Appendix C
Waterfront Revitalization Plan (WRP)
and Smart Growth

Appendix C.1
NYS Smart Growth Form

SMART GROWTH IMPACT STATEMENT

This Smart Growth Impact Statement will assist Empire State Development's (ESD) Smart Growth Advisory Committee in determining whether a proposed approval, undertaking, support or funding for a project by ESD is consistent with the State Smart Growth Public Infrastructure Criteria under the NY State Smart Growth Public Infrastructure Policy Act. Not all questions/answers may be relevant to all projects.

Date: **April 11, 2024**
Project Name: **North West Battery Park City Resiliency Project (the "Proposed Project")**
Project Number: **N/A**

PART A
PROJECT INFORMATION

1. **Have any other entities issued a Smart Growth Impact Statement with regard to this project? (If so, attach same).**

   ☐ Yes
   ■ No

2. **Describe the project, indicating location and proposed scope of work for construction and any new or improved public infrastructure:**

   The Proposed Project is a major capital improvement project located in Battery Park City in Manhattan that is comprised of seven design reaches (explained further in Part B). Assuming all the required approvals are issued, its construction is expected to begin in 2025 and be completed in 2030.

PART B
SMART GROWTH PUBLIC INFRASTRUCTURE CRITERIA REVIEW

1. **Does the project advance or otherwise involve the use of, maintain, or improve existing infrastructure?**

   ■ Yes
   ☐ No
   ☐ Not relevant

Explain briefly:
The Proposed Project would provide flood risk reduction for the Protected Area for 2050s 100-year storm events, inclusive of rainfall, coastal surge, and predicted sea level rise. The proposed flood barrier system is being designed to provide protection against 100-year storm events

inclusive of the 90th percentile projection for sea level rise for the 2050s, with adaptability for future conditions considered as well. The proposed flood barrier system would include passive structures (e.g., above-grade concrete walls, below grade concealed walls, etc.) with deployable structures at vehicle and pedestrian crossings that would enhance and protect existing infrastructure within the Project Area. In addition to the proposed flood barrier system, the Proposed Project would include interior drainage improvements comprised of a pump station, new tide gates, and a near surface isolation system along Route 9A/West Street.

2. Is the project located wholly or partially in a municipal center, characterized by any of the following: (check those that apply)

- ■ A city or a village
- ■ Area of concentrated and mixed land use that serves as a center for various activities including, but not limited to:
  - ■ Central business districts, main streets or downtown areas
  - ☐ Brownfield Opportunity Areas (https://dos.ny.gov/system/files/documents/2020/03/dos-boafact-sheet_2020.pdf)
  - ■ Downtown areas of Local Waterfront Revitalization Plan areas (https://dos.ny.gov/local-waterfront-revitalization-program)
  - ■ Locations of transit-oriented development (such as projects serving areas that have access to mass or public transit for residents)
  - ☐ Environmental Justice areas (http://www.dec.ny.gov/public/911.html)
  - ☐ Hardship areas (Projects that primarily serve census tracts and block numbering areas with a poverty rate of at least twenty percent according to the 2010 Census.)

(Indicate if the project is located adjacent to municipal centers, in an area that exhibits strong and use, transportation, infrastructure and economic connections to an existing municipal center, or in an area designated for concentrated development in the future in a municipal or regional comprehensive plan.)

Explain briefly:

The Project Area is defined to include the area of the proposed flood barrier system and associated grading and landscaping. The Project Area begins at the northern inland "tie-back" at Greenwich Street in Tribeca and wraps around the northern edge of the Borough of Manhattan Community College along North Moore Street, then turns south along Route 9A/West Street before crossing the roadway with a connection to Battery Park City and the North Esplanade. From here, the flood barrier system continues west along the North Esplanade before turning south along the Esplanade and terminating at South Cove and 1st Place. The Project Area is located in Community District 1 in Battery Park City, a neighborhood in downtown Manhattan. The surrounding areas contain large-scale, mixed-use developments and major public transportation hubs, including access to the New Jersey PATH and many MTA subway lines. The Project Area is located near downtown business areas, such as the Financial District, and offers a number of residential, commercial, and community facility uses to the neighborhood. The Project Area is also located along the

Hudson River waterfront and is in the coastal zone boundary, which is considered as part of the Local Waterfront Revitalization Plan.

3. **Is the project located in a developed area or an area designated for concentrated infill development in accordance with a municipally-approved comprehensive land use plan, a local waterfront revitalization plan, brownfield opportunity area plan or other development plan?**

   - ■ Yes
   - ☐ No
   - ☐ Not relevant

   Explain briefly:
   The Project Area is located in a densely developed part of lower Manhattan. The Project Area is located within the City's coastal zone boundary and is therefore subject to the New York City Waterfront Revitalization Program (WRP) and the Coastal Zone management policies of the City and State. It is also subject to compliance with the Battery Park City Master Plan, adopted in 1979. The Project Area is not located in a brownfield opportunity area.

4. **Does the project protect, preserve, and enhance the State's resources, including agricultural lands, forests, surface and groundwater, air quality, recreation and open space, scenic areas, and/or significant historic and archeological resources?**

   - ■ Yes
   - ☐ No
   - ☐ Not relevant

   Explain briefly:
   The Proposed Project would introduce flood protection and resiliency measures to preserve and enhance, to the extent practicable, State resources and infrastructure. The Proposed Project would enhance many sections of the Battery Park City Esplanade, located along the western edge of Manhattan, maintaining public access to open space resources and the waterfront and ensure long-term resiliency measures against future floods and rainstorm events. Based on analyses conducted for the environmental assessment prepared pursuant to the State Environmental Quality Review Act (SEQRA) and City Environmental Quality Review (CEQR), the Proposed Project would not result in significant adverse impacts to agricultural lands, forests, surface and groundwater, air quality, recreation and open space, scenic areas, and/or significant historic and archaeological resources.

5. **Does the project foster mixed land uses and compact development, downtown revitalization, brownfield redevelopment, the enhancement of beauty in public spaces, the diversity and affordability of housing in proximity to places of employment,**

recreation and commercial development and the integration of all income and age groups?

- ■ Yes
- ☐ No
- ☐ Not relevant

Explain briefly:
The Proposed Project would maintain public access and connectivity to open space resources along lower Manhattan's west side, and would expand portions of the Battery Park City Esplanade. The flood barrier system would ensure protection of future and existing mixed-use developments, public spaces, businesses, and cultural institutions throughout Battery Park City and parts of Tribeca. The Proposed Project would preserve and enhance public space that would provide a safe, seamless, and inviting connection for pedestrians along the Esplanade.

6. **Does the project provide mobility through transportation choices, including improved public transportation and reduced automobile dependency?**

- ☐ Yes
- ☐ No
- ■ Not relevant

Explain briefly:
While the Proposed Project is located along portions of the Battery Park City Esplanade, a heavily utilized pedway, the Proposed Project consists of implementing flood protection measures and minimizing effects from future storm events, rather than focusing on improving public transportation and providing automobile alternatives.

7. **Does the project involve coordination between state and local government and inter-municipal and regional planning?**

- ■ Yes
- ☐ No
- ☐ Not relevant

(Coordination may include SEQR coordination with involved and interested parties, agreements between involved parties, letters of support, etc.)

Explain briefly:
The Proposed Project requires coordination of multiple State, regional, and City government agencies to ensure compliance and adherence to necessary regulations. BPCA is the lead agency for preparation of environmental assessment. BPCA is working closely with the City of New York is the lead agency for preparation of environmental assessment. BPCA is working closely with the City of New York in its planning for the Proposed Project, including

the Department of Transportation (NYCDOT), Department of City Planning (NYCDCP), Economic Development Corporation (NYCEDC), Small Business Services (NYCSBS), Department of Citywide Administration Services (DCAS), Department of Environmental Protection (NYCDEP), Mayor's Office of Environmental Coordination (MOEC), and Landmarks Preservation Commission (LPC). BPCA is also coordinating with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP/SHPO), the Port Authority of New York and New Jersey (PANYNJ), Department of Transportation (NYSDOT), Department of State (NYSDOS), Dormitory Authority of the State of New York (DASNY), and Hudson River Park Trust (HRPT) for the Proposed Project.

8. Does the project involve community-based planning and collaboration?

- ■ Yes
- ☐ No
- ☐ Not relevant

Explain briefly:
The Proposed Project has and would continue to be the subject of a robust and inclusive outreach and public engagement process. BPCA has held a total of XX public meetings to date and would continue to provide project-wide, as well as reach-specific meetings for all seven segments of the Proposed Project, with residents, community organizations, and neighboring property owners. There would also be a continued effort to inform and meet with CB1 leadership. The public would also have opportunities to comment on the Proposed Project throughout the environmental review process, including the DEIS Public Scoping Meeting and the DEIS Hearing and associated comment periods.

9. Does the project ensure predictability in building and land use codes?

- ■ Yes
- ☐ No
- ☐ Not relevant

Explain briefly:
As described in greater detail in Chapter 3, "Land Use, Zoning, and Public Policy," the Proposed Project is consistent with the local building and land use codes.

10. Will the proposed project promote sustainability by strengthening existing and creating new communities which reduce greenhouse gas emissions and do not compromise the needs of future generations, by among other means encouraging broad based public involvement in developing and implementing a community plan and ensuring the governance structure is adequate to sustain its implementation?

- ■ Yes
- ☐ No

☐ Not relevant

Explain briefly:
The Proposed Project would promote sustainability by supporting and improving public access and pedestrian mobility along Battery Park City Esplanade and other uses on Manhattan's lower west side. The Proposed Project ensures the long-term resiliency of Battery Park City for future generations by protecting against future flood events and strengthening existing infrastructure and public resources. As described in Chapter 3, "Land Use, Zoning, and Public Policy," the Proposed Project is compliant with the goals set forth by the Battery Park City Sustainability Plan and adheres to the Green Guidelines.

11. a. Is the project located in a flood hazard area?

■ Yes
☐ No

b. If yes, will the proposed project mitigate future physical climate risk due to sea-level rise, storm surges and/or flooding based on available data predicting the likelihood of future extreme weather events, including hazard risk analysis data?

■ Yes
☐ No
☐ Not applicable

(Please explain how your project demonstrates that future physical climate risk due to sea-level rise, storm surge and flooding have been considered. For example, have you demonstrated consideration of the flood risk applicable to your specific structure type? Explain how the siting and design have evaluated flood-risk considerations, including, but not limited to, human health and safety, environmental effects, cost, funding source requirements, feasibility and community impact.
For information on future climate risks, consult New York's ClimAID report at https://www.nyserda.ny.gov/climaid and information on implementation of the Community Risk and Resiliency Act at http://www.dec.ny.gov/energy/102559.html.)

Explain briefly:
As detailed in response to question 1, the Proposed Project is a flood barrier system that would provide protection against 100-year storm events inclusive of the 90th percentile projection for sea level rise for the 2050s , with adaptability for future conditions considered as well. The passive structures (e.g., above-grade concrete walls, below grade concealed walls, etc.) and deployable structures at vehicle and pedestrian crossings associated with the Proposed Project are designed to protect existing infrastructure from flood-risk and create a more resilient neighborhood for residents and visitors.

Project Name: **North West Battery Park City Resiliency Project**

Project Number: **N/A**

ESD SMART GROWTH ADVISORY COMMITTEE FINDING

ESD's Smart Growth Advisory Committee has reviewed the available information regarding this project and finds: (check one)

☐ The project was developed in general consistency with the relevant Smart Growth Criteria.

☐ The project was not developed in general consistency with the relevant Smart Growth Criteria.

☐ It was impracticable to develop this project in a manner consistent with the relevant Smart Growth Criteria for the following reasons:

ATTESTATION

I, Chief Executive Officer of ESD / designee of the Chief Executive Officer of ESD, hereby attest that the project, to the extent practicable, meets the relevant criteria set forth above and, that to the extent that it is not practical to meet any relevant criterion, for the reasons given above.

_____
[signature]

_____
[print name & title]

_____
[date]

Appendix C.2
NYS Coastal Zone WRP Consistency Assessment

FOR INTERNAL USE ONLY	WRP No. _____
Date Received: _____	DOS No. _____

NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM
Consistency Assessment Form

Proposed actions that are subject to CEQR, ULURP or other local, state or federal discretionary review procedures, and that are within New York City's Coastal Zone, must be reviewed and assessed for their consistency with the *New York City Waterfront Revitalization Program* *(WRP)* which has been approved as part of the State's Coastal Management Program.

This form is intended to assist an applicant in certifying that the proposed activity is consistent with the WRP. It should be completed when the local, state, or federal application is prepared. The completed form and accompanying information will be used by the New York State Department of State, the New York City Department of City Planning, or other city or state agencies in their review of the applicant's certification of consistency.

A. APPLICANT INFORMATION

Name of Applicant: Battery Park City Authority

Name of Applicant Representative: Claudia Filomena, Director of Capital Projects

Address: 200 Liberty Street, 24th Floor, New York, NY 10281

Telephone: 212-417-2384 Email: Claudia.Filomena@bpca.ny.gov

Project site owner (if different than above): _____

B. PROPOSED ACTIVITY

If more space is needed, include as an attachment.

1. Brief description of activity

The North/West Battery Park City Resiliency (NWBPCR) Project is comprises a flood barrier system extending along a project corridor that extends between North Moore/Greenwich Street on the north (the inland tieback) to 1st Place in Battery Park City (on the south) where it is proposed to connect with the South Battery Park Resiliency (SBPCR) project which is currently under construction and is expected to be completed in 2025. For the purposes of design and analysis, the proposed project corridor is organized into seven reaches that begin in the north in TriBeCa (Reach 1) and extend southward to South Cove in Battery Park City (Reach 7). The proposed flood barrier system (FBS) consists of a series of flood protection measures along seven separate project areas, or Reaches, and would include passive structures (e.g., above-grade concrete walls, below-grade concealed walls) with deployable structures at vehicle and pedestrian crossings. In addition to the FBS, the Project includes interior drainage improvements and storm-hardening features such as a near surface isolation (NSI) system along Route 9A and four tide gates along the FBS alignment. Flood waters more than an average of 1 foot above ground level within the area protected by the FBS will be managed through storm sewer improvements and pumping collected stormwater outside the protected area. Ultimately, the NWBPCR Project will connect to the protective measures being installed as part of the South Battery Park City Resiliency (SBPCR) Project.

2. Purpose of activity

It is the purpose of the Proposed Project to install a flood protection system comprised of a combination of floodwalls and gates coupled with infrastructure improvements that are designed to Federal Emergency Management Agency (FEMA) standards for flood protection that take into consideration projections of sea level rise and minimize community impact with targeted urban design and open space enhancements.

C. PROJECT LOCATION

Borough: Manhattan Tax Block/Lot(s): Blocks 16 & 142

Street Address: 1st Place, Battery Park City to N Moore Street, New York, New York

Name of water body (if located on the waterfront): Hudson River

D. REQUIRED ACTIONS OR APPROVALS

Check all that apply.

City Actions/Approvals/Funding

City Planning Commission ☐ Yes ☐ No

- ☐ City Map Amendment
- ☐ Zoning Map Amendment
- ☐ Zoning Text Amendment
- ☐ Site Selection – Public Facility
- ☐ Housing Plan & Project
- ☐ Special Permit
  (if appropriate, specify type: ☐ Modification ☐ Renewal ☐ other) Expiration Date: _____
- ☐ Zoning Certification
- ☐ Zoning Authorizations
- ☐ Acquisition – Real Property
- ☐ Disposition – Real Property
- ☐ Other, explain: _____
- ☐ Concession
- ☐ UDAAP
- ☑ Revocable Consent
- ☐ Franchise

Board of Standards and Appeals ☐ Yes ☐ No

- ☐ Variance (use)
- ☐ Variance (bulk)
- ☐ Special Permit
  (if appropriate, specify type: ☐ Modification ☐ Renewal ☐ other) Expiration Date: _____

Other City Approvals

- ☐ Legislation
- ☐ Rulemaking
- ☑ Construction of Public Facilities
- ☐ 384 (b) (4) Approval
- ☑ Other, explain: Coordination with NYCDEP (sewer infrastructure) and NYCDOT (right-of-way)
- ☐ Funding for Construction, specify: _____
- ☐ Policy or Plan, specify: _____
- ☐ Funding of Program, specify: _____
- ☑ Permits, specify: NYC Parks tree permit

State Actions/Approvals/Funding

- ☑ State permit or license, specify Agency: NYSDEC; NYSDOT Permit type and number: Articles 15 and 25; Highway use/occupancy
- ☐ Funding for Construction, specify: _____
- ☐ Funding of a Program, specify: _____
- ☑ Other, explain: Coordination with Hudson River Park Trust at property limits

Federal Actions/Approvals/Funding

- ☑ Federal permit or license, specify Agency: USACE Permit type and number: Section 404, Section 10
- ☐ Funding for Construction, specify: _____
- ☐ Funding of a Program, specify: _____
- ☑ Other, explain: FEMA Letter of Map Revision revising current FIRMs post-construction

Is this being reviewed in conjunction with a Joint Application for Permits? ☐ Yes ☐ No

E. LOCATION QUESTIONS

1. Does the project require a waterfront site? ☐ Yes ☐ No
2. Would the action result in a physical alteration to a waterfront site, including land along the shoreline, land under water or coastal waters? ☐ Yes ☐ No
3. Is the project located on publicly owned land or receiving public assistance? ☐ Yes ☐ No
4. Is the project located within a FEMA 1% annual chance floodplain? *(6.2)* ☐ Yes ☐ No
5. Is the project located within a FEMA 0.2% annual chance floodplain? *(6.2)* ☐ Yes ☐ No
6. Is the project located adjacent to or within a special area designation? *See Maps – Part III of the NYC WRP. If so, check appropriate boxes below and evaluate policies noted in parentheses as part of WRP Policy Assessment (Section F).* ☐ Yes ☐ No

   ☐ Significant Maritime and Industrial Area (SMIA) (*2.1*)

   ☐ Special Natural Waterfront Area (SNWA) (*4.1*)

   ☑ Priority Maritime Activity Zone (PMAZ) (*3.5*)

   ☐ Recognized Ecological Complex (REC) (*4.4*)

   ☐ West Shore Ecologically Sensitive Maritime and Industrial Area (ESMIA) (*2.2, 4.2*)

F. WRP POLICY ASSESSMENT

Review the project or action for consistency with the WRP policies. For each policy, check Promote, Hinder *or* Not Applicable (N/A). *For more information about consistency review process and determination, see* ***Part I*** *of the NYC Waterfront Revitalization Program. When assessing each policy, review the full policy language, including all sub-policies, contained within* ***Part II*** *of the WRP. The relevance of each applicable policy may vary depending upon the project type and where it is located (i.e. if it is located within one of the special area designations).*

For those policies checked Promote *or* Hinder, *provide a written statement on a separate page that assesses the effects of the proposed activity on the relevant policies or standards. If the project or action promotes a policy, explain how the action would be consistent with the goals of the policy. If it hinders a policy, consideration should be given toward any practical means of altering or modifying the project to eliminate the hindrance. Policies that would be advanced by the project should be balanced against those that would be hindered by the project. If reasonable modifications to eliminate the hindrance are not possible, consideration should be given as to whether the hindrance is of such a degree as to be substantial, and if so, those adverse effects should be mitigated to the extent practicable.*

