

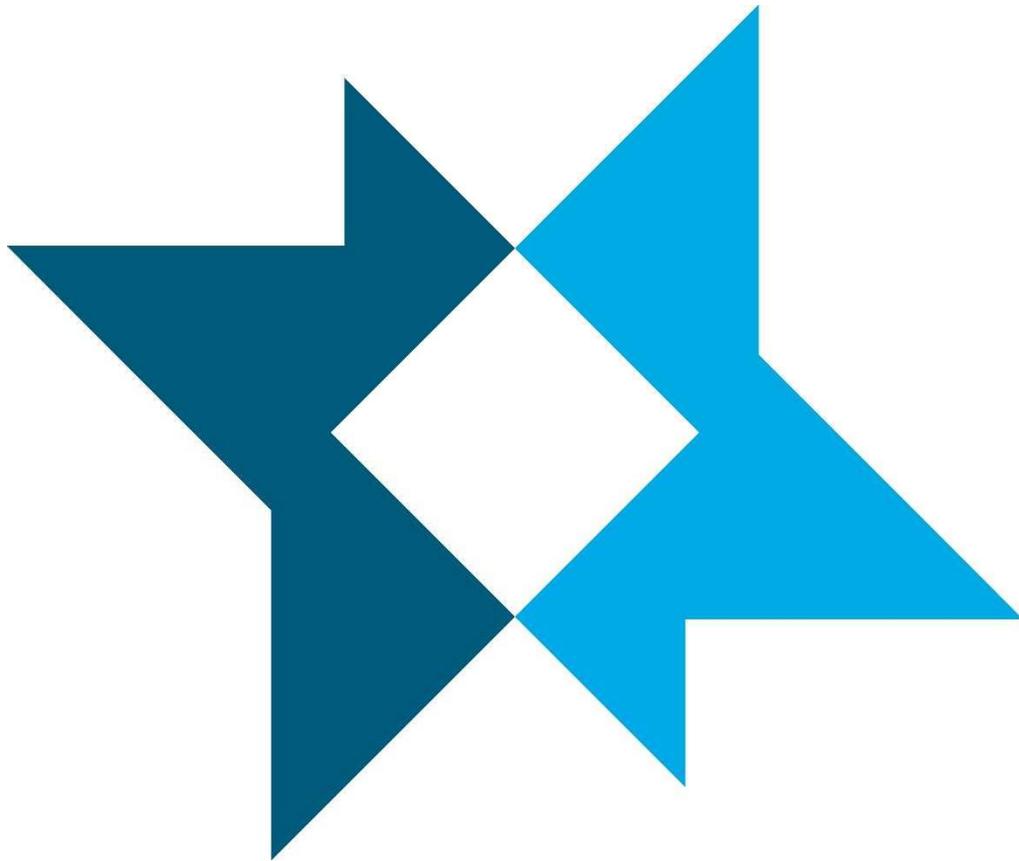


Environmental Notification Form
Supplemental Information

Hingham Waterfront Resiliency Project

Hingham, MA

EEA #16464



210 Central Street

Hingham, MA

September 2024

Project ID: 23H011.00

Solving our clients' toughest
science and engineering challenges.

Hingham Waterfront Resiliency Project

Project ID: 23H011.00

Prepared for
The Town of Hingham
210 Central Street
Hingham, MA 02043

Prepared by
Foth Infrastructure & Environment, LLC

September 2024

REUSE OF DOCUMENTS

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September 20, 2024

Executive Office of Energy and Environmental Affairs
MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114
Attn: Eva Vaughan

Re: Hingham Waterfront Resiliency Project – Supplemental Information
Town of Hingham
210 Central Street, Hingham, MA 02043
EEA #16464

Dear Ms. Vaughan,

On behalf of the Town of Hingham, Foth Infrastructure & Environment, LLC (Foth) is pleased to provide the enclosed supplemental information and clarifications for the Hingham Waterfront Resiliency Project in Hingham, MA. In response to comments received during the MEPA consultation held on September 6th, 2024, we are providing additional details on the proposed storm gate operation and areas of Land Subject to Coastal Storm Flowage (LSCSF) alteration within the project area.

Clarification on Storm Gate Operation

Presently, the Home Meadows marsh system is connected to Hingham Harbor through a 5-foot (ft) diameter culvert running under downtown Hingham. This culvert severely restricts tidal exchange within the salt marsh; however, there is no practicable manner to remedy this anthropogenic alteration to the upstream marsh system.

A majority of the upstream marsh plain has an elevation of approximately 4 ft North American Vertical Datum of 1988 (NAVD88), with marsh plain elevations as low as 2.5 ft NAVD88. To provide contiguous flood protection and coastal resiliency to the historic downtown Hingham area, re-establishment of a storm gate within the Home Meadows culvert is proposed. This storm gate will only be closed when necessary to avoid potential flooding caused by coastal storms. Preliminary analyses indicate that the storm gate may need to be closed at an elevation of 6.2 ft NAVD88 to ensure potential storage of freshwater flooding from the watershed and ensure flood protection of infrastructure surrounding the marsh, (lowest elevation in 8 ft NAVD88). Under existing condition, with gate closure set at 6.2 ft NAVD88, the gate would be closed only 0.8% of the year. Further, daily flooding and draining of the marsh plain would not be affected by the episodic gate closures, as the marsh plain is significantly lower than 6.2 ft NAVD.

As described in the Environmental Notification Form (ENF) narrative, initial estimate for storm gate closure requirements at 6.2 ft NAVD88 represents the worst-case scenario. Additional hydrodynamic and hydrologic analyses is planned as part of the environmental permitting process

to minimize storm gate closures as necessary to prevent flooding of infrastructure. These evaluations also will provide more detailed elevation information for infrastructure surrounding the marsh system to definitively establish the allowable water elevation within Home Meadows. It is anticipated that the storm gate likely will incorporate a "composite" design that allows uni-directional flow from the salt marsh into the harbor even when the gate is closed. This type of gate will ensure that gate closures will be minimized and the harbor water elevation requiring gate closure will be higher than 6.2 ft NAVD88. The storm gate closure elevation will be somewhere between 6.2 ft NAVD88 and the lowest impacted property within the marsh system (estimated to be 8 ft NAVD88). More detailed analyses will be aimed at minimizing the frequency of required gate closures, which effectively increases the target water elevations requiring gate closure.

Through the environmental permitting process, an Operations and Maintenance Plan (OMP) for the storm gate will be developed. This plan will be based upon the hydraulic/hydrologic analysis results, as well as appropriate engineering guidance regarding the structure. The goals for the Home Meadows Culvert Storm Gate OMP to be developed include:

- Regularly scheduled documented maintenance of storm gate operation systems.
- OMP scheduled storm gate closings (less than 5 minutes) at low tide to minimize impacts to resource areas and habitats.
- Operational closing of storm gate only when harbor still-water elevations exceed 6.2' NAVD88. The Town will document each instance of the gate being closed, reopened, and exercised. The gate's condition will be regularly monitored and maintained.

The OMP will be modeled after the existing Sluice Gate OMP, included in Attachment 3.

Areas of LSCSF Alteration

The proposed contiguous flood protection/coastal resiliency project for the Hingham Harbor waterfront incorporates elevating landforms within the coastal flood plain (*i.e.*, areas identified as LSCSF). Along the area between the Hingham Bathing Beach and the boat ramp, a dune is proposed within areas designated as LSCSF. Specifically for the dune area, there is no conversion of resource areas, as the proposed dune merely overlays existing LSCSF. After the project is completed, the dune area will remain LSCSF, since the size of the proposed dune does not meet the 540 square feet per foot above the 100-year flood elevation required by the Federal Emergency Management Agency (FEMA), which is also known as the "540 Rule".

For the boat ramp parking lot, Town Wharf, and Barnes Wharf, the proposed elevation of the landforms will be revised to 12 ft NAVD88. It is likely that this elevation increase will remove a majority of the areas from the 100-year flood plain; therefore, these developed areas will be removed from LSCSF. As the purpose of the project is to improve coastal resiliency, the Town believes "converting" existing LSCSF to land that is no longer subjected to coastal flooding is beneficial to the goals of the project and causes no demonstrable adverse environmental impacts.

The exact alteration to LSCSF limits cannot be determined until the CLOMR (Conditional Letter of Map Revision) and LOMR (Letter of Map Revision) process has been accepted by FEMA. The FEMA process cannot be completed until the actual project is constructed and the project is certified.

Below are the maximum potential areas of LSCSF that could be altered.

- Dune Area within LSCSF = 57,720 square feet (sf)
- Parking Lot, Wharf, and Shore Protection Structures Areas within LSCSF = 154,190 sf

The total area of LSCSF impact (combining dune and upland areas) is 211,910 sf, or approximately 4.9 acres, which is below the threshold for requiring a mandatory Environmental Impact Report (EIR).

Following the discussion during the September 6th consultation, the comment period has been extended until October 1st, 2024. The Secretary's Certificate will be issued on October 11th, 2024.

On behalf of the Town, we appreciate the opportunity to provide additional information and clarify details about the proposed resiliency project. If you have any questions, or require any additional information, please feel free to contact me at 401-910-7720, or via email, Fiona.vardy@foth.com.

Sincerely,

Foth Infrastructure & Environment, LLC



Fiona Vardy
Lead Environmental Regulatory Specialist

cc: JR Frey, Susan Murphy (Town of Hingham)
Carlos Peña, Jeramy Packard, Muraad Washington (Foth)
John Ramsey (Sustainable Coastal Solutions, Inc.)

