February 14, 2022 Job No. 2020-0237

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

Sent via email: MEPA@mass.gov and Erin.flaherty@mass.gov

Re: **ENVIRONMENTAL NOTIFICATION FORM: SUPPLEMENTAL INFORMATION, EEA No. 16514**
Proposed City of Boston Resilient Fort Point Channel Infrastructure Project
Boston Planning & Development Agency
Fort Point Channel Harborwalk between 15 Necco St. and Dorchester Ave.
Boston, MA

Dear Erin,

On behalf of the City of Boston and Boston Planning & Development Agency (BPDA), we are submitting the following supplemental information for the above referenced project. A copy is also being sent to everyone on the original Environmental Notification Form (ENF) Distribution List, as well as to those who requested a copy of the ENF after it was filed. A copy of the Revised Distribution List is attached. Please note: the comment period has been extended to February 22, 2022.

The supplemental information is provided in response to comments and questions provided by Commonwealth of Massachusetts agencies during the Remote MEPA Meeting held on February 1, 2022 at 1:00 PM and through subsequent correspondence. The comments and questions raised pertain to the status of an operations plan for proposed deployable flood barriers, potential impacts of the project on stormwater inflows and discharge, and potential project impacts of the project on Land Subject to Coastal Storm Flowage functions.

DEPLOYABLE BARRIERS OPERATIONS PLAN

The Massachusetts Office of Coastal Zone Management (CZM) raised a question regarding the City's plans for operating the proposed deployable flood barriers.

Several City of Boston agencies and the Boston Planning & Development Agency are in the process of developing an operations plan for deployable flood barriers, including the ones proposed as part of the Resilient Fort Point Channel Infrastructure Project. This operations plan will include what forecast conditions will trigger barrier mobilization and deployment, as well as lay out barrier storage locations and responsibilities and procedures for installation, traffic management, interagency coordination, and public communications. In addition, the development and approval of a deployable flood barrier operations plan for the Resilient Fort Point Channel Infrastructure Project will be required by FEMA.

STORMWATER FLOWS AND DISCHARGE

CZM raised a question regarding the impact of stormwater flows directed to the existing drainage system from the landward slopes of the Segment 1 and Segment 3 berms and any negative impacts such flows would have on stormwater flooding.

The Environmental Notification Form (ENF) included in Section L a stormwater report prepared by Hazen and Sawyer for the Boston Water and Sewer Commission at the City of Boston's request. Figures 3-1 and 3-2 of that report show stormwater flooding under existing conditions and proposed conditions, respectively, for the modeled 10-year rainfall scenario. The results show no negative impact of the proposed system on stormwater flooding. There is no evidence of increased ponding in the vicinity of the proposed berms, or beyond, to suggest that the proposed berms would increase flow to nearby catch basins beyond their collection capacity.

CZM also raised a question regarding whether the proposed stormwater outfall tide gates would be able to drain or would negatively impact stormwater system performance.

The specifications for the tide gates to be installed as part of the proposed project have not yet been developed. As part of a future design phase, the appropriate flow rates and pressure ratings will be evaluated in the context of the upstream stormwater drainage system and specified to ensure that the tide gates will not exacerbate stormwater flooding.

LAND SUBJECT TO COASTAL STORM FLOWAGE

CZM also raised a question regarding the proposed project's impacts on beneficial functions of Land Subject to Coastal Storm Flowage (LSCSF). While the ENF Application includes a narrative addressing some LSCSF functions, the following narrative has been prepared to more thoroughly address existing guidance.

The proposed project is located within the jurisdiction of the Massachusetts Coastal Wetlands Regulations. Although the Wetlands Protection Act does not currently contain performance standards for Land Subject to Coastal Storm Flowage, it is recommended that Commissions should evaluate projects in the context of maintaining functions of resource areas. Project applicants must meet all relevant regulations when designing a project.

<u>Excerpts from Applying the Massachusetts Coastal Wetlands Regulations: A Practical Manual for Conservation Commissions to Protect Storm Damage Prevention and Flood Control Functions of Coastal Resource Areas</u>

Although the WPA Regulations do not specifically state that land subject to coastal storm flowage is significant to the interests of storm damage prevention and flood control, it is listed as an area subject to protection under the Regulations (10.02(1)(d)) and the Act (M.G.L. c. 131, § 40), and is provided with a definition: "land subject to any inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record or storm of record, whichever is greater." In addition, the Regulations (10.03(5)) state: "Each area subject to protection…is presumed to be significant to one or more of the interests." Moreover, the 2014 amendments to the WPA Regulations include definitions for the special flood hazard area and velocity zone to specify that land subject to coastal storm flowage is a resource area with potentially significant flood and storm wave hazards that are relevant to the storm damage prevention and flood control interests.

