3.11.1 Construction Description Overview

3.11.1.1 Introduction

Climate change-induced sea level rise accompanied by more frequent, intense storm events and storm surges present a significant risk to coastal communities and in 2012 Superstorm Sandy underscored the potential intensity of major coastal storm event impacts on the New York City metropolitan area. In anticipation of the need for coastal protection against future severe storms and sea level rise in the Battery Park City area, the Proposed Project has been proposed by the Battery Park City Authority (BPCA) with the objective of installing a flood protection system that is a combination of floodwalls and floodgates coupled with infrastructure improvements and targeted urban design and park enhancements that together would reduce the adverse effects of a design storm event on the community.

The Project Area comprises the 7,900 linear foot alignment of the proposed flood barrier system with associated areas of grading and landscaping. For the purposes of both project design and EIS impact analyses, the Project Area has been organized during the project design into seven reaches (see Figure 1-4 in Chapter 1.0, "Project Description") for ease of reference and understanding. Vertically, the foundations for the proposed flood barrier system are expected to extend 50 to 90 feet below the existing surface grade. Assuming all the required approvals are issued, project construction is expected to begin in 2025 and be completed in 2030.

This chapter establishes the framework used to assess potential effects from construction of the Proposed Project. The preliminary construction schedule is described along with projected construction activities and practices.

3.11.1.2 Analysis Framework

This chapter outlines the methodologies used to establish the reasonable worst-case construction phasing and schedule, which serve as the basis of the analysis of potential construction impacts. The analyses in the subsequent construction-related chapters focus on open space, natural resources, transportation, air quality, greenhouse gas, noise and vibration, and neighborhood character. Detailed assessments of potential impacts on archaeological and architectural resources, and hazardous materials, including the effects during the construction period, are described in Chapter 3.3, "Historic and Cultural Resources," and Chapter 3.6 "Hazardous Materials," respectively.

3.11.1.3 Construction of Proposed Project Components

The proposed flood barrier system is comprised of both passive floodwalls and deployable flood barrier elements, such as floodgates. A description of the construction approaches and components (i.e., how floodwalls, floodgates, infrastructure improvements elements, etc., are to be constructed) for the Proposed Project is provided below.

Construction of the Proposed Project would commence by securing the area from the public along the Hudson River Greenway, relocating any existing public features and installing the necessary safety barriers. The initial phase would also involve installing any monitoring or physical barriers necessary to protect the buried historic bulkhead adjacent to the Project Area at Reach 1.

As described in detail in Section 3.11.4, "Construction Air Quality," measures would be taken to reduce pollutant emissions during construction in accordance with all applicable laws, regulations, and building codes as well as New York City Local Law 77. These include dust suppression measures, idling restriction, and the use of ultra-low sulfur diesel (ULSD) fuel and best available tailpipe reduction technologies. In addition, as described in detail in Section 3.11.6, "Construction Noise," construction of the Proposed Project would not only include noise control measures as required by the New York City Noise Control Code, but would also include additional measures such as the use of lower noise-emitting equipment.

3.11.1.3.1 Passive Flood Barrier Components

Passive flood barrier components have both above- and below-grade (foundational) elements. A more detailed description of this system is provided in Chapter 1.0, "Project Description." Construction of the proposed passive flood barrier components would require trench excavation using conventional excavation equipment such as excavators, loaders, and dump trucks. After excavation, sheet pile walls would be installed using primarily drilled shaft methods, with limited use of pile drivers based on subsurface conditions. For those areas (i.e., in close proximity to existing structures) where vibration control is critical, in addition to drilled shaft methods, the use of press-in hydraulic pile driver may also be explored. Next, concrete would be cast on the supporting piles to form the flood barrier system. Construction of these components is expected to require a crane capable of handling a pile hammer and lifting and positioning the formwork, steel reinforcing cages, and steel piles as well as concrete pumps to convey ready-mix concrete. As the final step, the disturbed area within the project corridor would be graded with fill that is compacted to the design height and then landscaped. This phase of construction is expected to require dump trucks and grading construction vehicles and equipment.

3.11.1.3.2 Deployable Flood Barrier Elements

The Proposed Project is also comprised of deployable flood barrier elements to accommodate day-to-day vehicular or pedestrian circulation along a street or sidewalk. Typical deployable flood barrier elements include floodgates such as flip-up-gates, roller gates, swing gates, and vertical gates as well as stop logs. Figure 1-10 in Chapter 1.0, "Project Description," provides illustrations of these deployable elements proposed with the project and a more detailed description of these systems is also provided in Chapter 1.0, "Project Description." Construction of the deployable flood barrier elements is projected to involve excavation, foundation and cut-off wall installation, jet grouting, forming and pouring cast-in-place (CIP) concrete, and steel gate installation. For areas with extensive subsurface utility lines, excavation would involve a mix of equipment such as excavators, loaders, and dump trucks, as well as manual excavation (i.e., use of hand shovels) to protect and/or relocate these utilities.

3.11.1.4 Infrastructure Improvements

3.11.1.4.1 Overview

As part of the Proposed Project, several measures are proposed to upgrade the sewer systems in the Protected Area (see Figure 1-6 in Chapter 1.0, "Project Description"). These measures include the construction of a pump station located primarily below grade at a pedestrian plaza adjacent to Stuyvesant High School at the intersection of Chambers Street and Route 9A/West Street north of the Tribeca Bridge, the installation of tide gates to prevent floodwaters from flowing into the Protected Area through the

stormwater and sanitary sewer system, and creation of a Near Surface Isolation (NSI) system including the floodproofing of manholes to prevent inflow (see also Figure 3.7-3 in Chapter 3.7, "Water and Sewer Infrastructure").