		Promote	Hinder	N/A
1	**Support and facilitate commercial and residential redevelopment in areas well-suited to such development.**	☐	☐	☐
1.1	Encourage commercial and residential redevelopment in appropriate Coastal Zone areas.	☐	☐	☐
1.2	Encourage non-industrial development with uses and design features that enliven the waterfront and attract the public.	☐	☐	☐
1.3	Encourage redevelopment in the Coastal Zone where public facilities and infrastructure are adequate or will be developed.	☐	☐	☐
1.4	In areas adjacent to SMIAs, ensure new residential development maximizes compatibility with existing adjacent maritime and industrial uses.	☐	☐	☐
1.5	Integrate consideration of climate change and sea level rise into the planning and design of waterfront residential and commercial development, pursuant to WRP Policy 6.2.	☐	☐	☐

		Promote	Hinder	N/A
2	**Support water-dependent and industrial uses in New York City coastal areas that are well-suited to their continued operation.**	☐	☐	☐
2.1	Promote water-dependent and industrial uses in Significant Maritime and Industrial Areas.	☐	☐	☐
2.2	Encourage a compatible relationship between working waterfront uses, upland development and natural resources within the Ecologically Sensitive Maritime and Industrial Area.	☐	☐	☐
2.3	Encourage working waterfront uses at appropriate sites outside the Significant Maritime and Industrial Areas or Ecologically Sensitive Maritime Industrial Area.	☐	☐	☐
2.4	Provide infrastructure improvements necessary to support working waterfront uses.	☐	☐	☐
2.5	Incorporate consideration of climate change and sea level rise into the planning and design of waterfront industrial development and infrastructure, pursuant to WRP Policy 6.2.	☐	☐	☐
3	**Promote use of New York City's waterways for commercial and recreational boating and water-dependent transportation.**	☐	☐	☐
3.1.	Support and encourage in-water recreational activities in suitable locations.	☐	☐	☐
3.2	Support and encourage recreational, educational and commercial boating in New York City's maritime centers.	☐	☐	☐
3.3	Minimize conflicts between recreational boating and commercial ship operations.	☐	☐	☐
3.4	Minimize impact of commercial and recreational boating activities on the aquatic environment and surrounding land and water uses.	☐	☐	☐
3.5	In Priority Marine Activity Zones, support the ongoing maintenance of maritime infrastructure for water-dependent uses.	☐	☐	☐
4	**Protect and restore the quality and function of ecological systems within the New York City coastal area.**	☐	☐	☐
4.1	Protect and restore the ecological quality and component habitats and resources within the Special Natural Waterfront Areas.	☐	☐	☐
4.2	Protect and restore the ecological quality and component habitats and resources within the Ecologically Sensitive Maritime and Industrial Area.	☐	☐	☐
4.3	Protect designated Significant Coastal Fish and Wildlife Habitats.	☐	☐	☐
4.4	Identify, remediate and restore ecological functions within Recognized Ecological Complexes.	☐	☐	☐
4.5	Protect and restore tidal and freshwater wetlands.	☐	☐	☐
4.6	In addition to wetlands, seek opportunities to create a mosaic of habitats with high ecological value and function that provide environmental and societal benefits. Restoration should strive to incorporate multiple habitat characteristics to achieve the greatest ecological benefit at a single location.	☐	☐	☐
4.7	Protect vulnerable plant, fish and wildlife species, and rare ecological communities. Design and develop land and water uses to maximize their integration or compatibility with the identified ecological community.	☐	☐	☐
4.8	Maintain and protect living aquatic resources.	☐	☐	☐

		Promote	Hinder	N/A
5	**Protect and improve water quality in the New York City coastal area.**	☐	☐	☐
5.1	Manage direct or indirect discharges to waterbodies.	☐	☐	☐
5.2	Protect the quality of New York City's waters by managing activities that generate nonpoint source pollution.	☐	☐	☐
5.3	Protect water quality when excavating or placing fill in navigable waters and in or near marshes, estuaries, tidal marshes, and wetlands.	☐	☐	☐
5.4	Protect the quality and quantity of groundwater, streams, and the sources of water for wetlands.	☐	☐	☐
5.5	Protect and improve water quality through cost-effective grey-infrastructure and in-water ecological strategies.	☐	☐	☐
6	**Minimize loss of life, structures, infrastructure, and natural resources caused by flooding and erosion, and increase resilience to future conditions created by climate change.**	☐	☐	☐
6.1	Minimize losses from flooding and erosion by employing non-structural and structural management measures appropriate to the site, the use of the property to be protected, and the surrounding area.	☐	☐	☐
6.2	Integrate consideration of the latest New York City projections of climate change and sea level rise (as published in *New York City Panel on Climate Change 2015 Report, Chapter 2: Sea Level Rise and Coastal Storms*) into the planning and design of projects in the city's Coastal Zone.	☐	☐	☐
6.3	Direct public funding for flood prevention or erosion control measures to those locations where the investment will yield significant public benefit.	☐	☐	☐
6.4	Protect and preserve non-renewable sources of sand for beach nourishment.	☐	☐	☐
7	**Minimize environmental degradation and negative impacts on public health from solid waste, toxic pollutants, hazardous materials, and industrial materials that may pose risks to the environment and public health and safety.**	☐	☐	☐
7.1	Manage solid waste material, hazardous wastes, toxic pollutants, substances hazardous to the environment, and the unenclosed storage of industrial materials to protect public health, control pollution and prevent degradation of coastal ecosystems.	☑	☐	☐
7.2	Prevent and remediate discharge of petroleum products.	☑	☐	☐
7.3	Transport solid waste and hazardous materials and site solid and hazardous waste facilities in a manner that minimizes potential degradation of coastal resources.	☐	☐	☑
8	**Provide public access to, from, and along New York City's coastal waters.**	☑	☐	☐
8.1	Preserve, protect, maintain, and enhance physical, visual and recreational access to the waterfront.	☑	☐	☐
8.2	Incorporate public access into new public and private development where compatible with proposed land use and coastal location.	☐	☐	☑
8.3	Provide visual access to the waterfront where physically practical.	☑	☐	☐
8.4	Preserve and develop waterfront open space and recreation on publicly owned land at suitable locations.	☑	☐	☐

		Promote	Hinder	N/A
8.5	Preserve the public interest in and use of lands and waters held in public trust by the State and City.	☑	☐	☐
8.6	Design waterfront public spaces to encourage the waterfront's identity and encourage stewardship.	☑	☐	☐
9	**Protect scenic resources that contribute to the visual quality of the New York City coastal area.**	☑	☐	☐
9.1	Protect and improve visual quality associated with New York City's urban context and the historic and working waterfront.	☑	☐	☐
9.2	Protect and enhance scenic values associated with natural resources.	☐	☐	☑
10	**Protect, preserve, and enhance resources significant to the historical, archaeological, architectural, and cultural legacy of the New York City coastal area.**	☑	☐	☐
10.1	Retain and preserve historic resources, and enhance resources significant to the coastal culture of New York City.	☑	☐	☐
10.2	Protect and preserve archaeological resources and artifacts.	☑	☐	☐

G. CERTIFICATION

The applicant or agent must certify that the proposed activity is consistent with New York City's approved Local Waterfront Revitalization Program, pursuant to New York State's Coastal Management Program. If this certification cannot be made, the proposed activity shall not be undertaken. If this certification can be made, complete this Section.

"The proposed activity complies with New York State's approved Coastal Management Program as expressed in New York City's approved Local Waterfront Revitalization Program, pursuant to New York State's Coastal Management Program, and will be conducted in a manner consistent with such program."

Applicant/Agent's Name: Claudia Filomena, BPCA Director of Capital Projects

Address: 200 Liberty Street, 24th Floor, New York, NY 10281

Telephone: 212-417-2384 Email: Claudia.Filomena@bpca.ny.gov

Applicant/Agent's Signature: _____

Date: _____

Submission Requirements

For all actions requiring City Planning Commission approval, materials should be submitted to the Department of City Planning.

For local actions not requiring City Planning Commission review, the applicant or agent shall submit materials to the Lead Agency responsible for environmental review. A copy should also be sent to the Department of City Planning.

For State actions or funding, the Lead Agency responsible for environmental review should transmit its WRP consistency assessment to the Department of City Planning.

For Federal direct actions, funding, or permits applications, including Joint Applicants for Permits, the applicant or agent shall also submit a copy of this completed form along with his/her application to the NYS Department of State Office of Planning and Development and other relevant state and federal agencies. A copy of the application should be provided to the NYC Department of City Planning.

The Department of City Planning is also available for consultation and advisement regarding WRP consistency procedural matters.

New York City Department of City Planning
Waterfront and Open Space Division
120 Broadway, 31st Floor
New York, New York 10271
212-720-3696
wrp@planning.nyc.gov
www.nyc.gov/wrp

New York State Department of State
Office of Planning and Development
Suite 1010
One Commerce Place, 99 Washington Avenue
Albany, New York 12231-0001
518-474-6000
www.dos.ny.gov/opd/programs/consistency

Applicant Checklist

- ☑ Copy of original signed NYC Consistency Assessment Form
- ☑ Attachment with consistency assessment statements for all relevant policies
- ☑ For Joint Applications for Permits, one (1) copy of the complete application package
- ☑ Environmental Review documents
- ☑ Drawings (plans, sections, elevations), surveys, photographs, maps, or other information or materials which would support the certification of consistency and are not included in other documents submitted. All drawings should be clearly labeled and at a scale that is legible.
- ☑ Policy 6.2 Flood Elevation worksheet, if applicable. For guidance on applicability, refer to the WRP Policy 6.2 Guidance document available at www.nyc.gov/wrp

A. INTRODUCTION

The Project Area is located within the City's designated Coastal Zone. Therefore, in accordance with the guidelines of the *CEQR Technical Manual*, an evaluation of the Proposed Project's consistency with the WRP policies was undertaken. New York City's WRP comprises 10 principal policies designed to maximize the benefits derived from economic development, environmental preservation, and public use of the waterfront, while minimizing the conflicts among those objectives. Assessments of the proposed project's conformity with the City's WRP policies are provided below for all policy questions answered "Promote" or "Hinder" on the CAF.

Policy 1: Support and facilitate commercial and residential redevelopment in areas well suited to such development.

> *Policy 1.2: Encourage non-industrial development with uses and design features that enliven the waterfront and attract the public.*

The purpose of the Proposed Project is to improve the resiliency of public spaces within Battery Park City along the waterfront, and it will not change the current uses within the Proposed Project area, which include a variety of public open space, residential, commercial, and community uses. The Proposed Project would incorporate design features that preserve and enhance the open spaces, water uses, cultural resources, and visual access of the existing waterfront infrastructure. It has been designed to integrate the flood barrier system (FBS) into the existing street corridors and the Battery Park City open spaces, including portions of Rockefeller Park, Belvedere Plaza, segments of the Battery Park City waterfront Esplanade as well as North and South Coves. With the Proposed Project there would be no changes in land use along the Project Area or along the waterfront, nor would the adjacent inland residential, commercial, and institutional uses be altered. Similarly, the surrounding Project Area land uses would be unaffected by the FBS and the proposed interior drainage improvements, which are primarily below-grade infrastructure improvements aligned within the existing street corridors. The Proposed Project would protect land uses inland of the FBS (i.e., the Protected Area) against future storm events. The Proposed Project would integrate the FBS into the existing streetscape and waterfront setting and would not substantively alter any urban design features such that the context of the natural and built visual resources of the coastal zone would not be substantively altered.

The Proposed Project maintains waterfront open space, expanding the north waterfront walkway to further enhance access along the water's edge, and restoring and enhancing post-construction existing waterfront open spaces to ensure the continuation of high-quality public waterfront in Battery Park City in conjunction with an integrated FBS. While it would be necessary to temporarily restrict and redirect public access around active construction zones along the waterfront of the Project Area in reach-by-reach phases between 2025 and 2030, existing public open space would be reopened when construction is complete, maintaining physical and visual access along the waterfront and toward the river and enhance these spaces, where feasible. The

Proposed Project would improve the infrastructure's resiliency to flooding and storm damage and preserve the waterfront for future public use. Therefore, the Proposed Project would promote this policy.

> *Policy 1.5: Integrate consideration of climate change and sea level rise into the planning and design of waterfront residential and commercial development, pursuant to WRP Policy 6.2.*

As described in detail under Policy 6.2, the Proposed Project would minimize the impacts of flooding by incorporating climate change and sea level rise considerations into the design of the FBS. Therefore, the Proposed Project would promote this policy.

Policy 2: Support water-dependent and industrial uses in New York City coastal areas that are well-suited to their continued operation.

> *Policy 2.4: Provide infrastructure improvements necessary to support working waterfront uses.*

The North Cove marina within Reach 5 and the Battery Park City Ferry Terminal adjacent to Reach 4 are in Priority Marine Activity Zones (PMAZ). Piers 25 and 26 just upstream from Reach 2 and landward of Reach 1 are also in a PMAZ. At Reach 2, the minimal extension of the platform 6 feet waterward would not change water depths or navigation in the Hudson River and would not interfere with any existing water-dependent uses adjacent to the PMAZ comprising Piers 25 and 26 to the north. Construction of the Proposed Project at Reach 4, between 2028 and 2030, would be completed in stages that allow for continuous operation of the Ferry Terminal. The project would include new planted areas and an immersive path south of the existing Lily Pond at Reach 4, and the Esplanade north of the Ferry Terminal would be widened and simplified to address pedestrian congestion and conflicts with passengers queuing for the ferry. These improvements to circulation would support the safe operation of the Ferry Terminal within the PMAZ. The North Cove marina at Reach 5 would be temporarily closed for the duration of construction, between 2026 and 2030, but would reopen after construction at Reach 5 is completed. While the Proposed Project does not include infrastructure improvements specifically intended to support working waterfront uses, it would improve the overall long-term resiliency of waterfront infrastructure within Battery Park City, including within the North Cove marina and Battery Park City Ferry Terminal within PMAZs, with the implementation of the flood resiliency measures. Therefore, the Proposed Project would promote this policy.

> *Policy 2.5: Incorporate consideration of climate change and sea level rise into the planning and design of waterfront industrial development and infrastructure, pursuant to WRP Policy 6.2.*

As described in detail under Policy 6.2, the Proposed Project would minimize the risks of flooding by incorporating climate change and sea level rise considerations into the design of the FBS. Therefore, the Proposed Project would promote this policy.

Policy 3: Promote use of New York City's waterways for commercial and recreational boating and water-dependent transportation.

> *Policy 3.5: In Priority Marine Activity Zones, support the ongoing maintenance of maritime infrastructure for water-dependent uses.*

As noted under Policy 2.4, portions of the Proposed Project would be in or adjacent to PMAZs. Construction activities at Reach 2 would involve elevation of the platform and extension 6 feet waterward, to the north, to provide additional deck area that is structurally supported to allow for

future upgrades and adaptability of the flood barrier system, should that be needed. The minimal extension of the platform would not change water depths or navigation in the Hudson River and would not interfere with existing water-dependent uses adjacent to the PMAZ comprising Piers 25 and 26 to the north. Construction activities at Reach 4 adjacent to the existing Battery Park City Ferry Terminal, comprising full replacement of the existing platform, would be implemented in phases to allow for continuous operation of the ferry service without interruption. At Reach 5 within the North Cove marina, the FBS design includes elevation of the platforms and construction of a flood wall within sections of the existing platform. The marina would be closed for the duration of construction, between 2026 and 2030, and would reopen after construction is completed. The resiliency measures have been designed to avoid encroachment into the marina and would not interfere with vessel operations once it is reopened. Overall, the Proposed Project would improve the resiliency of waterfront infrastructure with the implementation of the FBS. Therefore, the Proposed Project would promote this policy.

Policy 4: Protect and restore the quality and function of ecological systems within the New York City coastal area.

Policy 4.3: Protect designated Significant Coastal Fish and Wildlife Habitats.

The Proposed Project is within a portion of the Hudson River designated as the "Lower Hudson Reach" Significant Coastal Fish and Wildlife Habitat (SCFWH). The Lower Hudson Reach SCFWH comprises the 19-mile stretch of the Hudson River from Battery Park north to Yonkers, which includes the Project Area and was designated as an SCFWH primarily due to its use as wintering habitat by large numbers of juvenile striped bass. Adult striped bass enter the Hudson River to spawn during spring and summer but spend most of their time in coastal waters outside the Project Area. Spawning occurs in fresh water far upstream from the Project Area and as such, most larvae are also located upstream from the Project Area. Juvenile abundance is also concentrated upstream from the Project Area in less saline waters. Because striped bass larvae and juveniles are widely distributed throughout the Hudson River with peak abundance upstream, avoidance of the Project Area by juveniles or other life stages during construction would not result in adverse impacts to the striped bass population. In-water construction activities would be completed in accordance with any time-of-year restrictions implemented for the protection of aquatic biota. Sediment resuspension during in-water work (e.g., pile installation, dredging) would be temporary, minimal, and localized, and would not result in long-term impacts on water quality within the SCFWH.

Piles would be installed via drilled shaft. If vibratory or impact hammering is required, which may happen on a case-by-case basis, bubble curtains would be used to minimize the effects of increased underwater noise, and any impact hammering would also use a soft start and cushion block. Should impact hammering be required, noise reaching the behavioral threshold for fish would extend the full length of the river. Should vibratory hammering be required, the behavioral threshold would be met at a maximum of 328 feet from the pile and fish would be able to avoid the ensonified area. However, these elevated underwater noise levels would only occur intermittently, if it is required, and fish would be able to temporarily avoid the areas of elevated underwater noise, which represents a minimal change in behavior and temporary loss of foraging habitat in the affected area. The loss of 0.6 acres of soft bottom habitat and shading of 4,688 square feet (0.1 acre) in the footprint of the Proposed Project would result in a minimal change in foraging habitat for fish and other biota, including striped bass, but would not result in significant adverse effects to the suitability of this portion of the Lower Hudson Reach SCFWH as aquatic habitat. While the permanent increase in shading from the platform extension in Reach 2 would alter existing aquatic

habitat, areas along the platform edges would have limited shading and the slight increase in overwater coverage would not have a significant adverse effect on fish or invertebrates considering the available habitat within the SCFWH. Therefore, the Proposed Project would promote this policy.

Policy 4.5: Protect and restore tidal and freshwater wetlands.

Activities at Reaches 2, 4, 5, 6, and 7 would result in the placement of approximately 3,700 cubic yards of fill over 14,929 square feet (0.34 acres) within littoral zone tidal wetlands. The loss of NYSDEC littoral zone tidal wetlands in this area would be small when considered in context with the unaffected tidal wetlands within the lower Hudson River, and compensatory mitigation would be developed in coordination with NYSDEC to offset this loss. Mitigation will be achieved through the purchase of tidal wetland mitigation bank credits from the Saw Mill Creek Wetland Mitigation Bank located in Staten Island, New York. In-water ecological enhancements are proposed in Reaches 2, 4, and 6 to include enhancements on the concrete bulkhead face in Reaches 2, 4 and 5 and pile encasements on a number of existing piles in Reaches 2 and 6. The purchase of tidal wetland mitigation bank credits and implementation of the on-site ecological enhancements would be completed prior the Proposed Project being substantially completed in 2030, and fully operational in 2031.

Temporary effects of sediment resuspension on littoral zone tidal wetlands during construction would be minimized through the use of a full-length turbidity curtain and the use of a closed (environmental) clamshell bucket and other best management practices during dredging. Temporary increases in turbidity during in-water construction would not result in long-term adverse impacts to littoral zone tidal wetlands. Erosion and sediment control measures (e.g., temporary berms, hay bales, silt fences, catch basin and inlet protection, tracking pads, concrete truck wash areas, stabilized construction entrances, compost filter socks, etc.) implemented in accordance with a Stormwater Pollution Prevention Plan (SWPPP) would minimize the discharge of materials to littoral zone tidal wetlands during upland construction. Therefore, the Proposed Project would promote this policy.