Attachments: 1) Revised ENF Wetlands Alteration Table
2) Project Plans, entitled "Hingham Waterfront Resiliency Project", dated September 2024 (13 sheets)
3) Sluice Gate OMP

Attachment 1
Revised ENF Wetlands Alteration Table

Revised ENF Wetlands Alterations

Project Section (See Figure 1 in ENF Project Narrative)	Area (square feet) or length (linear feet)	Temporary or Permanent Impact
<u>Coastal Wetlands</u>		
Section A		
Coastal Beaches	7,810 SF	Permanent
Coastal Dunes	25,795 SF	Permanent
Land Containing Shellfish	4,160 SF	Permanent
Land Subject to Coastal Storm Flowage	44,235 SF	Permanent
Section B		
Coastal Beaches	4,770 SF	Permanent
Coastal Dunes	2,870 SF	Permanent
Coastal Banks	30 LF	Permanent
Land Subject to Coastal Storm Flowage	64,880 SF	Permanent
Section C		
Coastal Beaches	1,990 SF / 0 SF	Temporary / Permanent
Coastal Banks	480 LF	Permanent
Land Subject to Coastal Storm Flowage	1,990 SF / 51,784 SF	Temporary / Permanent
Section E		
Coastal Banks	191 LF	Permanent
Land Subject to Coastal Storm Flowage	13,512 SF	Permanent
Section F		
Coastal Beaches	2,310 SF / 0 SF	Temporary / Permanent
Coastal Banks	558 LF	Permanent
Land Subject to Coastal Storm Flowage	2,324 SF / 37,481 SF	Temporary / Permanent

*Please note there are no anticipated impacts to coastal or inland wetlands in Section D

Attachment 2

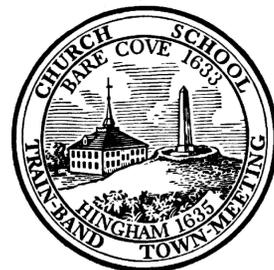
**Project Plans, entitled “Hingham Waterfront Resiliency Project”, dated
September 2024 (13 sheets)**

(FOR PERMITTING PURPOSES ONLY)

HINGHAM WATERFRONT RESILIENCY PROJECT

HINGHAM, MA SEPTEMBER 2024

Prepared for:
Town of Hingham, MA



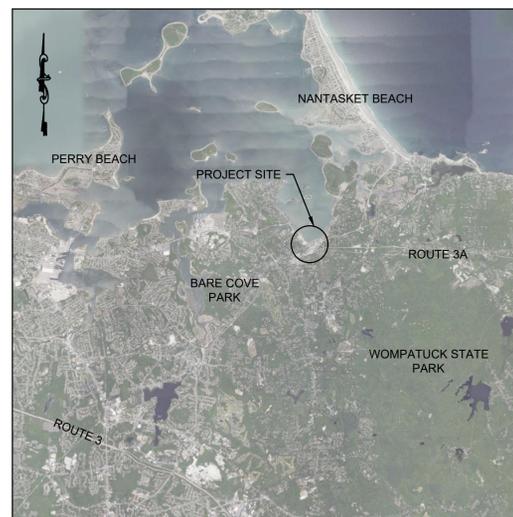
Prepared by:
Sustainable Coastal Solutions, Inc.

&
Foth Infrastructure & Environment, LLC

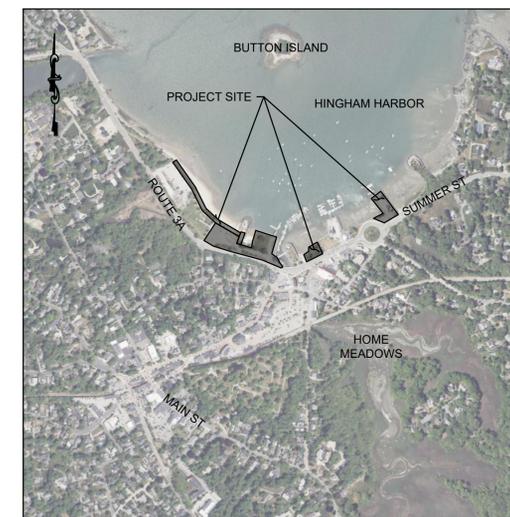


DRAWING INDEX

SHEET NUMBER	TITLE
G-101	COVER SHEET
C-101	EXISTING CONDITIONS SITE PLAN 1 OF 3
C-102	EXISTING CONDITIONS SITE PLAN 2 OF 3
C-103	EXISTING CONDITIONS SITE PLAN 3 OF 3
C-104	TOWN BROOK CULVERT SITE PLAN
S-101	PROPOSED CONDITIONS SITE PLAN 1 OF 3
S-102	PROPOSED CONDITIONS SITE PLAN 2 OF 3
S-103	PROPOSED CONDITIONS SITE PLAN 3 OF 3
S-301	SECTIONS SHEET 1 OF 5
S-302	SECTIONS SHEET 2 OF 5
S-303	SECTIONS SHEET 3 OF 5
S-304	SECTIONS SHEET 4 OF 5
S-305	SECTIONS SHEET 5 OF 5



VICINITY MAP
NTS



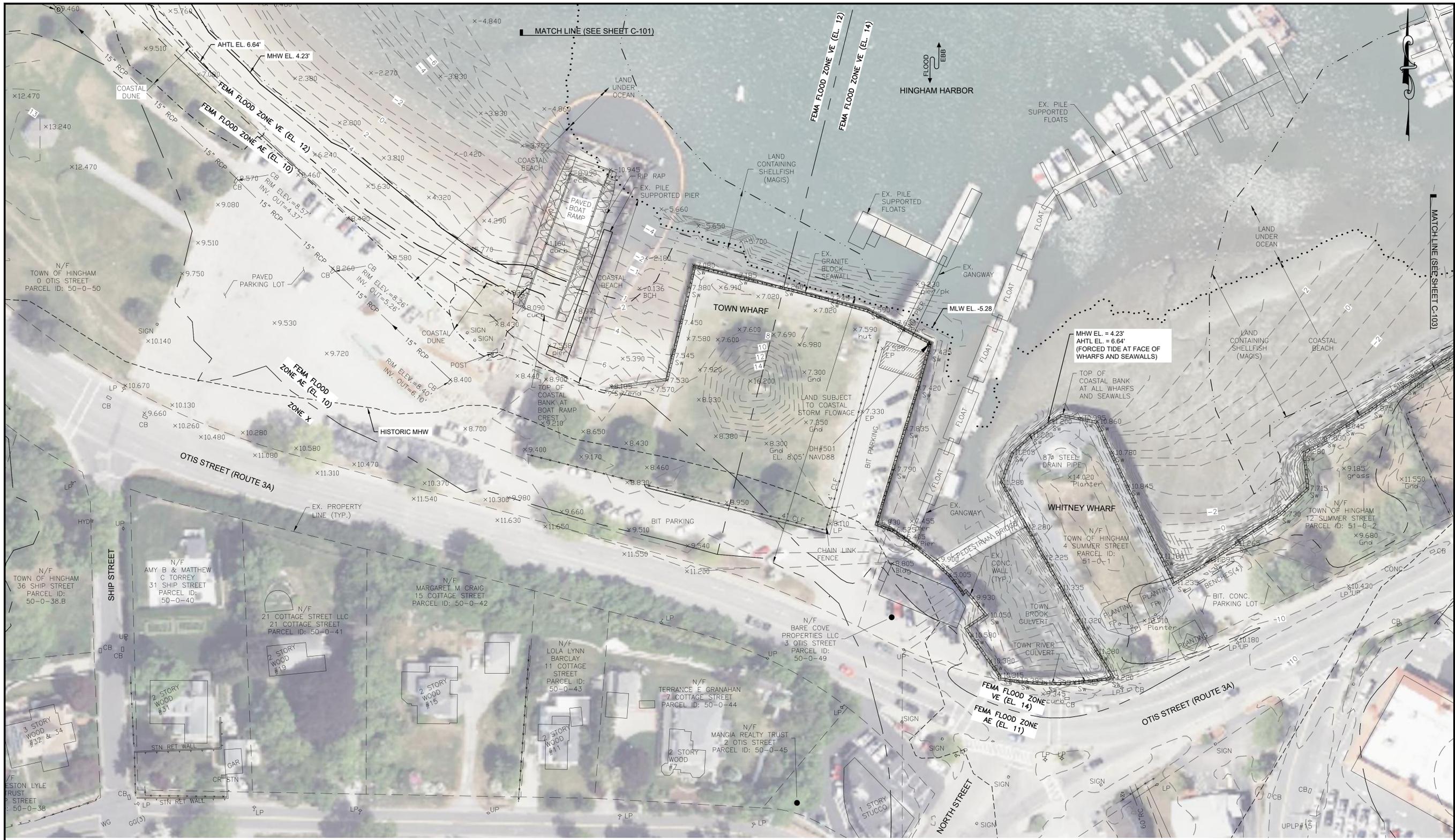
LOCATION MAP
NTS

SHEET TITLE

COVER SHEET

SHEET NUMBER

G-101



TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

REVISIONS	
NO.	DESCRIPTION

DATE OF PREPARATION	
BY	DATE
SURVEYED	FOTH AS NOTED
DRAWN	MDW 4/15/2024
DESIGNED	
CHECKED	

SHEET TITLE:
EXISTING CONDITIONS SITE PLAN
2 OF 3

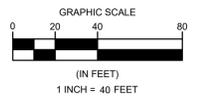
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PROJECT NO: 0023H011.00
 SHEET NUMBER
C-102

DATUM OFFSETS

MLW	NAVD88	
11.92	6.64	AAHTL
9.96	4.68	MHHW
9.51	4.23	MHW
5.28	0.00	NAVD 88
4.92	-0.36	NGVD1929
0.00	-5.28	MLW
-0.34	-5.62	MLLW

OFFSETS TAKEN FROM
 VDATUM ONLINE
 8/12/2021





MHW EL. = 4.23'
 AHTL EL. = 6.64'
 (FORCED TIDE AT FACE OF
 WHARFS AND SEAWALLS)

MLW EL. -5.28

FEMA FLOOD ZONE VE (EL. 14)

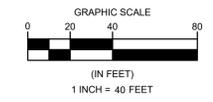
FEMA FLOOD ZONE AE (EL. 11)

HISTORIC MHW

DATUM OFFSETS

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9.96	4.68	MHHW
9.51	4.23	MHW
5.28	0.00	NAVD 88
4.92	-0.36	NGVD1929
0.00	-5.28	MLW
-0.34	-5.62	MLLW

