Environmental Assessment
SANDRDHK - Red Hook Coastal Resiliency
Red Hook, Kings County, New York

4085-DR-NY

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FEMA

U.S. Department of Homeland Security
Federal Emergency Management Agency Region 2
26 Federal Plaza, NY, NY 10278

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LIST OF ACRONYMS

AADT – Annual Average Daily Traffic
ACS – American Community Survey
AOC – Area of Concern
APE – Area of Potential Effects
BMP – Best Management Practices
BWG – Brooklyn Waterfront Greenway
CAA – Clean Air Act
CAMP – Community Air Monitoring Plan
CBRA – Coastal Barrier Resources Act
CEQR – (New York) City Environmental Quality Review
CFR – Code of Federal Regulations
CHASP – Construction Health and Safety Plan
CO – Carbon Monoxide
CO2 – Carbon Dioxide
CSOs – Combined Sewer Overflows
CWA – Clean Water Act
CZMA – Coastal Zone Management Act
CZMP – Coastal Zone Management Plan
dBA – A-weighted Decibels
EA – Environmental Assessment
EFH – Essential Fish Habitat
EO – Executive Order
ESA – Endangered Species Act
ESC – Erosion & Sediment Control Plan
FDNY – Fire Department of the City of New York
FIRM – Flood Insurance Rate Maps
FONSI – Finding of No Significant Impact
FEMA – Federal Emergency Management Agency
GHG – Greenhouse Gases
GI – Green Infrastructure
HMGP – Hazard Mitigation Grant Program
IFPS – Integrated Flood Protection System
IPaC – Information, Planning, and Conservation
Leq – Equivalent noise level
LPC – New York City Landmarks Preservation Commission
NAAQS – National Ambient Air Quality Standards
NEPA – National Environmental Policy Act
NHPA – National Historic Preservation Act
NMFS – National Marine Fisheries Service

NO_x – Nitrogen Oxide
NOAA – National Oceanic and Atmospheric Administration
NPDES – National Pollution Discharge Elimination System
NRHP – National Register of Historic Places
NYCDCP – New York City Department of City Planning
NYCDEP – New York City Department of Environmental Protection
NYCDOT – New York City Department of Transportation
NYCHA – New York City Housing Authority
NYC OMB – New York City Mayor's Office of Management and Budget
NYCRR – New York Codes, Rules, and Regulations
NYCT – New York City Transit
NYPD – New York Police Department
NYSDEC – New York State Department of Environmental Conservation
NYSDOS – New York State Department of State
NYC VCP – NYC Voluntary Cleanup Program
O_3 – Ozone
Pb – Lead
PCBs – Polychlorinated biphenyls
Phase 1 – Limited Phase 1 Environmental Site Assessment
PM – Particulate Matter
PM_{10} – PM less than 10 micrometers in diameter
$PM_{2.5}$ – fine PM less than 2.5 micrometers diameter
RAP - Remedial Action Plan
RHCR – Red Hook Coastal Resiliency
ROW – Right-of-Way
SEQRA – State Environmental Quality Review Act
SHPO – State Historic Preservation Officer
SIP – State Implementation Plan
SPDES – State Pollutant Discharge Elimination System
SVOCs – Semi-volatile Organic Compounds
SWPPP – Stormwater Pollution Protection Plan
ULURP – Uniform Land Use Review Procedure
USACE – U.S. Army Corps of Engineers
USEPA – U. S. Environmental Protection Agency
USFWS – U.S. Fish and Wildlife Service
VOCs – Volatile Organic Compounds
WRP – Waterfront Revitalization Plan

1.0 INTRODUCTION

On October 29, 2012, as peak high tide approached New York Harbor, Hurricane Sandy made landfall in the New York City metropolitan area. This nearly 1,000-mile-wide storm generated colossal storm surges causing widespread destruction of homes and businesses along 51 square miles of New York City's urban coastline, cutting off power for nearly 2 million people and shutting down transportation networks. On October 30, 2012, President Barack Obama declared Hurricane Sandy a major disaster. The declaration authorized the Federal Emergency Management Agency (FEMA) to provide assistance to the State of New York per federal disaster declaration DR-4085-NY in accordance with Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1974 (42 United States Code [U.S.C.] Section 5170c), as amended; the Sandy Recovery Improvement Act of 2013; and the accompanying Disaster Relief Appropriations Act of 2013. The New York City Mayor's Office of Management and Budget (NYC OMB) has applied for FEMA Hazard Mitigation Grant Program (HMGP) funding for the Red Hook Coastal Resiliency (RHCR) project. The New York State Division of Homeland Security and Emergency Services (DHSES) is the recipient partner.

FEMA prepared this Environmental Assessment (EA) in accordance with Section 102 of the National Environmental Policy Act (NEPA) of 1969, as amended; and the Regulations for Implementation of NEPA (40 Code of Federal Regulations [CFR] Parts 1500 to 1508). The purpose of the EA is to analyze the potential environmental impacts of the Proposed Action, and alternative actions, including a No Action Alternative, and to determine whether preparation of an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI) is warranted. In accordance with the above referenced regulations and FEMA guidance for NEPA compliance, Directive 108-1, and FEMA Instruction 108-1-1, during decision making, FEMA is required to fully evaluate and consider the environmental consequences of major federal actions it funds or undertakes.

2.0 PURPOSE AND NEED

Section 404 of the Robert T. Stafford Relief and Emergency Assistance Act of 1974 (42 U.S.C. Section 5170c), as amended, authorizes FEMA to provide funding to eligible grant applicants for activities with cost effective measures that substantially reduce the risk of future damage, hardship, loss, or suffering in any area affected by a major disaster. The purpose of the Proposed Action is to provide flood protection measures within the Red Hook neighborhood of Brooklyn, thereby reducing potential damages from tidal and storm surge caused by storm events. The primary need is to provide protection against flooding for the residents of Red Hook, including infrastructure and property; address damage that the Red Hook community sustained during storm surge flooding associated with Hurricane Sandy and, therefore, improve the resiliency of the Red Hook community to withstand future flooding and coastal storms. There is also a need to improve the safety and security of the Red Hook neighborhood, including utility upgrades to meet current codes and standards, which will address accessibility under the Americans with Disabilities Act, and improve emergency response times for New York Police Department (NYPD) and Fire Department of New York (FDNY).