Policy 4.6: In addition to wetlands, seek opportunities to create a mosaic of habitats with high ecological value and function that provide environmental and societal benefits. Restoration should strive to incorporate multiple habitat characteristics to achieve the greatest ecological benefit at a single location.

The Proposed Project's planting palette would include a variety of native plants that are designed to enhance the diversity of ecological communities within the Project Area, consistent with the Battery Park City Sustainability Plan and its goal of maintaining and enhancing biodiversity and enhancing habitats within the Park. Replacement and transplanted trees and newly planted shrubs and herbaceous plants would provide habitat and foraging opportunities for insects, migratory and resident bird species, and other terrestrial wildlife. Ultimately, the implementation of the flood barrier system would protect terrestrial resources within the Protected Area in the Study Area during future storm events and subsequent saltwater inundation that is harmful to terrestrial resources. The Proposed Project would include in-water ecological enhancements in Reaches 2, 4, and 6 where platform reconstruction would take place. Enhancement strategies may include enhancements on the concrete bulkhead face and pile encasements on a number of existing piles to encourage colonization by encrusting organisms, bivalves, and improvements to shallow water structured habitat for fish. Therefore, the Proposed Project would promote this policy.

Policy 4.7: Protect vulnerable plant, fish and wildlife species, and rare ecological communities. Design and develop land and water uses to maximize their integration or compatibility with the identified ecological community.

Tricolored bat (*Perimyotis subflavus*; federal proposed endangered), monarch butterfly (*Danaus plexippus*; federal proposed threatened), peregrine falcon (state-listed endangered), Atlantic sturgeon (*Acipenser oxyrinchus;* federally listed endangered), and shortnose sturgeon (*Acipenser oxyrinchus*; federally and state-listed endangered), green sea turtle (*Chelonia mydas*; federally listed endangered), Kemp's ridley sea turtle (*Lepidochelys kempii*; federally listed endangered), leatherback sea turtle (*Dermochelys coriacea*; federally listed endangered), and loggerhead sea turtle (*Caretta caretta*; federally listed threatened) have the potential to be present within the Project Area. Tricolored bats require forested habitat with mature trees and are not expected to be present within the Project Area. Sturgeon would most likely occur in the deep channel habitat of the Hudson River during migration to and from upriver foraging, overwintering, and/or spawning grounds, and it is unlikely that individuals of either species would occur in the shallow waters of the study area except as occasional transients. Sea turtles are not likely to occur within the study area except on rare occasions and only as transient individuals, rather than occurring in large numbers or for long-term occupation for breeding, wintering, or growth and development, and would not be adversely affected by the in-water construction activities.

Post-construction planting would include a variety of urban-tolerant native wildflowers and perennials that would restore and improve any potential monarch butterfly and pollinator habitat impacted by the Proposed Project. Peregrine falcons have been documented nesting within 0.5 miles of the Project Site. Peregrine falcons are well distributed throughout New York City and are adapted to high levels of activity and ambient noise, and construction of the Proposed Project would not adversely affect peregrine falcons in the vicinity of the Project Area. To minimize potential impacts to peregrine falcon during construction, all tall equipment such as cranes and drill rigs would include anti-perching devices such as flagging at the top of the equipment that will create a physical deterrent to falcons perching on the equipment.

Because the aquatic resource impacts associated with the in-water construction activities, including elevated noise levels and sediment resuspension, would be localized, the deep channel habitat typically used by shortnose and Atlantic sturgeon would not be adversely affected during construction. Migration of sturgeon upriver during spring and migration downriver in the summer and early fall would not be obstructed by the project components, which would be installed entirely along the shoreline where there are existing in-water structures. Should impact hammering be required during pile installation, underwater noise reaching the behavioral threshold for sturgeon would extend the full length of the river. Should vibratory hammering be required, the behavioral threshold would be met at a maximum of 328 feet from the pile and fish would be able to avoid the ensonified area. However, these elevated underwater noise levels would only occur intermittently, if it is required, and fish would be able to temporarily avoid the areas of elevated underwater noise, which represents a minimal change in behavior and temporary loss of foraging habitat in the affected area. Sturgeon would be expected to return to the Project Site when pile driving is not occurring (i.e., during breaks, after working hours, weekends) including when piles are being installed via drilled shaft, which would represent most of the pile installation. Pile tapping prior to full energy cushioned impact hammering would also allow sturgeon to move away from the area so they are not exposed to the highest noise levels. The loss of 0.6 acres of soft bottom habitat and overwater coverage increase of 4,688 square feet (0.1 acre) would modify potential foraging habitat for shortnose and Atlantic sturgeon and designated critical habitat for Atlantic sturgeon. However, this represents a small area relative to similar habitat available in the

Hudson River that would be unaffected by the Proposed Project, and such a small loss of habitat would not result in significant adverse effects. This area would also be adjacent to existing structures near the shoreline, which is less suitable for sturgeon compared to the deeper waters of the navigation channel.

The Proposed Project would not likely adversely affect protected species that have the potential to occur in the Project Area, and therefore would promote this policy.

Policy 4.8: Maintain and protect living aquatic resources.

The Proposed Project would result in minimal sediment disturbance and localized increases in turbidity during pile installation and dredging. Piles would be installed using drilled shafts to the extent possible, and would only use a vibratory or cushioned impact hammer with a bubble curtain on a case-by-case basis, thereby minimizing any increases in underwater noise. These temporary effects would not result in long-term adverse impacts on aquatic biota. Erosion and sediment control measures (e.g., temporary berms, hay bales, silt fences, catch basin and inlet protection, tracking pads, concrete truck wash areas, stabilized construction entrances, compost filter socks, etc.) implemented in accordance with the SWPPP would minimize the potential for discharge of materials from upland construction activities into the Hudson River. The loss of 0.6 acres of bottom habitat in the footprint of the in-water project components represents a minimal loss of aquatic habitat along the shoreline of lower Manhattan and would not result in significant impacts to fish or macroinvertebrate populations in the lower Hudson River. The 4,688-square foot increase in overwater coverage at Reach 2 along the length of the existing platform would be minimal in comparison to the available habitat within the lower Hudson River estuary that would remain unshaded. Additionally, fish would be able to continue using the structured habitat beneath the platform, similar to existing conditions, and the minimal increase in shading would not result in significant adverse impacts on aquatic resources. Therefore, the Proposed Project would promote this policy.

Policy 5: Protect and improve water quality in the New York City coastal area.

Policy 5.2: Protect the quality of New York City's waters by managing activities that generate nonpoint source pollution.

As part of the Proposed Project, measures are proposed to prevent coastal storm surge waters from entering the Protected Area through the sewer system. These measures include isolating the Protected Area from adjacent unprotected drainage areas through a Near Surface Isolation (NSI) system, which would isolate the Protected Area to prevent inflow of coastal storm surge through the existing sewer infrastructure. In addition, the Proposed Project would provide stormwater management measures to handle a simultaneous tidal and rainfall event. As described in Chapter 3.7, "Water and Sewer Infrastructure," these management measures would include an interior drainage management system with tide gates at existing combined sewer and municipal separate storm sewer (MS4) outfalls including at Rockefeller Park, Albany Street, and Rector Park, relocation of combined sewer pipes, installation of outfalls to redirect stormwater runoff, NSI improvements, modification to slide gate structures, and construction of a pump station. The Proposed Project would include measures to manage sewer flow for sewer connections at Vesey Street and West Thames Street during coastal storm surge events. To mitigate flooding at the Gateway Building, a sump pump would be installed on the south side of the building to manage stormwater for patio areas. This sump pump would pump water downstream of the proposed tide gate structure.

In addition to these infrastructure upgrades, the Proposed Project would result in a decrease in impervious surface and associated stormwater runoff in the Project Area. Green infrastructure measures (e.g., rain gardens, permeable pavers) would provide additional stormwater management along the street corridors within the Project Area. In particular, Green Infrastructure (GI) post-construction stormwater management practices (PCSMPs) are proposed to meet the runoff reduction and water quality stormwater regulations defined by NYCDEP in the Unified Stormwater Rule. The GI measures would include vegetated practices such as standard and high-performance rain gardens and porous pavement to reduce imperviousness, reduce peak flows, and provide some pretreatment of runoff. The stormwater storage and green infrastructure measures implemented as part of the Proposed Project would improve stormwater management, provide the opportunity for increased infiltration, and provide some improvement in quality of runoff discharged to the Hudson River, minimizing the potential effects of stormwater runoff on water quality and aquatic resources. Therefore, the Proposed Project would promote this policy.

> *Policy 5.3: Protect water quality when excavating or placing fill in navigable waters and in or near marshes, estuaries, tidal marshes, and wetlands.*

As described under Policy 4.5, the Proposed Project would result in the placement of 3,700 cubic yards of fill over 14,929 square feet (0.34 acres) within NYSDEC littoral zone tidal wetlands. This loss would be offset through compensatory mitigation developed in coordination with NYSDEC and would not result in a significant adverse effect on wetlands. Sediment disturbance during construction would result in minor, short-term increases in turbidity that would dissipate quickly with the tidal currents of the river. Potential impacts of turbidity would also be minimized through the use of a full-length turbidity curtain during in-water activities, and the use of a closed (environmental) clamshell bucket and other best management practices during dredging. Stormwater storage and management improvements implemented as part of the Proposed Project would minimize the potential effects of stormwater runoff on littoral zone tidal wetlands. No long-term effects on water quality would result from the Proposed Project, and all in-water activities would be conducted in accordance with permit conditions issued for the protection of waters. Therefore, the Proposed Project would promote this policy.

> *Policy 5.5: Protect and improve water quality through cost-effective grey-infrastructure and in-water ecological strategies.*

Improvements to stormwater management with the Proposed Project, including increased storage capacity and the implementation of green infrastructure, would contribute to improvements in water quality by reducing the amount of stormwater runoff flowing directly into the Hudson River. Landscaping throughout the Project Site, including features like bioswales, would facilitate filtration of sediments and pollutants from stormwater before it reaches the upgraded stormwater management infrastructure, further reducing the potential impacts of runoff on water quality in the river. Therefore, the Proposed Project would promote this policy.

Policy 6: Minimize loss of life, structures, infrastructure, and natural resources caused by flooding and erosion, and increase resilience to future conditions created by climate change.

> *Policy 6.1: Minimize losses from flooding and erosion by employing non-structural and structural management measures appropriate to the site, the use of the property to be protected, and the surrounding area.*

Most of the Project Area is within the 1-percent annual chance floodplain (Zone AE, Zone AO, and Zone VE; 1 percent annual chance flood hazard) and 0.2-percent annual chance floodplain (Zone X; 0.2 percent annual chance flood hazard). Under Policy 6, the primary goal for projects

in coastal areas is to reduce risks posed by current and future coastal hazards, particularly major storms that are likely to increase due to climate change and sea level rise. The Proposed Project is designed to reduce the risk of loss from flooding; to minimize the effect of floods on human safety, health, and welfare; and to preserve the beneficial value of the existing floodplain. As part of the FBS, waterfront structures at Reaches 2, 4, 5, 6, and 7 would be elevated to meet the design criteria for a projected 2050s 1-percent annual chance storm event. The Proposed Project would protect Battery Park City and certain inland properties, or the Protected Area (see Figure 1-5 in Chapter 1.0, "Project Description"), from future storm events and inundation from sea level rise, reducing the risk of flood loss compared to the No Action condition. Once the FBS is installed, the Battery Park City Authority (BPCA) will seek to have the system accredited by FEMA which would remove the dry side of the Project Area and the Protected Area from the current flood zone. Waterfront structures in Reach 3 would not be altered with the Proposed Project, which would result in continued risk of flooding from storm events and sea level rise to that portion of Reach 3 waterward of the flood barrier system. However, the Proposed Project would include a passive retaining wall structure with deployable flood protection systems in the upland portions of Rockefeller Park in Reach 3 to provide resiliency beyond the waterfront. Additionally, the FBS alignment through Reach 3 would not preclude the future addition of resiliency measures within this area, if required. The addition of resiliency measures to park amenities and facilities would reduce adverse impacts to Battery Park City resulting from design storm events and sea level rise and would not result in increased coastal flooding within or adjacent to the Project Site. Therefore, the Proposed Project would promote this policy.

> *Policy 6.2: Integrate consideration of the latest New York City projections of climate change and sea level rise (as published in New York City Panel on Climate Change 2015 Report, Chapter 2: Sea Level Rise and Coastal Storms) into the planning and design of projects in the city's Coastal Zone.*

Guidance provided by DCP[1] recommends a detailed methodology to determine consistency with Policy 6.2 for projects that would construct waterfront infrastructure. A summary of this process is provided below.

> *1. Identify vulnerabilities and consequences: assess the project's vulnerabilities to future coastal hazards and identify what the potential consequences may be.*
>
> *a. Complete the Flood Evaluation Worksheet.*

The information in the following subsections is based on the results of the completed worksheets, which are provided in **Attachment 1** to this assessment. Worksheets are provided for each current base flood elevation (BFE) in the Project Area.

> *b. Identify any project features that may be located below the elevation of the 1% floodplain over the lifespan of the project under any sea level rise scenario.*

The New York City Panel on Climate Change (NPCC) projected that sea levels are likely to increase by up to 10 inches by the 2020s, 30 inches by the 2050s, 58 inches by the 2080s, and up to 75 inches by 2100 under the "High Scenario" projections. The lifespan of the waterfront infrastructure for the FBS is estimated to be 50 years, assuming they are regularly maintained. Given the completion and fully operational date of the project is 2031, the evaluation year for this

[1] NYC Planning. The New York City Waterfront Revitalization Program: Climate Change Adaptation Guidance. March 2017.

policy is the 2080s. Under current conditions, most of the Project Area is within the current 1 percent annual chance floodplain (**Figure C-1**). Waterfront sections of Reaches 1 through 7 are within Zone AE (an area of high flood risk subject to inundation by the 1-percent annual chance flood event) with BFEs ranging from +11 feet to +14 feet NAVD88. The marina and a portion of the waterfront at Reach 5 are in Zone VE (an area subject to inundation by the 1-percent annual chance flood event with additional hazards due to storm-induced velocity wave action) with a BFE of +17 feet NAVD88. Portions of the waterfront are also between the VE Zone and the Limit of Moderate Wave Action (LiMWA) (see **Figure C-1**), which is identified as the Coastal A Zone which is subject to additional hazards during flooding. Areas of each Reach also fall within the 0.2-percent annual chance floodplain which does not have a site-specific BFE. **Table C-1** identifies the BFE within each Reach as well as the projected floodplain elevations for each current BFE under the High Scenario and the anticipated year in which the project component is projected to fall within the floodplain.

Table C-1
Existing and Projected Floodplain Elevations by Reach (High Scenario)

Reach	Component	Elevation (feet NAVD88)	Current BFE (feet NAVD88)	2080s Projected BFE (feet NAVD88)	Projected Year Component Falls within Floodplain
Reach 1	Top of FBS wall (north end of reach)	+16.5	+12	+16.83	2080s
Reach 1	Top of FBS wall (south end of reach)	***+17.5***	***+11***	***+15.83***	***2100***
Reach 2	Top of FBS wall	+16.5	+12	+16.83	2080s
Reach 2	Platform extension	+12.0	+12	+16.83	2020s
Reach 2	Upper promenade	+14.8	+12	+16.83	2080s
Reach 3	Top of FBS wall	+16.5	+12 [1]	+16.83	2080s
Reach 4	Top of FBS wall	+16.5	+12 [2]	+21.83	2020s
Reach 4	Reconstructed platform	+12.5	+12	+16.83	2020s
Reach 5	Top of FBS wall (north end of reach)	+16.5	+14	+21.83	2020s
Reach 5	Top of FBS wall (east of marina)	+16.5	+14	+18.83	2080s
Reach 5	Top of FBS wall (south end of reach)	+16.5	+12	+16.83	2080s
Reach 6	Top of FBS wall (north end of reach)	+16.5	+14	+18.83	2080s
Reach 6	Top of FBS wall (south end of reach)	***+19.5***	***+12***	***+16.83***	***2100***
Reach 6	Reconstructed platform	+12.5	+12	+16.83	2020s
Reach 7	Top of FBS wall (north end of reach)	***+19.5***	***+12***	***+16.83***	***n/a***
Reach 7	Top of FBS wall (Riverwatch Building)	+16.5	+13	+17.83	2080s
Reach 7	Top of FBS wall (south end of reach)	***+18.0***	***+12***	***+16.83***	***2100***
Reach 7	Reconstructed platform	+12.5	+12	+16.83	2020s

Bold Italics identify features that will remain above the projected floodplain elevation in the evaluation year. The other features are projected to be below the floodplain elevation in the 2080s.

[1] Reach 3 FBS is mainly in the current 0.2-percent floodplain. BFE of +12 feet is nearest adjacent floodplain

[2] Reach 4 covers several floodplains: 0.2-percent (no BFE), Zone AE (+17-foot BFE), and Zone AO (no BFE). The top of the FBS wall in Reach 4 would be in Zone AO (see **Figure C-1**). Because Zone AO does not have a BFE, the nearest adjacent BFE for Zone AE was used (+12 feet NAVD88 in Reach 3)

Sources: NPCC 2015 floodplain projections; BFEs from FEMA 2015 Preliminary FIRMs (see **Figure C-1**)

The FBS wall would be constructed with a top elevation of +16.5 feet NAVD88 for most of its length and these sections will be below the projected floodplain elevation for the High Scenario sometime in the 2080s, within the 50-year design life of the structure. As shown in bold/italic in **Table C-1**, sections of the FBS wall in Reach 1, Reach 6, and Reach 7 would have top elevations of +17.5 feet, +18 feet, or +19.5 feet NAVD88 depending on the specific location, and these sections would remain above the projected floodplain elevation throughout the design life of the structure. At Reach 2, the platform extension would be at the same elevation as the existing platform and would be below the projected floodplain elevation sometime in the 2080s. The platforms, paths, and open space areas along the waterfront throughout the Project Area would be susceptible to flooding under current and projected conditions.

As described in Chapter 1.0 "Project Description," the Proposed Project is designed to provide flood risk reduction for the 100-year joint probability event of both a coastal and rainfall storm event, inclusive of the 90th percentile projection for sea level rise through the 2050s. It has also been designed to allow for adaptation, including increasing the FBS wall height by up to two feet, should future conditions require. Based on the NPCC projections, the FBS components would remain above the floodplain elevation as designed through the 2050s. Several areas would remain above the floodplain elevation throughout the 50-year design life of the structures until the 2080s (see **Table C-1**), at which point the FBS could be adapted to include additional measures as described in detail in the sections below.

> *c. Identify any vulnerable, critical, or potentially hazardous features that may be located below the elevation of Mean Higher High Water (MHHW) over the lifespan of the project under any sea level rise scenario.*

Based on the range of sea level rise predictions described above, MHHW at the Project Area (currently +2.61 feet NAVD88 at the Battery) could increase to +5.11 feet NAVD88 by the 2050s, +7.44 feet by the 2080s at the end of the FBS's design life, and up to +8.86 feet by 2100. None of the waterfront structures would be below MHHW at any point in their design life.

> *d. Describe how any additional coastal hazards are likely to affect the project, both currently and in the future, such as waves, high winds, or debris.*

Portions of the Project Area at Reach 5 are within Zone VE (see **Figure C-1**) and would be at risk from 1-percent annual chance flood events and additional hazards from wave action, including storm impacts due to waves, high winds, and debris under current and future conditions. Portions of the waterfront are also between Zone VE the LiMWA, or the Coastal A Zone, which is subject to flood hazards associated with floating debris and high-velocity flow.