Specifically, land subject to coastal storm flowage can:

(1) Slow down flood waters and allow them to flow across a natural landform surface, providing frictional resistance and reducing their energy and destruction potential.

(2) *Allow flood waters to spread over a wide area without obstructions. (Obstructions can cause the channelization of flood waters and storm-wave overwash and an increase in the velocity and volume of flow to adjacent or landward areas.)*
(3) *Allow flood waters to be detained, absorbed into the ground, or evaporated into the atmosphere.*
(4) *Protect the land from storm erosion by providing a substrate for vegetation that helps to stabilize sediments and slow down flood waters.*

The following projects may diminish the ability of land subject to coastal storm flowage to function to control flooding or prevent storm damage:

(1) *Projects that reduce vegetation and pervious areas in the coastal floodplain may reduce the surfaces that can detain, absorb, slow, or evaporate flood waters, thereby changing the drainage characteristics in a manner that could cause increased flood damage on adjacent properties.*

The proposed project will not reduce vegetation or pervious area. In fact, the proposed project will increase both vegetation and pervious area through the construction of two earthen berms that will help to attenuate wave energy and absorb floodwaters, therefore increasing protection from storm damage and flooding for adjacent, inland properties within a highly developed, urban area. Without the proposed project, major flood pathways lead directly into the Fort Point Channel area that frequently result in storm damage, which will worsen with climate change if no action is taken.

(2) *Buildings on solid foundations, slabs, and curbs and landscaping walls, fill, and other hard and impervious surfaces may have the effect of channeling flood waters, which increases the velocity of flow to adjacent areas. These obstructions to water flow may also deflect, reflect, or redirect wave energy, overwash, and flood waters onto adjacent resource areas, properties, and private and public roads.*

The proposed project does not include the construction of any new buildings or the alteration of any existing buildings. The proposed project will construct permanent flood barriers, including the addition of fill, and interim flood barriers within LSCSF to create a continuous line of coastal flood protection set at consistent top elevations. The project will block a flow pathway across the lowest elevation portion of the east bank of the Fort Point Channel, tying into higher existing grades and structures at both the north and south ends of the project site. As depicted in Figure 1, the north end of Segment 1 will tie-in (blue area) to the elevated waterfront yard grade of the 15 Necco Street and 5 Necco Street sites, and an interim deployable flood barrier with a top elevation of 11.5 ft NAVD88 (18 ft Boston City Base) will be installed between the 5 Necco Street and 27 Melcher Street buildings to block the Necco Court flood pathway. At the south end, Segment 3 will tie-in to existing grades at 11.5 ft NAVD88 (green area), at Dorchester Ave (Figure 2). Only general tie-in areas are shown in Figures 1 and 2. The exact tie-in designs will be completed in future phases of design. As discussed in the ENF Application (pages 22-24), the proposed permanent flood barriers (Segments 1-3) have a design flood elevation (DFE) of 14.6 ft NAVD88, while the interim flood barriers have a DFE of 11.5 ft NAVD88. As sea level rises, funding is secured, and implementation capacity is built, additional actions are planned to adapt the proposed flood protection system to be independently effective up to elevation 14.6 ft NAVD88. No low elevation gaps will remain between Summer St and Dorchester Ave to concentrate velocities.