3.0 BACKGROUND

When Hurricane Sandy made landfall in October 2012, the Red Hook community experienced severe coastal storm surge flooding, causing significant damage to both residents and business owners. Red Hook is a low-lying waterfront area in eastern Brooklyn along the East River (**Appendix B**, **Figures 1 to 3**). From west to east, Red Hook is bordered by the Gowanus Bay, Gowanus Canal, and the Buttermilk Channel (a small tidal strait in Upper New York Bay, approximately one mile long and one-fourth mile wide, which runs between Brooklyn and Governor's Island). During Hurricane Sandy, water flooded Red Hook from all surrounding water bodies with flood depths exceeding six feet. This inundation impacted the neighborhood, including New York City Housing Authority (NYCHA) Red Hook Houses, except for a small, elevated section around Coffey Street and some streets in northern Red Hook close to Hamilton Avenue. Properties along the Columbia Street Waterfront District also experienced significant flooding. High-rise buildings such as Red Hook Houses lost mechanical equipment housed in basements, rendering buildings uninhabitable and left residents stranded on upper floors. Half of all affected businesses were industrial, with disruptions impacting production, storage, and distribution of goods. The Van Brunt Street Pumping Station was completely inundated, leaving the area without proper drainage and floodwaters mixed with sewage, oil, and trash. Electricity outages caused by damage to the electricity generation and distribution system affected most of the neighborhood for several weeks following the storm. Gas supply lines were also shut down after water inundated gas lines through vents in the sidewalk. In addition, transportation systems were suspended, stranding residents, and limiting supplies and immediate help from reaching the area.

4.0 ALTERNATIVES

FEMA and the Subrecipient have evaluated alternatives to provide protection to the Red Hook neighborhood against flooding. These alternatives were evaluated based on engineering constraints, environmental impacts, and the purpose and need of the project. Budgetary constraints were also considered in the feasibility evaluation of alternatives, but are not a primary determining factor. This Section reviews the No Action Alternative, feasible alternatives, as well as alternatives considered and dismissed, which do not meet the project purpose and need.

4.1 Alternative 1: No Action Alternative

Under the No Action Alternative, no federal funds would be provided to protect the Red Hook neighborhood from flooding and coastal storm surge damages. The current temporary flood protection measures in place that include pre-deployed Hesco flood barriers and "just in-time" installation with tiger dams or Hesco flood barriers (protecting to a flood elevation of 8.5 feet) would still leave the Red Hook community vulnerable to flooding damages on three side of the peninsular community. The residents and business owners in Red Hook would continue to experience property and infrastructure damage, dangerous conditions due to utility outages, lack of transit and mobility from damaged and flooded roads, and significant delays in emergency service response times that could result in potential loss of life.

4.2 Alternative 2 (Proposed Action): Integrated Flood Protection System - 10-ft Elevation

Alternative 2, the Proposed Action, consists of a newly constructed integrated flood protection system (IFPS) that provides a passive level of protection to include raising street grades to an elevation of 8 to 10 feet with active protection through "deployables", such as flip-up gates and sluice (sliding) gates, to an elevation of 10 feet. The proposed project would focus on two topographically low-lying areas that are most vulnerable to coastal storm surge and sea level rise on Atlantic Basin and along Beard Street, as detailed by zone, below. This approach maximizes coastal flood risk reduction benefits while minimizing impacts to the community. This alternative reduces impacts of the proposed project to waterfront properties and would provide effective maintenance and operations of the flood protection system on public rights-of-way (ROW). The project would consist of flood walls along with raised and re-graded streets to fully integrate the flood protection system into the community.

The Proposed Action is divided into two "zones" (Atlantic Basin and Beard Street) with 3 and 5 smaller areas within each, respectively (**Appendix B, Figures 1 to 3**). The following defines work in each zone and then to individual areas.

Atlantic Basin Zone

- Raise street grades to an elevation of 8 feet at newly constructed/installed "deployables" locations and 10 feet in other locations.
- New construction of flood walls consisting of 1-foot-wide reinforced concrete I-shaped retaining walls; heights range to approximately 4 feet.
- Install flip up gates on Clinton Wharf to an elevation of 10 feet.
- Install a sluice gate on Clinton Wharf.
- Install tide gates on Wolcott Street and Sullivan Street.

Area 1: The project would start with a floodwall at the back of the sidewalk on the corner of the Van Brunt Street and Summit Street intersection and head west on Summit Street to Imlay Street. The wall would turn southwest on Imlay Street, and then to the west onto Bowne Street, continuing into the Port Authority of NY and NJ (PANYNJ) terminal. The wall on the opposite side of Bowne Street would follow the fence/guiderail between the PANYNJ and Dock Building Condominiums/Warehouse and continue parallel to Bowne Street.

The streets and existing Brooklyn Waterfront Greenway (BWG) would be regraded or raised to meet the requisite elevations for the wall in Area 1. The PANYNJ parking lot would also be regraded and elevated.

Area 2: The wall would continue along the fence/guiderail between PANYNJ property and the Dock Building Condominiums on the landward side of Bowne Street where it meets the existing fence along the BWG at Verona Street. The wall would continue into the PANYNJ terminal, parallel with Imlay Street, and then turn onto Conover Street running parallel to the building along the landward side of Clinton Wharf.

The road along Conover Street, Imlay Street and Pioneer Street would be regraded. A 15-foot-wide ramp to connect the existing BWG to the waterfront and Ferris Street would be located here.

Area 3: The wall would continue along Clinton Wharf, turning along Ferris Street and ending that segment in a "T" along Ferris Street. On the opposite side of Ferris Street, there would be a deployable flip-up flood gate for access into the PANYNJ facility. Another wall would be placed on the opposite (southern or landward) side of Sullivan Street along the back of the sidewalk, meet along Ferris Street and continue east up a portion of Wolcott Street. A small segment of wall would be placed on the opposite side of Wolcott Street and meet with Ferris Street on the back of the sidewalk. The road would be raised along Sullivan Street and Wolcott Street to an elevation of 10 feet. Road regrading to an elevation of 10 feet would work in conjunction with new flood walls to create contiguous barrier against storm surge waters where vehicular access points would create breaks in the flood wall.

