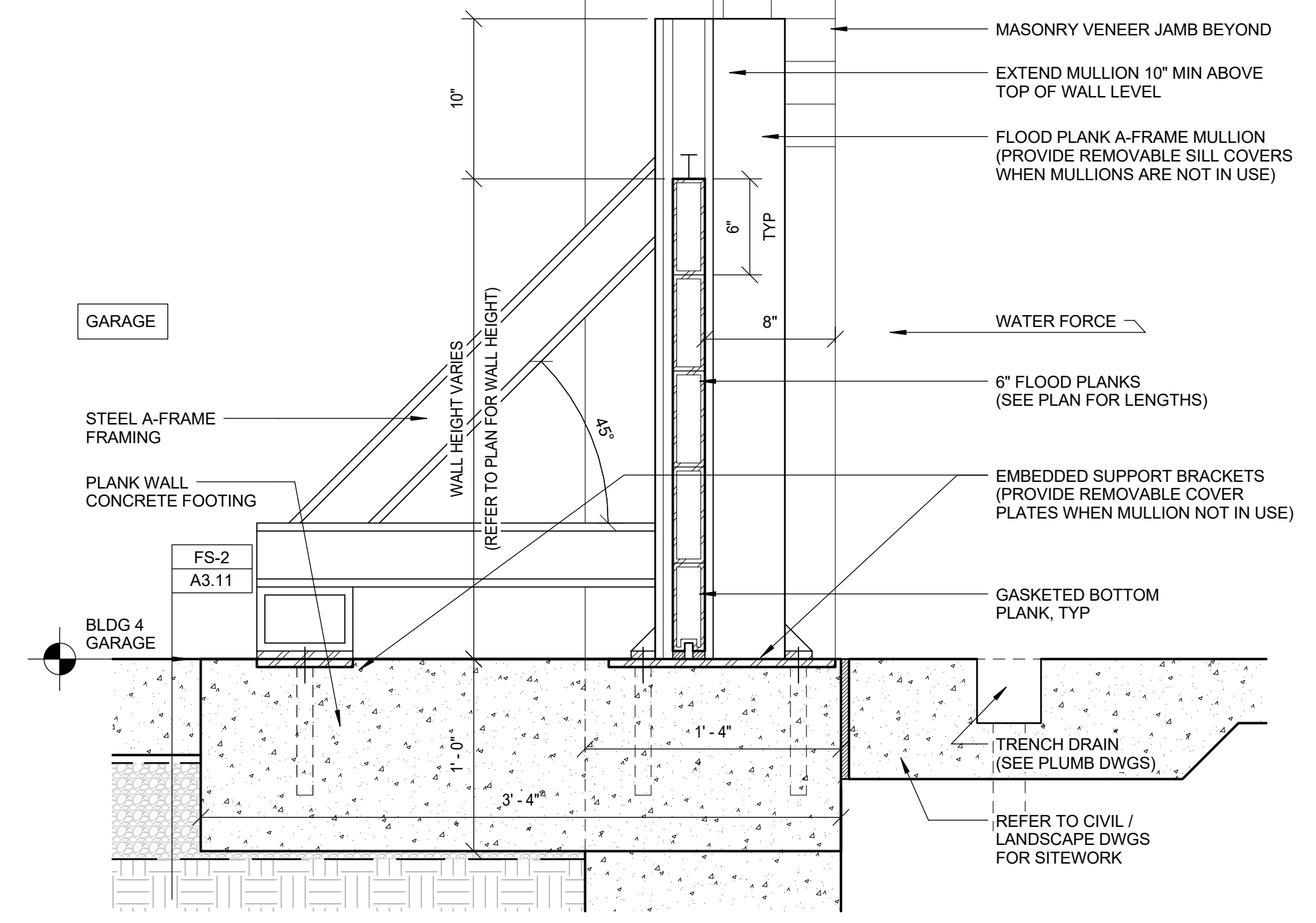
23 FLOOD PLANK - PLAN DTL - BLDG 1 - GARAGE JAMB W/ COL 2 Scale : 1 1/2" = 1'-0"



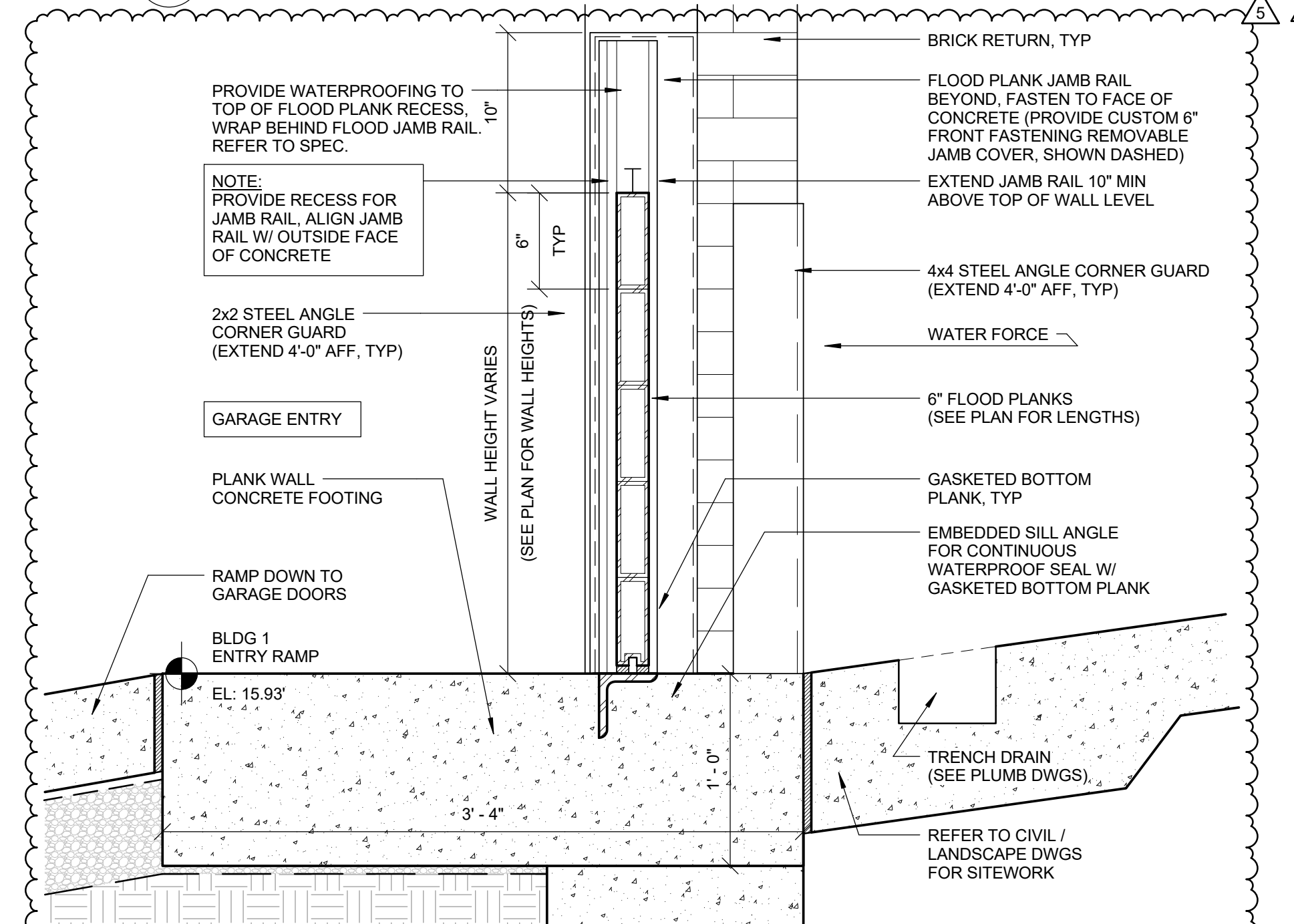
22 FLOOD PLANK - PLAN DTL - BLDG 1 - GARAGE JAMB W/ COL Scale : 1 1/2" = 1'-0"



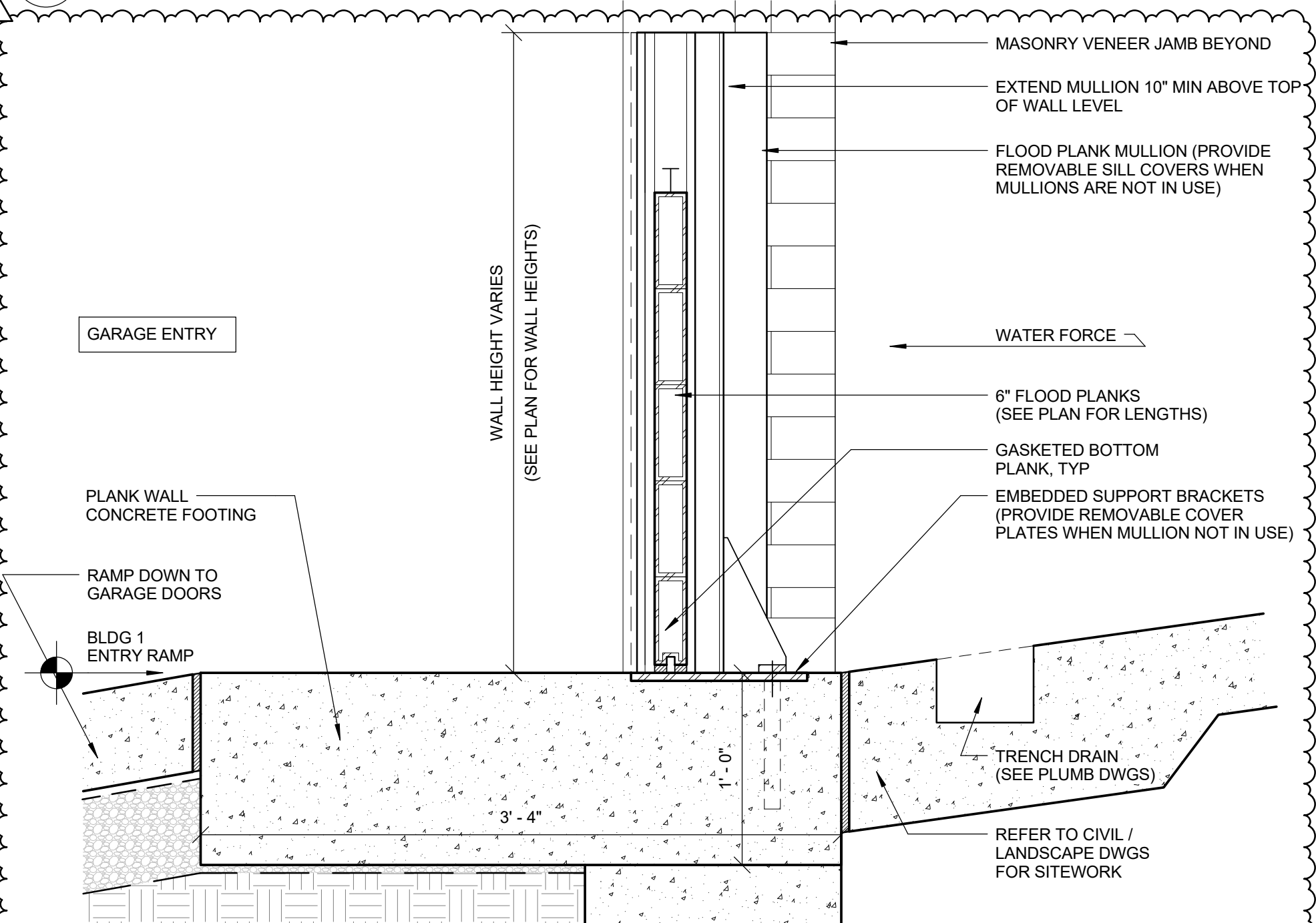
21 FLOOD PLANK - PLAN DTL - BLDG 1 - GARAGE PIER Scale : 1 1/2" = 1'-0"



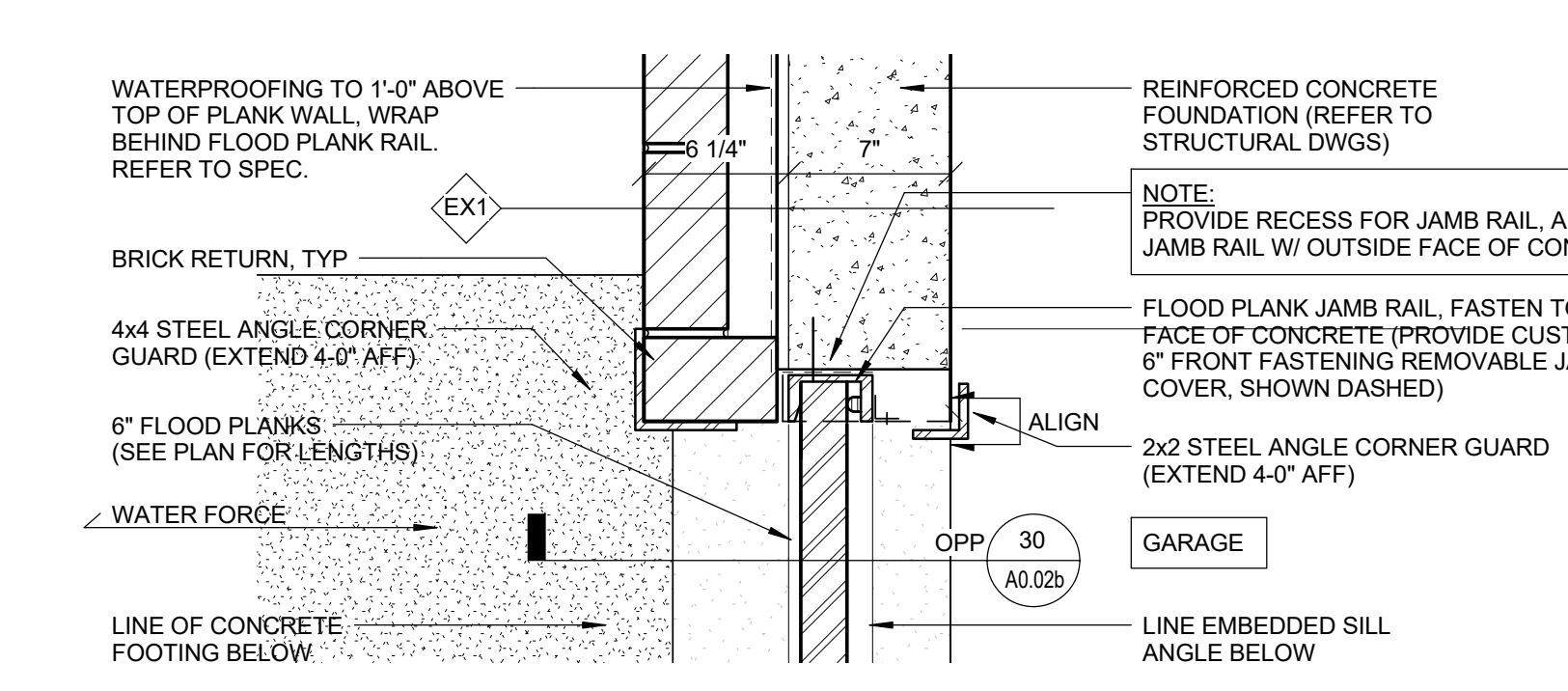
11 FLOOD PLANK - SECTION - BLDG 4 - A-FRAME MULLION AT GARAGE Scale : 1 1/2" = 1'-0"



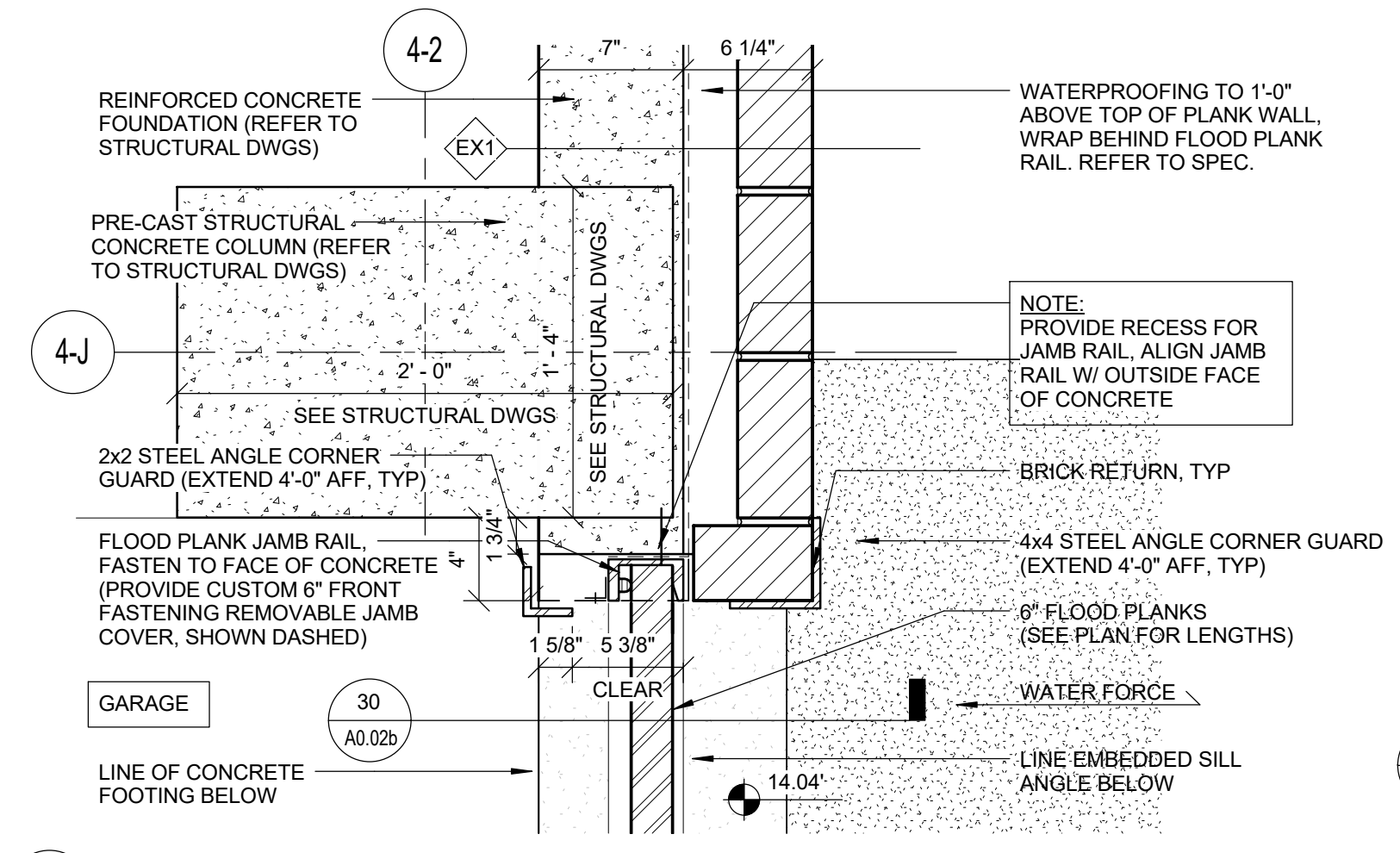
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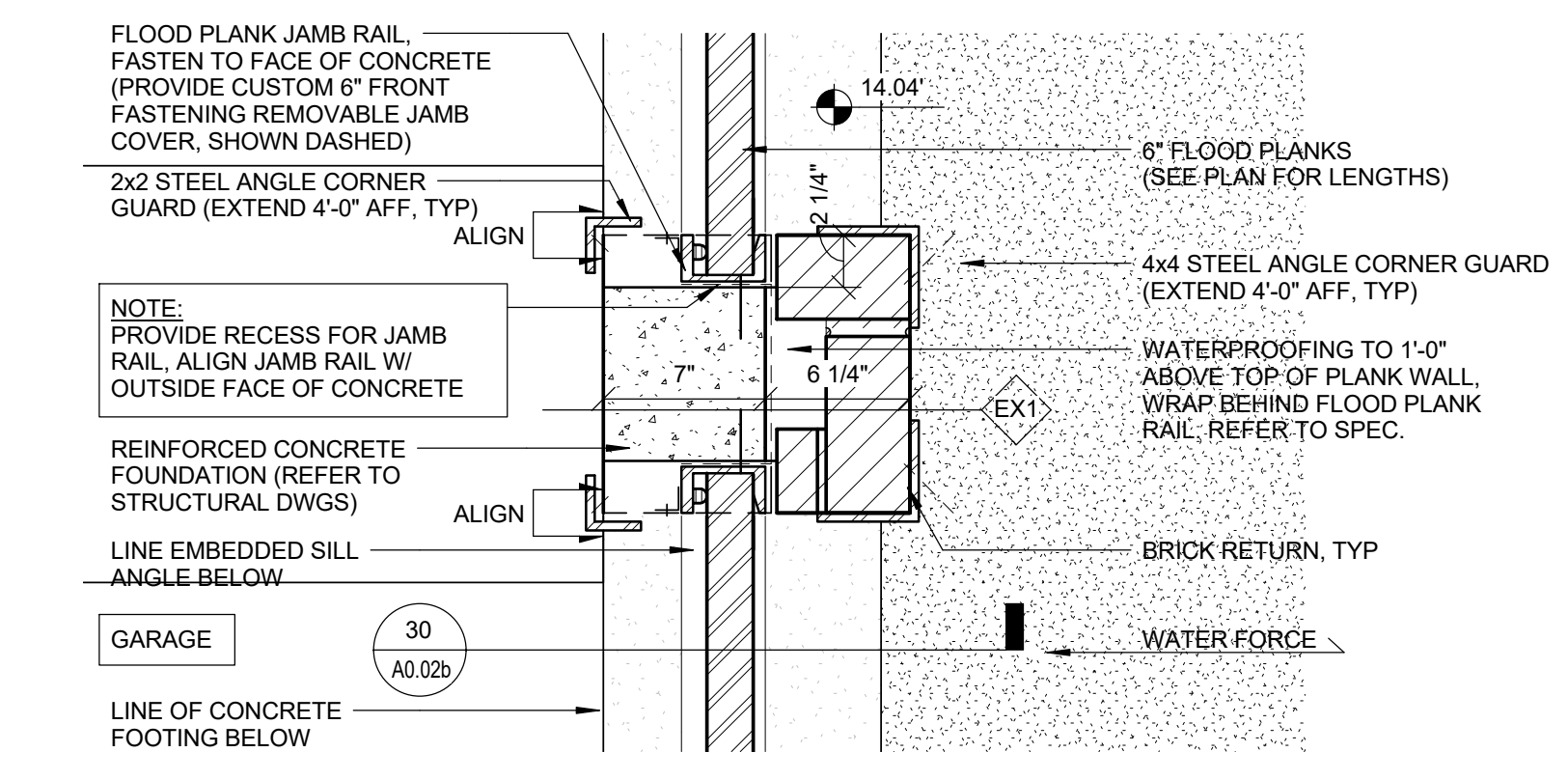
10 FLOOD PLANK - SECTION - BLDG 1 - MULLION AT GARAGE Scale : 1 1/2" = 1'-0"



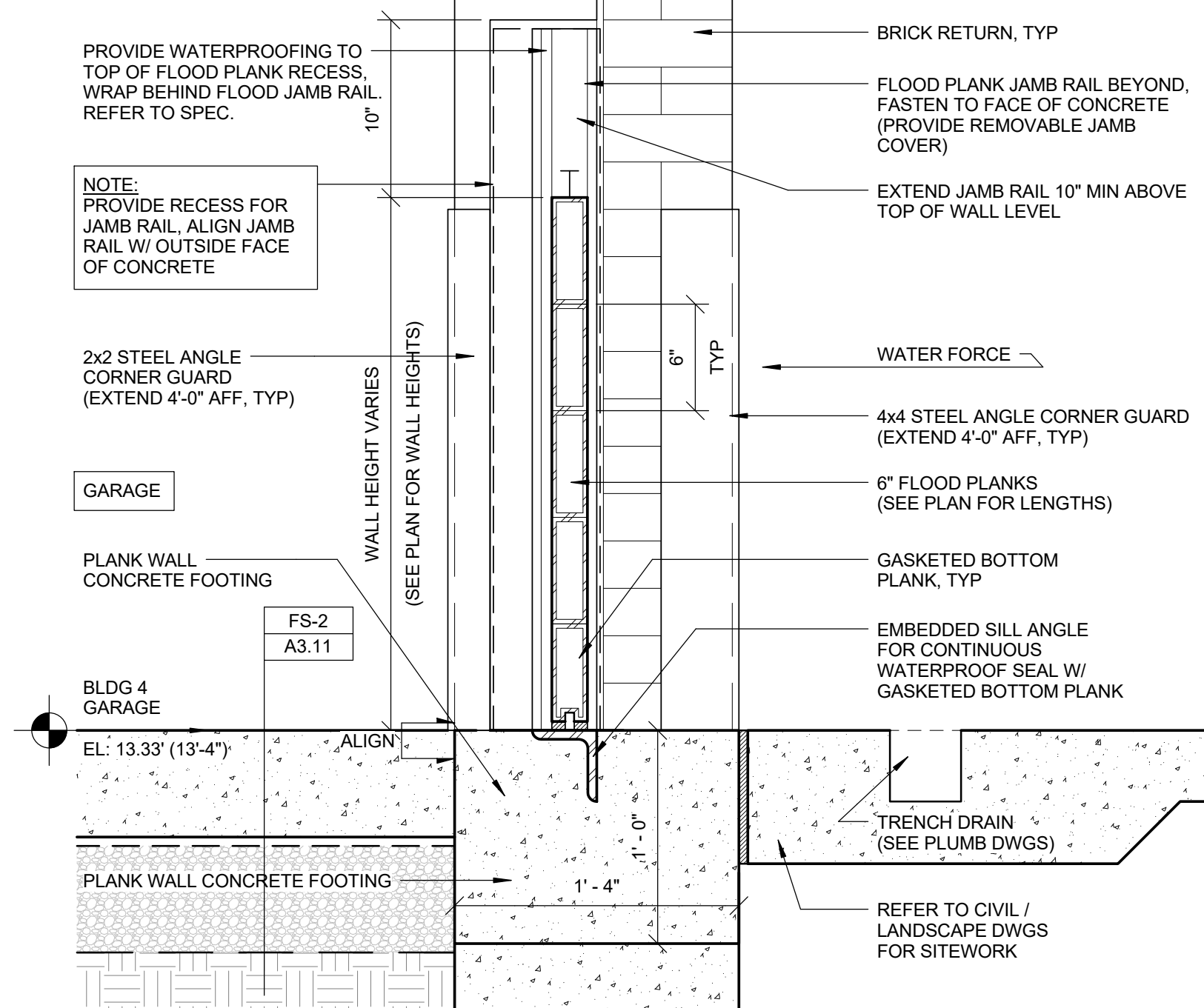
33 FLOOD PLANK - PLAN DTL - BLDG 4 - GARAGE JAMB Scale : 1 1/2" = 1'-0"



32 FLOOD PLANK - PLAN DTL - BLDG 4 - GARAGE JAMB w/COL Scale : 1 1/2" = 1'-0"



31 FLOOD PLANK - PLAN DTL - BLDG 4 - GARAGE PIER Scale : 1 1/2" = 1'-0"



30 FLOOD PLANK - SECTION - BLDG 4 - JAMB POCKET AT GARAGE Scale : 1 1/2" = 1'-0"

Consultant:

Revision:
1 MAY 4, 2016
2 JUNE 30, 2016 ADDENDUM 2
3 DEC 21, 2016 BULLETIN 009
4 DEC 01, 2017 BULLETIN 061

Architect of Record:

Drawn: SFM
Checked: SJR
Scale: 1 1/2" = 1'-0"
Key Plan:

Project Name:
CLIPPERSHIP WHARF

25-65 Lewis Street
East Boston, MA 02128

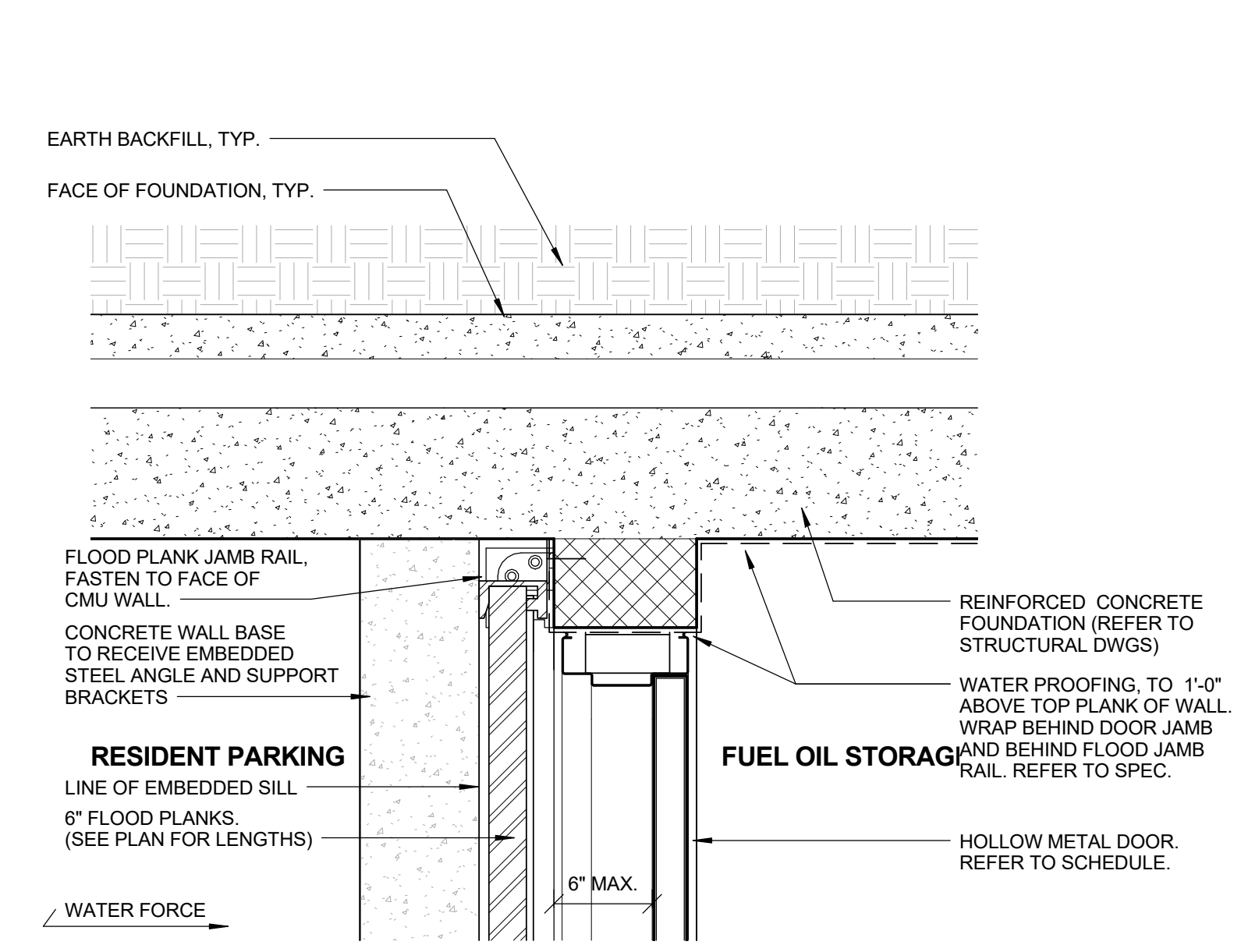
Sheet Name:
FLOOD PLANK - DETAILS

Project Number:
13166

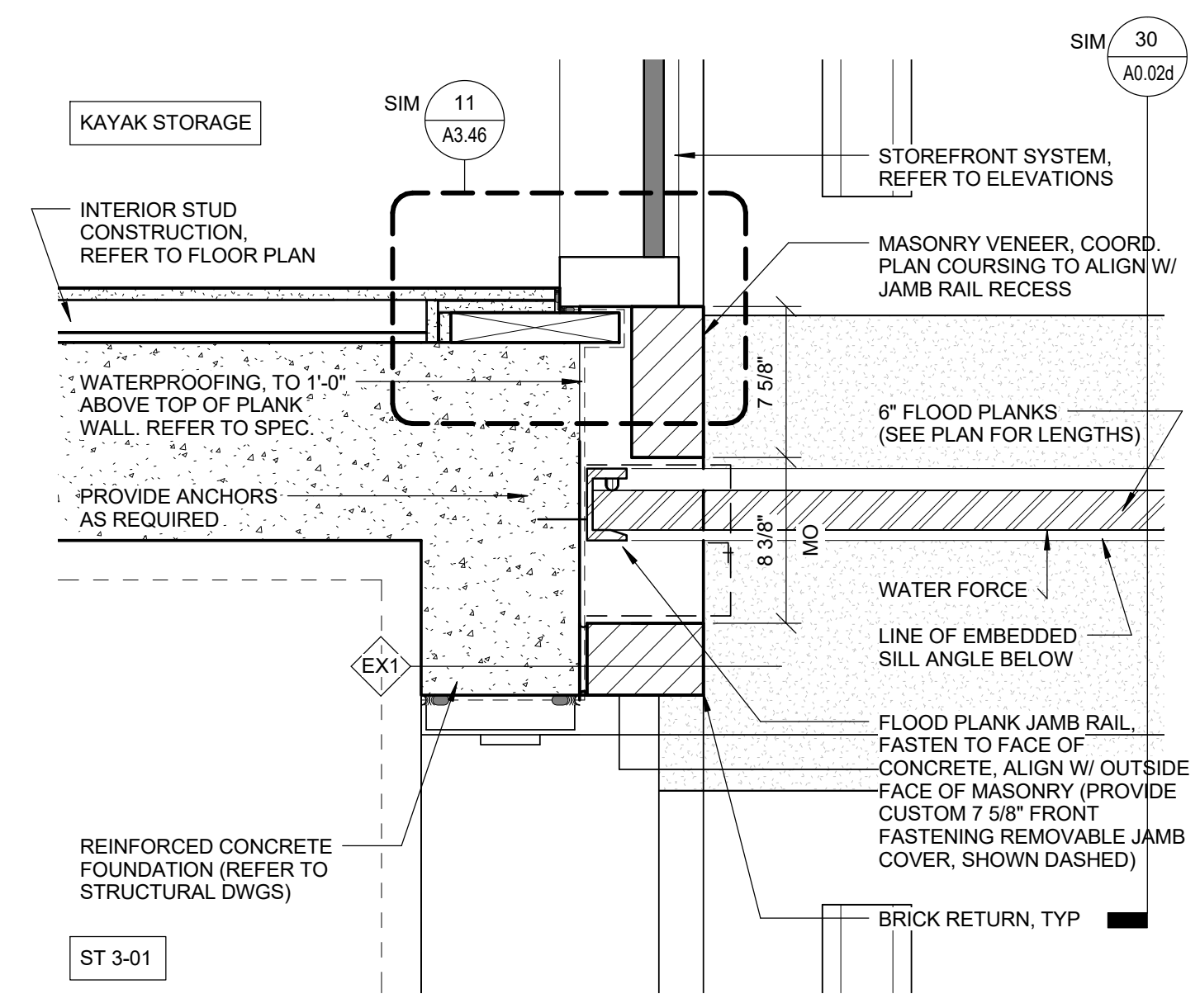
Issue Date:
DECEMBER 01, 2015

Sheet Number:

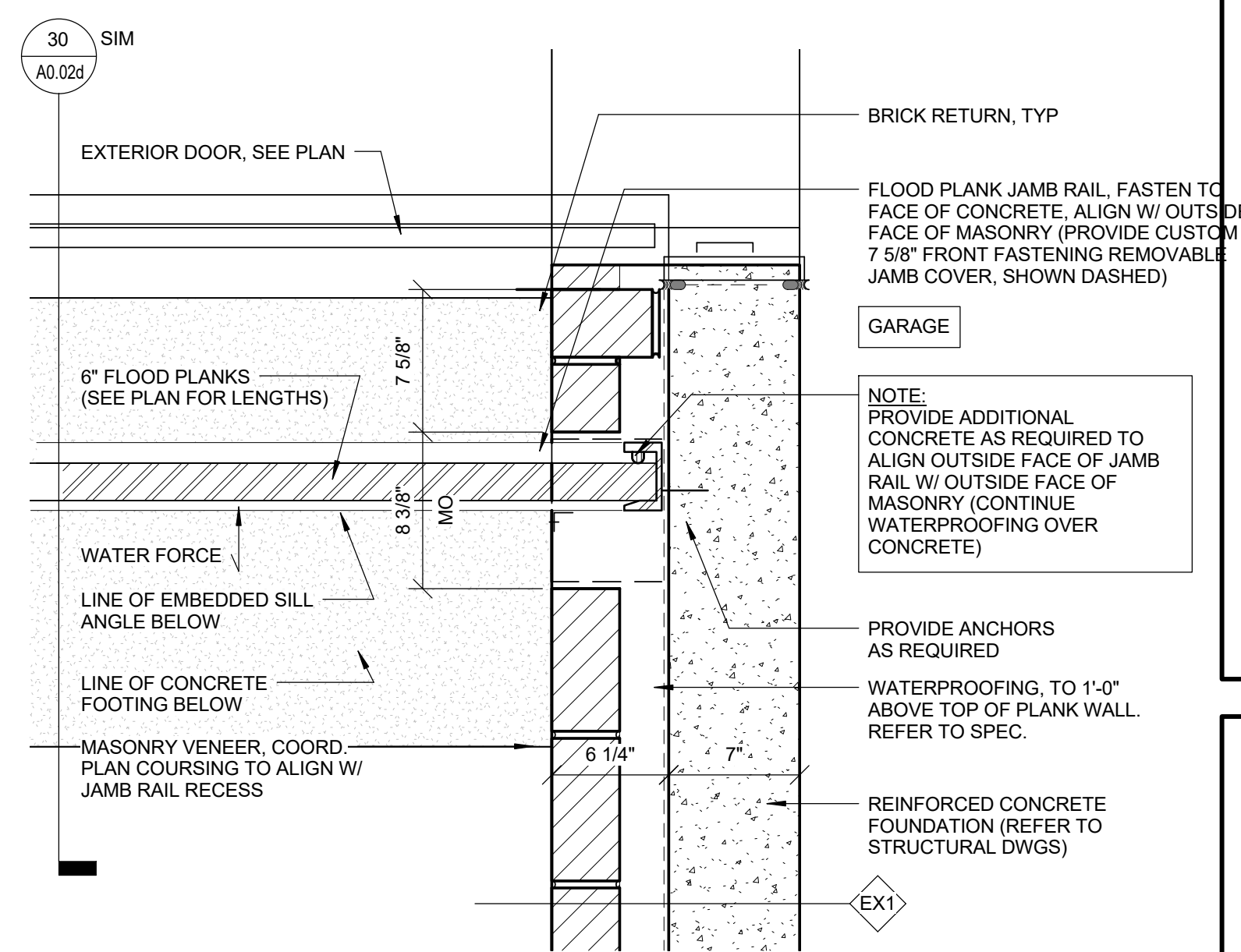
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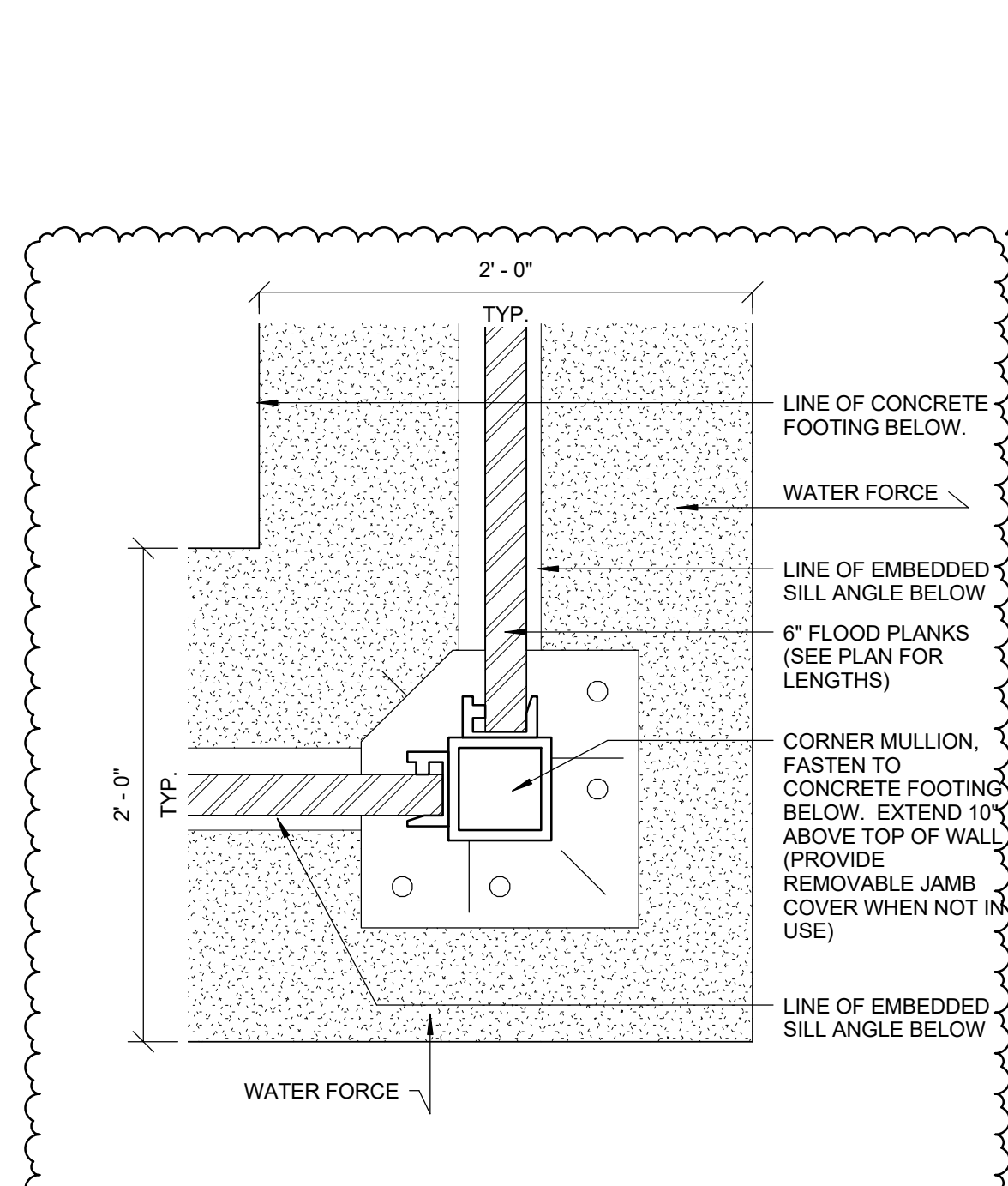
32 FLOOD PLANK - PLAN DTL - BLDG 1 - AT FUEL OIL STORAGE
Scale : 1 1/2" = 1'-0"



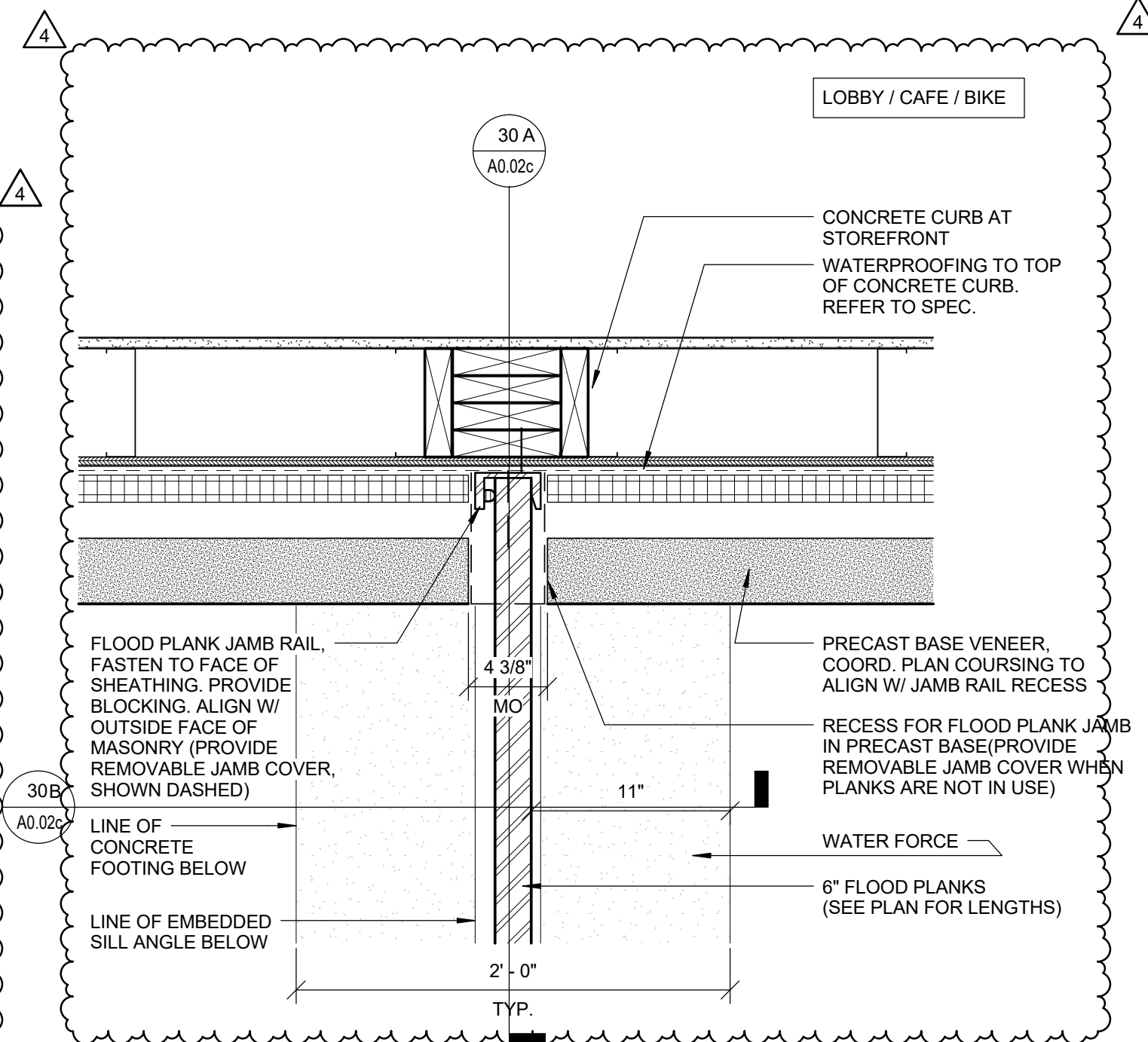
22 FLOOD PLANK - PLAN DTL - BLDG 3 - AT BRICK (FPA)
Scale : 1 1/2" = 1'-0"



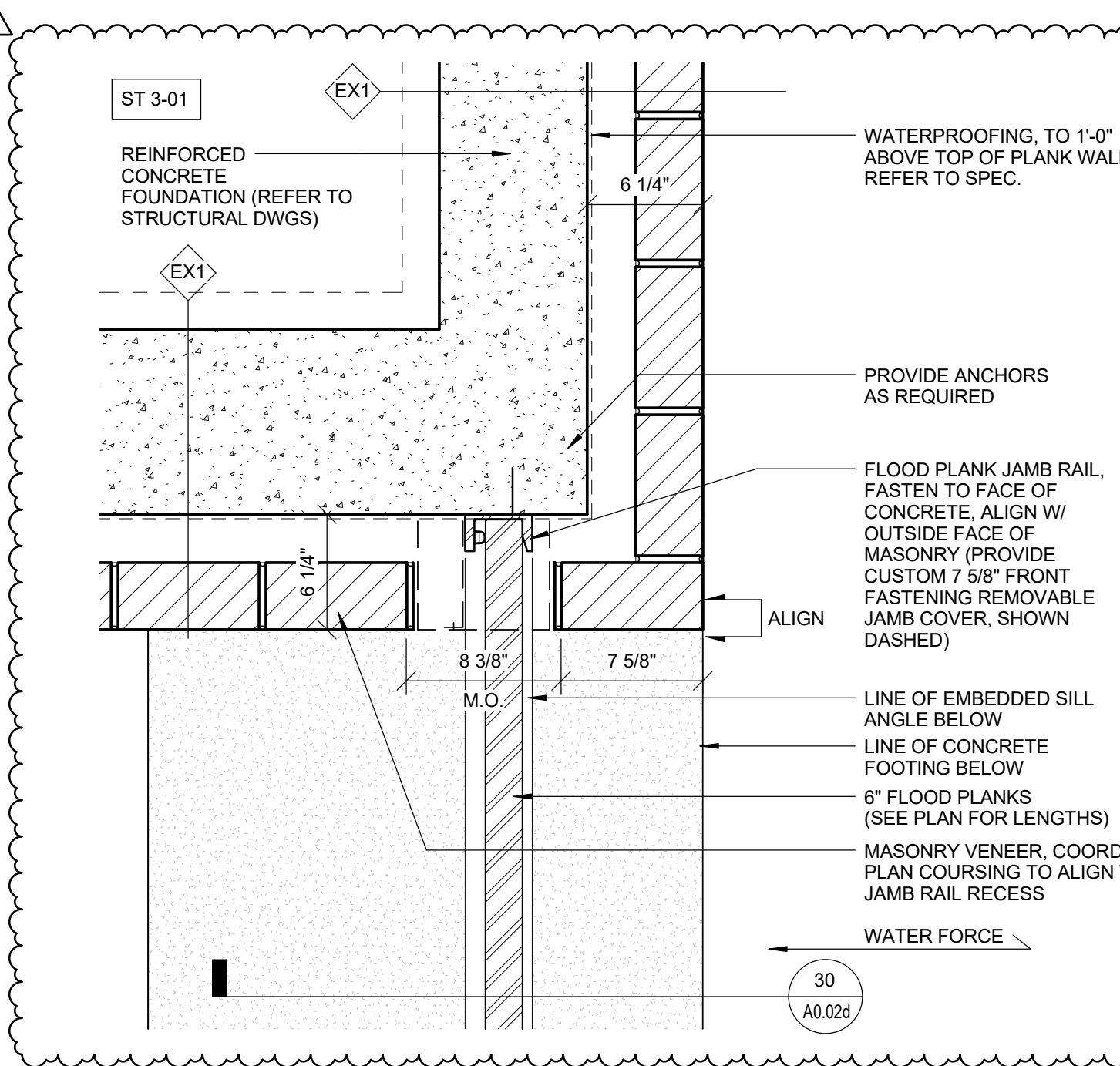
12 FLOOD PLANK - PLAN DTL - BLDG 3 - AT BRICK (GARAGE)
Scale : 1 1/2" = 1'-0"



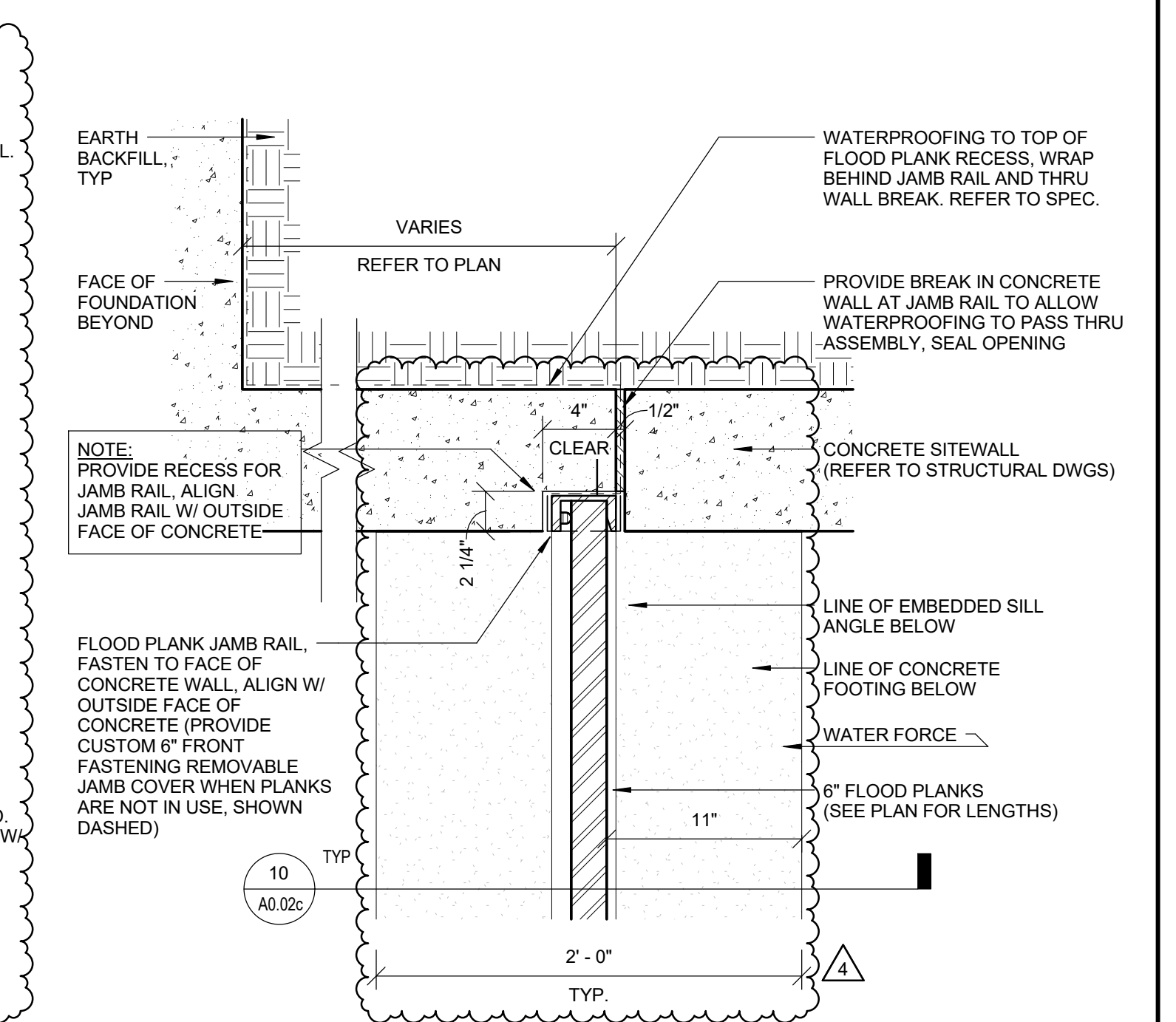
33 FLOOD PLANK - PLAN DTL - PLANK RAIL CORNER
Scale : 1 1/2" = 1'-0"