These are primarily at- or below-grade improvements.

3.11.1.4.2 Pump Station

As described in detail in Chapter 1.0, "Project Description," an important drainage improvement for the Proposed Project is the construction of a pump station that would operate during flood events and would be designed to reduce flooding in the protected area from rain event drainage. For the pump station construction, excavation activities would first commence with the removal of surface paving and excavation to the project depth (35 feet), followed by installing secant piles to create the sublevel for the below-grade chamber and wet well. This work would involve the use of excavators, cranes, loaders, and dump trucks. Next, there would be concrete work to form the foundation walls and floor of the subgrade pump station structure which would involve the use of small cranes, flatbed trucks and concrete delivery trucks. Utility equipment (e.g., the four submersible centrifugal pumps) would then be delivered to the site and installed including the screening chamber, pumping units, and operating equipment. This phase would involve cranes and flatbed delivery trucks. Once these systems are installed the concrete roof slab, which would be at grade and cover the station, would be installed using small cranes concrete delivery trucks. An above-grade electrical room structure (one of the three design options further described in Chapter 1.0, "Project Description") would be built proximate to the below-grade pump station within the plaza adjacent to Stuyvesant High School. The remaining surface area at grade above the pump station would be covered with a paving material to match the existing surfaces.

The Proposed Project would also include installing about 210 linear feet of pipe in Murray Street and 400 linear feet of 48-inch force main pipe that would extend north from the pump station to outfall NCM-073 at the bulkhead just north of the North Esplanade. Installing the proposed outfall would involve relocating the existing segment of combined sewer overflow (CSO) pipe to install the proposed force main. It is expected that outfall and force main construction work could be conducted using open-cut excavation methods, where existing pavement is first be removed followed by excavation. The existing CSO flows would also be temporarily diverted. Once the excavation is completed, steel sheeting would then be installed to secure and contain the excavated work zone and groundwater pumping systems would be installed to dewater the construction work area. The extracted groundwater during dewatering process would be handled in accordance with all applicable laws and regulations. Lengths of pipe would then be installed in the trench, connected, and inspected. Once inspected, the trench would be backfilled and the surface cover replaced in-kind. Equipment expected to be used during this construction stage is expected to include excavators and backhoes to dig and backfill the trench; flatbed trucks to deliver the piping backhoes; and frontend loaders to install and relocate the protective steel sheeting, lift and place the sewers into the trench, and then backfill the trench; and dewatering equipment including pumps, settling tanks and piping.

Installation of the above-grade electrical room would follow completion of the surface work and is expected to include small trucks and cranes to install the structure and its internal components.

3.11.1.4.3 Tide Gates and NSI

Construction activities related to the other proposed drainage improvements would generally include site preparation, installation of supports for excavation, excavation, dewatering, backfill, and restoration of the affected area. which is primarily paved street and the adjacent sidewalk. Equipment typically used for these infrastructure improvements includes excavators, backhoes, front end loaders, and mobile cranes. Flatbed trucks would be used to deliver materials, dump trucks would be used to remove soil and to deliver fill, and concrete trucks would be used to deliver concrete for poured-in-place elements. Tampers or rollers would be used to compact the soil.