<u>Beard Street Area</u>

- Raise street grades to an elevation of 8 feet at deployable locations and 10 feet in other locations.
- Construct flood walls consisting of 1-foot-wide reinforced concrete I-shaped retaining walls; heights range to approximately 4 feet.
- Install flip up gates on Van Brunt Street (between Beard and Reed Street) and Beard Street (between Van Brunt and Dwight Street) to an elevation of 10 feet.
- Install a roller gate between Reed Street and Van Brunt to an elevation of 10 feet.
- Install sluice gates along Otsego, Columbia, Smith, and Court Streets.
- Todd Triangle to be re-designed and reconstructed.
- Proposed raised street grades in front of the Red Hook Community Farm entrance.

Area 1: A floodwall would be constructed along the west side of Conover Street, abutting the existing brick wall until the Beard Street intersection. The wall would continue along the existing brick wall on the south sidewalk on Reed Street to Van Brunt Street and turn south. A rolling flood gate would be constructed at the corner of Reed and Van Brunt Streets and meet with the wall on the west side of Van Brunt Street as it continues north to two flip-up flood gates to be constructed before the wall reaches Beard Street. The wall would continue along the back of the sidewalk to Area 2. Conover/Reed Street, Van Brunt Street, and Beard Street would be regraded or raised to an elevation of 8 feet.

Area 2: This area consists of the floodwall behind the sidewalk (south side) along Beard Street and continuing to Dwight Street. Beard Street would be regraded to an elevation of 8 feet. Three flip-up gates would be constructed to allow access to the piers along this section. These gates would remain flush with the sidewalk until they are used for a storm event.

Area 3: This area is located along Beard, Halleck, and Columbia Streets. The Beard Street wall would run along the south side of the street to the north side of the Ikea parking lot entrance. The wall would also run along the north side of Halleck Street between Otsego and Columbia Streets. Portions of Beard, Otsego, Halleck, and Columbia Streets would be regraded to an elevation of 10 feet. Additionally, part of

the Ikea Pier and Waterfront Public Access Area would be re-graded.

Area 4: This area is not contiguous to Areas 1-3. This proposal is to reconstruct the intersection of Court and Lorraine Streets to a higher elevation. Additionally, this proposal includes minor roadway regrading along Bay Street, adjacent to Red Hook Field 6.

Area 5: This area would involve limited reconstruction to install sluice gates within the existing combined sewer system along Lorraine Street between Smith and Court Streets.

The Subrecipient anticipates construction to take approximately 2.5 years from the Fall of 2024 to the Spring of 2027. The total construction time estimate allows for unforeseen delays and weather-related shutdowns that may slow the installation.

4.3 Alternatives Considered and Dismissed

4.3.1 Alternative 3: Permanent 8-ft Waterfront and Interior Alignment

Alternative 3 updated the IFPS study and protects at an elevation of 8 feet. The protection measures incorporated in Alternative 3 for the Atlantic Basin zone include rebuilding the bulkhead along Clinton Wharf, raising the roadway at Sullivan Street, and installing a new outfall pipe at Wolcott and Sullivan Streets. Alternative 3 for the Beard Street zone would include raising the roadway on Beard Street, installation of floodwalls adjacent to land (buildings or open lots), installation of new bulkhead, construction of a waterfront esplanade, and replacement of the existing outfall on Van Brunt Street with a flap-gate chamber. Alternative 3 was not pursued due to the lower level of flood protection not aligning to the project purpose and need to reduce damages from flooding and coastal storm surge through effective floodplain management.

4.3.2 Alternative 4: Permanent 10-ft Waterfront and Interior Alignment

NYC OMB developed Alternative 4 as a higher-level flood protection alternative. Alternative 4 protects to an elevation of 10 feet when deployed and an elevation of 8 feet without deployment. Alternative 4 for the Atlantic Basin zone was split into three areas involving a combination of street raising, regrading private property, deployable barriers, flood walls, and bulkhead. The Beard Street zone was split into four areas involving a combination of street raising, flood walls, flip-up gates and regrading private property. Alternative 4 was not pursued due to private property coordination to include the existing piers, significant permitting, and high cost.

4.3.3 Alternative 5: Temporary 10-ft Waterfront and Interior Alignment

Alternative 5 for the Atlantic Basin area is a fully deployed option that protects to an elevation of 10 feet without passive protection. Alternative 5 for the Beard Street zone was developed as a waterfront alignment. The waterfront alignment would extend protection to community assets and provide passive protection to an elevation of 8 feet and deployable protection to an elevation of 10 feet. Alternative 5 has

two main advantages, impact, and protection level. However, Alternative 5 was not pursued due to the significant permitting and intricate complexities from waterfront construction.

4.4 Summary of Alternatives

Of the five alternatives considered, three were dismissed as they did not meet the purpose and need for the project. The dismissed alternatives are: Alternative 3 - the Permanent 8-ft. Waterfront and Interior Alignment dismissed due to the proposal's lower level of flood protection; Alternative 4 - Permanent 10-ft. Waterfront and Interior Alignment dismissed due to the proposal's uncertain property availability, significant permitting, and cost; and Alternative 5 - Temporary 10-ft. Waterfront and Interior Alignment dismissed due to the proposal's significant permitting and complexities from waterfront construction. The following are the remaining alternatives considered for analysis:

1) Alternative 1: No Action Alternative, and

2) Alternative 2: Proposed Action: Integrated Flood Protection System - 10-ft Elevation

5.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

This section discusses the potential impacts of the No Action Alternative and the Proposed Action on environmental resources. Impacts include ecological, aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative of the reasonably foreseeable actions. When possible, FEMA considers quantitative information to establish potential impacts; the potential qualitative impacts are evaluated based on the criteria listed in the table below. The potential cumulative environmental impacts are discussed in Section 5.16.

Table 5-1: Impact Significance and Context Evaluation Criteria for Potential Impacts

Impact Scale	Criteria
No Impact	The resource area would not be affected and there would be no impact.
Negligible	Changes would either be non-detectable or, if detected, would have effects that would be slight and local. Adverse impacts would be well below regulatory standards, as applicable.
Minor	Changes to the resource would be measurable, but the changes would be small and localized. Adverse impacts would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects.
Moderate	Changes to the resource would be measurable and have either localized or regional scale impacts. Adverse impacts would be within or below regulatory standards, but historical conditions would be altered on a short-term basis. Mitigation measures would be necessary, and the measures would reduce any potential adverse effects.
Major	Changes to the resource would be readily measurable and would have substantial consequences on regional levels. Adverse impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the resource would be expected.