OFFSETS TAKEN FROM
 VDATUM ONLINE
 8/12/2021



TOWN OF HINGHAM, MA
 95 OTIS STREET - 0 SUMMER STREET
 HINGHAM WATERFRONT RESILIENCY PROJECT

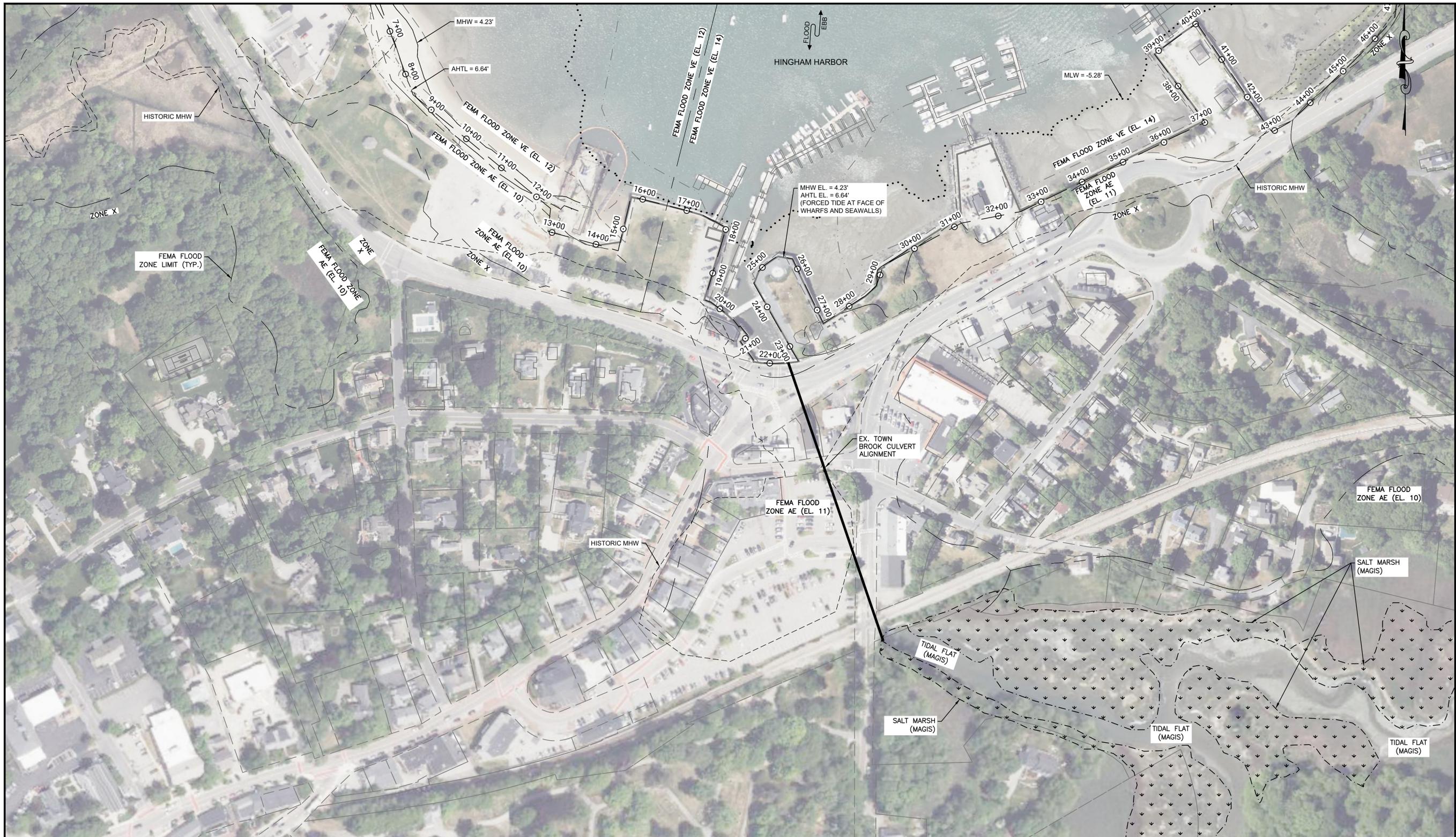
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 EXISTING
 CONDITIONS
 SITE PLAN
 3 OF 3

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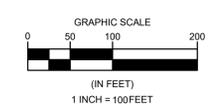
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9.51	4.23	MHW
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4.92	-0.36	NGVD1929
0.00	-5.28	MLW
-0.34	-5.62	MLLW

OFFSETS TAKEN FROM VDATUM ONLINE 8/12/2021



TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

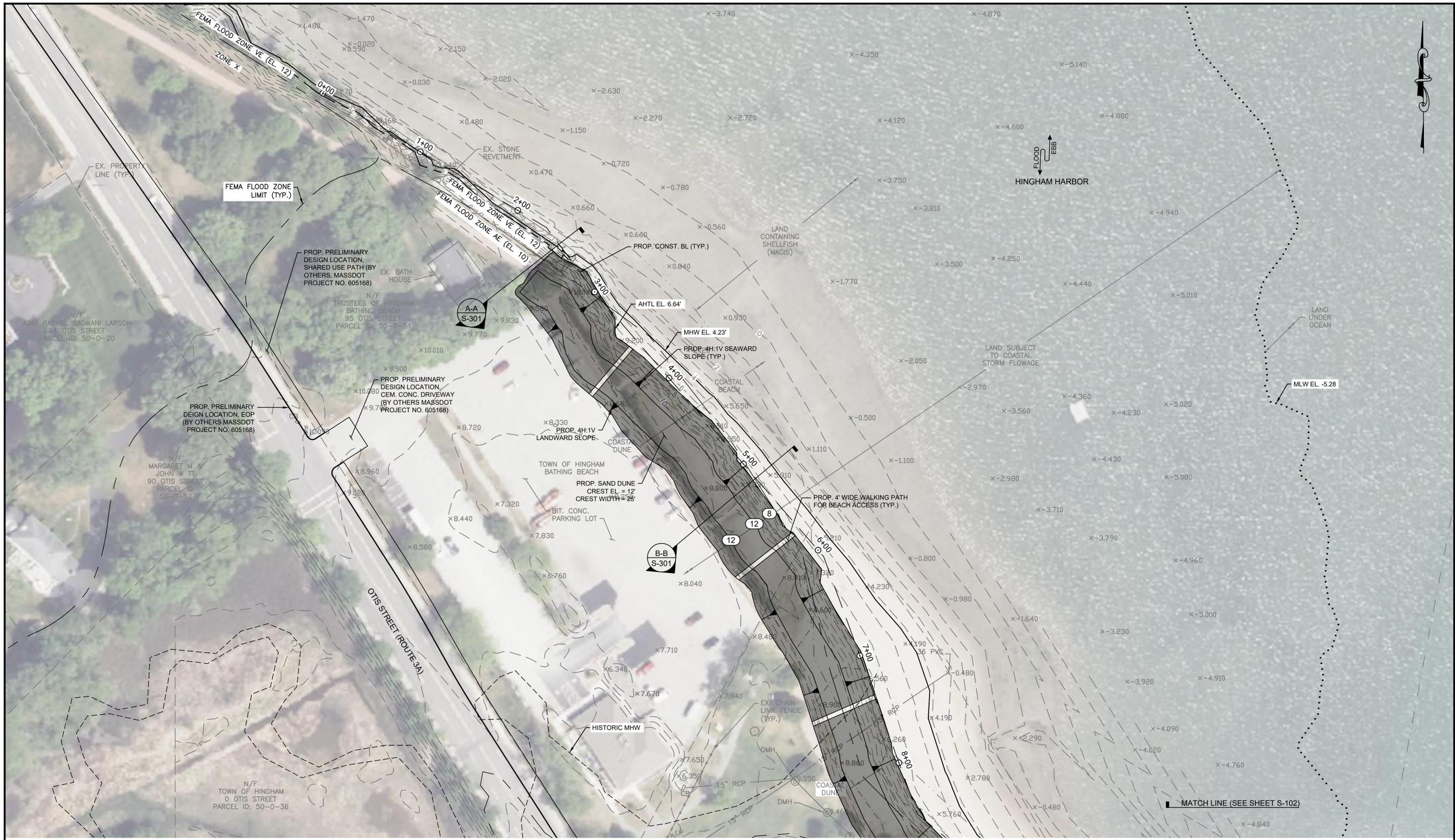
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	MDW	4/15/2024
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	CHECKED	