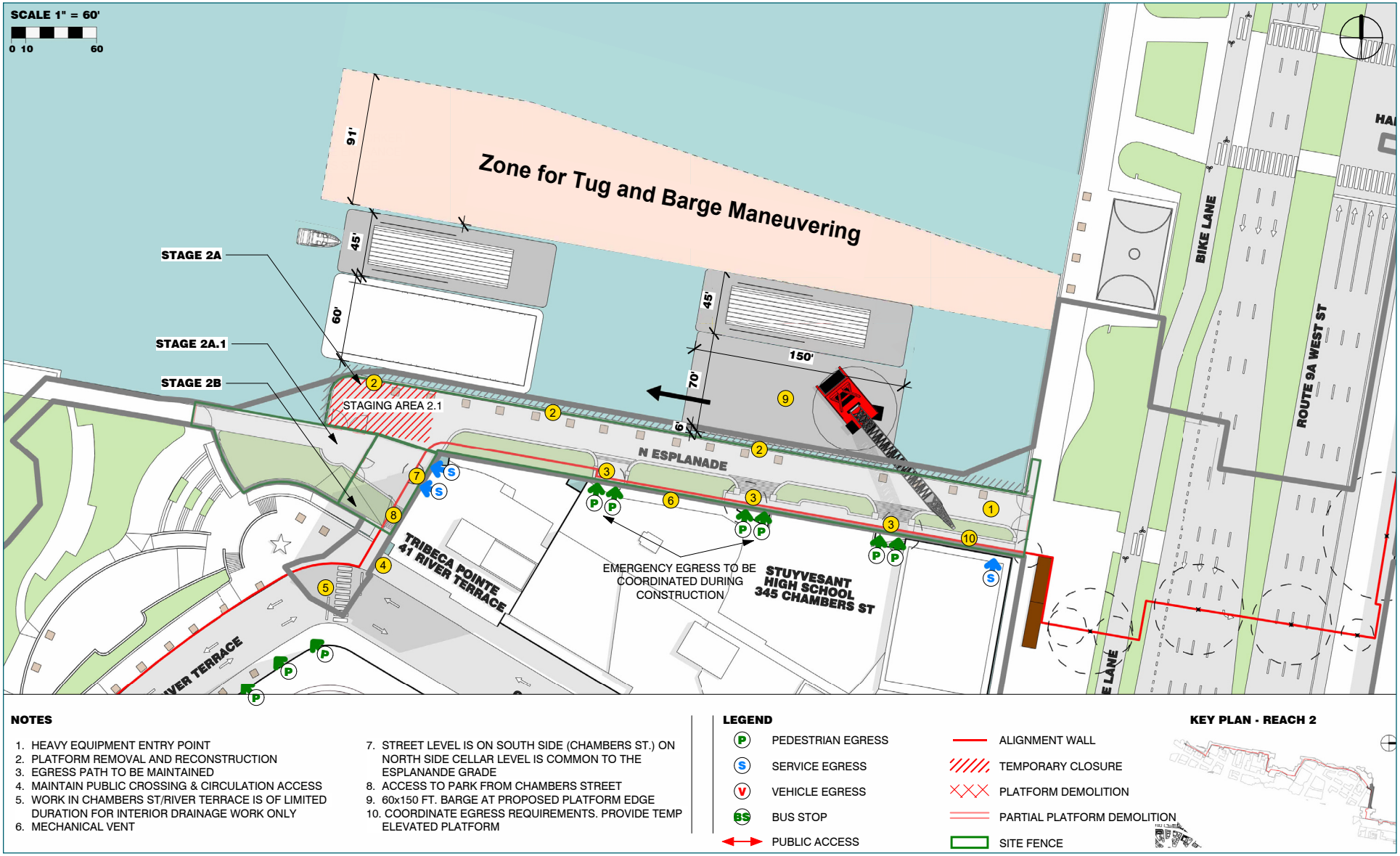
3.11.1.4.4 In-Water Elements

Proposed in-water work for the Proposed Project would occur within Reaches 2, 4, 5, 6, and 7. A description of the in-water work (i.e., platform reconstruction, expansion of the North Esplanade) is provided in Chapter 1.0, "Project Description," and a summary of the in-water elements of the Proposed Project is presented in Table 1-1 that chapter. Several segments of the Proposed Project would require deeper foundation pile support that extends to bedrock (50 to 90 feet below the ground surface). Most of the deep foundations would be constructed using the drilled shaft method, which was selected to minimize the noise and vibration impacts that may arise from typical impact pile-driving techniques.

Surface foundations for the flood barrier system would be 2 to 15 feet deep depending on whether the section of the system is, or is not, also pile supported. In addition, during design storm surge the elevated water levels are expected to result in a temporary elevation of groundwater, which would then recede after the storm event. Therefore, the Proposed Project has been designed with a seepage barrier to avoid adverse impacts on properties in the Protected Area from elevated surface and groundwater water levels during the storm event, while also allowing groundwater to continue to flow outward to the Hudson River under the more prevalent non-storm condition. The seepage barrier is comprised of a combination of steel sheeting or precast panels supported by foundation piles within a low permeability soil mix to minimize flow under the barrier during storm surge conditions. For the construction of the in-water portions of the seepage barrier, steel sheet piles would be installed by vibrating (assuming suitable soil conditions) them into the riverbed with the interlocking ribs of the piles locking the sheets together to create the barrier or lift into place by cranes if precast panels are used.

Based on the preliminary construction logistics, the barge and tugboat mooring and maneuvering area at Reach 2 would be approximately 500 feet long and 200 feet wide and located immediately north of Stuyvesant High School and the North Esplanade. IThis would temporarily displace most of the mooring locations at the Pier 25 Marina during construction of Reach 2, which is anticipated to last approximately 35 months. **Figure 3.11.1-1** presents the planned barge location within the HRPT mooring field.

The Proposed Project alignment would also cross two Port Authority of New York and New Jersey (PANYNJ) Port Authority Trans-Hudson (PATH) train tunnels in Reach 5. At these locations, special bridging structures below the plaza deck are required over the tunnels. To construct the bridging structures, fill over the existing platform would be removed, followed by the platform itself, in order to install the drilled shafts and supports for the bridging structures. Once the drilled shafts are installed, the bridging structure slab and exterior walls would be cast in-place above the existing platforms. The structure would then be lowered down to its permanent position with jacks, sealed for water infiltration, and dewatered to allow



NOTES

1. HEAVY EQUIPMENT ENTRY POINT
2. PLATFORM REMOVAL AND RECONSTRUCTION
3. EGRESS PATH TO BE MAINTAINED
4. MAINTAIN PUBLIC CROSSING & CIRCULATION ACCESS
5. WORK IN CHAMBERS ST/RIVER TERRACE IS OF LIMITED DURATION FOR INTERIOR DRAINAGE WORK ONLY
6. MECHANICAL VENT
7. STREET LEVEL IS ON SOUTH SIDE (CHAMBERS ST.) ON NORTH SIDE CELLAR LEVEL IS COMMON TO THE ESPLANANDE GRADE
8. ACCESS TO PARK FROM CHAMBERS STREET
9. 60x150 FT. BARGE AT PROPOSED PLATFORM EDGE
10. COORDINATE EGRESS REQUIREMENTS. PROVIDE TEMP ELEVATED PLATFORM

LEGEND

- (P) PEDESTRIAN EGRESS
- (S) SERVICE EGRESS
- (V) VEHICLE EGRESS
- (BS) BUS STOP
- PUBLIC ACCESS
- ALIGNMENT WALL
- TEMPORARY CLOSURE
- PLATFORM DEMOLITION
- PARTIAL PLATFORM DEMOLITION
- SITE FENCE

KEY PLAN - REACH 2

Tugboat and Barge Locations at Reach 2

Figure 3.11.1-1

for completing the inside of the structures. The North Cove Marina would be closed for the duration of construction at Reach 5, which is anticipated to last 56 months.