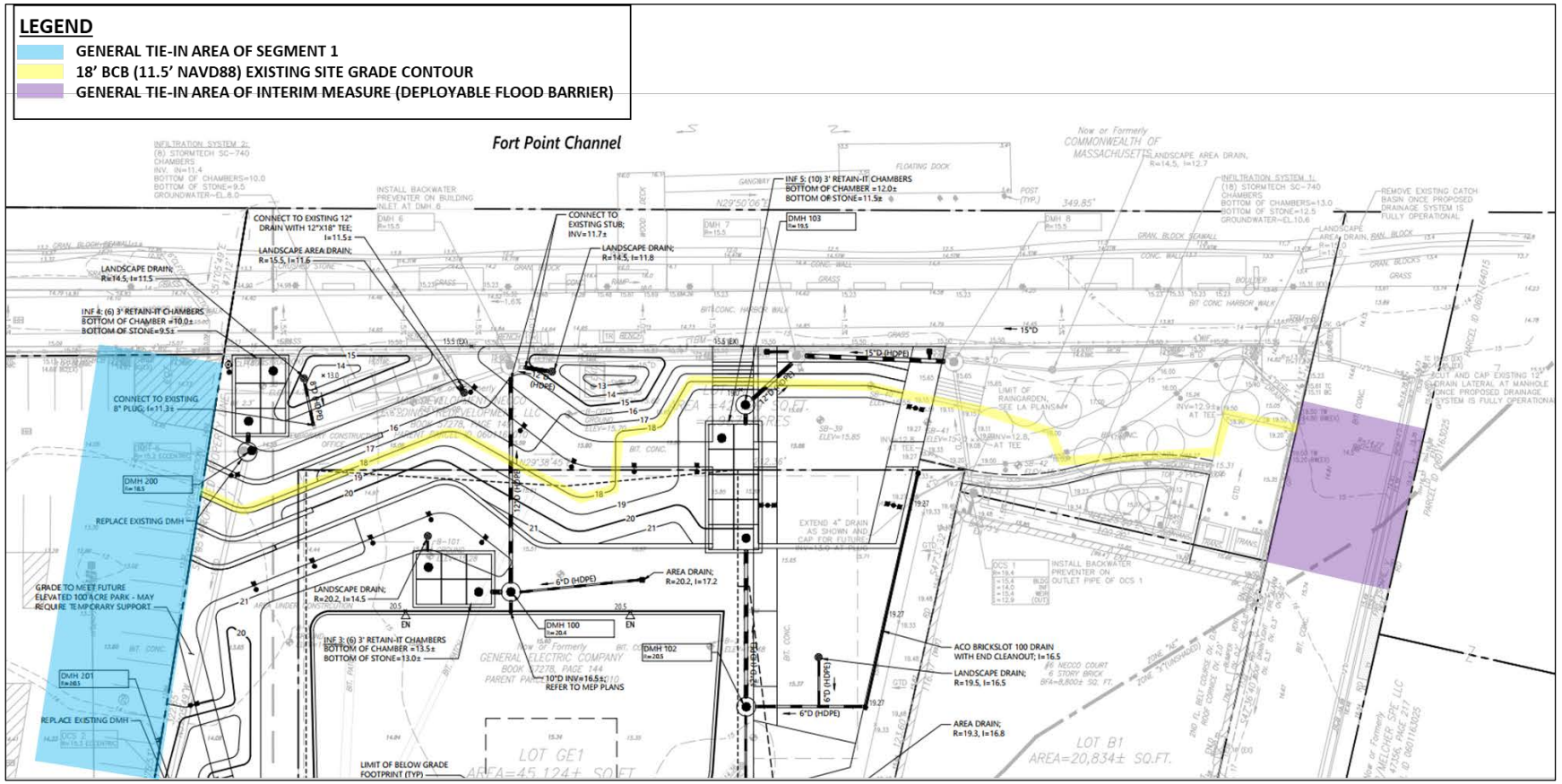


Figure 1. **General diagram of Segment 1 tie-in to existing grade contours and interim flood barrier at 11.5 ft NAVD88 (shown as 18 ft BCB), overlaid on excerpt from 15 Necco Street Grading and Drainage Plan dated January 8, 2021 and filed under DEP File No. 006-1490.**