5.1 Resource Topics Dismissed from Detailed Analysis

In accordance with Council of Environmental Quality (CEQ) regulations, an environmental analysis should focus on significant environmental impacts (40 CFR 1502.01). FEMA considered all CEQ resource topics in the preparation of this EA, but eliminated nine because they were not applicable to this project or would result in no substantive impacts on those resources. The eliminated resource topics are as follows.

Resource Area or Regulation Eliminated	Rationale
Farmland Protection and Policy Act	FEMA does not anticipate impacts to prime, unique, or farmland of statewide or local importance from actions evaluated in this EA. FEMA anticipates actions evaluated in this EA will occur at locations commensurate with the risk, within coastal, Census-identified urbanized areas, not subject to the Farmland Protection and Policy Act.
Bald and Golden Eagle Protection Act	FEMA does not anticipate impacts to Bald or Golden Eagles from actions evaluated in this EA. Bald and Golden Eagles are not found in the Red Hook area.
Essential Fish Habitat	FEMA does not anticipate impacts to Essential Fish Habitat as there is no proposed work in water.
Migratory Bird Treaty Act	FEMA does not anticipate impacts to Migratory Birds from actions evaluated in this EA. The proposed action is localized to the existing Red Hook neighborhood, which is largely impervious and exists in an urbanized area.

5.2 Geology, Topography, and Soils

5.2.1 Existing Conditions

The Subrecipient conducted a field survey as part of the Red Hook IFPS Feasibility Study. The project site is overlain by uncontrolled granular fill material of variable density that is intermixed with miscellaneous debris. Discontinuous pockets of organic soils (peat or organic silt) of variable thickness were encountered below the surficial fill. The surficial fill and organic soils are underlain by very loose to medium dense sand deposits. The soil matrix below the surficial fill and organics consists predominately of sand with various amounts of silt and minor gravel with pockets of clayey silt and silty clay at random depths and locations.

Based on the Surficial Geologic Map of New York, the deposits of the Red Hook neighborhood originally consisted of glacial till deposited from retreating glaciers and is bordered by a terminal moraine to the southeast. The geologic description of the till suggests a composition of clay, silt, sand, and boulders. Some of the borings reviewed suggested the upper layers are more homogeneous layers of sand and silt than expected within a till deposit. This potentially indicates these areas may have been outwash plains. More recently, organics have been deposited in low lying areas throughout the peninsula including areas around the Gowanus Canal. Based on fill maps produced by PlaNYC (NYC Mayor's Office of Climate & Environmental Justice) and recent topographic maps, it is apparent that the majority of Red Hook's shoreline has been augmented by artificial fill. The shorelines were either reclaimed by dumping of fill along the riverbanks or filled using hydraulic methods. The reviewed borings illustrate the depth and composition of the artificial fill. These indicate the fill consists of urban waste (brick, ash, wood, etc.) and

very loose to loose granular fill. Because of the erratic nature of the filling operation and the duration of time over which it was performed, the composition of the fill is likely highly variable even within localized areas. Hydraulically filled shorelines often consist of loose granular soils that may become unstable during seismic events and are therefore unfavorable for supporting foundations without modification.

The bedrock in the neighborhoods of Red Hook and South Brooklyn consists of the Hartland Formation bordered immediately on the west by the Cameron thrust Fault. Based on the Surficial Geologic Map of New York, the Hartland Formation is comprised of meta-igneous-volcano-sedimentary rocks including granites and granitic gneisses. Domes of Brooklyn Injection Gneiss are also present in the area overlying the Hartland formation in some areas. The bedrock is typically at least 100 feet below ground surface.

Groundwater elevations vary between an elevation of -1.3 feet and an elevation of +4.4 feet, and the depth ranges from 1.6 feet to 11.8 feet below the ground surface.

5.2.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would not impact geology, topography, or soils. However, not implementing the project would allow erosion and subsurface damage from stormwater flooding to continue throughout the Red Hook neighborhood.

Alternative 2: Proposed Action: Integrated Flood Protection System - 10-ft Elevation

Construction of the Proposed Action would require the excavation of soils to depths ranging from 4 feet to 12 feet below ground. Implementation of best management practices (BMPs) would minimize the extent of temporary soil erosion impacts. The Subrecipient would backfill all temporary excavation sites and surfaces per New York City Department of Transportation (NYCDOT) standards. Additionally, bedrock in the study area is more than 100 feet below ground surface, which is far below the depth of excavation activities for the Proposed Action**.** Therefore, the Proposed Action would have a minor short-term adverse impact on geology, topography, and soils, with minor long-term beneficial effects as the topography would be raised to a higher elevation that would prevent flooding and potential erosion of surface material.

5.3 Air Quality

The United States Environmental Protection Agency (USEPA) has established primary and secondary National Ambient Air Quality Standards (NAAQS) under the provisions of the Clean Air Act (CAA) of 1970 (42 U.S.C. Part 7401 et seq.). Primary air quality standards define levels of air quality necessary to protect public health with an adequate margin of safety. Secondary air quality standards protect the public's welfare by promoting ecosystem health, preventing decreased visibility, and reducing impacts to vegetation and wildlife. Federal NAAQS are currently established for the following six criteria pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), lead (Pb), particulate

matter equal to or less than 10 micrograms per cubic meter of air (PM_{10}), and PM equal to or less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$). New York State monitors and regulates emissions for these pollutants to meet NAAQS requirements.

Federally funded actions in nonattainment and maintenance areas are subject to USEPA General Conformity regulations, 40 CFR Part 51 and 93. The air conformity analysis process ensures that emissions of air pollutants from planned federally funded activities would not affect the state's ability to achieve the CAA goal of meeting the NAAQS. Section 176(c) of the CAA requires that federally funded projects must not cause any violations of the NAAQS, increase the frequency or severity of NAAQS violations, or delay timely attainment of the NAAQS or any interim milestone. The emissions from construction activities are subject to air conformity review.