Barges would be used to support the construction of in-water elements for the Proposed Project. The number of barges in use at any given time would be a function of the actual reach phasing and schedule implemented. Barges with both equipment and materials would also be transported by a number of tugboats.

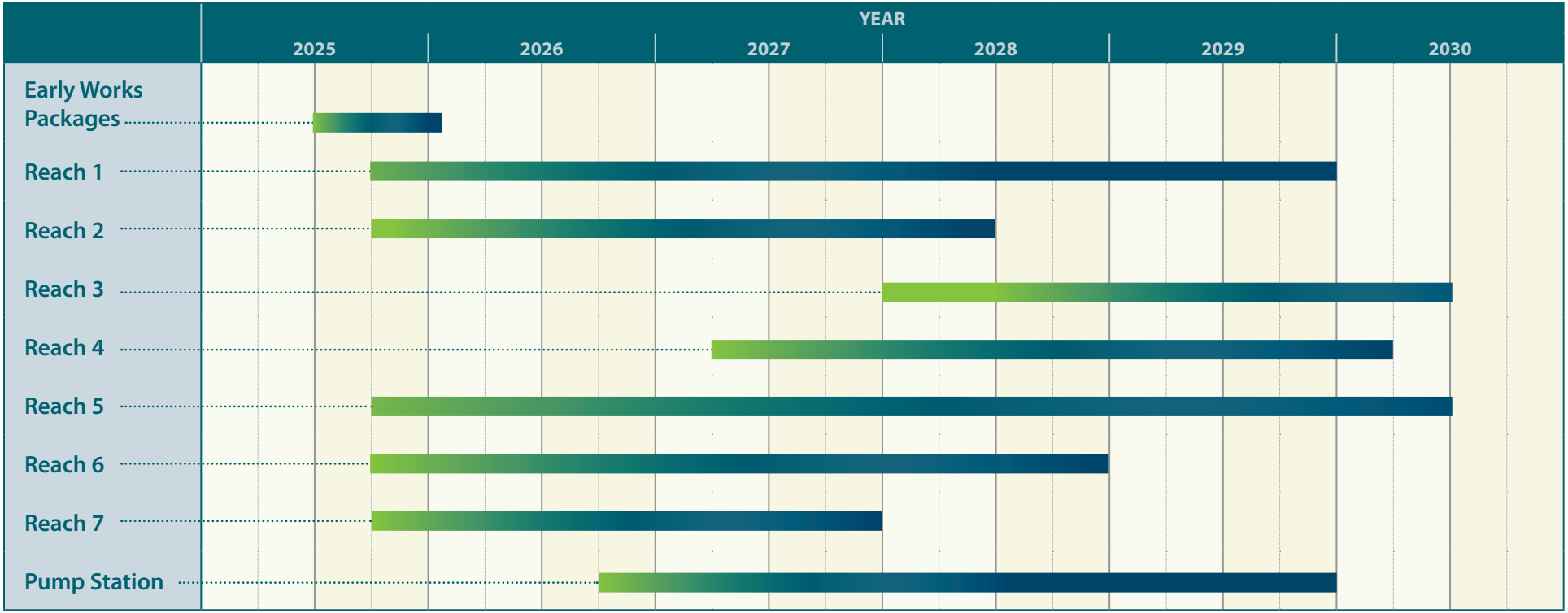
3.11.1.4.5 Park Restoration

The Proposed Project includes restoring all disturbed Battery Park City spaces once the flood barrier system is installed. These activities primarily entail landscaping work and final grading, though some staging areas may require replacing or reinstalling fences or other features, such as benches and lighting that had been temporarily removed. As the final stage of construction in each reach, all temporary barriers would be removed, and a landscaping replacement plan would be implemented to replace all landscaping with a variety of native plantings that support ecological communities with enhancements, where appropriate. This is expected to include planting trees in disturbed areas and seeding and planting remaining disturbed areas. Seeding and planting activities may also include installing erosion control or slope stabilization measures in some areas.

3.11.1.5 Construction Schedule

Assuming all the required approvals have been issued, construction of the Proposed Project would begin in July -2025 and be completed in mid-2030, over an approximately 60-month construction duration. The preliminary construction schedule for the Proposed Project by design reach is shown on **Figure 3.11.1-2** and **Table 3.11.1-1**. The typical construction schedule assumes 5 workdays per week with one 8-hour day shift and, when necessary, one night shift per workday for work along Route 9A/West Street. Construction activities related to the Interior Drainage infrastructure improvements are expected to occur throughout the 60-month construction period.