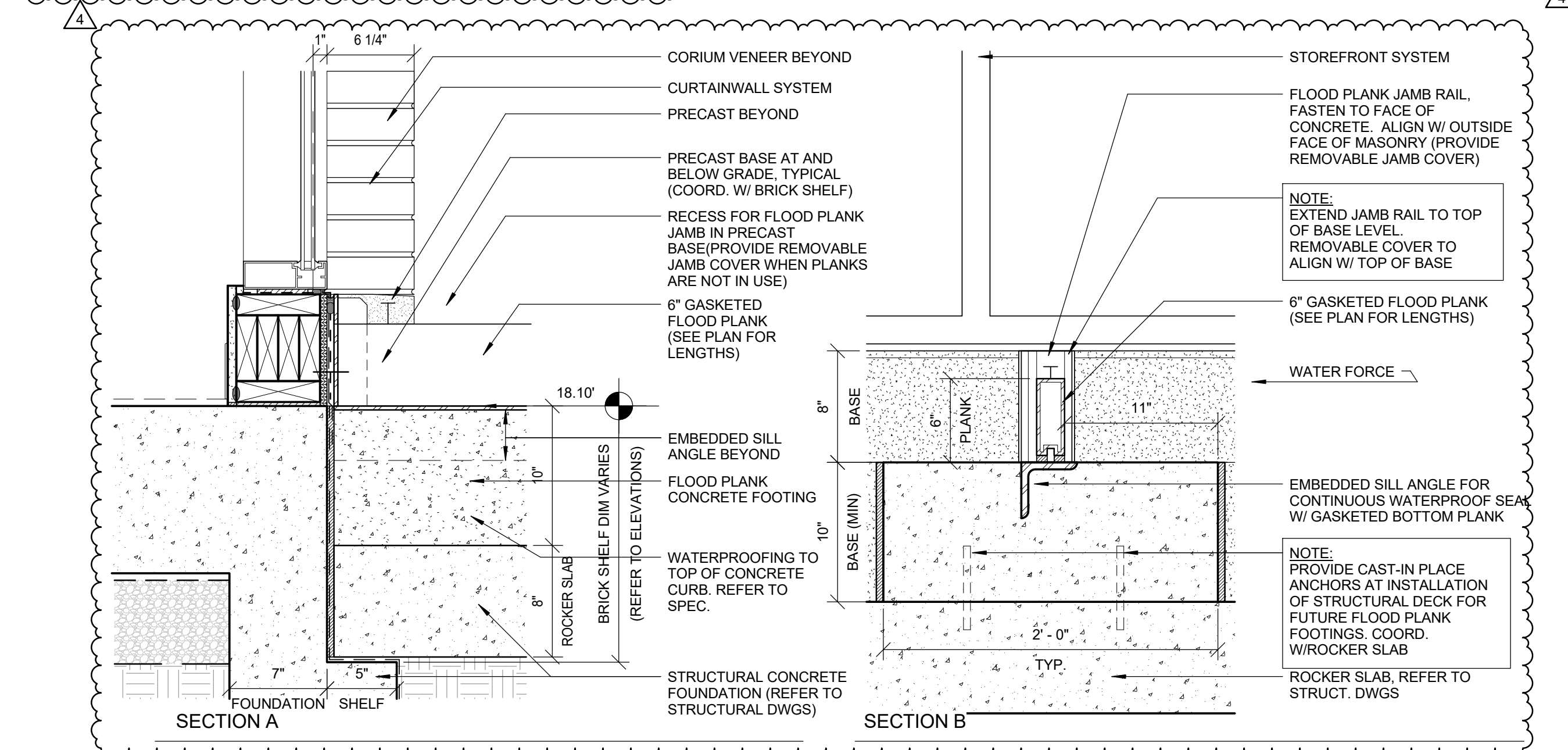
31 FLOOD PLANK - PLAN DTL - JAMB POCKET AT CURTAINWALL BASE
Scale : 1 1/2" = 1'-0"



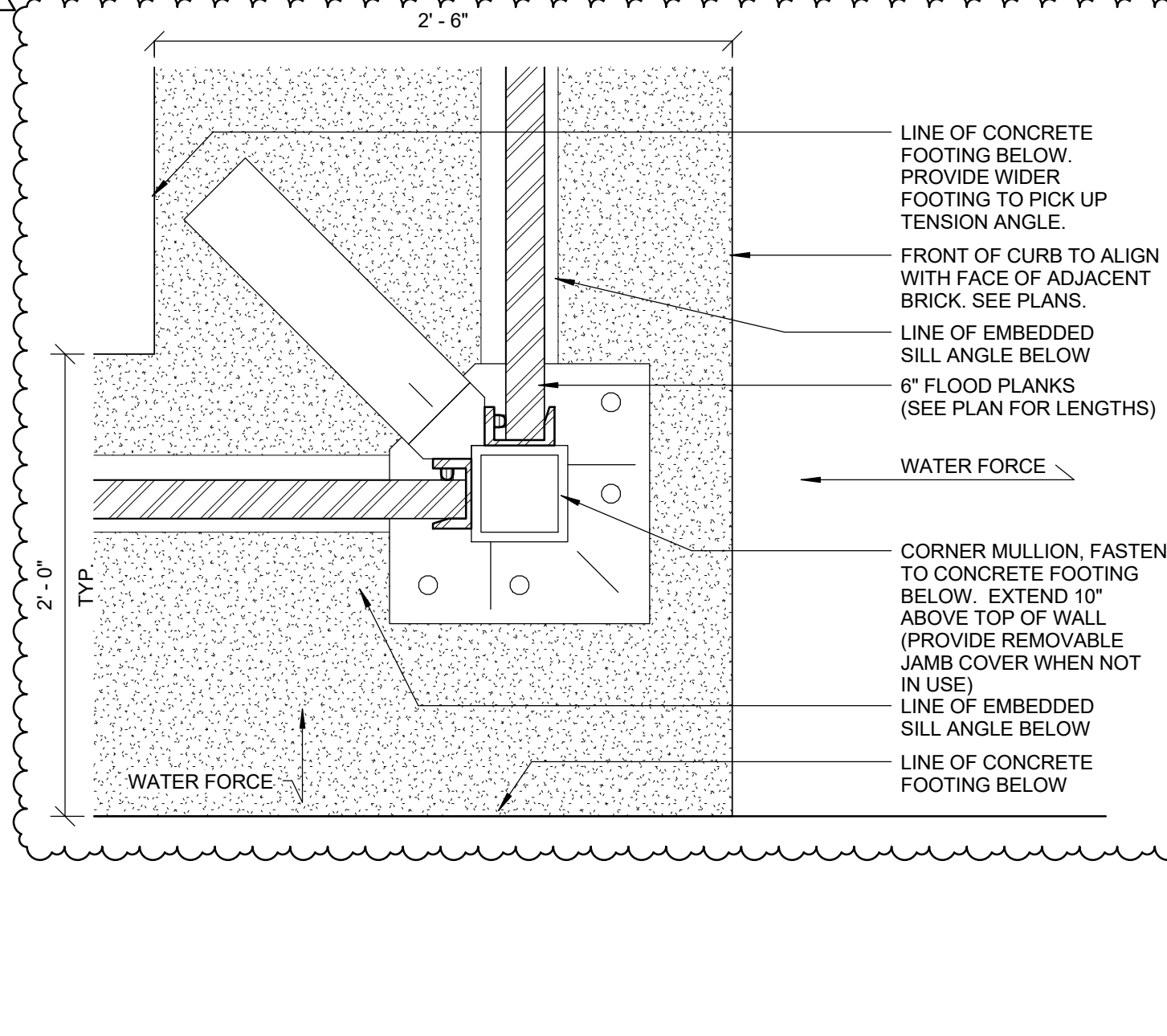
21 FLOOD PLANK - PLAN DTL - BLDG 3 - AT CORNER W/ BRICK
Scale : 1 1/2" = 1'-0"



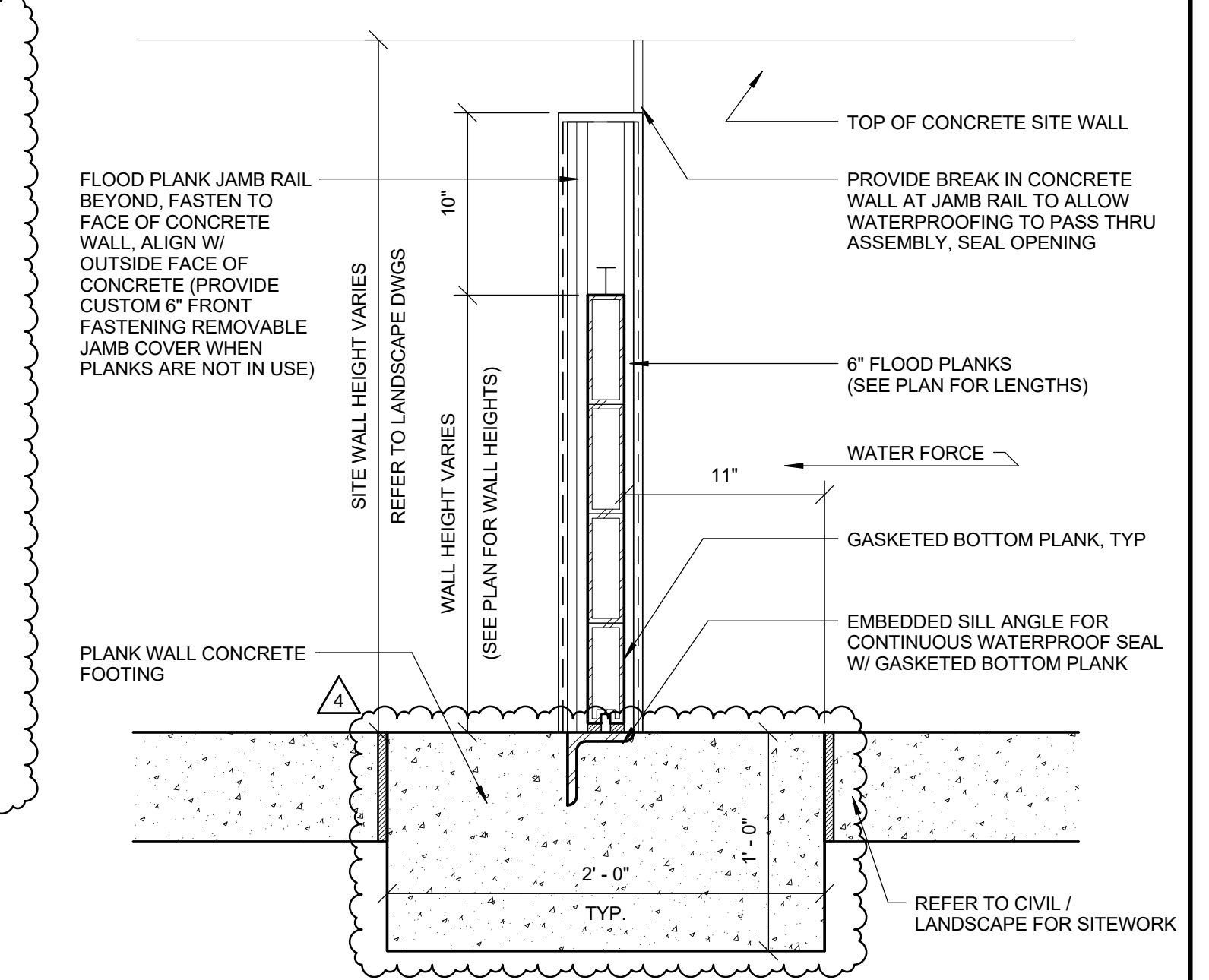
11 FLOOD PLANK - PLAN DTL - JAMB POCKET AT CONC SITE WALL
Scale : 1 1/2" = 1'-0"



30 FLOOD PLANK - SECTION DTL - JAMB POCKET AT CURTAINWALL BASE
Scale : 1 1/2" = 1'-0"



20 FLOOD PLANK - PLAN DTL - BLDG 3 - AT PLANK RAIL CORNER
Scale : 1 1/2" = 1'-0"



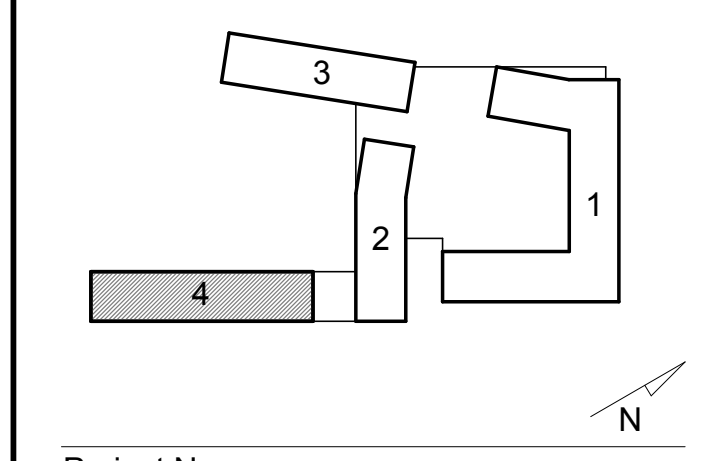
10 FLOOD PLANK - SECTION DTL - JAMB POCKET AT CONC SITE WALL
Scale : 1 1/2" = 1'-0"

Consultant:

Revision:
1 JUNE 30, 2016 ADDENDUM 2

Architect of Record:

Drawn: KLV
Checked: SJR
Scale: As indicated
Key Plan:



Project Name:
CLIPPERSHIP WHARF

25-65 Lewis Street
East Boston, MA 02128

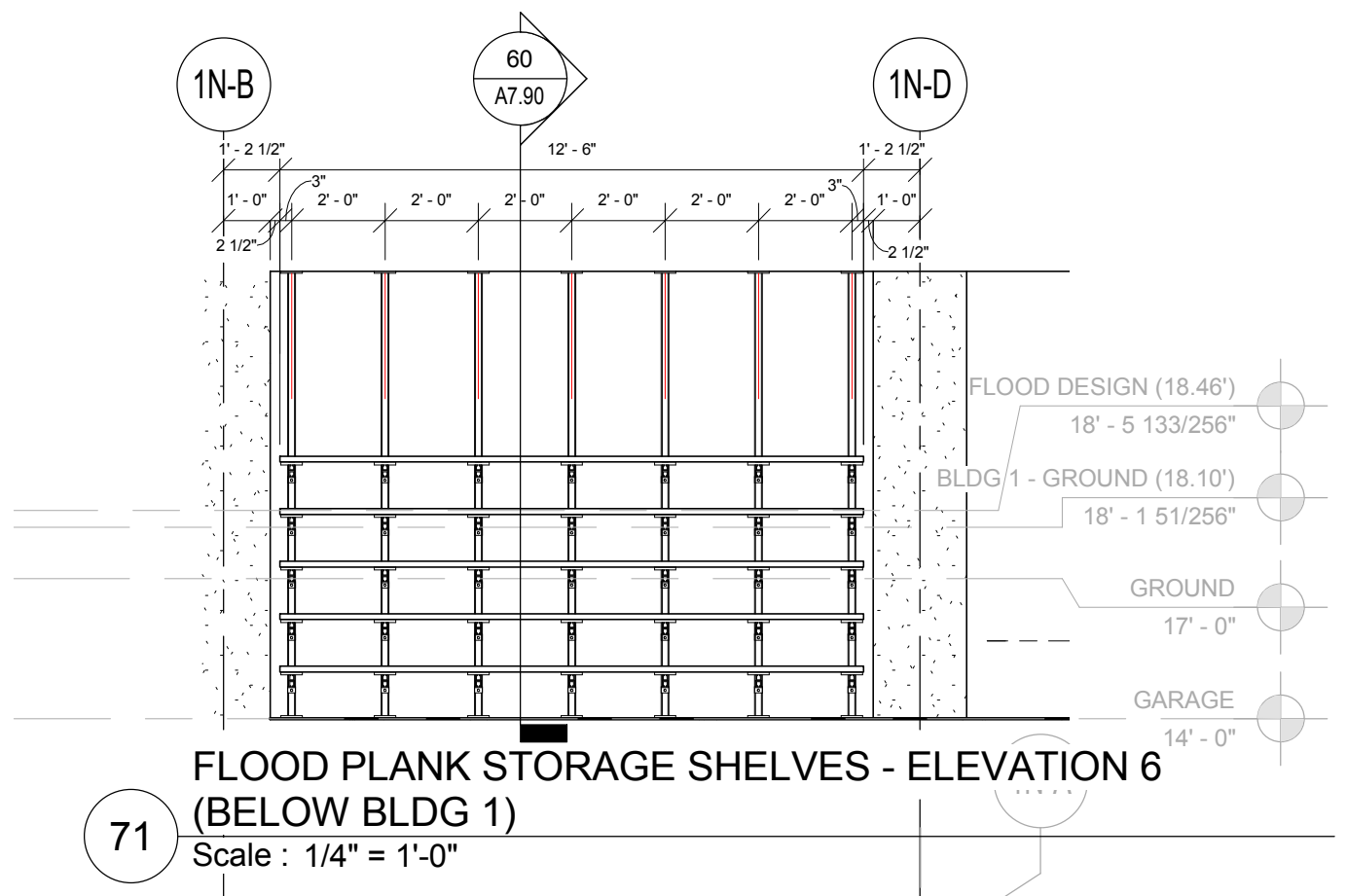
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FLOOD PLANK STORAGE AREAS WITHIN GARAGE LEVEL

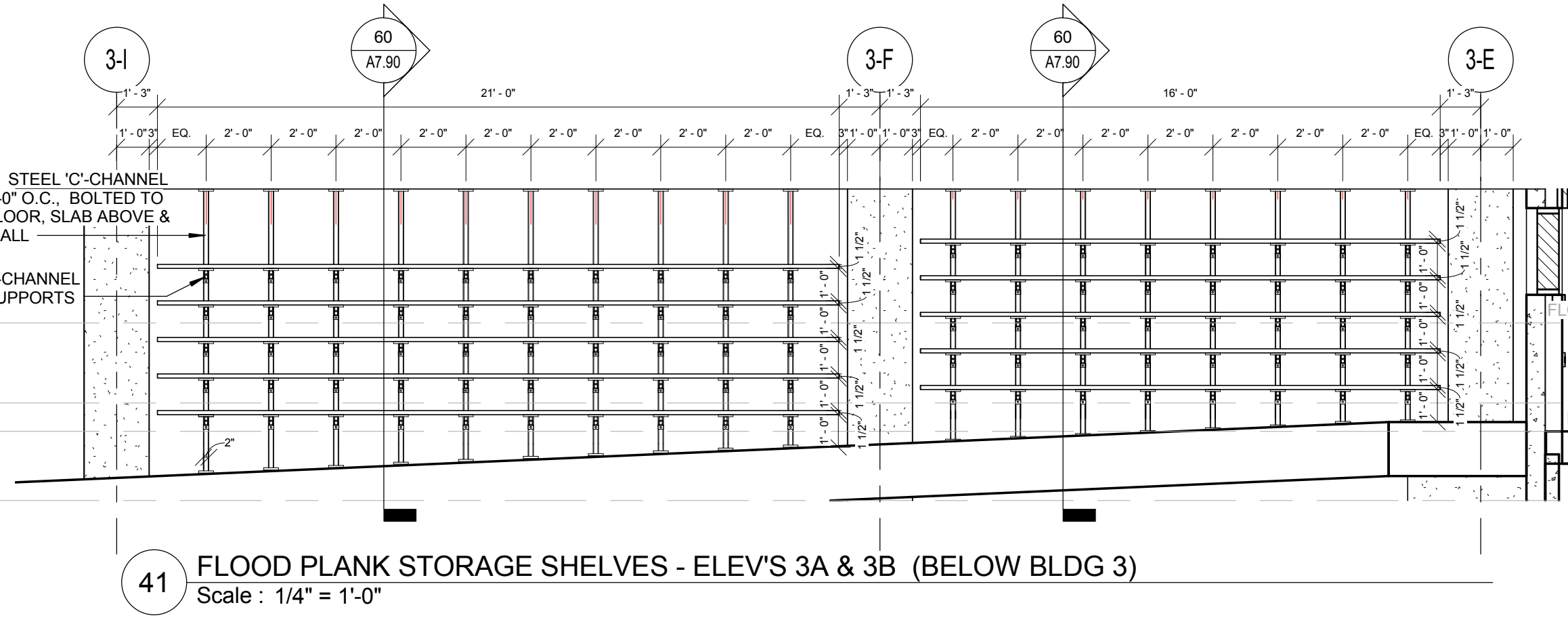
Project Number:
13166

Issue Date:
JUNE 30, 2016

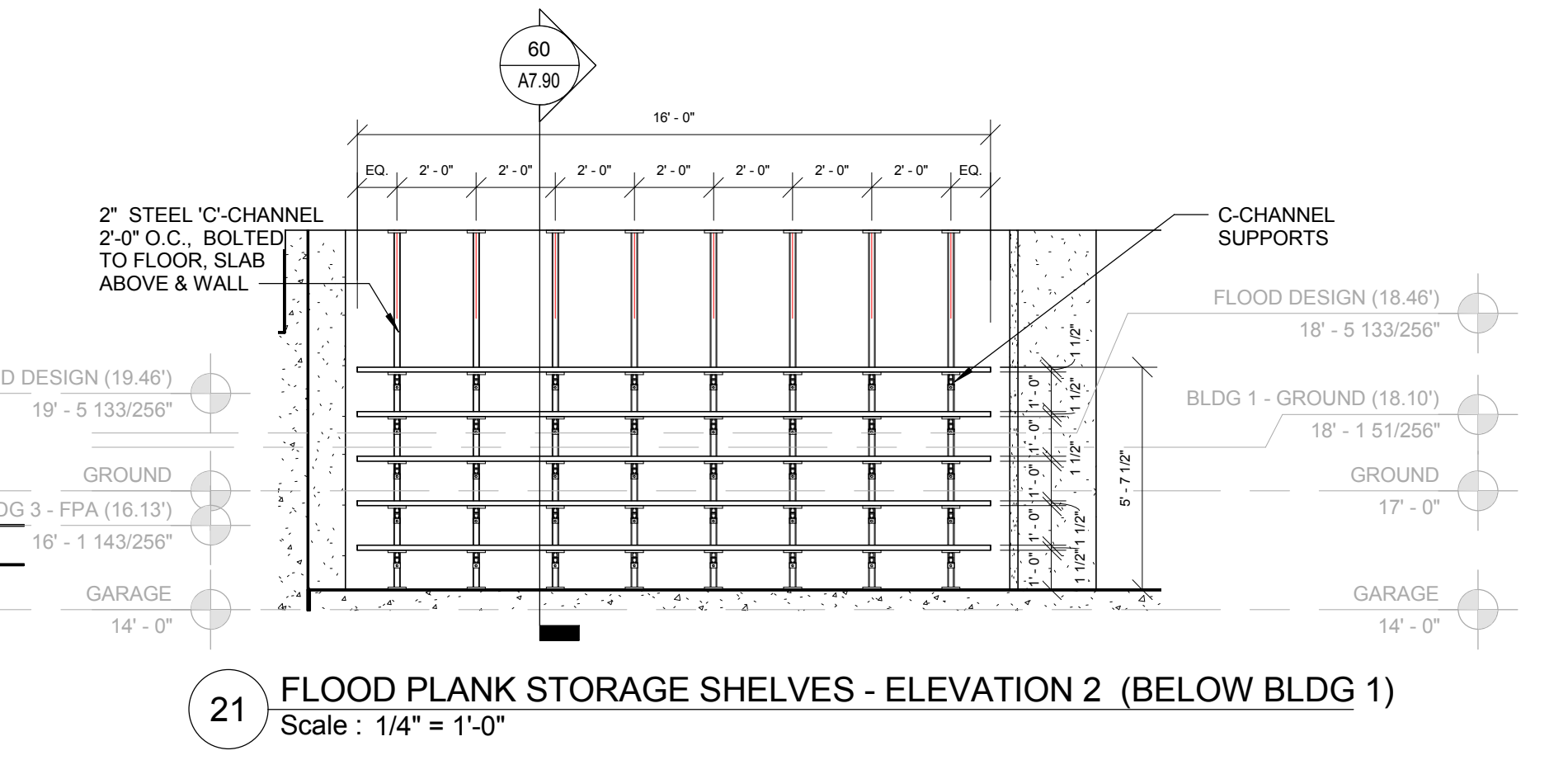
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A7.90



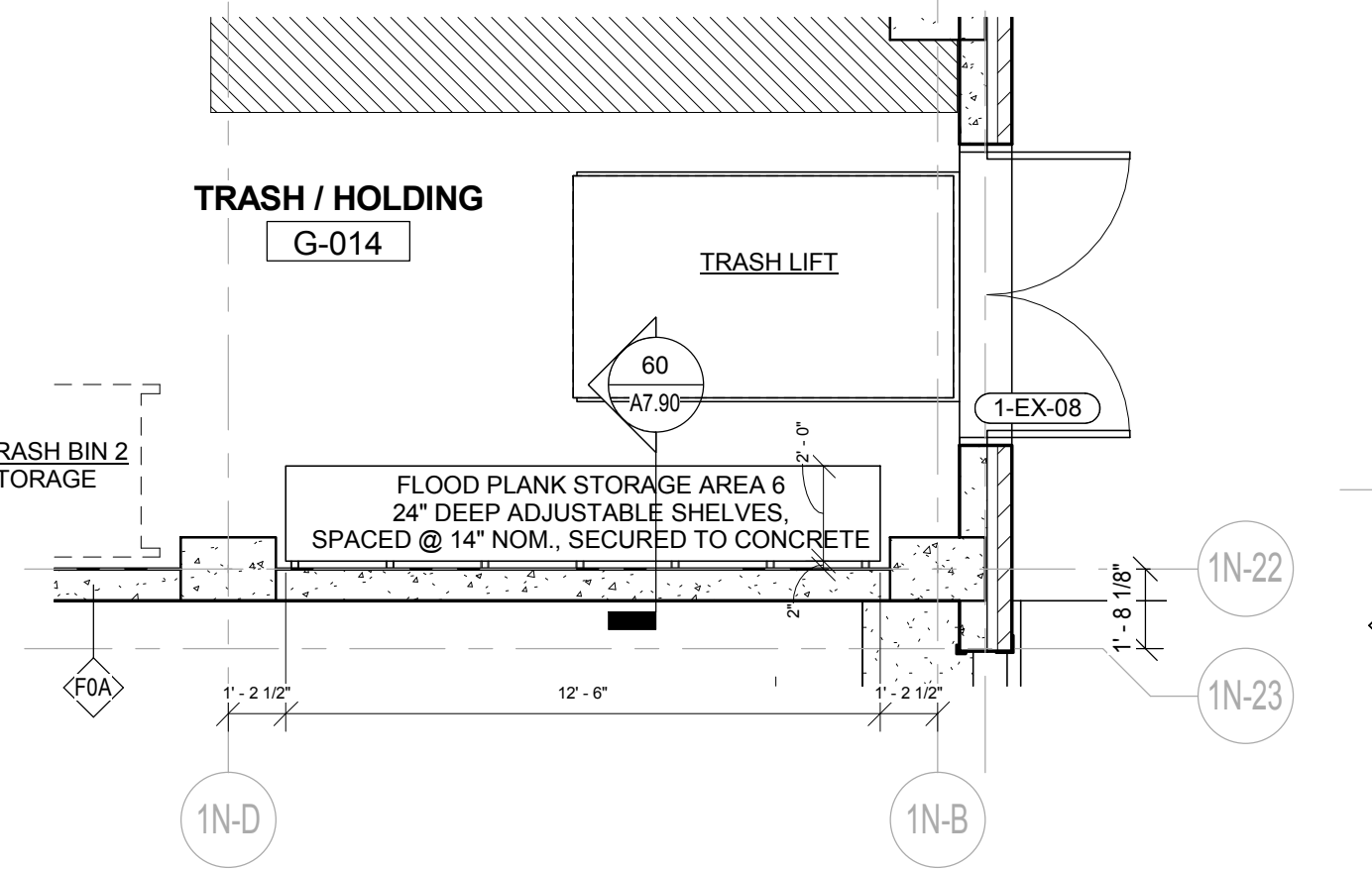
71 FLOOD PLANK STORAGE SHELVES - ELEVATION 6 (BELOW BLDG 1)
Scale: 1/4" = 1'-0"



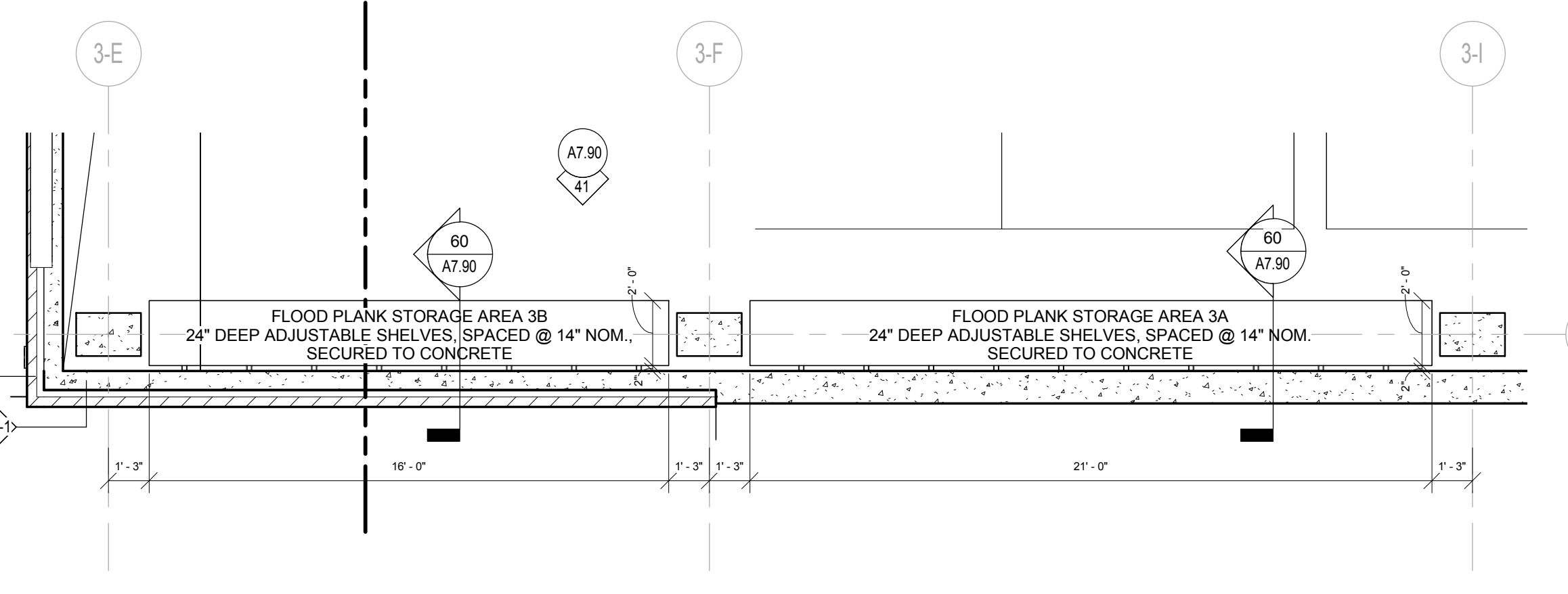
41 FLOOD PLANK STORAGE SHELVES - ELEV'S 3A & 3B (BELOW BLDG 3)
Scale: 1/4" = 1'-0"



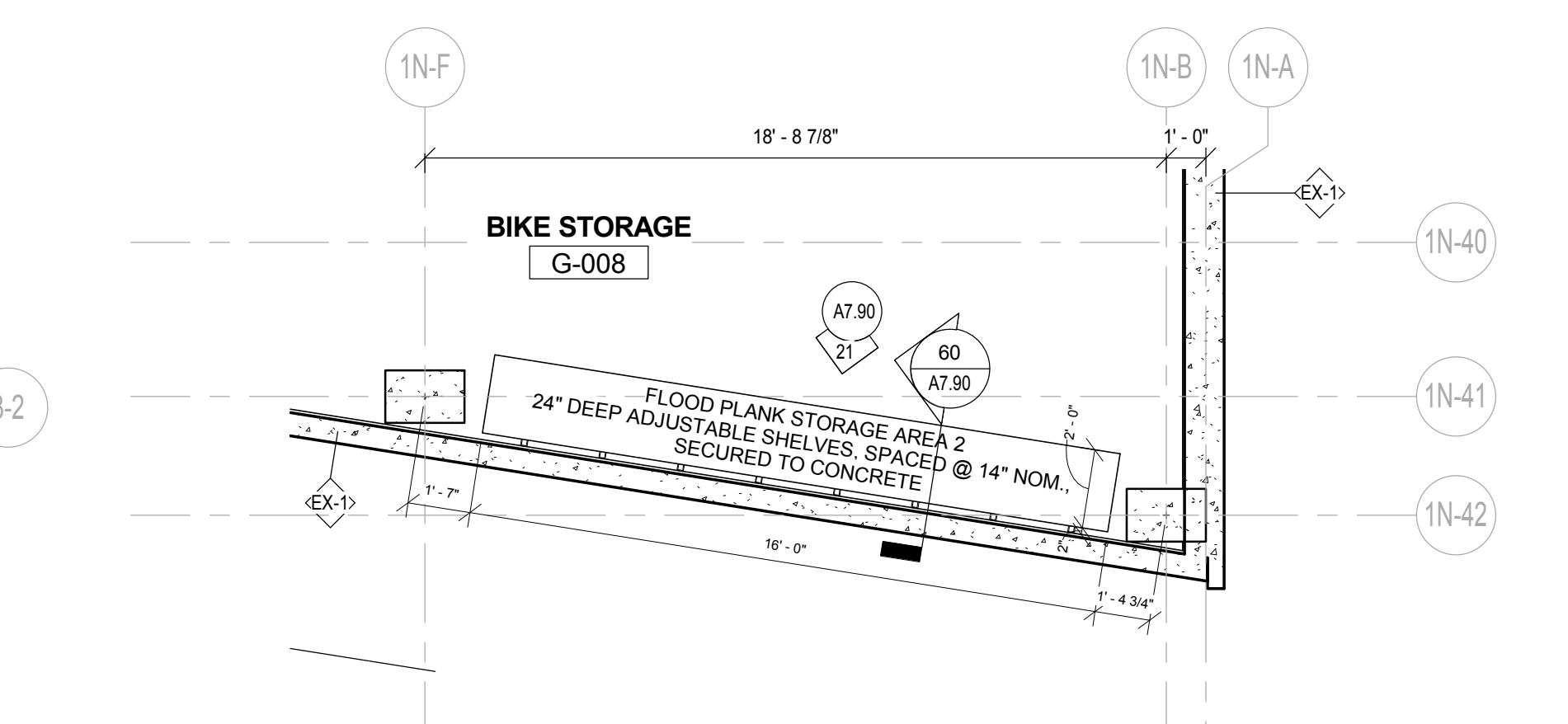
21 FLOOD PLANK STORAGE SHELVES - ELEVATION 2 (BELOW BLDG 1)
Scale: 1/4" = 1'-0"



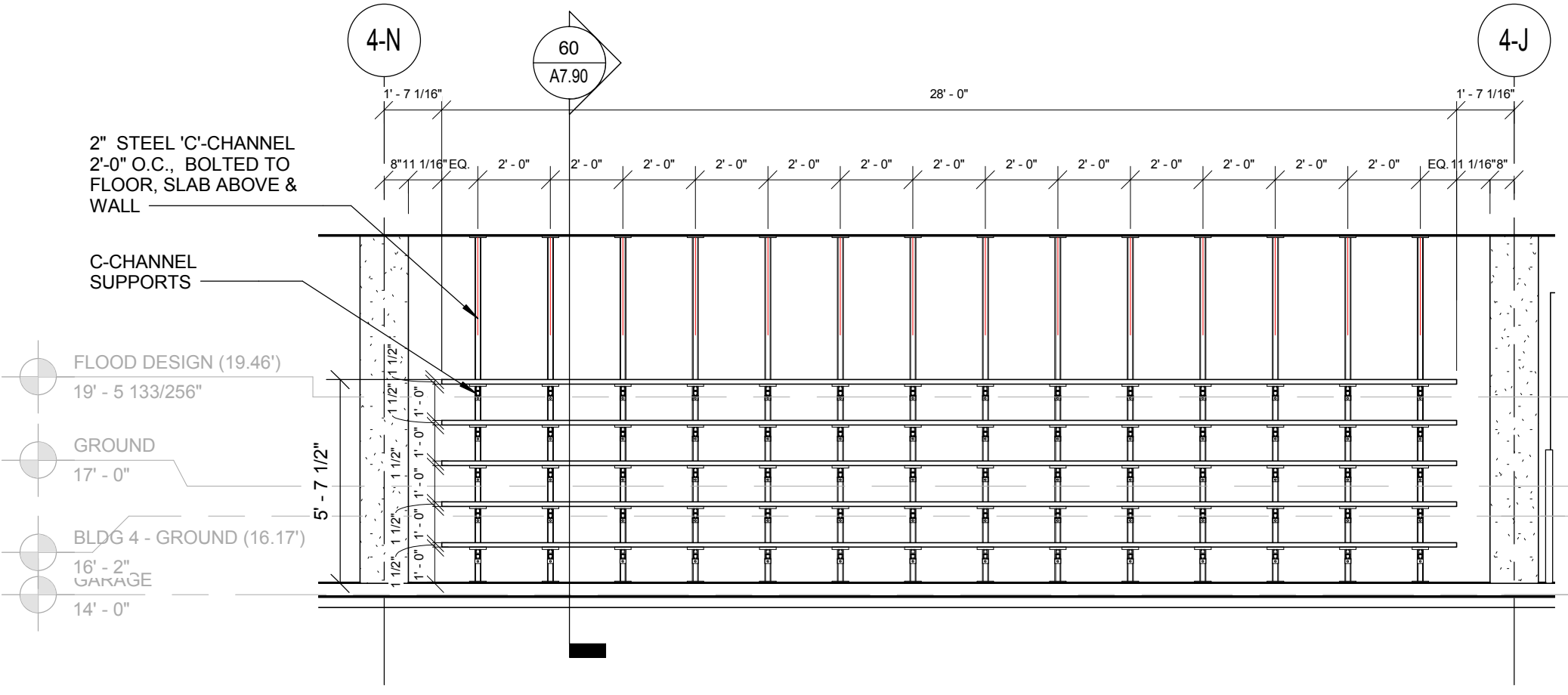
70 BLDG 1 - GARAGE - FLOOD PLANK STORAGE PLAN 6
Scale: 1/4" = 1'-0"



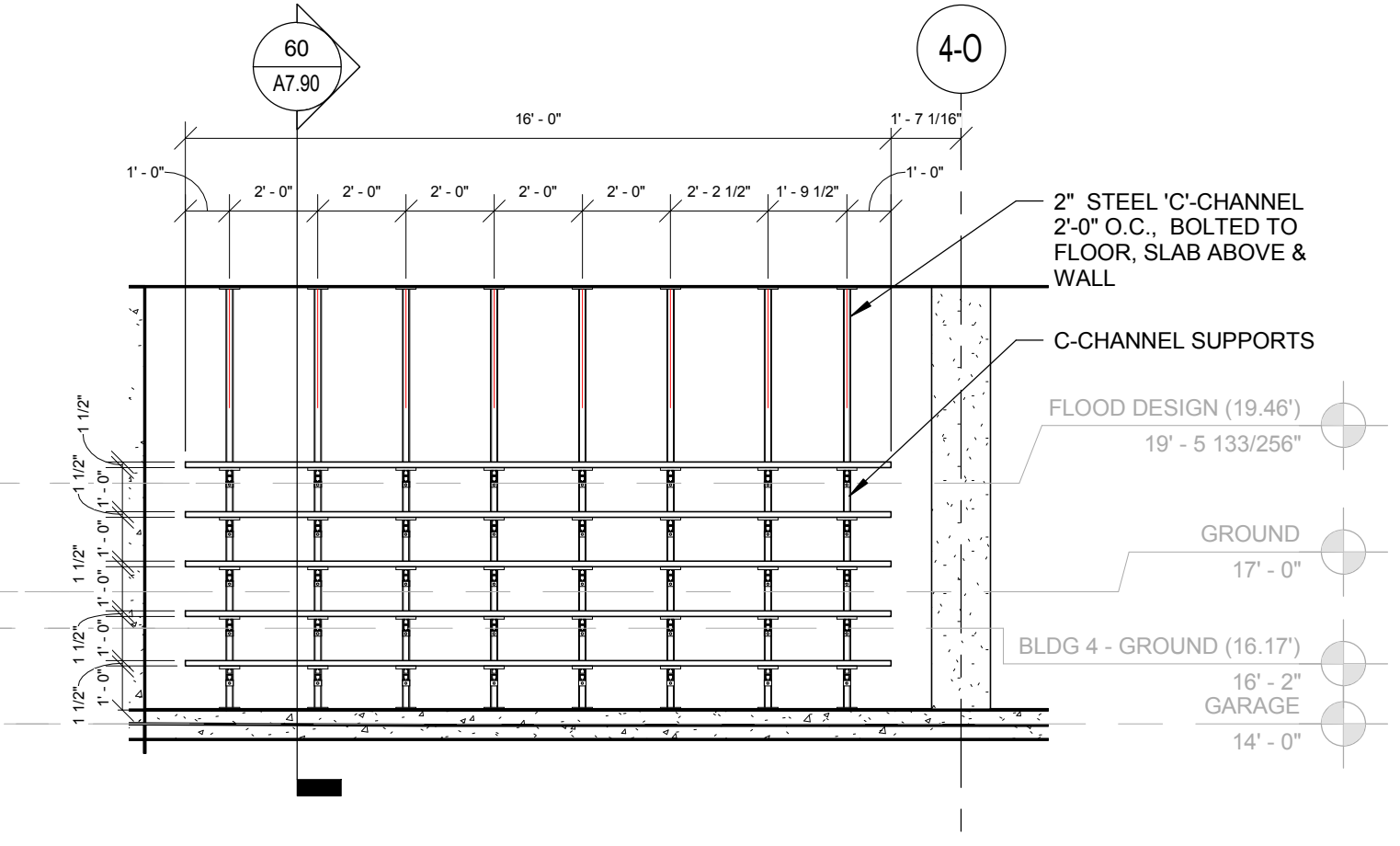
40 BLDG 3 - GARAGE - FLOOD PLANK STORAGE PLAN 3A & 3B
Scale: 1/4" = 1'-0"



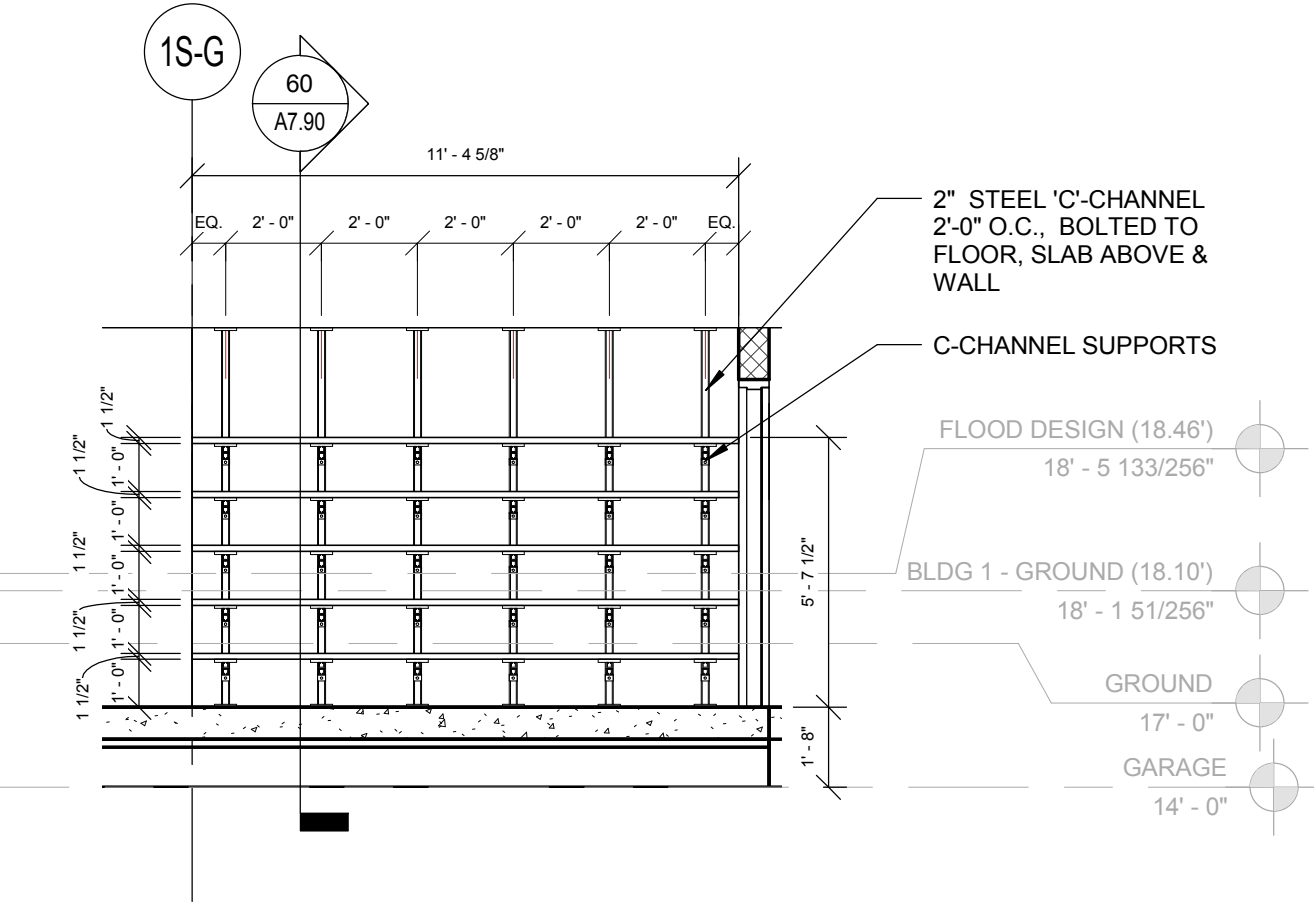
20 BLDG 1 - GARAGE - FLOOD PLANK STORAGE PLAN 2
Scale: 1/4" = 1'-0"



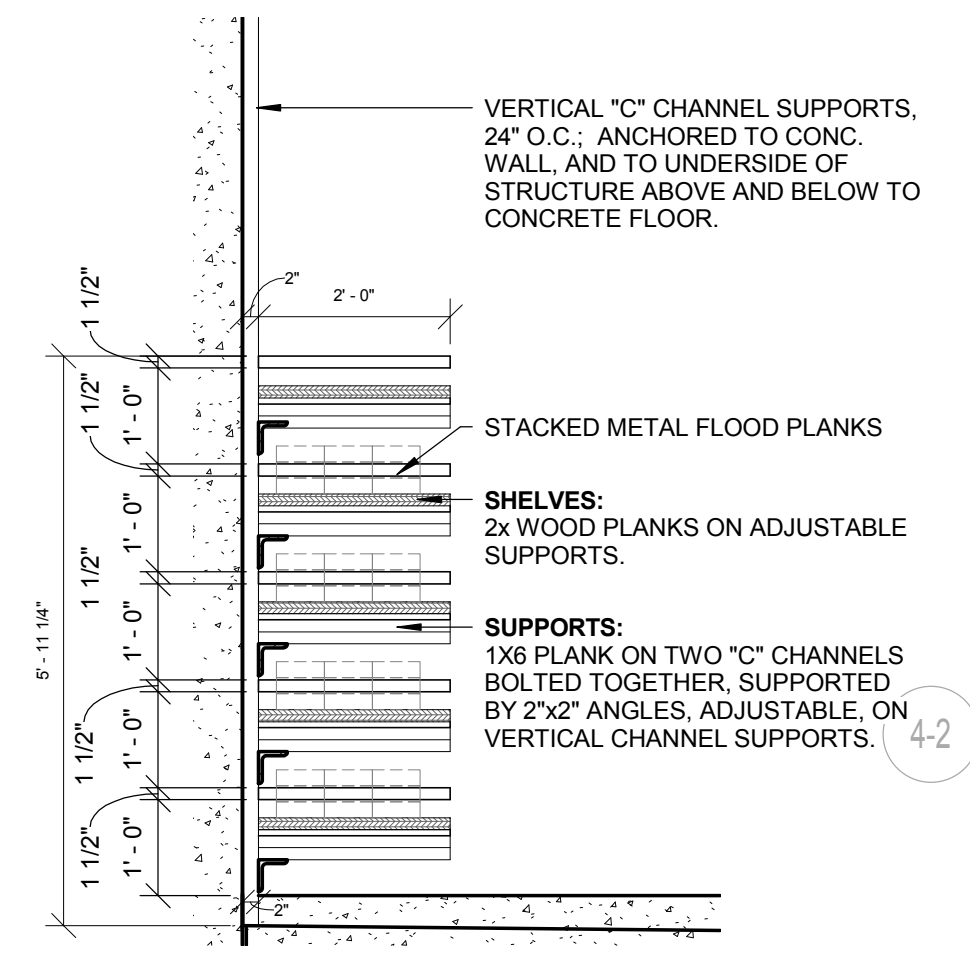
51 FLOOD PLANK STORAGE SHELVES - ELEVATION 5 (BELOW BLDG 4)
Scale: 1/4" = 1'-0"



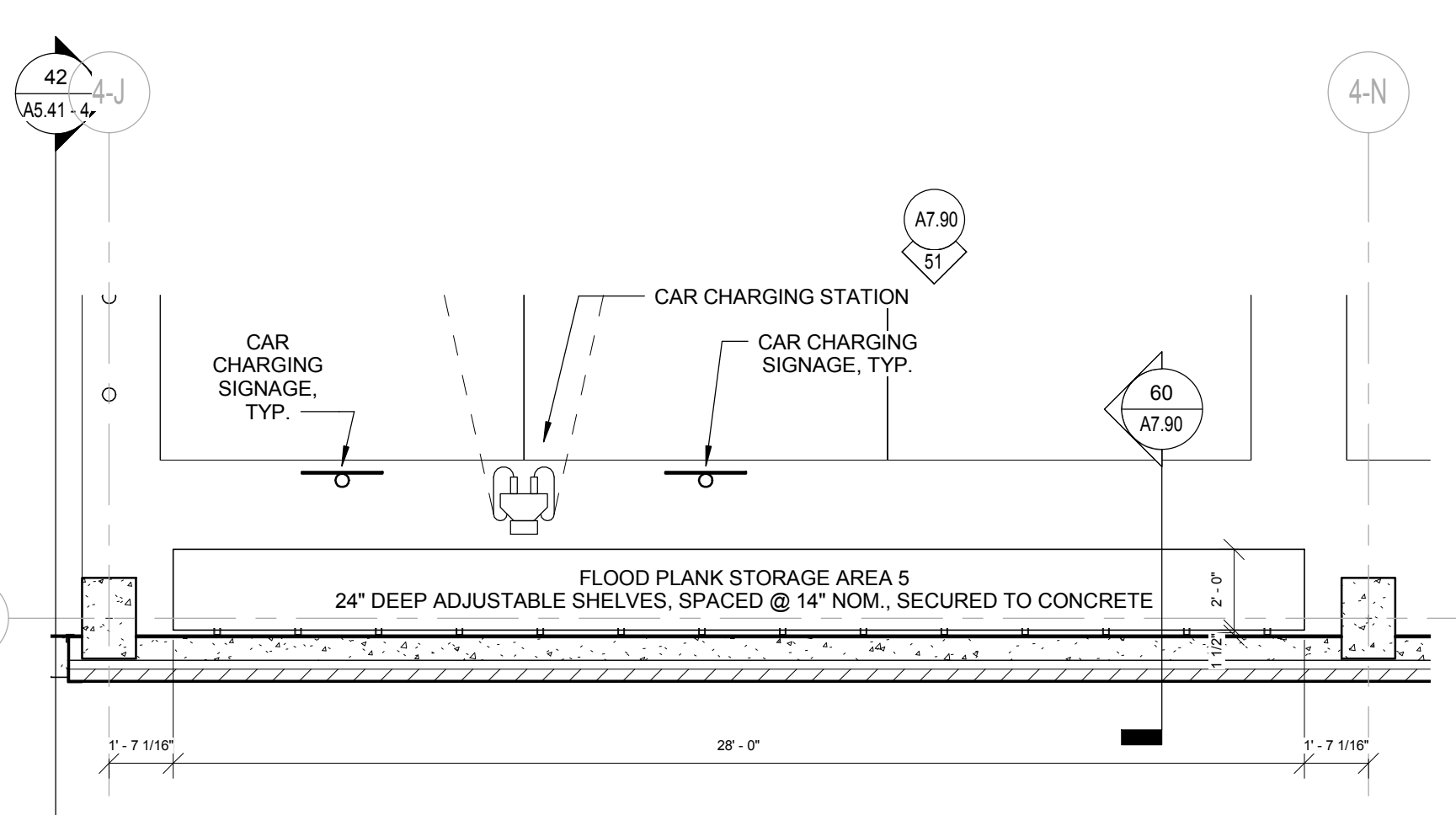
31 FLOOD PLANK STORAGE SHELVES - ELEVATION 4 (BELOW BLDG 4)
Scale: 1/4" = 1'-0"



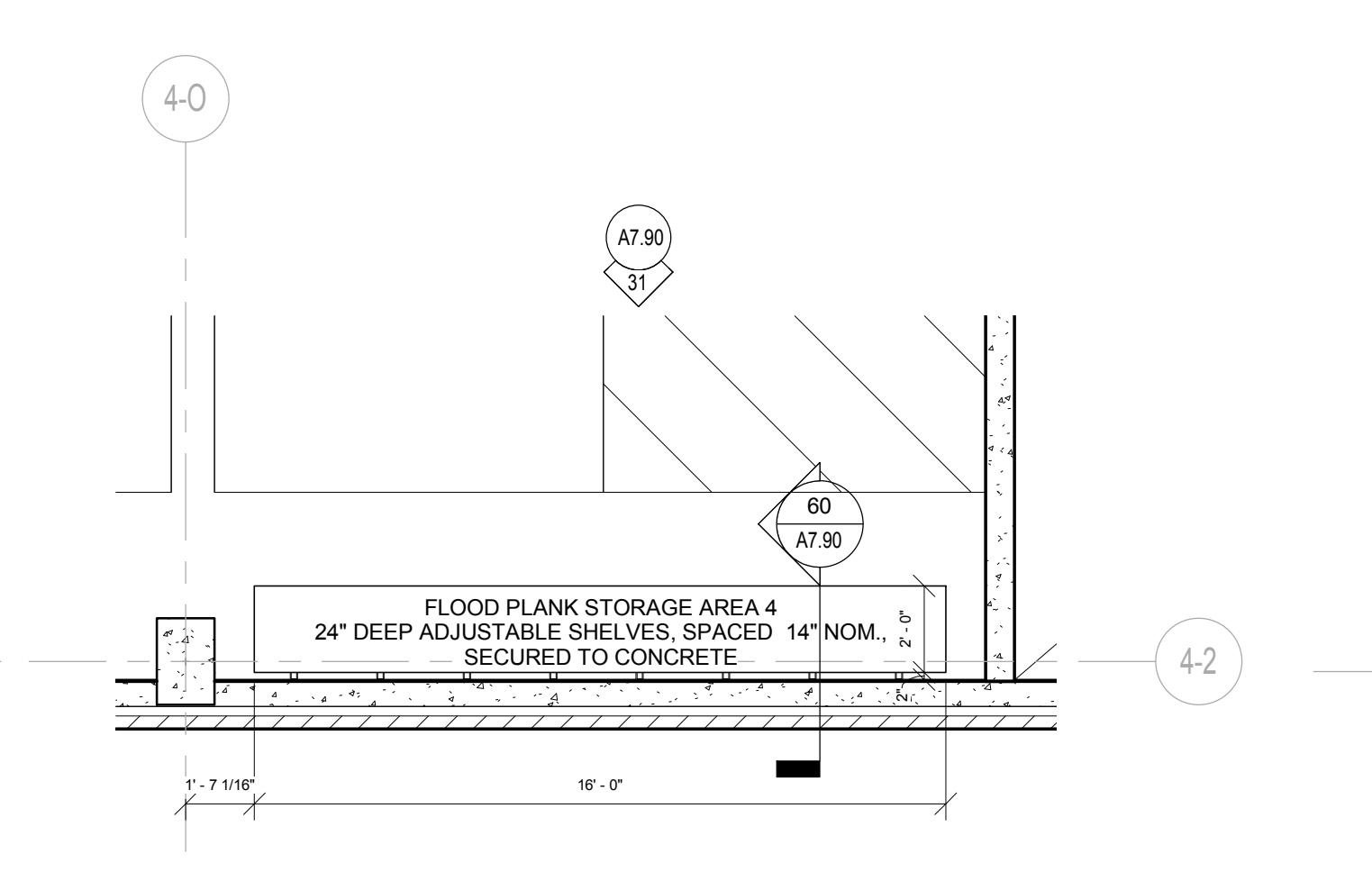
11 FLOOD PLANK STORAGE SHELVES - ELEVATION 1 (BELOW BLDG 1)
Scale: 1/4" = 1'-0"



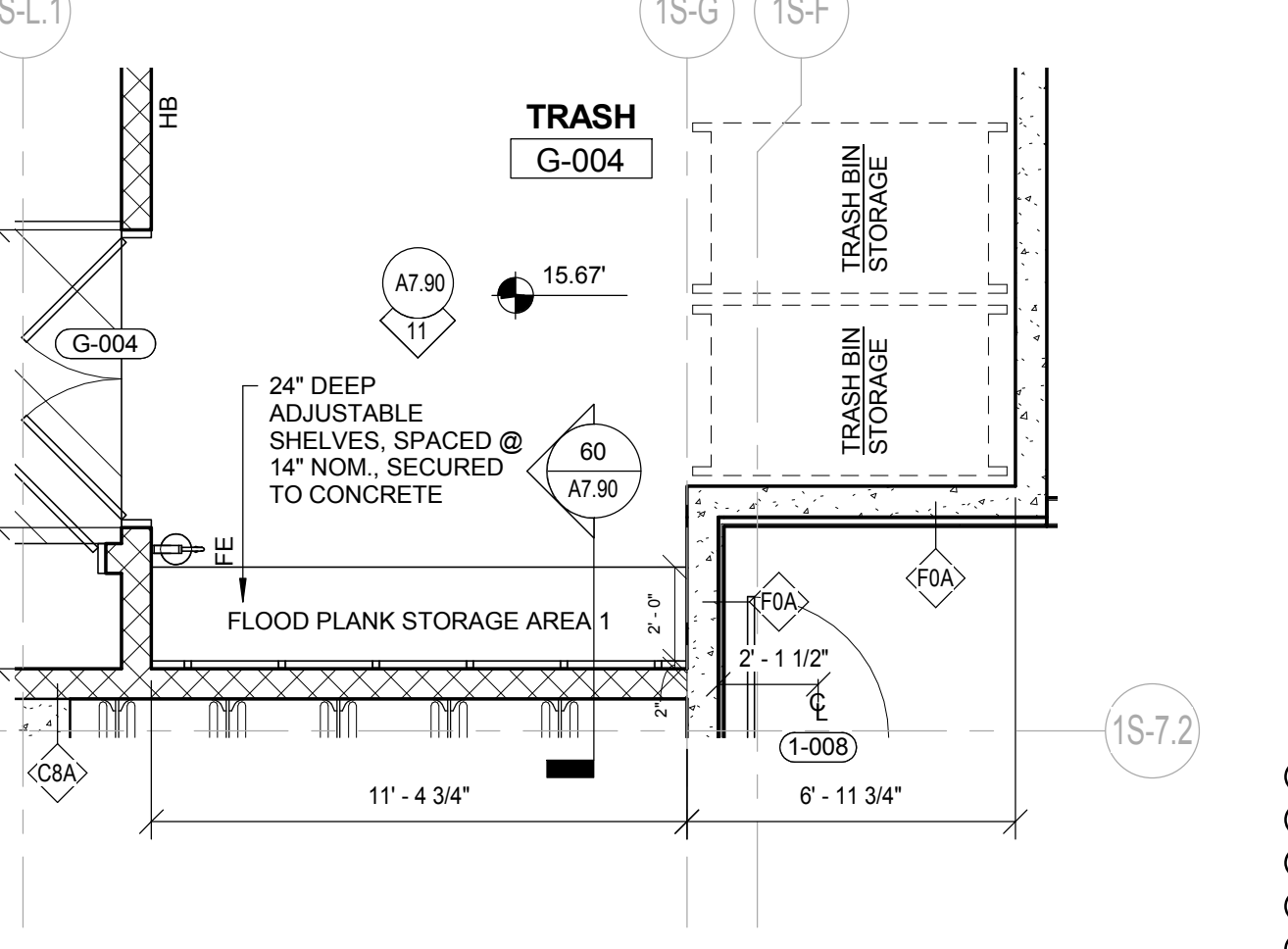
60 SECTION @ FLOOD PLANK SHELVEING
Scale: 1/2" = 1'-0"



50 BLDG 4 - GARAGE - FLOOD PLANK STORAGE PLAN 5
Scale: 1/4" = 1'-0"



30 BLDG 4 - GARAGE - FLOOD PLANK STORAGE PLAN 4
Scale: 1/4" = 1'-0"



10 BLDG 1 - GARAGE - FLOOD PLANK STORAGE PLAN 1
Scale: 1/4" = 1'-0"

ELEVATION CERTIFICATE

Important: Follow the instructions on pages 1–9.