Under the general conformity regulations, a determination for federal actions is required for each criteria pollutant or precursor in non-attainment or maintenance areas where the action's direct and indirect emissions have the potential to emit one or more of the six criteria pollutants at rates equal to or exceeding the prescribed *de minimis* rates for that pollutant. For this project, the prescribed annual rates are 50 tons of volatile organic compounds and 100 tons of nitrogen oxides (NO_x) (ozone precursors), 100 tons of CO (in a CO maintenance area), and 100 tons of $PM_{2.5}$, SO_2, or NO_x ($PM_{2.5}$ and precursors in $PM_{2.5}$ attainment area). Areas where a criteria pollutant level exceeds the applicable NAAQS are designated as being in non-attainment of the standards. A non-attainment area may be re-designated to attainment, based on monitoring data demonstrating attainment of the applicable standard and implementation of a maintenance plan to assure continued attainment.

Greenhouse gases (GHGs) trap heat in the earth's atmosphere threatening public health and welfare and are known to contribute to the effects of climate change. Fossil fuel combustion is the principal source of GHGs and include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases (e.g., hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride). In 2009, USEPA found that current and projected concentrations of the six main GHGs – CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6 – in the atmosphere threaten public health and welfare of current and future generations, and that emissions of GHGs contribute to greenhouse gas pollution. GHGs are regulated pollutants under the CAA, however there are no NAAQS established.

5.3.1 Existing Conditions

The CAA requires states to submit a State Implementation Plan (SIP) to the USEPA for attainment of the NAAQS. The proposed project is located in Kings County within the New York Metropolitan Air Quality Control Region and is part of the New York State Department of Environmental Conservation (NYSDEC) Region 2. Kings County is in attainment of the NAAQS for Pb, SO_2, NO_2, and PM_{10} and serious nonattainment for ozone (eight-hour). After many years of demonstrating CO and $PM_{2.5}$ attainment, Kings County, along with the New York portion of the NY-north NJ-Long Island, NY-NJ-CT nonattainment area, was re-designated by the USEPA to attainment status. Kings County is therefore subject to

Maintenance Plans, which outlines continuing steps to lower CO and $PM_{2.5}$ levels and provides a Contingency Plan should a violation of the standards occur.

Each of the criteria pollutants for which ambient air quality standards have been set is monitored on a continuous basis throughout New York State by the NYSDEC. The major objectives of monitoring air quality are to provide an early warning system for pollutant concentrations, assess air quality with regards to public health and welfare standards, as well as track trends or changes in these pollutant levels. Not all pollutants are monitored at each NYSDEC monitoring location. NYSDEC monitored data is available in the annual report *New York State Ambient Air Quality Report*. **Table 5-3** includes the closest and most representative ambient air quality data for each criteria pollutant monitored by NYSDEC from the *New York State Ambient Air Quality Report For 2021*.

The air quality assessment was accomplished using the latest version of models and databases for evaluating projects analyzed under CAA and NEPA. Air quality analyses related to the proposed project address both CAA and NEPA requirements. In order to address General Conformity, emission inventories were estimated for the Proposed Alternative.

5.3.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would not impact the existing air quality of the project area or Kings County. Ambient air quality would remain similar to the existing conditions.

Alternative 2: Proposed Action: Integrated Flood Protection System - 10-ft Elevation

Construction activities under the Proposed Action (i.e., site preparation, land clearing, material handling and demolition, etc.) may result in temporary increases in emissions from on-site equipment and machinery, including both road and non-road, light and heavy, gasoline and diesel-powered equipment and fugitive dust. Fugitive dust or airborne dust is typically generated during groundbreaking and excavation activities.

Temporary impacts associated with construction emissions would be mitigated through the implementation of air quality BMPs. All equipment and machinery would comply with applicable USEPA standards. Per USEPA regulations, ultra-low sulfur diesel fuel would be used for all diesel-powered construction equipment, limiting Sulphur Oxides emissions. Fugitive dust control measures such as speed limit reductions, sprayed water or other dust suppressant application, and regular vehicle rinsing would be managed according to proper standards and procedures. All proposed activities under the Proposed Action would comply with applicable federal, state, and local laws and regulations regarding construction emissions. Upon completion, the IFPS would not be an emissions generator. As such, the proposed project would not have a significant impact on the effects of GHGs that contribute to climate change. The proposed project would also help reduce impacts from increased flooding and storms that result from the

changing climate. Overall, FEMA anticipates short-term minor adverse air quality impacts as construction activity would be temporary and BMPs are implemented, and no long-term impacts as a result of the Proposed Action as there would be no new emission sources associated with the IFPS upon completion.

5.4 Water Resources

5.4.1 Water Quality

The Clean Water Act (CWA) [33 U.S.C. Sec.1251 et seq. (1972)] regulates discharge of pollutants into waters of the United States. Section 404 of the CWA establishes the U.S. Army Corps of Engineers (USACE) permit requirements for discharging dredged or fill materials into waters of the United States and traditional navigable waterways. USACE regulation of activities within navigable waters is authorized under the 1899 Rivers and Harbors Act. Under Section 402 of the CWA, the National Pollution Discharge Elimination System (NPDES) [40 CFR Part 122], USEPA regulates both point and non-point pollutant sources including stormwater and stormwater runoff. In New York State, USEPA has delegated the authority to NYSDEC to administer the NPDES program, referred to as the State Pollution Discharge Elimination System (SPDES). Activities that disturb one acre of ground or more require a SPDES permit. The SPDES permit requires applicants to prepare a Stormwater Pollution Prevention Plan (SWPPP).

Section 1412(e) of the Safe Drinking Water Act of 1974 [Public Law 93–523], authorizes USEPA to designate an aquifer for special protection under the sole source aquifer program. USEPA can make this designation if the aquifer is the sole or principal drinking water resource for an area (i.e., it supplies 50 percent or more of the drinking water in a particular area) and if its contamination would create a significant hazard to public health. No commitment for federal financial assistance may be provided for any project that USEPA determines may contaminate a sole source aquifer.

5.4.2 Wetlands

Wetlands are areas where surface or groundwater inundates or saturates with a frequency and duration sufficient to support and, under normal hydrological conditions, do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Actions that may impact wetlands require review under federal and state regulatory programs, including Section 404 of the CWA (33 U.S.C. 1344), the New York State Freshwater Wetlands Act (Article 24 of Environmental Conservation Law), and the Tidal Wetlands Act (Article 25 of Environmental Conservation Law). Executive Order (EO) 11990, Protection of Wetlands, requires Federal agencies to avoid funding activities that directly or indirectly support occupancy, modification, or development of wetlands, whenever there are practicable alternatives, and that the Proposed Action includes all practicable measures to minimize harm to wetlands that may result from such use.