For the purposes of advancing the project and reducing potential conflicts and interferences with the flood barrier system installation, it is proposed to initiate a number of construction subtasks that are referred to as Early Works Packages (EWPs). These include the following: relocation of critical utilities that are in direct interference with the alignment of the flood protection system; upgrading tide gate chambers to improve overall drainage system performance with the added benefit of providing protection against storm events in advance of the completed flood protection system; and select interior drainage improvements related to the interceptor, such as installing sluice gate and securing manholes to improve the overall drainage system performance and to also provide early protection again storm events. As shown on **Figure 3.11.1-2** and **Table 3.11.1-1**, activities related to the EWPs are anticipated to commence in July 2025 and **Figures 3.11.1-3a through 3.11.1-3f** present the preliminary construction phasing details for the Proposed Project. The EWPs would have a duration of approximately 7 months and would require temporary lane closures.



NOTE: Construction activities related to the infrastructure improvement elements would occur throughout the construction period. Source: Turner-EE Cruz JV

Preliminary Construction Schedule

Figure 3.11.1-2

Progress of Completion: **Start of Year 1**

Construction Phasing Details

Figure 3.11.1-3a

Progress of Completion: Start of Year 2

Construction Phasing Details

Figure 3.11.1-3b

Progress of Completion: Middle of Year 2

- South Cove – MOSTLY RE-OPENED

Construction Phasing Details

Figure 3.11.1-3c

Progress of Completion: **Beginning of Year 4**

- **South Neighborhood –** South Cove and all of the South Esplanade – **RE-OPENED**
- **Route 9A / Tribeca –** subareas of North Moore Street and portion of east side of Route 9A - **RE-OPENED**
- **North Esplanade** – **RE-OPENED**

Construction Phasing Details

Progress of Completion: **Beginning of Year 5**

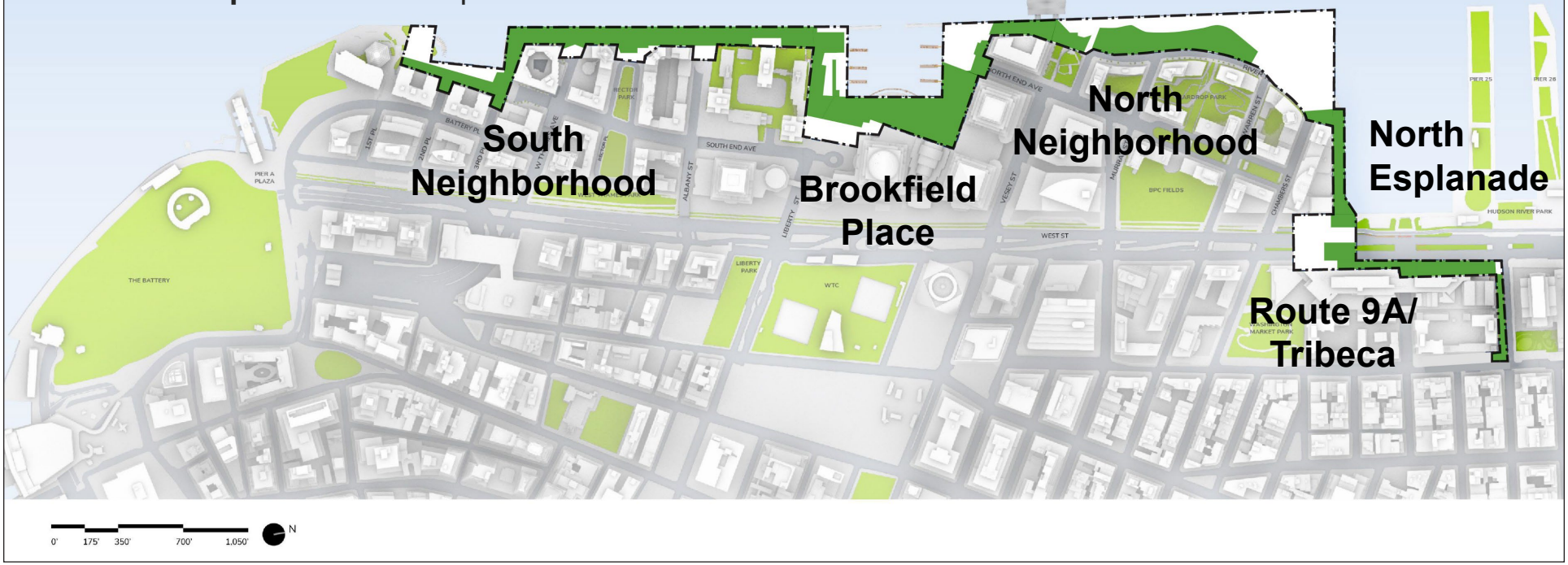
- **South Neighborhood –** South Cove and all of the South Esplanade – **RE-OPENED**
- **Route 9A / Tribeca –** subareas of North Moore Street and east side of Route 9A plus North Esplanade extension.– **RE-OPENED**
- **Brookfield Place –** east and north sides of Brookfield Place – **RE-OPENED**

Construction Phasing Details

Figure 3.11.1-3e

Progress of Completion: End of Year 5

- **South Neighborhood –** South Cove and all of the South Esplanade – **RE-OPENED**
- **Route 9A / Tribeca –** subareas of North Moore Street and east side of Route 9A plus North Esplanade extension.– **RE-OPENED**
- **Brookfield Place –** all of Brookfield Place – **RE-OPENED**
- **North Neighborhood –** all of the North Neighborhood – **RE-OPENED**
- **Pump Station –** Pump Station at West Street and Chambers – **RE-OPENED**