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

SECTION A – PROPERTY INFORMATION				FOR INSURANCE COMPANY USE	
A1. Building Owner's Name Clippership Wharf Multifamily LLC				Policy Number:	
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 55 Lewis Street, Building #2				Company NAIC Number:	
City Boston		State Massachusetts		ZIP Code 02128	
A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) Parcel ID 0105400022, Clippership Wharf Multifamily LLC					
A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) <u>Residential</u>					
A5. Latitude/Longitude: Lat. <u>42° 22' 03.2"</u> Long. <u>71° 02' 29.2"</u> Horizontal Datum: <input type="checkbox"/> NAD 1927 <input checked="" type="checkbox"/> NAD 1983					
A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.					
A7. Building Diagram Number <u>2A</u>					
A8. For a building with a crawlspace or enclosure(s):					
a) Square footage of crawlspace or enclosure(s) <u>N/A</u> sq ft					
b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade <u>N/A</u>					
c) Total net area of flood openings in A8.b <u>N/A</u> sq in					
d) Engineered flood openings? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
A9. For a building with an attached garage:					
a) Square footage of attached garage <u>N/A</u> sq ft					
b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade <u>N/A</u>					
c) Total net area of flood openings in A9.b <u>N/A</u> sq in					
d) Engineered flood openings? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
SECTION B – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION					
B1. NFIP Community Name & Community Number City of Boston, 250286			B2. County Name Suffolk		B3. State Massachusetts
B4. Map/Panel Number 0081	B5. Suffix J	B6. FIRM Index Date 03-16-2016	B7. FIRM Panel Effective/ Revised Date 03-16-2016	B8. Flood Zone(s) AE	B9. Base Flood Elevation(s) (Zone AO, use Base Flood Depth) 12, 11
B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9: <input type="checkbox"/> FIS Profile <input checked="" type="checkbox"/> FIRM <input type="checkbox"/> Community Determined <input type="checkbox"/> Other/Source: _____					
B11. Indicate elevation datum used for BFE in Item B9: <input type="checkbox"/> NGVD 1929 <input checked="" type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other/Source: _____					
B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Designation Date: _____ <input type="checkbox"/> CBRS <input type="checkbox"/> OPA					

ELEVATION CERTIFICATE

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 55 Lewis Street, Building #2			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

SECTION C – BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

C1. Building elevations are based on: Construction Drawings* Building Under Construction* Finished Construction

*A new Elevation Certificate will be required when construction of the building is complete.

C2. Elevations – Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO. Complete Items C2.a–h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.

Benchmark Utilized: Elevation Established by GPS Vertical Datum: NAVD 1988

Indicate elevation datum used for the elevations in items a) through h) below.

NGVD 1929 NAVD 1988 Other/Source: _____

Datum used for building elevations must be the same as that used for the BFE.

Check the measurement used.

- | | | | |
|---|-------------|--|---------------------------------|
| a) Top of bottom floor (including basement, crawlspace, or enclosure floor) | <u>6.6</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| b) Top of the next higher floor | <u>18.3</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| c) Bottom of the lowest horizontal structural member (V Zones only) | <u>N/A</u> | <input type="checkbox"/> feet | <input type="checkbox"/> meters |
| d) Attached garage (top of slab) | <u>N/A</u> | <input type="checkbox"/> feet | <input type="checkbox"/> meters |
| e) Lowest elevation of machinery or equipment servicing the building
(Describe type of equipment and location in Comments) | <u>-2.9</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| f) Lowest adjacent (finished) grade next to building (LAG) | <u>14.3</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| g) Highest adjacent (finished) grade next to building (HAG) | <u>18.3</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support | <u>14.3</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |

SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.

Were latitude and longitude in Section A provided by a licensed land surveyor? Yes No Check here if attachments.

Certifier's Name
Tim Agurkis

License Number
52782

Title
Professional Land Surveyor/ Senior Project Manager


Company Name
Feldman

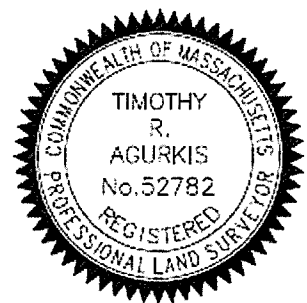
Address
152 Hampden Street

City
Boston

State
Massachusetts

ZIP Code
02119

Signature  Date 6/18/19 Telephone (617) 357-9740 Ext.



Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

Comments (including type of equipment and location, per C2(e), if applicable)

Clippership Wharf Primary Condominium has an under ground garage that attaches to and services 3 buildings #1, #2 and #3. This building attaches to and has access to the garage through an elevator. (C2a) Elevation of the top of bottom floor is the lowest floor in the garage. (C2b) The 1st floor that egresses at ground level. There is an elevator landing room in the garage at elevation 6.8. The bottom of the elevator shaft pit is at 1.7 feet. (elevator pit only at this level) (C2e) Elevation of the lowest machinery servicing the building is at a ground water pump in the garage, The lowest utility service servicing this building is the electric service at 18.7 feet. (See also Elevation Certificate for the Garage)

ELEVATION CERTIFICATE

585
OMB No. 1660-0008
Expiration Date: November 30, 2018

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 55 Lewis Street, Building #2			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

**SECTION E – BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED)
FOR ZONE AO AND ZONE A (WITHOUT BFE)**

For Zones AO and A (without BFE), complete Items E1–E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B, and C. For Items E1–E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.

- E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).
- a) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ feet meters above or below the HAG.
- b) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ feet meters above or below the LAG.
- E2. For Building Diagrams 6–9 with permanent flood openings provided in Section A Items 8 and/or 9 (see pages 1–2 of Instructions), the next higher floor (elevation C2.b in the diagrams) of the building is _____ feet meters above or below the HAG.
- E3. Attached garage (top of slab) is _____ feet meters above or below the HAG.
- E4. Top of platform of machinery and/or equipment servicing the building is _____ feet meters above or below the HAG.
- E5. Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance? Yes No Unknown. The local official must certify this information in Section G.

SECTION F – PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION

The property owner or owner's authorized representative who completes Sections A, B, and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. The statements in Sections A, B, and E are correct to the best of my knowledge.

Property Owner or Owner's Authorized Representative's Name			
Address	City	State	ZIP Code
Signature	Date	Telephone	

Comments

Check here if attachments.

BUILDING PHOTOGRAPHS

See Instructions for Item A6.

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OMB No. 1660-0008

Expiration Date: November 30, 2018

ELEVATION CERTIFICATE

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 55 Lewis Street, Building #2			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

If using the Elevation Certificate to obtain NFIP flood insurance, affix at least 2 building photographs below according to the instructions for Item A6. Identify all photographs with date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8. If submitting more photographs than will fit on this page, use the Continuation Page.



Photo One

Photo One Caption Photo looking Southwest

Clear Photo One



Photo Two

Photo Two Caption Photo looking Southeast

Clear Photo Two

BUILDING PHOTOGRAPHS

Continuation Page

588

OMB No. 1660-0008

Expiration Date: November 30, 2018

ELEVATION CERTIFICATE

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 55 Lewis Street, Building #2			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8.



Photo Three

Photo Three Caption Photo looking Southeast

Clear Photo Three

Photo Four

Photo Four

Photo Four Caption

Clear Photo Four

ELEVATION CERTIFICATE

Important: Follow the instructions on pages 1–9.

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

SECTION A – PROPERTY INFORMATION				FOR INSURANCE COMPANY USE	
A1. Building Owner's Name Lendlease Clippership Wharf LLC				Policy Number:	
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 63 Lewis Street, Clippership Wharf Primary Condominium				Company NAIC Number:	
City Boston		State Massachusetts		ZIP Code 02128	
A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) Parcel ID 0105400000, Clippership Wharf Primary Condominium					
A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) <u>Residential</u>					
A5. Latitude/Longitude: Lat. <u>42° 22' 06.1"</u> Long. <u>71° 02' 28.3"</u> Horizontal Datum: <input type="checkbox"/> NAD 1927 <input checked="" type="checkbox"/> NAD 1983					
A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.					
A7. Building Diagram Number <u>2A</u>					
A8. For a building with a crawlspace or enclosure(s):					
a) Square footage of crawlspace or enclosure(s) <u>N/A</u> sq ft					
b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade <u>N/A</u>					
c) Total net area of flood openings in A8.b <u>N/A</u> sq in					
d) Engineered flood openings? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
A9. For a building with an attached garage:					
a) Square footage of attached garage <u>N/A</u> sq ft					
b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade <u>N/A</u>					
c) Total net area of flood openings in A9.b <u>N/A</u> sq in					
d) Engineered flood openings? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
SECTION B – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION					
B1. NFIP Community Name & Community Number City of Boston, 250286			B2. County Name Suffolk		B3. State Massachusetts
B4. Map/Panel Number 0081	B5. Suffix J	B6. FIRM Index Date 03-16-2016	B7. FIRM Panel Effective/ Revised Date 03-16-2016	B8. Flood Zone(s) AE	B9. Base Flood Elevation(s) (Zone AO, use Base Flood Depth) 12, 11
B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9: <input type="checkbox"/> FIS Profile <input checked="" type="checkbox"/> FIRM <input type="checkbox"/> Community Determined <input type="checkbox"/> Other/Source: _____					
B11. Indicate elevation datum used for BFE in Item B9: <input type="checkbox"/> NGVD 1929 <input checked="" type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other/Source: _____					
B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Designation Date: _____ <input type="checkbox"/> CBRS <input type="checkbox"/> OPA					

ELEVATION CERTIFICATE

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 63 Lewis Street, Clippership Wharf Primary Condominium			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

SECTION C – BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)C1. Building elevations are based on: Construction Drawings* Building Under Construction* Finished Construction

*A new Elevation Certificate will be required when construction of the building is complete.

C2. Elevations – Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO. Complete Items C2.a–h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.

Benchmark Utilized: Elevation Established by GPS Vertical Datum: NAVD 1988

Indicate elevation datum used for the elevations in items a) through h) below.

 NGVD 1929 NAVD 1988 Other/Source: _____

Datum used for building elevations must be the same as that used for the BFE.



Check the measurement used.

- | | | | |
|---|-------------|--|---------------------------------|
| a) Top of bottom floor (including basement, crawlspace, or enclosure floor) | <u>6.6</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| b) Top of the next higher floor | <u>6.8</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| c) Bottom of the lowest horizontal structural member (V Zones only) | <u>N/A</u> | <input type="checkbox"/> feet | <input type="checkbox"/> meters |
| d) Attached garage (top of slab) | <u>N/A</u> | <input type="checkbox"/> feet | <input type="checkbox"/> meters |
| e) Lowest elevation of machinery or equipment servicing the building
(Describe type of equipment and location in Comments) | <u>-2.9</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| f) Lowest adjacent (finished) grade next to building (LAG) | <u>9.0</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| g) Highest adjacent (finished) grade next to building (HAG) | <u>18.4</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support | <u>9.0</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |

SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.

Were latitude and longitude in Section A provided by a licensed land surveyor? Yes No Check here if attachments.

Certifier's Name Tim Agurkis	License Number 52782		
Title Professional Land Surveyor/ Senior Project Manager			
Company Name Feldman			
Address 152 Hampden Street			
City Boston	State Massachusetts		ZIP Code 02119
Signature 	Date 6/18/19	Telephone (617) 357-9740	Ext.

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

Comments (including type of equipment and location, per C2(e), if applicable) Clippership Wharf Primary Condominium has an under ground garage that attaches to and services 3 buildings, #1, #2 and #3. (C2a)Elevation of the top of bottom floor is at the lowest floor in the garage. (C2b)Elevation for the next higher floor is in the elevator room servicing building #2. (C2e) Elevation of the lowest machinery servicing the building is at a ground water pump in the garage. (C2f) Elevation for the lowest adjacent grade is at the entrance to the garage. The bottom of the lowest elevator shaft pit is at 1.7 feet. (elevator pit only at this level) The lowest utility service servicing the building is the gas meter at 10.8 feet. There are 8 engineered flood barriers around the footprint of Building #1, the specifications of which are attached, the measured elevation of the top of the installed barriers range from 12.0 feet to 12.7 feet. There are 3 air intake vents circulating air into the garage the lowest points on these openings are at 13.0 feet.

ELEVATION CERTIFICATE

OMB No. 1660-0008 **592**
 Expiration Date: November 30, 2018

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 63 Lewis Street, Clippership Wharf Primary Condominium			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

SECTION G – COMMUNITY INFORMATION (OPTIONAL)

The local official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Complete the applicable item(s) and sign below. Check the measurement used in Items G8–G10. In Puerto Rico only, enter meters.

- G1. The information in Section C was taken from other documentation that has been signed and sealed by a licensed surveyor, engineer, or architect who is authorized by law to certify elevation information. (Indicate the source and date of the elevation data in the Comments area below.)
- G2. A community official completed Section E for a building located in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.
- G3. The following information (Items G4–G10) is provided for community floodplain management purposes.

G4. Permit Number	G5. Date Permit Issued	G6. Date Certificate of Compliance/Occupancy Issued
-------------------	------------------------	---

- G7. This permit has been issued for: New Construction Substantial Improvement
- G8. Elevation of as-built lowest floor (including basement) of the building: _____ feet meters Datum _____
- G9. BFE or (in Zone AO) depth of flooding at the building site: _____ feet meters Datum _____
- G10. Community's design flood elevation: _____ feet meters Datum _____

Local Official's Name	Title
Community Name	Telephone
Signature	Date

Comments (including type of equipment and location, per C2(e), if applicable)

Check here if attachments.

BUILDING PHOTOGRAPHS

See Instructions for Item A6.

593

OMB No. 1660-0008

Expiration Date: November 30, 2018

ELEVATION CERTIFICATE

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 63 Lewis Street, Clippership Wharf Primary Condominium			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

If using the Elevation Certificate to obtain NFIP flood insurance, affix at least 2 building photographs below according to the instructions for Item A6. Identify all photographs with date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8. If submitting more photographs than will fit on this page, use the Continuation Page.



Photo One

Photo One Caption Photo Looking Southwest

Clear Photo One

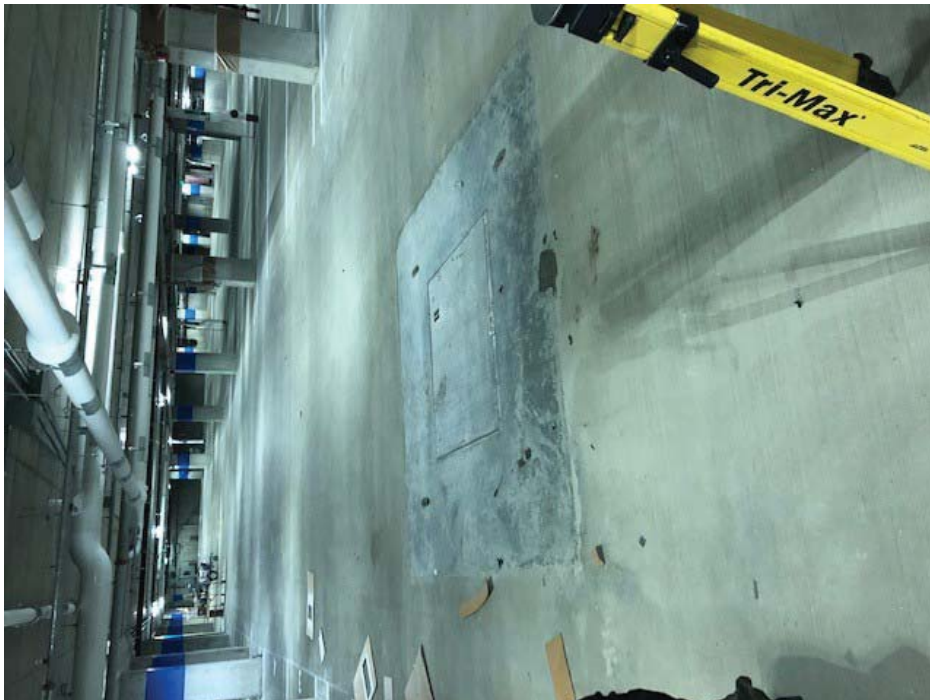


Photo Two

Photo Two Caption Photo Inside Garage

Clear Photo Two

BUILDING PHOTOGRAPHS

Continuation Page

594

OMB No. 1660-0008

Expiration Date: November 30, 2018

ELEVATION CERTIFICATE

IMPORTANT: In these spaces, copy the corresponding information from Section A.	FOR INSURANCE COMPANY USE		
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 63 Lewis Street, Clippership Wharf Primary Condominium	Policy Number:		
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8.

Photo Three

Photo Three

Photo Three Caption

Clear Photo Three

Photo Four

Photo Four

Photo Four Caption

Clear Photo Four

Code Summary
November 11, 2016

- Massachusetts State Building Code - 780 CMR, 8th Edition (2009 IBC with MA Amendments)
- Massachusetts Architectural Access Board - 521 CMR, Effective January 27, 2006
- MA Elevator Regulations, 524 CMR
- MA State Sanitary Code, 105 CMR
- Fair Housing Accessibility Guidelines, March 6, 1991
- Introduction: The Clippership Wharf is a mixed-use development located on the waterfront in East Boston, Massachusetts. It is on a site bounded by the Boston Harbor on the North-West and South West sides, by Jacobbe Road on the North-East side, and Lewis Street to the South East.
- The "project" consists of the following:
 - A "closed" parking garage (S-2), located at Level "G", which will serve residents in all buildings. There will be 250 parking spaces for condo and rental tenants and an additional 20 parking spaces for the public. The public will enter the parking garage from Lewis Street. Renters will enter the parking garage from Jacobbe Road. Condo Owners can enter the garage from Jacobbe Road or through an interior garage door shortly after the public entry on Lewis Street.
 - Approximately 4,100 SF of retail space (A-3) at Level "G", below Building #4, adjacent to Lewis Road. The retail space faces the waterfront and is currently being planned for a restaurant.
 - Public toilet facilities and public bike storage are located in the public section of the garage below Building 4.
 - Approximately 2,700 SF of retail space (M) at Level "G", below Building #3. The retail space faces the waterfront and is currently being planned for a kayak rental with kayak launch
 - Approximately 1,200 SF of retail space (A-2) at Level "G", below Building #1. The retail space faces North -East currently being planned as a Café.
 - Other garage areas include tenant and bike storage, trash rooms, residential elevator lobbies, etc.
 - Four separate buildings consisting of 478 rental and For-Sale Dwelling Units built over a below grade "closed" parking garage.
 - Building 1 consisting of 209 rental dwelling units and leasing center and management offices.
 - Building 2 consisting of 75 rental dwelling units and amenity areas.
 - Building 3 consisting of 80 For-Sale Condominium dwelling units, amenity areas, and public areas.
 - Building 4 consisting of 114 rental dwelling units and lounge.
 - Public harbor walk, public boat launch, public beach, and public event lawn.
 - Amenity courtyard at Building 1 constructed over the parking garage.
- The base of the building shall be constructed as a podium with a 3-hour rated concrete horizontal assembly above the closed air parking garage and the first floor residential and amenity areas.
- Residential levels on floors two through six shall be constructed as wood. (Construction Type 3A) These buildings shall be referred to as Building 1(Apartments), Building 2 (Apartments), Building 3 (Condominiums) and Building 4. (Apartments)
- All buildings shall be equipped with an automatic sprinkler system installed in accordance with Section 903.1.1. (NFPA 13)

CHAPTER 3 - USE AND OCCUPANCY

- Occupancy Classifications:
 - Use Group R-2 Multiple Dwellings (IBC 2009 - 310.1)
 - Use Group S-2 Parking Garage (IBC 2009 - 311.3)
 - Use Group M Retail or Wholesale Stores (IBC 2009 - 309.1)
 - Use Group A-2 Restaurants, Night Clubs, Taverns and bars (IBC 2009 - 303.1)

BUILDING HEIGHT CALCULATIONS

- Building #1
 - Average Grade Plane: Elev. 22.99'
 - Average Height of Highest Roof Surface: Elev. 90.33'
 - Building #1 Height (feet): 67.34'
 - Building #1 Height (stories above horizontal separation*): 5-stories
- Building #2
 - Average Grade Plane: Elev. 24.35'
 - Average Height of Highest Roof Surface: Elev. 90.33'
 - Building #2 Height (feet): 65.98'
 - Building #2 Height (stories above horizontal separation*): 5-stories
- Building #3
 - Average Grade Plane: Elev. 21.10'
 - Average Height of Highest Roof Surface: Elev. 90.83'
 - Building #3 Height (feet): 69.73'
 - Building #3 Height (stories above horizontal separation*): 5-stories
- Building #4
 - Average Grade Plane: Elev. 21.04'
 - Average Height of Highest Roof Surface: Elev. 90.50'
 - Building #4 Height (feet): 69.46'
 - Building #4 Height (stories above horizontal separation*): 5-stories

* Refer to section IBC 2009 - 509.2 Horizontal building separation allowance.
* Refer to section IBC 2009 - 509.4 Parking beneath Group R.

TYPES OF CONSTRUCTION

- Construction Classification:
 - Type 3A (IBC 2009 - 602.3) - Residential floors
 - Type 1A (IBC 2009 - 602.2) - Parking Garage, Restaurant, Mercantile, Amenity Areas

Table 601
Fire Resistance Rating Requirements for Building Elements: (Hours)

Building Element	Fire resistance Rating (Hours)	
	Type 3A ^a (residential floors above concrete transfer deck)	Type 1A (Parking garage and first floor areas)
Primary structural frame (see Section 202)	1	3 ^b
Bearing walls - Exterior ^{c,d}	2	3
- Interior	1	3 ^b
Nonbearing walls and partitions - Exterior	See Table 602	See Table 602
- Interior ^e	0	0
Floor construction and secondary members (see Section 202)	1	2
Roof construction and secondary members (see Section 202)	1 ^{b,e}	1 1/2 ^b
Stair and Elevator Shafts (connecting 4 or more stories) ^f	2	2
Mechanical and Other Shafts (connecting more than 4 stories) ^g	2	2
Mechanical and Other Shafts (connecting less than 4 stories) ^g	1	1
Corridor Fire-Resistance Rating (Table 1018.1) R-2 (With Sprinkler system)	1/2	1/2
Corridor Fire-Resistance Rating (Table 1018.1) S-2 (With Sprinkler system)	0	0
Corridor Fire-Resistance Rating (Table 1018.1) M (With Sprinkler system)	0	0
Corridor Fire-Resistance Rating (Table 1018.1) A-2 (With Sprinkler system)	0	0
Dwelling Unit Separations (709.3 Exception 2)	1	N/A

TYPES OF CONSTRUCTION (Continued)

^a Per IBC 2009 - 1022.1, "Enclosures required. Interior exit stairways and interior exit ramps shall be enclosed with fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 712, or both. Exit enclosures shall have a fire resistance rating of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than 4 stories. The number of stories connected by the exit enclosure shall include any basements but not any mezzanines. Exit enclosures shall have a fire resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours....."

^b Per IBC 2009 - 708.4, "Shaft enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more, and not less than 1 hour where connecting less than four stories. The number of stories connected by the shaft enclosure shall include any basements but not any mezzanines. Shaft enclosures shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours. Shaft enclosures shall meet the requirements of Section 703.2.1."

^c Roof Supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

^d Except in Group F-1, H, M, and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

^e In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.

^f An approved automatic sprinkler system in accordance with 903.3.1.1 shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 505.3 or an allowable height increase in accordance with Section 504.2. The 1-hour substitution for the fire-resistance of exterior walls shall not be permitted.

^g Not less than the fire-resistance rating required by other sections of this code.

^h Not less than the fire-resistance rating based on fire-separation distance (see Table 602).

ⁱ Not less than the fire-resistance rating as referenced in Section 704.10.

Table 602
Fire-Resistance Rating Requirement For Exterior Walls Based on Fire Separation Distance

Fire Separation Distance=X (feet)	Type of Construction	Occupancy Group A, R, S-2	Occupancy Group M
X<5	All	1	2
5≤X<10	IA Others	1 1	2 1
10≤X<30	IA Others	1 1	1 1
X≥30	All	0	0

CHAPTER 11 - ACCESSIBILITY

Per Massachusetts State Building Code - 780 CMR, 8th Edition 1101.1 Scope. In accordance with M.G.L. c. 22 & 13A all public buildings shall be designed to be accessible to, and functional and safe for use by, physically disabled persons, and conform to the requirements of 521 CMR. In accordance with M.G.L. c. 143, & 3, 521 CMR shall be enforced by the building official or the state inspector, as applicable.

Massachusetts Architectural Access Board (521 CMR)

- Group 1 Dwelling Units - Buildings #1 & #2:
 - Group 1 Dwelling Units: In multiple dwellings for which building permits for new construction are issued on or after September 1, 1996, that are for rent, hire, lease, or sale and that are equipped with an elevator, all dwelling units must be constructed as Group 1 Dwelling Units, except those covered as Group 2 Dwelling Units.
 - Buildings 1, 2, 3, & 4 are proposed new buildings equipped with elevators. All dwelling units must be constructed as Group 1 Dwelling Units, except those covered as Group 2 Dwelling Units.
- Group 2A Dwelling Units - Building 1, 2, & 4:
 - In multiple dwellings that are for rent, hire, or lease (but not for sale) and contain 20 or more units, at least 5% of the dwelling units must be constructed as Group 2A units. The proposed Building #1 & #2 dwelling units are for rent. As such, at least 5% of the dwelling units must be constructed as Group 2A units.
 - Buildings 1, 2, 4 are for rent and will contain Group 2A units.
 - Total Units in Buildings 1, 2, & 4 = 398. 398 Units X 5% = 20 Group 2A Units
 - Distributions: Group 2A dwelling units shall be proportionally distributed across the total number of units according to number of bedrooms, size, quality, price and location. Group 2A units have been proportionally distributed across the total number of units and shall be provided as follows; Refer to chart on UNIT SCHEDULES for distribution.
- Sleeping Accommodations for Deaf or Hard of Hearing Persons - Buildings 1, 2, 3, & 4.
 - In addition to those units required to be accessible by 521 CMR 9.4, Group 2 Dwelling Units, 2% of the total number of dwelling units in the complex or project, but not less than one shall comply with 521 CMR, Section 9.7.
 - Ten of the 478 total units in the project are proposed as units for deaf or hard of hearing persons, per 521 CMR, Section 9.7.
- Fair Housing Amendments Act - Buildings 1, 2, 3, & 4:
 - The Fair Housing Act Design Requirements apply to buildings built for first occupancy after March 13, 1991, which fall under the definition of "covered multifamily dwellings." Covered multifamily dwellings are:
 - All dwelling units in buildings containing four or more dwelling units if such buildings have one or more elevators, and
 - All ground floor dwelling units in other buildings containing four or more units.
 - Buildings 1, 2, 3, & 4 are proposed new buildings equipped with elevators and contain more than 4 dwelling units. All dwelling units must be constructed according to the Fair Housing Act Design Requirements. All 478 of the units in Buildings 1, 2, 3, & 4 are proposed as units complying with the Fair Housing Act Design Requirements.

OCCUPANT LOAD

IBC 2009 Table 1004.1.1
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

Floor	Area	Floor Area (gsf)	Floor Area Per Occupant (gsf/occupant)	Occupant Load
Level G - BLDG 5	Parking (S-2)	126,720	200 gross	633.60
Level 0 - BLDG 1	Assembly(A2)	1195	15 net	79.67
Level 0 - BLDG 2	Mercantile (M)	3,051	30 gross	101.66
Level 0 - BLDG 4	Assembly(A2)	4,130	15 net	275.33
Level 1 - BLDG 1	Residential	35,621	200 gross	178.10
Level 1 - BLDG 2	Residential	14,126	200 gross	70.63
Level 1 - BLDG 3	Assembly(A3)	10,910	15 net	727.33
Level 1 - BLDG 4	Residential	17,382	200 gross	86.91
Level 2 - BLDG 1	Residential	35,948	200 gross	179.74
Level 2 - BLDG 2	Residential	13,826	200 gross	69.13
Level 2 - BLDG 3	Residential	16,538	200 gross	82.69
Level 2 - BLDG 4	Residential	20,698	200 gross	103.49
Level 3 - BLDG 1	Residential	37,423	200 gross	187.12
Level 3 - BLDG 2	Residential	13,826	200 gross	69.13
Level 3 - BLDG 3	Residential	16,538	200 gross	82.69
Level 3 - BLDG 4	Residential	20,698	200 gross	103.49
Level 4 - BLDG 1	Residential	37,423	200 gross	187.12
Level 4 - BLDG 2	Residential	13,826	200 gross	69.13
Level 4 - BLDG 3	Residential	16,538	200 gross	82.69
Level 4 - BLDG 4	Residential	20,698	200 gross	103.49
Level 5 - BLDG 1	Residential	37,423	200 gross	187.12
Level 5 - BLDG 2	Residential	13,826	200 gross	69.13
Level 5 - BLDG 3	Residential	16,538	200 gross	82.69
Level 5 - BLDG 4	Residential	20,698	200 gross	103.49
Level 6 - BLDG 1	Residential	37,423	200 gross	187.12
Level 6 - BLDG 2	Residential	13,826	200 gross	69.13
Level 6 - BLDG 3	Residential	16,538	200 gross	82.69
Level 6 - BLDG 4	Residential	20,698	200 gross	103.49

Table 1021.1
MINIMUM NUMBER OF EXITS FOR OCCUPANT LOAD

Floor	Occupant Load	Required Number of Exits	Number of Exits Provided
Level G - BLDG 5	633.60	3	3+
Level 0 - BLDG 1 (A-2)	79.67	2	2
Level 0 - BLDG 3 (M)	101.66	2	2
Level 0 - BLDG 4 (A-2)	275.33	2	2
Level 1 - BLDG 1(R-2)	178.10	2	2+
Level 1 - BLDG 2 (R-2)	70.63	2	2+
Level 1 - BLDG 3 (A-3)	727.33	3	3+
Level 1 - BLDG 4 (R-2)	86.91	2	2
Level 2 - BLDG 1	179.74	2	2
Level 2 - BLDG 2	69.13	2	2
Level 2 - BLDG 3	82.69	2	2
Level 2 - BLDG 4	103.49	2	2
Level 3 - BLDG 1	187.12	2	2
Level 3 - BLDG 2	69.13	2	2
Level 3 - BLDG 3	82.69	2	2
Level 3 - BLDG 4	103.49	2	2
Level 4 - BLDG 1	187.12	2	2
Level 4 - BLDG 2	69.13	2	2
Level 4 - BLDG 3	82.69	2	2
Level 4 - BLDG 4	103.49	2	2
Level 5 - BLDG 1	187.12	2	2
Level 5 - BLDG 2	69.13	2	2
Level 5 - BLDG 3	82.69	2	2
Level 5 - BLDG 4	103.49	2	2
Level 6 - BLDG 1	187.12	2	2
Level 6 - BLDG 2	69.13	2	2
Level 6 - BLDG 3	82.69	2	2
Level 6 - BLDG 4	103.49	2	2

Flood Protocol

Residential uses occur at the first floor (25.00') well above the flood plain; however the parking garage (13.50' - 15'-8") and retail areas (16.13', 17.50', 18.10') occur below the flood plain. Ownership and the project team have elected to keep water out of these areas during a flood event as allowed by Exception 2 of 63.01.3.

The 100 year flood plain at the site is at elevations 14.46' and 15.46'. This sets code design levels at 15.46' and 16.46'. In anticipation of the raising of these levels by FEMA, the Owner has directed the flood protection measures to be designed at elevations 18.46' and 19.46', one foot above the projected new levels.

At garage door openings, retail storefront and curtain wall, and pedestrian openings below design level there will be a system of removable flood protection barriers that will provide waterproofing. These systems will consist of removable posts and removable 6" flood planks. Flood planks and all appurtenances will be stored within the garage or the retail areas.

Management will monitor the weather and tides and deploy the system in advance of a weather event. Once the system has been deployed vehicles will not be able to enter the garage until flood waters have receded and the barriers have been removed. Retail spaces will be shut down any time flood barriers are in place. At a few locations emergency egress will be altered to coincide with the natural disaster.

In addition to these waterproofing and removable flood control measures the garage slab will be installed with a hydrostatic relief system to relieve water pressure from underneath the slab. This system will be tied to the emergency generator in the event of power loss.

Building 1:

Stair 1 at Building 1 will egress above flood waters. (21.17)
Stair 2 at Building 1 will egress above flood waters to the landscape courtyard. (25.00')

Building 2:

Stair 1 at Building 2 will egress above flood waters. (25.00')
Stair 2 at Building 2 will egress above flood waters. (21.58')

Building 3:

Stair 1 at Building 3 will egress through the lobby above flood waters. (25.00')
Stair 2 at Building 3 will egress below flood waters. (16.50') However at this location only, as allowed by G301.3, water will be allowed to enter this stairway through a louvered door. An additional door will be located above flood waters (20.75') to allow egresses to discharge above flood waters.

Building 4:

Stair 1 at Building 4 will egress above flood waters. (21.17)
Stair 2 at Building 4 will egress above flood waters. (21.17)

Garage:

Stair 1 at Building 1 - Garage level will egress above flood waters. (21.17)

Pedestrian Door at Building 1 Garage -

This egress is below the design flood level. Flood control measures will be deployed outside the building to allow egresses to gain access to the landscape courtyard (25.00') via an accessible ramp.

Stair 2 at Building 2 - Garage level will egress above flood waters. (21.58')

Pedestrian Door at Building 3 Garage -

This egress is behind flood barriers and will be taken off line during a flood emergency. (Exit signage blanked off, additional signage provided for inhabitants)
Occupant loads, travel distances, and common path of egress travel have been calculated for the garage in the event that this egress is taken off line.

Stair 1 at Building 4 will egress above flood waters. (21.17)

Stair 2 at Building 4 - Garage level will egress above flood waters. (21.17)

Table 503 - ALLOWABLE BUILDING HEIGHTS AND AREAS

Code Reference	Construction Type 3A & Use Group R-2	Area
Table 503	4 Stories (65 feet)	24,000 sf
Section 504.2 Sprinkler Height Increase ^a	+ 1 Story (20 feet)	N/A
Section 506.3 Sprinkler Area Increase ^b	N/A	+ 48,000 sf
Total Allowable Area		72,000 sf
Total Allowable Height	5 Stories (85 feet)	N/A
BLDG 1 - Proposed Height & Maximum Allowable Area	5 Stories (67.34')	Approx. 37,423 sf
BLDG 2 - Proposed Height & Maximum Allowable Area	5 Stories (65.98')	Approx. 13,826 sf
BLDG 3 - Proposed Height & Maximum Allowable Area	5 Stories (69.73')	Approx. 16,538 sf
BLDG 4 - Proposed Height & Maximum Allowable Area	5 Stories (69.46')	Approx. 20,698 sf

^a Per IBC 2009 - 504.2 "Automatic Sprinkler System Increase - Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the value specified in Table 503 for maximum building height is increased by 20 feet and the maximum number of stories is increased by one....."

^b Per IBC 2009 - 506.3 "Automatic sprinkler system increase - Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the building area limitation in Table 503 is permitted to be increased by an additional 200 percent for buildings with more than one story above grade plane....."

The following table summarizes the building height and area limitations for the closed parking garage

Code Reference	Construction Type 1A & Use Groups R-2, S-2, M, & A-2	Area
Table 503	Unlimited	Unlimited
Residential (R-2)	3 Stories (69.73')	Approx 37,423 SQFT
Garage (S-2)	1 Stories (11.50')	Approx 126,720 SQFT
Mercantile (M)	1 Stories (20.37')	Approx 3,050 SQFT
Restaurant (A-2)	1 Stories (18.00')	Approx 4,130 SQFT



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Consultant:

Revision:

- DEC. 01, 2015
- MAY 4, 2016
- JUNE 30, 2016 ADDENDUM 2
- NOV 11, 2016 ADDENDUM 5

Architect of Record:

Drawn: SR

Checked: AS

Scale: 12" = 1'-0"

Key Plan:

Project Name:

CLIPPERSHIP WHARF

25-65 Lewis Street
East Boston, MA 02128

Sheet Name:

CODE SUMMARY

Project Number:



13166

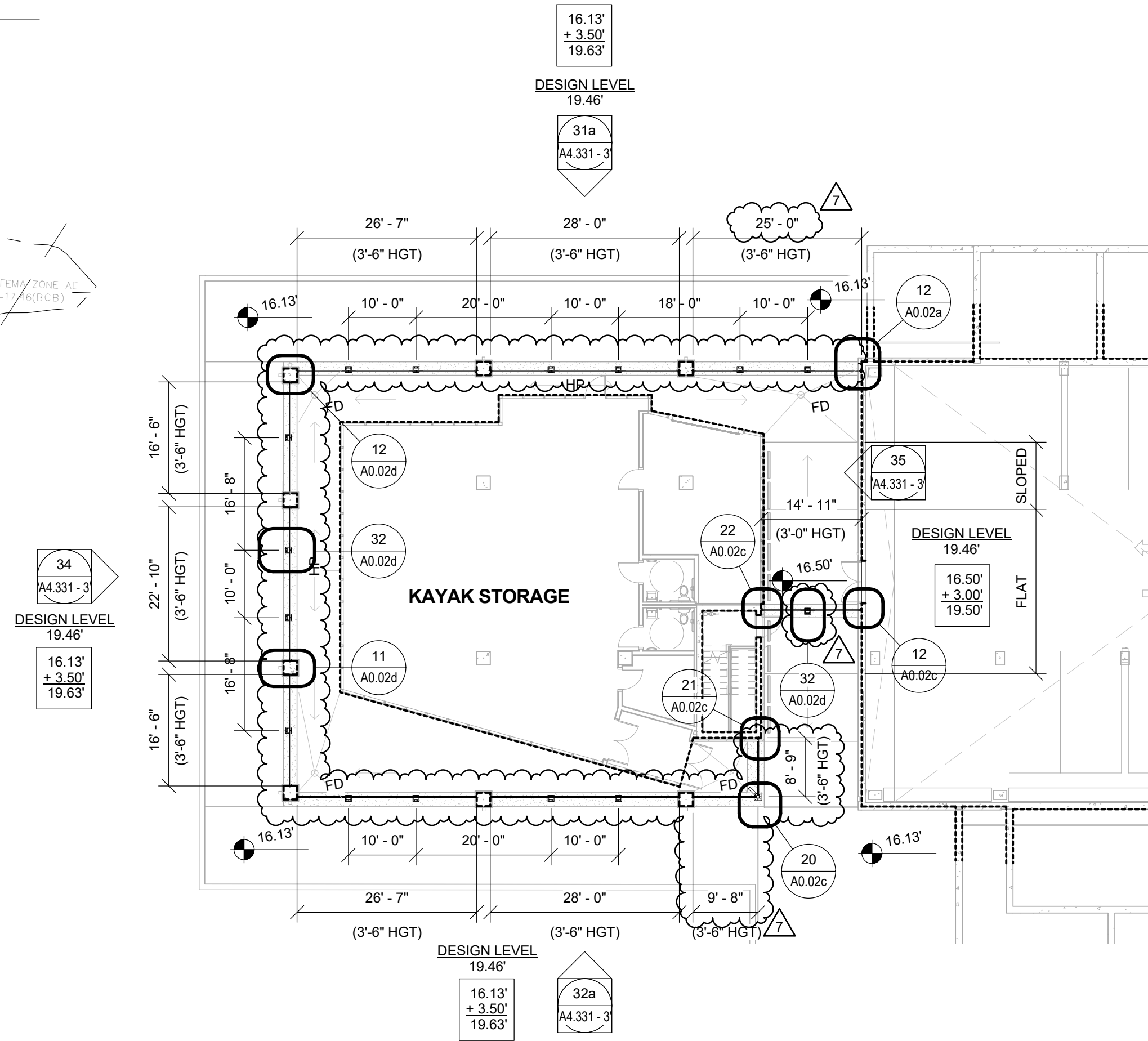
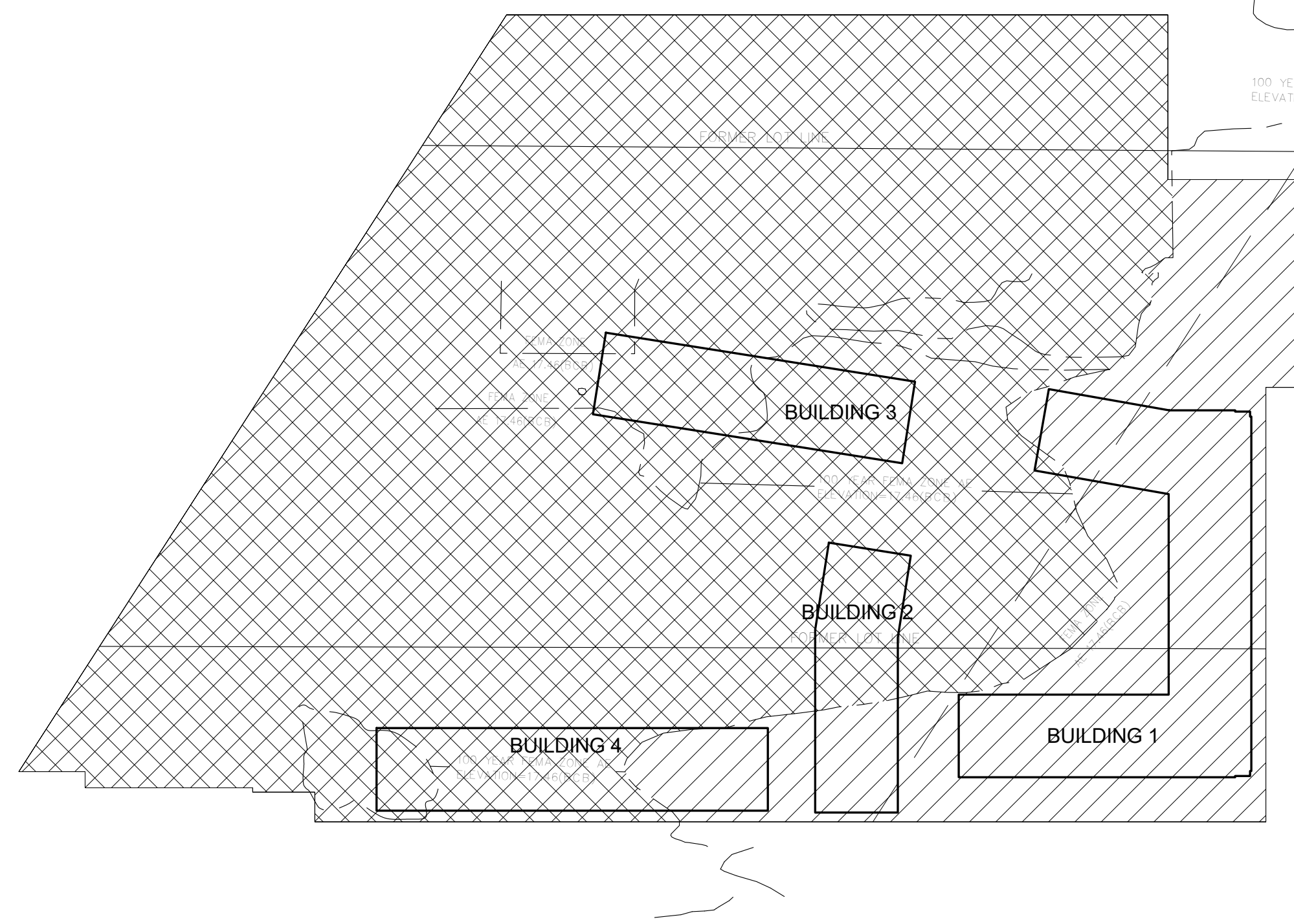
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OCTOBER 15, 2015

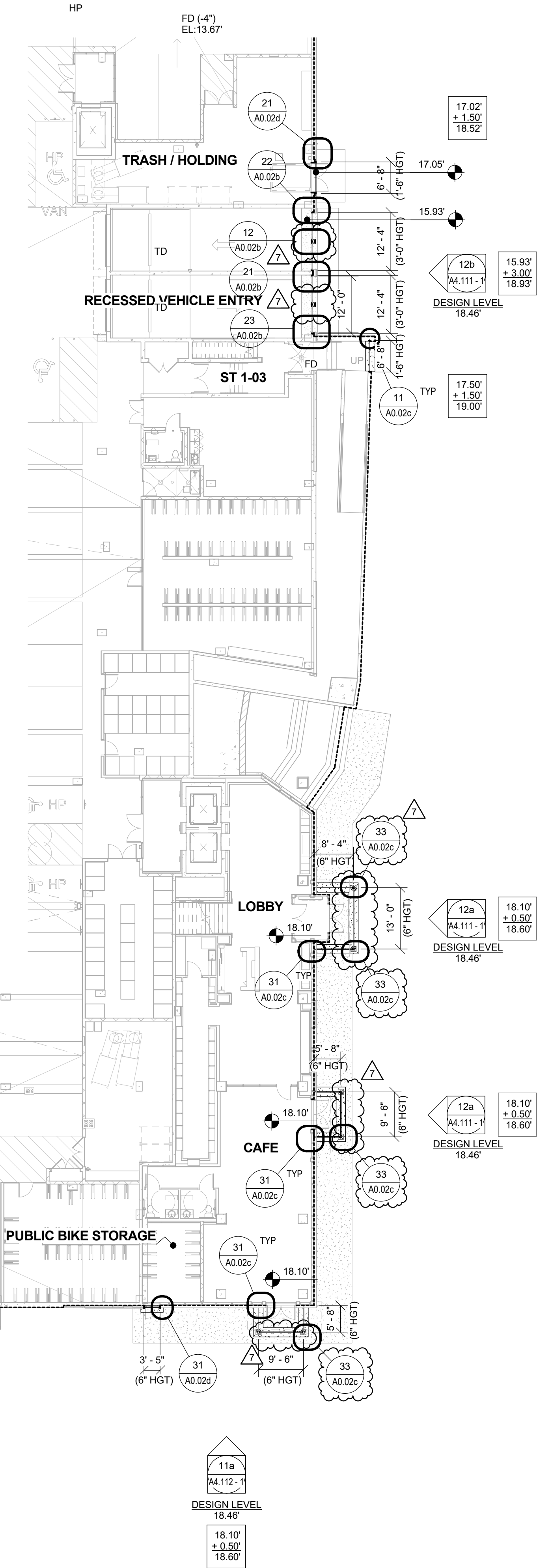
Sheet Number

100 YEAR FLOOD PLAIN AND DESIGN ELEVATIONS:

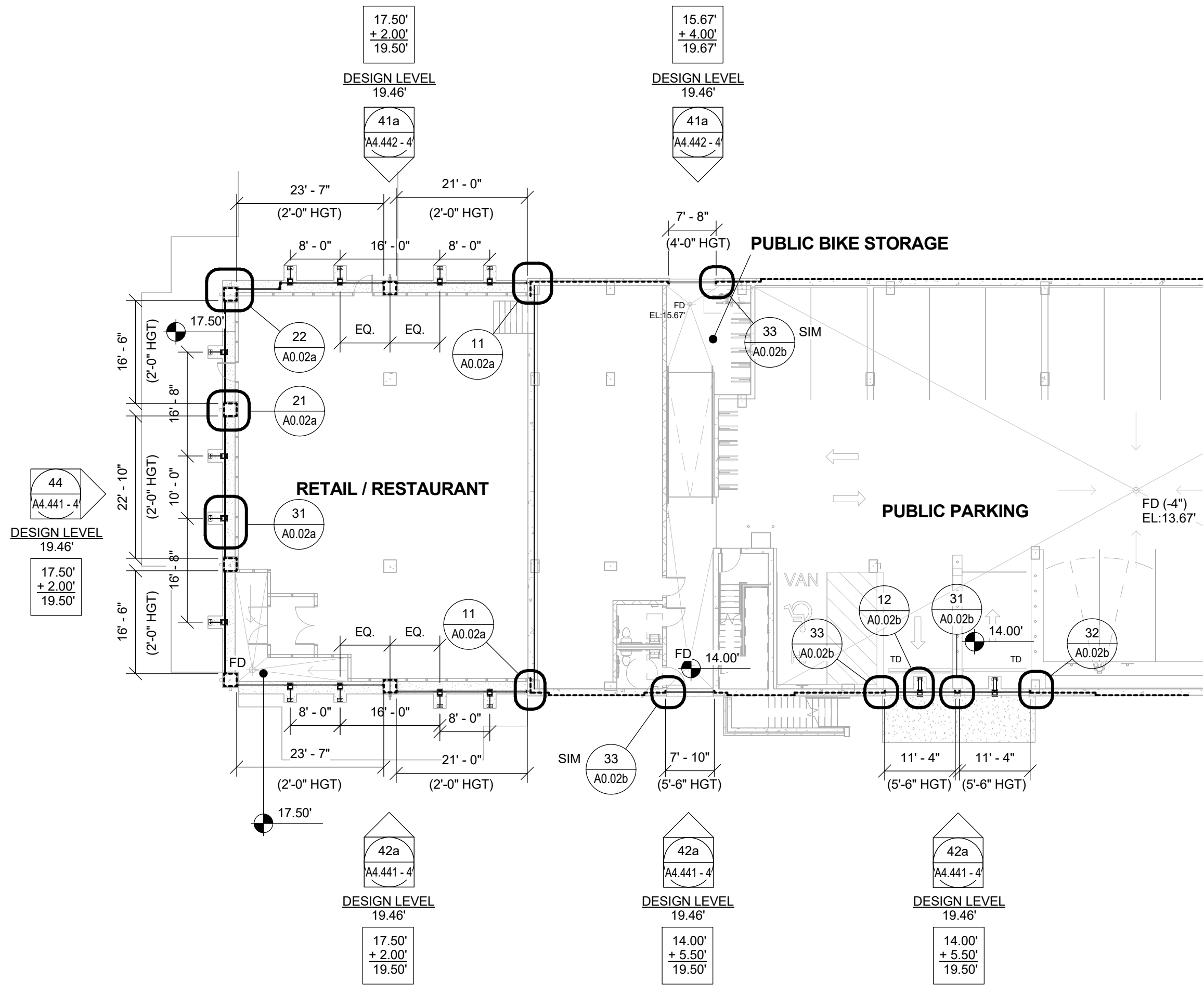
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	JULY 2015 FEMA LEVEL - 12(NAVD88): 18.46'
	DESIGN LEVEL: 19.46'
	CURRENT FEMA LEVEL: 14.46'
	JULY 2015 FEMA LEVEL - 11(NAVD88): 17.46'
	DESIGN LEVEL: 18.46'