SHEET TITLE:
TOWN BROOK CULVERT SITE PLAN

ISSUANCE:
FOR PERMITTING PURPOSES ONLY

PROJECT NO: 0023H011.00
 SHEET NUMBER
C-104



TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

REVISIONS	
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PROPOSED CONDITIONS
SITE PLAN
1 OF 3

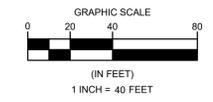
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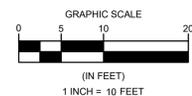
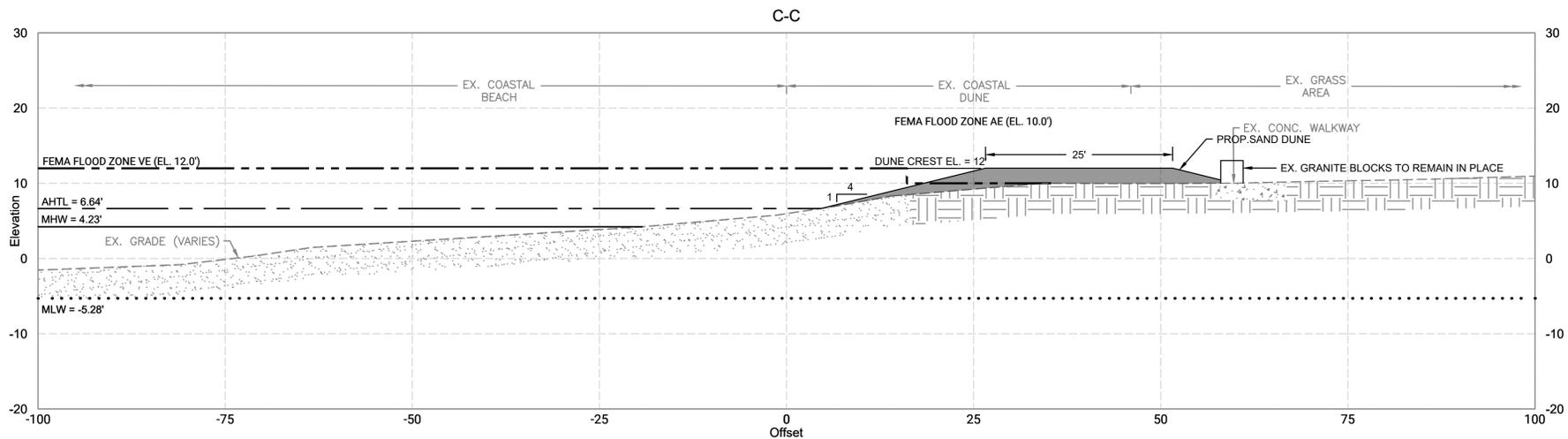
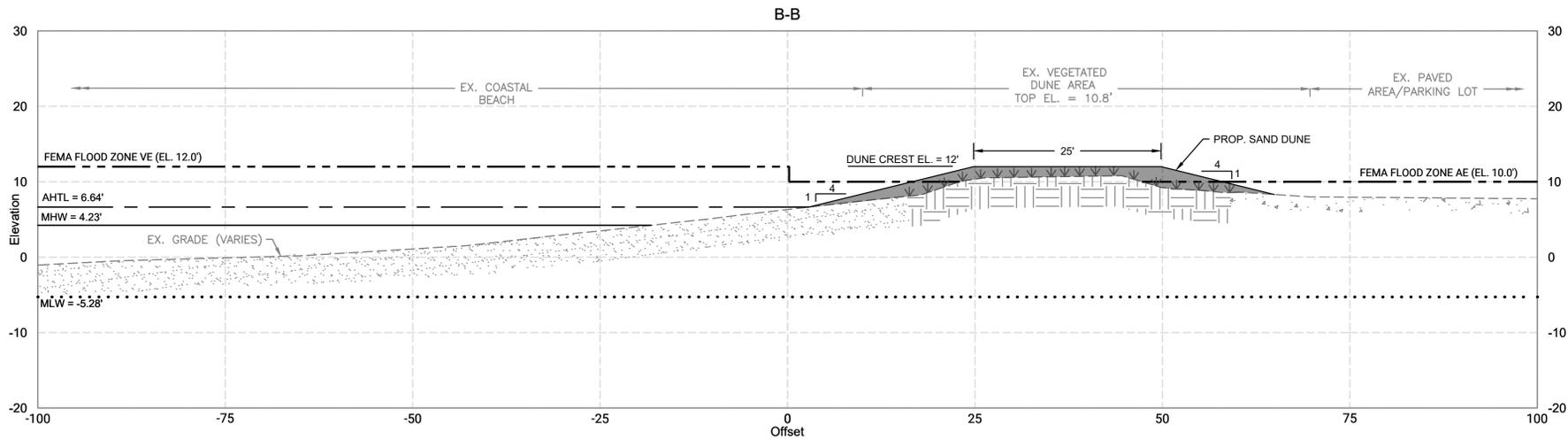
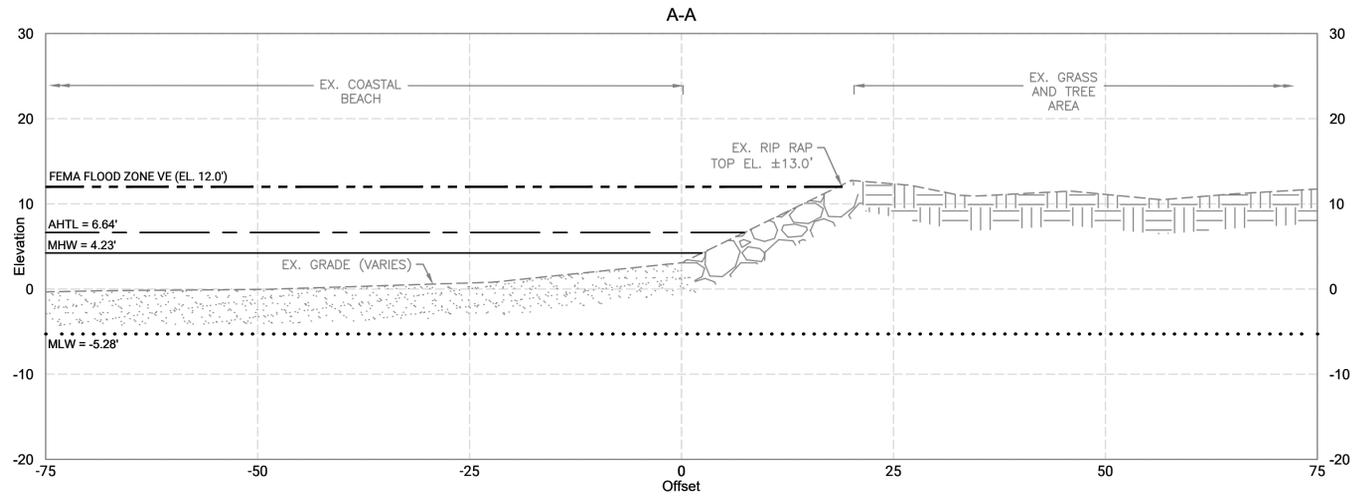
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S-101

DATUM OFFSETS

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9.96	4.68	MHHW
9.51	4.23	MHW
5.28	0.00	NAVD 88
4.92	-0.36	NGVD1929
0.00	-5.28	MLW
-0.34	-5.62	MLLW

OFFSETS TAKEN FROM
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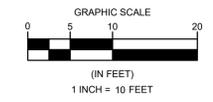
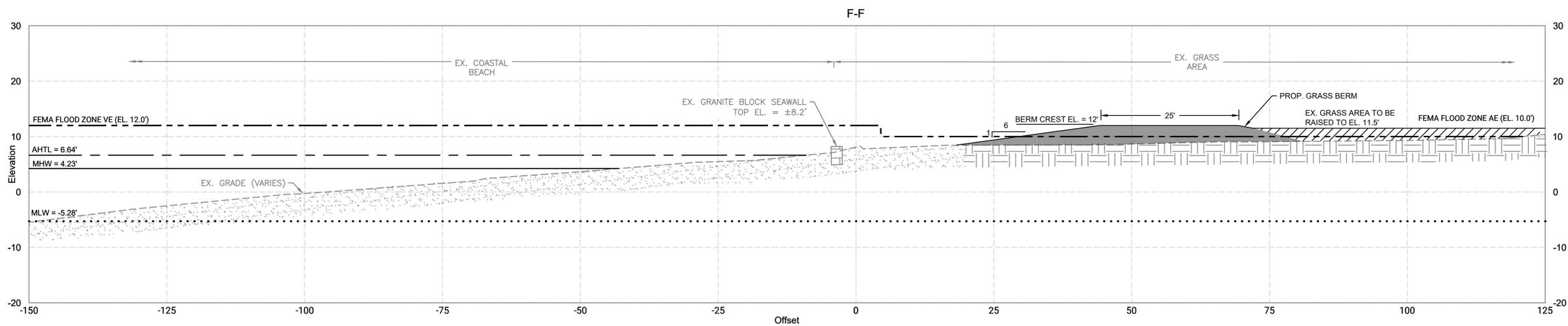
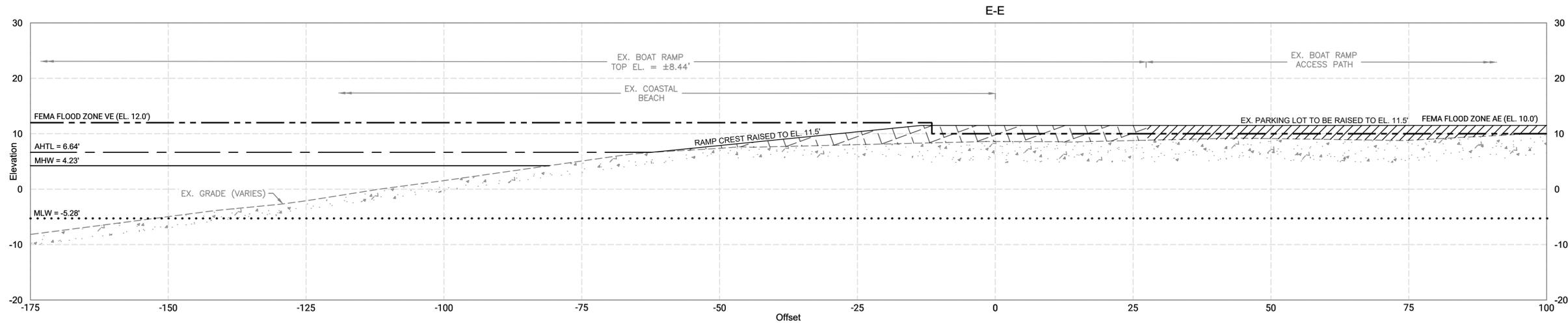
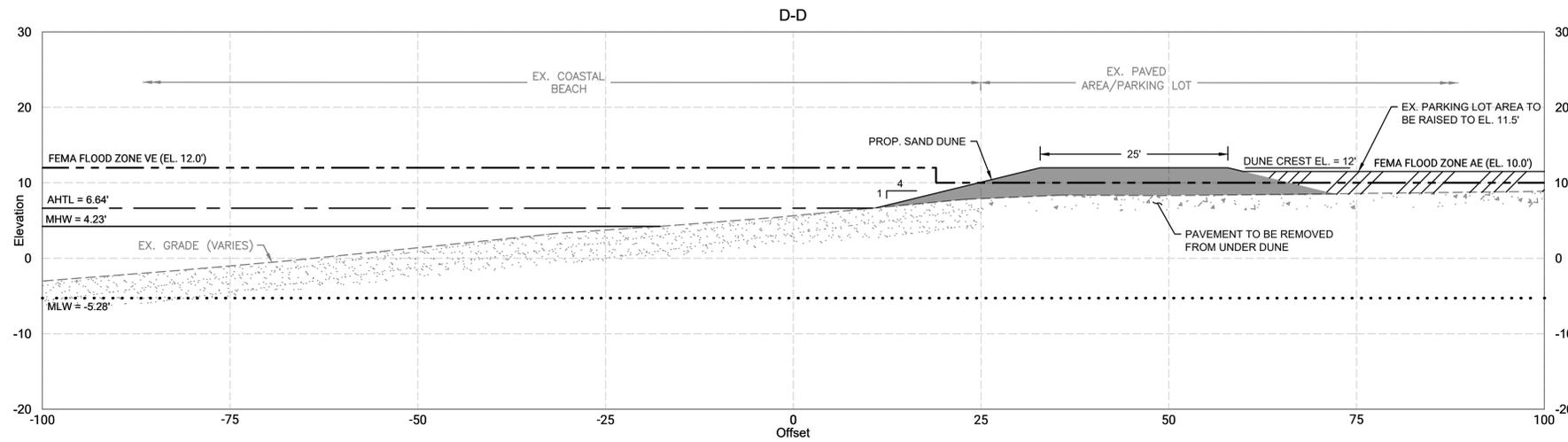