Construction Phasing Details

Table 3.11.1-1
Preliminary Construction Schedule

Reach	Start Month	End Month	Approximate Duration (Months)
EWPs	3rd Quarter 2025	1st Quarter 2026	7
Reach 1	4th Quarter 2025	4th Quarter 2029	50
Reach 2	4th Quarter 2025	2nd Quarter 2028	35
Reach 3	1st Quarter 2028	2nd Quarter 2030	30
Reach 4	2nd Quarter 2027	1st Quarter 2030	36
Reach 5	4th Quarter 2025	2nd Quarter 2030	56
Reach 6	4th Quarter 2025	4th Quarter 2028	39
Reach 7	4th Quarter 2025	4th Quarter 2027	27
Pump Station	4th Quarter 2026	4th Quarter 2029	39

Note: Construction activities related to the infrastructure improvement elements would occur throughout the 60-month construction period. The EWPs are expected to begin on July 1, 2025**Source:** Turner-EE Cruz JV, May 2024

3.11.1.6 Construction Practices

This section describes the construction practices to be employed during project construction, including hours of work, potential staging areas, material deliveries, vehicular access and circulation, pedestrian/bicyclist access and circulation, public safety, Maintenance and Protection of Traffic (MPT) plans, and rodent control.

3.11.1.6.1 Hours of Work

Construction would generally be carried out in accordance with New York City laws and regulations, which allow construction activities between 7 AM and 6 PM on weekdays. Weekday construction would typically begin at 7 AM with most workers arriving between 6 AM and 7 AM. Typical workdays end at 3:30 PM, but it can be expected that to complete certain critical tasks (e.g., drilling a shaft or finishing a concrete pour), the workday may occasionally extend beyond typical work hours. In addition, specialty crews, such as drilled shaft and marine work crews, typically operate on 10-hour shifts. Any extended workdays would generally last until approximately 6 PM and would not typically include all construction workers on-site, but only those workers involved in the specific task requiring additional work time. In addition, the *New York City Noise Control Code*, as amended in December 2005 and effective July 1, 2007, limits construction (other than circumstances described below) to weekdays between the hours of 7:00 AM and 6:00 PM and sets noise limits for certain pieces of construction equipment. Construction activities after hours (weekdays between 6:00 PM and 7:00 AM and on weekends) may be permitted only to accommodate one or more of the following: (1) emergency conditions; (2) public safety; (3) construction projects by or on behalf of City agencies; (4) construction activities with minimal noise effects; and (5) undue hardship resulting from unique site characteristics, unforeseen conditions, scheduling conflicts, and/or financial considerations.

Night work is expected in Reach 1 along Route 9A/West Street since lane closures would only be permitted at night by New York State Department of Transportation (NYSDOT). Otherwise, there may be instances of night work required to offset weather and/or construction delays and to meet the project schedule. Appropriate work permits from the authorities having jurisdiction would be obtained for any necessary work outside of 7 AM to 6 PM construction and no work outside of normal construction hours would be

performed until such permits are obtained. The numbers of workers and pieces of equipment in operation for night and weekend work would typically be limited to those necessary to complete the authorized task. Therefore, the level of activity for night and weekend work would typically be less than a normal workday.

3.11.1.6.2 Potential Staging Areas

Construction staging locations are expected to be at various locations with the goal of maximum construction efficiency. **Table 3.11.1-2** shows the locations under consideration for the temporary staging of construction materials, equipment, and trucks as well as truck loading/unloading activities for the Proposed Project. After construction is complete, all these areas would be restored to its previous condition or improved condition in accordance with the final design drawings.

Table 3.11.1-2
Potential Construction Staging Areas

Reach	Affected Resource	Existing Uses	Description of Construction Activities	Potentially Affected Area (Sq. ft)
Reach 1	North Moore Street, West Street	Roadway, Parking Lane, Sidewalk	Construction Work Zone / Staging Area for Flood Barrier System	124,000
Reach 1	Moore Street	Roadway, Parking Lane, Sidewalk	Staging Area for Flood Barrier System	Within Fenced in Area Construction Zone
Reach 1	West Street	Parking Lane and Easternmost Northbound Traffic Lane	Construction of Floor Barrier System and Staging Area	21,000
Reach 1	West Street Flashing Beacon Signs (FBS) Crossing the Northbound and Southbound Vehicle Lanes (South of Harrison Street)	Parking Lane and Easternmost Northbound Traffic Lane	Construction of Floor Barrier System and Staging Area	8,000
Reach 1	Hudson River Park Bike Pathway and Walkway	Westernmost Southbound Vehicle Lane from South of Harrison Street to North Esplanade	Construction Staging Area for Proposed Flood Protection Systems at Reach 1	8,000
Reach 2	North Esplanade	Pedestrian Walkway	Construction Work Zone / Staging Area for Flood Barrier System	46,000
Reach 2	North Esplanade	Pedestrian Walkway	Construction Staging Area for Proposed Flood Protection Systems at Reach 2	3,000
Reach 3	River Terrace	Sidewalk / West Parking Lane	Construction Work Zone / Staging Area for Flood Barrier System	89,000
Reach 3	River Terrace	Sidewalk / West Parking Lane	Construction Staging Area for Proposed Flood Protection Systems at Reach 3	1,500
Reach 3	Rockefeller Park	Playground and Sports Courts	Construction Staging Area within the Construction Zone for Reach 3	Within Construction Zone
Reach 3	Public Walkway	Public Walkway	Construction Work Zone / Staging Area for Flood Barrier System	45,000
Reach 4	Public Walkway	Public Walkway	Construction Staging Area outside the Construction Zone for Reach 4	4,500
Reach 5	Public Walkway	Public Walkway	Construction Work Zone / Staging Area for Flood Barrier System	156,000
Reach 5	Public Walkway	Public Walkway	Construction Staging Area within the Construction Zone for North Cove (Northern Half)	N/A
Reach 5	Public Walkway	Public Walkway	Construction Staging Area within the Construction Zone for North Cove (Southern Half) – Medic and Safety Trailer	1,500
Reach 6	Public Walkway	Public Walkway	Construction Work Zone / Staging Area for Flood Barrier System	110,000
Reach 6	Public Walkway near South Esplanade Entrance	Public Walkway	Construction Staging Area outside the Construction Zone	1,500
Reach 6	Planting Bed	Planting Bed	Construction Staging Area outside the Construction Zone	750