40 OVERALL FLOOR PLAN - 00 - FLOOD PLANK - BLDG 3
Scale: 1/16" = 1'-0"



10 OVERALL FLOOR PLAN - 00 - FLOOD PLANK - BLDG 1
Scale: 1/16" = 1'-0"



30 OVERALL FLOOR PLAN - 00 - FLOOD PLANK - BLDG 4
Scale: 1/16" = 1'-0"

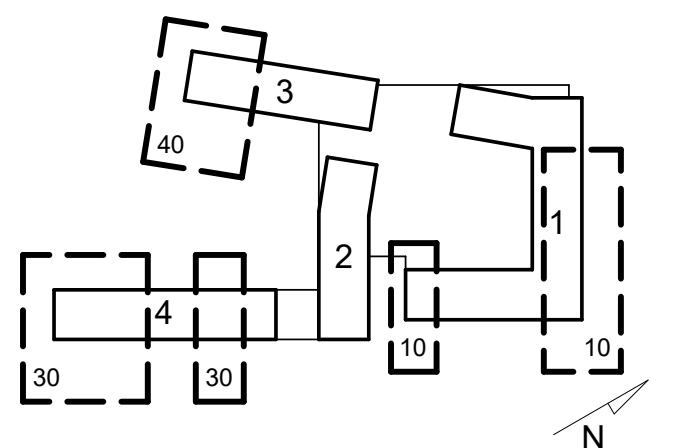


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- Consultant:
- Revision:
- OCT. 15, 2015
 - DEC. 01, 2015
 - MAY 4, 2016
 - JUNE 30, 2016 ADDENDUM 2
 - NOV 11, 2016 ADDENDUM 5
 - DEC 21, 2016 BULLETIN 009
 - DEC 01, 2017 BULLETIN 061

Architect of Record:

Drawn: SJR
Checked: SJR
Scale: As indicated
Key Plan:



Project Name:
CLIPPERSHIP WHARF
25-65 Lewis Street
East Boston, MA 02128

Sheet Name:
FLOOD PLANK INFO - FLOOR PLAN

Project Number:
13166

Issue Date:
JUNE 12, 2015

Sheet Number:
A0.02

Consultant:

Revision table with 5 entries: 1 MAY 4, 2016; 2 JUNE 30, 2016 ADDENDUM 2; 3 NOV 11, 2016 COMPILED SET; 4 DEC 21, 2016 BULLETIN 009; 5 DEC 01, 2017 BULLETIN 061

Architect of Record:

Drawn: SFM; Checked: SJR; Scale: 1 1/2" = 1'-0"; Key Plan:

Project Name: CLIPPERSHIP WHARF; 25-65 Lewis Street East Boston, MA 02128

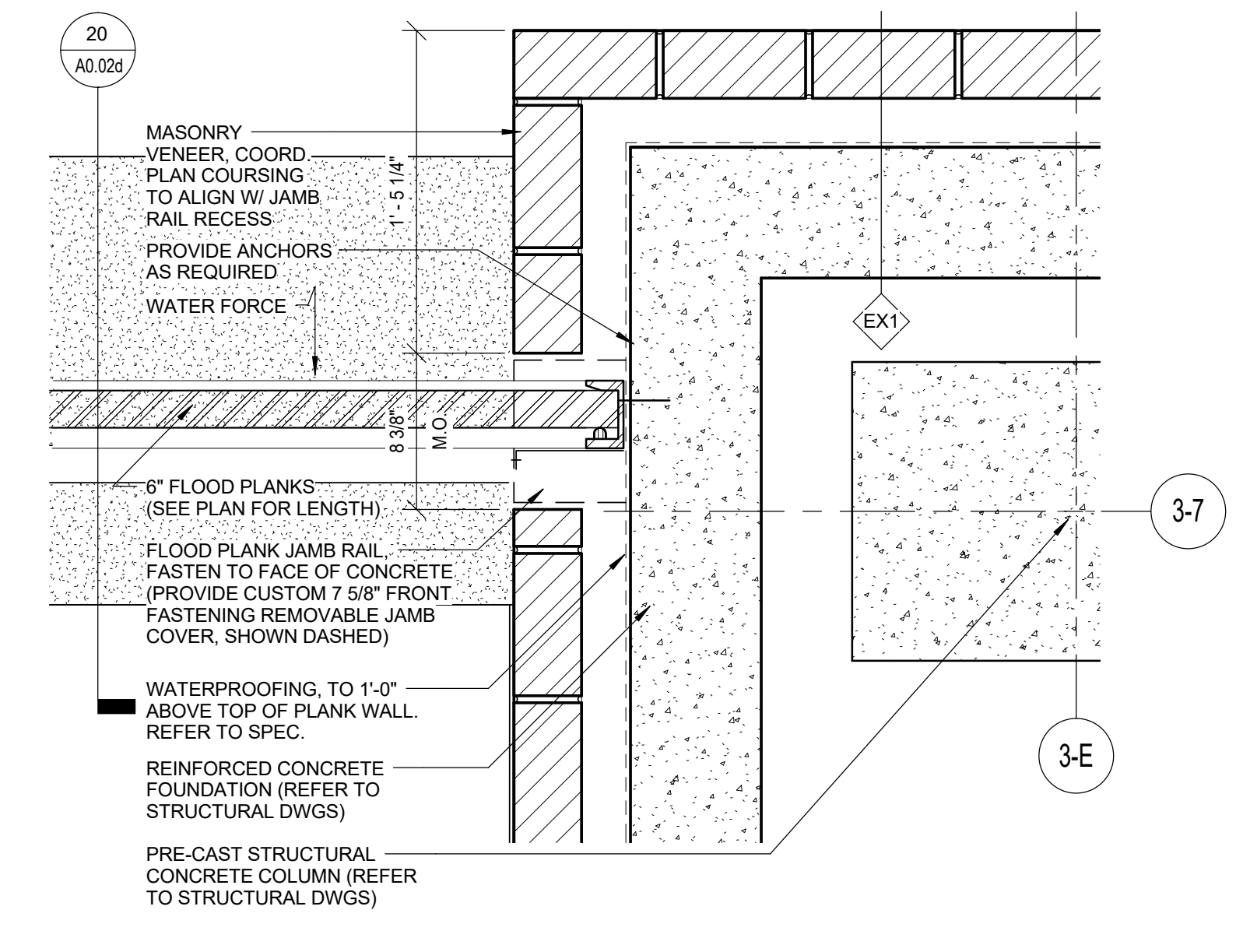
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Project Number: 13166

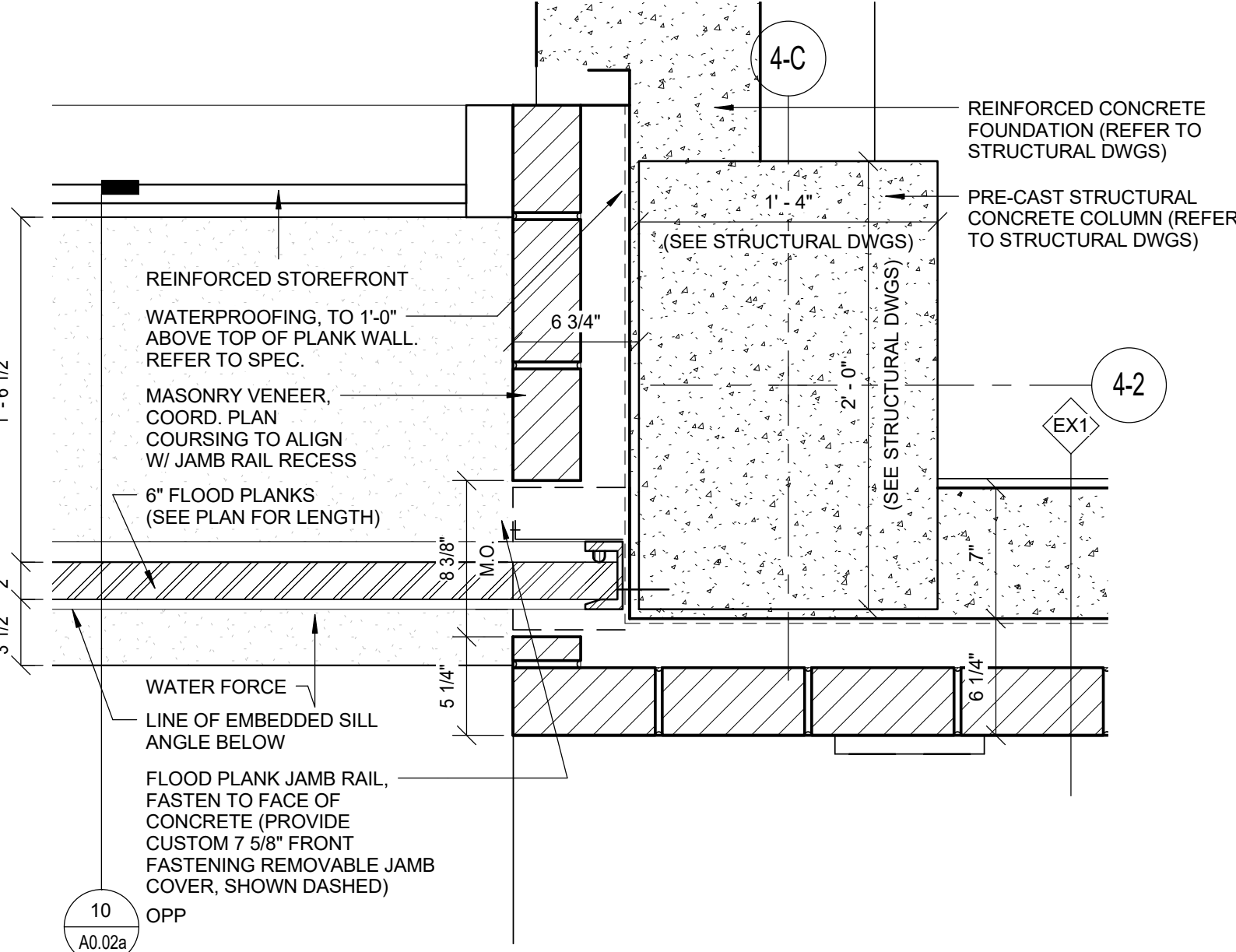
Issue Date: DECEMBER 01, 2015

Sheet Number:

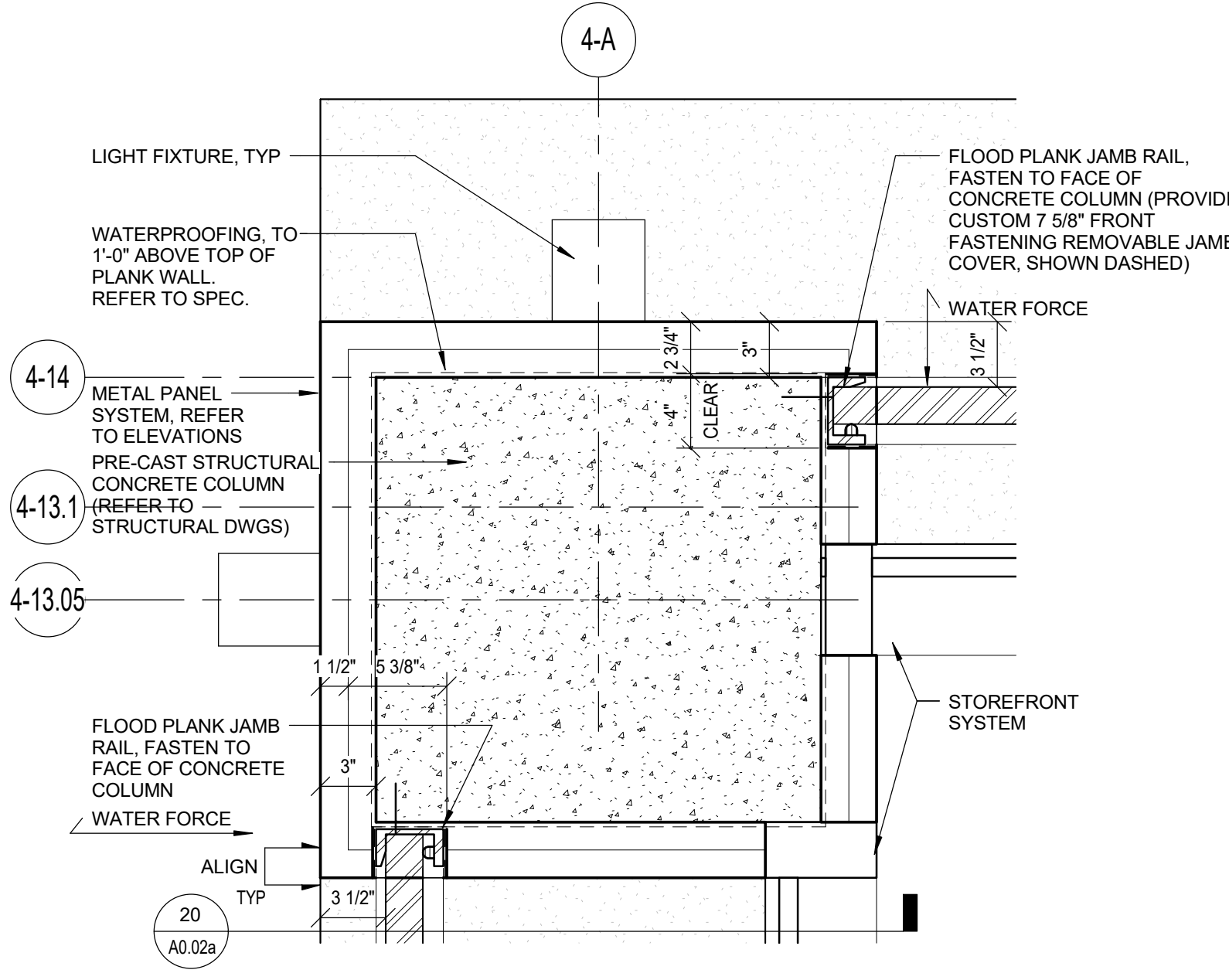
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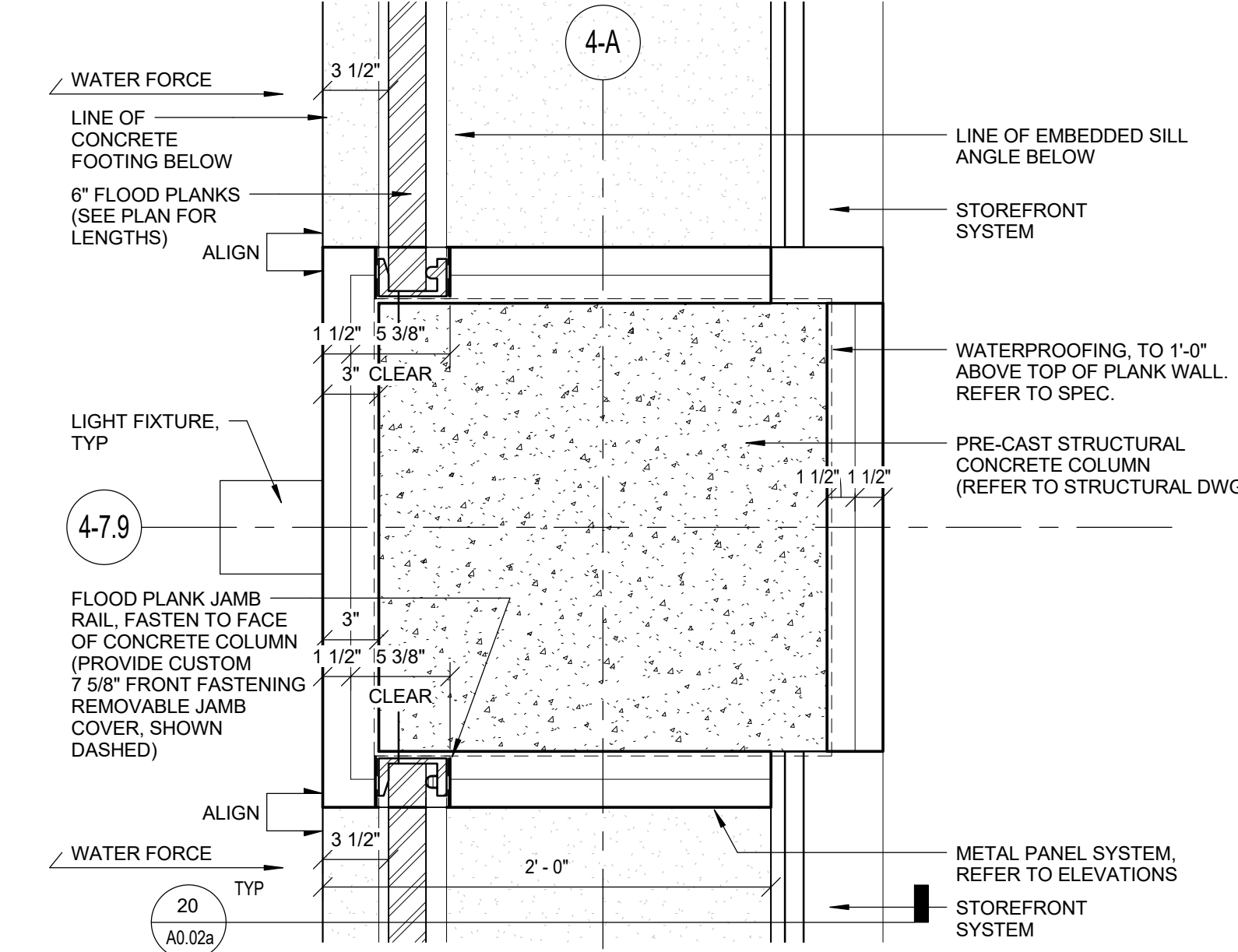
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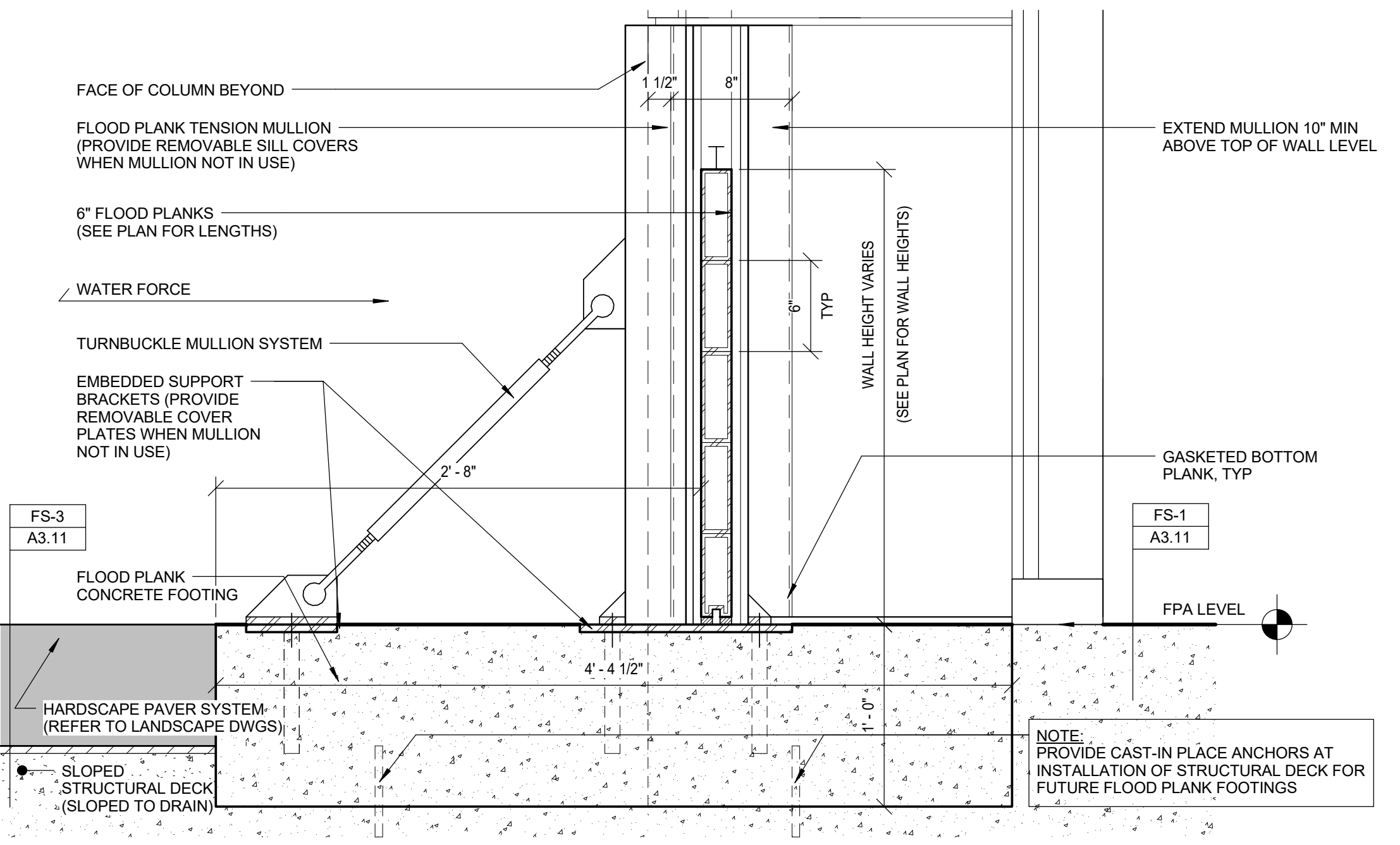
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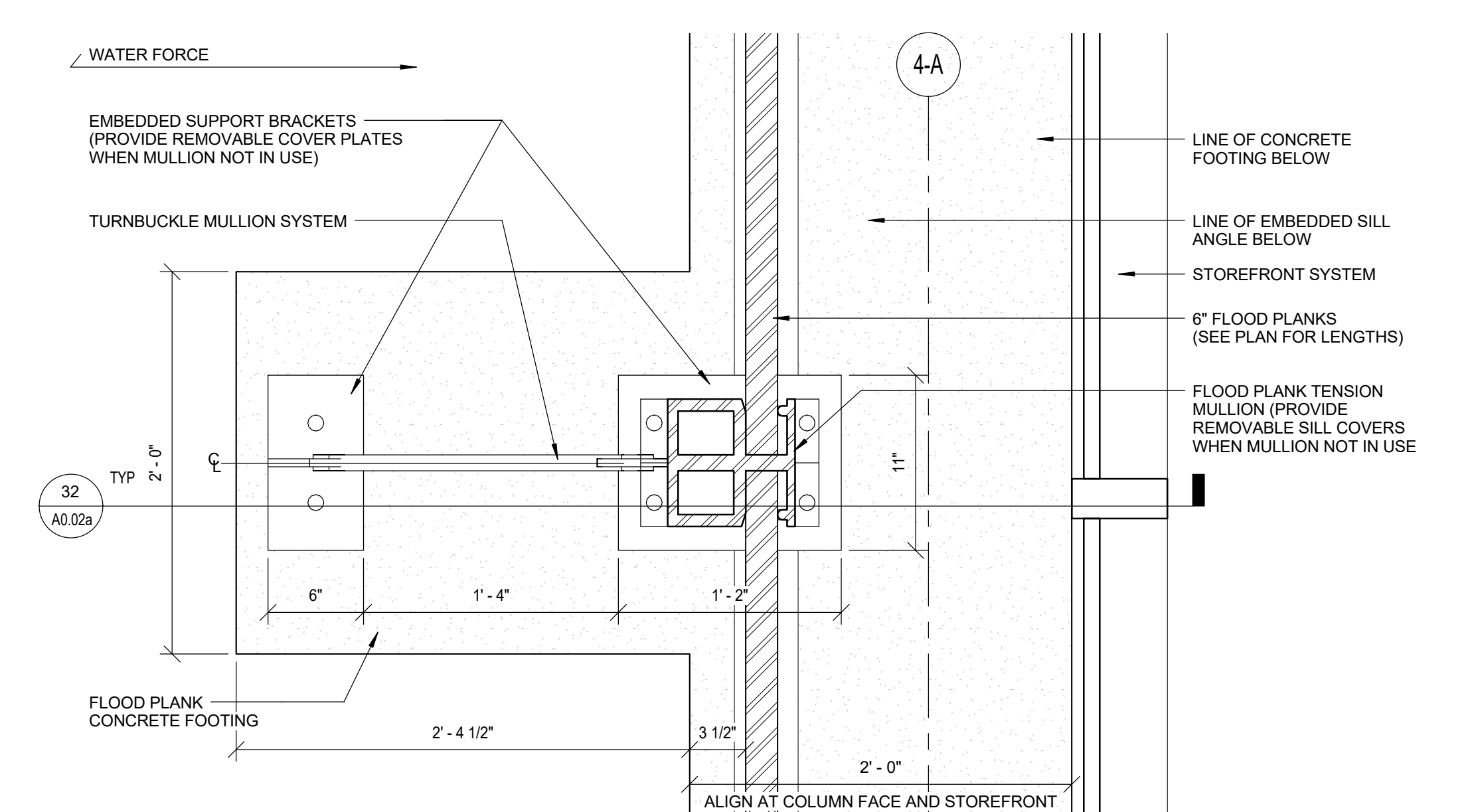
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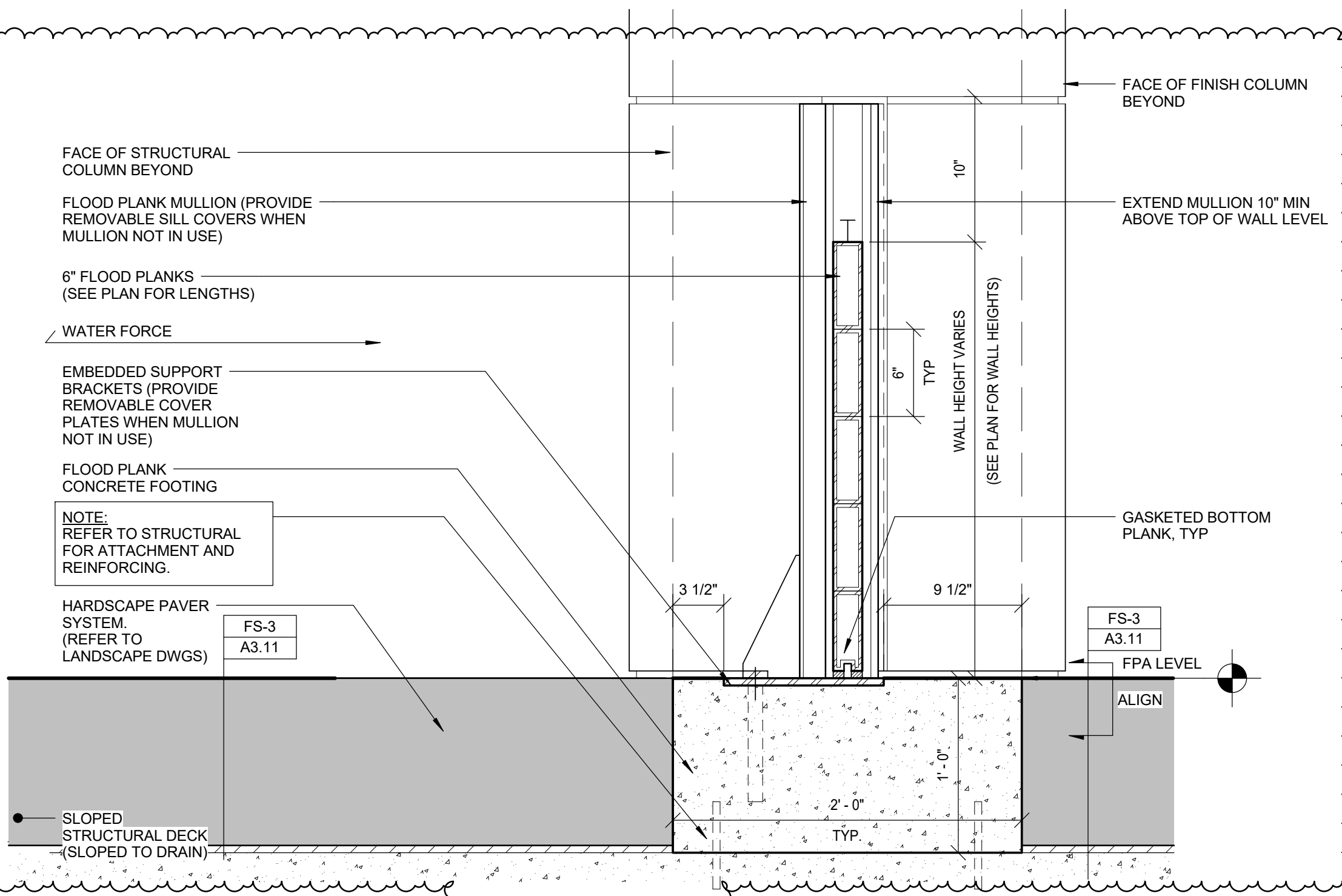
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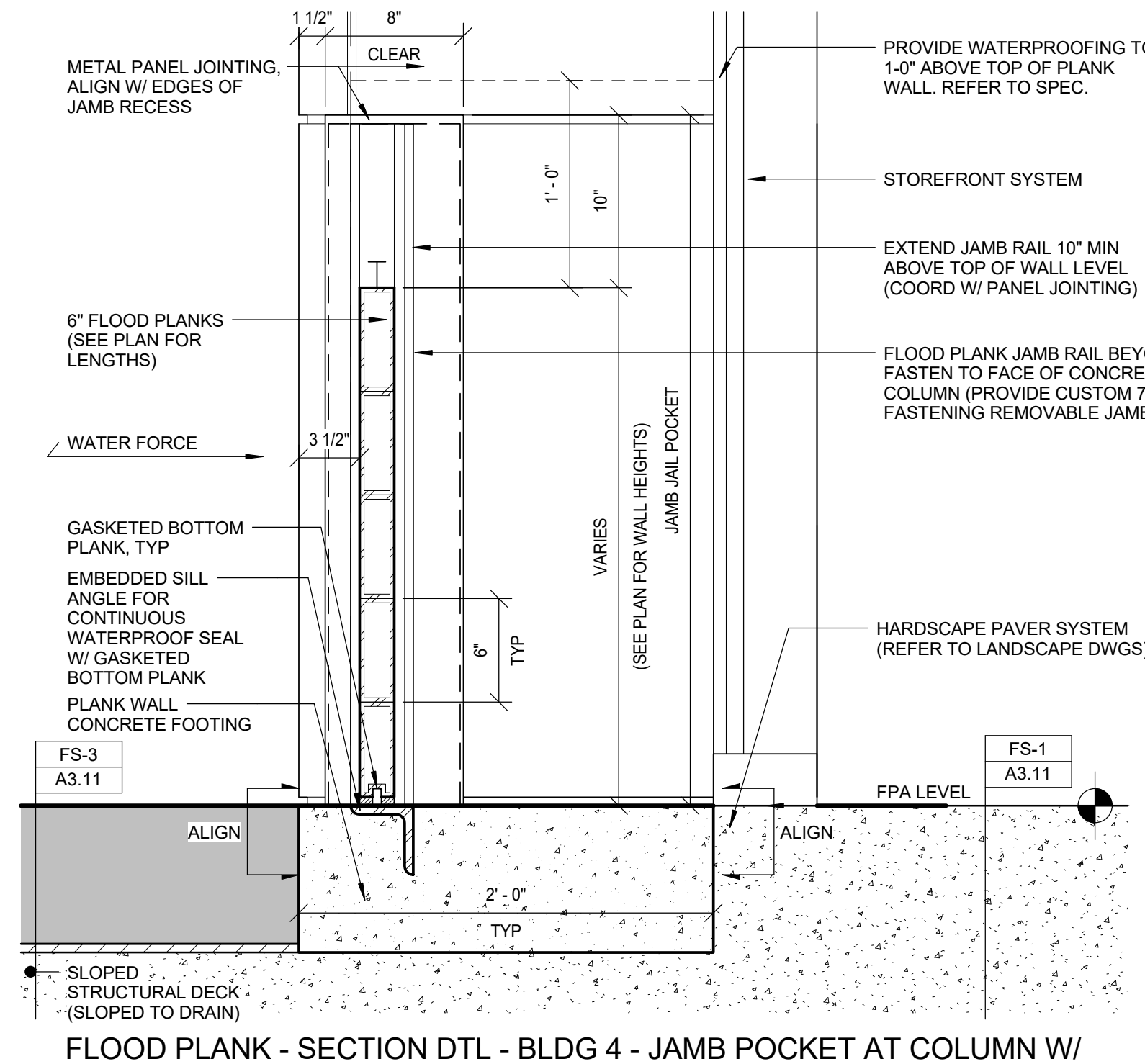
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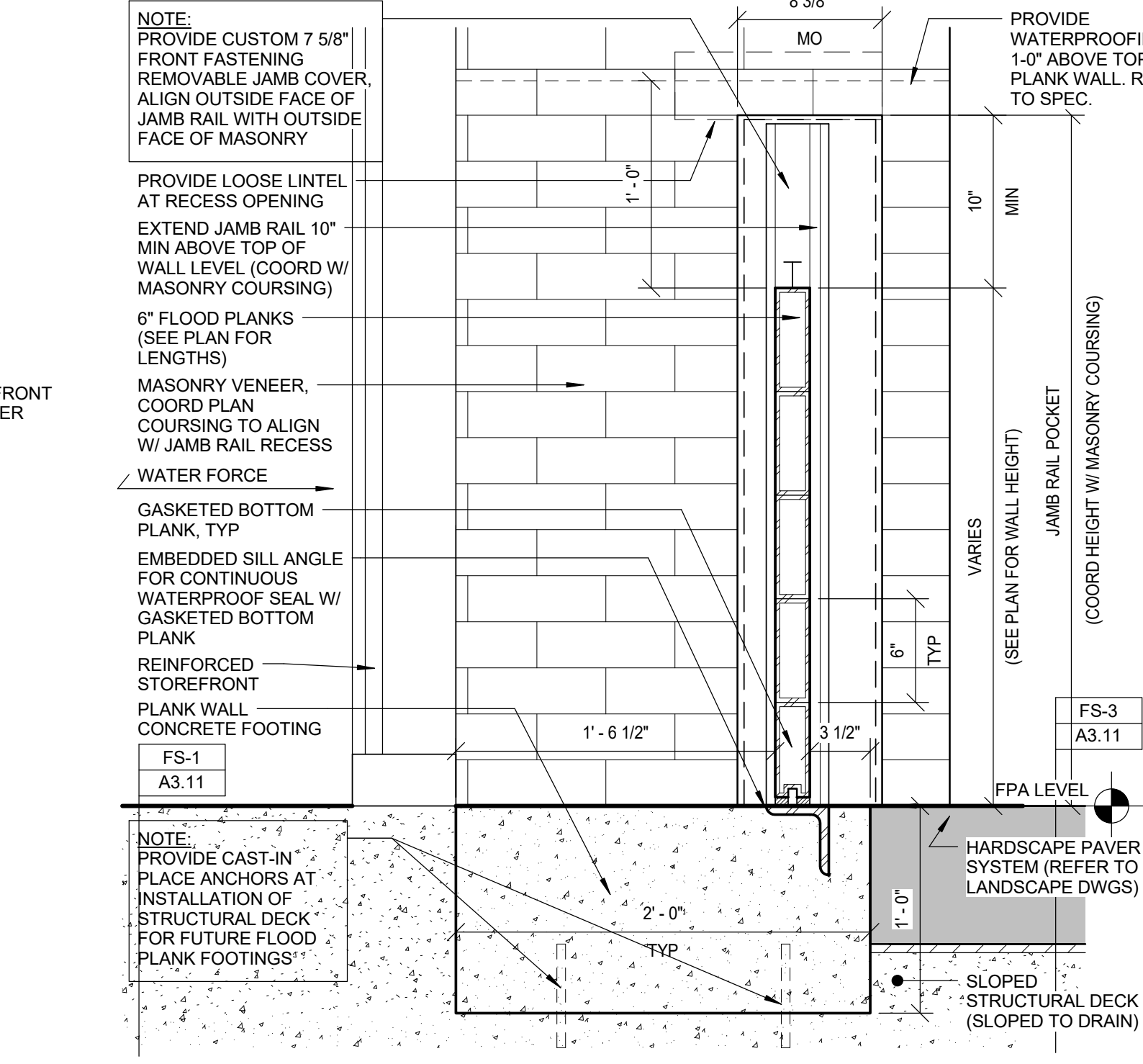
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30 FLOOD PLANK - SECTION DTL - MULLION AT BLDG 3 Scale: 1 1/2" = 1'-0"



20 FLOOD PLANK - SECTION DTL - BLDG 4 - JAMB POCKET AT COLUMN W/ MTL Scale: 1 1/2" = 1'-0"



10 FLOOD PLANK - SECTION DTL - BLDG 4 - JAMB POCKET AT BRICK Scale: 1 1/2" = 1'-0"

Consultant:

- Revision:
- 1 MAY 4, 2016
 - 2 JUNE 30, 2016 ADDENDUM 2
 - 3 DEC 21, 2016 BULLETIN 009
 - 4 FEB 24, 2017 BULLETIN 027
 - 5 DEC 01, 2017 BULLETIN 061

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Scale: 1 1/2" = 1'-0"
Key Plan:

Project Name:
CLIPPERSHIP WHARF

25-65 Lewis Street
East Boston, MA 02128

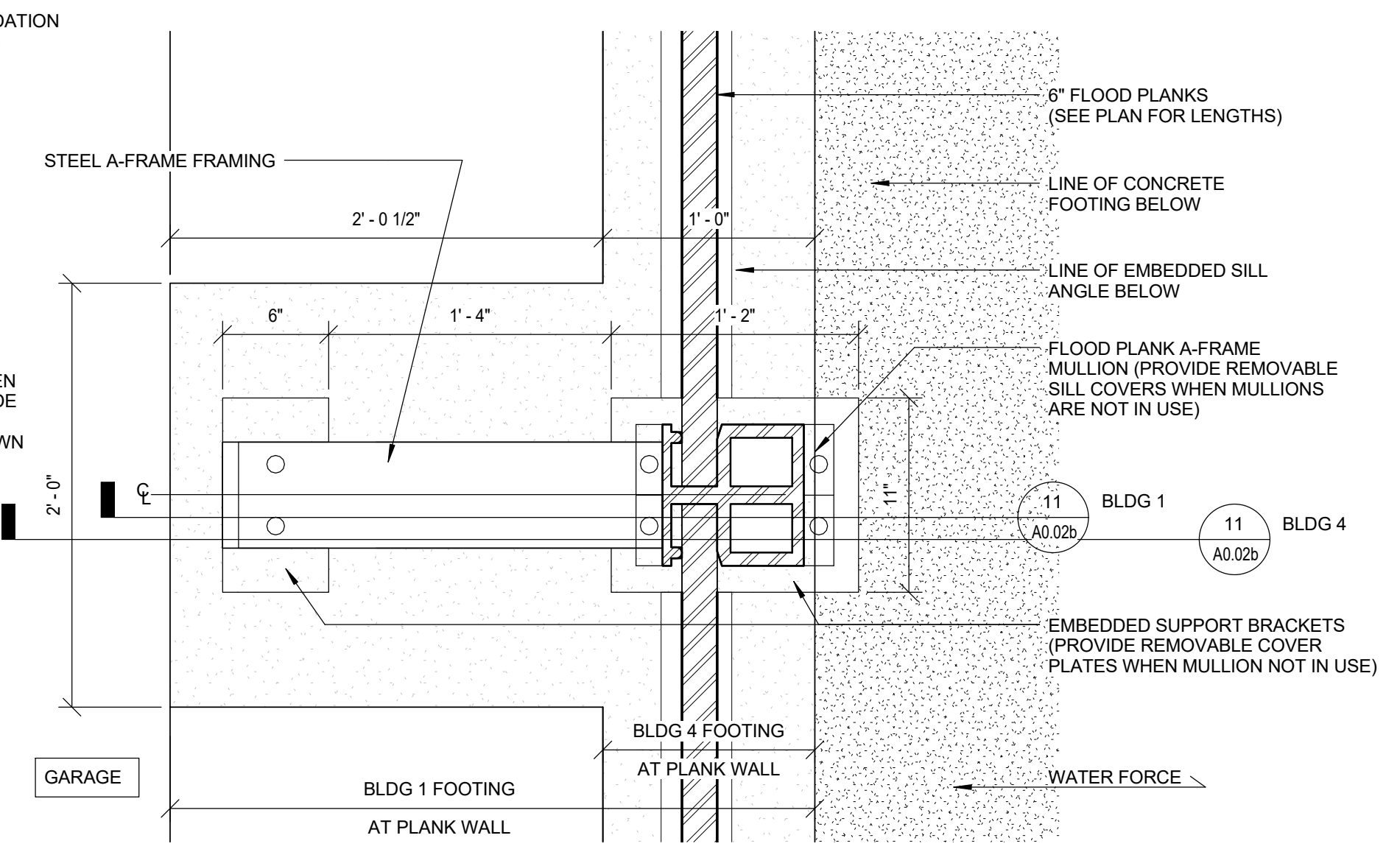
Sheet Name:
FLOOD PLANK - DETAILS

Project Number:
13166

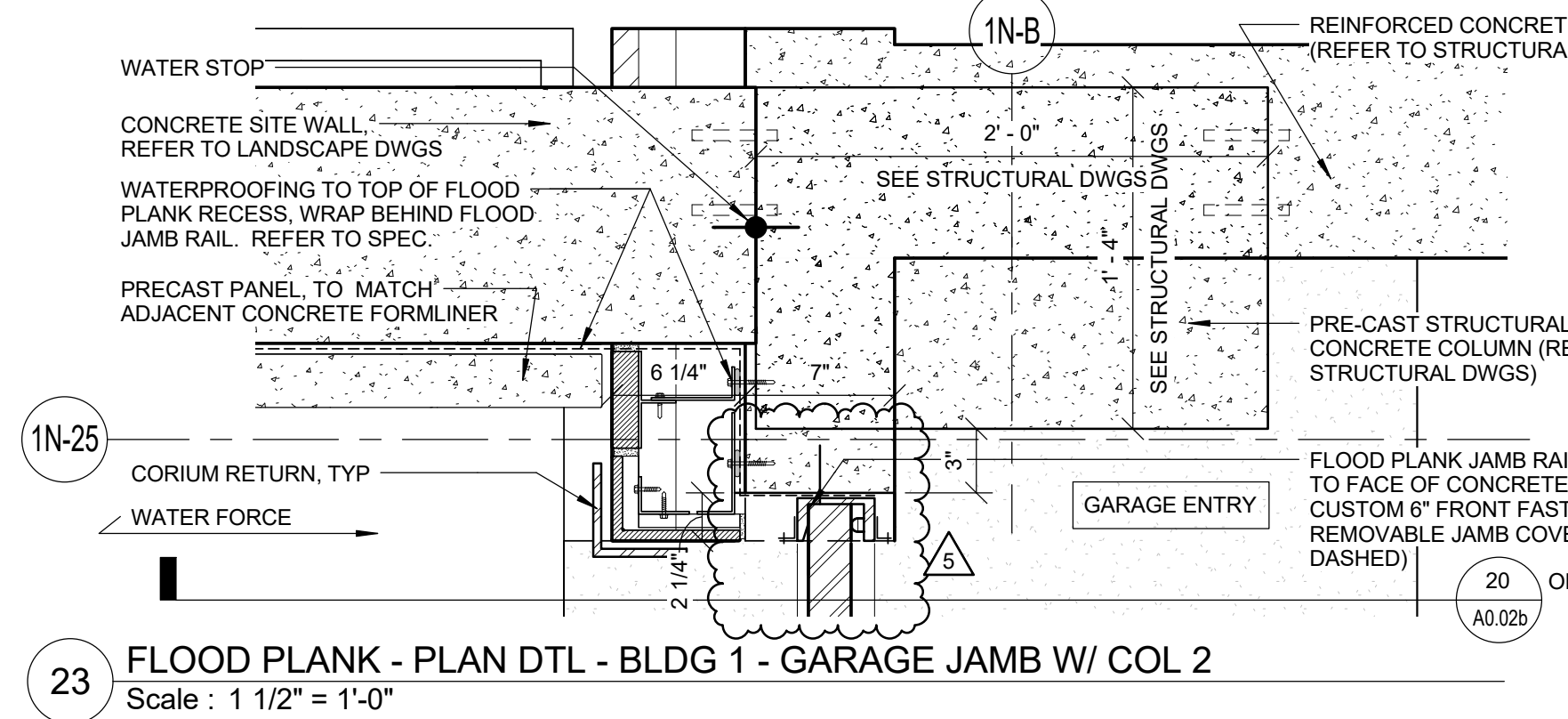
Issue Date:
DECEMBER 01, 2015

Sheet Number:

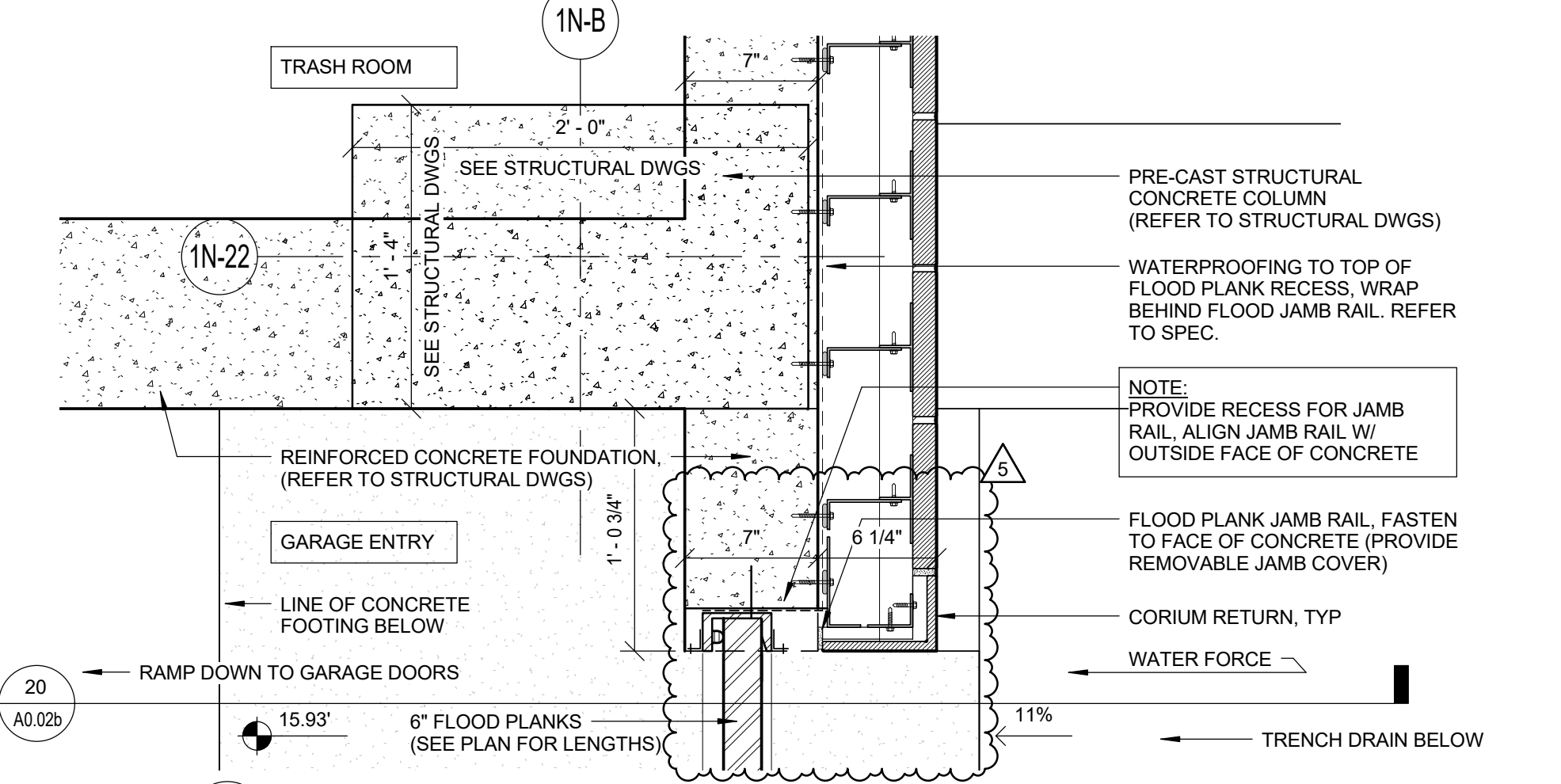
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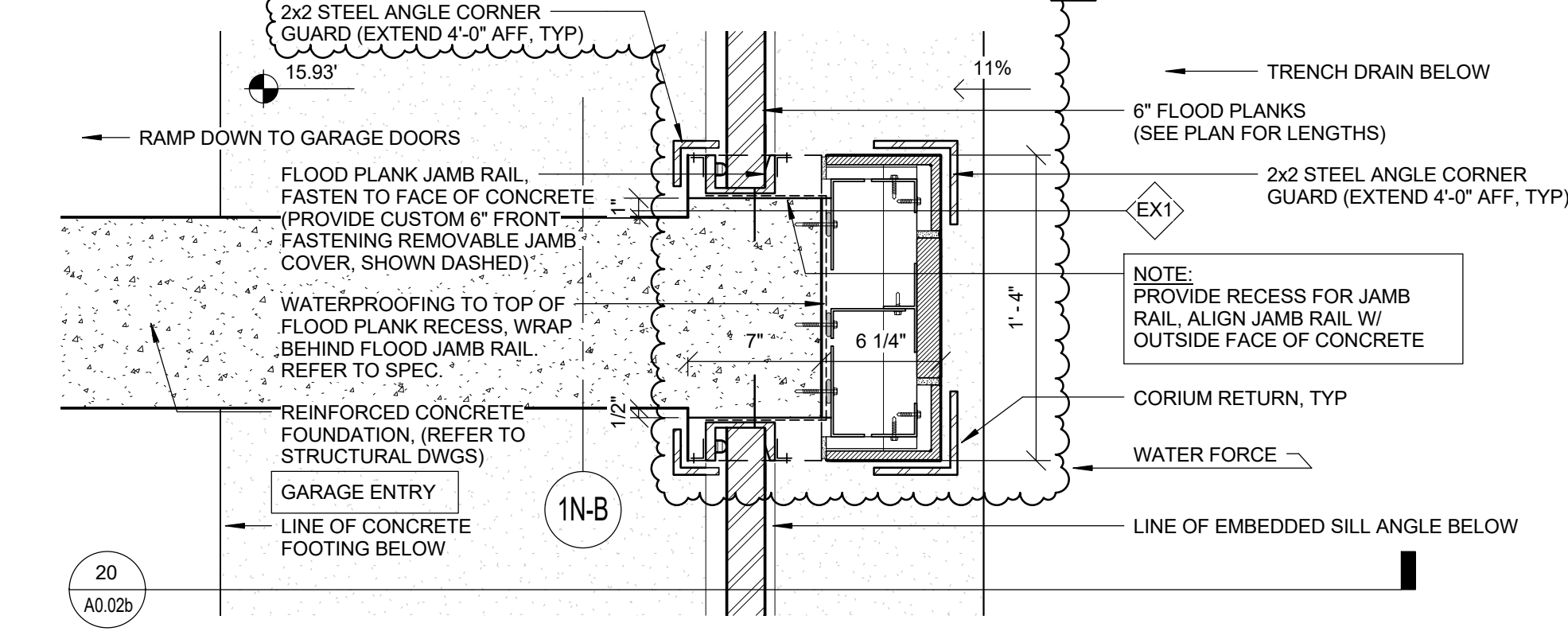
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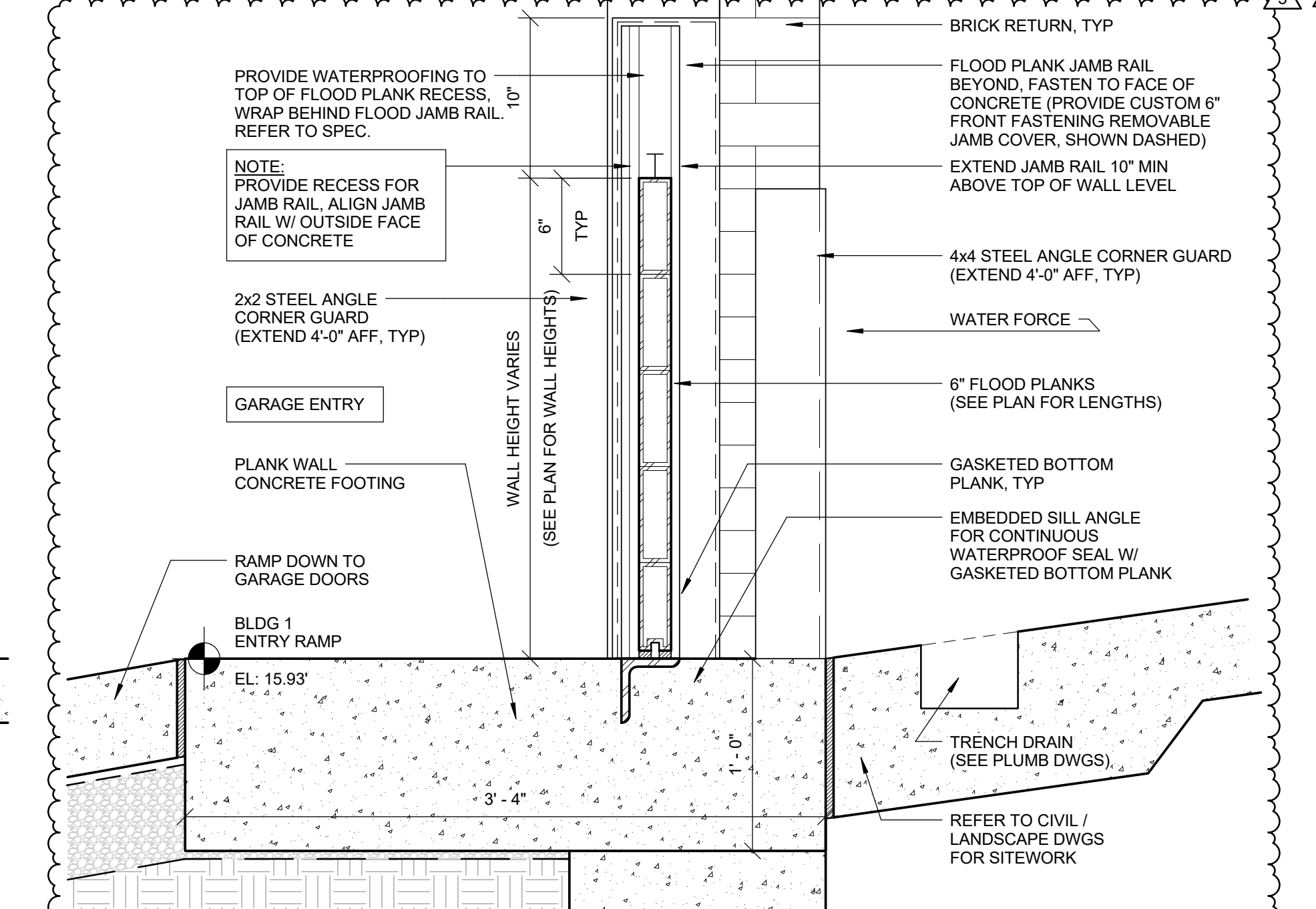
23 FLOOD PLANK - PLAN DTL - BLDG 1 - GARAGE JAMB W/ COL 2
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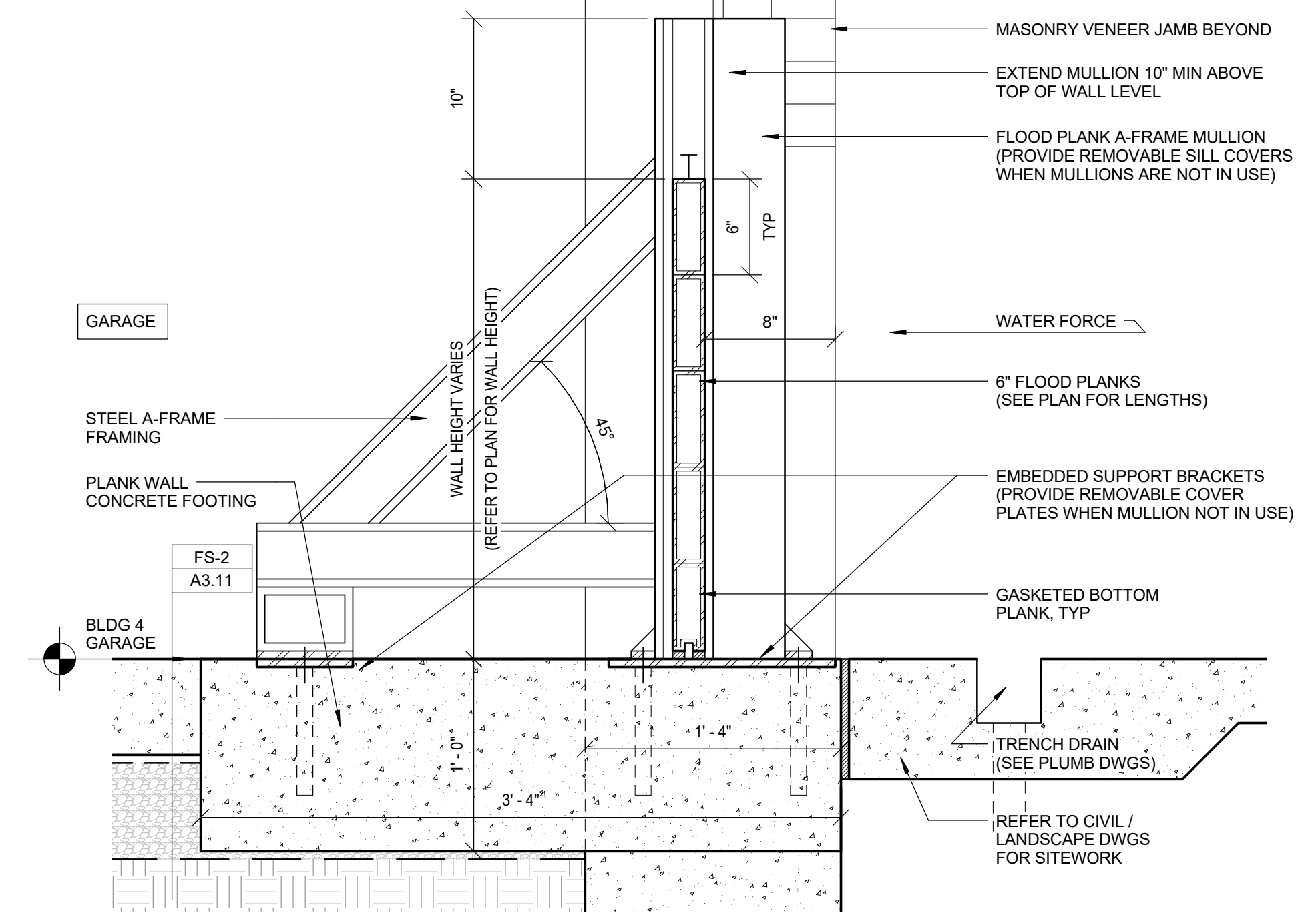
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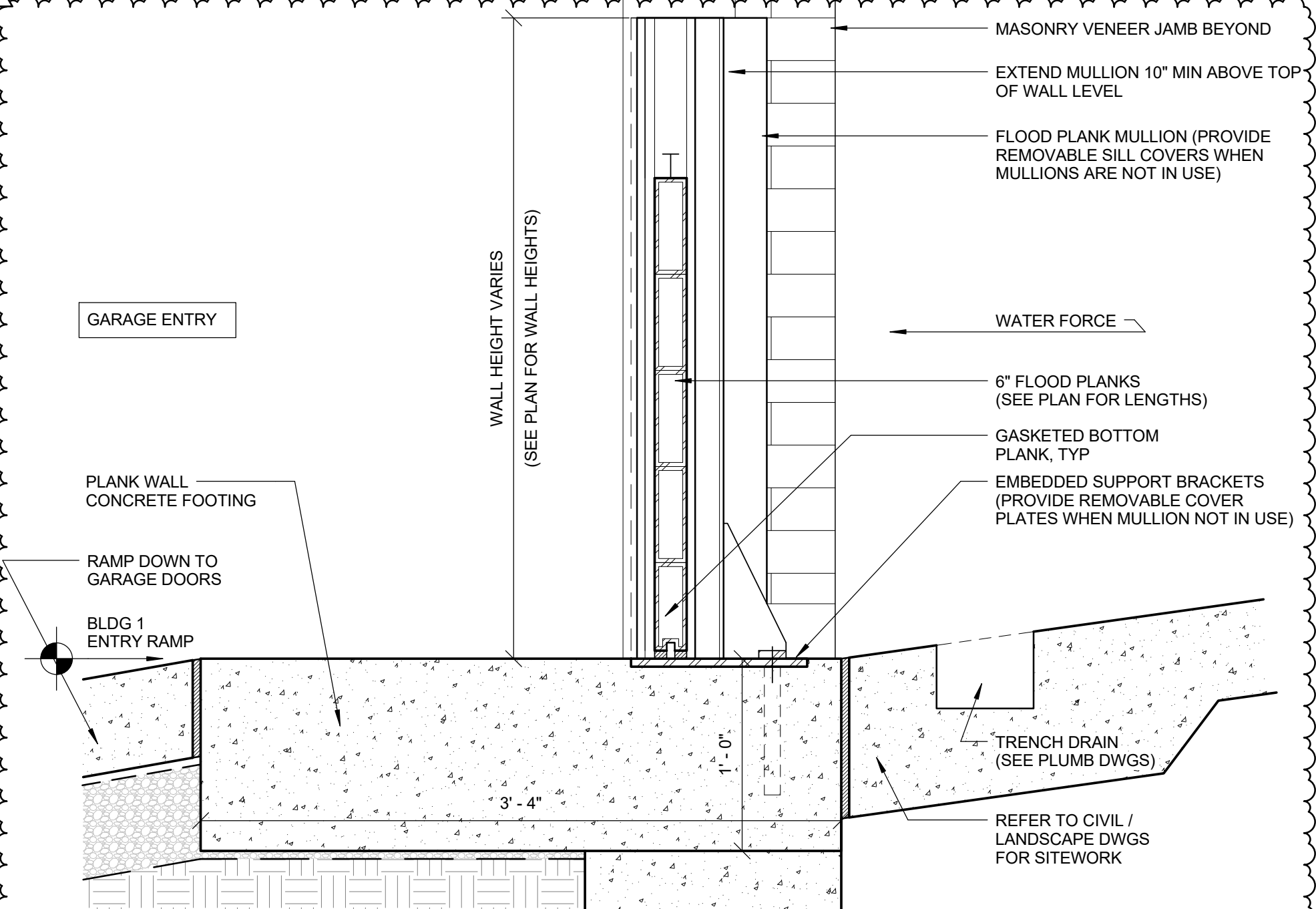
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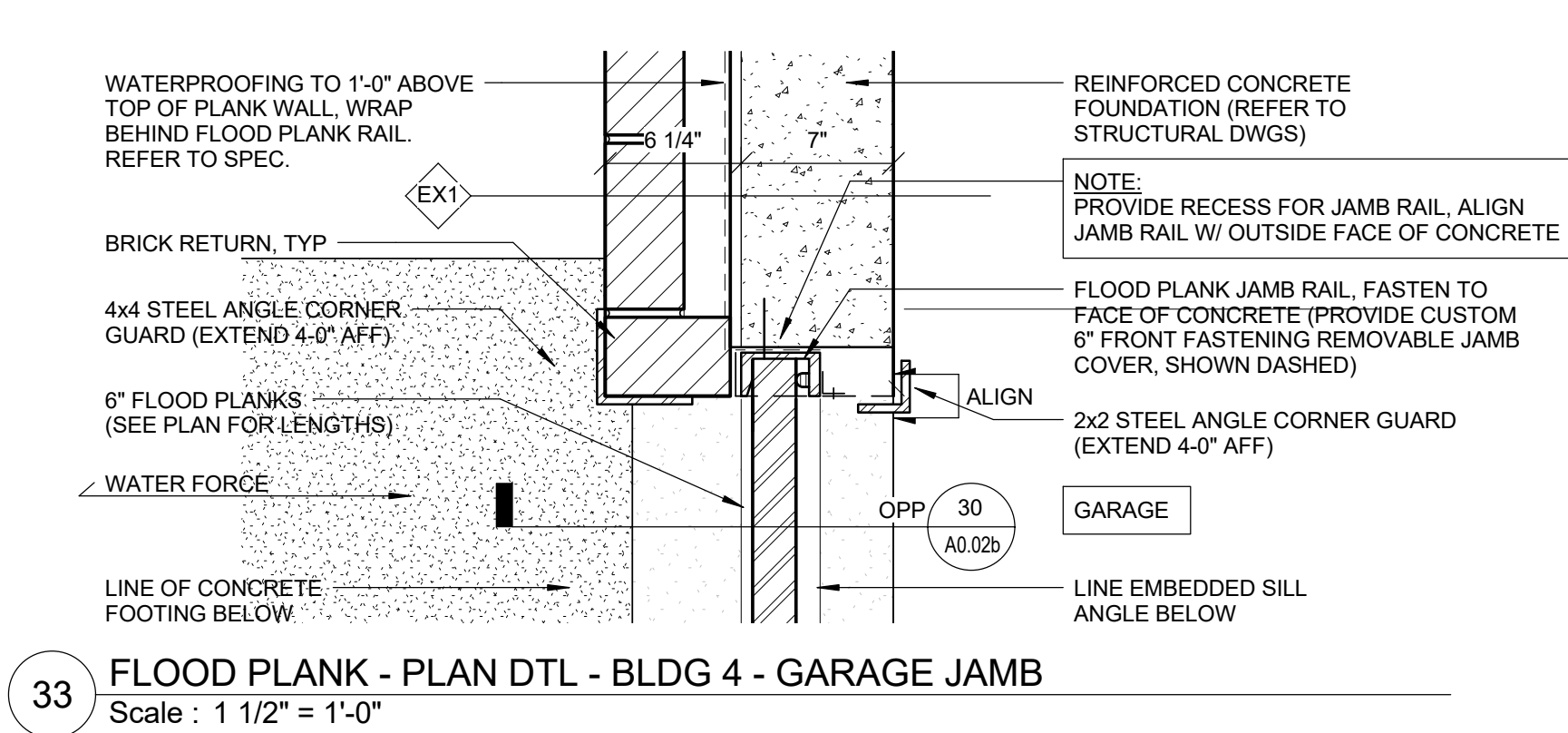
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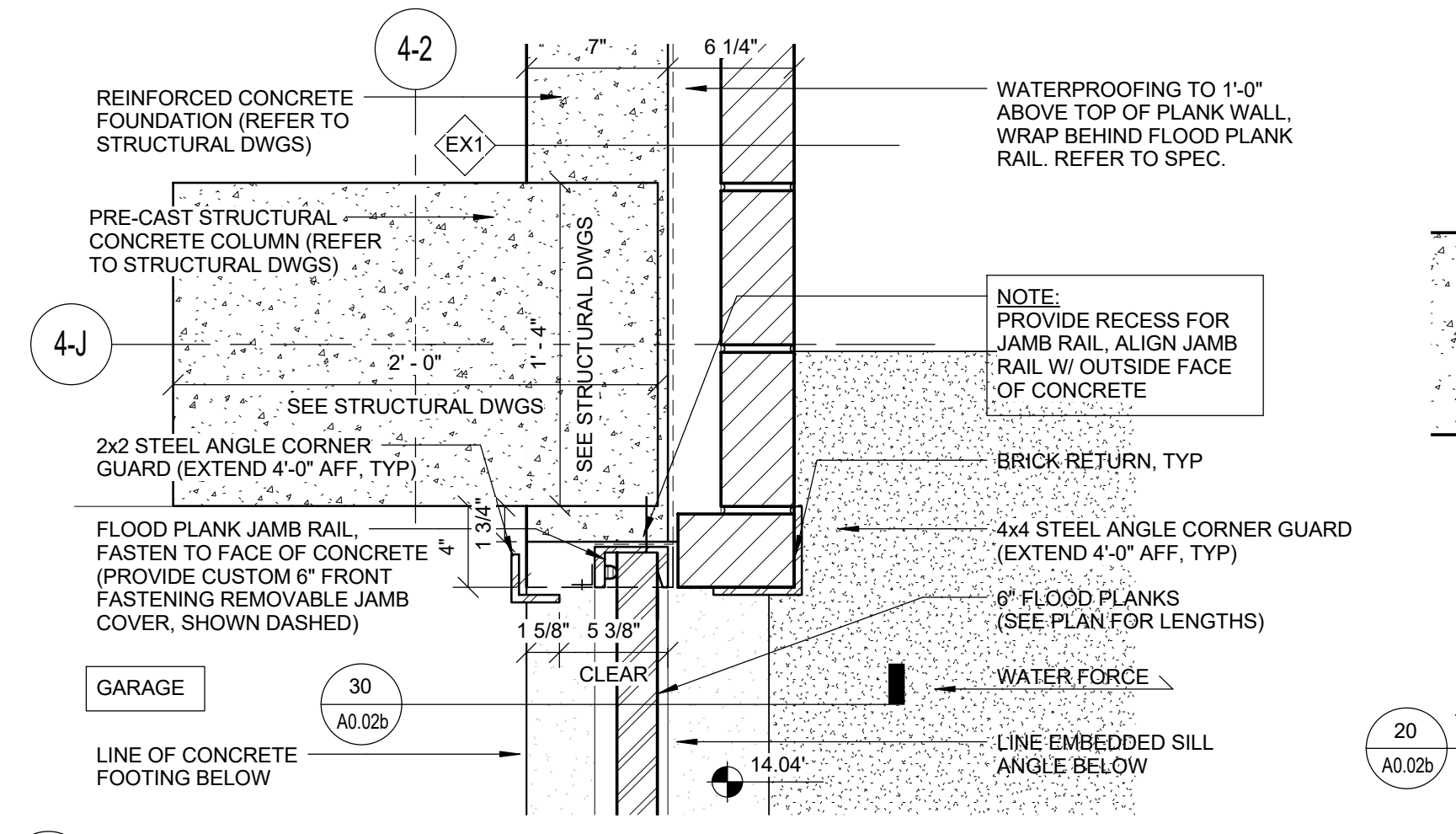
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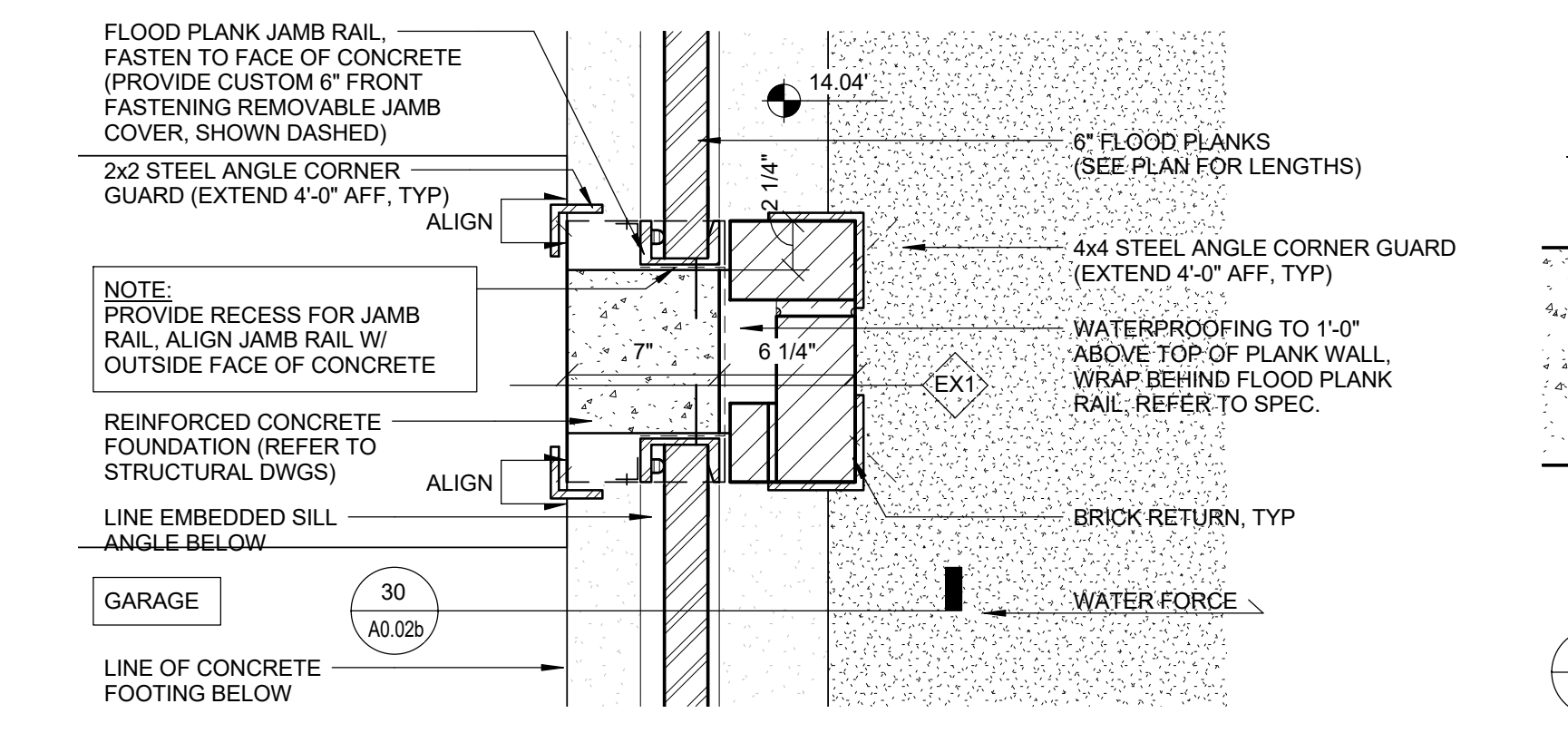
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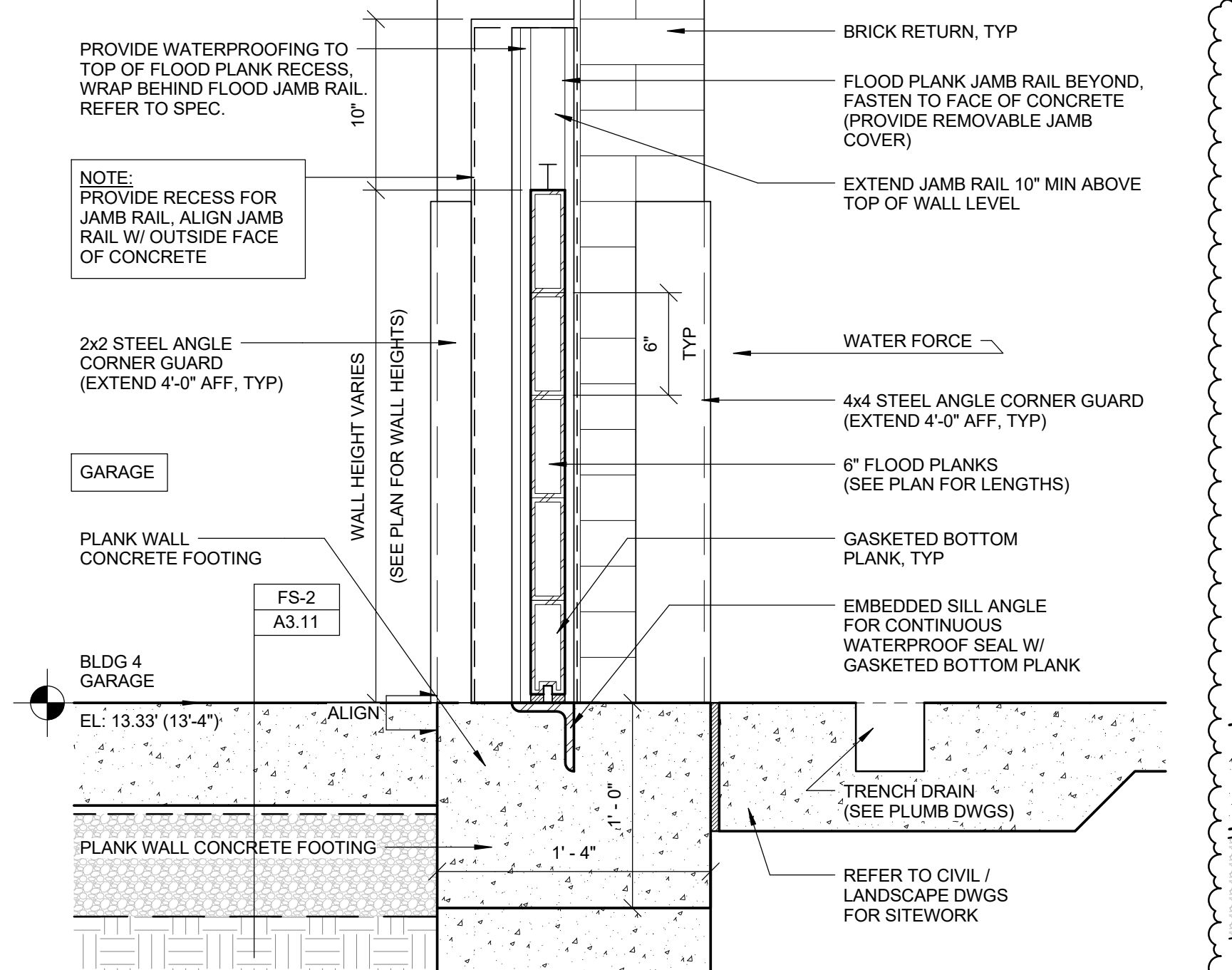
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32 FLOOD PLANK - PLAN DTL - BLDG 4 - GARAGE JAMB w/COL
Scale : 1 1/2" = 1'-0"



31 FLOOD PLANK - PLAN DTL - BLDG 4 - GARAGE PIER
Scale : 1 1/2" = 1'-0"



30 FLOOD PLANK - SECTION - BLDG 4 - JAMB POCKET AT GARAGE
Scale : 1 1/2" = 1'-0"

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- Revision:
- 1 MAY 4, 2016
 - 2 JUNE 30, 2016 ADDENDUM 2
 - 3 DEC 21, 2016 BULLETIN 009
 - 4 DEC 01, 2017 BULLETIN 061

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 Scale: 1 1/2" = 1'-0"
 Key Plan:

Project Name:
CLIPPERSHIP WHARF

25-65 Lewis Street
 East Boston, MA 02128

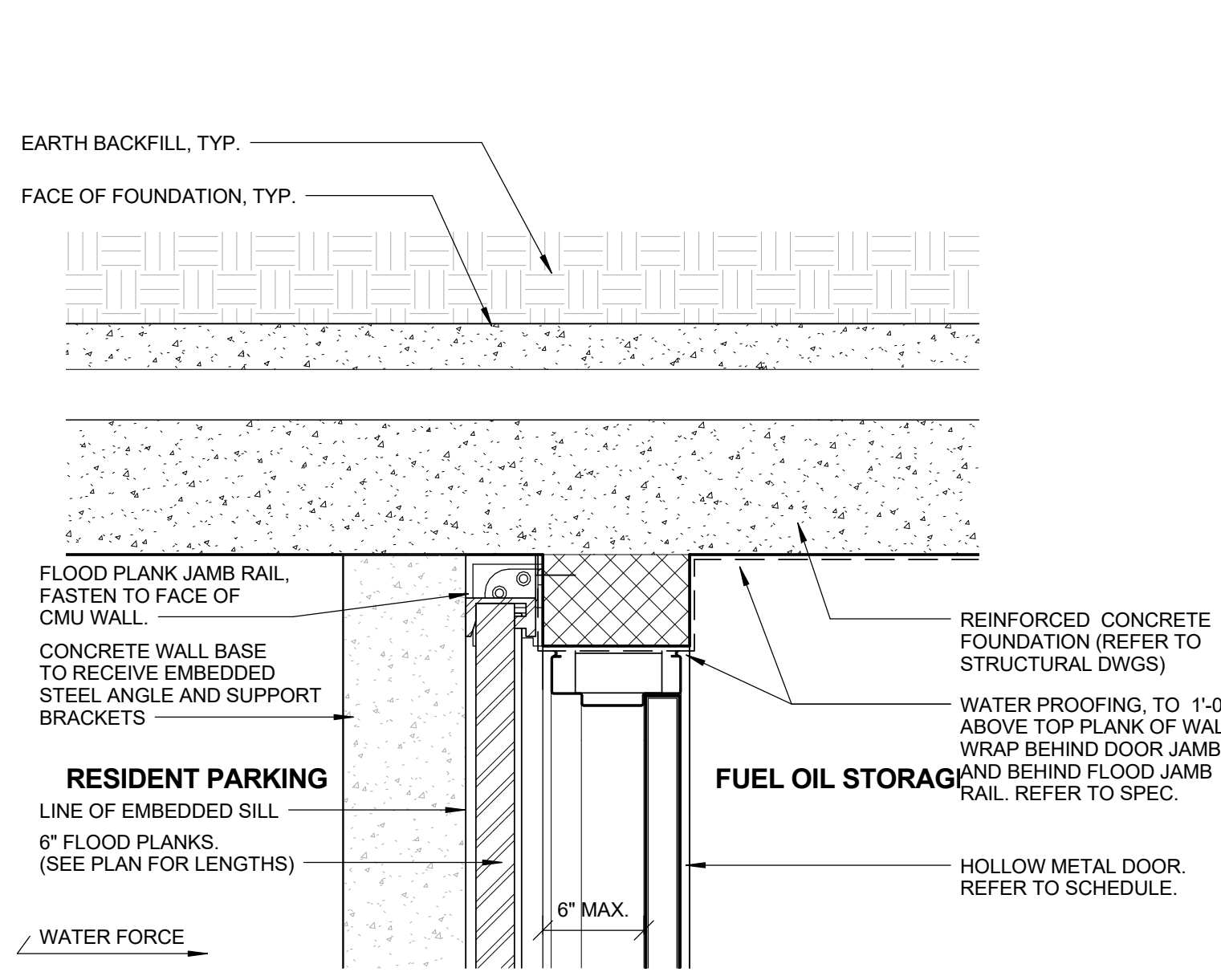
Sheet Name:
FLOOD PLANK - DETAILS

Project Number:
 13166

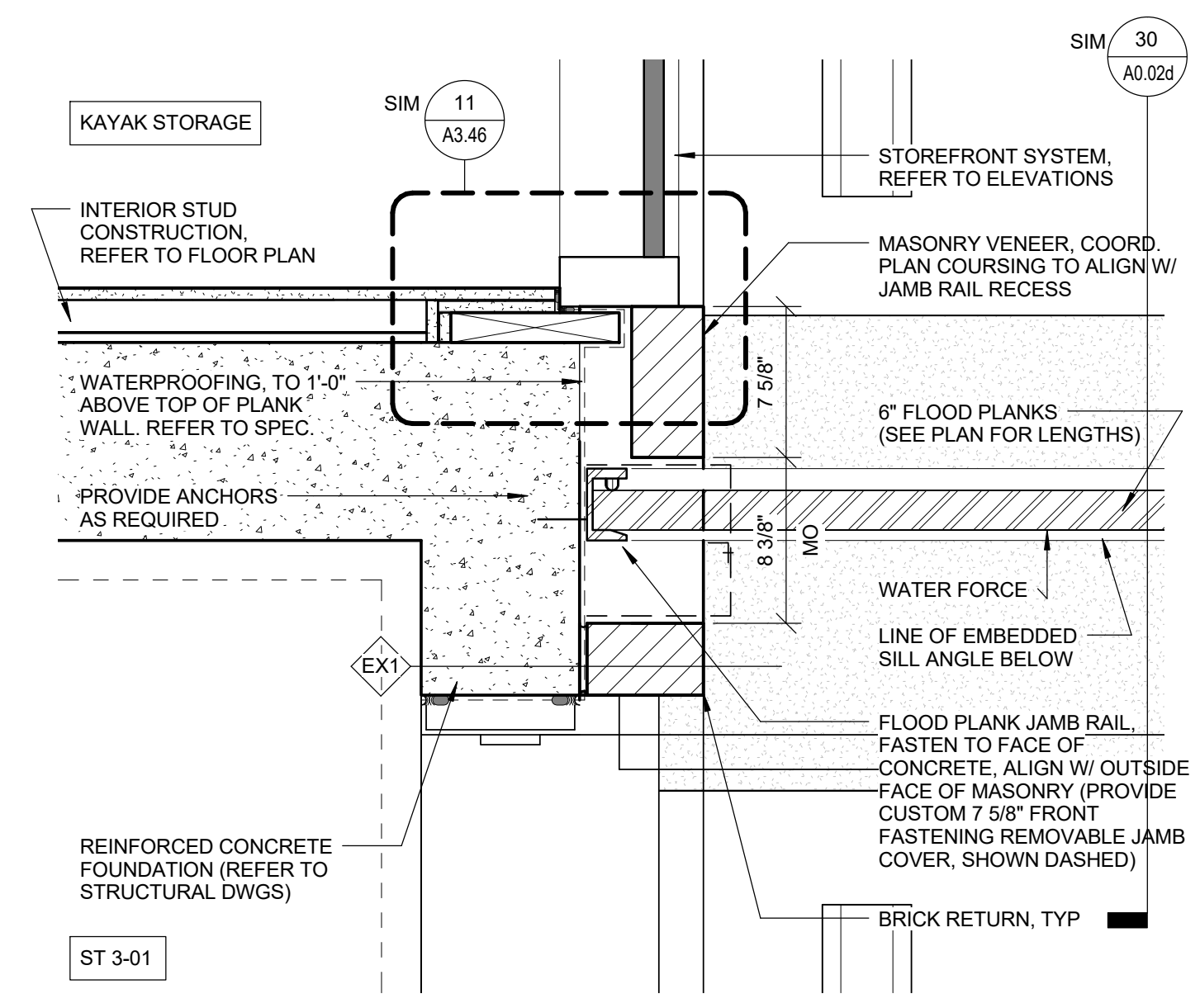
Issue Date:
 DECEMBER 01, 2015

Sheet Number:

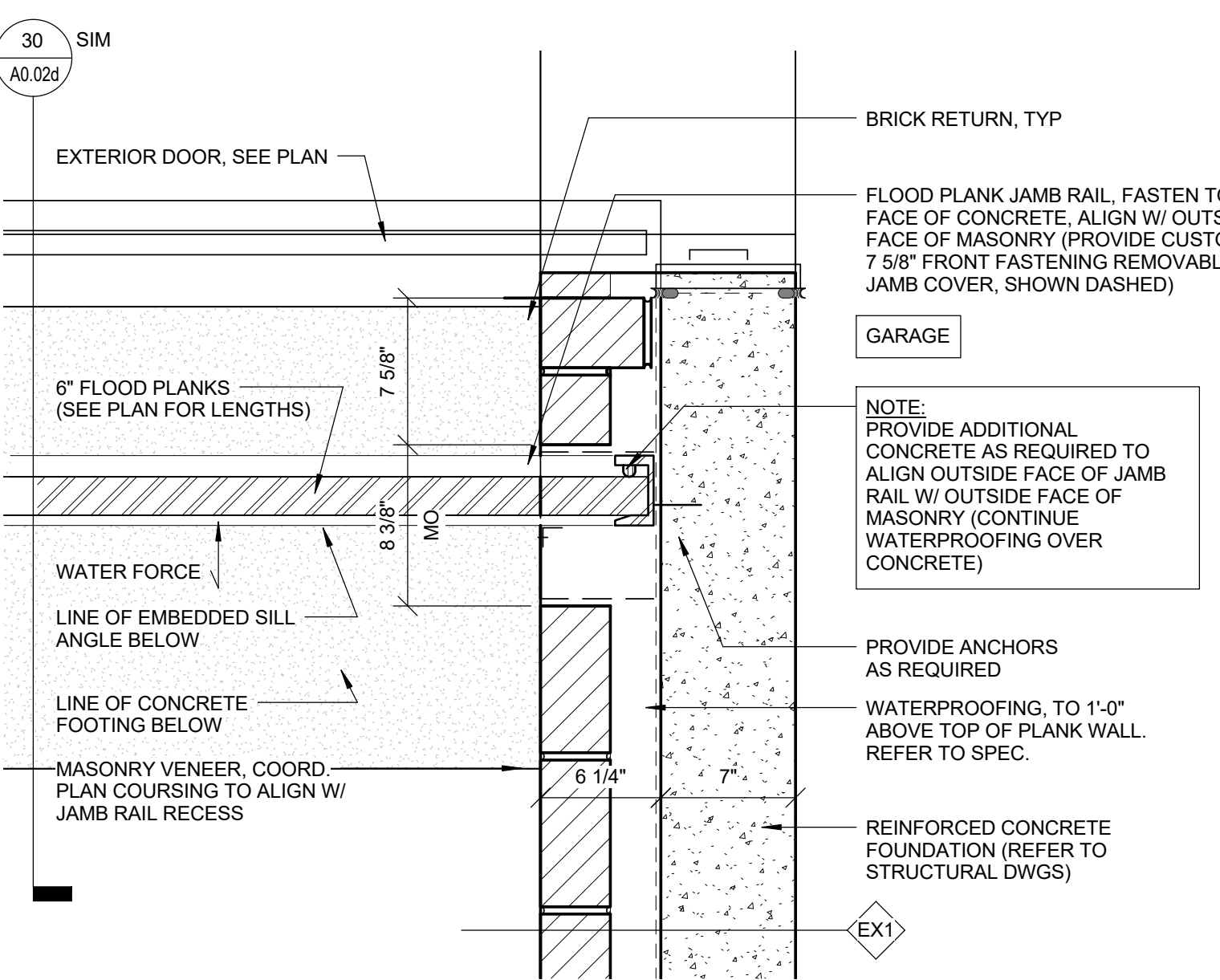
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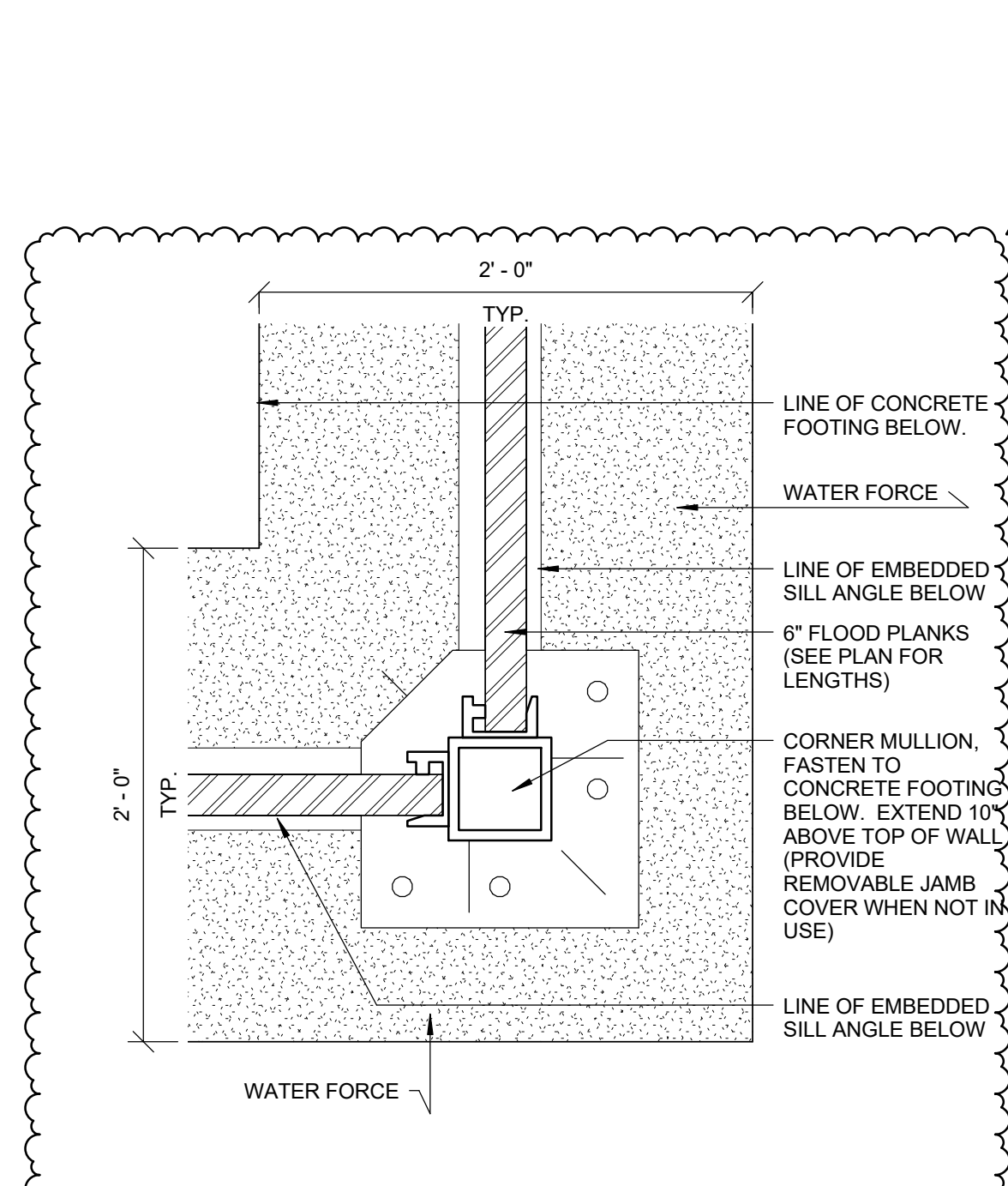
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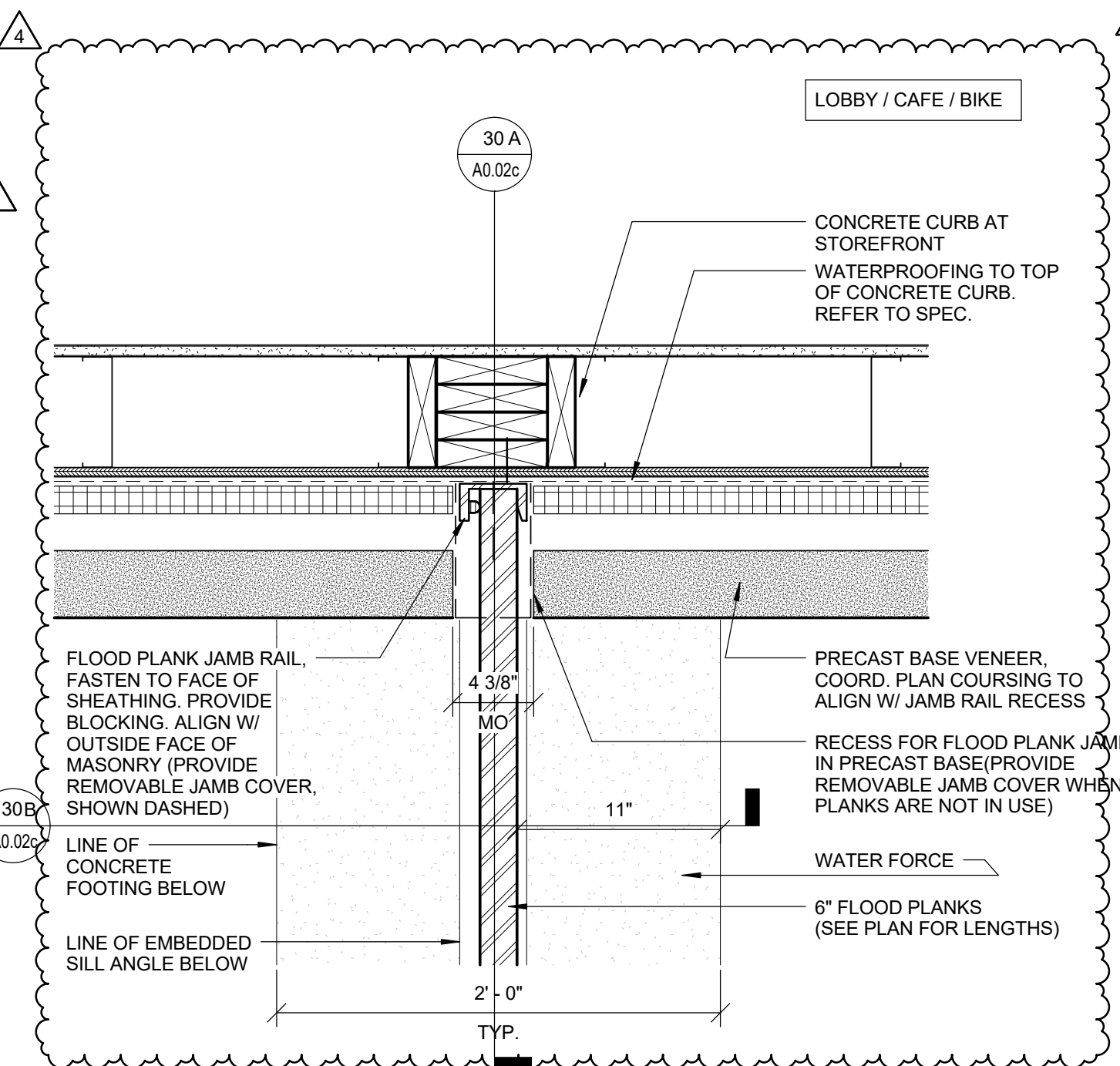
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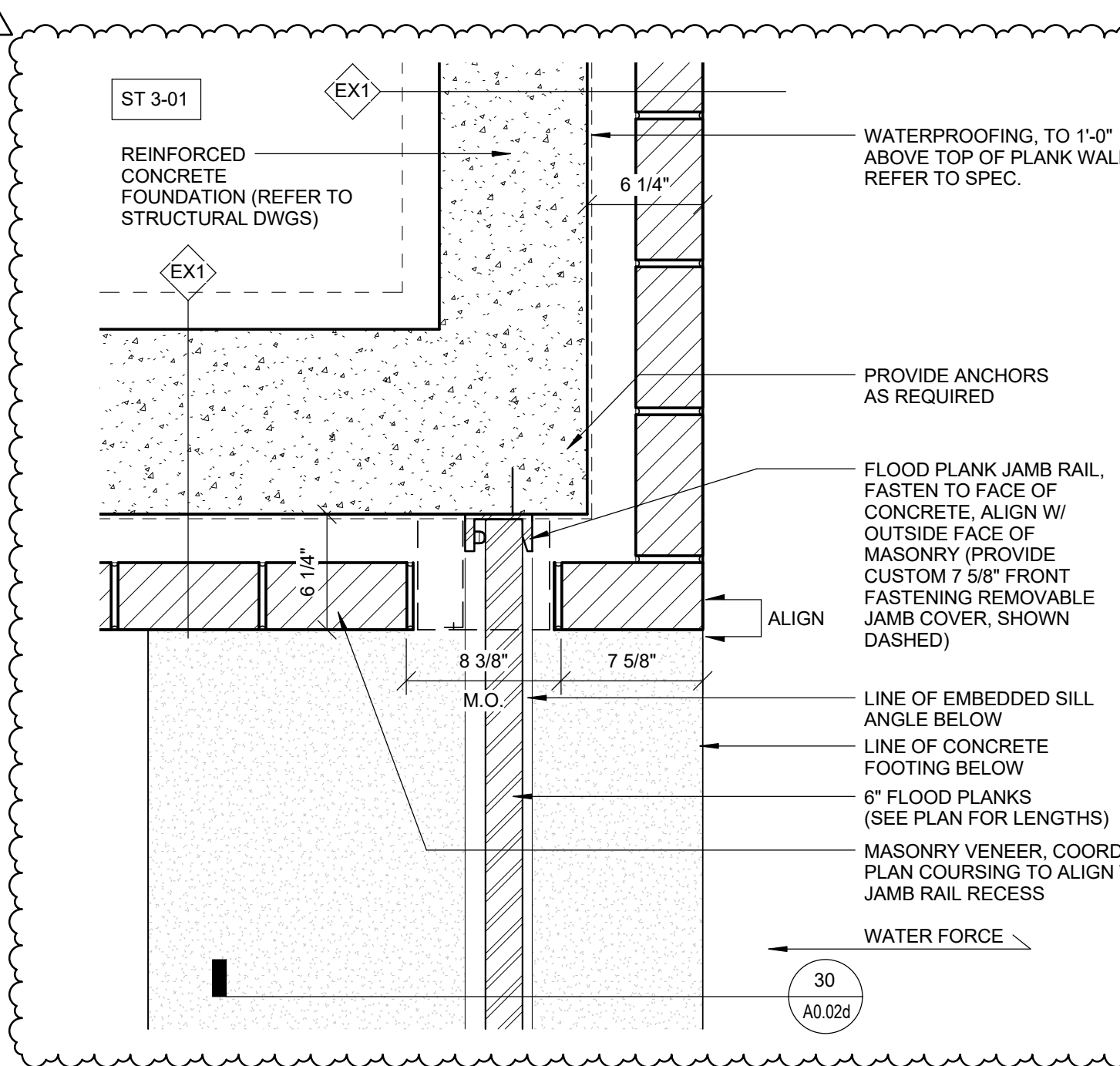
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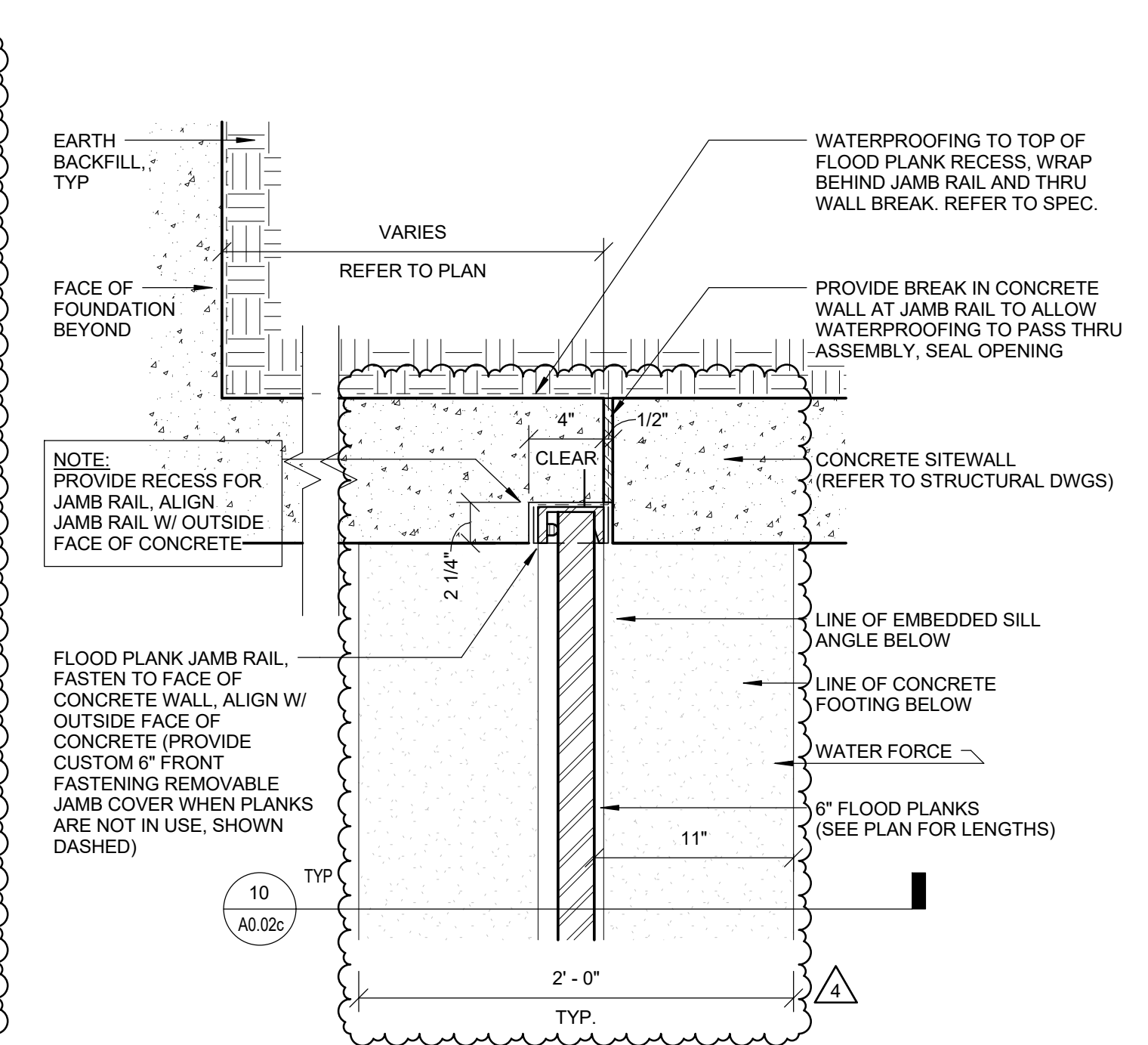
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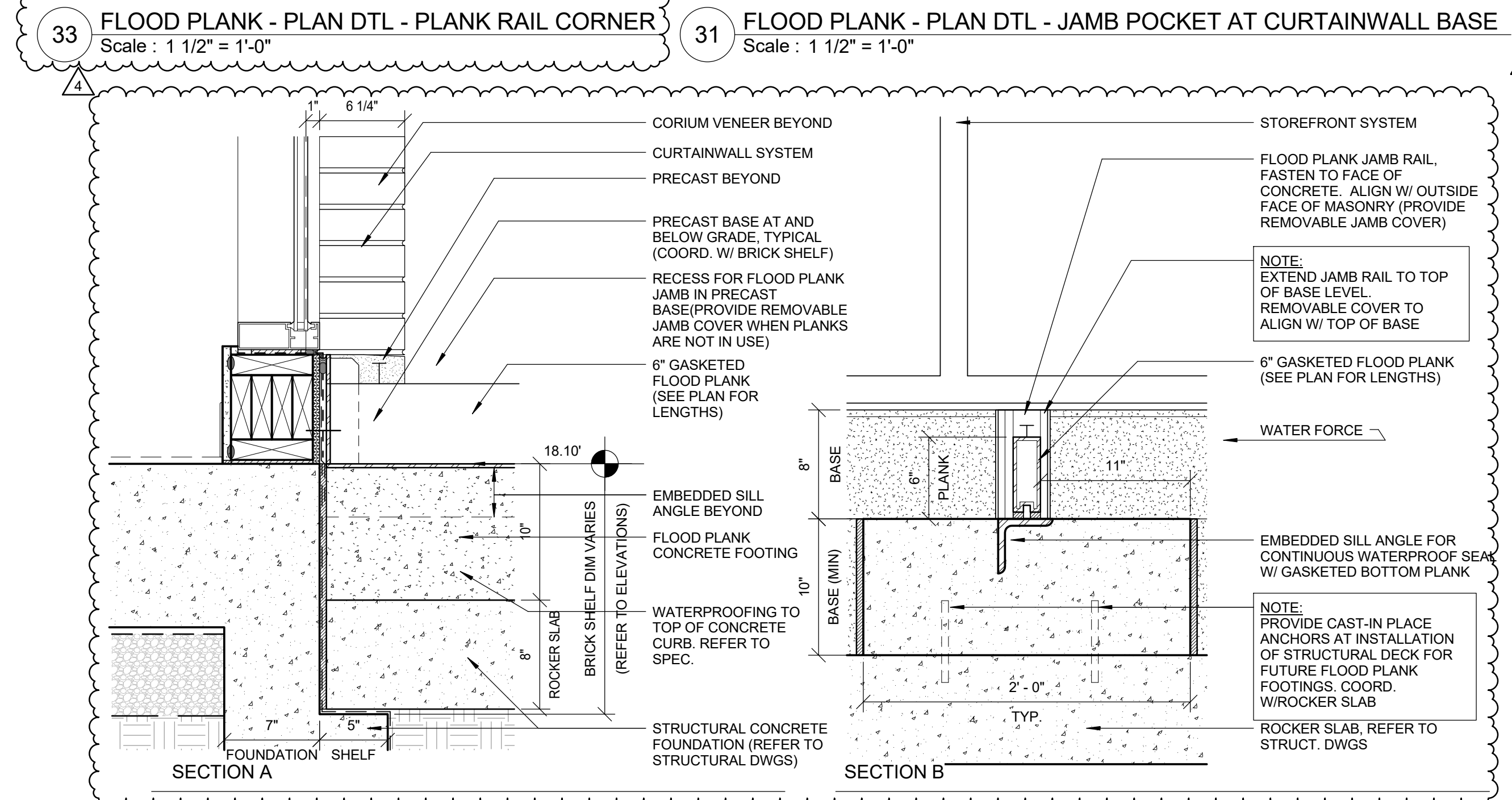
31 FLOOD PLANK - PLAN DTL - JAMB POCKET AT CURTAINWALL BASE
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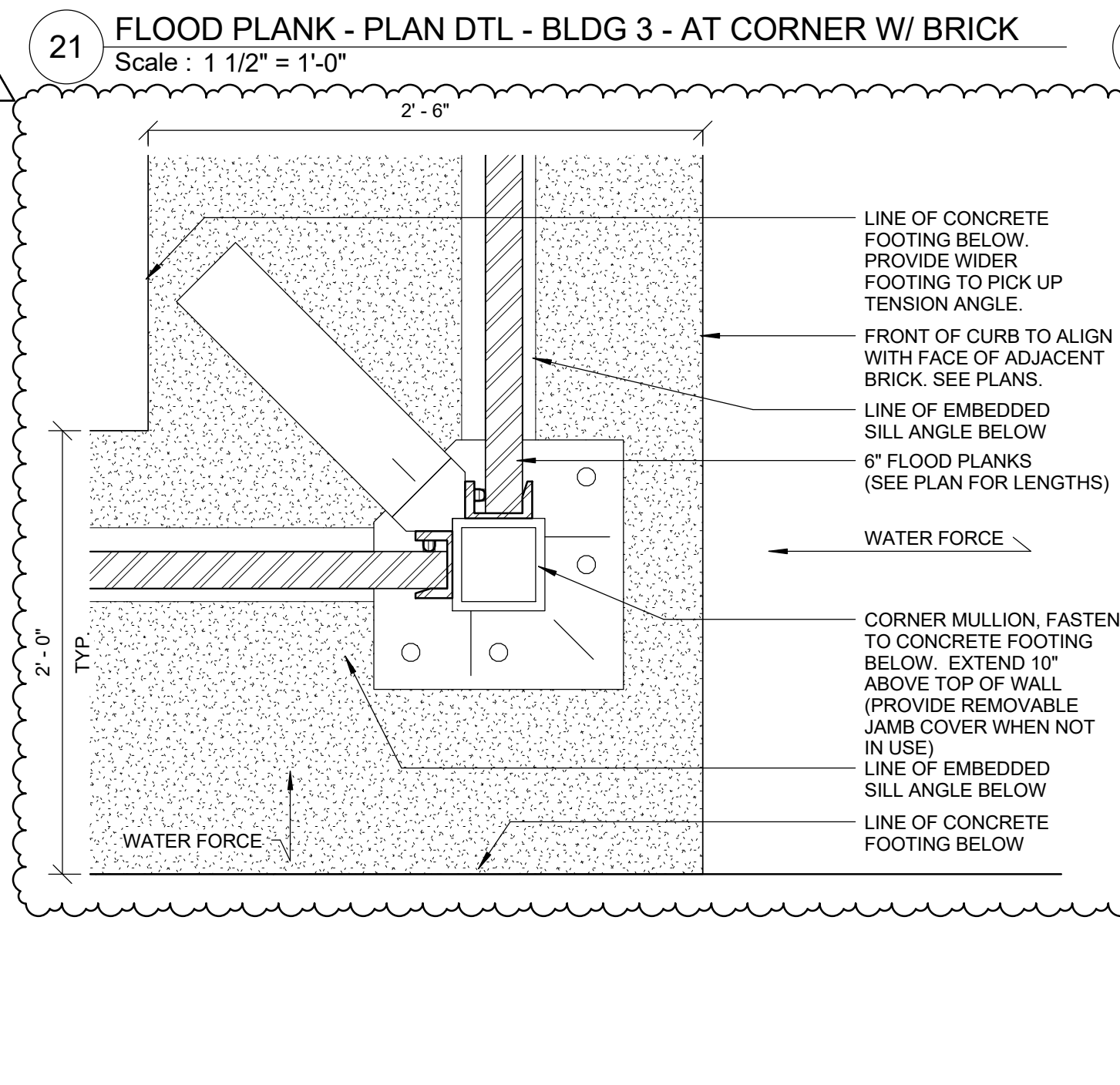
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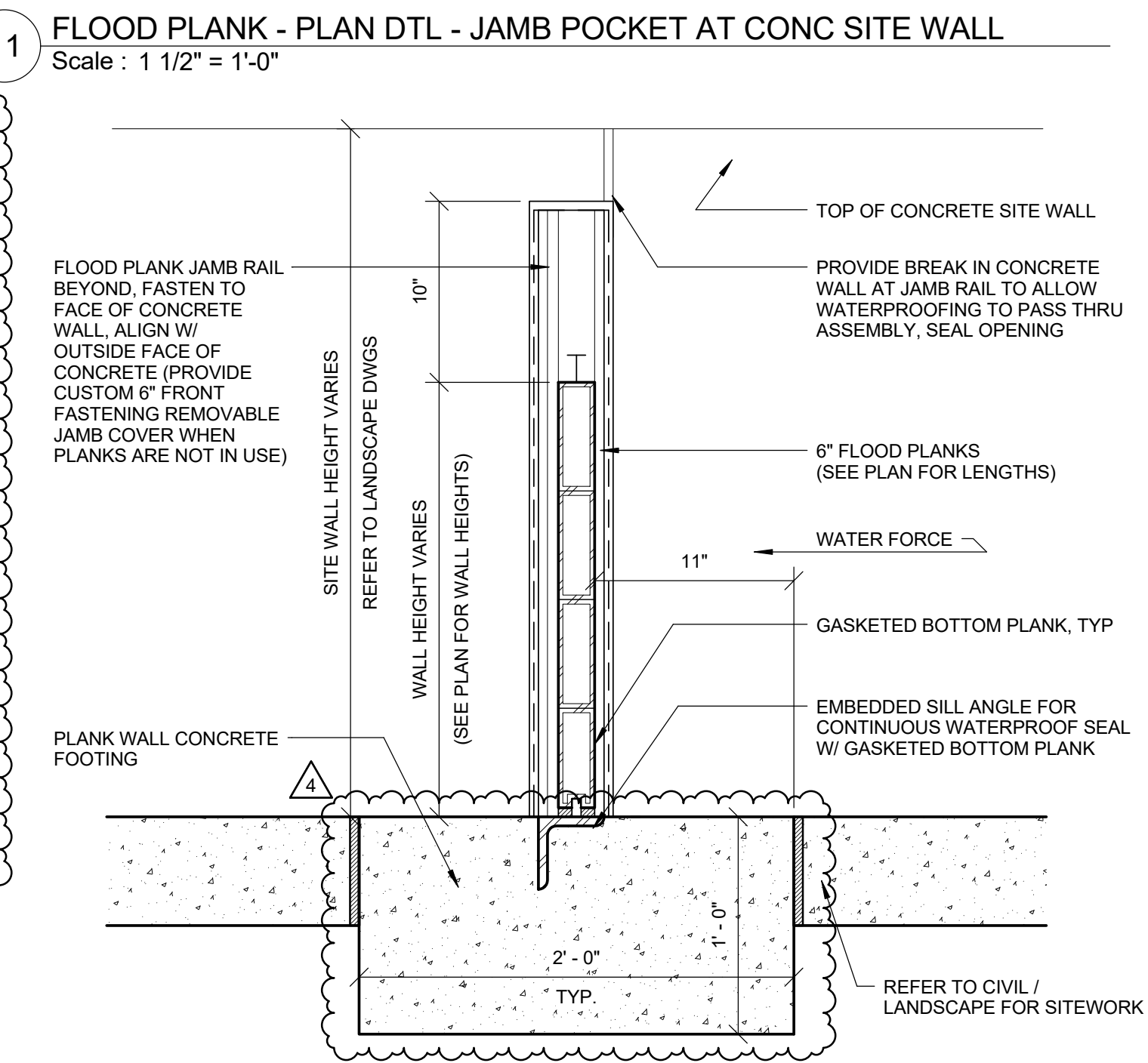
11 FLOOD PLANK - PLAN DTL - JAMB POCKET AT CONC SITE WALL
Scale : 1 1/2" = 1'-0"