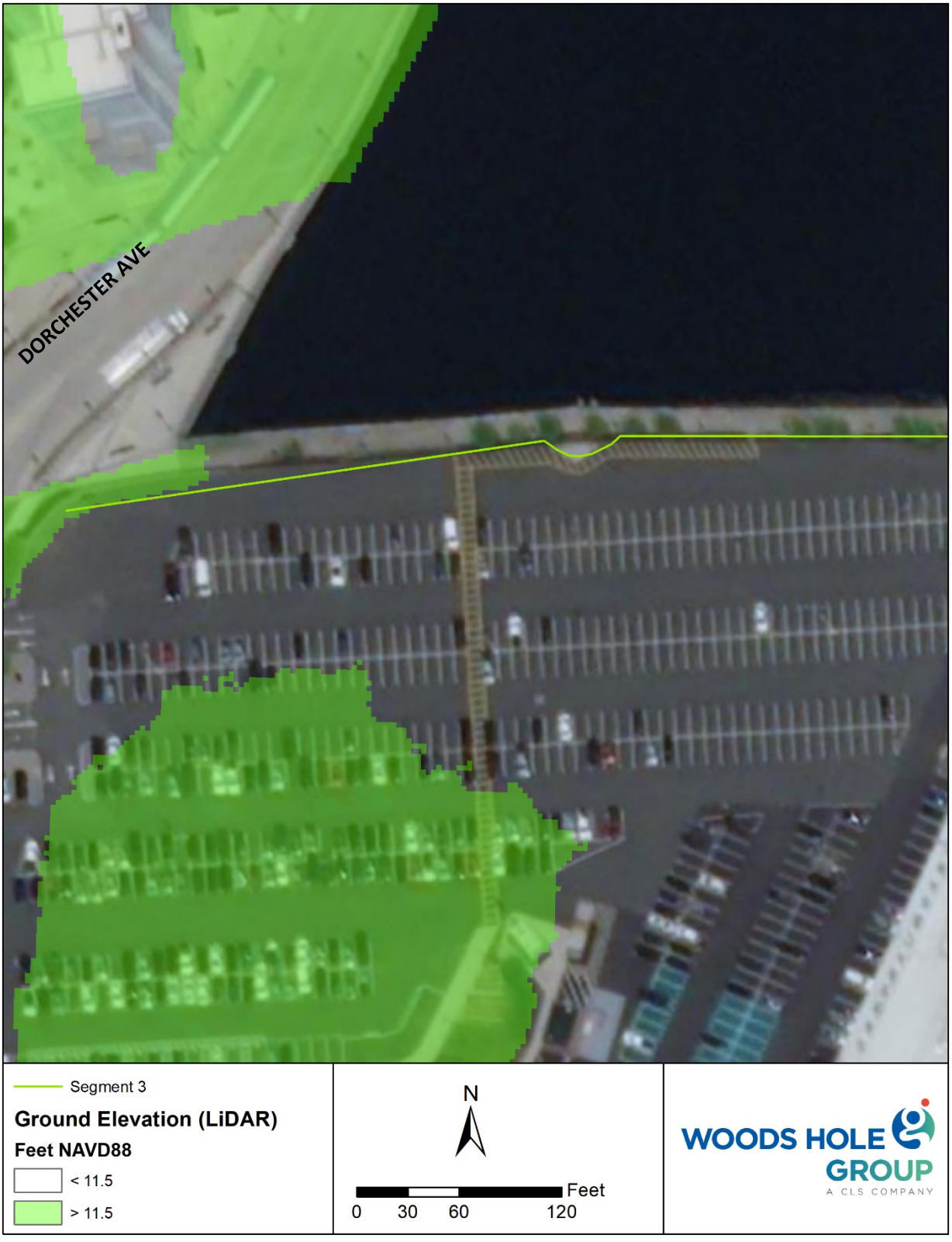


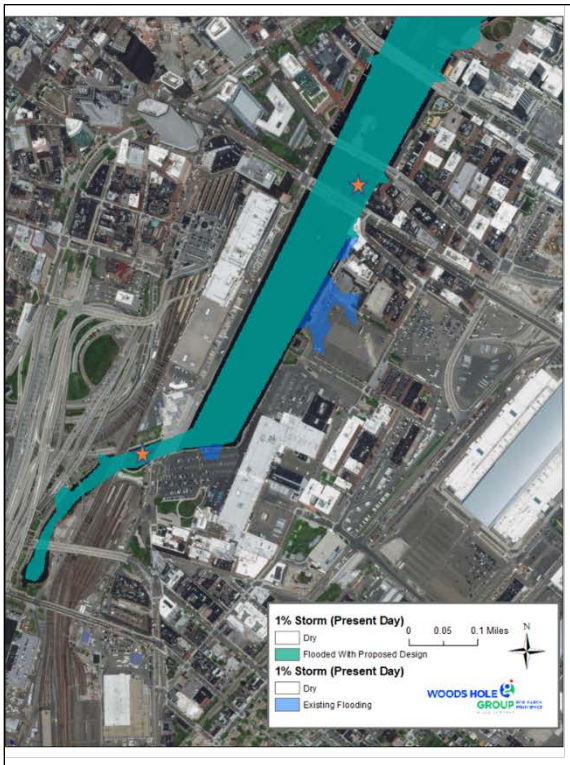
Figure 2. **General diagram of Segment 3 tie-in to existing grade at 11.5 ft NAVD88.**