> *2. Identify adaptive strategies: assess how the vulnerabilities and consequences identified in Step 1 are addressed through the project's design and planning.*
>
> *a. For any features identified in Step 1(b), describe how any flood damage reduction elements incorporated into the project, or any natural elevation on the site, provide any additional protection. Describe how would any planned adaptive measures protect the feature in the future from flooding?*

Most of the Project Area is currently within the 1-percent or 0.2-percent annual chance floodplain and would continue to be within the floodplain under all projected scenarios. The purpose of the Proposed Project is to reduce flood risk to residents, property, and assets within Battery Park City with the FBS while preserving, enhancing, and protecting the existing open spaces and waterfront cultural resources of the area. The Project Site includes heavily trafficked waterfront open spaces, residential buildings, schools, and cultural and community resources, and the FBS design takes those factors into account. While the FBS was designed to provide flood risk reduction through the 2050s, before the end of its 50-year design life, it was also designed to allow adaptation of the system including raising the FBS wall by up to two feet. The top of the FBS would be below the projected 1-percent annual chance flood elevation by the end of its design life in the 2080s largely because the design needed to incorporate consideration of visual and recreational impacts within the Project Area. However, the adaptability of the FBS would allow for alleviation of future flood risk if warranted by future conditions, and additional deployable features could also be added throughout the Project Site. Overall, the Proposed Project would improve the resiliency of Battery Park City and the Protected Area and reduce the risk of flooding compared to current conditions with no flood protection measures. Open space recreational areas and pedestrian pathways along

the waterfront would continue to be at risk of flood damage, but these areas have limited potential for major damage from flooding and would not present a risk to adjacent areas during flood conditions.

The FBS would be a combination of passive flood protection measures (i.e., FBS wall, seepage barrier) and deployable flood protection measures (i.e., variety of flood gates). The FBS wall at the landward edge of the reaches would protect waterfront structures and resources from flooding under current conditions, and additional deployable flood barriers throughout the Project Site would provide enhanced protection as needed. The waterfront platforms at Reaches 4, 6, and 7 would be partially reconstructed with a new platform atop the existing platform to raise the structures to an elevation of +12.5 feet NAVD88 and provide protection from current conditions. In Reach 5, the FBS design had to consider the complexities of buried utilities and infrastructure like the PATH tunnels and World Trade Center cooling water intakes, open waters over the PATH tunnels and beneath the plaza, limited land area due to existing buildings, and preservation of cultural and recreational resources. To accommodate the existing features, flood protection in Reach 5 includes bridging structures in the waters beneath the plaza over the PATH tunnels to control potential inundation. The bridging structures beneath Belvedere Plaza would include butterfly gates that can be closed from the surface during storm events to protect the overlying plaza from storm surge and flooding around the PATH tunnels. Closing the butterfly gates would prevent the tunnels from acting like a conduit for conveying floodwaters under the FBS wall and other components at the surface.

The Proposed Project would also include a series of at-grade and below-grade improvements to the storm sewer system to improve drainage inland of the FBS in the Protected Area. This includes installation of tide gates at existing combined sewer and storm sewer outfalls, replacement of existing slide gates, and floodproofing existing manholes at various locations within the Protected Area. A pump station would also be installed to convey collected drainage to the Hudson River during a combined high tide and rainfall event. These infrastructure improvements would complement the flood protection measures along the waterfront and help to reduce the risk of flooding inland from the FBS. Within the open space areas throughout the Project Site, landscaping plans would include “flushing” of existing trees and other planted areas with fresh water following saltwater inundation, which has had positive effects in the past according to BPCA. Post-construction planting plans would also include a variety of native and salt-tolerant species that would be able to survive a coastal storm event.

> *b. For any features identified in Step 1(c), describe how any flood damage reduction elements incorporated into the project, or any natural elevation on the site, provide any additional protection. Describe how would any planned adaptive measures protect the feature in the future from flooding?*

As noted under Step 1(c), none of the project features would be below MHHW within their design life and no additional measures are proposed.

> *c. Describe any additional measures being taken to protect the project from additional coastal hazards such as waves, high winds, or debris.*

Various areas along the waterfront in multiple reaches are within the Coastal A Zone, between the VE Zone and the LiMWA, and the section of Reach 5 at the northern and eastern boundaries of the marina are within Zone VE (see **Figure C-1**). These areas are subject to additional hazards during flooding associated with high-velocity flow, waves, high winds, and/or floating debris. While the FBS wall would be inland of the VE and Coastal A Zones and would not provide

protection from these hazards, the areas subject to wave action would comprise pedestrian pathways, overwater structures, and open space uses that would not be expected to have significant losses from flooding. Deployable flood gates would provide additional protection during flooding by enhancing the protective capabilities of the FBS wall landward of the hazard areas and preventing wave action and floating debris from reaching beyond the open space areas. As noted above, any trees in these areas would be flushed with fresh water following saltwater inundation, minimizing the potential for loss of vegetation due to flooding. The landscaping plans for these areas would also incorporate native salt-tolerant species to reduce potential losses.

d. Describe how the project would affect the flood protection of adjacent sites, if relevant.

Because the floodplain in New York City is controlled by astronomic tide and meteorological forces like hurricanes and not by fluvial flooding, the FBS infrastructure would not have the potential to adversely affect the floodplain. Improvements to the drainage infrastructure inland from the waterfront flood protection measures would protect land uses inland of the FBS (i.e., the Protected Area) and improve the area's resiliency against future storm events. Once the FBS is installed, BPCA will seek to have the system accredited by FEMA which would remove the dry side of the Project Area and the Protected Area (i.e., inland from the FBS wall) from the current flood zone. The Proposed Project would not alter site elevations in a way that could lead to increased flooding on adjacent properties.

3. Assess policy consistency: conclude whether the project is consistent with Policy 6.2 of the Waterfront Revitalization Program.

The Project Area is mostly within the 1-percent and 0.2-percent annual chance floodplains, part of Reach 5 is within the V zone, and portions of the waterfront at Reaches 2, 4, 5, and 7 are within a wave impact zone (Coastal A Zone). The Proposed Project is a comprehensive flood barrier system comprising a combination of passive flood protection measures like floodwalls and seepage barriers and deployable measures like flood gates to improve the resiliency of the Project Area to flood damage. It would also improve the resiliency of the Protected Area inland from the FBS wall through the implementation of storm sewer upgrades. While the top of the FBS wall would be within the projected 1-percent annual chance flood elevation by the 2080s, at the end of its design life, the Proposed Project design provides for adaptability of the structure including a height increase of up to two feet, as warranted under future conditions. This design is meant to balance the need for flood resiliency with the preservation of existing land uses and the minimization of visual and recreational impacts of the flood protection system. Deployable flood gates at various points along the length of the FBS wall would also provide additional protection under current and projected conditions with sea level rise and increased precipitation. With these measures in place, the Proposed Project would support the removal of the Project Area and the inland Protected Area landward of the FBS from the current FEMA flood zone. Therefore, the Proposed Project promotes this policy.

Policy 6.3: Direct public funding for flood prevention or erosion control measures to those locations where the investment will yield significant public benefit.

The Project Area comprises publicly accessible open space that is owned and operated by BPCA, the state entity that would undertake the Proposed Project. The purpose of the Proposed Project is primarily to improve the resiliency of waterfront public spaces such that it can be used well into the future under projected conditions with climate change and sea level rise. Battery Park City provides a variety of public spaces that are highly valuable to the community in lower Manhattan, and thus the protection of these resources through flood resiliency measures would yield

significant public benefit. The FBS would also improve the resiliency of existing upland infrastructure within the protected area including schools, commercial and residential buildings, community services, and other uses. Therefore, the Proposed Project would promote this policy.

Policy 7: Minimize environmental degradation and negative impacts on public health from solid waste, toxic pollutants, hazardous materials, and industrial materials that may pose risks to the environment and public health and safety.

> *Policy 7.1: Manage solid waste material, hazardous wastes, toxic pollutants, substances hazardous to the environment, and the unenclosed storage of industrial materials to protect public health, control pollution and prevent degradation of coastal ecosystems.*

The Proposed Project would require excavation and other soil disturbance within the upland portions of the site. The Environmental Site Assessments (ESA), Environmental Site Investigations (ESI), and a Hazardous Materials Investigation conducted between 2021 and 2022 have identified soil and groundwater contamination consistent with the placement of historic fill throughout the Project Area. To avoid impacts during surface disturbance with the Proposed Project, construction would be completed in accordance with the project-specific Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP) that have been prepared for the Proposed Project. The RAP provides information on identified contaminants which may be encountered during construction and the means and methods to mitigate exposure during construction and operation of the Proposed Project. The CHASP provides plans for minimizing potential health and safety hazards and exposure during construction associated with contamination discussed in the RAP. All temporary storage of construction-related chemicals would be in accordance with procedures to prevent chemical releases from affecting soil or groundwater (e.g., proper storage, inspections, spill response). These measures and safety protocols would minimize the risk of pollution that could degrade coastal ecosystems. Therefore, the Proposed Project would promote this policy.

> *Policy 7.2: Prevent and remediate discharge of petroleum products.*

The site assessments and investigations did not identify any petroleum products or storage tanks that would be affected by Project activities. Construction for the Proposed Project would include the short-term use of hazardous and non-hazardous construction materials, including petroleum hydrocarbon-based fuels. Any potential risks associated with the handling, transport, or disposal of these materials would be minimized by using, storing, transporting, and disposing of such materials in accordance with manufacturer instructions and in compliance with applicable City, state, and federal laws and regulations. Procedures would also be implemented to prevent these chemicals from affecting soil or groundwater, including proper storage, inspections, and spill response protocols. The Proposed Project would not require the use of petroleum products after construction is complete. Therefore, the Proposed Project would promote this policy.

Policy 8: Provide public access to, from, and along New York City's coastal waters.

> *Policy 8.1: Preserve, protect, maintain, and enhance physical, visual and recreational access to the waterfront.*

Battery Park City comprises a waterfront esplanade and upland open spaces owned and operated by the BPCA and is heavily used by the public for passive recreation opportunities in lower Manhattan. The Proposed Project would preserve and enhance the existing physical, visual, and recreational public access to the waterfront in Battery Park City by improving the resiliency of waterfront infrastructure to coastal flooding while enhancing the open spaces and resources along

the waterfront by integrating them into the proposed design of the FBS. During construction, public access would be temporarily restricted in the active construction zones. This would be completed in phases such that public access would be maintained throughout most of the park at any given time over the duration of construction. Once the FBS is complete, public access would be restored to pre-construction conditions, and the Proposed Project would not result in adverse impacts to physical, visual, or recreational access to the waterfront. The resiliency measures would protect the waterfront infrastructure and upland open spaces such that they can be used by the public under future conditions. Therefore, the Proposed Project would promote this policy.

Policy 8.3: Provide visual access to the waterfront where physically practical.

As described under Policy 8.1, the Proposed Project would temporarily restrict public access to portions of the waterfront Esplanade during active construction, which would be implemented in phases, but would not result in long-term changes to visual access to the waterfront from the Esplanade or other parts of the park. The deployable flood barrier gates that would be installed as part of the Proposed Project would temporarily limit visual access to the waterfront from the ground level only during a flood event when they are deployed. When not deployed, these barriers would not be visible and would not result in permanent changes to visual access to the waterfront. As described under Policy 1.2, the Proposed Project would integrate the FBS into the existing streetscape and waterfront setting and would not substantively alter any urban design features such that the context of the natural and built visual resources of the coastal zone would not be substantively altered. Therefore, the Proposed Project would promote this policy.

Policy 8.4: Preserve and develop waterfront open space and recreation on publicly owned land at suitable locations.

The Project Area includes the waterfront Esplanade and upland open spaces within Battery Park City and is currently used for recreation and public access to the waterfront. The Project would provide long-term resiliency for these recreational opportunities through the installation of the FBS and would preserve existing public access to the waterfront consistent with the current use and purpose of the park. Therefore, the Proposed Project would promote this policy.

Policy 8.5: Preserve the public interest in and use of lands and waters held in public trust by the State and City.

The Project would be in Battery Park City and is owned and operated by the Battery Park City Authority, which is a state entity. The Project would not result in the transfer of public lands to another entity, nor would it result in long-term adverse effects to the park resources, including the those within the Hudson River Park Estuarine Sanctuary. As previously noted, public access would be temporarily restricted in active construction areas but would be restored to existing conditions once construction is completed. Therefore, the Proposed Project would promote this policy.

Policy 8.6: Design waterfront public spaces to encourage the waterfront's identity and encourage stewardship.

The Project would be consistent with past and current uses of the waterfront within Battery Park City. The Esplanade and overwater platforms would continue to provide public access to the waterfront and the extension of the platform at Reach 2 would improve emergency access and circulation for pedestrians and bicycles in that section of the park. Green infrastructure and landscaping would preserve and enhance the natural aesthetics of the park by focusing on fitting the Proposed Project into the existing waterfront landscape to the extent possible. The landscaping

design for the Proposed Project would use a variety of water-tolerant and salt-tolerant plantings such that the vegetation is also resilient to coastal flooding. Therefore, the Proposed Project would promote this policy.

Policy 9: Protect scenic resources that contribute to the visual quality of the New York City coastal area.

> *Policy 9.1: Protect and improve visual quality associated with New York City's urban context and the historic and working waterfront.*

The Project would not change any urban design features such that the context of natural or built visual resources is substantially altered. Installation of the FBS would include structures similar to those along the existing Esplanade and pathways throughout the site. As described under Policy 1.2, the Proposed Project would integrate the FBS into the existing streetscape and waterfront setting and would not substantively alter any urban design features such that the context of the natural and built visual resources of the coastal zone would not be substantively altered. While the Proposed Project components would be slightly different than the existing visual environment, they would not be incompatible with the surround structures and open spaces. The FBS would also preserve views of the waterfront from the Esplanade and adjacent shorelines and would provide resiliency of these structures under future conditions. Therefore, the Proposed Project would promote this policy.

Policy 10: Protect, preserve, and enhance resources significant to the historical, archaeological, architectural, and cultural legacy of the New York City coastal area.

> *Policy 10.1: Retain and preserve historic resources, and enhance resources significant to the coastal culture of New York City.*

The Project Area contains three architectural historic resources: the Shearwater (S/NR-listed), South Cove (S/NR-eligible), and the Hudson River Bulkhead (S/NR-eligible). The Shearwater is a wooden auxiliary schooner built in 1929 that docks at the North Cove Marina and is used for sightseeing cruises. South Cove opened in 1988 as a work of art and landscape meant to be experienced by the public rather than just observed as a sited sculpture and was determined to meet the eligibility criteria for listing in correspondence from SHPO dated March 30, 2023, despite being less than 50 years old. The Hudson River Bulkhead runs from the Battery to the south end of the New York Central Railroad's terminal at West 59th Street. The portion of the bulkhead within the Project Area consists of multiple significant construction types using masonry walls on a variety of foundation systems.

Although the Proposed Project would directly affect South Cove (S/NR-eligible), it would not result in an adverse effect to that historic architectural resource as the proposed work would be limited to the edges of South Cove and the main contributing features of the landscape would be unaffected. In sum, the Proposed Project would not affect the design and historical integrity of the Postmodernist designed landscape. Adjacent to Stuyvesant High School, a small portion of the buried Hudson River Bulkhead would be removed for construction of a roller gate, as the upper portion of the buried bulkhead would be in conflict with the bottom of the gate footing. As only two feet of granite block at the top of the bulkhead in this location would be removed and most of the historic bulkhead located within the Project Area would remain unaffected by the Proposed Project, this direct effect to a small section of historic material would not result in an adverse effect to the historic resource. BPCA will discuss the potential salvage of the removed bulkhead materials with LPC and SHPO. Overall, the Proposed Project design would not alter the scale, visual prominence, or visual context of any building, structure, object, or landscape feature;

screening or elimination of publicly accessible views; or introduction of significant new shadows or significant lengthening of the duration of existing shadows on an historic landscape or an historic structure that is sunlight dependent. Therefore, the Proposed Project would promote this policy.

Policy 10.2: Protect and preserve archaeological resources and artifacts.

The Phase 1A Archaeological Documentary Study prepared for the Proposed Project concluded that most of the Project Area is in an area of artificial landfill that was formed in the 19th and 20th centuries, and a small portion of the Project Area in the vicinity of North Moore Street was part of Manhattan's pre-development landform. The Project Area was determined to have low sensitivity for precontact archaeological resources within deeply buried landforms, and portions of the Project Area were determined to have sensitivity for archaeological resources associated with 17th and 18th century occupation and 19th century landfilling activities. The Phase 1A Study recommended a Phase 1B Archaeological Investigation to be completed in consultation with SHPO and LPC. The Phase 1B Archaeological Investigation of the identified areas of archaeological sensitivity would be completed in consultation with SHPO and LPC, as well as Section 106 Consulting Parties (including Indigenous Nations) as necessary. Agreement documents pursuant to Section 106 or Section 14.09 may also be required by SHPO to memorialize the BPCAs commitment to complete subsequent phases of work. With the completion of the Phase 1B Archaeological Investigation and all subsequent analyses determined necessary in continued consultation with LPC, SHPO, and Section 106 Consulting Parties as necessary, it was concluded that the Proposed Project would not result in any significant adverse impacts on archaeological resources. Therefore, the Proposed Project would promote this policy.

NYC Waterfront Revitalization Program - Policy 6.2 Flood Elevation Workhsheet

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Enter information about the project and site in highlighted cells in Tabs 1-3. Tab 4, "Summary Charts" contains primary results. Tab 5, "0.2%+SLR" produces charts to be used for critical infrastructure or facilities. Tab 6, "Calculations" contains background computations. Appendix A contains tide elevations for station across the city to be used for the elevation of MHHW if a site survey is not available. Non-highlighted cells have been locked.

Background Information	
Project Name	North/West Battery Park City Resiliency (NWBPCR) Project
Location	Manhattan, NY
Type(s)	☐ Residential, Commercial, Community Facility ☑ Parkland, Open Space, and Natural Areas ☐ Tidal Wetland Restoration ☐ Critical Infrastructure or Facility ☐ Industrial Uses ☑ Over-water Structures ☐ Shoreline Structures ☐ Transportation ☐ Wastewater Treatment/Drainage ☑ Coastal Protection
Description	Installation of a flood barrier system (FBS) within Battery Park City along the Hudson River waterfront, primarily comprising passive landside structures (above-grade concrete walls, below-grade concealed walls). Where physical constraints preclude landside measures, in-water structures (seepage barriers, reconstructed platforms, bridging structures) would be placed within the Hudson River to provide flood protection. The primary purpose of the Proposed Project is to reduce the risk of coastal storm flooding in Battery Park City and its inland areas. NWBPCR Project will connect to other resiliency projects in southern Manhattan including South Battery Park City Resiliency Project.
Planned Completion Date	2030
Expected Project Lifespan	2080s (50 years)

The New York City Waterfront Revitalization Program Climate Change Adaptation Guidance document was developed by the NYC Department of City Planning. It is a guidance document only and is not intended to serve as a substitute for actual regulations. The City disclaims any liability for errors that may be contained herein and shall not be responsible for any damages, consequential or actual, arising out of or in connection with the use of this information. The City reserves the right to update or correct information in this guidance document at any time and without notice.