30 FLOOD PLANK - SECTION DTL - JAMB POCKET AT CURTAINWALL BASE
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20 FLOOD PLANK - PLAN DTL - BLDG 3 - AT PLANK RAIL CORNER
Scale : 1 1/2" = 1'-0"



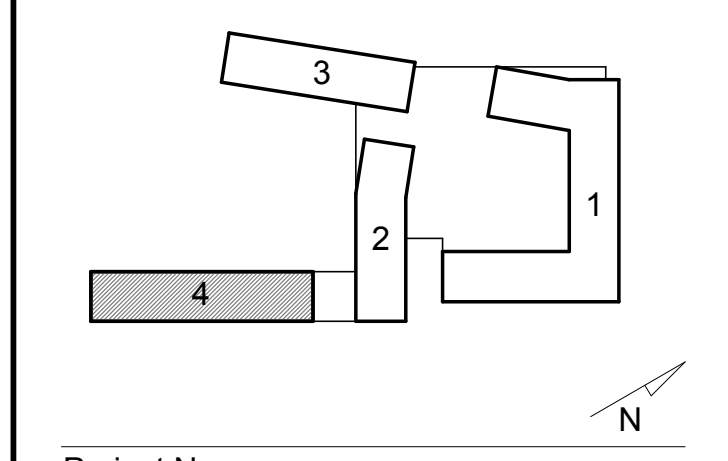
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Consultant:

Revision:
1 JUNE 30, 2016 ADDENDUM 2

Architect of Record:

Drawn: KLV
Checked: SJR
Scale: As indicated
Key Plan:



Project Name:
CLIPPERSHIP WHARF

25-65 Lewis Street
East Boston, MA 02128

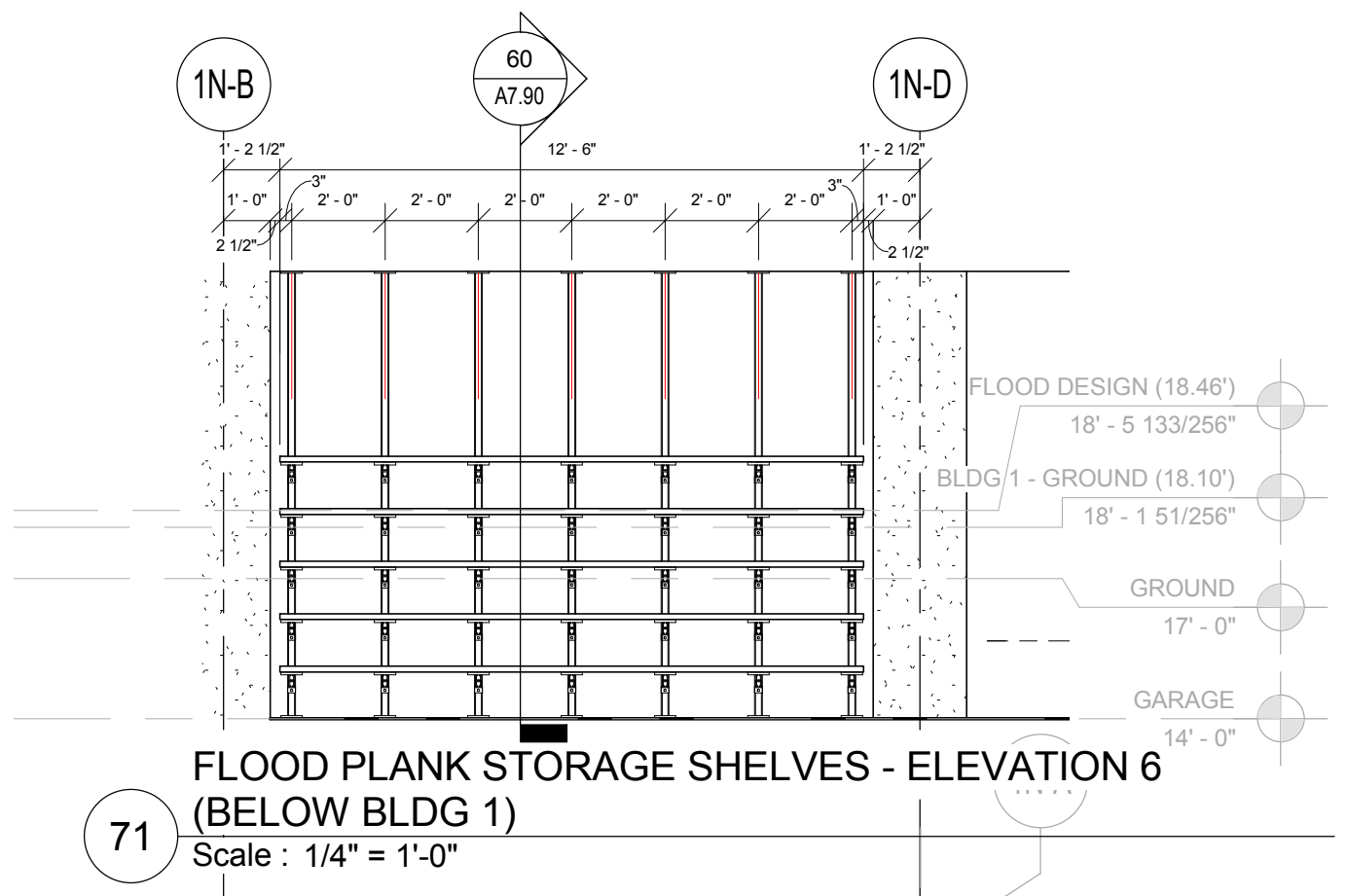
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FLOOD PLANK STORAGE AREAS WITHIN GARAGE LEVEL

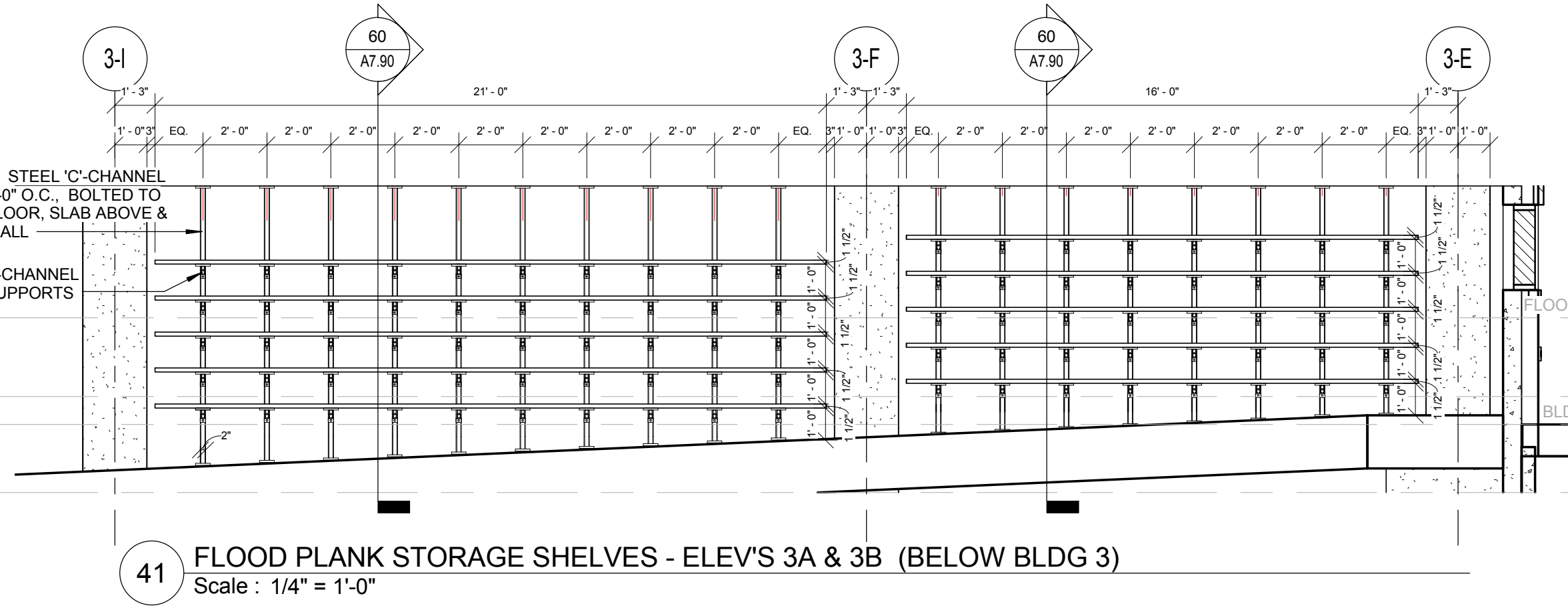
Project Number:
13166

Issue Date:
JUNE 30, 2016

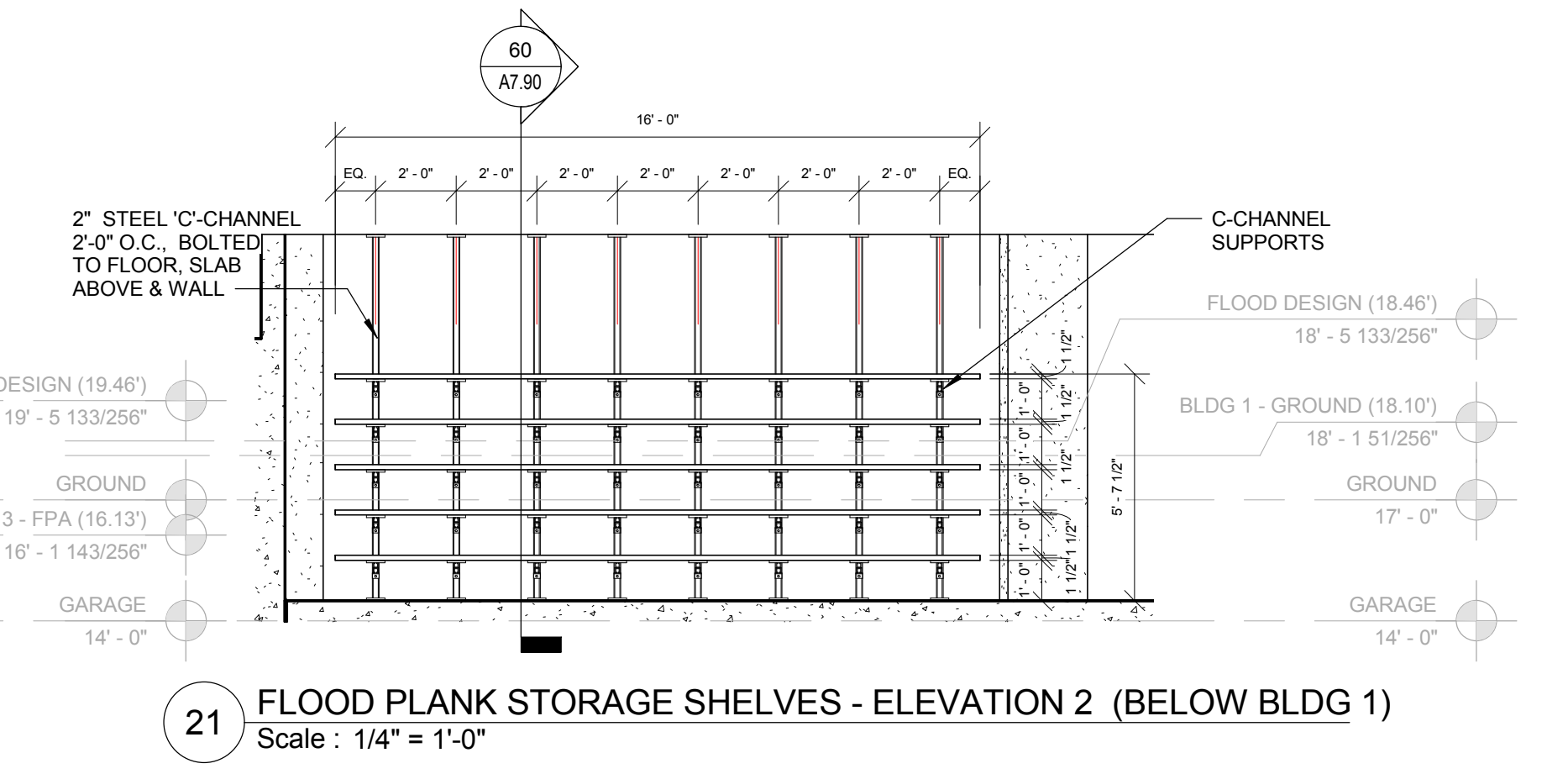
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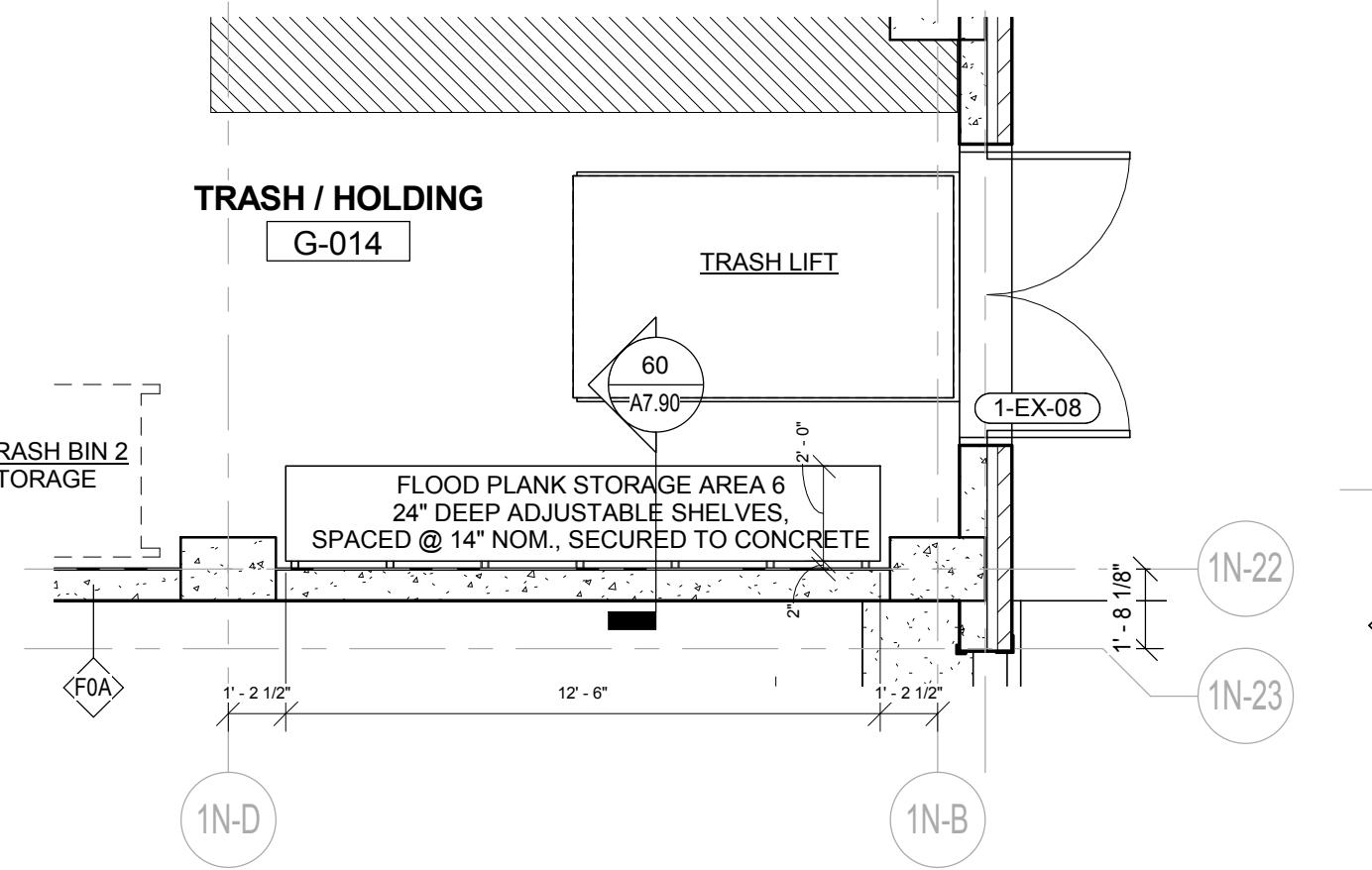
71 FLOOD PLANK STORAGE SHELVES - ELEVATION 6 (BELOW BLDG 1)
Scale: 1/4" = 1'-0"



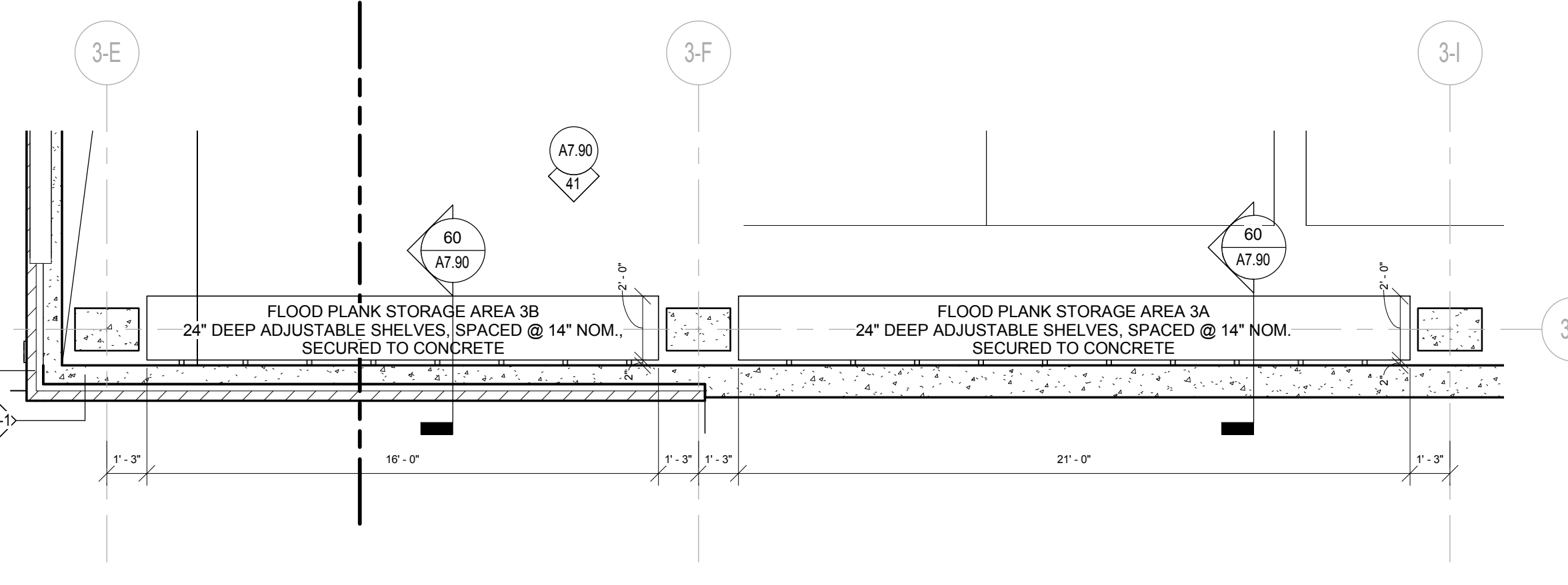
41 FLOOD PLANK STORAGE SHELVES - ELEV'S 3A & 3B (BELOW BLDG 3)
Scale: 1/4" = 1'-0"



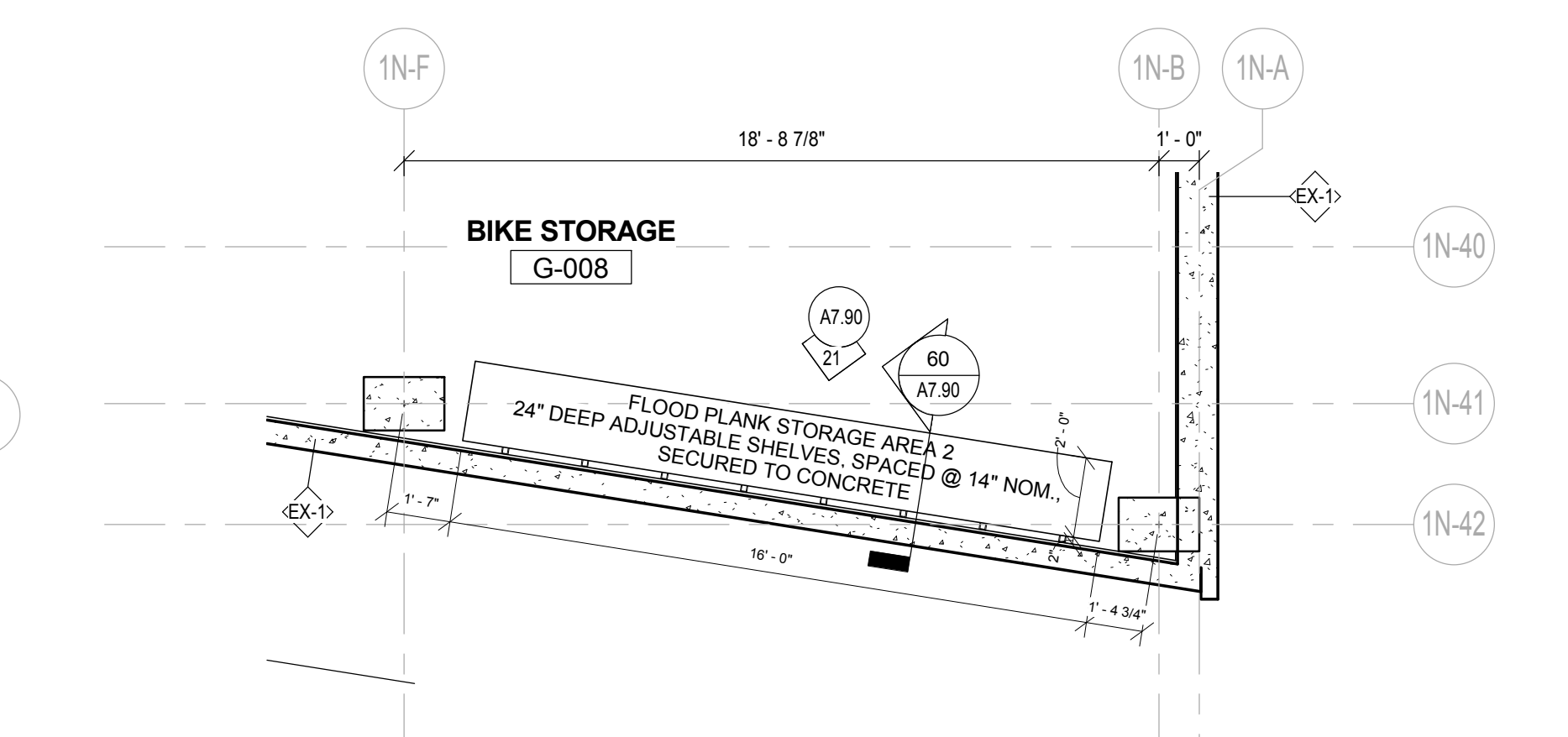
21 FLOOD PLANK STORAGE SHELVES - ELEVATION 2 (BELOW BLDG 1)
Scale: 1/4" = 1'-0"



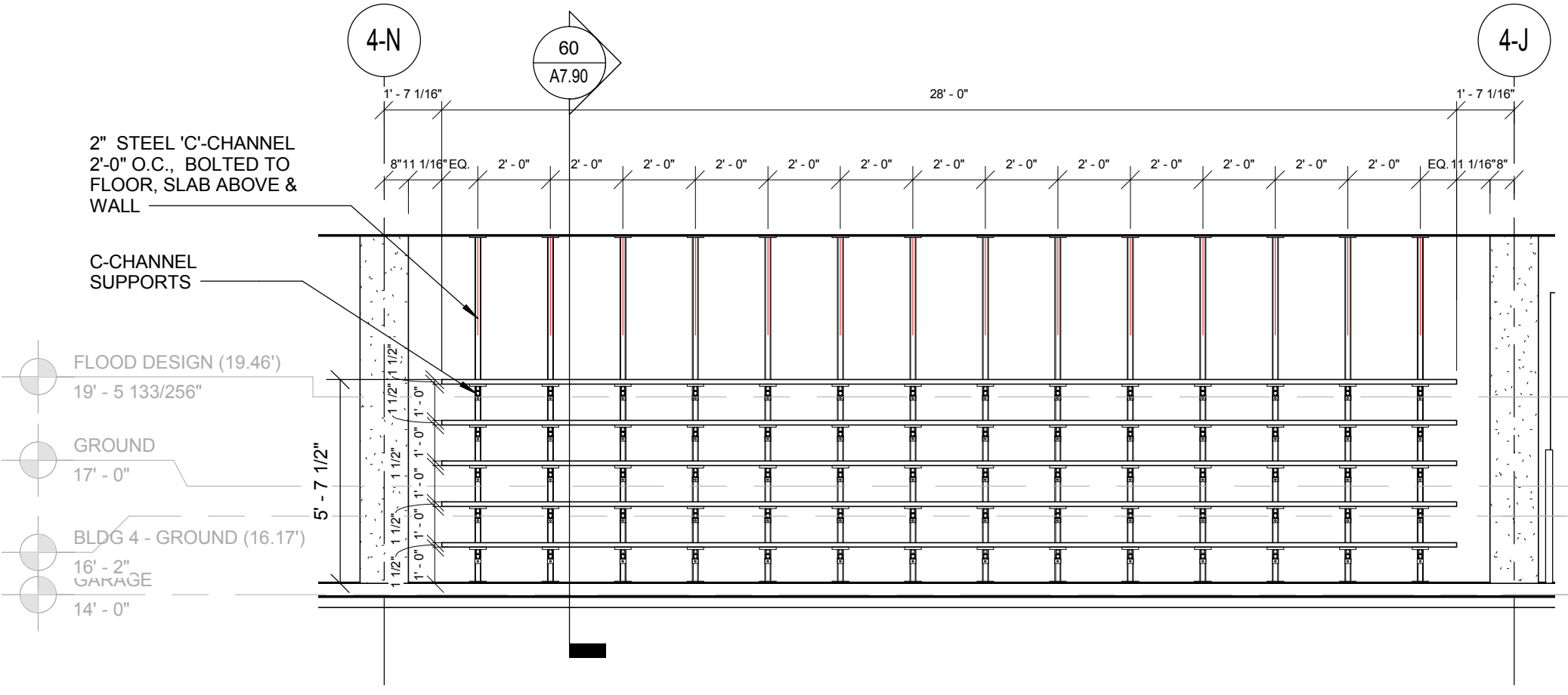
70 BLDG 1 - GARAGE - FLOOD PLANK STORAGE PLAN 6
Scale: 1/4" = 1'-0"



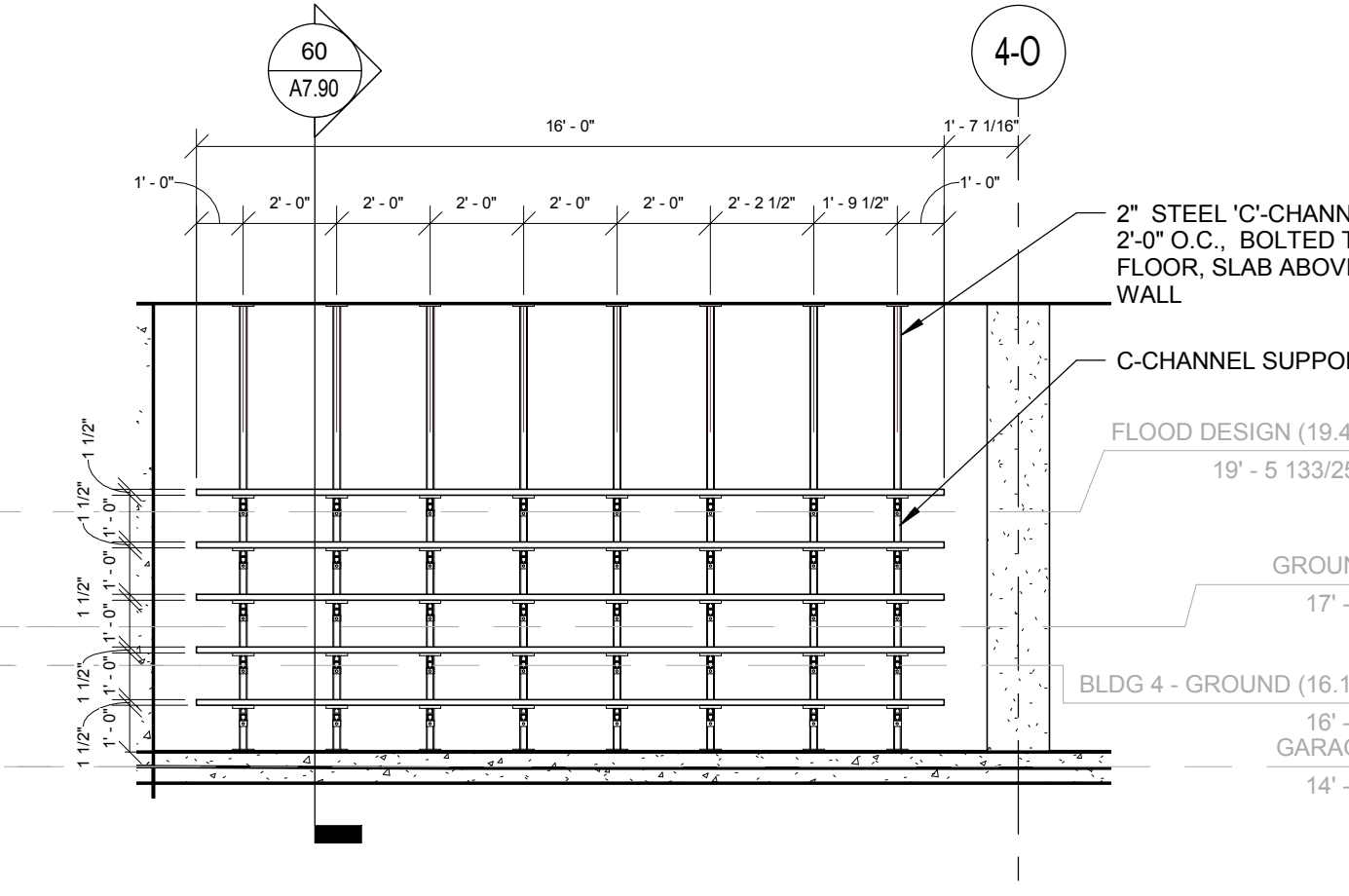
40 BLDG 3 - GARAGE - FLOOD PLANK STORAGE PLAN 3A & 3B
Scale: 1/4" = 1'-0"



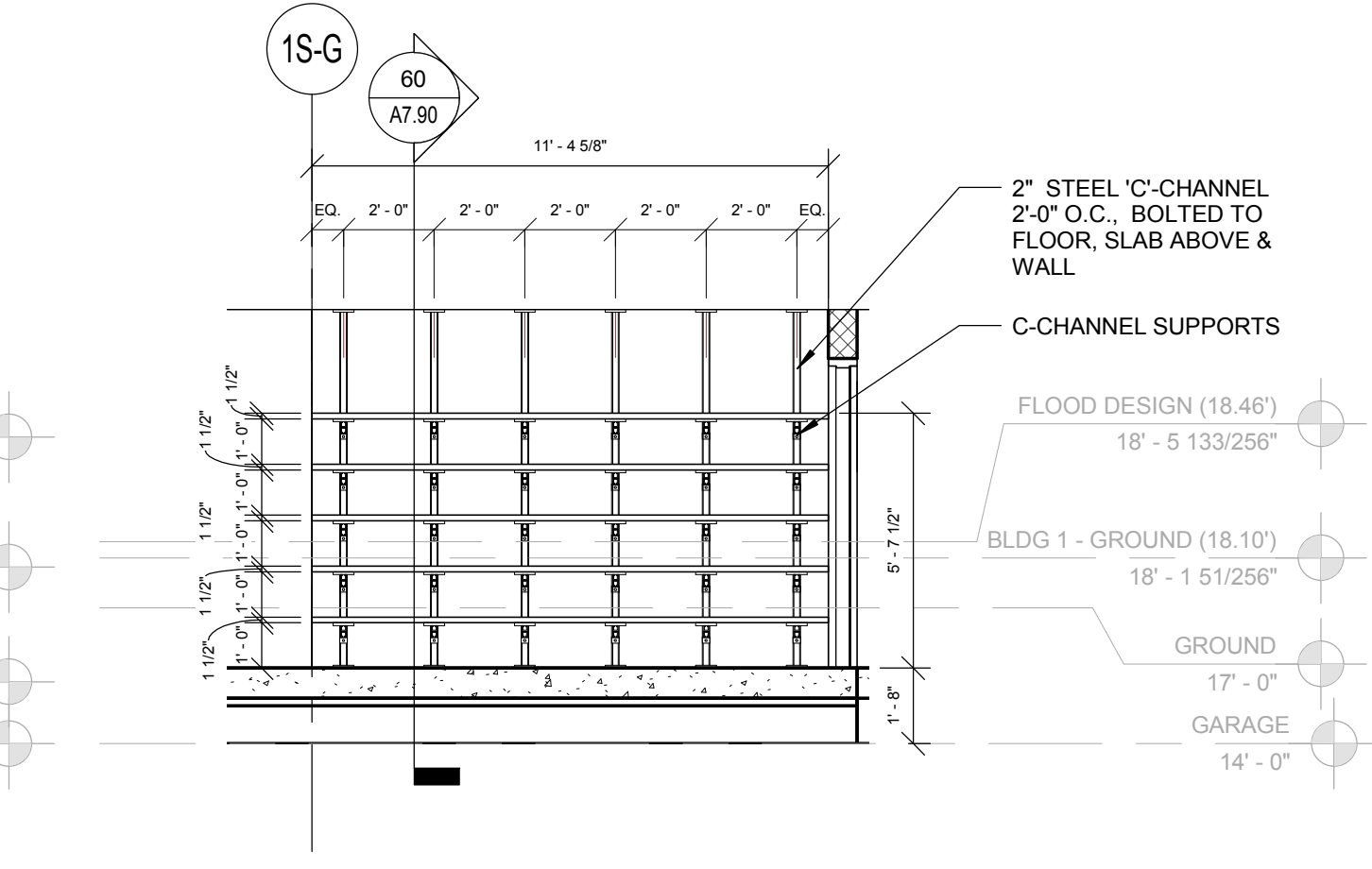
20 BLDG 1 - GARAGE - FLOOD PLANK STORAGE PLAN 2
Scale: 1/4" = 1'-0"



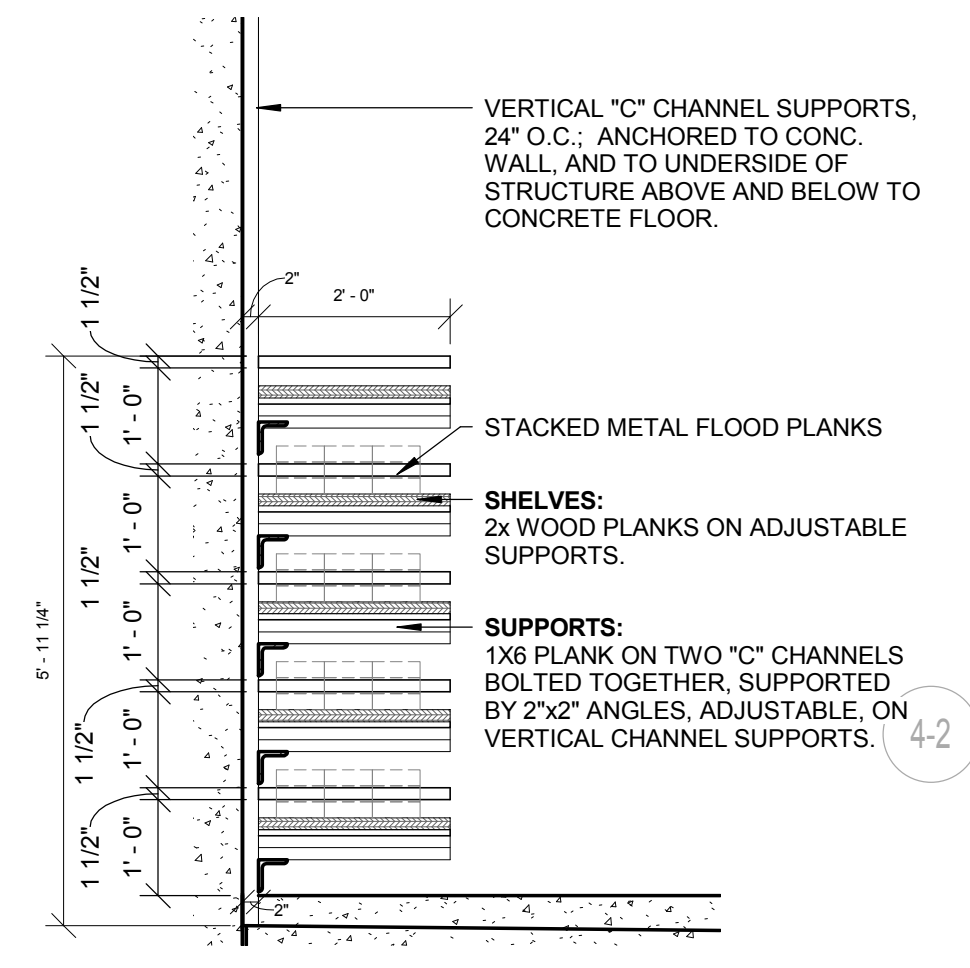
51 FLOOD PLANK STORAGE SHELVES - ELEVATION 5 (BELOW BLDG 4)
Scale: 1/4" = 1'-0"



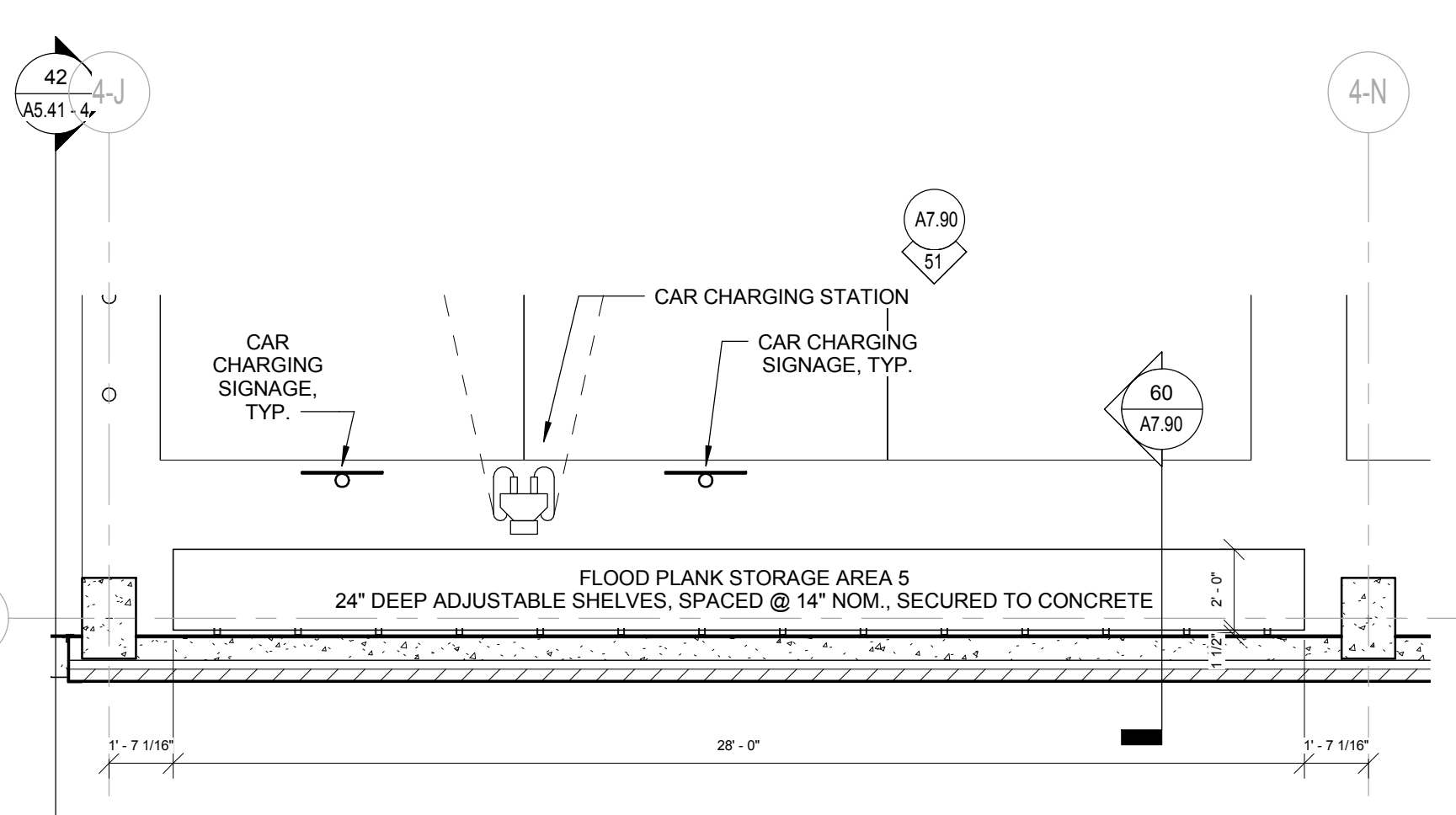
31 FLOOD PLANK STORAGE SHELVES - ELEVATION 4 (BELOW BLDG 4)
Scale: 1/4" = 1'-0"



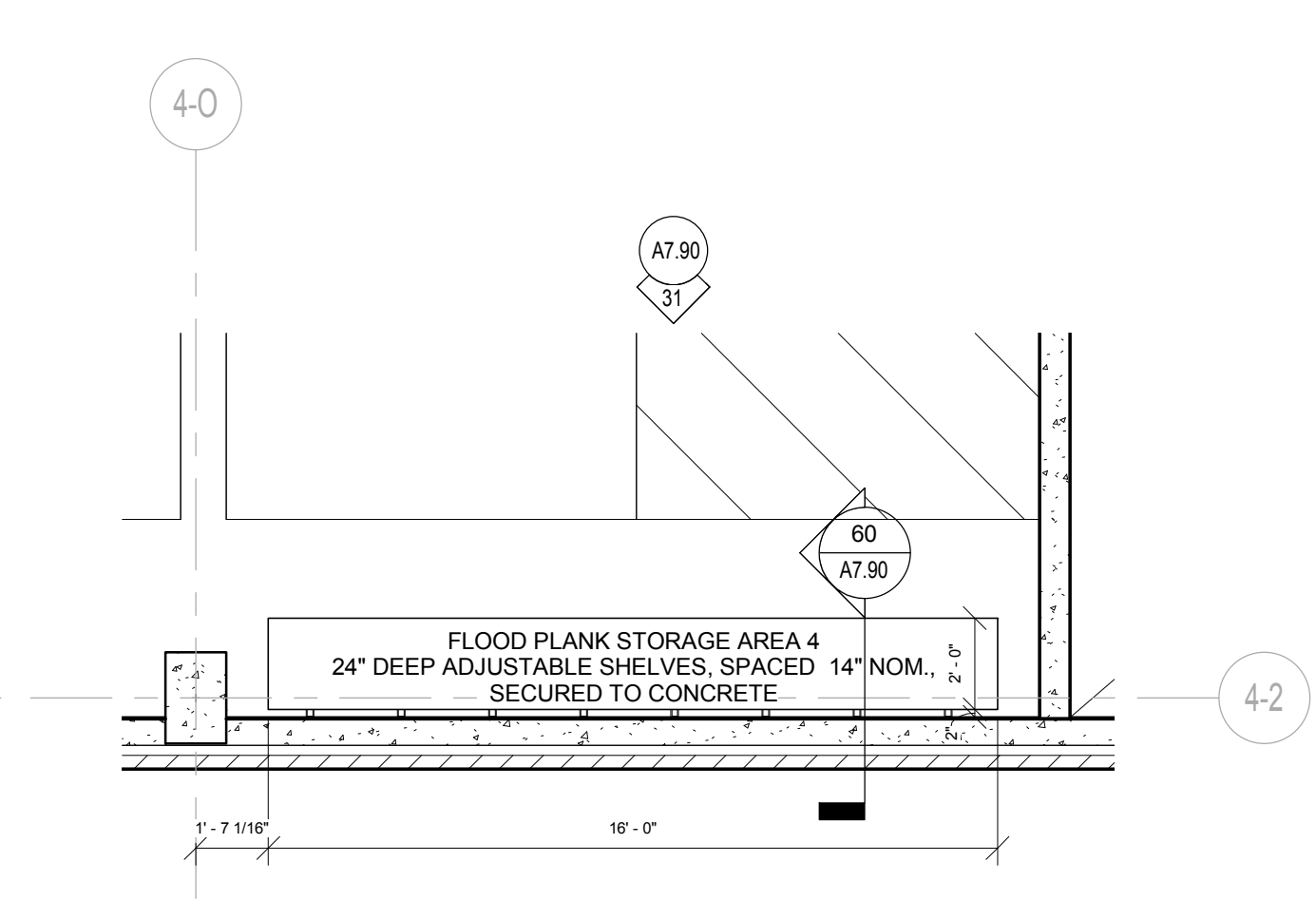
11 FLOOD PLANK STORAGE SHELVES - ELEVATION 1 (BELOW BLDG 1)
Scale: 1/4" = 1'-0"



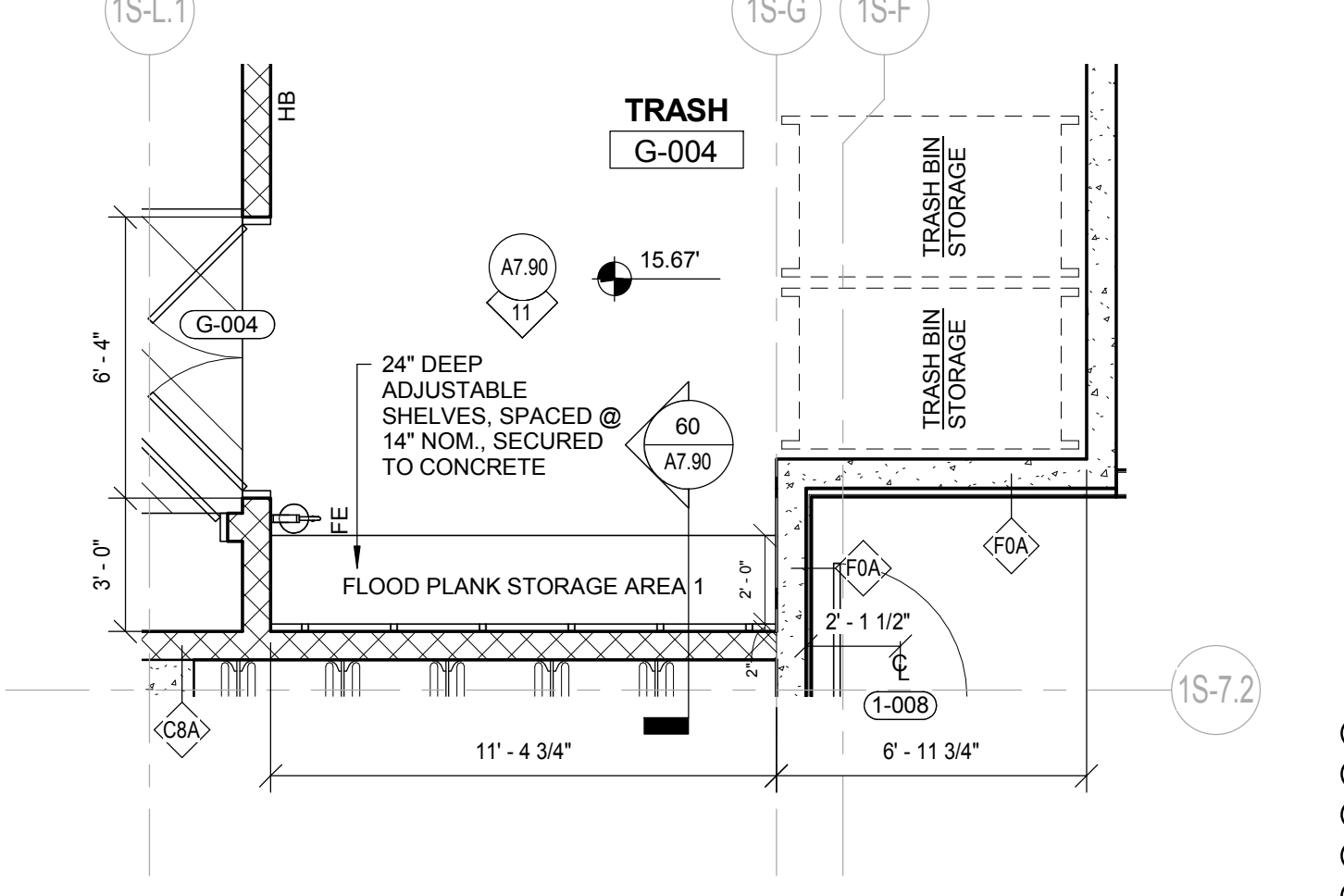
60 SECTION @ FLOOD PLANK SHELVEING
Scale: 1/2" = 1'-0"



50 BLDG 4 - GARAGE - FLOOD PLANK STORAGE PLAN 5
Scale: 1/4" = 1'-0"



30 BLDG 4 - GARAGE - FLOOD PLANK STORAGE PLAN 4
Scale: 1/4" = 1'-0"



10 BLDG 1 - GARAGE - FLOOD PLANK STORAGE PLAN 1
Scale: 1/4" = 1'-0"

ELEVATION CERTIFICATE

Important: Follow the instructions on pages 1–9.