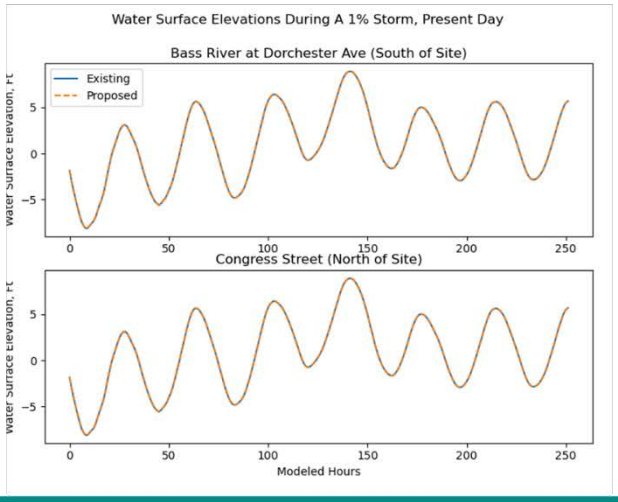
While the project will block certain flow paths into a large area of the Fort Point/South Boston neighborhood, it is not expected to change the flood extent, depth, or velocity of coastal flooding on adjacent properties outside of the project area that remain unprotected by the project. The volume of water that will be prevented from flooding the Fort Point/South Boston neighborhood area of flood protection is small relative to the volume in the Fort Point Channel and surrounding water bodies. As such, the increase in water surface elevation from the mitigation of flooding in this area will have insignificant impact on the water levels in Fort Point Channel and, therefore, no impact on neighboring areas to the south, north, and west of the project site. The west bank and waterfront of the Fort Point Channel, opposite the proposed project site, is also higher in elevation, with a minimum top of seawall elevation estimated to be approximately 12.5 ft NAVD88.

The next nearest flow pathways on the east side of the channel, north (between 250 Summer St and 303-305 Congress St buildings) and south (MBTA Cabot Yard) of the project limits, are separated from the proposed project by large existing structures that control the volume and velocity of flooding through the respective flow paths. These controlling structures include the Summer St bridge, 250 Summer St building, and 303-305 Congress St building, north of the project limits, and the Dorchester Ave bridge (Rolling Bridge Park) and railway bridge at the constriction of the Fort Point Channel and its confluence with the Bass River, south of the project limits. These flow paths are independent of influence from the flow path mitigated by the proposed project, except that the proposed interim flood barriers proposed at A Street and West Service Rd Ext may marginally reduce the volume and extent of flooding in the area impacted by the northern flow path under certain storm scenarios.

To verify that the proposed project will not affect water surface elevations and flood velocities at secondary flood pathways adjacent to the project site, the Boston Harbor Flood Risk Model (BH-FRM) was used to compare flood conditions before and after construction of the proposed project. One percent (1%) annual chance storms were modeled under present day and 2030 sea level conditions using BH-FRM both with and without the proposed project. Results show that the maximum water surface elevations in the Fort Point Channel at secondary flood pathways north and south of the project site will not be affected under the present (Figure 3) and 2030 (Figure 4) 1% annual chance flood scenarios.

Given that the project will not increase the maximum water surface elevations at secondary flood pathways and that the project does not propose any modifications that would narrow those secondary flood pathways, the flow velocity through those pathways will not change under the proposed conditions. To further verify this understanding, flow velocities were extracted from the existing and proposed condition BH-FRM model runs for the 2030 1% annual chance flood. The results, shown in Figure 5, verify that no change in flood velocities through these secondary pathways is expected to occur as a result of the project.