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S-301



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SECTIONS SHEET 2 OF 5		

ISSUANCE:
FOR PERMITTING PURPOSES ONLY
PROJECT NO: 0023H011.00
SHEET NUMBER
S-302

TOWN OF HINGHAM, MA
 95 OTIS STREET - 0 SUMMER STREET
 HINGHAM WATERFRONT RESILIENCY PROJECT

NO	BY	DATE	DESCRIPTION

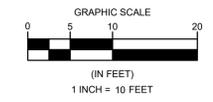
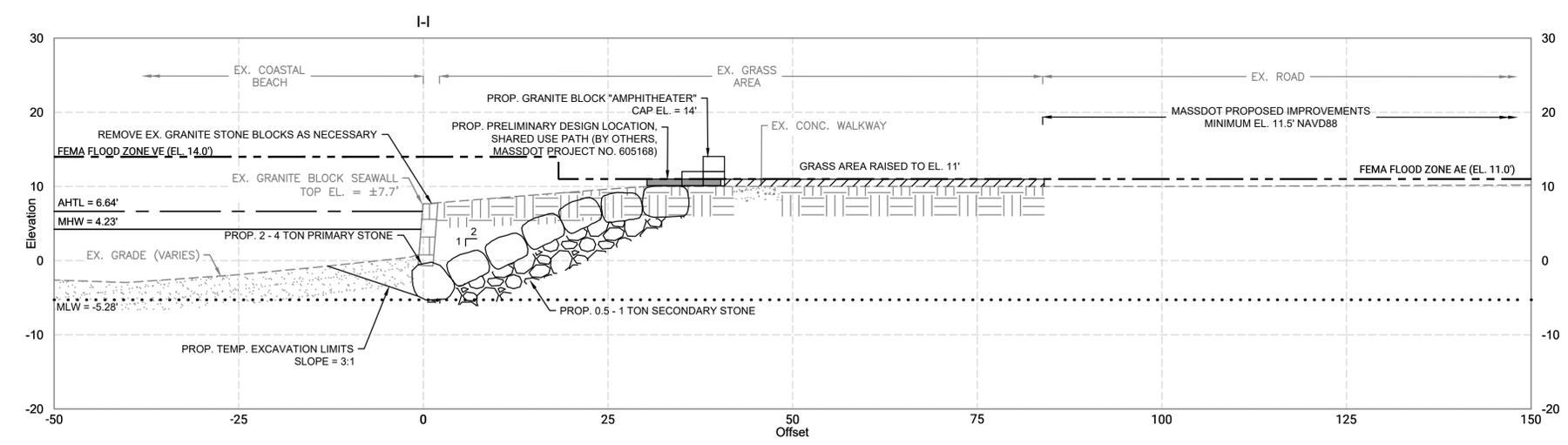
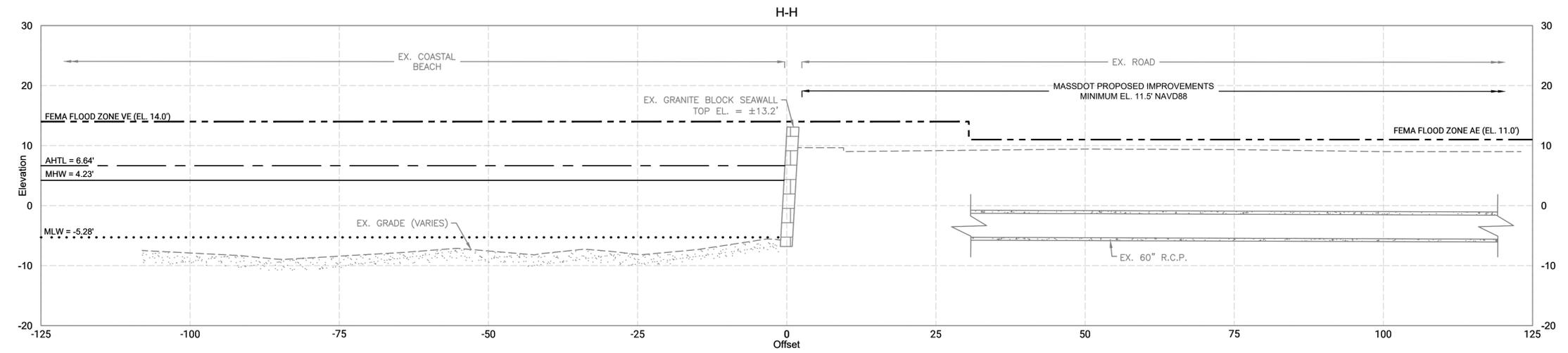
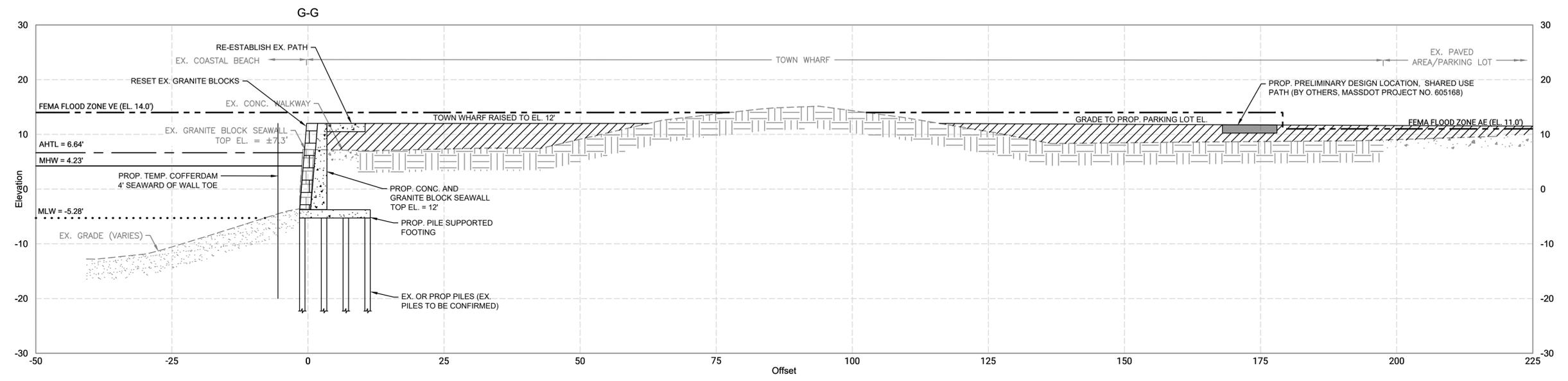
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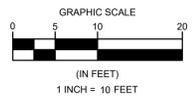
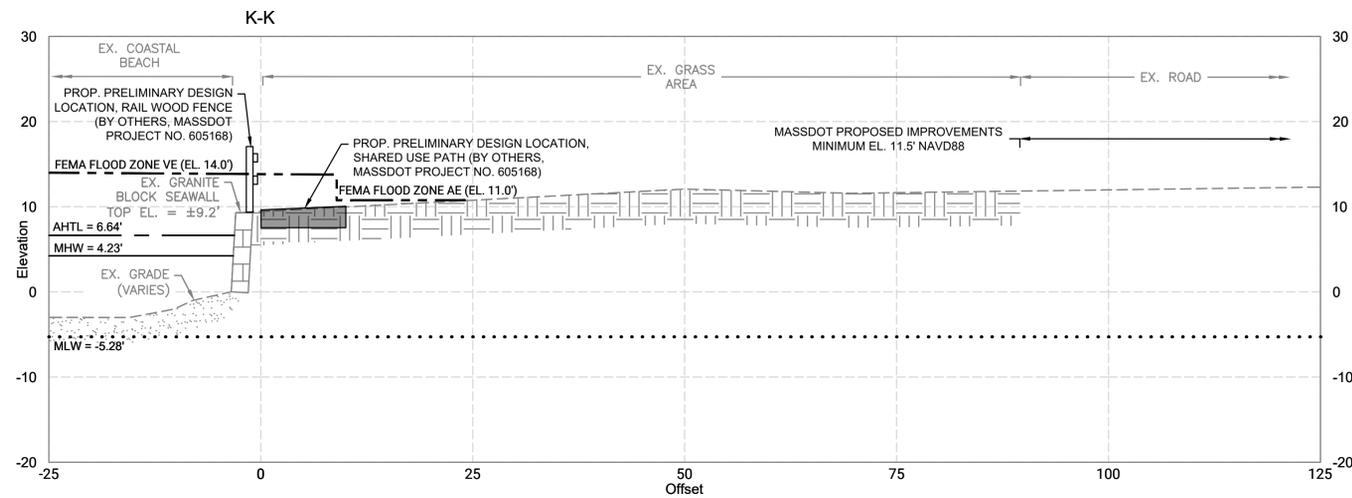
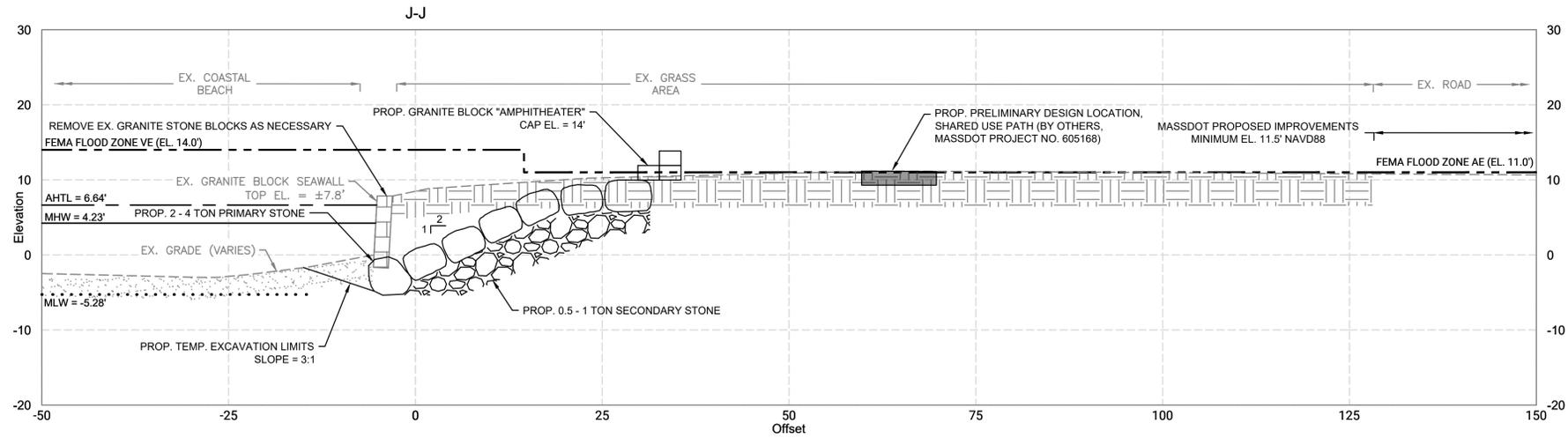
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 SHEET 3 OF 5**