For technical assistance on using this worksheet, email wrp@planning.nyc.gov, using the message subject "Policy 6.2 Worksheet."

Last update: Sept. 7, 2018

Establish current tidal and flood heights.

	FT (NAVD88)	Feet	Datum	Source
MHHW	2.61	**2.61**	**NAVD88**	*Appendix A, The Battery Station 8518750*
1% flood height	11.00	**11.00**	**NAVD88**	*NYC Flood Hazard Mapper*
Design flood elevation	16.50	**16.50**	**NAVD88**	*DFE for the flood barrier system wall*
As relevant:				
0.2% flood height	-->			

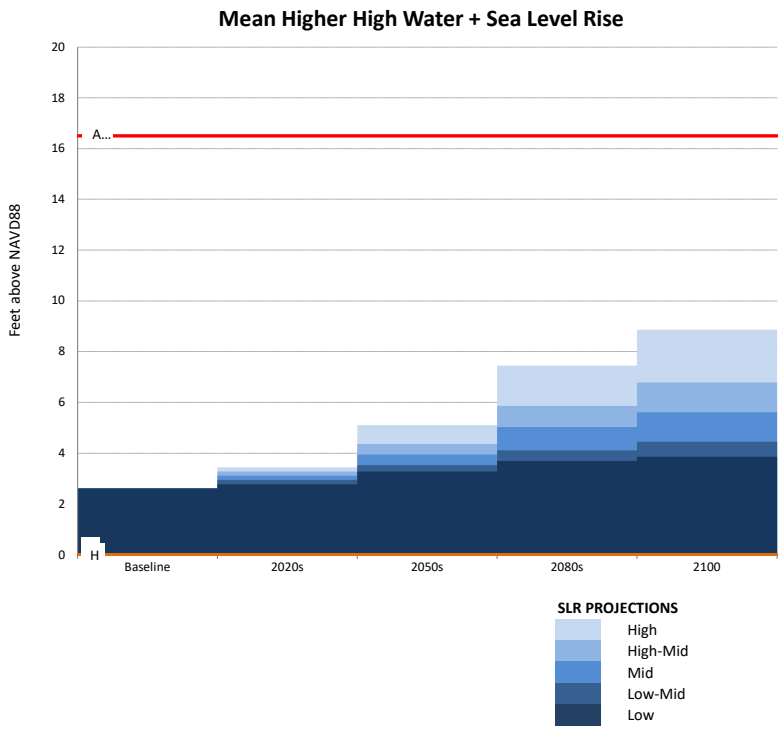
Data will be converted based on the following datums:

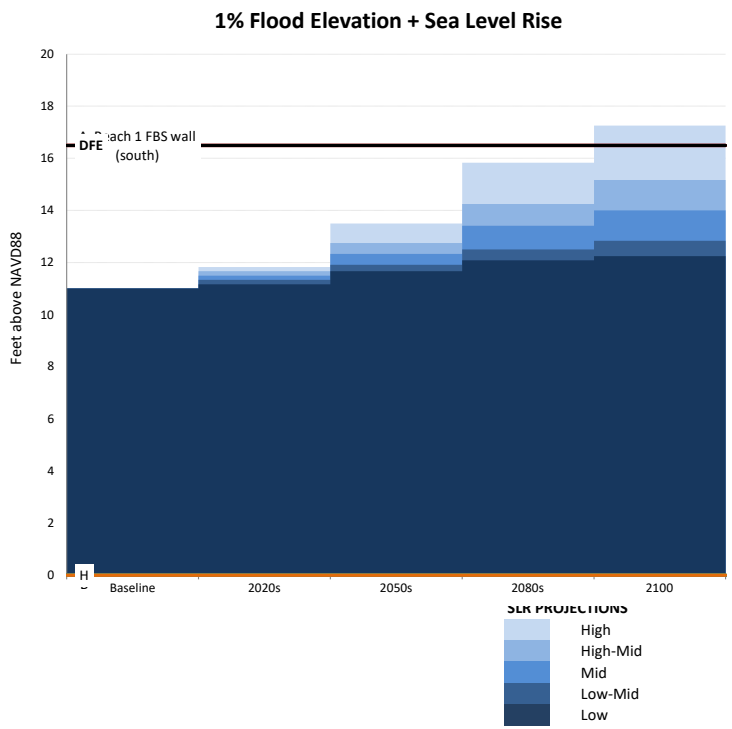
Datum	FT (NAVD88)
NAVD88	*0.00*
NGVD29	*-1.10*
Manhattan Datum	*1.65*
Bronx Datum	*1.51*
Brooklyn Datum (Sewer)	*0.61*
Brooklyn Datum (Highway)	*1.45*
Queens Datum	*1.63*
Richmond Datum	*2.09*

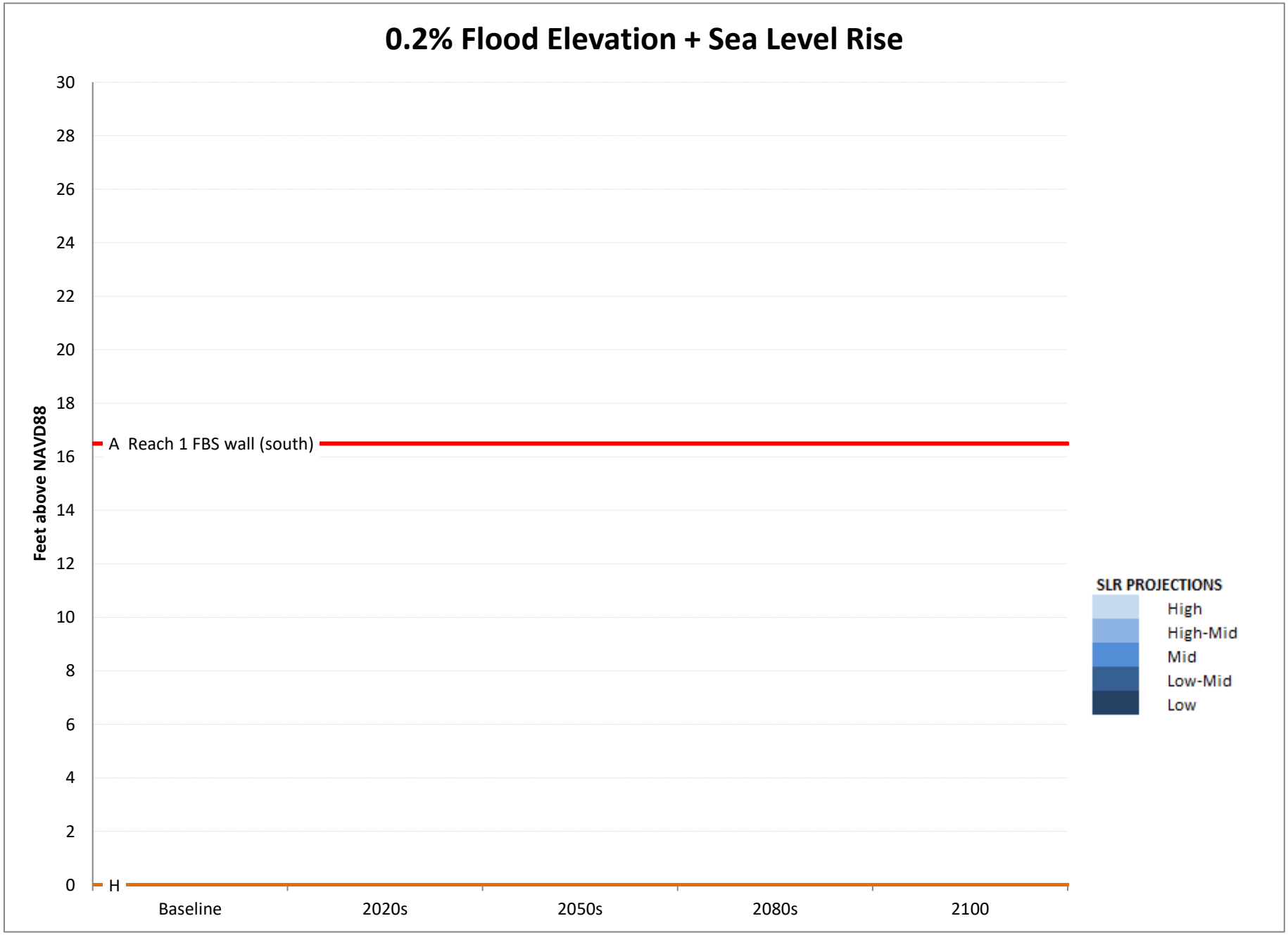
Describe key physical features of the project.

Feature *(enter name)*	Feature Category	Lifespan	Elevation	Units	Datum	Ft	Ft Above NAVD88	Ft Above MHHW	Ft Above 0.2% flood height
A Reach 1 FBS wall (south)	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	16.5	Feet	NAVD88	*16.5*	*16.5*	*13.9*	*#VALUE!*
Top of flood barrier system wall at the southern end of Reach 1									
B	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
C	☐ Vulnerable ☑ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
D	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
E	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
F	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
G	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
H	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									

Assess project vulnerability over a range of sea level rise projections.






0.2% Flood Elevation + Sea Level Rise
Feet above NAVD88
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
A Reach 1 FBS wall (south)
H
Baseline
2020s
2050s
2080s
2100
SLR PROJECTIONS
High
High-Mid
Mid
Low-Mid
Low

	SLR (ft)				
	Low	Low-Mid	Mid	High-Mid	High
Baseline	0.00	0.00	0.00	0.00	0.00
2020s	0.17	0.33	0.50	0.67	0.83
2050s	0.67	0.92	1.33	1.75	2.50
2080s	1.08	1.50	2.42	3.25	4.83
2100	1.25	1.83	3.00	4.17	6.25

	SLR (in)				
	Low	Low-Mid	Mid	High-Mid	High
2014	0	0	0	0	0
2020s	2	4	6	8	10
2050s	8	11	16	21	30
2080s	13	18	29	39	58
2100	15	22	36	50	75

	MHHW+SLR (ft above NAVD88)				
	Low	Low-Mid	Mid	High-Mid	High
Baseline	2.61	2.61	2.61	2.61	2.61
2020s	2.78	2.94	3.11	3.28	3.44
2050s	3.28	3.53	3.94	4.36	5.11
2080s	3.69	4.11	5.03	5.86	7.44
2100	3.86	4.44	5.61	6.78	8.86

	1%+SLR (ft above NAVD88)				
	Low	Low-Mid	Mid	High-Mid	High
Baseline	11.00	11.00	11.00	11.00	11.00
2020s	11.17	11.33	11.50	11.67	11.83
2050s	11.67	11.92	12.33	12.75	13.50
2080s	12.08	12.50	13.42	14.25	15.83
2100	12.25	12.83	14.00	15.17	17.25

	0.2%+SLR (ft above NAVD88)				
	Low	Low-Mid	Mid	High-Mid	High
Baseline	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2020s	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2050s	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2080s	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2100	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

	0	1
A Reach 1 FBS wall (south)	17	16.5
B	0	0
C	0	0
D	0	0
E	0	0
F	0	0
G	0	0
H	0	0
DFE	16.50	16.50

NOAA Tide Station Data

(to be used only when a site survey is unavailable)

Station ID	*Station Name*	*Source MHHW (Feet, NAVD88)**	*Adjusted MHHW (Feet, NAVD88)**	*Source*
8518687	Queensboro Bridge	2.27	2.60	NOAA Tides and Currents
8530095	Alpine	2.11	2.44	NOAA Tides and Currents
8516614	Glen Cove	3.72	4.05	NOAA Tides and Currents
8516990	Willets Point	3.72	4.05	NOAA Tides and Currents
8518639	Port Morris	3.33	3.66	NOAA Tides and Currents
8518699	Williamsburg Bridge	2.14	2.47	NOAA Tides and Currents
8518750	The Battery	2.28	2.61	NOAA Tides and Currents
8531680	Sandy Hook	2.41	2.74	NOAA Tides and Currents
8518490	New Rochelle	3.71	4.04	NOAA Tides and Currents
8531545	Keyport	2.66	2.99	NOAA Tides and Currents
8516891	Norton Point	2.08	2.41	NOAA VDATUM
8517201	North Channel	2.72	3.05	NOAA Tides and Currents
8517137	Beach Channel	2.10	2.43	NOAA VDATUM
8517756	Kingsborough	2.13	2.46	NOAA VDATUM
8519436	Great Kills	2.22	2.55	NOAA VDATUM
8531142	Port Reading	2.82	3.15	NOAA VDATUM
8519483	Bergen Point	2.56	2.89	NOAA VDATUM
8519050	USCG	2.28	2.61	NOAA Tides and Currents
8518902	Dyckman St	2.01	2.34	NOAA Tides and Currents
8517251	Worlds Fair Marina	3.59	3.92	NOAA VDATUM
8518668	Horns Hook	2.54	2.87	NOAA VDATUM
8518643	Randalls Island	2.60	2.93	NOAA VDATUM
8518526	Throggs Neck	3.68	4.01	NOAA Tides and Currents

* MHHW values include an addition 0.33 feet to account for changes in sea level since the 1983-2001 tidal epoch.

NYC Waterfront Revitalization Program - Policy 6.2 Flood Elevation Workhsheet

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Description	Installation of a flood barrier system (FBS) within Battery Park City along the Hudson River waterfront, primarily comprising passive landside structures (above-grade concrete walls, below-grade concealed walls). Where physical constraints preclude landside measures, in-water structures (seepage barriers, reconstructed platforms, bridging structures) would be placed within the Hudson River to provide flood protection. The primary purpose of the Proposed Project is to reduce the risk of coastal storm flooding in Battery Park City and its inland areas. NWBPCR Project will connect to other resiliency projects in southern Manhattan including South Battery Park City Resiliency Project.
Planned Completion Date	2030
Expected Project Lifespan	2080s (50 years)

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Last update: Sept. 7, 2018

Establish current tidal and flood heights.

	FT (NAVD88)	Feet	Datum	Source
MHHW	2.61	**2.61**	**NAVD88**	*Appendix A, The Battery Station 8518750*
1% flood height	12.00	**12.00**	**NAVD88**	*NYC Flood Hazard Mapper*
Design flood elevation	16.50	**16.50**	**NAVD88**	*DFE for the flood barrier system wall*
As relevant:				
0.2% flood height	-->			

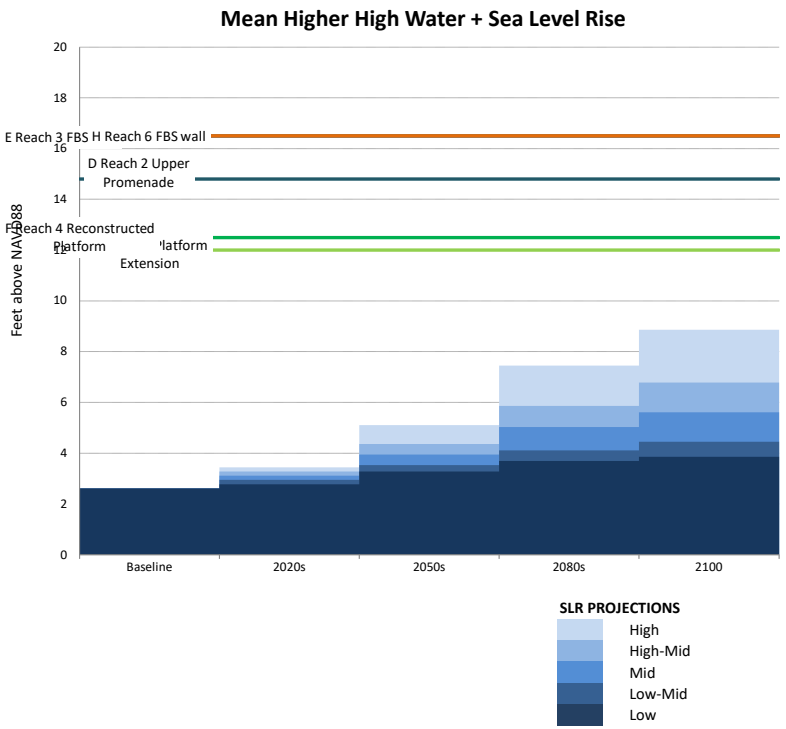
Data will be converted based on the following datums:

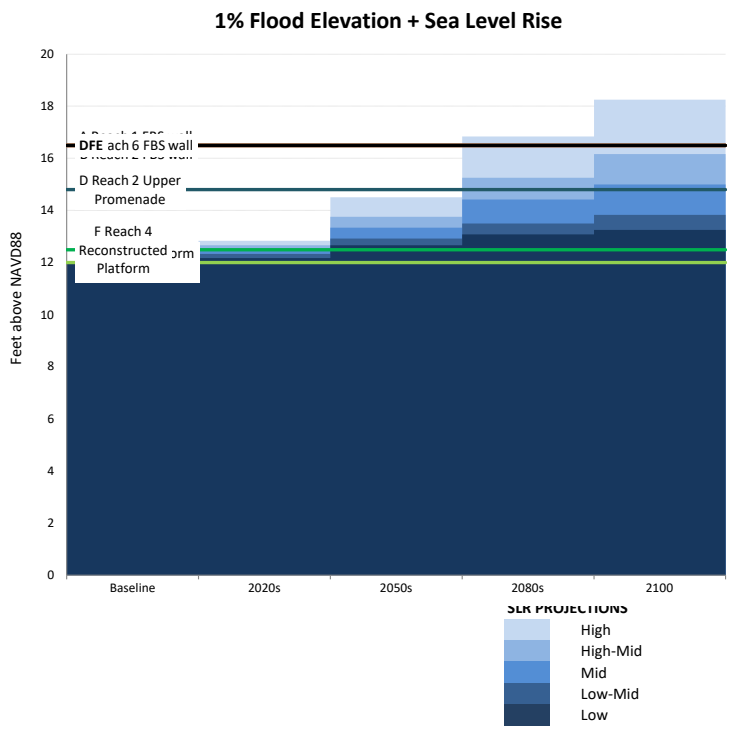
Datum	FT (NAVD88)
NAVD88	*0.00*
NGVD29	*-1.10*
Manhattan Datum	*1.65*
Bronx Datum	*1.51*
Brooklyn Datum (Sewer)	*0.61*
Brooklyn Datum (Highway)	*1.45*
Queens Datum	*1.63*
Richmond Datum	*2.09*

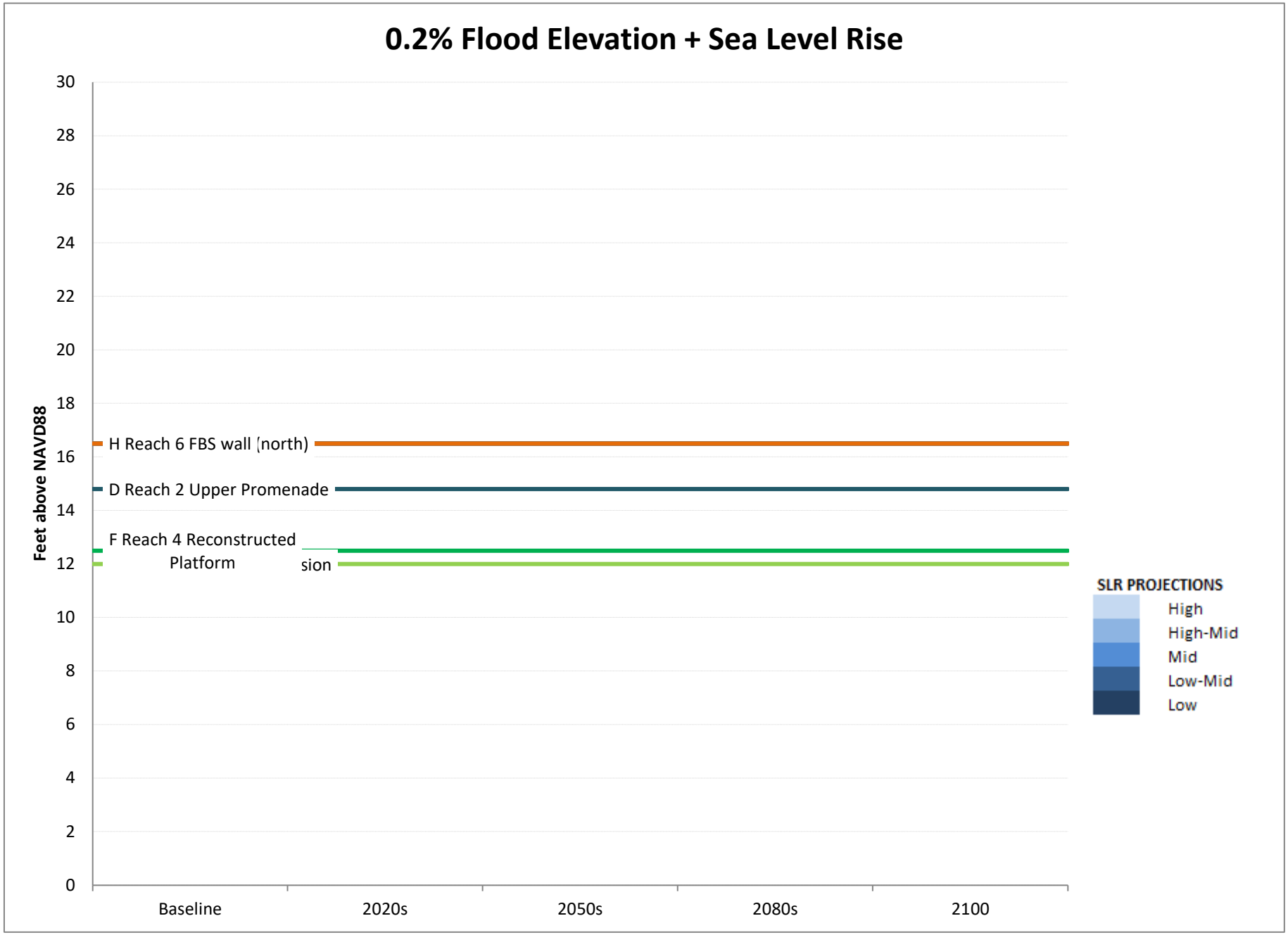
Describe key physical features of the project.