FEMA implements EO 11990 through 44 CFR Part 9 concurrently with EO 11988 Floodplain Management (see Section 5.3.3) and uses the 8-step decision making process to evaluate potential effects on, and mitigate impacts to, wetlands and floodplains. NYSDEC administers and regulates wetlands under the

Freshwater Wetlands Act (Article 24 of Environmental Conservation Law) and the Tidal Wetlands Act (Article 25 of Environmental Conservation Law – 6 New York Codes, Rules, and Regulations Part 661). The USFWS National Wetland Inventory (NWI) map is considered the best available information for wetland mapping.

5.4.3 Floodplain

Executive Order 11988, Floodplain Management, requires federal agencies to avoid potential adverse impacts associated with the occupancy and modification of floodplains, and to avoid floodplain development whenever there are practicable alternatives. If no practicable alternatives exist within or affecting the floodplain, federal agencies then seek to minimize the adverse impacts. Regulations for complying with EO 11988 are detailed in 44 CFR Part 9.

FEMA produces Flood Insurance Rate Maps (FIRMs) using best available information to identify floodplains. FIRMs depict calculated locations of the one percent (100-year) and the 0.2% (500-year) floodplains, coastal high hazard areas, and base flood elevation levels. FEMA develops the FIRMs through a mapping process that takes into account topography and history of flooding in the region. Federal actions within the 100-year floodplain require the federal agency to conduct an 8-step review process to evaluate alternatives within the floodplain. For projects located within the floodplain, any potential adverse impacts must be mitigated when there are no practicable alternatives. In January 2015, FEMA released Preliminary FIRMs for New York City, which FEMA considers to be the best available data for actions within the Five Boroughs.

5.4.4 Existing Conditions

The Red Hook neighborhood is located in the Atlantic Ocean/Long Island Sound Watershed. The watershed drains 1,650 square miles of land area within New York State including most of the New York City Metropolitan Area and Long Island, and encompasses all marine waters in New York Harbor, Long Island Sound, Block Island Sound, and along the South Shore of Long Island, as well as the fresh waters that drain into those areas. Surface runoff within Red Hook is collected by catch basins and sewers operated by the New York City Department of Environmental Protection (NYCDEP), which is serviced by the Red Hook Wastewater Treatment Plant. Combined sewer overflows (CSO) occur when stormwater overwhelms the sewer system causing combined untreated sewage and stormwater to discharge into nearby waterbodies. There are four CSO areas along Atlantic Basin, 12 along the Gowanus Canal, and additional CSOs at the termini of Wolcott, Van Brunt, Columbia, Creamer, and Sackett Streets, all of which empty into local waterways around Red Hook.

The Gowanus Canal is a 1.8-mile-long waterway that was added to the National Priority List in 2010 as the Gowanus Canal Superfund Site. The Canal extends from Butler Street in Brooklyn to Gowanus Bay, and ultimately, Upper New York Bay where it borders the project area to the southeast. The watershed is approximately 1,758 acres in size. The Gowanus Canal in its entirety has been exposed to contaminants of concern. Contaminants of concern in the Gowanus Canal include oil, polycyclic aromatic hydrocarbons

(PAHs), polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), including BTEX (benzene, toluene, ethylbenzene, and xylene), phthalates, pesticides, and metals, including copper, lead, cadmium, zinc, chromium, arsenic, nickel, and mercury. Surface water of the Gowanus Canal has been contaminated by releases of oil, VOCs, semi-volatile organic compounds (SVOCs), and metals from point and non-point sources. According to NYSDEC water quality standards, the Gowanus Canal is classified as a saline tributary to the Gowanus Bay and Upper New York Bay and a Class SD waterbody. This indicates that the surface waters are suitable for fish survival, as described in Title 6 New York Codes, Rules and Regulations (NYCRR) Part 701. As the Gowanus Canal nears the Gowanus Bay mouth, it is then designated Use Class I, which indicates that the waters are suitable for fish propagation and survival.

USEPA has designated the project area as part of the Kings/Queens Counties Aquifer System and is not a sole source aquifer (USEPA, 2021b). The primary aquifer beneath the Gowanus Canal and surrounding uplands is identified as the Upper Glacial Aquifer. The Upper Glacial Aquifer is generally unconfined, although local beds of silt and clay may confine underlying sand beds. In the Upper Glacial Aquifer, regional groundwater flows to the west/southwest toward Gowanus Bay.

The USFWS NWI map (**Appendix B, Figure 4**) shows there are tidal wetlands and littoral zones adjacent to the project area. The surrounding water bodies are mainly characterized by the USFWS NWI as Estuarine and Marine Deepwater Wetlands, which are defined as open water estuaries, bars, sounds, and open oceans. Littoral Zones, found mainly along the waterfront in Red Hook, are tidal wetland zones that include all lands under tidal waters which are not included in any other category listed under the Tidal Wetlands Inventory. In coastal environments, the littoral zone (or intertidal zone) extends from the high-water mark, which is rarely inundated, to shoreline areas that are permanently submerged, such as a sea, lake, or river. There are also areas of Estuarine Marine Wetlands near the Pier 44 Waterfront Garden. These areas are defined by the USFWS NWI as coastal areas with vegetated and non-vegetated brackish and saltwater marsh, shrubs, beach, bar, shoal, or flat. The NYSDEC Tidal Wetlands Map (**Appendix B, Figure 5**) categorizes the tidal areas near or adjacent to the project area as littoral zone. No wetlands, meeting the definition of wetlands under Section 404 of the Clean Water Act, are within the project area.

Based on Preliminary FIRM Panel 3604970192G (**Appendix B, Figure 6**) areas of Red Hook along the waterfront are in flood zone VE, which is subject to inundation by the 1% annual chance (or 100-year) flood event. These areas are also shown as within the Limit of Moderate Wave Action expected to receive 1.5-foot or greater breaking waves during the 100-year flood event. Most of the land areas of Red Hook are in flood zone AE, which is subject to inundation by the 1% annual chance flood event. A section of Red Hook south of the Gowanus Expressway and other areas in the neighborhood are in flood zone X, which is the 0.2% annual chance flood hazard.