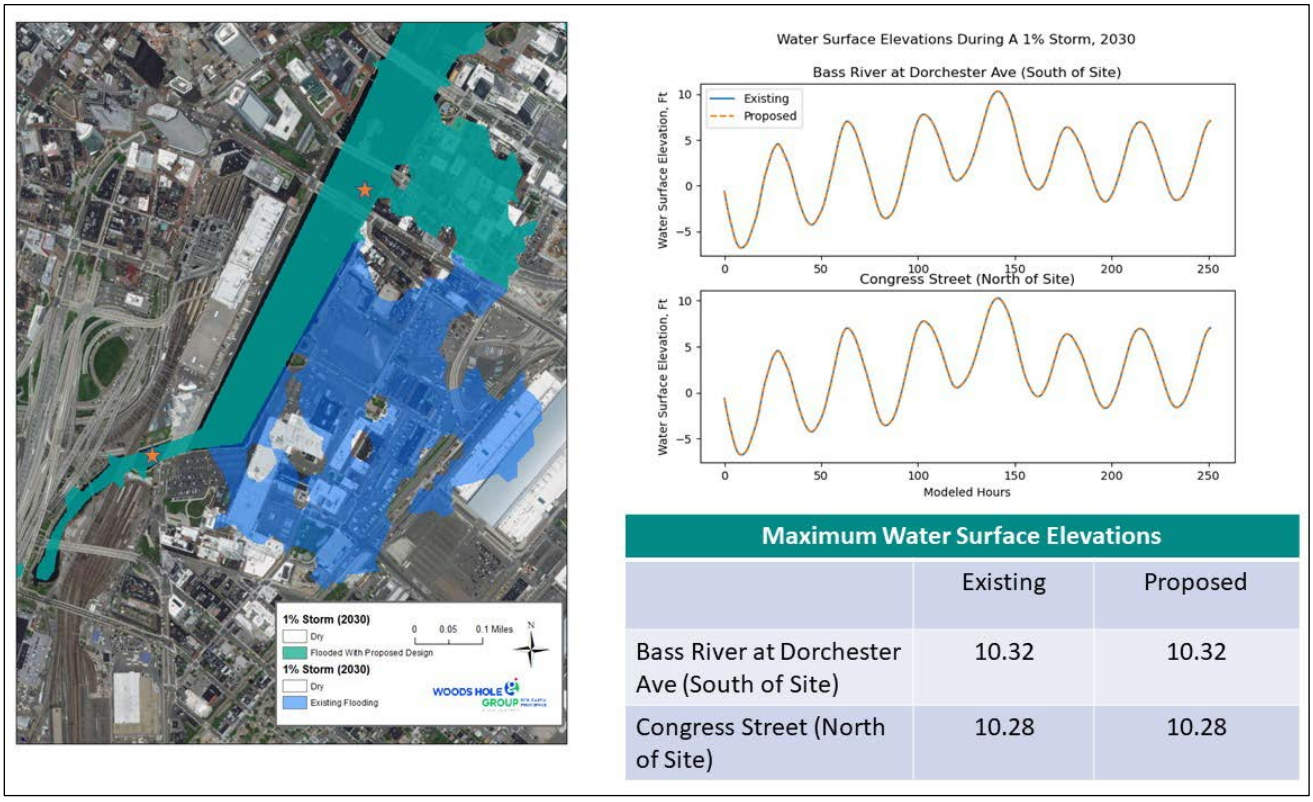




Maximum Water Surface Elevations

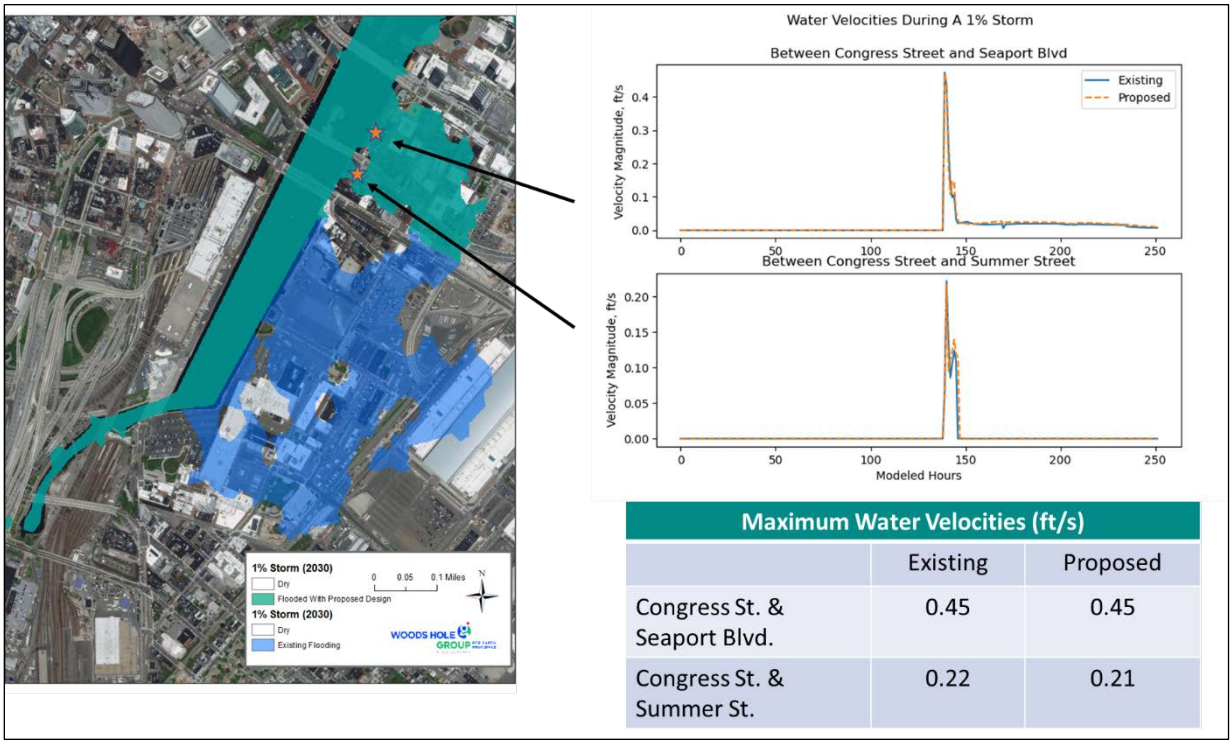
	Existing	Proposed
Bass River at Dorchester Ave (South of Site)	8.89	8.89
Congress Street (North of Site)	8.90	8.90