Feature *(enter name)*	Feature Category	Lifespan	Elevation	Units	Datum	Ft	Ft Above NAVD88	Ft Above MHHW	Ft Above 0.2% flood height
A Reach 1 FBS wall (north)	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	16.5	Feet	NAVD88	*16.5*	*16.5*	*13.9*	*#VALUE!*
Top of flood barrier system wall at the northern end of Reach 1									
B Reach 2 FBS wall	■ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	16.5	Feet	NAVD88	*16.5*	*16.5*	*13.9*	*#VALUE!*
Top of flood barrier system wall in Reach 2									
C Reach 2 Platform Extension	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	12.0	Feet	NAVD88	*12.0*	*12.0*	*9.4*	*#VALUE!*
Overwater platform in Reach 2, which would be reconstructed and extended 6 feet waterward									
D Reach 2 Upper Promenade	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	14.8	Feet	NAVD88	*14.8*	*14.8*	*12.2*	*#VALUE!*
Pedestrian circulation path landward from the overwater platform and waterward of the FBS wall									
E Reach 3 FBS wall	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	16.5	Feet	NAVD88	*16.5*	*16.5*	*13.9*	*#VALUE!*
Top of flood barrier sytem wall in Reach 3									
F Reach 4 Reconstructed Platform	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	12.5	Feet	NAVD88	*12.5*	*12.5*	*9.9*	*#VALUE!*
Overwater platform in Reach 4, which would be reconstructed and elevated above the existing platform									
G Reach 5 FBS wall	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	16.5	Feet	NAVD88	*16.5*	*16.5*	*13.9*	*#VALUE!*
Top of flood barrier system wall at the southern end of Reach 5									
H Reach 6 FBS wall	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	16.5	Feet	NAVD88	*16.5*	*16.5*	*13.9*	*#VALUE!*
Top of flood barrier system wall at the southern end of Reach 6									

Assess project vulnerability over a range of sea level rise projections.






0.2% Flood Elevation + Sea Level Rise
Feet above NAVD88
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
H Reach 6 FBS wall (north)
D Reach 2 Upper Promenade
F Reach 4 Reconstructed
Platform
sion
Baseline
2020s
2050s
2080s
2100
SLR PROJECTIONS
High
High-Mid
Mid
Low-Mid
Low

NYC Waterfront Revitalization Program - Policy 6.2 Flood Elevation Workhsheet

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Enter information about the project and site in highlighted cells in Tabs 1-3. Tab 4, "Summary Charts" contains primary results. Tab 5, "0.2%+SLR" produces charts to be used for critical infrastructure or facilities. Tab 6, "Calculations" contains background computations. Appendix A contains tide elevations for station across the city to be used for the elevation of MHHW if a site survey is not available. Non-highlighted cells have been locked.

Background Information	
Project Name	North/West Battery Park City Resiliency (NWBPCR) Project
Location	Manhattan, NY
Type(s)	☐ Residential, Commercial, Community Facility ☑ Parkland, Open Space, and Natural Areas ☐ Tidal Wetland Restoration ☐ Critical Infrastructure or Facility ☐ Industrial Uses ☑ Over-water Structures ☐ Shoreline Structures ☐ Transportation ☐ Wastewater Treatment/Drainage ☑ Coastal Protection
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Expected Project Lifespan	2080s (50 years)

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Last update: Sept. 7, 2018

Establish current tidal and flood heights.

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MHHW	2.61	**2.61**	**NAVD88**	*Appendix A, The Battery Station 8518750*
1% flood height	12.00	**12.00**	**NAVD88**	*NYC Flood Hazard Mapper*
Design flood elevation	16.50	**16.50**	**NAVD88**	*DFE for the flood barrier system wall*
As relevant:				
0.2% flood height	-->			

Data will be converted based on the following datums:

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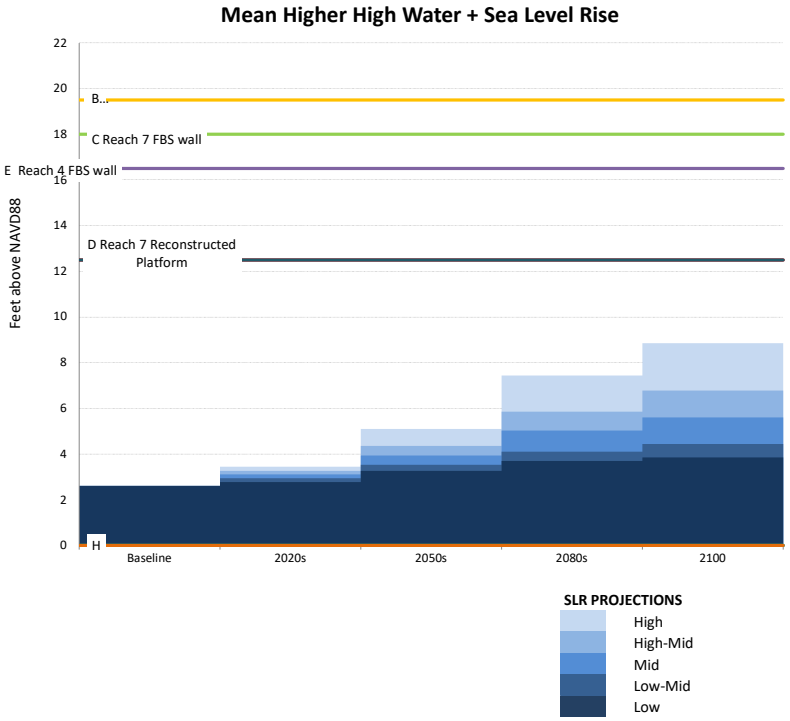
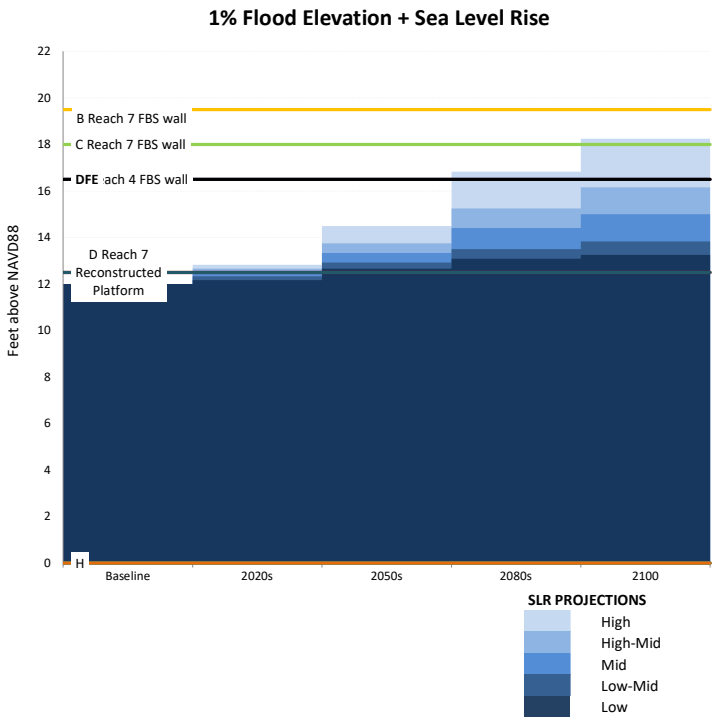
Queens Datum	*1.63*
Richmond Datum	*2.09*

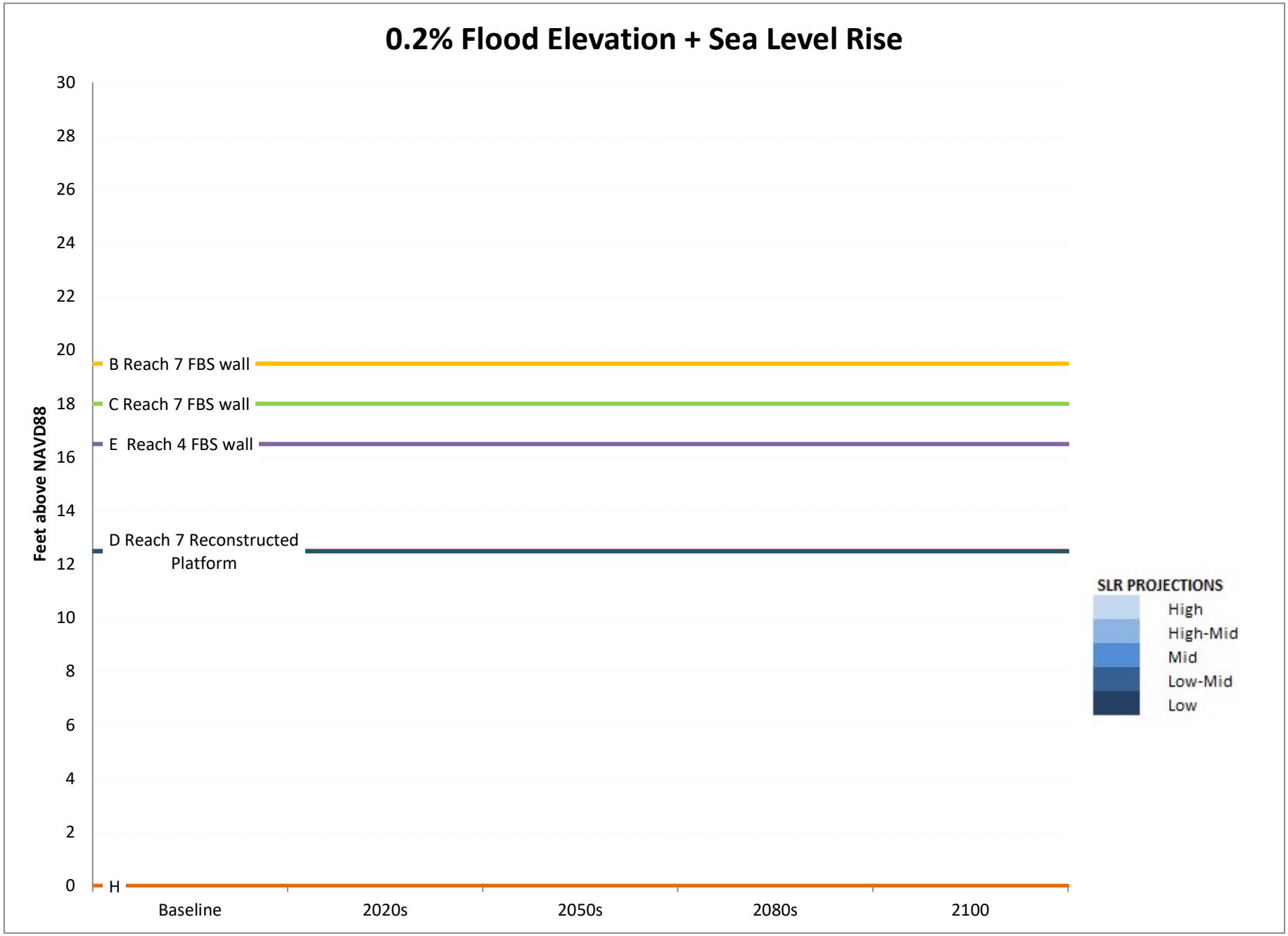
Describe key physical features of the project.

Feature *(enter name)*	Feature Category	Lifespan	Elevation	Units	Datum	Ft	Ft Above NAVD88	Ft Above MHHW	Ft Above 0.2% flood height
A Reach 6 Reconstructed Platforn	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	12.5	Feet	NAVD88	12.5	12.5	9.9	#VALUE!
Overwater platform in Reach 6, which would be reconstructed and elevated above the existing platform									
B Reach 7 FBS wall	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	19.5	Feet	NAVD88	19.5	19.5	16.9	#VALUE!
Top of flood barrier system wall at the northern end of Reach 7									
C Reach 7 FBS wall	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	18.0	Feet	NAVD88	18.0	18.0	15.4	#VALUE!
Top of flood barrier system wall at the southern end of Reach 7									
D Reach 7 Reconstructed Platforn	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	12.5	Feet	NAVD88	12.5	12.5	9.9	#VALUE!
Overwater platform in Reach 7, which would be reconstructed and elevated above the existing platform									
E Reach 4 FBS wall	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	16.5	Feet	NAVD88	16.5	16.5	13.9	#VALUE!
Top of flood barrier system wall within Reach 4									
F	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
G	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
H	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									

Assess project vulnerability over a range of sea level rise projections.






0.2% Flood Elevation + Sea Level Rise
Feet above NAVD88
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
B Reach 7 FBS wall
C Reach 7 FBS wall
E Reach 4 FBS wall
D Reach 7 Reconstructed Platform
H
Baseline
2020s
2050s
2080s
2100
SLR PROJECTIONS
High
High-Mid
Mid
Low-Mid
Low

	SLR (ft)					
	Low	**Low-Mid**	**Mid**	**High-Mid**	**High**	
Baseline	0.00	0.00	0.00	0.00	0.00	**2014**
2020s	0.17	0.33	0.50	0.67	0.83	**2020s**
2050s	0.67	0.92	1.33	1.75	2.50	**2050s**
2080s	1.08	1.50	2.42	3.25	4.83	**2080s**
2100	1.25	1.83	3.00	4.17	6.25	**2100**

	MHHW+SLR (ft above NAVD88)				
	Low	**Low-Mid**	**Mid**	**High-Mid**	**High**
Baseline	2.61	2.61	2.61	2.61	2.61
2020s	2.78	2.94	3.11	3.28	3.44
2050s	3.28	3.53	3.94	4.36	5.11
2080s	3.69	4.11	5.03	5.86	7.44
2100	3.86	4.44	5.61	6.78	8.86

	1%+SLR (ft above NAVD88)				
	Low	**Low-Mid**	**Mid**	**High-Mid**	**High**
Baseline	12.00	12.00	12.00	12.00	12.00
2020s	12.17	12.33	12.50	12.67	12.83
2050s	12.67	12.92	13.33	13.75	14.50
2080s	13.08	13.50	14.42	15.25	16.83
2100	13.25	13.83	15.00	16.17	18.25

	0.2%+SLR (ft above NAVD88)				
	Low	**Low-Mid**	**Mid**	**High-Mid**	**High**
Baseline	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2020s	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2050s	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2080s	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2100	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

	0	1
A Reach 6 Reconstructed Platf	13	12.5
B Reach 7 FBS wall	20	19.5
C Reach 7 FBS wall	18	18
D Reach 7 Reconstructed Platf	12.5	12.5
E Reach 4 FBS wall	16.5	16.5
F	0	0
G	0	0
H	0	0
DFE	16.50	16.50

	SLR (in)			
Low	**Low-Mid**	**Mid**	**High-Mid**	**High**
0	0	0	0	0
2	4	6	8	10
8	11	16	21	30
13	18	29	39	58
15	22	36	50	75

NOAA Tide Station Data

(to be used only when a site survey is unavailable)

Station ID	***Station Name***	***Source MHHW (Feet, NAVD88)****	***Adjusted MHHW (Feet, NAVD88)****
8518687	Queensboro Bridge	2.27	2.60
8530095	Alpine	2.11	2.44
8516614	Glen Cove	3.72	4.05
8516990	Willets Point	3.72	4.05
8518639	Port Morris	3.33	3.66
8518699	Williamsburg Bridge	2.14	2.47
8518750	The Battery	2.28	2.61
8531680	Sandy Hook	2.41	2.74
8518490	New Rochelle	3.71	4.04
8531545	Keyport	2.66	2.99
8516891	Norton Point	2.08	2.41
8517201	North Channel	2.72	3.05
8517137	Beach Channel	2.10	2.43
8517756	Kingsborough	2.13	2.46
8519436	Great Kills	2.22	2.55
8531142	Port Reading	2.82	3.15
8519483	Bergen Point	2.56	2.89
8519050	USCG	2.28	2.61
8518902	Dyckman St	2.01	2.34
8517251	Worlds Fair Marina	3.59	3.92
8518668	Horns Hook	2.54	2.87
8518643	Randalls Island	2.60	2.93
8518526	Throggs Neck	3.68	4.01

* MHHW values include an addition 0.33 feet to account for changes in sea level since the 1983-200

Source
NOAA Tides and Currents
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)1 tidal epoch.