According to NYC DDC research, Sixty-four percent of Red Hook's assets are located within the high-risk area (defined by the 1% annual chance flood), 25% are in the extreme-risk area (defined by the 1% annual chance flood with wave action), and 11% are in the moderate-risk area (defined by the 0.2% annual chance flood). Fifty-eight percent of the neighborhood's health and social services are located in high or

extreme risk areas. Fifty-five percent of residential properties and 65% of residential floor area are in high or extreme risk areas. Sixty-five percent of the commercial buildings and 70% of industrial and manufacturing buildings are in high or extreme risk areas. Eighty percent of the neighborhood's commercial floor area is in high or extreme risk areas.

5.4.5 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would not directly impact water quality. However, future flood events could potentially overload or damage sewage systems in the Red Hook neighborhood, causing contaminated runoff to flow into adjacent water bodies. Therefore, the No Action Alternative would have no short-term (no construction activities), but could have long-term, minor adverse impacts on water quality and wetlands during and after flood events associated with storm surge.

The No Action Alternative would not reduce the risk of flood damage and Red Hook would continue to be at risk from loss of life and property damage during future storm events. Therefore, the No Action Alternative would have no short-term impacts and long-term minor adverse impacts on the floodplain from continued flooding risk.

Alternative 2: Proposed Action: Integrated Flood Protection System - 10-ft Elevation

FEMA conducted the 8-step decision-making process for the Proposed Action as described in this EA (**Appendix A, Document 1**). USFWS classifies aquatic habitats into five distinct categories: marine, estuarine, riverine, lacustrine, and palustrine wetlands (USFWS 1979). Based on a review of the USFWS Wetlands Mapper, there are no designated wetlands in the project area. NYSDEC categorizes tidal areas to identify wetlands and aid in administering programs for tidal wetland protection. Based on a review of the NYSDEC Environmental resource Mapper, the DECinfo Locator, and the Tidal Wetland Map for the area, NYSDEC categorizes the tidal areas within the project area as littoral zone. Additionally, NYSDEC indicates areas of the project may be *adjacent* to the regulated tidal wetland area as defined in NYCRR Part 661.4. Any potential disturbance to NYSDEC regulated tidal wetland adjacent area would be regulated by the NYSDEC under Article 25 of the New York Environmental Conservation Law. The Subrecipient submitted a Jurisdictional Determination request to NYSDEC and received an informal determination (via email) on August 3, 2023, that the proposed project would not be within the jurisdiction of NYSDEC under the Tidal Wetlands Act. A final determination would be required prior to project commencement. (**Appendix D, Correspondence 7**).

The Subrecipient is required to prepare a SWPPP for construction activities of one acre or greater and follow conditions of SPDES General Permit for Stormwater Discharges from Construction Activity and prepare Erosion & Sediment Control Plans (ESC) in accordance with the NYSDEC Stormwater Design Manual, to manage discharges from the site. FEMA anticipates site- and activity-appropriate BMPs, and tidal wetland adjacent area mitigation that may be required by NYSDEC, would minimize adverse effects

on water quality and wetlands during construction. The BMPs would be highlighted in the SWPPP and ESC approved by NYSDEC. In addition, an industrial SPDES permit would be obtained prior to construction to be used for any dewatering discharge during construction. Therefore, any construction-related stormwater runoff would be localized and would result in negligible short-term impacts on water quality and wetlands.

In addition to SWPPP and ESC plans, the Proposed Action would convert impervious surfaces at designated sections of the project site into green infrastructure. The project would adhere to NYC's Unified Stormwater Rule, which requires a reduction of impervious surfaces from proposed projects through Green Infrastructure (GI) practices. The Proposed Action would have minor long-term beneficial impacts on the adjacent wetlands and water quality by using GI to filter stormwater runoff.

As reviewed in the 8-step decision-making process, the Proposed Action would not encourage further development in the floodplain as there would be no increase in developable land with the proposed flood protection system. Construction activities would comply with all federal, state, and local requirements including those for flood-resistant structures. The Proposed Action would reduce the risk of future flood damage to residential properties in Red Hook and reduce the chance of property damage and physical danger resulting from floodwaters up to a 10% annual chance storm. FEMA anticipates negligible short-term adverse impacts, with minor beneficial long-term impacts to the floodplain compared to existing conditions. Overall, the Proposed Action would have negligible adverse short-term impacts and minor beneficial long-term impacts to water resources.

5.5 Coastal Resources

The Coastal Zone Management Act (CZMA) [16 U.S.C. Section 1451 et seq.] encourages states with coastal shorelines to develop and implement Coastal Zone Management Plan (CZMP) with the aim of preserving, protecting, developing, and restoring he coastal zone and coastal resources. Projects receiving federal assistance must follow the procedures outlined in 15 CFR 930.90 – 930.101 for federal coastal zone consistency determinations to ensure they are consistent with a state's CZMP. The New York State Department of State (NYSDOS) and NYSDEC have identified and promulgated substantive policies for guiding development and resource management in New York State's coastal area. The CZMP's coastal management policies seek to promote the beneficial use of coastal resources; prevent their impairment; and manage major activities that may substantially affect resources. The Coastal Erosion Hazard Law (Environmental Conservation Law 34) empowers NYSDEC to identify and map coastal erosion hazard areas and to adopt regulations (6 NYCRR Part 505). The Coastal Erosion Hazard Area Permit Program manages regulated activities or land disturbance to properties within coastal erosion hazard areas.

The Coastal Barrier Resources Act (CBRA) of 1982 (Public Law 97-348; 16 U.S.C. 3501 et seq.) designated relatively undeveloped coastal barriers along the Atlantic and Gulf coasts of the United States as part of the John H. Chafee Coastal Barrier Resources System and made these areas ineligible for most new federal expenditures and financial assistance. The U.S. Congress designates mapped areas called

system units to reserve primarily for wildlife refuge, sanctuary, recreational, or natural resource conservation purposes. CBRA was amended by the Coastal Barrier Improvement Act of 1990, which added the new designation Otherwise Protected Areas (OPAs). OPAs are mapped areas where only federal flood insurance is restricted.