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

SECTION A – PROPERTY INFORMATION				FOR INSURANCE COMPANY USE	
A1. Building Owner's Name Lendlease Clippership Wharf LLC				Policy Number:	
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 65 Lewis Street, Building #3				Company NAIC Number:	
City Boston		State Massachusetts		ZIP Code 02128	
A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) Parcel ID 0105400000, Clippership Wharf Primary Condominium					
A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) <u>Residential</u>					
A5. Latitude/Longitude: Lat. <u>42° 22' 03.6"</u> Long. <u>71° 02' 32.3"</u> Horizontal Datum: <input type="checkbox"/> NAD 1927 <input checked="" type="checkbox"/> NAD 1983					
A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.					
A7. Building Diagram Number <u>2A</u>					
A8. For a building with a crawlspace or enclosure(s):					
a) Square footage of crawlspace or enclosure(s) <u>N/A</u> sq ft					
b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade <u>N/A</u>					
c) Total net area of flood openings in A8.b <u>N/A</u> sq in					
d) Engineered flood openings? <input type="checkbox"/> Yes <input type="checkbox"/> No					
A9. For a building with an attached garage:					
a) Square footage of attached garage <u>N/A</u> sq ft					
b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade <u>N/A</u>					
c) Total net area of flood openings in A9.b <u>N/A</u> sq in					
d) Engineered flood openings? <input type="checkbox"/> Yes <input type="checkbox"/> No					
SECTION B – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION					
B1. NFIP Community Name & Community Number City of Boston, 250286			B2. County Name Suffolk		B3. State Massachusetts
B4. Map/Panel Number 0081	B5. Suffix J	B6. FIRM Index Date 03-16-2016	B7. FIRM Panel Effective/ Revised Date 03-16-2016	B8. Flood Zone(s) AE	B9. Base Flood Elevation(s) (Zone AO, use Base Flood Depth) 12
B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9: <input type="checkbox"/> FIS Profile <input checked="" type="checkbox"/> FIRM <input type="checkbox"/> Community Determined <input type="checkbox"/> Other/Source: _____					
B11. Indicate elevation datum used for BFE in Item B9: <input type="checkbox"/> NGVD 1929 <input checked="" type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other/Source: _____					
B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Designation Date: _____ <input type="checkbox"/> CBRS <input type="checkbox"/> OPA					

ELEVATION CERTIFICATE

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 65 Lewis Street, Building #3			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

SECTION C – BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

C1. Building elevations are based on: Construction Drawings* Building Under Construction* Finished Construction

*A new Elevation Certificate will be required when construction of the building is complete.

C2. Elevations – Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO. Complete Items C2.a–h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.

Benchmark Utilized: Elevation Established by GPS Vertical Datum: NAVD 1988

Indicate elevation datum used for the elevations in items a) through h) below.

NGVD 1929 NAVD 1988 Other/Source: _____

Datum used for building elevations must be the same as that used for the BFE.

Check the measurement used.

- | | | | |
|---|-------------|--|---------------------------------|
| a) Top of bottom floor (including basement, crawlspace, or enclosure floor) | <u>6.6</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| b) Top of the next higher floor | <u>9.4</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| c) Bottom of the lowest horizontal structural member (V Zones only) | <u>N/A</u> | <input type="checkbox"/> feet | <input type="checkbox"/> meters |
| d) Attached garage (top of slab) | <u>N/A</u> | <input type="checkbox"/> feet | <input type="checkbox"/> meters |
| e) Lowest elevation of machinery or equipment servicing the building
(Describe type of equipment and location in Comments) | <u>-2.9</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| f) Lowest adjacent (finished) grade next to building (LAG) | <u>9.4</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| g) Highest adjacent (finished) grade next to building (HAG) | <u>18.3</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support | <u>9.4</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |

SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.

Were latitude and longitude in Section A provided by a licensed land surveyor? Yes No Check here if attachments.


Certifier's Name Tim Agurkis	License Number 52782
---------------------------------	-------------------------

Title Professional Land Surveyor/ Senior Project Manager

Company Name Feldman

Address 152 Hampden Street

City Boston	State Massachusetts	ZIP Code 02119
----------------	------------------------	-------------------

Signature 	Date 6/18/19	Telephone (617) 357-9740	Ext.
--	-----------------	-----------------------------	------



Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

Comments (including type of equipment and location, per C2(e), if applicable)

Clippership Wharf Primary Condominium has an under ground garage that attaches to and services 3 buildings, #1, #2 and #3. This building attaches to and has access to the garage through an elevator. (C2a)Elevation of the top of bottom floor is the lowest floor in the garage. The bottom of the elevator shaft pit is at 1.7 feet.(elevator pit only at this level) There is an elevator landing room in the garage at elevation 6.9 (C2e)Elevation of the lowest machinery servicing the building is at a ground water pump in the garage. The lowest utility service servicing the building is the gas meter at 15.6 feet. There are 10 engineered flood barriers protecting the floor listed in (C2b), the specifications of which are attached, the measured elevation of the top of the installed barriers range from 12.9 feet to 13.8 feet.(See also Elevation Certificate for the Garage)

ELEVATION CERTIFICATE

OMB No. 1660-0008 **603**
Expiration Date: November 30, 2018

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 65 Lewis Street, Building #3			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

SECTION E – BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED) FOR ZONE AO AND ZONE A (WITHOUT BFE)

For Zones AO and A (without BFE), complete Items E1–E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B, and C. For Items E1–E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.

- E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).
- a) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ feet meters above or below the HAG.
 - b) Top of bottom floor (including basement, crawlspace, or enclosure) is _____ feet meters above or below the LAG.
- E2. For Building Diagrams 6–9 with permanent flood openings provided in Section A Items 8 and/or 9 (see pages 1–2 of Instructions), the next higher floor (elevation C2.b in the diagrams) of the building is _____ feet meters above or below the HAG.
- E3. Attached garage (top of slab) is _____ feet meters above or below the HAG.
- E4. Top of platform of machinery and/or equipment servicing the building is _____ feet meters above or below the HAG.
- E5. Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance? Yes No Unknown. The local official must certify this information in Section G.

SECTION F – PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION

The property owner or owner's authorized representative who completes Sections A, B, and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. The statements in Sections A, B, and E are correct to the best of my knowledge.

Property Owner or Owner's Authorized Representative's Name

Address _____ City _____ State _____ ZIP Code _____

Signature _____ Date _____ Telephone _____

Comments

Check here if attachments.

ELEVATION CERTIFICATE

OMB No. 1660-0008 **604**
 Expiration Date: November 30, 2018

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 65 Lewis Street, Building #3			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

SECTION G – COMMUNITY INFORMATION (OPTIONAL)

The local official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Complete the applicable item(s) and sign below. Check the measurement used in Items G8–G10. In Puerto Rico only, enter meters.

- G1. The information in Section C was taken from other documentation that has been signed and sealed by a licensed surveyor, engineer, or architect who is authorized by law to certify elevation information. (Indicate the source and date of the elevation data in the Comments area below.)
- G2. A community official completed Section E for a building located in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.
- G3. The following information (Items G4–G10) is provided for community floodplain management purposes.

G4. Permit Number	G5. Date Permit Issued	G6. Date Certificate of Compliance/Occupancy Issued
-------------------	------------------------	---

- G7. This permit has been issued for: New Construction Substantial Improvement
- G8. Elevation of as-built lowest floor (including basement) of the building: _____ feet meters Datum _____
- G9. BFE or (in Zone AO) depth of flooding at the building site: _____ feet meters Datum _____
- G10. Community's design flood elevation: _____ feet meters Datum _____

Local Official's Name	Title
Community Name	Telephone
Signature	Date

Comments (including type of equipment and location, per C2(e), if applicable)

Check here if attachments.

BUILDING PHOTOGRAPHS

See Instructions for Item A6.

605

OMB No. 1660-0008

Expiration Date: November 30, 2018

ELEVATION CERTIFICATE

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 65 Lewis Street, Building #3			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

If using the Elevation Certificate to obtain NFIP flood insurance, affix at least 2 building photographs below according to the instructions for Item A6. Identify all photographs with date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8. If submitting more photographs than will fit on this page, use the Continuation Page.



Photo One

Photo One Caption Photo Looking Southwest

Clear Photo One



Photo Two

Photo Two Caption Photo looking Southwest

Clear Photo Two

BUILDING PHOTOGRAPHS

Continuation Page

606

OMB No. 1660-0008

Expiration Date: November 30, 2018

ELEVATION CERTIFICATE

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 65 Lewis Street, Building #3			Policy Number:
City Boston	State Massachusetts	ZIP Code 02128	Company NAIC Number

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8.



Photo Three

Photo Three Caption Photo looking Southwest

Clear Photo Three

Photo Four

Photo Four

Photo Four Caption

Clear Photo Four



[COVID-19 INFORMATION](#)

<https://www.boston.gov/news/coronavirus-disease-covid-19-boston>

ABUTTER MAILING LIST GENERATOR

Search for an address or enter a parcel ID below.

ADDRESS SEARCH

PARCEL SEARCH

SEARCH

SELECTED PARCEL

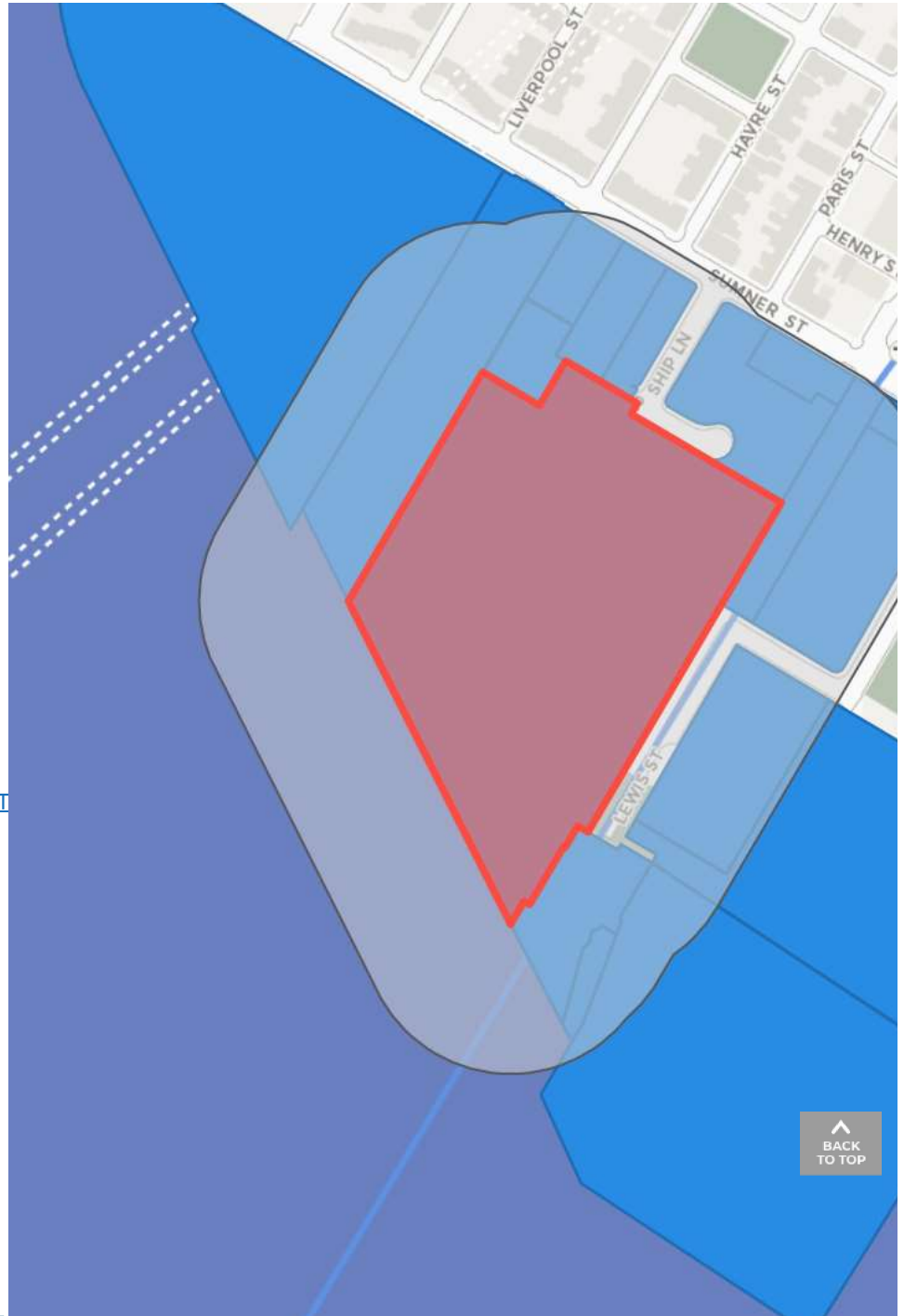
0105400020 - undefined

Enter a buffer distance and a the mailing list csv will appear below.

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BUFFER PARCEL

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BACK TO TOP

[PRIVACY POLICY \(/DEPARTMENTS/INNOVATION-AND-TECHNOLOGY/TERMS-USE-AND-PRIVACY-POLICY\)](#), [CONTACT US \(/DEPARTMENTS/MAYORS-OFFICE/CONTACT-BOSTON-CITY-HALL\)](#)

Parcel #	Address	City	Zip Code	Mailing Address
0105400020	25 65 LEWIS ST	EAST BOSTON	02128	CLIPPERSHIP WHARF PRIMARY CONDOMINIUM TRUST 20 CITY SQ 2ND FL, BOSTON, MA 02129
0105398010	SUMNER ST	EAST BOSTON	02128	HERITAGE HOUSING CORP 2 MARGINAL ST, EAST BOSTON, MA 02128
0105400020	25 65 LEWIS ST	EAST BOSTON	02128	CLIPPERSHIP WHARF CLIPPERSHIP WHARF MULTIFAMILY LLC20 CITY SQ 2ND FL, BOSTON, MA 02129
0105400020	25 LEWIS ST COMMERCIAL UNIT	EAST BOSTON	02128	CLIPPERSHIP WHARF MULTIFAMILY LLC 20 CITY SQ, 2ND FLOOR, BOSTON, MA 02129
0105402300	113 SUMNER ST 33	EAST BOSTON	02128	LOPEZ MARINA 113 SUMNER ST #33, E BOSTON, MA 02128
0105402300	113 SUMNER ST 62	EAST BOSTON	02128	GUERRERO MANUEL E 113 SUMNER ST #62, E BOSTON, MA 02128
0105402300	113 SUMNER ST 51	EAST BOSTON	02128	MEZENTSEV SERGEY 113 SUMNER ST, UNIT 51, EAST BOSTON, MA 02128
0105402300	113 SUMNER ST 22	EAST BOSTON	02128	GALLO JORGE IVAN 113 SUMNER ST #22, E BOSTON, MA 02128
0105402300	113 SUMNER ST 54	EAST BOSTON	02128	PAR MELISSA R 113 SUMNER ST #54, EAST BOSTON, MA 02128
0105402300	113 SUMNER ST 12	EAST BOSTON	02128	CHEN GUO JIAN 113 SUMNER ST #12, E BOSTON, MA 02128
0105402300	113 SUMNER ST 25	EAST BOSTON	02128	ORTIZ EZEQUIEL 113 SUMNER ST #25, E BOSTON, MA 02128
0105402300	113 SUMNER ST 35	EAST BOSTON	02128	ZHAKA ELENI 113 SUMNER ST #35, E BOSTON, MA 02128
0105402300	113 SUMNER ST 24	EAST BOSTON	02128	ROGERS JAKIRA 113 SUMNER ST, UNIT 24, EAST BOSTON, MA 02128
0105402300	113 SUMNER ST 43	EAST BOSTON	02128	GRANADOS SAUL A 113 SUMNER ST #43, E BOSTON, MA 02128
0105402300	113 SUMNER ST 32	EAST BOSTON	02128	SOGABE AIKO 113 SUMNER ST #32, EAST BOSTON, MA 02128
0105402300	113 SUMNER ST 61	EAST BOSTON	02128	LOMBARD JOHN SAMUEL 113 SUMNEW R ST #61, E BOSTON, MA 02128
0105402300	113 SUMNER ST 21	EAST BOSTON	02128	SHIELDS EMILY 113 SUMNER ST #21, EAST BOSTON, MA 02128
0105402300	113 SUMNER ST 42	EAST BOSTON	02128	RAMNARAIN SEEMA 113 SUMNER ST #42, E BOSTON, MA 02128
0105402300	113 SUMNER ST 53	EAST BOSTON	02128	CASTILLO-DICAMPO CLAUDIA M 113 SUMNER ST #53, EAST BOSTON, MA 02128

0105402300	113 SUMNER ST 11	EAST BOSTON	02128	RADEZ ANGELA 113 SUMNER ST #11, E BOSTON, MA 02128
0105402300	113 SUMNER ST 31	EAST BOSTON	02128	MEDEIROS MARIA F 113 SUMNER ST #31, E BOSTON, MA 02128
0105402300	113 SUMNER ST 34	EAST BOSTON	02128	MARKOPOULOS SARANDOS 113 SUMNER ST #34, EAST BOSTON, MA 02128
0105402300	113 SUMNER ST 45	EAST BOSTON	02128	DALY LAUREN 113 SUMNER ST #45, EAST BOSTON, MA 02128
0105402300	113 SUMNER ST 44	EAST BOSTON	02128	GUO VIVIAN LU C/O JEFF GUO 597 SCHOOL ST, CARLISLE, MA 01741
0105402300	113 SUMNER ST 55	EAST BOSTON	02128	DRAYTON LISA A 113 SUMNER ST #55, EAST BOSTON, MA 02128
0105402300	113 SUMNER ST 13	EAST BOSTON	02128	GLYNN JAMES M 113 SUMNER ST #13, E BOSTON, MA 02128
0105402300	113 SUMNER ST 63	EAST BOSTON	02128	JOVANI AIDA 113 SUMNER ST #63, E BOSTON, MA 02128
0105402300	113 SUMNER ST 41	EAST BOSTON	02128	AIOUB MINA 113 SUMNER ST, UNIT 41, EAST BOSTON, MA 02128
0105402300	113 SUMNER ST 52	EAST BOSTON	02128	HOFFMAN DRAKE 113 SUMNER ST, UNIT 52, EAST BOSTON, MA 02128
0105402300	113 SUMNER ST	EAST BOSTON	02128	CARLTON WHARF CONDO TRUST 113 SUMNER ST, EAST BOSTON, MA 02128
0105402300	113 SUMNER ST 23	EAST BOSTON	02128	ABDULQAHAR ABDULASRAR 113 SUMNER ST #23, E BOSTON, MA 02128
0104447000	MARGINAL ST	EAST BOSTON	02128	MASSACHUSETTS PORT AUTH C/O MASS PORT AUTH29 MARGINAL ST, EAST BOSTON, MA 02128
0105402300	113 SUMNER ST 65	EAST BOSTON	02128	KOKOSHI BERALDA 113 SUMNER ST #65, E BOSTON, MA 02128
0105402010	115 123 SUMNER ST	EAST BOSTON	02128	TRINITY EAST BOSTON TWO LP MASS LPS 40 COURT ST, BOSTON, MA 02108
0105395000	LEWIS ST	EAST BOSTON	02128	CITY OF BOSTON LEWIS, EAST BOSTON, MA 02128
0105404000	SUMNER ST	EAST BOSTON	02128	CITY OF BOSTON 85 SUMNER, EAST BOSTON, MA 02128
0105401010	133 SUMNER ST	EAST BOSTON	02128	CLIPPERSHIP CONDOMINIUM LLC SIX FANEUIL HALL MARKETPLACE, 5TH FLOOR C/O WINN COMPANIES, BOSTON, MA 02109
0105402300	113 SUMNER ST 72	EAST BOSTON	02128	LANGONE KRISTIN M 113 SUMNER ST #72, E BOSTON, MA 02128

0105403000	99 111 SUMNER ST	EAST BOSTON	02128	DIV SUMNER STREET LLC C/O DAVIS COMPANIES 125 HIGH ST 21ST FL, BOSTON, MA 02110
0105398015	201 191 SUMNER ST	EAST BOSTON	02128	WOODBURY-CUNARD ASSOCIATES LP 201 SUMNER, EAST BOSTON, MA 02128
0105402300	113 SUMNER ST 64	EAST BOSTON	02128	ELIZAROVA OLGA 113 SUMNER ST #64, E BOSTON, MA 02128
0105401000	125 SUMNER ST	EAST BOSTON	02128	CLIPPERSHIP APARTMENTS LP SIX FANEUIL HALL MARKETPLACE, 5TH FLOOR 2 MARGINAL ST, BOSTON, MA 02128
0105398000	2 30 MARGINAL ST	EAST BOSTON	02128	HERITAGE HOUSING CORP C/O STEVEN DULOCK 2 MARGINAL ST, EAST BOSTON, MA 02128
0105396000	LEWIS ST	EAST BOSTON	02128	CITY OF BOSTON C/O RICHARD ARCIERO LEWIS, EAST BOSTON, MA 02128
0105402300	113 SUMNER ST 71	EAST BOSTON	02128	CHEUNG VICTOR C/O JARED AUERBACH 113 SUMNER ST #71, EAST BOSTON, MA 02128
0104446010	MARGINAL ST REAR	EAST BOSTON	02128	MASSACHUSETTS PORT AUTH C/O FISH PIER/JARED AUERBACH 1 HARBORSIDE DR #200S, EAST BOSTON, MA 02128
0105398005	S BREMEN ST	EAST BOSTON	02128	LEWIS MALL APARTMENTS INC C/O STEVE KIRK 72 MARGINAL ST, EAST BOSTON, MA 02128
0105399000	2 MSGR ALBERT A JACOBBE RD	EAST BOSTON	02128	HERITAGE HOUSING CORP C/O JACK CLARK 2 MSGR ALBERT A JACOBBE RD, EAST BOSTON, MA 02128
0104447010	MARGINAL ST	EAST BOSTON	02128	MASSACHUSETTS PORT AUTH C/O MICHAEL GERATY MARGINAL ST, E BOSTON, MA 02128



**AFFIDAVIT OF SERVICE
FOR ABUTTER NOTIFICATION**

**Under the Massachusetts Wetlands Protection Act
and Boston Wetlands Ordinance**

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

A _____ was filed under the Massachusetts Wetlands Protection Act and/or the Boston Wetlands Ordinance by _____ for _____ located at _____.

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

Name

Date



BABEL NOTICE

English:

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

Spanish:

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

Haitian Creole:

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

Traditional Chinese:

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

Vietnamese:

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

Simplified Chinese:

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

Cape Verdean Creole:

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

Arabic:

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

Russian:

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

Portuguese:

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

French:

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





**NOTIFICATION TO ABUTTERS
BOSTON CONSERVATION COMMISSION**

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

A. _____ has filed a Certificate of Compliance with the Boston Conservation Commission after seeking permission to alter an Area Subject to Protection under the Wetlands Protection Act (General Laws Chapter 131, section 40) and Boston Wetlands Ordinance.

B. The address of the lot where the activity has completed is _____.

C. The project completed _____.

D. Copies of the Certificate of Compliance may be obtained by contacting the Boston Conservation Commission at CC@boston.gov.

E. Copies of the Certificate of Compliance may be obtained from _____ by contacting them at _____ between the hours of _____, _____.

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

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

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

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

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

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

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

NOTIFICACIÓN A LOS COLINDANTES

BOSTON CONSERVATION COMMISSION

De conformidad con la Ley de Protección de los Humedales de Massachusetts, Capítulo 131 de las Leyes Generales de Massachusetts, Sección 40, y con la Ordenanza sobre los Humedales de Boston, por la presente se le notifica a usted en calidad de colindante con un proyecto presentado ante la Boston Conservation Commission.

A. Fort Point Associates, Inc ha presentado un Certificado de Conformidad con la Boston Conservation Commission después de solicitar permiso para alterar un Área Sujeta a Protección bajo la Ley de Protección de los Humedales (Leyes Generales Capítulo 131, sección 40) y la Ordenanza de Humedales de Boston.

B. La dirección del lote en el que se propone la actividad es 25-65 Lewis Street, East Boston 02108.

C. El proyecto ha completado los trabajos de saneamiento, la construcción de 4 edificios, un paseo marítimo (Harborwalk), una línea de costa viva, muelles y otras mejoras en la orilla del agua y en los espacios abiertos.

D. Se pueden obtener copias del Certificado de Conformidad poniéndose en contacto con la Boston Conservation Commission en CC@boston.gov.

E. Pueden obtenerse copias del Certificado de Conformidad de Fort Point Associates, Inc poniéndose en contacto con ellos al 617-279-4382 o ewelch@fpa-inc.com entre las horas de 9 AM a 5 PM, de lunes a viernes.

F. De acuerdo con el Capítulo 20 de las Leyes de 2021, la audiencia pública tendrá lugar **virtualmente** en <https://zoom.us/j/6864582044>. Si no puede acceder al Internet, puede llamar al 1-929-205-6099, introduzca el número de identificación de la reunión 686 458 2044 # y utilice # como su identificación de participante.

G. La información relativa a la fecha y hora de la audiencia pública puede obtenerse de la **Boston Conservation Commission** enviando un correo electrónico a CC@boston.gov o llamando al (617) 635-3850 en el horario de **9 AM a 5 PM, de lunes a viernes**.

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

NOTE: El aviso de la audiencia pública, incluyendo su fecha, hora y lugar, se publicará en www.boston.gov/public-notices y en Boston City Hall con no menos de cuarenta y ocho (48) horas de antelación. Si desea formular observaciones, puede asistir a la audiencia pública o enviarlas por escrito a CC@boston.gov o a Boston City Hall, Environment Department, Room 709, 1 City Hall Square, Boston, MA 02201

NOTA: Si desea formular observaciones, puede asistir a la audiencia pública o enviarlas por escrito a comentarios por escrito a CC@boston.gov o a Boston City Hall, Environment Department, Room 709, 1 City Hall Square, Boston, MA 02201

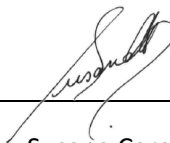
NOTA: También puede ponerse en contacto con la Boston Conservation Commission o el Department of Environmental Protection Oficina Regional del Nordeste para obtener más información sobre esta solicitud o la Ley de Protección de los Humedales. Para ponerse en contacto con el DEP, llame a: la Región Noreste: (978) 694-3200.

NOTA: Si tiene previsto asistir a la audiencia pública y necesita interpretación, notifíquelo al personal en CC@boston.gov antes de las 12 de la noche del día anterior a la audiencia.

CERTIFICATE OF INTERPRETATION

I, Susana Carella, hereby certify that I am competent in both the Spanish and English languages, and that I translated the required information and read the attached document, Notification to Abutters Boston Conservation Commission into Spanish. And that is true and accurate to the best of my abilities.

Date: March 31, 2022



Susana Carella

27 Prescott Ave #1

Chelsea, MA 02150

+1(617) 851-3180

BWSC INSPECTION SIGN OFF LIST	DATE AND SIGNATURE	COMMENT	DYE TEST	SAWCUT
A) PLUG EX. DRAIN LATERAL AT DRAIN MANHOLE	02/12/2020 C. Taylor			5' x 5'
B) REMOVE & DISPOSE OF EX. DRAIN MANHOLE	10/16/2020			5' x 5'
C) REMOVE & DISPOSE OF EX. DRAINAGE CATCH BASIN	02/12/2020 C. Taylor			5' x 5'
D) CONNECT EX. CATCH BASIN & INSTALL "DON'T DUMP" PLAQUE	12/06/2017 T. Hanlon			30' x 5'
E) 48" RCP CLASS IV OUTFALL PIPE	09/13/2017 T. Hanlon			245' x 8'
F) CONNECT TO EX. 10" SEWER MAIN	12/18/2017 R. Perrillo			25' x 5'
G) CONNECT TO EX. CATCH BASIN & INSTALL "DON'T DUMP" PLAQUE	09/07/2018 T. Hanlon			50' x 5'
H) CONNECT DOMESTIC SERVICE TO EX. 12" WATER MAIN (LS) WITH TS&V	08/31/2018 R. Perry			20' x 5'
I) CONNECT FIRE PROTECTION SERVICE TO EX. 12" WATER MAIN (LS) WITH TS&V	08/31/2018 R. Perry			20' x 5'
J) CONNECT SEWER SERVICE TO EX. 10" SEWER MAIN WITH WYE CONNECTION	12/29/2017 T. Hanlon			50' x 5'
K) CONNECT TO EX. DRAIN MANHOLE	02/12/2020 C. Taylor			15' x 5'
L) DRAINAGE CATCH BASIN 102 WITH "DON'T DUMP" PLAQUE	07/30/2019 R. Perry			15' x 5'
M) CONNECT EX. CATCH BASIN & INSTALL "DON'T DUMP" PLAQUE	11/21/2017 T. Hanlon			30' x 5'
N) OVERFLOW DRAIN #11	11/25/2020 Davis			NA
O) OUTLET CONTROL STRUCTURE 401	07/02/2018 T. Hanlon			5' x 5'
P) OVERFLOW DRAIN #24	11/25/2020 Davis			NA
Q) 2,500 GALLON GREASE TRAP	11/13/2018 T. Hanlon			NA
R) OVERFLOW DRAIN #25	10/20/2020 R. Perry			NA
S) OVERFLOW DRAIN #26	10/20/2020 R. Perry			NA
T) OVERFLOW DRAIN #27	10/20/2020 R. Perry			NA
X) DRAIN MANHOLE 204	10/23/2018 J. Horan			NA
Z) OVERFLOW DRAIN #28	10/23/2018 J. Horan			NA
A1) OUTLET CONTROL STRUCTURE 402	11/21/2018 R. Perry			NA
H1) RAIN GARDEN #3	07/30/2019 R. Perry			NA
I1) OVERFLOW DRAIN #4	10/23/2018 J. Horan			NA
J1) RAIN GARDEN #4	07/30/2019 R. Perry			NA
K1) OVERFLOW DRAIN #5	10/23/2018 J. Horan			NA
L1) RAIN GARDEN #5	07/30/2019 R. Perry			NA
M1) OVERFLOW DRAIN #6	10/23/2018 J. Horan			NA
N1) RAIN GARDEN #6	07/30/2019 R. Perry			NA
O1) OVERFLOW DRAIN #7	10/23/2018 J. Horan			NA
P1) DRAIN MANHOLE 201	01/24/2018 R. Parra			NA
Q1) 18" OUTFALL PIPE WITH TIDFLEX INLINE CHECK VALVE	03/22/2019 C. Taylor			NA
R1) OUTLET CONTROL STRUCTURE 400	02/22/2018 T. Krabey			NA
S1) OVERFLOW DRAIN #21	11/21/2018 R. Perry			NA
T1) 24" OUTFALL PIPE WITH TIDFLEX INLINE CHECK VALVE	03/22/2019 C. Taylor			NA
U1) BIORETENTION BASIN #2	07/30/2019 R. Perry			NA
V1) OVERFLOW DRAIN #22	07/30/2019 R. Perry			NA
X1) BIORETENTION BASIN #1	07/30/2019 R. Perry			NA
Y1) OVERFLOW DRAIN #20	07/30/2019 R. Perry			NA
Z1) WATER QUALITY STRUCTURE 300	11/13/2018 T. Hanlon			NA
A2) OVERFLOW DRAIN #23	07/30/2019 R. Perry			NA
B2) DRAIN MANHOLE 200	05/25/2017 T. Krabey			NA
C2) OVERFLOW DRAIN #1	10/20/2020 R. Perry			NA
D2) DRAIN MANHOLE 200	**deleted from scope**			NA
E2) OVERFLOW DRAIN #33	07/30/2019 R. Perry			NA
F2) DRAIN MANHOLE 208	11/13/2018 T. Hanlon			NA
G2) CONNECT TO EXISTING 12" BWSC MAIN	05/31/2019 T. Hanlon			NA
H2) DRAIN MANHOLE 207	03/31/2017 T. Hanlon			10' x 10'
I2) SEWER MANHOLE 01	07/02/2018 T. Hanlon			NA
J2) OVERFLOW DRAIN #12	03/05/2019 T. Hanlon			NA
K2) OVERFLOW DRAIN #13	03/05/2019 T. Hanlon			NA
L2) OVERFLOW DRAIN #14	03/05/2019 T. Hanlon			NA
M2) OVERFLOW DRAIN #15	03/05/2019 T. Hanlon			NA
N2) DRAIN MANHOLE 206	11/13/2018 T. Hanlon			NA
O2) TRENCH DRAIN 01	07/30/2019 R. Perry			NA
P2) WATER QUALITY STRUCTURE 301	08/18/2018 T. Hanlon			NA
Q2) OVERFLOW DRAIN #16	03/05/2021 G. Gameau			NA
R2) OVERFLOW DRAIN #17	07/30/2019 R. Perry			NA
S2) OVERFLOW DRAIN #18	03/05/2019 T. Hanlon			NA
T2) OVERFLOW DRAIN #19	03/05/2019 T. Hanlon			NA
U2) DRAINAGE CATCH BASIN 103 WITH "DON'T DUMP" PLAQUE	07/30/2019 R. Perry			5' x 5'
V2) CONNECT TO EX. DRAIN MANHOLE	07/30/2019 R. Perry			10' x 5'
W2) PLUG EX. 12" DRAIN LATERAL AT DRAIN MANHOLE	03/05/2021 G. Gameau			5' x 5'
X2) REMOVE & DISPOSE OF EX. DRAINAGE CATCH BASIN	03/05/2021 G. Gameau			5' x 5'
Y2) PLUG EX. DRAIN LATERAL AT DRAIN MANHOLE	02/12/2020 C. Taylor			5' x 5'
Z2) REMOVE & DISPOSE OF EX. DRAIN MANHOLE	03/30/2017 T. Hanlon			5' x 5'
A3) PLUG EX. 12" DRAIN LATERAL AT DRAIN MANHOLE	11/21/2017 T. Hanlon			40' x 5'
B3) CORE CONNECTION TO 48" OUTFALL PIPE	11/21/2017 T. Hanlon			1,418 cf
C3) CORE CONNECTION TO 48" OUTFALL PIPE	10/31/2017 T. Hanlon			35' x 5'
D3) CONNECT TO EX. CATCH BASIN & INSTALL "DON'T DUMP" PLAQUE	10/31/2017 T. Hanlon			5' x 5'
E3) REMOVE & DISPOSE OF EX. DRAIN MANHOLE	10/31/2017 T. Hanlon			10' x 5'
F3) CUT & CAP EX. 24" DRAIN LINE AT DRAIN MANHOLE	03/05/2019 T. Hanlon			NA
G3) INFILTRATION TRENCH 1	08/31/2018 R. Perry			NA
H3) INFILTRATION TRENCH 2	07/02/2018 T. Hanlon			NA
I3) INFILTRATION TRENCH 3	08/31/2018 R. Perry			NA
K3) NEW HYDRANT	05/31/2019 T. Hanlon			NA
L3) REMOVE & DISPOSE OF EX. DRAIN LATERAL	10/31/2017 T. Hanlon			35' x 5'
M3) DRAIN MANHOLE 210	07/14/2018 T. Hanlon			5' x 5'
N3) 36" SDR 35 PVC STUB FOR FUTURE USE	07/14/2018 T. Hanlon			5' x 5'
F3) CONNECT TO EX. 36" PVC STUB	07/30/2018 T. Hanlon			NA
G3) 24" OUTFALL PIPE WITH TIDFLEX INLINE CHECK VALVE	07/02/2018 T. Hanlon			NA
R3) OVERFLOW DRAIN #10	03/05/2021 G. Gameau			NA
S3) TIDEGATE STRUCTURE	02/23/2017 A. Leone			NA
T3) OVERFLOW DRAIN #29	07/30/2019 R. Perry			NA
U3) 8" DAYLIGHT DRAIN SERVICE WITH HEADWALL	11/21/2018 R. Perry			NA
V3) ADJUST EX. CATCH BASIN FRAME & GRATE	**deleted from scope**			5' x 5'
NUMBER OF "DON'T DUMP" PLAQUES = 6	03/05/2021 G. Gameau			NA
POST VIDEO INSPECTION OF 36" & 48" STORM DRAIN PIPES (MEETING BWSC SPEC.)				NA
AS-BUILT PLAN				NA
4 TO 1/1				NA

BOSTON WATER & SEWER COMMISSION

Backwater Valve Installation

Approved: *[Signature]* Date: 5/5/17

0.5" RECHARGE CALCULATIONS:

BWSC requires groundwater recharge in the volume equal to 0.5" of storage over the impervious area of the site.

REQUIRED STORAGE VOLUME

Impervious Area = 201,276 sf
0.5" of runoff (0.042 ft) over the area = 0.042' x 201,276 s.f. = 8,387 cf

PROVIDED STORAGE VOLUME

1. Infiltration Trench #1:
405 ft of 24" pipe storage = 405 ft x 3.14 x (1.0 ft)² = 1,272 cf
2,000 sf of crushed stone =
[(area stone x depth of storage) - (pipe volume)] x 30% =
[(2,000 sf x 3.0 ft) - (1,272 cf)] x 30% = 1,418 cf
Total Storage (Pipe + Crushed Stone) = 1,272 cf + 1,418 cf = 2,690 cf

2. Infiltration Trench #2:
357 ft of 24" pipe storage = 357 ft x 3.14 x (1.0 ft)² = 1,122 cf
2,500 sf of crushed stone =
[(area stone x depth of storage) - (pipe volume)] x 30% =
[(2,500 sf x 2.0 ft) - 1,122 cf] x 30% = 1,163 cf
Total Storage (Pipe + Crushed Stone) = 1,122 cf + 1,163 cf = 2,285 cf
Storage due to 1 manhole: [3.14 x (2.5 ft)² x 4 ft. depth] = 78 cf
2,285 cf + 78 cf = 2,363 cf

3. Infiltration Trench #3:
658 ft of 24" pipe storage = 658 ft x 3.14 x (1.0 ft)² = 2,067 cf
2,046 sf of crushed stone =
[(area stone x depth of storage) - (pipe volume)] x 30% =
[(2,046 sf x 3.0 ft) - 2,067 cf] x 30% = 1,221 cf
Total Storage (Pipe + Crushed Stone) = 2,067 cf + 1,221 cf = 3,288 cf
Storage due to 3 manholes: [3.14 x (2.5 ft)² x 6 ft. depth] = 118 c.f. x 3 = 354 cf
3,288 cf + 354 cf = 3,642 cf

Total Storage: 2,690 + 2,363 + 3,642 = **8,695 cf**

Required Storage = 8,387 < 8,695 cf = Storage Provided

RECHARGE REQUIREMENTS:

THIS PROJECT WILL RECHARGE 0.57 INCHES OF RUNOFF FROM IMPERVIOUS AREAS AS APPROVED BY THE BOSTON CONSERVATION COMMISSION ON AUGUST 3, 2015, DEP FILE #006-1431.

IMPERVIOUS AREA = 201,276 SF

REQUIRED RECHARGE = 8,387 CF (0.5")

STORAGE PROVIDED BY BIORETENTION BASINS (FOR ADDITIONAL DRAINAGE INFORMATION, PLEASE SEE THE REPORT ENTITLED "STORMWATER REPORT, CLIPPERSHIP WHARF, PREPARED FOR LEND LEASE DEVELOPMENT, INC. PREPARED BY NITSCHE ENGINEERING" DATED JULY 8, 2015.

STORAGE PROVIDED BY INFILTRATION SYSTEMS: 8,695 CF

PROVIDED RECHARGE = 9,553 CF

BWSC FILE NO. 15322

BWSC USE ONLY

ALL WATER, SEWER AND DRAIN SERVICE CONNECTIONS TO BOSTON WATER AND SEWER COMMISSION FACILITIES MUST BE PERFORMED BY A BONDED DRAIN LAYER LICENSED BY THE BOSTON WATER AND SEWER COMMISSION.

SITE ADDRESS:
25-65 LEWIS STREET
BOSTON, MASSACHUSETTS 02128
WARD: 01
PARCEL: 05397000; 05400000

OWNER CONTACT:
LEND LEASE CLIPPERSHIP WHARF LLC
ATTN: NICHOLAS ISELIN
20 CITY SQUARE, 2ND FLOOR
BOSTON, MA 02129
P: 617-557-6417

BUILDING USE:
RESIDENTIAL/COMMERCIAL

ACCOUNT NUMBER - TO BE ASSIGNED:

LAND USE CODE:
R: RESIDENTIAL
C: COMMERCIAL

BOSTON WATER AND SEWER COMMISSION
Reviewed and approved as to proposed connection(s) to existing Water and Sewer facilities as shown on the issue of Building Permit Only. Additional Permits plus fees shall be obtained prior to Connection to BWSC facilities. Site File # 15322-001 of one (1) year from date of approval.
[Signature] 5/17
JOHN P. SULLIVAN, JR. P.E.
Chief Engineer

BOSTON WATER & SEWER COMMISSION
Cross Connection
Approval: *[Signature]* Date: 5/5/17

BWSC INSPECTION SIGNOFF LIST	INSPECTOR	DATE	COMMENT	SAWCUT	DYE TEST
W3) OVERFLOW DRAIN #30	Davis	11/25/2020			
X3) OVERFLOW DRAIN #31	T. Hanlon	03/05/2019			
Y3) OVERFLOW DRAIN #32	G. Gameau	03/05/2021			
S) 24" OUTFALL PIPE WITH TIDFLEX INLINE CHECK VALVE	R. Perry	11/21/2018			
T) SEWER MANHOLE 02	R. Perry	11/21/2018			
A4) 4" UNDERDRAIN CONNECTION TO CATCH BASIN	**deleted from scope**				
B4) 4" UNDERDRAIN CONNECTION TO CATCH BASIN	**deleted from scope**				
C1) 5'X5'X5" CRUSHED STONE BASE UNDER DOG RINSE	R. Perry	11/21/2018			
(C) CAP & SEAL EX. TEMP. DRAIN CONNECTION TO EX. 24X30 SEWER MAIN	T. Hanlon	03/05/2019			
C3) DMH-209	C. McGuire	02/12/2019			
C4) DMH-212	R. Perry	11/21/2018			
C5) DMH-210	R. Perry	11/21/2018			
C6) DMH-211	R. Perry	11/21/2018			

BWSC & CONTRACTOR NOTES:

- THE ESTIMATED SANITARY SEWAGE DISCHARGE IS 76,390 GALLONS PER DAY (GPD). THIS ESTIMATE IS BASED ON 310 C.M.R. 15.000 THE STATE ENVIRONMENTAL CODE, TITLE 5: STANDARD REQUIREMENTS FOR THE SITING, CONSTRUCTION, INSPECTION, UPGRADE AND EXPANSION OF ON-SITE SEWAGE TREATMENT AND DISPOSAL SYSTEMS AND FOR THE TRANSPORT AND DISPOSAL OF SEPTAGE.
- THE ESTIMATED DAILY WATER USE IS 84,029 GPD BASED ON THE ESTIMATED SANITARY SEWAGE DISCHARGE WITH A 10% PEAKING FACTOR. THE PEAK DOMESTIC FLOW BASED ON FIXTURE COUNTS IS APPROXIMATELY 693 GPM.
- TWO - 3" COMPOUND WATER METERS WILL BE EITHER NEPTUNE OR ELSTER AMCO COMPOUND TYPE METERS. THE METERS MUST BE PURCHASED BY THE CONTRACTOR. A METER TRANSMITTER UNIT (MTU) SHALL BE SUPPLIED BY THE COMMISSION AT THE OWNER'S EXPENSE. A FEE OF \$325/MTU WILL BE PAID TO THE COMMISSION AT THE TIME OF FILING THE GENERAL SERVICE APPLICATION.
- BACKWATER VALVES SHALL BE PROVIDED BY THE PLUMBER AT ALL GRAVITY SANITARY SEWER AND STORM DRAIN CONNECTIONS FOR ANY FIXTURE LOCATED AT AN ELEVATION BELOW THE TOP OF THE SEWER OR DRAIN MANHOLE.
- THE CONTRACTOR SHALL NOTIFY THE BWSC CROSS-CONNECTION DEPARTMENT AT 617-989-7283 ONCE BACKWATER VALVES ARE INSTALLED FOR BWSC INSPECTION.
- DYE TESTING SHALL BE PERFORMED ON NEW STORM DRAIN AND SANITARY SEWER CONNECTIONS AFTER INSTALLATION IS COMPLETE. DYE TESTS SHALL BE WITNESSED BY THE BWSC.
- A PREREQUISITE FOR FILING A GENERAL SERVICE APPLICATION WITH THE BWSC FOR NEW CONSTRUCTION IS THE ROUGH CONSTRUCTION SIGN-OFF DOCUMENT FROM THE CITY OF BOSTON'S INSPECTIONAL SERVICES DEPARTMENT.
- IN ADDITION TO THE INSPECTION FEES, A DEPOSIT BASED ON THE SIZE OF THE WATER SERVICE, FIRE PIPE, SEWER OR DRAIN CONNECTION MUST ACCOMPANY THE GSA SUBMISSION. UPON RECEIPT OF THE APPROPRIATE DEPOSIT, THE COMMISSION WILL ESTABLISH A WATER AND SEWER ACCOUNT AND ASSIGN AN ACCOUNT NUMBER TO THE PROPERTY. THE TOTAL AMOUNT OF A DEPOSIT FOR A GSA SHALL NOT EXCEED TEN THOUSAND DOLLARS (\$10,000.00).
- AN AS-BUILT PLAN (AUTOCAD 2012 OR EARLIER RELEASE) SHALL BE PROVIDED BY THE CONTRACTOR AND ENDORSED BY A CIVIL ENGINEER OR PROFESSIONAL LAND SURVEYOR SHOWING THE LOCATION, DEPTH, AND INVERT OF EVERY BEND, FITTING, VALVE, CLEANOUT AND ANCHOR. THE AS-BUILT DRAWING SHALL BE SUBMITTED TO THE BOSTON AND WATER SEWER COMMISSION FOR REVIEW AND APPROVAL.
- WATER SHUT DOWN SHALL BE COORDINATED WITH BWSC WATER OPERATIONS, (617) 989-7276, 24 HOURS NOTICE REQUIRED.
- PROVIDE "DON'T DUMP" PLAQUES AT ALL CATCH BASIN AND DRAIN INLET LOCATIONS. "DON'T DUMP" PLAQUES TO BE PURCHASED FROM BWSC.
- THE CONTRACTOR SHALL PURCHASE THE NEW HYDRANT(S) FROM THE BWSC. THE CONTRACTOR SHALL PURCHASE THE HYDRANT(S) FROM THE COMMISSION WHEN FILING THE GENERAL SERVICE APPLICATION.
- THE CONTRACTOR SHALL TELETYPE THE CONSTRUCTED 36" AND 48" BWSC STORM DRAINS IN CLIPPERSHIP LANE AND SUMNER STREET AFTER CONSTRUCTION IS COMPLETE AND SUBMIT TO BWSC AND NITSCHE ENGINEERING FOR REVIEW. THE INSPECTION SOFTWARE SHALL BE CAPABLE OF EXPORTING DIGITAL INSPECTION LOG DATA INTO AN MSACCESS DATABASE IN THE PIPELINE ASSESSMENT AND CERTIFICATION PROGRAM (PACP) STANDARD EXCHANGE FORMAT (MPG). THE INSPECTION SOFTWARE CODING SYSTEM SHALL BE PACP CERTIFIED (LATEST EDITION) AS PER THE NATIONAL ASSOCIATION OF SEWER SERVICE COMPANIES (NASSCO). THE SOFTWARE SHALL BE EQUIPPED WITH ALL MODULES NECESSARY FOR PACP INSPECTIONS AND SCORING. THE CONTRACTOR SHALL COORDINATE DIRECTLY WITH BWSC TO DETERMINE AN APPROVED VIDEO INSPECTION COMPANY AND DELIVERABLE. SEE BWSC TV INSPECTION SPECIFICATION.
- THE INSTALLATION OF THE 48-INCH DRAIN MAIN IN CLIPPER SHIP LANE AND THE STORMWATER OUTFALL WITHIN THE PROJECT SITE WILL REQUIRE BWSC INSPECTION DURING THE INSTALLATION AS DETAILED BY BWSC IN THE GSA. THE CONTRACTOR ESTIMATES THAT BWSC INSPECTION WILL BE REQUIRED FOR 30 DAYS FOR THE STORM DRAIN AND STORMWATER OUTFALL WORK.