Table 3.11.1-2
Potential Construction Staging Areas

Reach	Affected Resource	Existing Uses	Description of Construction Activities	Potentially Affected Area (Sq. ft)
Reach 6	Public Walkway near South Esplanade Entrance	Public Walkway	Construction Staging Area outside the Construction Zone	500
Reach 7	Public Walkway	Public Sidewalk, Roadway Lane	Construction Work Zone / Staging Area for Flood Barrier System	60,000
Reach 7	Public Walkway	Public Sidewalk, Roadway Lane	Construction Staging Area outside the Construction Zone	750
Source: Turner-EE Cruz JV				

3.11.1.6.3 Tree Removal

It would be necessary to clear trees to install the proposed flood barrier systems and related grading, as well as to protect trees adjacent to the work area. Within project areas that are under the New York City Department of Parks and Recreation (NYC Parks) jurisdiction (i.e., street trees), the Proposed Project would replace all removed trees based on the tree replacement formulas of NYC Parks as required by Chapter 5 of Title 56 of the NYC Parks Rules and Local Law 3 of 2010. Within Battery Park City and areas that are not under NYC Parks jurisdiction, it is the objective of BPCA to provide replacement trees that best support and enhance open space quality, biodiversity and habitat creation, and provide climate resilience particularly with respect to heat island effects**.** Although the Proposed Project has been designed to minimize tree clearing to the extent possible while integrating the proposed flood barrier system within existing streets and open spaces, an estimated 430 trees are proposed to be cleared, 17 trees are proposed to be transplanted along the Proposed Project corridor, and 450 new trees are to be planted. Table 1-2 in Chapter 1.0, "Project Description," provides a summary of the total projected tree clearing, transplanting and new planting by reach.

3.11.1.6.4 Community Outreach and Liaisons During Construction

Project construction is expected to impact several stakeholders in all reaches and will be closely coordinated with all stakeholders taking into consideration the overall project schedule, school calendars, open space needs and seasonal requirements for working adjacent to utilities, performing utility relocations, temporary disruption to the bicyclists and pedestrians of the Battery Park City Esplanade, and coordination with the Hudson River Park Trust (HRPT), the New York City Department of Transportation (NYCDOT) and the New York State Department of Transportation.

As part of the Proposed Project, BPCA will specify that the contractor have a Community Engagement Manager (CEM) who will be the primary point of contact for all public involvement related interfaces between the Progressive Design-Builder and external stakeholders during the entire construction period and will serve as a point of contact for the community and local representatives for the purposes of addressing concerns, problems and issues that arise during large multi-phase construction projects such as the proposed BPCA resiliency project. As an initial step, the CEM will be responsible for preparing a Stakeholder Engagement Plan. Using the Stakeholder Engagement Plan approved by BPCA, the CEM will organize and mobilize outreach events throughout construction to keep stakeholders informed on the project progress and alert stakeholders to immediate construction impacts on access to areas within Battery Park City. The CEM will also create and maintain a contact list and monitor an email and phone

account where the public can submit questions or concerns about the Project. The CEM will respond to questions or concerns promptly and will provide the BPCA with a monthly status report on any questions or complaints that are logged. The CEM may also maintain a webpage with access to up-to-date information on the status of the Proposed Project and the construction status, including street closures, public area restrictions and planned construction hours.

Additionally, the CEM and other community engagement professionals as needed would be available from the pre-construction project phase and through project completion as contacts for the community and local leaders and would be available to address concerns or issues that may arise during construction. The CEMs would also attend meetings held by community boards, elected officials, and other types of community meetings as necessary. In addition, New York City maintains a 24-hour telephone hotline (311) so that concerns can be registered with the City.

3.11.1.6.5 Public Safety

To ensure public safety during project construction, the following safety and security measures would be implemented:

- Construction within the project reaches would be broken down by stages to minimize the overall construction footprint to the greatest extent possible;
- Construction sequence and anticipated durations would be communicated through BPCA and Community engagement professionals to the community and stakeholders;
- Construction work would be coordinated with individual adjacent building facilities staff to ensure all upcoming work is understood and to maintain open lines of communication and coordination;
- Each construction zone would be enclosed with 8-foot-high painted fencing with locked personnel and equipment access gate(s);
- Personnel gates would be located to minimize the potential interaction with the public (e.g., away from crosswalks);
- Each construction zone would have project information signage, permits posted, and contact information;
- Wayfinding signage would be provided near construction areas to inform and direct pedestrians;
- All construction materials and equipment would be secured and located behind fencing;
- Construction security personnel would be located at strategic points during the work to monitor worker and pedestrian activities;
- Construction security personnel would monitor worker access. Any public or pedestrian activities requiring attention would be referred to BPCA's security department for follow-up and action;
- A construction Project Medic would be in a centralized location near the North Cove Marina; and

- In addition to federal and state regulations regarding working on or near water bodies, all construction work would follow the U.S. Occupational Safety and Health Administration (OSHA), and the New York City Department of Buildings (NYCDOB), and NYCDOT safety regulations.