Figure 3. **Left: Extent of flooding with (green) and without (blue) the proposed project during a 1% event in present day (left); Top Right: Water surface elevation (feet) north and south of the project site at locations starred on the map (left); Bottom Right: Maximum water surface elevations (feet) under existing conditions and after the proposed project.**



Maximum Water Surface Elevations		
	Existing	Proposed
Bass River at Dorchester Ave (South of Site)	10.32	10.32
Congress Street (North of Site)	10.28	10.28

Figure 4. **Left: Extent of flooding with (green) and without (blue) the proposed project during a 1% event in 2030 (left); Top Right: Water surface elevation (feet) north and south of the project site at locations starred on the map (left); Bottom Right: Maximum water surface elevations (feet) under existing conditions and after the proposed project.**



Maximum Water Velocities (ft/s)		
	Existing	Proposed
Congress St. & Seaport Blvd.	0.45	0.45
Congress St. & Summer St.	0.22	0.21

Figure 5. **Left: Extent of flooding with (green) and without (blue) the proposed project during a 1% event in 2030 (left); Top Right: Water velocity (feet/second) north of the project site at locations starred on the map (left); Bottom Right: Maximum water velocities (feet/second) under existing conditions and after the proposed project.**

The proposed project is located within a highly developed, highly impervious, dense urban area, where floodplain functions are extremely limited. The proposed project will provide significantly greater storm damage prevention and flood control functions for the benefit of both the built environment and wetland resource areas than the existing floodplain would without the proposed project.

(1) Filling hydraulically restricted areas with sediments or other materials could displace the area where flood waters would otherwise be confined or detained and increase flood levels on the subject and adjacent properties. Hydraulically restricted areas include areas where ponding occurs from overwash or where pipes, culverts, dikes, or other physical restrictions limit water flow.

The project site is not a hydraulically restricted area (there are no culverts, dikes, or other physical restrictions); flooding occurs in this area due to the open, unrestricted nature and the presence of a large flood pathway. The proposed project will actually provide increased flood and storm damage protection for inland properties and confine floodwaters to the existing channel. For a full discussion of the proposed project's impact on water surface elevation and wave height, see number (2) above.

(2) Coastal engineering structures in V Zones or Coastal A Zones may deflect, reflect, and redirect storm waves, affecting adjacent properties, landward areas, and the subject property with wave energy, overwash, and flood waters.

The proposed project is not located in a V Zone or a Coastal A zone. Given the limited wave heights (up to about 1 ft in the 2030 1% storm based on BH-FRM), limited fetch, non-perpendicular angle at which waves would interact with the proposed improvements, and higher elevation of seawalls on the west bank of the Fort Point

Channel, the project is expected to have insignificant impacts on wave conditions in the Fort Point Channel and at adjacent properties under the 2030 1% storm.