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S-303



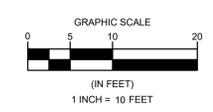
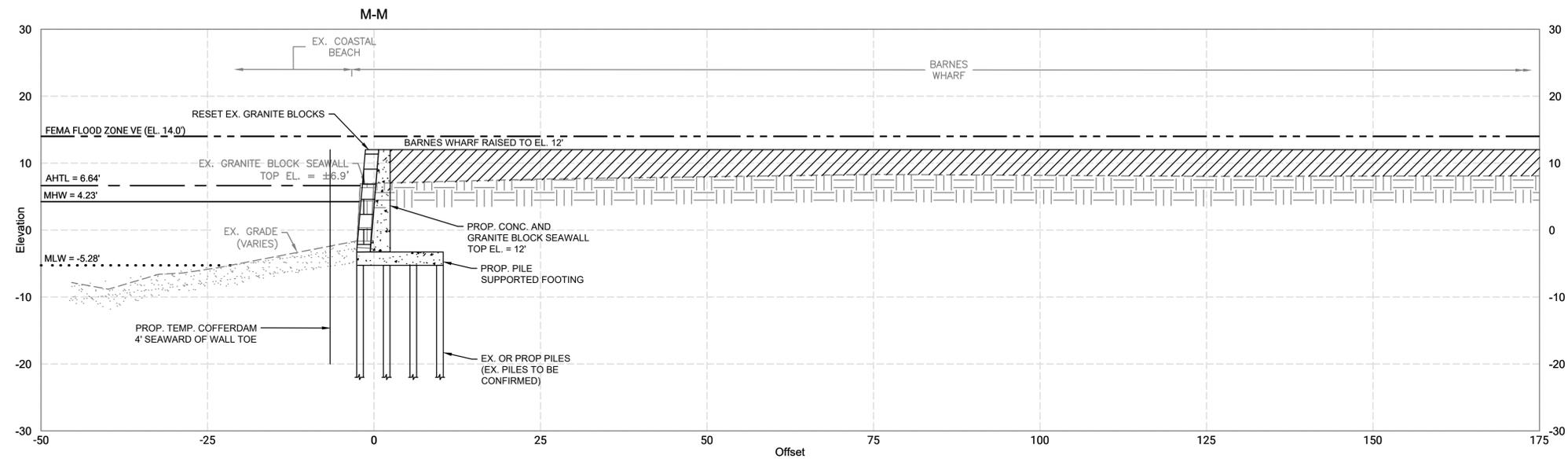
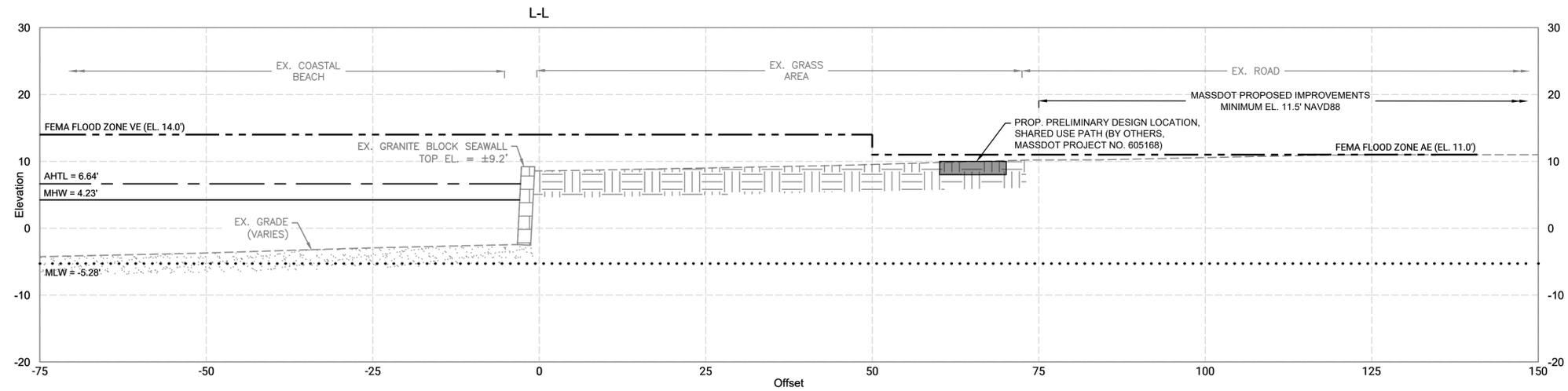


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 SHEET 4 OF 5**

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S-304



REVISIONS	
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**SECTIONS
 SHEET 5 OF 5**

ISSUANCE:
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 PURPOSES ONLY**

PROJECT NO: 0023H011.00
 SHEET NUMBER
S-305

Attachment 3
Sluice Gate OMP

3. SLUICE GATE OPERATIONS AND MAINTENANCE

1. Overview

- A. The sluice gate shall be operated and maintained by:
Town of Hingham DPW
25 Bare Cove Park Drive
Hingham, MA 02043
Contact Name and Phone Number: TBD by TOWN

2. Operation

- A. The sluice gate shall be operated per the attached Whipp's Fabricated Weir Gate and Slide Gate Installation, Operation and Maintenance Manual and as specified below.
- B. The sluice gate shall be in the opened position at all times unless a storm event is forecast or for maintenance. See below.
- C. Storm events will be monitored by the Town utilizing local and web based marine tide forecasting services. In the event of a storm forecasted to increase the tide elevation to 3' above MHHW the gate shall be closed just prior to the storm surge at low or ebb tide to assure that the upstream pipes have storage capacity and be closed for the duration of the storm event. Once the storm event is over and the tide levels have returned to their normal elevations the gate shall be opened. MHHW = 10.27', MLLW = 0', NGVD 29 = 4.65'. Therefore, MHHW = elevation 5.62 (NGVD 29), MLLW = elevation -4.65 (NGVD 29). **To prevent flooding of properties upstream of piped brook close gate at MHHW + 3' = 13.27' (elevation 8.62 NGVD 29).**
- D. The flap door automatically opens when the sluice gate is in the closed position and the head behind the gate is _____ foot greater than the head in front of the gate.

3. Maintenance

- A. The sluice gate shall be maintained per the attached Whipp's Fabricated Weir Gate and Slide Gate Installation, Operation and Maintenance Manual and as specified below.

- B. A Full Inspection of the sluice gate shall be done every 6 months. During this inspection the gate shall be run through a full cycle of closing and opening. The gate shall be inspected for any signs of corrosion, misalignment or damage.
- C. In addition to the Full Inspection, the non-rising stem shall be inspected at ____ month intervals. If grit or debris are found, the non-rising stem shall be cleaned and lubricated.
- D. Routine maintenance shall not be conducted between March 1st and May 31st as to allow for the passage of smelts and eels.

4. Record Keeping and Reporting

- A. The Town shall keep detailed records of all inspections.
- B. These inspections shall be submitted to the MassDEP and the Division of Marine Fisheries yearly.
- C. The Town shall, in writing, notify the MassDEP and the Division of Marine Fisheries after each storm event that causes the gate to be closed and opened and provide date and times when gate lowered and raised.
- D. The Town shall, in writing, notify the MassDEP and the Division of Marine Fisheries the disposition of the gate (opened or closed) just prior to the March 1st fish run season.
- E. Contact Information:

Contact: TBD by MADEP
MassDEP Southeast Region Main Office
20 Riverside Drive
Lakeville, MA 02347

Bradford C. Chase
Marine Fisheries Biologist
South Coast Marine Fisheries Station
Massachusetts Division of Marine Fisheries
1213 Purchase Street, 3rd floor
New Bedford, MA 02740

Fabricated Weir Gate and Slide Gate

Installation, Operation & Maintenance Manual

Introduction

This manual describes the recommended methods of installation, initial operation and maintenance for Whipps, Inc. fabricated sluice gates, slide gates, weir gates, operating mechanisms and related components. This manual should be used in conjunction with the approved installation drawings provided by Whipps, Inc.