Alpine
8530095
New
Rochelle
8518490
Dyckman St
8518902
Glen Cove
8516614
Randalls
Island
8518643
Port
Morris
8518639
Throggs
Neck
8518526
Willets
Point
8516990
Worlds Fair
Marina
8517251
Queensboro
Bridge
8518687
Horns Hook
8518668
Williamsburg
Bridge
8518699
The Battery
8518750
North
Channel
8507201
Norton
Point
8516891
CG
9050
Beach
Channel
8517137
Kingsborough
8517756
Sandy Hook
8531680

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Top of flood barrier system wall at the Riverwatch Building (approx center portion of Reach 7)									
B	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
C	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
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Description of Planned Uses and Materials									
E	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
F	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
G	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
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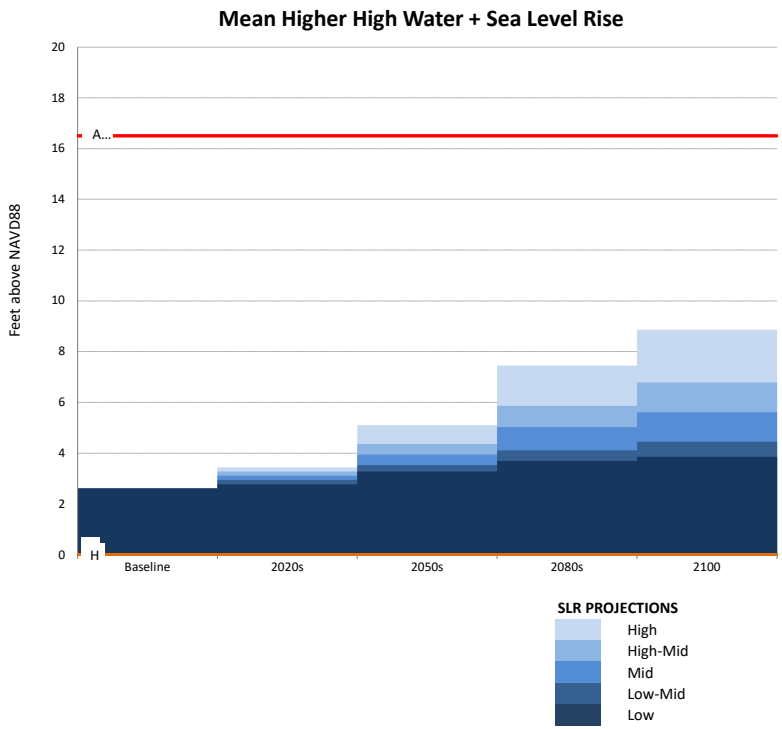

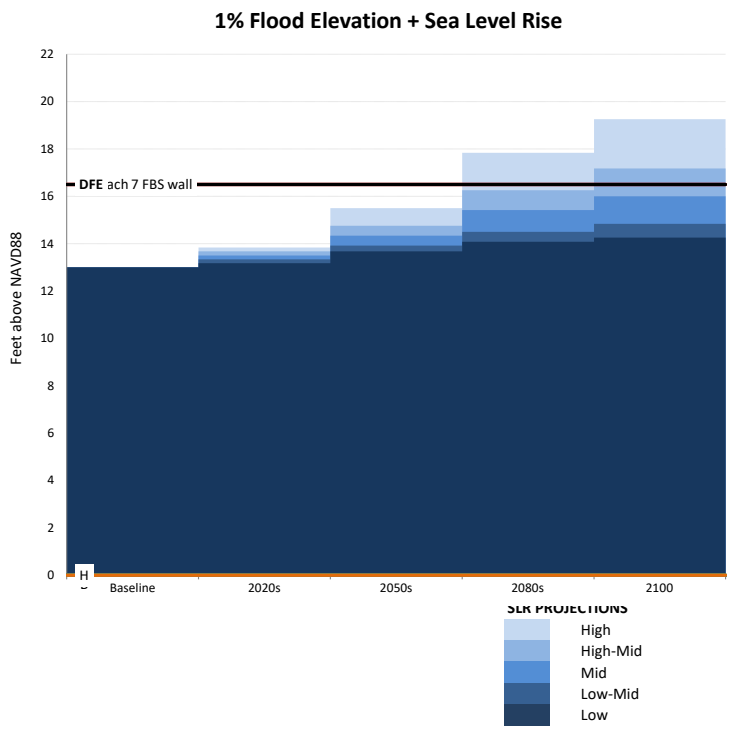

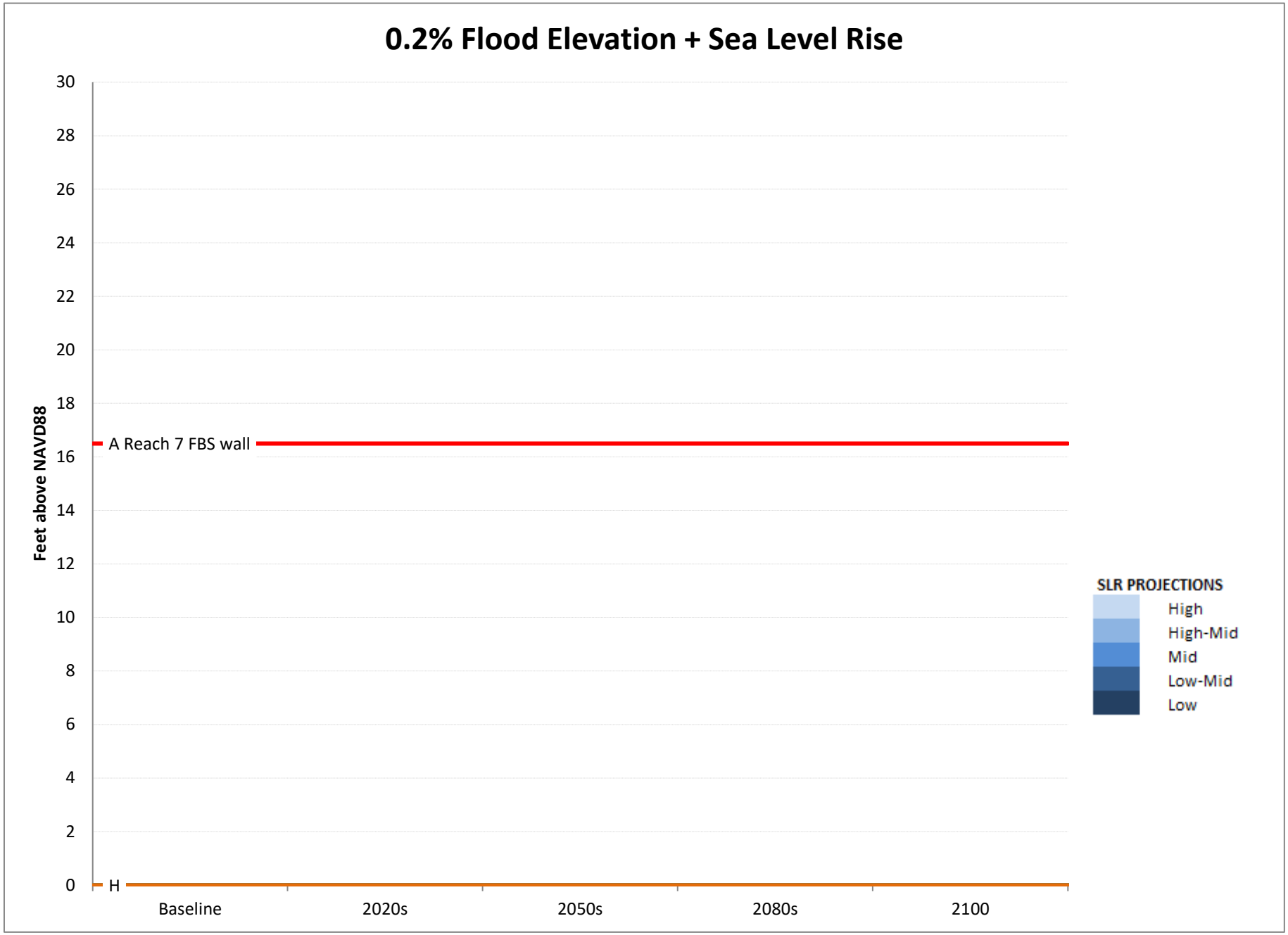
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A Reach 7 FBS wall
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SLR PROJECTIONS
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Low-Mid
Low

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Location	Manhattan, NY
Type(s)	☐ Residential, Commercial, Community Facility ☑ Parkland, Open Space, and Natural Areas ☐ Tidal Wetland Restoration ☐ Critical Infrastructure or Facility ☐ Industrial Uses ☑ Over-water Structures ☐ Shoreline Structures ☐ Transportation ☐ Wastewater Treatment/Drainage ☑ Coastal Protection
Description	Installation of a flood barrier system (FBS) within Battery Park City along the Hudson River waterfront, primarily comprising passive landside structures (above-grade concrete walls, below-grade concealed walls). Where physical constraints preclude landside measures, in-water structures (seepage barriers, reconstructed platforms, bridging structures) would be placed within the Hudson River to provide flood protection. The primary purpose of the Proposed Project is to reduce the risk of coastal storm flooding in Battery Park City and its inland areas. NWBPCR Project will connect to other resiliency projects in southern Manhattan including South Battery Park City Resiliency Project.
Planned Completion Date	2030
Expected Project Lifespan	2080s (50 years)

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For technical assistance on using this worksheet, email wrp@planning.nyc.gov, using the message subject "Policy 6.2 Worksheet."

Last update: Sept. 7, 2018

Establish current tidal and flood heights.

	FT (NAVD88)	Feet	Datum	Source
MHHW	2.61	**2.61**	**NAVD88**	*Appendix A, The Battery Station 8518750*
1% flood height	14.00	**14.00**	**NAVD88**	*NYC Flood Hazard Mapper*
Design flood elevation	16.50	**16.50**	**NAVD88**	*DFE for the flood barrier system wall*
As relevant:				
0.2% flood height	-->			

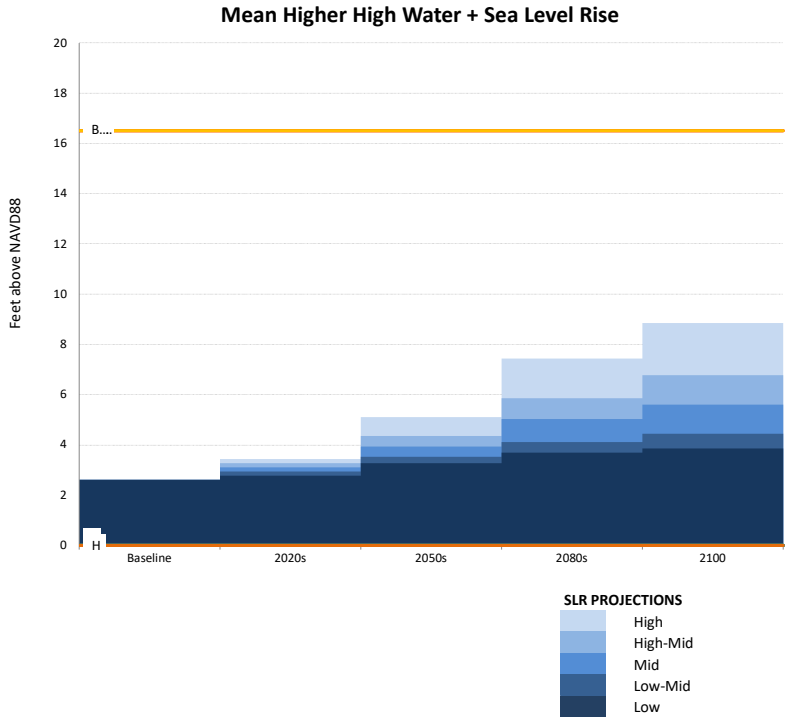
Data will be converted based on the following datums:

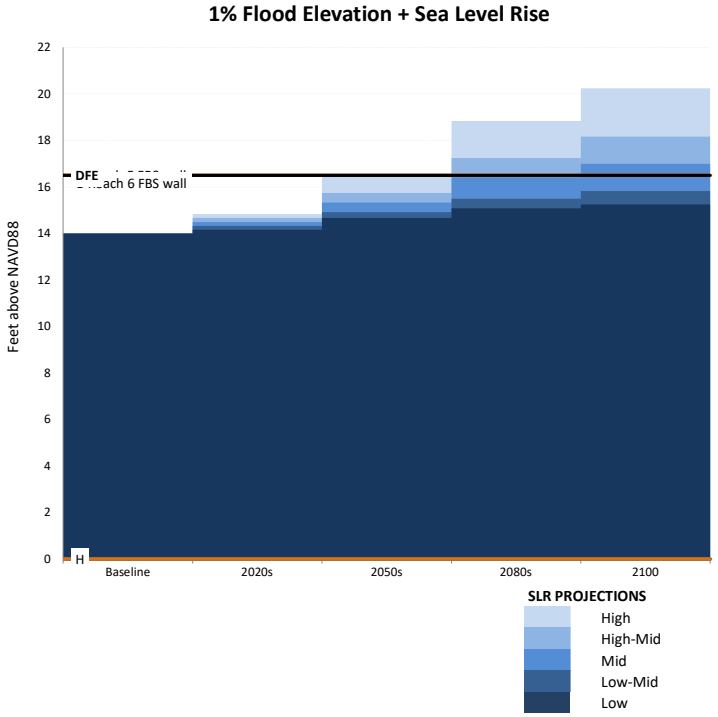
Datum	FT (NAVD88)
NAVD88	*0.00*
NGVD29	*-1.10*
Manhattan Datum	*1.65*
Bronx Datum	*1.51*
Brooklyn Datum (Sewer)	*0.61*
Brooklyn Datum (Highway)	*1.45*
Queens Datum	*1.63*
Richmond Datum	*2.09*

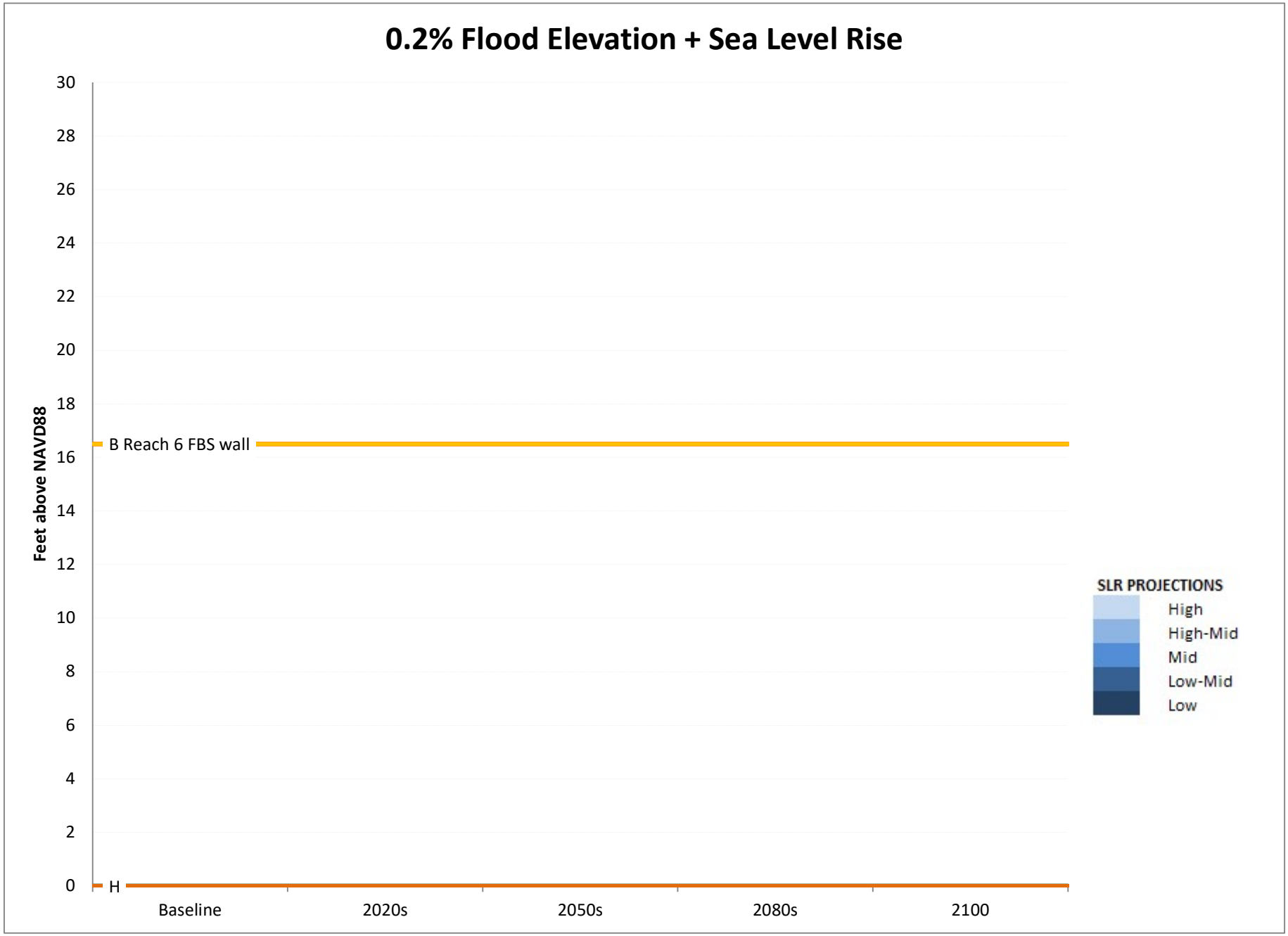
Describe key physical features of the project.

Feature *(enter name)*	Feature Category	Lifespan	Elevation	Units	Datum	Ft	Ft Above NAVD88	Ft Above MHHW	Ft Above 0.2% flood height
A Reach 5 FBS wall	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	16.5	Feet	NAVD88	*16.5*	*16.5*	*13.9*	*#VALUE!*
Top of flood barrier system wall east of the marina within Reach 5 and at northern end of Reach 5									
B Reach 6 FBS wall	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	16.5	Feet	NAVD88	*16.5*	*16.5*	*13.9*	*#VALUE!*
Top of flood barrier system wall at the northern end of Reach 6									
	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
D	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
E	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
F	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
G	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
H	☐ Vulnerable ☐ Critical ☑ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									

Assess project vulnerability over a range of sea level rise projections.