The Architectural Team, Inc.
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Consultant:



Nitsch Engineering

Revision:	
PERMIT SET	12/01/15
REVISED	12/17/15
BWSC SUBMISSION	12/30/15
100% CONSTRUCTION DOCS	03/17/16
REVISED 100% CDS	05/04/16
ADDENDUM 02	06/30/16
ADDENDUM 03	10/21/16
ADDENDUM 04	10/31/16
BULLETIN-001	11/30/16
BULLETIN-004	12/07/16
BULLETIN-025	02/10/17
BULLETIN-026	02/10/17
BULLETIN-042	05/26/17

Architect of Record:

Drawn: RMG
Checked: JMS
Scale: NOT TO SCALE
Key Plan:



Project Name:
CLIPPERSHIP WHARF

EAST BOSTON, MA

Sheet Name:
BWSC NOTES, INSPECTION TABLE & CALCULATIONS

Project Number:
13166

Issue Date:
OCTOBER 28, 2016

Sheet Number:

C-101

MASSACHUSETTS STATE PLANE
NAD 83

③ INFILTRATION TRENCH #1 (INF #1)
405-LF 24" PERF. CPP PIPE
EMBEDDED IN WASHED CRUSHED STONE
TOP STONE EL=14.5
PIPE INV=12.00
BOT STONE EL=11.00
WEIR WALL EL=14.00
PROVIDES APPROX. 2,690 CF STORAGE

③ INFILTRATION TRENCH 1 (INF #1)
405-LF 24" PERF. CPP PIPE
EMBEDDED IN WASHED CRUSHED STONE
TOP STONE EL=14.50
PIPE INV=12.00
BOT STONE EL=11.00
PROVIDES APPROX. 2,690 CF STORAGE

MATCHLINE
SEE SHEET 2

- General Notes
- 25-65 LEWIS STREET
BOSTON, MA 02128
 - WARD NO. 01, PARCEL NO.
05397000, 05400000
 - WATER ACCOUNT NO. 135659002
 - PROJECT FILE NO. 15322
 - OWNER:
LEND LEASE CLIPPERSHIP WHARF
LLC
20 CITY SQUARE, 2ND FLOOR
BOSTON, MA 02128
CONTACT: NICHOLAS ISELIN
(617) 557-6417
 - ACCOUNT TO REMAIN
 - GSA 11853, 11856

LEGEND

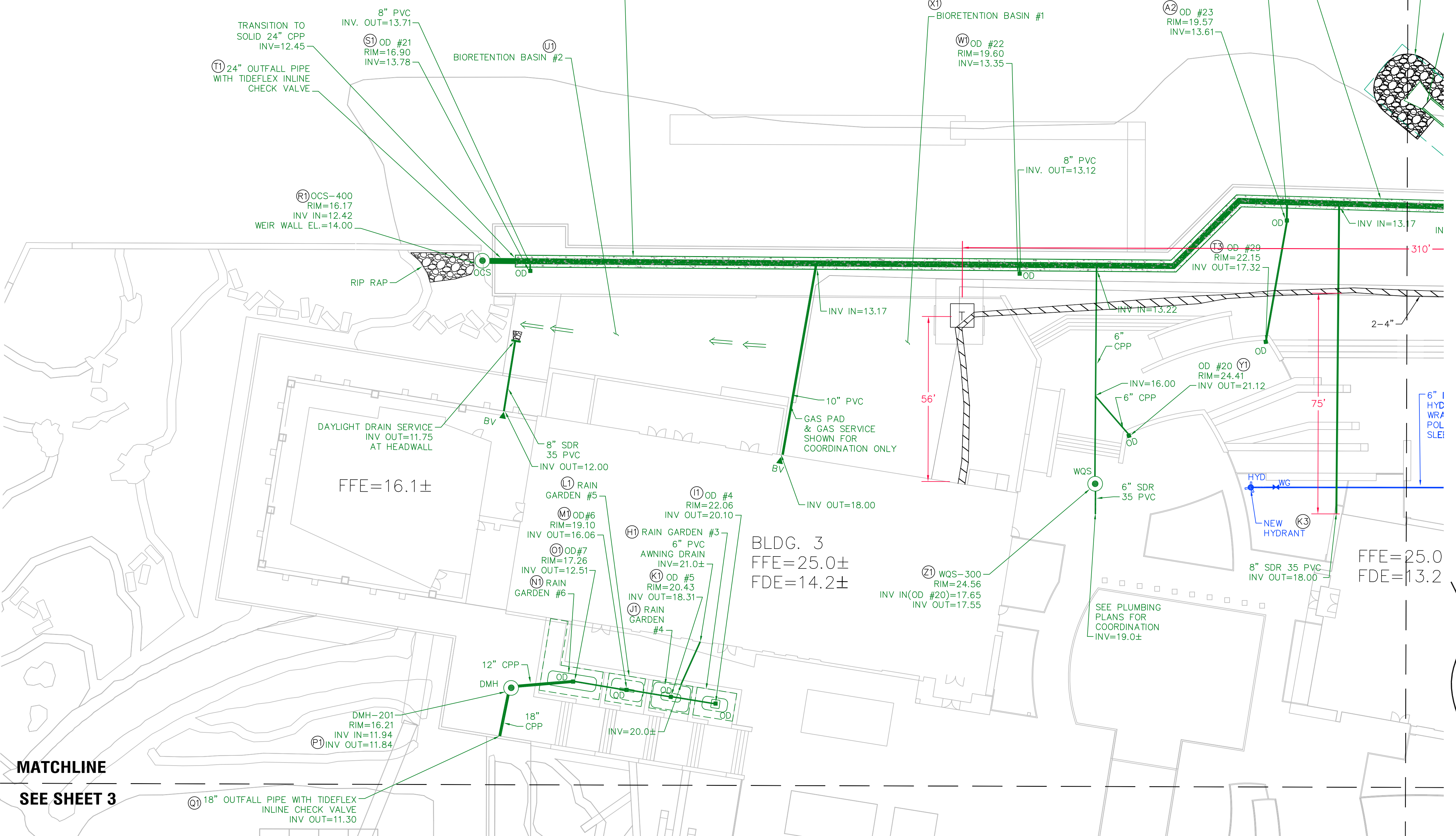
	DOMESTIC WATER
	GATE VALVE
	HYDRANT
	SANITARY SEWER
	SEWER MANHOLE
	STORM DRAIN
	DRAIN MANHOLE
	CATCH BASINS

No.	Revision/Issue	Date
4	As-built complete	3/10/21
3	Construction update	9/16/19
2	Construction update	6/21/19
1	Construction update	4/02/19

A.A. WILL CORPORATION
145 ISLAND STREET
STOUGHTON, MA 02072
(781) 341-4800
CONTACT: MIKE RENNIE,
MIKE BROOKS

CLIPPERSHIP WHARF
BWSC WATER, SEWER &
DRAIN
UTILITY ASBUILT
PLAN

Project	Sheet
Date 10/25/2018	1
Scale 1" = 20'	



MATCHLINE
SEE SHEET 3

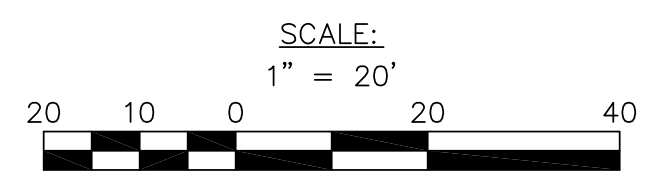
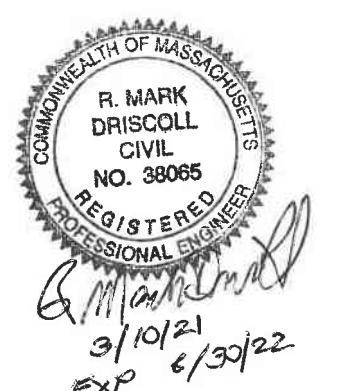
AS BUILT PLAN CERTIFICATION

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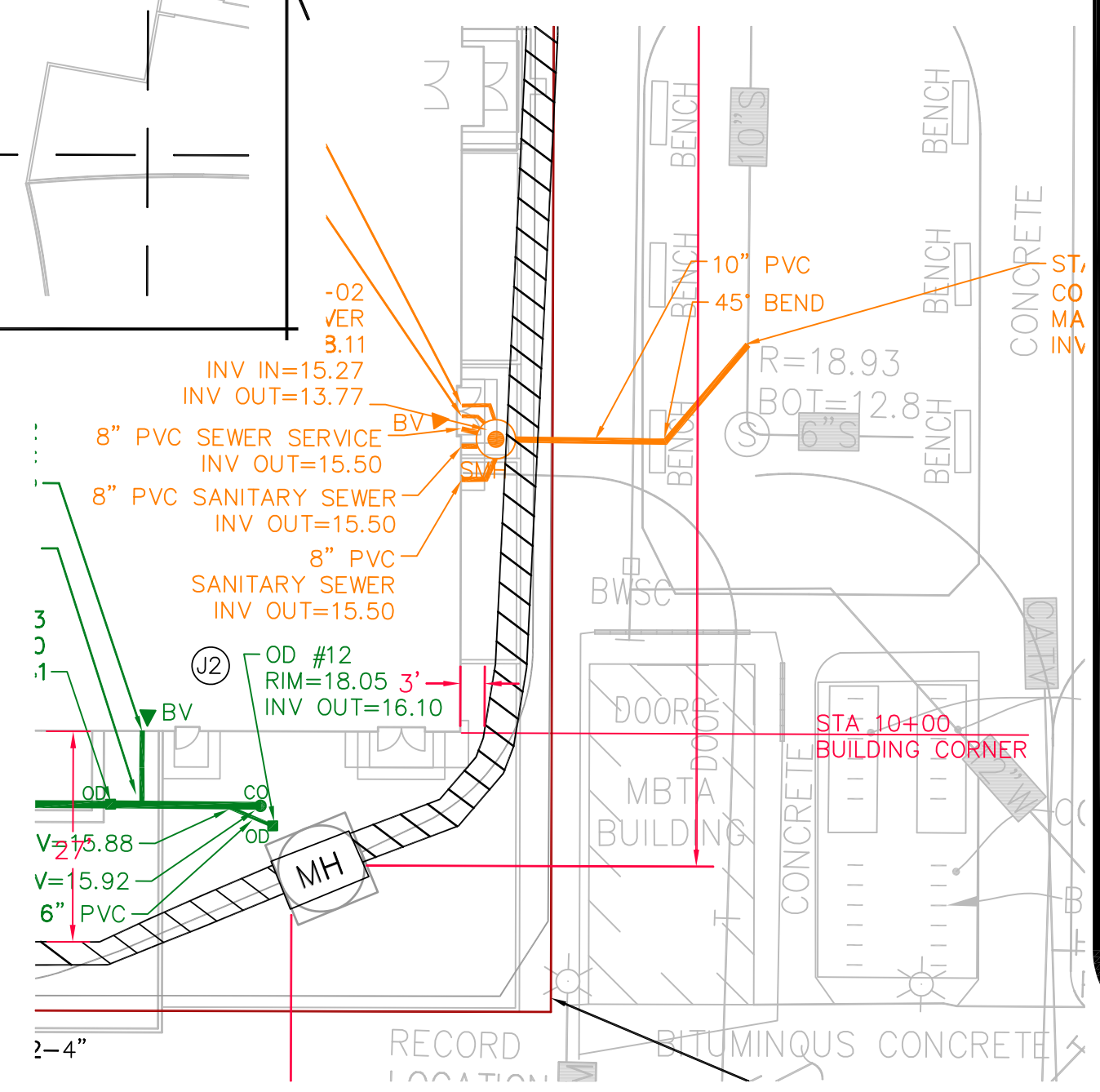
Engineer's Name, PE/PLS: R. MARK DRISCOLL Date: 3/10/21 PE Number: 98065
Expiration Date: 6/30/22

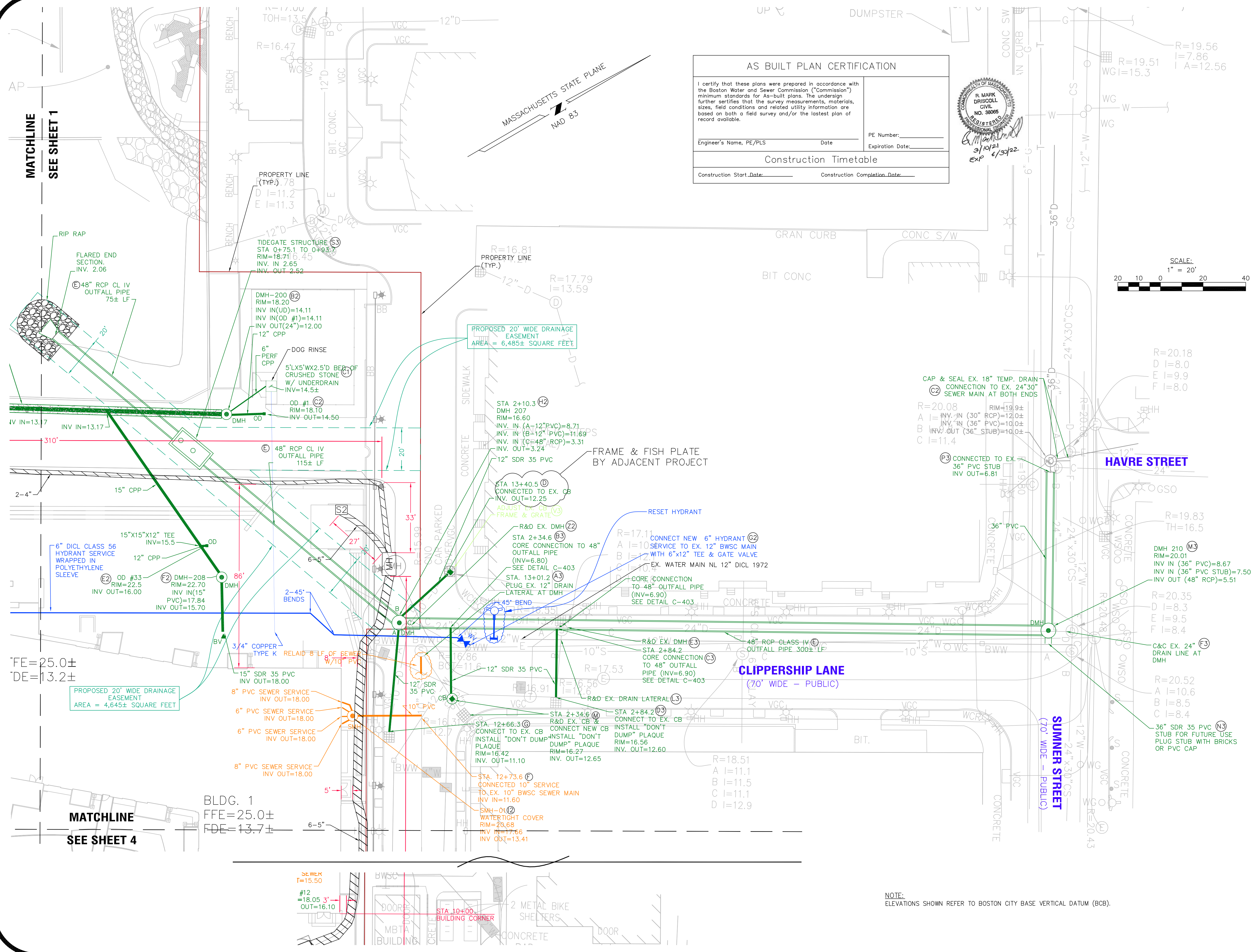
Construction Timetable

Construction Start Date: _____ Construction Completion Date: _____



NOTE:
ELEVATIONS SHOWN REFER TO BOSTON CITY BASE VERTICAL DATUM (BCB).





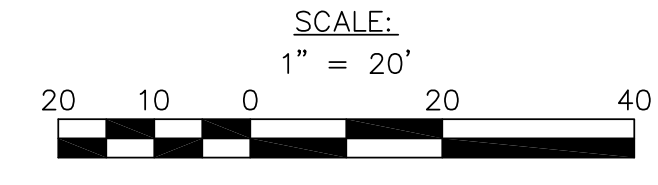
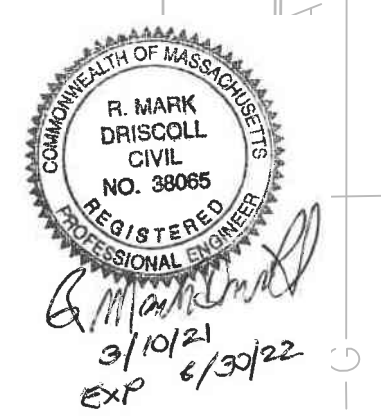
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Engineer's Name, PE/PLS: R. MARK DRISCOLL Date: 3/10/21 PE Number: 010000000
 Expiration Date: 6/30/22

Construction Timetable

Construction Start Date: _____ Construction Completion Date: _____



- General Notes**
- 25-65 LEWIS STREET BOSTON, MA 02128
 - WARD NO. 01, PARCEL NO. 05397000, 05400000
 - WATER ACCOUNT NO. 135659002
 - PROJECT FILE NO. 15322
 - OWNER: LEND LEASE CLIPPERSHIP WHARF LLC, 20 CITY SQUARE, 2ND FLOOR, BOSTON, MA 02129, CONTACT: NICHOLAS ISELIN (617) 557-6417
 - ACCOUNT TO REMAIN
 - GSA 11853, 11856

LEGEND

- Blue line: DOMESTIC WATER
- Blue line with X: GATE VALVE
- Blue line with circle: HYDRANT
- Orange line: SANITARY SEWER
- Orange circle: SEWER MANHOLE
- Green line: STORM DRAIN
- Green circle: DRAIN MANHOLE
- Green square: CATCH BASINS

No.	Revision/Issue	Date
4	As-built complete	3/10/21
3	Construction update	9/16/19
2	Construction update	6/21/19
1	Construction update	3/21/19

A.A. WILL CORPORATION
 145 ISLAND STREET
 STOUGHTON, MA 02072
 (781) 341-4800

CONTACT: MIKE RENNIE,
 MIKE BROOKS

CLIPPERSHIP WHARF
 BWSC WATER, SEWER & DRAIN
 UTILITY ASBUILT
 PLAN

Project	Sheet
Date: 10/25/2018	2
Scale: 1" = 20'	

NOTE:
 ELEVATIONS SHOWN REFER TO BOSTON CITY BASE VERTICAL DATUM (BCB).

General Notes

- 25-65 LEWIS STREET
BOSTON, MA 02128
- WARD NO. 01, PARCEL NO. 05397000, 05400000
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BOSTON, MA 02129
CONTACT: NICHOLAS ISELIN (617) 557-6417
 - ACCOUNT TO REMAIN
 - GSA 11853, 11856

LEGEND

- DOMESTIC WATER
- GATE VALVE
- HYDRANT
- SANITARY SEWER
- SEWER MANHOLE
- STORM DRAIN
- DRAIN MANHOLE
- CATCH BASINS

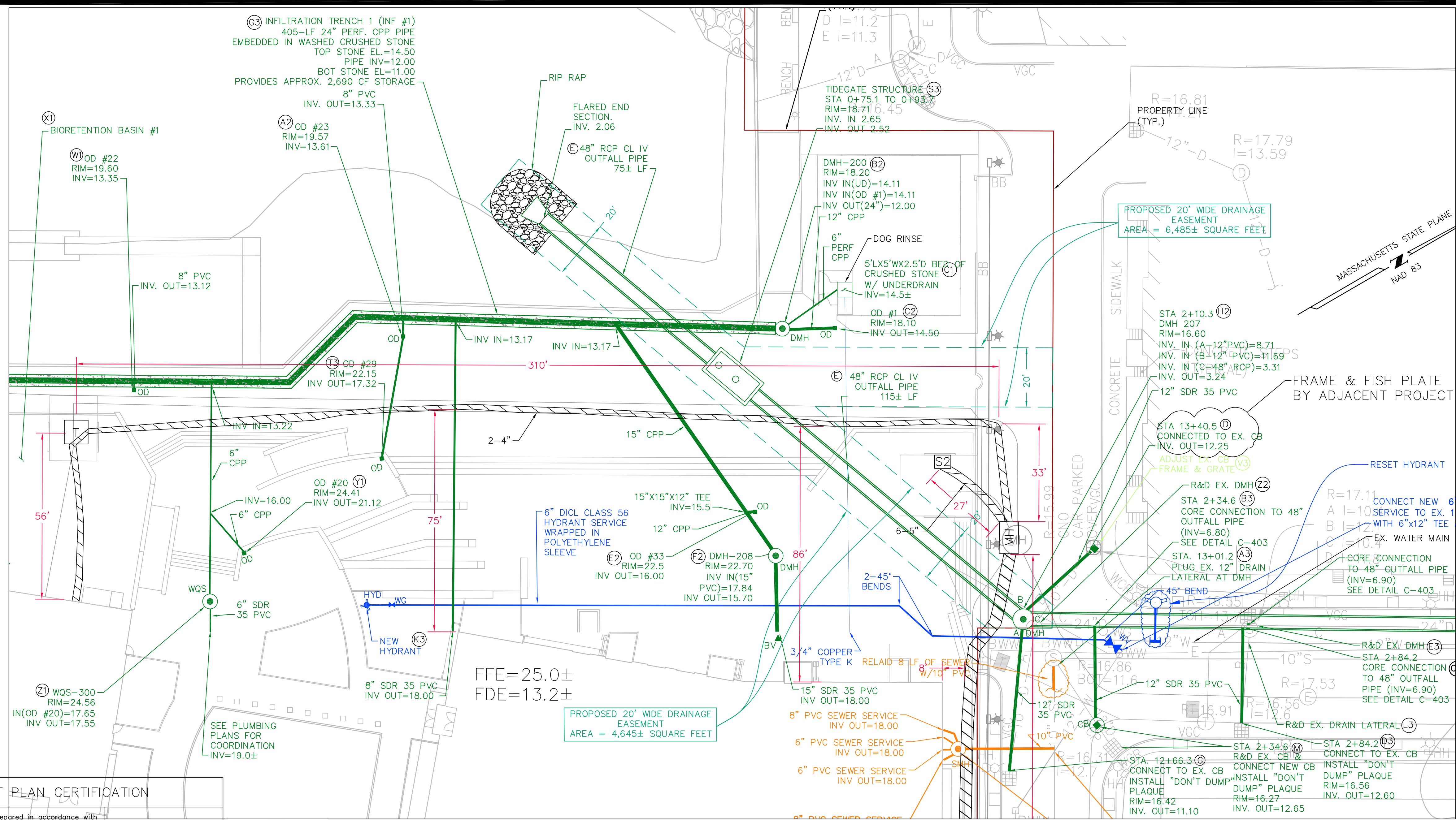
No.	Revision/Issue	Date
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3	Construction update	9/16/19
2	Construction update	6/21/19
1	Construction update	4/02/19

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145 ISLAND STREET
STOUGHTON, MA 02072
(781) 341-4800

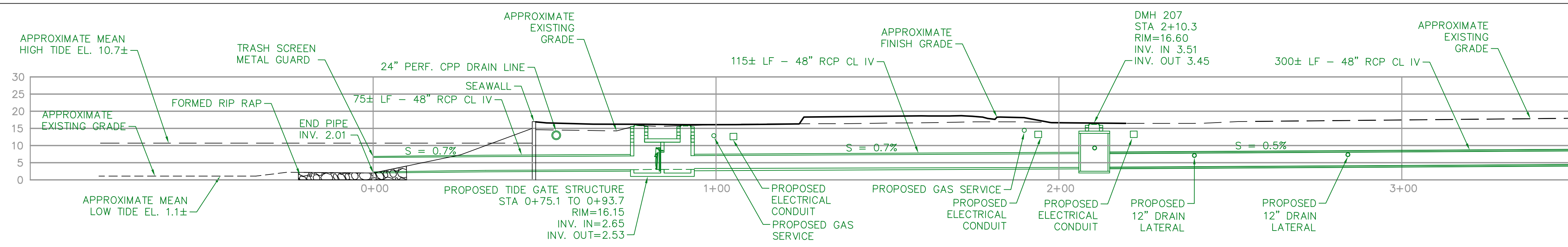
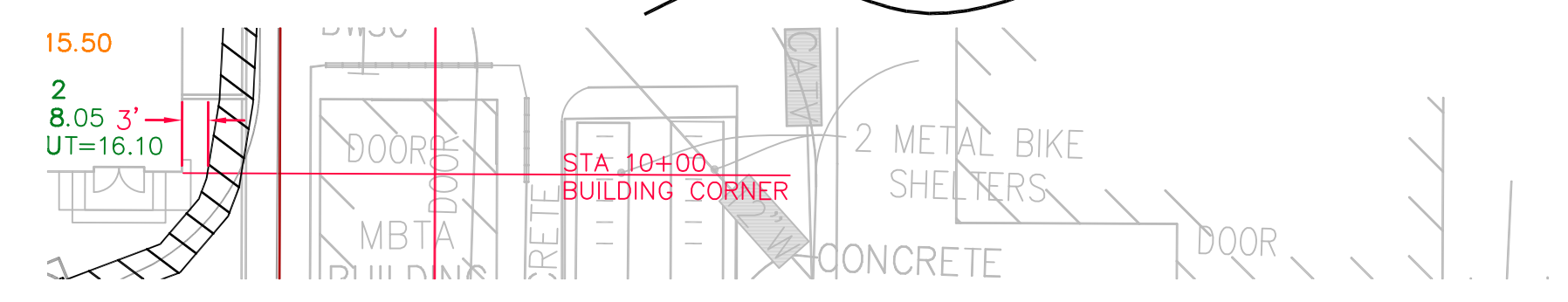
CONTACT: MIKE RENNIE,
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CLIPPERSHIP WHARF
BWSC WATER, SEWER &
DRAIN
UTILITY ASBUILT
PLAN

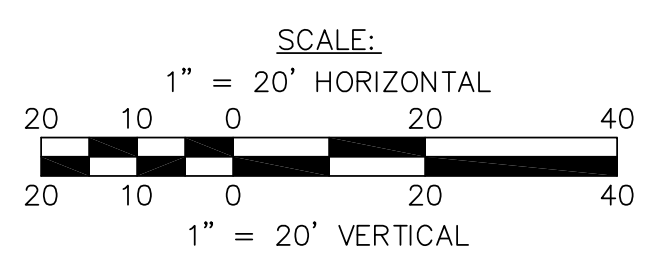
Project	Sheet
Date 10/25/2018	2A
Scale 1" = 20'	



48" STORM DRAIN OUTFALL PLAN
SCALE: 1" = 20'



48" STORM DRAIN OUTFALL PROFILE
SCALE: 1" = 20' HORIZONTAL
1" = 20' VERTICAL



NOTE:
ELEVATIONS SHOWN REFER TO BOSTON CITY BASE VERTICAL DATUM (BCB).

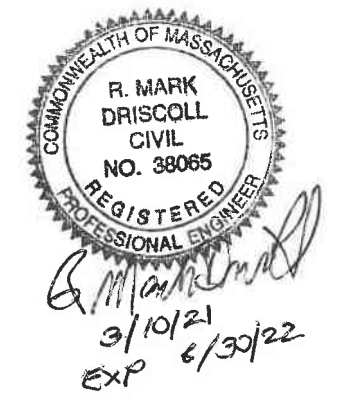
AS BUILT PLAN CERTIFICATION

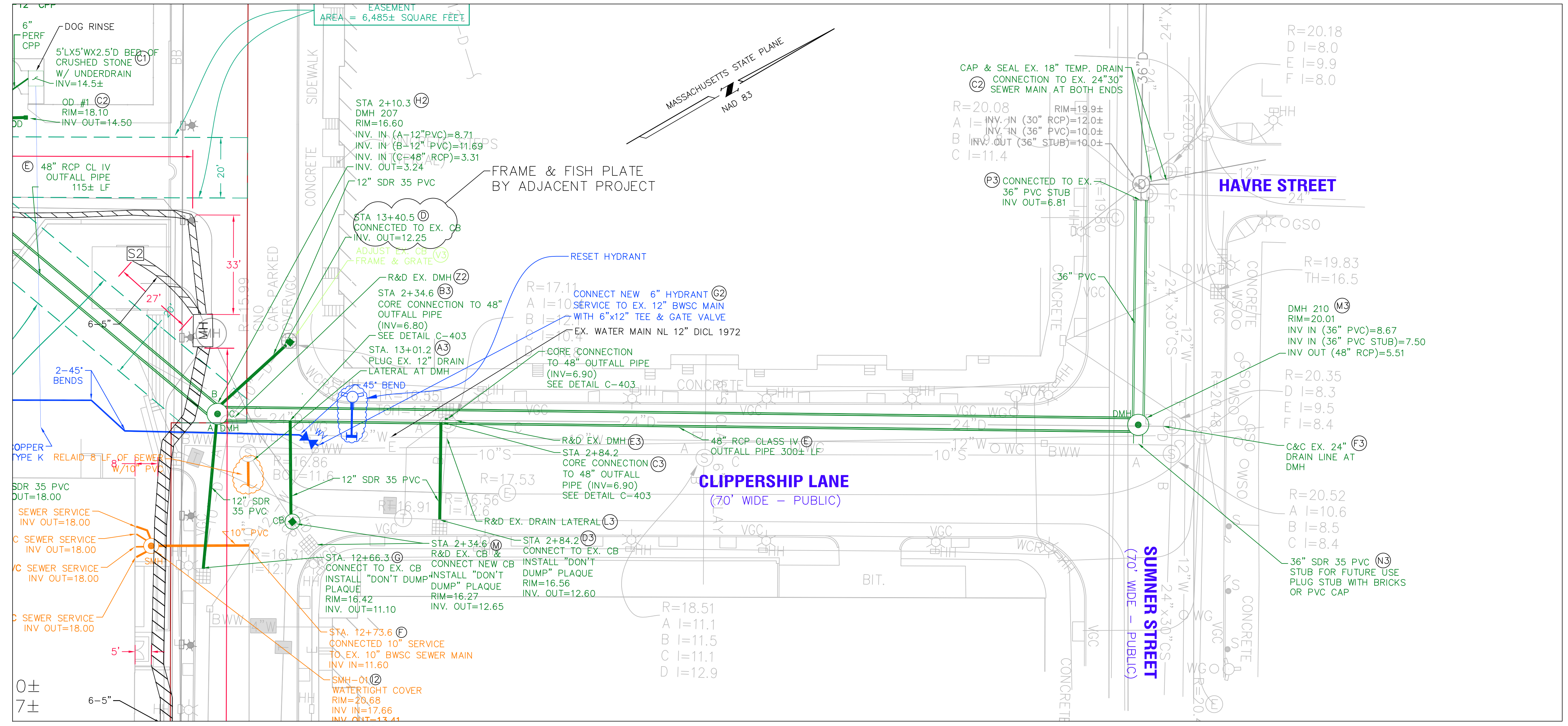
I certify that these plans were prepared in accordance with the Boston Water and Sewer Commission ("Commission") minimum standards for As-built plans. The undersigned further certifies that the survey measurements, materials, sizes, field conditions and related utility information are based on both a field survey and/or the latest plan of record available.

Engineer's Name, PE/PLS: _____ Date: _____
PE Number: _____
Expiration Date: _____

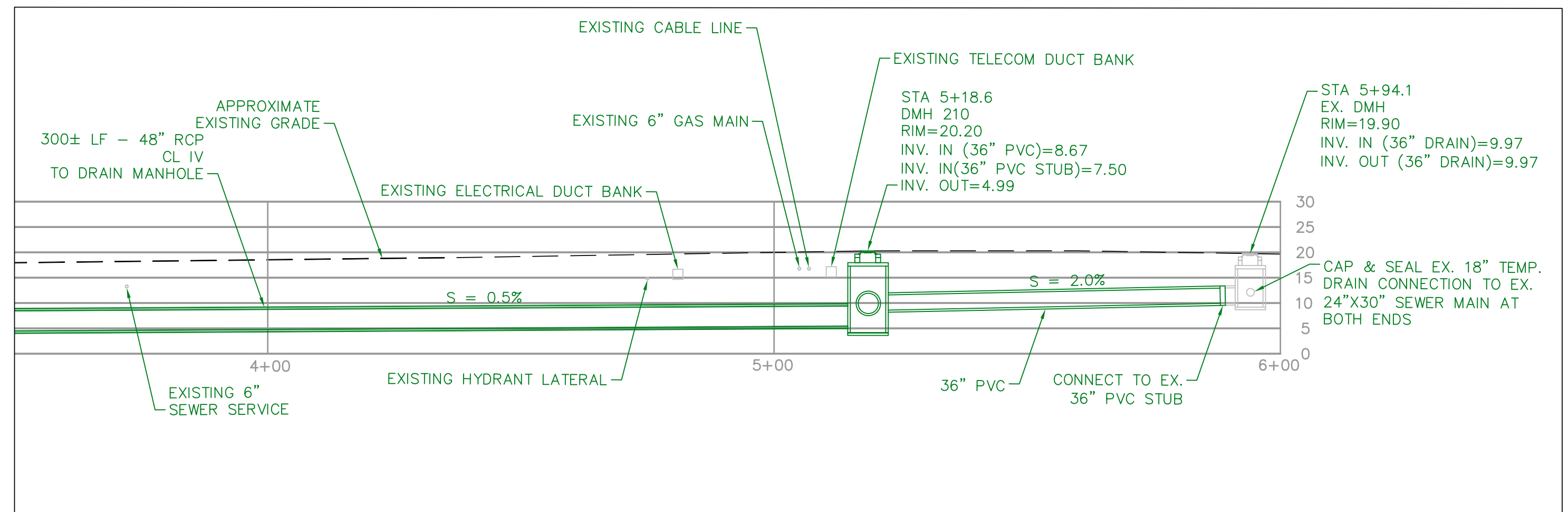
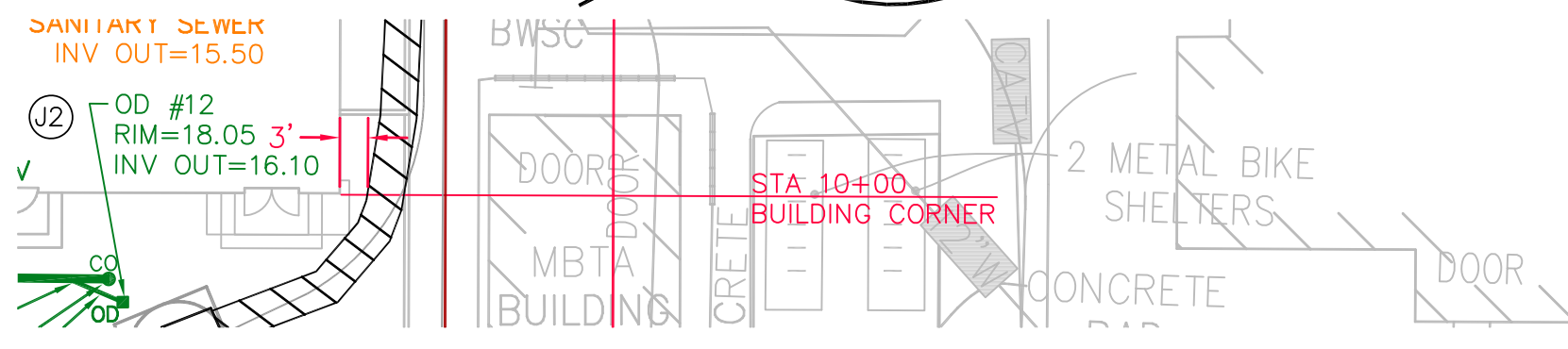
Construction Timetable

Construction Start Date: _____ Construction Completion Date: _____

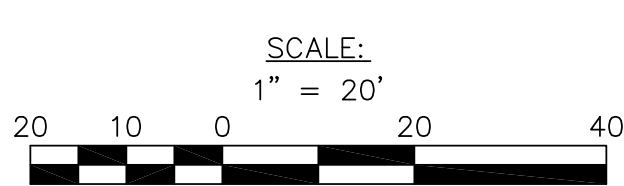




48" STORM DRAIN OUTFALL PLAN
SCALE: 1" = 20'



48" STORM DRAIN OUTFALL PROFILE
SCALE: 1" = 20' HORIZONTAL
1" = 20' VERTICAL



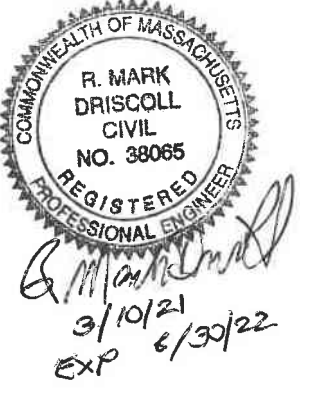
AS BUILT PLAN CERTIFICATION

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Engineer's Name, FE/PLS: R. Mark Driscoll Date: 3/10/21 PE Number: NO. 38005 Expiration Date: 6/30/22

Construction Timetable

Construction Start Date: _____ Construction Completion Date: _____



General Notes

- 25-65 LEWIS STREET BOSTON, MA 02128
- WARD NO. 01, PARCEL NO. 05397000, 05400000
- WATER ACCOUNT NO. 135659002
- PROJECT FILE NO. 15322
- OWNER: LEND LEASE CLIPPERSHIP WHARF LLC 20 CITY SQUARE, 2ND FLOOR BOSTON, MA 02129 CONTACT: NICHOLAS ISELIN (617) 557-6417
- ACCOUNT TO REMAIN
- GSA 11853, 11856

LEGEND

- DOMESTIC WATER
- GATE VALVE
- HYDRANT
- SANITARY SEWER
- SEWER MANHOLE
- STORM DRAIN
- DRAIN MANHOLE
- CATCH BASINS

No.	Revision/Issue	Date
4	As-built complete	3/10/21
3	Construction update	9/16/19
2	Construction update	6/21/19
1	Construction update	4/02/19

A.A. WILL CORPORATION
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STOUGHTON, MA 02072
(781) 341-4800

CONTACT: MIKE RENNIE,
MIKE BROOKS

CLIPPERSHIP WHARF
BWSC WATER, SEWER & DRAIN
UTILITY ASBUILT
PLAN

Project	Sheet
Date: 10/25/2018	2B
Scale: 1" = 20'	

NOTE: ELEVATIONS SHOWN REFER TO BOSTON CITY BASE VERTICAL DATUM (BCB).

MATCHLINE
SEE SHEET 1

MASSACHUSETTS STATE PLANE
NAD 83

General Notes

- 25-65 LEWIS STREET
BOSTON, MA 02128
- WARD NO. 01, PARCEL NO.
05397000, 05400000
- WATER ACCOUNT NO. 135659002
- PROJECT FILE NO. 15322
- OWNER:
LEND LEASE CLIPPERSHIP WHARF
LLC
20 CITY SQUARE, 2ND FLOOR
BOSTON, MA 02129
CONTACT: NICHOLAS ISELIN
(617) 557-6417
- ACCOUNT TO REMAIN
- GSA 11853, 11856

LEGEND

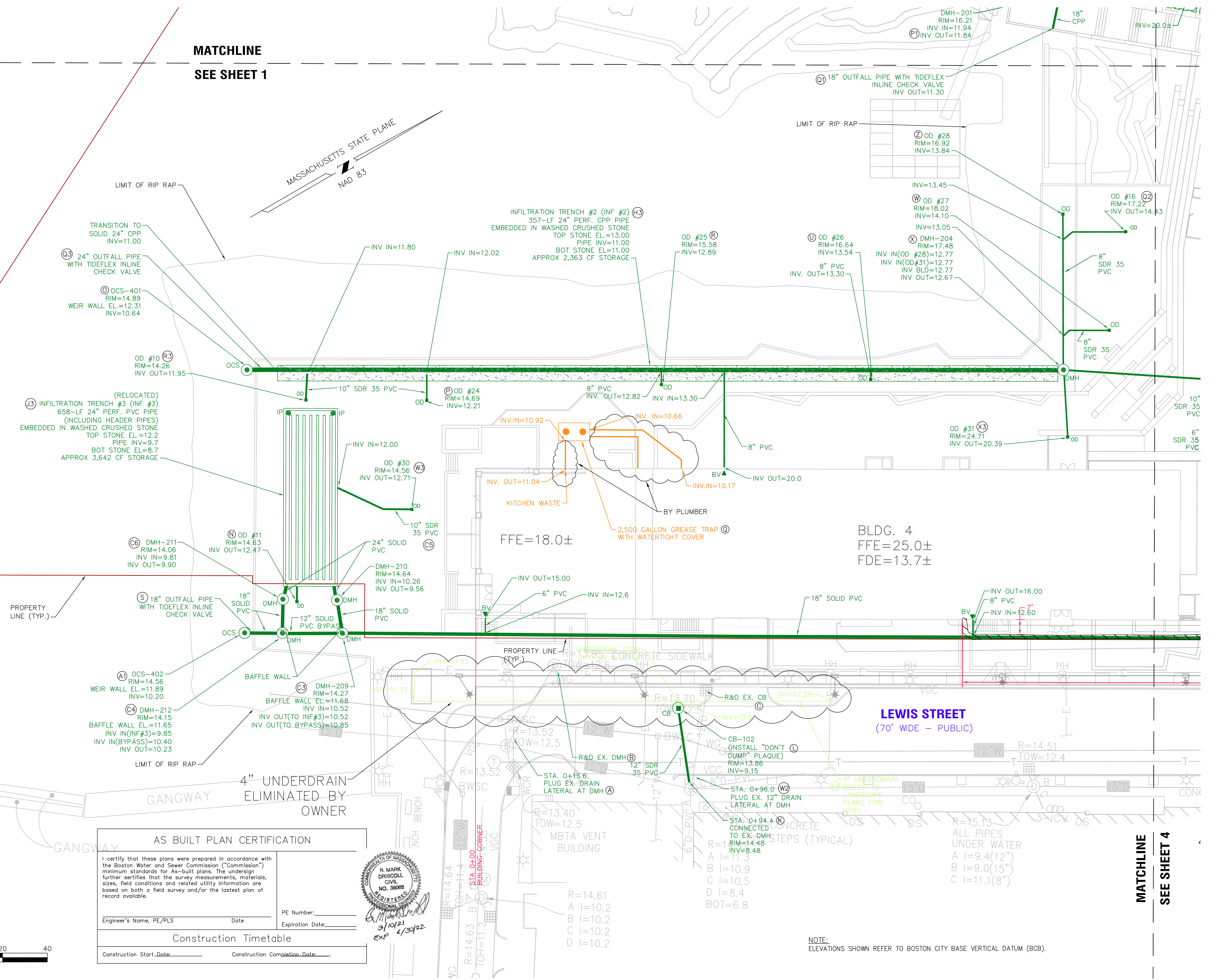
- DOMESTIC WATER
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4	As-built complete	3/10/21
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A.A. WILL CORPORATION
145 ISLAND STREET
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(781) 341-4800
CONTACT: MIKE RENNIE,
MIKE BROOKS

CLIPPERSHIP WHARF
BWSC WATER, SEWER & DRAIN
UTILITY ASBUILT
PLAN

Project	Sheet
Date: 10/25/2018	3
Scale: 1" = 20'	



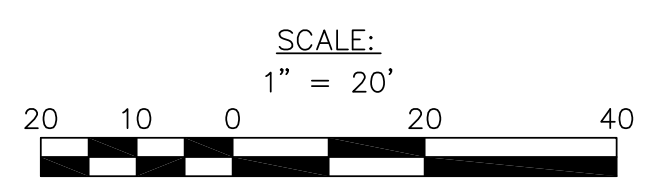
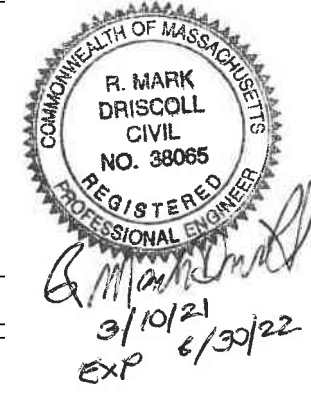
AS BUILT PLAN CERTIFICATION

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Engineer's Name, PE/PLS: R. MARK DRISCOLL Date: 3/10/21
PE Number: 030005 Expiration Date: 6/30/22

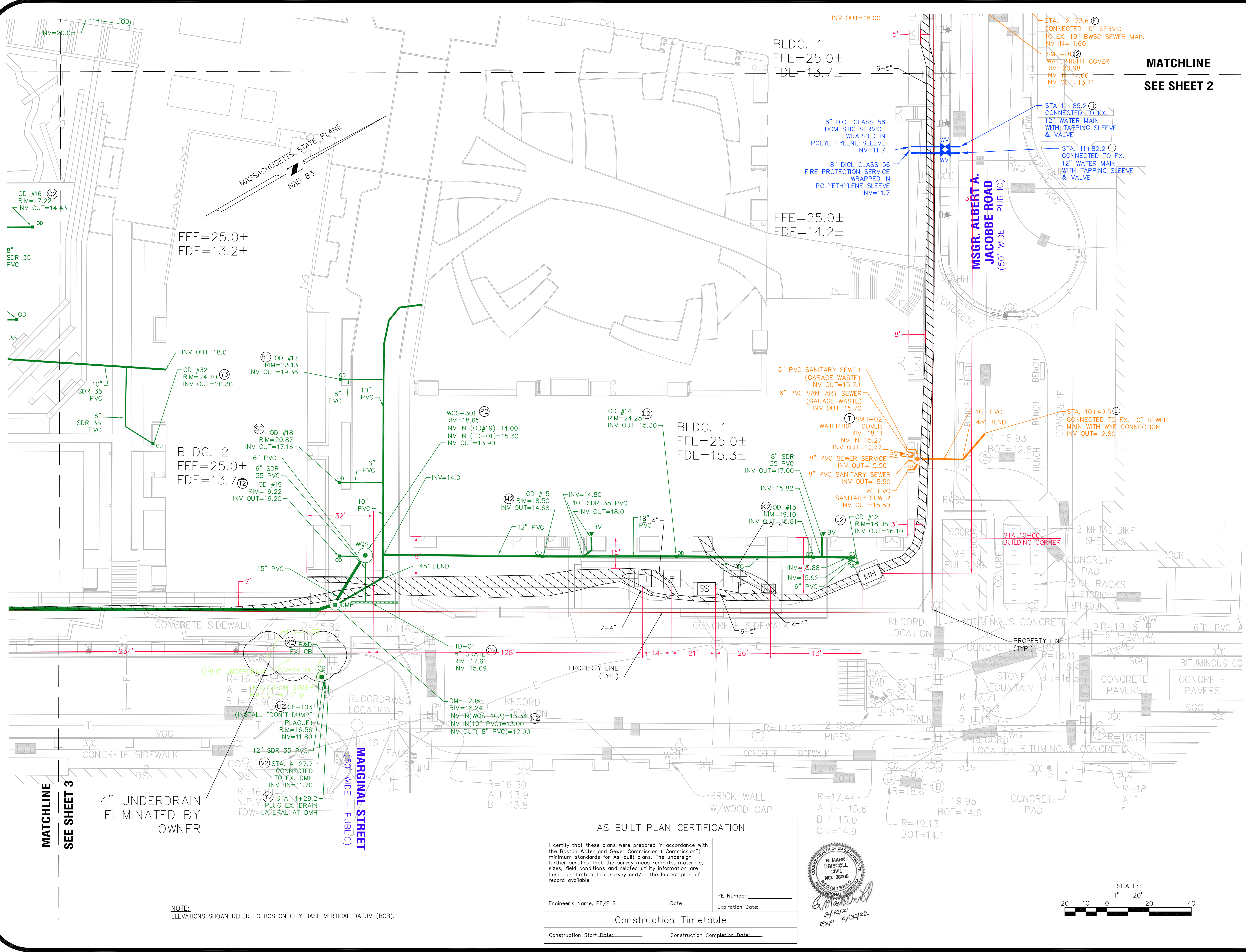
Construction Timetable

Construction Start Date: _____ Construction Completion Date: _____



NOTE:
ELEVATIONS SHOWN REFER TO BOSTON CITY BASE VERTICAL DATUM (BCB).

MATCHLINE
SEE SHEET 4



General Notes

- 25-65 LEWIS STREET
BOSTON, MA 02128
- WARD NO. 01, PARCEL NO.
05397000, 05400000
- WATER ACCOUNT NO. 135659002
- PROJECT FILE NO. 15322
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LEND LEASE CLIPPERSHIP WHARF
LLC
20 CITY SQUARE, 2ND FLOOR
BOSTON, MA 02129
CONTACT: NICHOLAS ISELIN
(617) 557-6417
- ACCOUNT TO REMAIN
- GSA 11853, 11856

LEGEND

- DOMESTIC WATER
- GATE VALVE
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- SANITARY SEWER
- SEWER MANHOLE
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- DRAIN MANHOLE
- CATCH BASINS

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CLIPPERSHIP WHARF
BWSC WATER, SEWER & DRAIN
UTILITY ASBUILT
PLAN

Project	Sheet
Date: 10/25/2018	4
Scale: 1" = 20'	

AS BUILT PLAN CERTIFICATION

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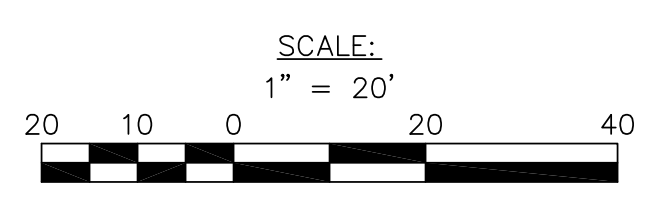
Engineer's Name, PE/PLS: _____ Date: _____ PE Number: _____
Expiration Date: _____

Construction Timetable

Construction Start Date: _____ Construction Completion Date: _____

R. MARK DRISCOLL
CIVIL
NO. 98005
REGISTERED PROFESSIONAL ENGINEER

3/10/21
EXP 6/30/22



MATCHLINE
SEE SHEET 3

MATCHLINE
SEE SHEET 2

Clippership Wharf Wetland Maintenance Plan

- 1- General Project Overview
- 2- Existing Condition
- 3- New Living Shoreline
- 4- Salt Marsh Monitoring
 - 4.1- Monitoring During Construction
 - 4.2- Post-Construction Monitoring and Maintenance

1- General Project Overview

Clippership Wharf is located on the Boston's inner harbor in East Boston, south of Maverick Square. The proposed project, developed by Lend Lease Development, Inc. ("Owner") will revitalize an existing vacant waterfront property consisting of residential units and associated amenities including a fitness and social club, restaurant, recreational-based retail, and a parking garage. The project will include approximately 27,276 square feet of new coastal wetland referred to in this document as a "Living Shoreline." To create a diverse new wetland community, the area will be graded with a series of terraces bracketing the daily amplitude of the tidal cycle. The lower terrace, referred to as "low marsh," will be set at approximately Elevation 5.1 (BCB). The next two terraces will be referred to as "mid-level marsh" and will be set at approximately Elevations 6.5 and 8.5, respectfully. The next terrace will be referred to as "high marsh," and will be set at approximately Elevation 11.0.



Figure 1: Proposed living shoreline at Clippership Wharf showing various planting terraces and salt marsh areas.

The terraces will be created by using predominantly salvaged Granite blocks from the project site. The blocks will create the edge of each terrace to frame and protect each level from moderate wave action. The bottom of each terrace within each level where the growing medium will be placed will be sloped by 2% to allow free movement (in and out) of tidal waters. The structure below Elevation 5.1, the lowest terrace, will be built with rip rap and general fill to support the remaining terraces that lie above. Above

Elevation 11.0, the upland will slope continuously to Elevation 24.0 to create a contiguous landscaped area, which will transition from wetland plantings to typical upland landscaping.

The terraces will be planted with a mixture of *Spartina alterniflora* and *Spartina patens*, with their location dependent upon the suitability of each terrace to support the growth of the wetland plants.

2- Existing Condition

Clippership Wharf is an approximately 11.95 acre of parcel of land and water on the East Boston waterfront that has been vacant for more than 25 years. The total project area consists of 6.78 acres of land and 5.17 acres of water sheet. The site is open and relatively flat, and does not have any buildings. The land consists of broken pavement, gravel, and deteriorated old timber wharfs (see Figure 2, Existing Conditions). The water sheet includes broken piles and deteriorated timber decks.

3- New Living Shoreline.

The proposed Living Shoreline will constitute approximately 29,276 square feet of new coastal wetland. This new resource will allow access to the water and will convert an existing upland to land under the ocean, coastal bank, rocky intertidal shore and a tidal salt marsh resource areas. This new wetland/water sheet will provide the opportunity for users to interact with the water and experience these different wetland and coastal habitats.



Figure 2, Existing Conditions. The existing condition of Clippership Wharf showing areas of abandoned and degraded dock and pilings and various debris.

The Living Shoreline will be created by a series of relatively flat terraces (2% internal slope to aid in the flow of the water), from the lowest level at Elevation 5.1 (BCB) to the highest level at Elevation 11.0. Below Elevation 5.1, the Living Shoreline will be supported by coastal structures such as rock rip rap and granite blocks to provide the necessary structural support and to elevate the lowest terrace to the level where salt marsh plants can be grown. Above the top terrace at Elevation 11.0, the area will transition into an upland site landscape planting up to approximately Elevation 24. The Living Shoreline will have four (4) distinct terraces set at Elevation 5.1, 6.5, 8.5 and 11.0. Each terrace will have a containment border constructed of predominantly granite blocks repurposed from the project site. The function of the granite blocks is to create the individual terraces, provide structural stability, and prevent erosion from the daily fluctuation of the tidal cycle and wave action from Boston Harbor. The Granite blocks will be positioned next to each other, dry laid with openings of approximately 2 to 4 inches in between each block to allow the flow of

the water in both directions, and to prevent the entrapment of any juvenile marine life that establishes itself within the Living Shoreline. The newly created terraces will be planted with saltmarsh chordgrass (*Spartina alterniflora*) and high marsh grass (*Spartina patens*) based on their natural ability to thrive within the daily tidal fluctuation of the Boston Harbor.

4. Salt Marsh Monitoring

The new Living Shoreline will be monitored for a period of five (5) years, in conjunction with the overall monitoring of site plantings, to ensure the salt marsh plants are growing and thriving, establish a dense and healthy salt marsh community, and to reach their maximum growth potential (see Figure 3).

4-1. Construction Monitoring

Monitoring during construction will be necessary to make sure the individual terraces are established properly, the daily tidal waters are flowing in and out from each level with no restriction, and the flow of water is not creating any localized erosion to the planting soil within each terrace. The marsh grasses will be planted in accordance to the required density, spacing, and controls. The contractor will be responsible for the Living Shoreline for a minimum of one year post-construction before transferring the control and maintenance responsibilities to the Owner of the project. Any irregularity or damage to the Living Shoreline will be corrected under warranty prior to the transfer of maintenance responsibility to the Owner of the project.



Figure 3, Photo of coastal New England Marsh on the North Shore of Boston showing vegetation zonation from low marsh to high marsh.

4-2. Post Construction Monitoring

Monitoring post construction will continue for a period of four (4) years until 75% coverage of the indigenous salt marsh and other approved species plants have established. The basic salt marsh monitoring plan will include the following inspections, maintenance, and reporting protocols:

- a- **Inspections.** Weekly inspections and maintenance of the area to remove debris that has floated in from the harbor, provide corrections and adjustments to any dislodged plants, and provide the basic necessary care to promote the healthy establishment of the marsh. The selected EM (Environmental Monitor) will conduct official salt marsh inspections two

- times per year during the growing season (i.e. spring and fall) and after each significant coastal storm event, as necessary.
- b- **Reference Marsh Site.** An existing salt marsh area within the larger Boston Harbor system and nearby to the project site will be selected as a reference site for the four (4) year duration of the post construction monitoring period. The reference site will have similar morphology and vegetation zonation (i.e., restored high marsh with nearby, "natural" high marsh; restored low marsh with nearby, "natural" low marsh). The reference site and the transect locations will be selected so that all major vegetation zones of the restoration area are comparable to the reference site. For example, vegetation parameters at the restoration site will be compared with the same parameters at the reference site to determine whether an observed loss of vegetation is a restoration failure or is caused by a natural event, a coastal storm, hurricane, or Nor'easter, for instance - that has similarly affected marshes in the area.
 - c- **Vegetation Cover Measurements.** Vegetation cover percentages will be evaluated during each monitoring event. Upon completion of the salt marsh planting work, observation transects for the purpose of evaluating percentage coverage of vegetation will be established within the new planted salt marsh and the reference site.
 - d- **Recording of General Observations.** General observations will also be made during these monitoring events relative to wildlife usage, animal browse, the accumulation of debris, and any factors potentially affecting the area such as invasion by *Phragmites australis* or other invasive plant species invasions. Any debris accumulation detrimental to the wetland establishment efforts will be removed. If necessary, a remedial action plan to control *Phragmites australis* and/or other invasive plant species within the new wetland area will be developed and submitted to the Boston Conservation Commission, MassDEP, and the ACOE for their files. As necessary, remedial action plans deemed necessary will be prepared to improve other conditions that are deemed detrimental to the success of the new wetland system.
 - e- **Assessment of Erosion and Sedimentation Impacts.** The monitoring program will include erosion and scour inspection of each terrace area. Any observed scour and/or corrective measure will be described in the monitoring report. If any post construction scour, slumping, or erosion of the planting soil is observed, a mitigation plan will be developed, implemented, and provided to Boston Conservation Commission, MassDEP, and the ACOE for their files.
 - f- **Submittal of Annual Reports.** An annual report will be submitted to the Boston Conservation Commission, MassDEP, and the ACOE by December 31st of each year. The report will provide a general description of the site condition, the percentage of salt marsh establishment, any degradation or loss of planted salt marsh plantings, and any corrective measures taken. It will document the condition and success of the salt marsh establishment areas. The area will be further documented with photographs that are periodically taken from the same pre-established points.

- g- **Structure of Annual Monitoring Report.** The Title Page will include the MassDEP file number; the ACOE file number, and the report number. At a minimum, the annual report will contain a summary of the following:
- 1- Dates the marsh establishment activities commenced and/or were completed, as well as monitoring activities that took place since the last report.
 - 2- Vegetation Cover Percentage, including:
 - A visual estimate of total percent cover within the various terraces, measured against the established goal of 75% areal coverage by *Spartina* and other appropriate salt marsh species.
 - A visual estimate of percent cover of invasive plants species in each terrace including, but not limited to, *Phragmites australis*.
 - 3- Remedial actions taken during the monitoring year, including those conducted to improve the success of the new salt marsh. These activities may include, but shall not be limited to, removing debris, controlling invasive plant species, adjusting grades, and adding new plantings.
 - 4- Recommendations for additional future remedial activities.