Whipps, Inc. gates are custom built to meet the requirements of each specific application. The gates provided have low leakage characteristics. However, care must be taken in the handling, storage and installation of the equipment to ensure that it will function as intended and restrict leakage within the specified parameters.

The information in this manual is intended only as a recommendation for the proper and satisfactory installation of our equipment. Whipps, Inc. assumes no liability, expressed or implied, for the interpretation of the recommendations or faulty installation of the gates. Whipps, Inc.'s responsibility is limited to defects in manufacturing.

Handling and Storage

To prevent personal injury or equipment damage, follow standard safety procedures when handling equipment and be sure rigging equipment is properly set and in safe working condition.

When unloading the equipment from the box trailer or flat bed truck, use care during removal and storage. If the equipment has been shipped mounted to a wooden skid, lift the skidded material from the bottom.

If damage has occurred in transit, file the necessary report with the freight carrier and contact Whipps, Inc. immediately.

Thoroughly review the packing list and compare the items on the list to the equipment received.

Although Whipps Inc. gates are durable and heavily constructed, care is necessary during storage, handling and installation. Stem threads and hoists have precision surfaces that should be protected from damage.

Equipment should be stored on planks or timbers on a flat surface to keep them off the ground and to prevent distortion. Equipment should be covered with tarps to protect the equipment from foreign matter while stored. Where there are a number of medium or small gates and where storage space is limited, it maybe necessary to stack the gates with heavy timber blocking placed

between the gates to prevent damage. When stacking equipment, take care to avoid damaging operator pinion shafts or other components that may extend upward or outward.

If electric actuators or hydraulic cylinders are provided, extra care is required to protect this precision equipment. This equipment should be stored indoors in accordance with the original manufacturer's instructions. For electric actuators, this may include the energizing of heaters upon receipt of units to prevent corrosion of controls. For hydraulic cylinders, this includes storing cylinders vertically to prevent damage to seals.

To prevent bending when handling and storing, stems should be supported over their full length. They should be stored on a flat surface and the threaded portion should be covered and protected from damage. Couplings and thrust nuts (when applicable) may be shipped on the stems and may require removal prior to installation. Stop collars and anchor bolt hardware is normally shipped in a bag or box. Operating mechanisms should be handled and treated as precision machinery and protected accordingly.

Installation

Installation - General

The most important aspects of a gate installation are listed in this section. If these recommendations are followed, a proper gate installation is assured.

Carefully review the installation drawing for each gate prior to installation to confirm proper setting and component location. If the installation drawings are not available, please contact Whipps Inc. at 978-249-7924 or www.whipps.com.

If upstop bolts (upward opening gates) or downstop bolts (downward opening gates) have been removed from the side frames to facilitate installation, they must be re-installed.

Installation - Embedded Frames

1. On gates with embedded side frames and/or an embedded invert member, box-outs or recesses are required in the channel walls and/or the channel floor during the concrete pour. The box-outs shall be of sufficient size to accommodate the gate. See installation drawings for dimensional information.
2. The frame must be well supported prior to the addition of grout to prevent distortion. Distortion of the frame will cause excessive operating effort due to binding of the slide. Distortion of the frame can also cause excessive leakage.
3. Care should be taken to keep the seals and slide free from grout.

Installation – Gate and/or Components Mounted with Anchor Bolts

When anchor bolts are furnished for mounting the gate or components such as pedestals, stem guides and/or wall brackets, the location and projection of the anchor bolts will be shown on the installation drawing. In most cases, epoxy or wedge type anchor bolts will be utilized. When hook type anchor bolts are utilized, the anchor bolts should be placed in the holes drilled in the forms at locations indicated on the drawings. The hook ends of the anchor bolts should then be wired to the opposite form or to reinforcing rods to hold the bolts firmly in place.

Where gates are mounted with anchor bolts it is necessary that a uniform grout pad (non-shrink grout) be placed between the flange of the gate and the concrete wall. This grout is necessary to serve as a seal between the gate and wall and the type will be indicated on the installation drawings. The projection of the anchor bolts, shown on the installation drawings, includes provisions for the grout. Grout pads might also be required for pedestals, stem guides or wall brackets.

Gates should not be mounted directly to a wall without grout as this will result in leakage between the gate and wall.

1. All anchor bolts should be checked prior to installation to ensure that the threads are undamaged. Anchor bolts should be installed as recommended by the anchor bolt manufacturer.
2. Do not install the gates without mounting the jacking nuts on the anchor bolts as shown on the installation drawing. If the jacking nuts are not installed and the outside nuts are overtightened, frame distortion can occur and this can lead to excessive leakage. Frame distortion can pull the seal away from the slide thus creating a path for leakage.
3. In most cases, two nuts will be provided for each anchor bolt. Refer to the installation drawings for details. The jacking nut, should be installed on the anchor bolt prior to mounting the gate, leaving approximately 1 inch for the insertion of grout. The jacking nut needs to be positioned to ensure that the gate will be mounted vertically even if the concrete wall is not straight and plumb.
4. After anchor bolt and jacking nut installation, the gate should be lifted and carefully set in place in such a way as to not damage the threads on the bolts. After the gate is mounted on the anchor bolts, attach the other nuts on the anchor bolts. The use of the double nut arrangement helps to ensure that the gate will be mounted straight and plumb and can be firmly tightened into position without distortion.
5. With the gate flange located approximately 1 inch from the wall, forms should be mounted around the flange and a non-shrink grout should be placed between the flange and the concrete wall. The grout needs to be completely applied around the perimeter of the gate as

shown on the installation drawings. All voids should be filled with grout to ensure that leakage cannot occur between the gate and the wall.

6. Care should be taken to avoid getting grout on the seals or the slide. All grout that adheres to the seals or the slide should be removed.
7. Closely review the installation drawings, as it might be necessary to grind or cut off a portion of the anchor studs to provide clearance for unimpeded vertical travel of the slide. In particular, check the anchor bolt projection on the anchor bolts across the top of the opening on upward opening gates with top seals and check the anchor bolt projection across the bottom of the opening on downward opening gates. Where shown, the anchor studs should be cut down to the nut.
8. If any upstop bolts (upward opening gates) or downstop bolts (downward opening gates) were removed from the side frames to facilitate installation, they need to be re-installed.

Installation - Wall Thimbles

1. The front face of the wall thimbles, whether rectangular, square or circular, are marked with vertical centerlines and with "TOP" stamped on the top of the wall thimble. Wall thimbles should be set in place with the "TOP" mark up and top and bottom centerline marks plumb.
2. After being set at the proper elevation, the wall thimble must be internally braced to carry the weight of the concrete. Care should be used in placement of the braces so as not to distort the wall thimble. Gate attachment hardware will be misaligned if the wall thimble is distorted.
3. The wall thimble should be firmly supported on the form. Forms should be supported and stiffened against movement. If forms move, they will distort the wall thimble mounting flange and the gate may leak.
4. The tapped holes in the face of the wall thimble must be plugged or capped to prevent concrete from entering the holes.
5. After the concrete has hardened and the forms removed, the front surface of the wall thimble should be thoroughly cleaned. Make sure to remove all concrete that has flowed onto the surface from the edges. All tapped holes should be inspected and cleaned of concrete if necessary.

Installation - Gate Mounted to New Wall Thimble

1. The face of the wall thimble should be thoroughly cleaned and all wall thimble studs in place. Care should be taken to prevent damage to the studs during installation.

2. A gasket material is required between the surface of the wall thimble and the mounting flange of the gate. Mastic is normally used for this purpose and should be applied in accordance with the label directions.
3. If a gasket material other than mastic is used, it should be installed over the studs to provide a smooth mounting surface for the gate. If the gasket is other than one piece, the gasket joints should be aligned in accordance with the match markings and cemented with a liquid-type gasket material. When applying gasket materials, care should be taken to ensure that excessive amounts of lumpy, dried materials are not present when the gate is drawn tightly and evenly to the wall thimble.
4. The mounting flange of the gate should be thoroughly cleaned.
5. The gate can then be lifted and set over the studs and the nuts put in place and tightened. Care should be taken during this process to help ensure that the threads on the studs are not damaged. The sequence of tightening should be done in multiple passes by applying progressively larger force each pass. Equal torque should be applied to all nuts so that the gate is firmly and evenly tightened to the mounting flange without distortion. See following "Nut Tightening Torque" schedule.

Installation - Gate Mounted to an Existing Wall Thimble

See instructions for "Installation - Gate Mounted to a New Wall Thimble" after a close inspection of the existing wall thimble once the front flange is accessible. If the mounting flange of the existing wall thimble is damaged, contact the factory prior to installation.

Installation - Gate Mounted to a Pipe Flange

Where gates are mounted on pipe flanges, the procedure is the same as when the gate is mounted on a wall thimble. The type of attachment hardware shall be as shown on the installation drawings.

Consult the factory for assistance if the flange on which the gate is to be installed is damaged or unusable for any reason.

Nut Tightening Torque

Proper tightening of the nuts on anchor bolts holding the gate to the wall or studs holding the gate to the wall thimble may prevent serious problems in operation or performance of the gate. Tabulated below, are recommended torque values for common fastener sizes.

*DIAMETER (in.)	TORQUE (ft.-lb.)
1/2	35
5/8	75
3/4	100
7/8	150
1	200

Installation – Assembly

On non-self contained gates, some field assembly is required. Refer to the installation drawings for the location and position of all components.