3.11.1.6.6 Maintenance and Protection of Traffic Plans

The Proposed Project would require in-street work that would involve temporary lane and sidewalk closures, including along Route 9A/West Street. To minimize impacts on traffic circulation and flow, as required by NYCDOT, MPT plans would be developed for temporary roadway, parking lane, and sidewalk closures for review and approval by the Office of Construction Mitigation and Coordination (OCMC). Measures to be specified in the MPT plans for the Proposed Project would include sidewalk closures; curbside moving lane closures; safety signs; safety barriers; and construction fencing. **Table 3.11.1-3** shows the preliminary locations where temporary roadway, parking lane, and sidewalk closures are expected during the construction of the Proposed Project, which is currently anticipated to be required only at Reaches 1, 2, and 3. Approval of the MPT plans and implementation of the closures would need to be finalized based on the project phasing plans and coordinated with and approved by NYCDOT OCMC.

3.11.1.7 Construction Access Agreements

Temporary construction agreements would be implemented with property owners where temporary construction access is required outside of the City right-of-way or BPCA property. This would also include access agreements with Hudson River Park Trust for the temporary use of the water area to access the north bulkhead and for the extension of the North Esplanade at Reach 2.

The potential traffic impacts during construction are analyzed in Section 3.11.3 “Construction Transportation.”

3.11.1.7.1 Pedestrian / Bicyclist Access and Circulation

As discussed in Section 3.11.2, “Construction-Open Space,” parts of Battery Park City would be temporarily closed during project construction, during which time the public would not have access or would have limited access to portions of the public parkland. Therefore, pedestrian and bicyclist circulation through the Battery Park City open spaces at those locations would need to be temporarily rerouted (see Figures 3.11.2-3a through 3.11.2-3l). However, access to the existing Battery Park City Ferry Terminal at Reach 4 would be maintained throughout the construction period.

Based on MPT design information presented in **Table 3.11.1-3**, traffic travel lanes would be removed/narrowed at two intersections. Two sidewalks would be fully closed, diverting pedestrians to the other side of the street and six pedestrian sidewalks would be narrowed. These affected locations were therefore selected for detailed transportation analysis presented in the Construction MPT Analysis section of Section 3.11.2, “Construction Transportation.”

Table 3.11.1-3
Potential Roadway, Parking, and Sidewalk Closures

Reach	Impacted Area	Closure Type	Duration (Months)	Note
Reach 1	N. Moore St. (NY-9A/West Street to Greenwich Street)	South Sidewalk Closure	18	Maintain Building Access
		South Parking Lane Closure	18	Maintain Vehicle Service Access
	Greenwich St. (N. Moore St. to Franklin St.)	West Sidewalk Closure	18	Maintain Building Access
	NY-9A/West Street (Harrison St. to N. Moore St.)	East Sidewalk / Partial Closure	24	Maintain 5-foot Accessway
		Northbound Outside Travel Lane Closure	24	N/A
		Northbound Parking Lane Closure	24	N/A
	NY-9A/West Street (Roadway Crossing near Stuyvesant HS)	Travel Lanes Plated Trench	24	N/A
		Travel Lanes Temporary Closures	24	Overnight Work Only
	NY-9A/West Street (Stuyvesant HS to Harrison St.)	East Sidewalk / Partial Closure	24	Maintain 5-foot Accessway
		Northbound Outside Travel Lane Closure	24	N/A
		Northbound Parking Lane Closure	24	N/A
	Harrison St. near NY-9A Intersection	Travel Lanes Temporary Closures	24	Overnight Work Only
Reach 2	Marginal Street, Wharf or Place	West Sidewalk Temporary Closure	23	As Needed for Equipment Access and Material Delivery
	NY-9A Near Stuyvesant HS	SB Right Turn Lane Partial Temporary Closure	23	Shortened Right Turn Lane as Needed for Equipment Access and Material Delivery
	North Esplanade	Esplanade Closure	23	Maintain Emergency Egress from Stuyvesant High School
Reach 3	River Terrace (Murray St. to Warren St.)	West Sidewalk Closure	22	Relocate to Parking Lane; Maintain Crossings
		West Parking Lane Closure	22	N/A
	River Terrace (River Terrace to Murray St.)	West Sidewalk Closure	22	Relocate to Parking Lane; Maintain Crossings
		West Parking Lane Closure	22	N/A

Source: Turner-EE Cruz JV

Currently in the design planning stages at the north end of the study area and within Hudson River Park near Piers 25/26 is a new HRPT facility. Referred to as the "Estuarium," its objective is to provide an approximately 10,000-square-foot public space for information sharing and education on the river and its ecology. Given the scale of the Estariaum project and its distance from the Proposed Project, and taking into consideration that the cumulative construction effects resulting from the Proposed Project and the Estuarium would be dependent on the construction schedule and peak construction intensity of each project, the cumulative effects of simultaneous construction of the Estuarium and the Proposed Project at local sensitive receptor locations are not expected to be significant.