0.2% Flood Elevation + Sea Level Rise
Feet above NAVD88
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
B Reach 6 FBS wall
H
Baseline
2020s
2050s
2080s
2100
SLR PROJECTIONS
High
High-Mid
Mid
Low-Mid
Low

	SLR (ft)					
	Low	**Low-Mid**	**Mid**	**High-Mid**	**High**	
Baseline	0.00	0.00	0.00	0.00	0.00	**2014**
2020s	0.17	0.33	0.50	0.67	0.83	**2020s**
2050s	0.67	0.92	1.33	1.75	2.50	**2050s**
2080s	1.08	1.50	2.42	3.25	4.83	**2080s**
2100	1.25	1.83	3.00	4.17	6.25	**2100**

	MHHW+SLR (ft above NAVD88)				
	Low	**Low-Mid**	**Mid**	**High-Mid**	**High**
Baseline	2.61	2.61	2.61	2.61	2.61
2020s	2.78	2.94	3.11	3.28	3.44
2050s	3.28	3.53	3.94	4.36	5.11
2080s	3.69	4.11	5.03	5.86	7.44
2100	3.86	4.44	5.61	6.78	8.86

	1%+SLR (ft above NAVD88)				
	Low	**Low-Mid**	**Mid**	**High-Mid**	**High**
Baseline	14.00	14.00	14.00	14.00	14.00
2020s	14.17	14.33	14.50	14.67	14.83
2050s	14.67	14.92	15.33	15.75	16.50
2080s	15.08	15.50	16.42	17.25	18.83
2100	15.25	15.83	17.00	18.17	20.25

	0.2%+SLR (ft above NAVD88)				
	Low	**Low-Mid**	**Mid**	**High-Mid**	**High**
Baseline	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2020s	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2050s	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2080s	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2100	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

	0	1
A Reach 5 FBS wall	17	16.5
B Reach 6 FBS wall	17	16.5
0	0	0
D	0	0
E	0	0
F	0	0
G	0	0
H	0	0
DFE	16.50	16.50

	SLR (in)			
Low	**Low-Mid**	**Mid**	**High-Mid**	**High**
0	0	0	0	0
2	4	6	8	10
8	11	16	21	30
13	18	29	39	58
15	22	36	50	75

NOAA Tide Station Data

(to be used only when a site survey is unavailable)

Station ID	***Station Name***	***Source MHHW (Feet, NAVD88)****	***Adjusted MHHW (Feet, NAVD88)****
8518687	Queensboro Bridge	2.27	2.60
8530095	Alpine	2.11	2.44
8516614	Glen Cove	3.72	4.05
8516990	Willets Point	3.72	4.05
8518639	Port Morris	3.33	3.66
8518699	Williamsburg Bridge	2.14	2.47
8518750	The Battery	2.28	2.61
8531680	Sandy Hook	2.41	2.74
8518490	New Rochelle	3.71	4.04
8531545	Keyport	2.66	2.99
8516891	Norton Point	2.08	2.41
8517201	North Channel	2.72	3.05
8517137	Beach Channel	2.10	2.43
8517756	Kingsborough	2.13	2.46
8519436	Great Kills	2.22	2.55
8531142	Port Reading	2.82	3.15
8519483	Bergen Point	2.56	2.89
8519050	USCG	2.28	2.61
8518902	Dyckman St	2.01	2.34
8517251	Worlds Fair Marina	3.59	3.92
8518668	Horns Hook	2.54	2.87
8518643	Randalls Island	2.60	2.93
8518526	Throggs Neck	3.68	4.01

* MHHW values include an addition 0.33 feet to account for changes in sea level since the 1983-200

Source
NOAA Tides and Currents
NOAA Tides and Currents
NOAA Tides and Currents
NOAA Tides and Currents
NOAA Tides and Currents
NOAA Tides and Currents
NOAA Tides and Currents
NOAA Tides and Currents
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NOAA VDATUM
NOAA Tides and Currents
NOAA Tides and Currents
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NOAA VDATUM
NOAA VDATUM
NOAA Tides and Currents

)1 tidal epoch.

Alpine
8530095
New
Rochelle
8518490
Dyckman St
8518902
Glen Cove
8516614
Randalls
Island
8518643
Port
Morris
8518639
Throggs
Neck
8518526
Willets
Point
8516990
Worlds Fair
Marina
8517251
Queensboro
Bridge
8518687
Horns Hook
8518668
Williamsburg
Bridge
8518699
The Battery
8518750
North
Channel
8507201
Norton
Point
8516891
CG
9050
Beach
Channel
8517137
Kingsborough
8517756
Sandy Hook
8531680

NYC Waterfront Revitalization Program - Policy 6.2 Flood Elevation Workhsheet

COMPLETE INSTRUCTIONS ON HOW TO USE THIS WORKSHEET ARE PROVIDED IN THE "CLIMATE CHANGE ADAPTATION GUIDANCE" DOCUMENT AVAILABLE AT www.nyc.gov/wrp

Enter information about the project and site in highlighted cells in Tabs 1-3. Tab 4, "Summary Charts" contains primary results. Tab 5, "0.2%+SLR" produces charts to be used for critical infrastructure or facilities. Tab 6, "Calculations" contains background computations. Appendix A contains tide elevations for station across the city to be used for the elevation of MHHW if a site survey is not available. Non-highlighted cells have been locked.

Background Information	
Project Name	North/West Battery Park City Resiliency (NWBPCR) Project
Location	Manhattan, NY
Type(s)	☐ Residential, Commercial, Community Facility ☑ Parkland, Open Space, and Natural Areas ☐ Tidal Wetland Restoration ☐ Critical Infrastructure or Facility ☐ Industrial Uses ☑ Over-water Structures ☐ Shoreline Structures ☐ Transportation ☐ Wastewater Treatment/Drainage ☑ Coastal Protection
Description	Installation of a flood barrier system (FBS) within Battery Park City along the Hudson River waterfront, primarily comprising passive landside structures (above-grade concrete walls, below-grade concealed walls). Where physical constraints preclude landside measures, in-water structures (seepage barriers, reconstructed platforms, bridging structures) would be placed within the Hudson River to provide flood protection. The primary purpose of the Proposed Project is to reduce the risk of coastal storm flooding in Battery Park City and its inland areas. NWBPCR Project will connect to other resiliency projects in southern Manhattan including South Battery Park City Resiliency Project.
Planned Completion Date	2030
Expected Project Lifespan	2080s (50 years)

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Last update: Sept. 7, 2018

Establish current tidal and flood heights.

	FT (NAVD88)	Feet	Datum	Source
MHHW	2.61	**2.61**	**NAVD88**	*Appendix A, The Battery Station 8518750*
1% flood height	17.00	**17.00**	**NAVD88**	*NYC Flood Hazard Mapper*
Design flood elevation	16.50	**16.50**	**NAVD88**	*DFE for the flood barrier system wall*
As relevant:				
0.2% flood height	-->			

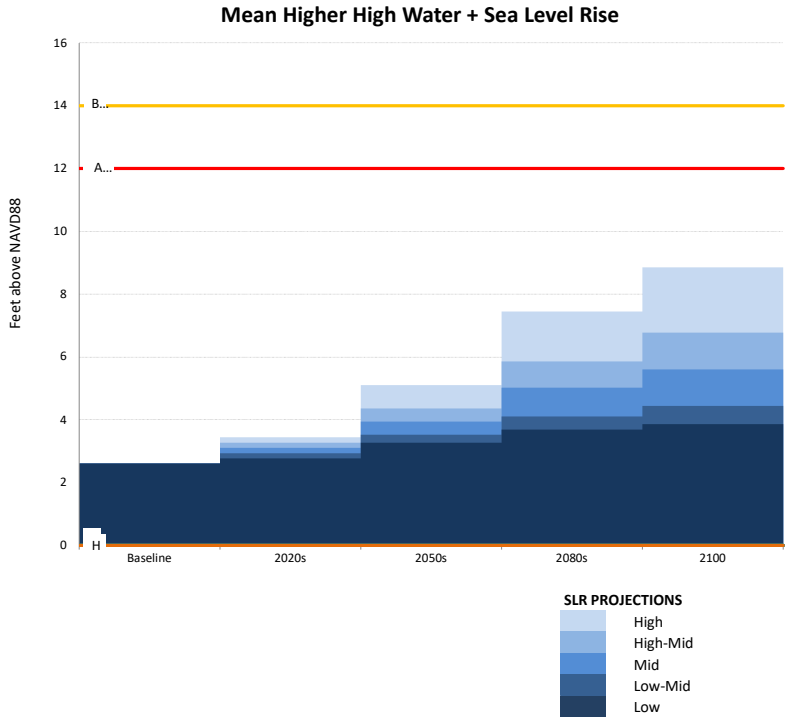
Data will be converted based on the following datums:

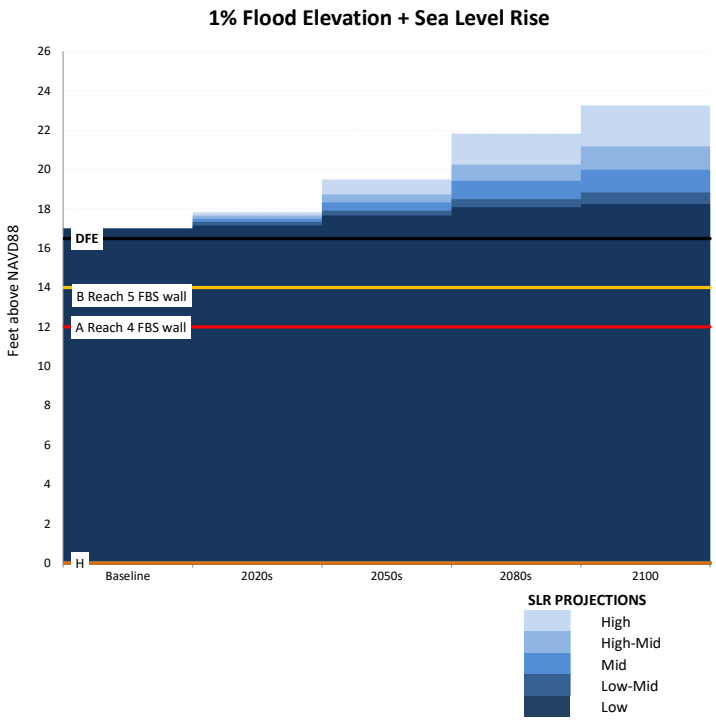
Datum	FT (NAVD88)
NAVD88	*0.00*
NGVD29	*-1.10*
Manhattan Datum	*1.65*
Bronx Datum	*1.51*
Brooklyn Datum (Sewer)	*0.61*
Brooklyn Datum (Highway)	*1.45*
Queens Datum	*1.63*
Richmond Datum	*2.09*

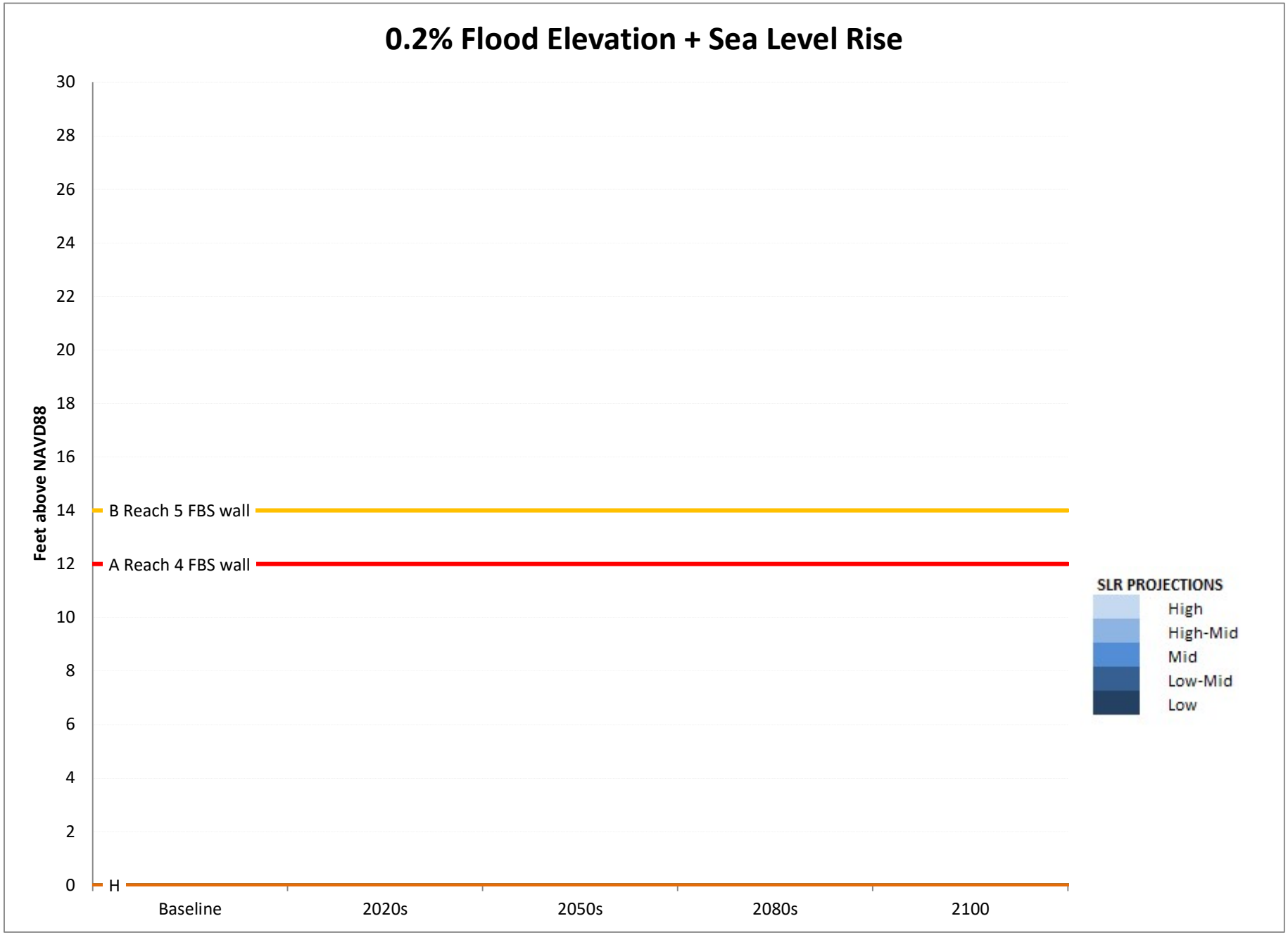
Describe key physical features of the project.

Feature *(enter name)*	Feature Category	Lifespan	Elevation	Units	Datum	Ft	Ft Above NAVD88	Ft Above MHHW	Ft Above 0.2% flood height
A Reach 4 FBS wall	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	12.0	Feet	NAVD88	*12.0*	*12.0*	*9.4*	*#VALUE!*
Top of flood barrier system wall within Reach 4									
B Reach 5 FBS wall	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☑ Other	2080s	14.0	Feet	NAVD88	*14.0*	*14.0*	*11.4*	*#VALUE!*
Top of flood barrier system wall at northern end of Reach 5									
C	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
D	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
E	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
F	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
G	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									
H	☐ Vulnerable ☐ Critical ☐ Potentially Hazardous ☐ Other			Feet	NAVD88				
Description of Planned Uses and Materials									

Assess project vulnerability over a range of sea level rise projections.






0.2% Flood Elevation + Sea Level Rise
Feet above NAVD88
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
B Reach 5 FBS wall
A Reach 4 FBS wall
H
Baseline
2020s
2050s
2080s
2100
SLR PROJECTIONS
High
High-Mid
Mid
Low-Mid
Low

	SLR (ft)				
	Low	Low-Mid	Mid	High-Mid	High
Baseline	0.00	0.00	0.00	0.00	0.00
2020s	0.17	0.33	0.50	0.67	0.83
2050s	0.67	0.92	1.33	1.75	2.50
2080s	1.08	1.50	2.42	3.25	4.83
2100	1.25	1.83	3.00	4.17	6.25

	SLR (in)				
	Low	Low-Mid	Mid	High-Mid	High
2014	0	0	0	0	0
2020s	2	4	6	8	10
2050s	8	11	16	21	30
2080s	13	18	29	39	58
2100	15	22	36	50	75

	MHHW+SLR (ft above NAVD88)				
	Low	Low-Mid	Mid	High-Mid	High
Baseline	2.61	2.61	2.61	2.61	2.61
2020s	2.78	2.94	3.11	3.28	3.44
2050s	3.28	3.53	3.94	4.36	5.11
2080s	3.69	4.11	5.03	5.86	7.44
2100	3.86	4.44	5.61	6.78	8.86

	1%+SLR (ft above NAVD88)				
	Low	Low-Mid	Mid	High-Mid	High
Baseline	17.00	17.00	17.00	17.00	17.00
2020s	17.17	17.33	17.50	17.67	17.83
2050s	17.67	17.92	18.33	18.75	19.50
2080s	18.08	18.50	19.42	20.25	21.83
2100	18.25	18.83	20.00	21.17	23.25

	0.2%+SLR (ft above NAVD88)				
	Low	Low-Mid	Mid	High-Mid	High
Baseline	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2020s	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2050s	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2080s	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
2100	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

	0	1
A Reach 4 FBS wall	12	12
B Reach 5 FBS wall	14	14
C	0	0
D	0	0
E	0	0
F	0	0
G	0	0
H	0	0
DFE	16.50	16.50

NOAA Tide Station Data

(to be used only when a site survey is unavailable)

Station ID	*Station Name*	*Source MHHW (Feet, NAVD88)**	*Adjusted MHHW (Feet, NAVD88)**	*Source*
8518687	Queensboro Bridge	2.27	2.60	NOAA Tides and Currents
8530095	Alpine	2.11	2.44	NOAA Tides and Currents
8516614	Glen Cove	3.72	4.05	NOAA Tides and Currents
8516990	Willets Point	3.72	4.05	NOAA Tides and Currents
8518639	Port Morris	3.33	3.66	NOAA Tides and Currents
8518699	Williamsburg Bridge	2.14	2.47	NOAA Tides and Currents
8518750	The Battery	2.28	2.61	NOAA Tides and Currents
8531680	Sandy Hook	2.41	2.74	NOAA Tides and Currents
8518490	New Rochelle	3.71	4.04	NOAA Tides and Currents
8531545	Keyport	2.66	2.99	NOAA Tides and Currents
8516891	Norton Point	2.08	2.41	NOAA VDATUM
8517201	North Channel	2.72	3.05	NOAA Tides and Currents
8517137	Beach Channel	2.10	2.43	NOAA VDATUM
8517756	Kingsborough	2.13	2.46	NOAA VDATUM
8519436	Great Kills	2.22	2.55	NOAA VDATUM
8531142	Port Reading	2.82	3.15	NOAA VDATUM
8519483	Bergen Point	2.56	2.89	NOAA VDATUM
8519050	USCG	2.28	2.61	NOAA Tides and Currents
8518902	Dyckman St	2.01	2.34	NOAA Tides and Currents
8517251	Worlds Fair Marina	3.59	3.92	NOAA VDATUM
8518668	Horns Hook	2.54	2.87	NOAA VDATUM
8518643	Randalls Island	2.60	2.93	NOAA VDATUM
8518526	Throggs Neck	3.68	4.01	NOAA Tides and Currents

* MHHW values include an addition 0.33 feet to account for changes in sea level since the 1983-2001 tidal epoch.

Appendix C.3
NYC Coastal Zone WRP Agency Correspondence

Good morning Claudia,

We have completed the review of the project as described below for consistency with the policies and intent of the New York City Waterfront Revitalization Program (WRP).

North/West Battery Park City Resiliency Project *(CEQR # 23BPC001M)*: The North/West Battery Park City Resiliency (NWBPCR) Project comprises a flood barrier system extending along a project corridor between N. Moore/Greenwich Street on the north (the inland tieback) to 1st Place in Battery Park City (on the south) where it is proposed to connect with the South Battery Park Resiliency (SBPCR) project which is currently under construction and is expected to be completed in 2025. For the purposes of design and analysis, the proposed project corridor is organized into seven reaches that begin in the north in TriBeCa (Reach 1) and extend southward to South Cove in Battery Park City (Reach 7). The proposed flood barrier system (FBS) consists of a series of flood protection measures along seven separate project areas, or Reaches, and would include passive structures (e.g., above-grade concrete walls, below-grade concealed walls) with deployable structures at vehicle and pedestrian crossings. In addition to the FBS, the Project includes interior drainage improvements and storm-hardening features such as a near surface isolation (NSI) system along Route 9A and four tide gates along the FBS alignment. Flood waters more than an average of 1 foot above ground level within the area protected by the FBS will be managed through storm sewer improvements and pumping collected stormwater outside the protected area. Ultimately, the NWBPCR Project will connect to the protective measures being installed as part of the South Battery Park City Resiliency (SBPCR) Project.

Based on the information submitted, the Climate & Sustainability Planning Division, on behalf of the New York City Coastal Commission, having reviewed the waterfront aspect of this action, hereby concurs that the actions will not substantially hinder the achievement of any Waterfront Revitalization Program (WRP) policy.

This determination is only applicable to the information received and the current proposal. Any additional information or project modifications would require an independent consistency review.

For your records, this project has been assigned WRP #24-106. If there are any questions regarding this review, please contact me.

Jacqueline Sharry

CLIMATE AND SUSTAINABILITY PLANNING

212-720-3623 • jsharry@planning.nyc.gov