When assembling gates that have dual stems, make sure that the stems are installed straight and plumb. When the operators are installed, it is important that both stems be in proper time and the top of the slide be level.

All pedestals are identified by the installation drawing and/or drawing number and should be used with the proper gate and stem.

1. After the stem has been completely assembled and positioned in place, the operator can be lowered onto the stem and turned into position by operation of the handwheel or crank.
2. Jacking nuts should be placed on the anchor bolts between the operating floor and the base of the pedestal so that it is plumb and the base is approximately 1" above the operating floor.
3. Approximately 1" of grout should then be placed between the pedestal base and the operating floor.
4. After the grout has hardened, the outside anchor nuts should be tightened firmly in place.
5. For manual operators, after the operator has been installed, tension should be applied to the stem by the handle or crank in a direction that would normally open the gate. However, the gate should not be opened. The intent is merely to apply tension that will result in a straight stem.
6. For electric actuators, the gate should be opened with the manual handwheel at least 3 inches before using the electric controls. In this manner, the proper phasing and direction of

rotation of the motor can be determined without damaging the gate assembly. Once the unit has been installed, the manufacturer's directions should be followed closely in setting the closing and opening limit switches. The torque switches have been properly set at the factory and should not need adjustment. Follow the manufacturer's instructions if it appears that adjustment is necessary

7. The stem guide, when applicable, should be anchor bolted to the wall in accordance with the installation drawings with uniform clearance possible between the stem and the stem guide bushing.
8. The stem should be thoroughly cleaned and lubricated with a heavy duty industrial grease, such as Shell Alvania #2EP or similar. See lubrication chart.
9. The gates should be placed in the fully closed position. On upward opening gates, the slide should be lowered so that there is minimum compression of the slide onto the invert seal. On downward opening gates, the slide should be positioned as shown on the installation drawing.
10. Stop collars are provided on manually operated gates. The stop collar should be threaded onto the top of the stem only after the operator has been installed and the gate is in the fully closed position. Set the stop collar so there is approximately 1/16" of clearance between the bottom of the stop collar and the top of the operator nut. Set screws should then be tightened to hold the stop collar in place.
11. The crank or handwheel should turn easily. If there is any binding or noise during operation, check to be sure that the stem guides, pedestal and stem are properly aligned and the stem threads are lubricated.

Hydraulic Cylinder Operators

Hydraulic cylinders should be stored in the vertical position and filled with hydraulic fluid. If it is necessary to store them horizontally for a short period, they should be rotated every two weeks to help prevent damage to the seals.

1. Hydraulic cylinders should be mounted on the anchor bolts in such a way that the piston rod and stem are in proper alignment and there is sufficient clearance for piping, fitting, etc.
2. The coupling between the piston rod and the stem should be screwed into place and locked.
3. With the gate in the closed position, the piston should be lowered so that it is in contact with the bottom head of the cylinder.
4. With the piston in this position, the thrust nut should be adjusted on the stem so that it is in contact with the bottom of the thrust nut pocket. Set screws should be tightened to lock it in

place. In most cases, the top area of the piston is larger than the underside. Therefore, if pressure applied to both surfaces is the same, more force will be applied in the closing direction than in the opening direction. For that reason, pressure-reducing valves should be provided in the line to the top of the cylinder to lower the pressure to that required to properly close the gate. In this way, full operating pressure can be applied to the bottom of the piston resulting in more opening than closing force. All piping should be thoroughly flushed and cleaned prior to making connection to the hydraulic cylinder.

Prior to Operating

1. Clean both sides of the slide, the guides, seals and stem of all grout, sand, paint and other debris.
2. Check to make sure that stem guides are positioned correctly and are securely fastened.
3. Clean and lubricate the stem threads.

Operating Instructions

Whipps, Inc. fabricated gates are constructed to operate satisfactorily under the specified operating conditions. These gates should be operated with care so as not to exceed the specified conditions. If, in the operation of the gate, an obstruction is met, either in the opening or closing direction, the obstruction should be removed before continuing in the operation. When the gate is fully opened or closed, excessive force should not be placed on the handwheel, crank or gate stem by personnel in an effort to move the gate further. There should never be a need for a pipe extension or other additional leverage applied to the handwheel or crank. If excessive force is required, a thorough visual inspection of the gate assembly and stem is strongly recommended.

If a problem arises in the operation of the gate, such as an unusual head condition or evidence of excessive corrosion, the factory should be consulted before the gate is used or operated.

Installation Inspection Check List

Manually Operated Gates

1. Check hoist, stem guide, and gate attaching bolts for proper tightness.
2. Apply tension to stem and check any stem guides for proper alignment. There must be a uniform clearance between the operating stem and all stem guides.
3. Visually inspect all gate seals, including the invert seal, and both sides of the slide. Thoroughly clean off all foreign matter.
4. Visually inspect the threaded portion of the stem. It must be clean and free of foreign matter, including dirt or sand, and lubricated with a suitable industrial grease. If a wire brush is used to clean the stem, use only a stainless steel type. Do not use carbon steel brush.
5. Adjust stem stop collar to within 1/16" of the top of the hoist operating nut and lock in place.
6. Install stem cover and stem cover indicator strips if applicable.

Maintenance Instructions

Gates

Gates should be visually inspected at regular intervals (at least every six months) for signs of misalignment, damage or corrosive attack. Please keep in mind that corrosion, when it occurs, is most prominent at the water line.

Please note that gates with non-rising stems typically require additional maintenance. If the water level rises to the threaded portion of the stem, the threads may become coated with grit or debris. If the threads become grit laden, the following procedure is recommended to prolong the useful service life of the operating nut (mounted on the slide):

1. The threaded portion of stem should be cleaned and re-greased. The stem must remain free of grit and be sufficiently lubricated to prevent accelerated wear to the operating nut (mounted on the slide).

Manual Operators

At least once a year, all grease fittings (if applicable) should be lubricated with a small amount of heavy duty grease which will not harden in cold weather nor become liquid in warm weather. See Lubrication Chart. Some manual operators may be permanently sealed and these units will not have lubrication fittings.

Electric And Hydraulic Operators

Periodic maintenance schedules should be set-up in accordance with the original manufacturer's operation and maintenance manual.

Modulating Electric Operators

These operators can cause accelerated wear in the operating nut since the stem and gates are operated more frequently and at times continuously.

1. The threaded portion of the stem must be clean and greased at all times.
2. The operating nuts should be removed and inspected for wear after the first six months of operation and every year thereafter.
3. Replace bronze operating nut as soon as noticeable wear is evident.

Operating Stems

It is important that operating stems be periodically cleaned and greased. Even though some environmental conditions are more severe than others and the use of pipe covers will protect stems, they still need to be cleaned and greased at least once every six months, more often if the grease becomes dirty. This is especially important on large gates and/or frequently operated gates such as gates with modulating electric actuators. See Lubrication Chart.

Installation Drawings

The drawings submitted by Whipps, Inc. for approval and/or field use, are planned so that the installation drawing is the master reference.

The drawings depict as much as possible of the structure surrounding the supplied equipment. The location of embedded material such as anchor bolts and wall thimbles are shown. The identification of fasteners and components (studs, anchor bolts, gate assemblies, hoists, stems, stem guides, stem couplings, adaptor plates, wall thimbles, thrust nuts, stop collars and other equipment) is done by calling out physical sizes and/or assembly or detail drawing numbers. More information is available on the detail drawings, which have been included with the installation drawing.

Spare Parts

Whipps, Inc. does not typically recommend the stocking of spare parts by customers or owners since the equipment is designed for a very long service life when recommended maintenance procedures are followed.

If a repair part is required, contact the PARTS DEPARTMENT at Whipps, Inc. at 978-249-7924 or www.whipps.com with as much of the following information as possible:

1. Plant name and location.
2. Original (four or five digit) shop order number which is indicated on correspondence and installation drawings.
3. The installation drawing number, and a description of the part, with any other available drawing numbers or the size (width x height) and location of the gate in the plant.
4. Description of damage and cause. (Digital photos of damage are useful.)
5. Approximate delivery requirements.

Field Service Policy

The equipment furnished on this order has been inspected prior to leaving the factory and has been accepted by the freight carrier. Please check the packing list accompanying the shipment for shortages and examine the equipment for damages prior to accepting the shipment. Before handling, storing or installing this equipment, read the installation manual that accompanies the shipment.

Damage In Transit

If the equipment has been damaged in transit, the purchaser is responsible for filing the claim with the transport company. Contact Whipps, Inc. for assistance in filing the claim.

Installation, Inspection and Adjustment

Installation supervision, inspection of installed equipment, setting of limit switches and certification of satisfactory initial operation are not included unless specifically indicated on the customer's purchase order and accepted by the company. Otherwise, Whipps, Inc. will provide this service at the standard published charges.

Field Issues

If trouble develops either in the installation, operation or performance of the equipment, the installation manual and drawings should be checked to determine if the equipment has been installed properly. If proper performance or operation cannot be obtained and assistance from the factory is desired, please contact Whipps Inc or the local representative. Arrangements will be made to send a service technician to the job site if this is required. The service technician will make a thorough examination of the problem and if the equipment is faulty in workmanship or material, the necessary repairs will be made by the factory at no cost to the purchaser if within the warranty period.

If, however, the problem is due to faulty installation or adjustment, the cost of the field service will be charged to the purchaser.

If repairs are made in the field by the purchaser or authorized by the purchaser, backcharges for these repairs will not be accepted by the company unless the company has been notified prior to the incurring of these costs and has accepted the responsibility for these repairs.

Whipps, Inc. will not be liable for contingent costs or costs of delays due to the faulty equipment and the repairs thereof.

Field Service Charges

Field service charges begin from the time of departure until the return of the service person and include a daily rate plus travel and subsistence expenses. Premium day and hour rates will be charge on Saturdays, Sundays, and Holidays and for time spent before 6 a.m. or after 5 p.m., or over eight hours per day. A schedule of Field Service charges is available from the Whipps, Inc. Field Service Department.