(3) *Dredging or the removal of materials within the coastal floodplain allows storm waves to break farther inland and to impact upland and wetland resource areas.*

The proposed project does not include dredging or any kind of removal of material. The proposed project actually includes the placement of fill to attenuate wave energy and contain floodwaters within Fort Point Channel.

If you have any questions, or require any additional information, please call me at 305-978-5993 or send an email to nbrahim@woodsholegroup.com.

Sincerely,

Nasser Brahim
Senior Climate Resiliency Specialist

NB/beg

Enclosure: as stated

cc: Revised ENF Distribution List (see attached)
Brian Golden, Boston Planning & Development Agency
Joe Christo, Boston Planning & Development Agency
Richard McGuinness, Boston Planning & Development Agency
Chris Busch, Boston Planning & Development Agency
Alison Brizius, City of Boston Environment Department
Sanjay Seth, City of Boston Environment Department
Mark Talbot, Massachusetts Emergency Management Agency
Michelle O'Toole, Massachusetts Emergency Management Agency
David Robbins, Federal Emergency Management Agency
Eric Kuns, Federal Emergency Management Agency
Kara Buckley, P&G - Gillette
Alan Sheard, P&G - Gillette
John Logg, P&G - Gillette
Leslie Fields, Woods Hole Group
Elizabeth Gurney, Woods Hole Group
Melissa Jaffe, Woods Hole Group

Dept. Of Environmental Protection
Commissioner's Office
One Winter Street
Boston, MA 02108
helena.boccadoro@mass.gov

Massachusetts Historic Commission
The MA Archives Building
220 Morrissey Boulevard
Boston, MA 02125

DEP/Northeast Regional Office
Attn: MEPA Coordinator
205B Lowell Street
Wilmington, MA 01887
john.d.viola@mass.gov

Mass. Department of Transportation
Public/Private Development Unit
10 Park Plaza, Suite 4150
Boston, MA 02116
MassDOTPPDU@dot.state.ma.us

MA DOT – District #6
Attn: MEPA Coordinator
185 Kneeland Street
Boston, MA 02111
michael.garrity@dot.state.ma.us

Metropolitan Area Planning Council
60 Temple Place, 6th Floor
Boston, MA 02111
mpillsbury@mapc.org

City of Boston
Health Division
1010 Mass. Ave., 4th Floor
Boston, MA 02118
isdhealth@boston.gov

City of Boston
Planning & Development Agency
1 City Hall Square
Boston, MA 02201
bpdamarketing@boston.gov

City of Boston
City Council
1 City Hall Square, Suite 550
Boston, MA 02201
city.council@boston.gov

City of Boston
Conservation Commission
1 City Hall Square, Room 709
Boston, MA 02201
cc@boston.gov

Coastal Zone Management
Attn: Project Review Coordinator
251 Causeway St., Suite 800
Boston, MA 02114
robert.boeri@mass.gov
patrice.bordonaro@mass.gov

Mass. Water Resource Authority
Attn: MEPA Coordinator
100 First Avenue
Charlestown Navy Yard
Boston, MA 02129
katherine.ronan@mwra.com

DMF -South Shore
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
DMF.EnvReview-North@mass.gov

Sara McCammond
Harborfront Neighborhood Alliance
sara.mccammond@harborfrontalliance.org

Erik Rexford
Epsilon Associates, Inc.
ERexford@epsilonassociates.com

Andy Backman
DCR Resource Protection Bureau
andy.backman@state.ma.us

Brad Washburn
Environmental Planning & Permitting
Mass. Port Authority
BWashburn@massport.com

Wendy Landman
Senior Policy Advisor
Walk Boston
wlandman@walkboston.org

Richard Rudman
DLA Piper LLP
richard.rudman@dlapiper.com

Ariana Carr
Boston Water and Sewer Commission
carra@BWSC.ORG
617-989-7413

Steve Adams
Banker & Tradesman
The Warren Group LLC
sadams@thewarrengroup.com

Raber Umphenour
Member of Arts District
raberumphenour@gmail.com

Valerie Burns
vburns249@gmail.com

Shirley Veenema
sveenema@verizon.net

Jesse Caldwell
Conservation Law Foundation, Mass.
jcaldwell@clf.org

Dianne Phillips
Holland & Knight
dianne.phillips@hklaw.com

Zara Zsido
89 Union Park St., Apt. 516
Boston, MA 02118
zarawithazee@yahoo.com