5.5.1 Existing Conditions

The project area is located in the New York State coastal zone (**Appendix B**, **Figure 7**); therefore, the Proposed Action must comply with the forty-four policies established in the NYS CZMP (NYSDOS 2017). New York City also has a Waterfront Revitalization Program (WRP), which is NYC's principal coastal zone management tool. It establishes the City's policies for development and use of the waterfront and provides the framework for evaluating the consistency of local, state, and federal discretionary actions in the coastal zone. New York City Planning oversees the NYC WRP.

The Red Hook neighborhood is not within the Coastal Barrier Resource Zone or an OPA covered under the CBRA. Red Hook is also not within the NYSDEC Coastal Erosion Hazard Area and is not required to obtain a NYSDEC issued Coastal Erosion Management Permit.

5.5.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would be no new work within the project area. Therefore, there would be no impact to coastal resources.

Alternative 2: Proposed Action: Integrated Flood Protection System - 10-ft Elevation

In accordance with the requirement of the CZMA, FEMA consulted with NYSDOS on August 12, 2022, for determination of Coastal Consistency Conformance. FEMA determined that the Proposed Action would have a negligible effect on the Coastal Zone and would not have negative impacts on scenic resources or coastal erosion, as construction adjacent to the shoreline would not likely have impacts to coastal resources. Any potential impacts to coastal resources as a result of construction adjacent to the shoreline would be mitigated through SWPPP and ESC plans. NYSDOS concurred with FEMA's Coastal Zone Consistency Determination for the proposed project on October 25, 2022 (**Appendix D, Correspondence 1**). Overall, the Proposed Action would have short-term negligible adverse impacts during construction and long-term minor beneficial impacts to increasing waterfront accessibility and protecting coastal resources consistent with CZMA and WRP.

5.6 Biological Resources

Federal agencies are required to consider the potential effects of federally authorized actions on certain fish and wildlife. Sensitive biological resources are protected under various federal laws and EOs including the Endangered Species Act (ESA).

5.6.1 Endangered Species Act

The ESA of 1973 provides for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The United States Fish and Wildlife Service (USFWS) and the U.S. National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) are the lead federal agencies for implementing ESA. The law requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a "taking" of any listed species of endangered fish or wildlife.

5.6.2 Existing Conditions

The USFWS Information for Planning and Consultation (IPaC) system was utilized to identify terrestrial species in the project area. IPaC identified three (3) federally threatened terrestrial species that may occur in the project area: Piping Plover (*Charadrius melodus*), Red Knot (*Calidris canutus rufa*), and Seabeach Amaranth (*Amaranthus pumilus*); and one (1) federally endangered terrestrial species, Roseate Tern (*Sterna dougallii*), as potentially present in the project area (NYSDEC, 2014; NYNHP, 2011; USFWS, 2016;2020). As the project area is largely industrially and commercially developed with residential units throughout the neighborhood. USFWS has not designated any critical habitat for these species within the project area.

Piping plover can be found breeding from April through July (Levine 1998), typically using open beach areas between the primary dune and high-tide line (Elliot-Smith and Haig 2004; McIntyre et al. 2010; New York Natural Heritage Program [NYNHP] 2015). Based on existing conditions, there is no suitable habitat for Piping plover within the project area.

Red knot may be found in intertidal marine habitats in New York State during migration or wintering periods (Cornell Lab of Ornithology, 2017). Based on the existing conditions, there is no suitable habitat for Red knot within the project area.

Seabeach amaranth is generally found along the active dunes associated with ocean beaches (Buchanan and Finnegan 2010). The decline of the species is most notably attributed to habitat destruction and alteration, incompatible beach grooming practices, and recreational activities (New Jersey Department of Environmental Protection, 2017). The project area does not contain suitable habitat for seabeach amaranth.

Roseate tern arrives at its breeding grounds between April and July and remains until fall migration, which typically occurs from August through September (Gochfeld et al. 1998; Nisbet 1989; NYNHP 2015). The vast majority (greater than 90 percent) of the breeding population of Roseate tern in New York State, breeds within the colony located on Great Gull Island (NYNHP 2015), approximately 100 miles east northeast of the project area. Based on the existing conditions, there is no suitable habitat for Roseate tern within the project area.

IPaC also identified 37 migratory birds that could be present in the project area, but does not provide specific information on sightings or nests. NYSDEC's Environmental Resource Mapper has no record of imperiled mussels, significant natural communities, or rare plants or animals within the project area. In addition, NYSDEC's Nature Explorer has no record of natural communities, or rare plants and animals identified within the project area.

Critical habitat, as defined in the ESA, is a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Based on completed research noted above, the project area does not contain any designated critical habitat.

5.6.3 Magnuson Stevens Fisheries Conservation Act & Essential Fish Habitat

Federal agencies are required to assess the potential impacts that proposed actions and alternatives may have on NOAA Fisheries-regulated Essential Fish Habitat (EFH), in accordance with the Magnuson-Stevens Fishery Conservation and Management Act.

5.6.4 Existing Conditions

The presence or absence of federally listed species within or adjacent to project areas would be largely determined by the presence of suitable habitat, which is primarily a product of salinity, temperature, water depth, vegetation, and the extent of human disturbance. The NOAA EFH Mapper was used to identify EFH within the project area. The EFH mapper identified 12 species with EFH that may occur within the bodies of water surrounding Red Hook. They include Winter Flounder (*Pseudopleuronectes americanus)*, Little Skate (*Leucoraja erinacea*), Atlantic Herring (*Clupea harengus*), Red Hake (*Urophycis chuss*), Windowpane Flounder (*Scophthalmus aquosus*), Winter Skate (*Leucoraja ocellata*), Clearnose Skate (*Raja eglanteria*), Smoothhound Shark Complex (Atlantic Stock), Longfin Inshore Squid (*Loligo pealei*), Bluefish (*Pomatomus saltatrix*), Atlantic Butterfish (*Peprilus triacanthus*), and Summer Flounder (*Paralichthys dentatus)*. In addition, Habitat Areas of Particular Concern were identified for the Summer Flounder. Together, the water bodies surrounding the Red Hook Peninsula form part of the New York-New Jersey Estuary, which supports a wide variety of marine life, including arthropods such as the American lobster, and several species of crab, marine mammals such as the bottlenose dolphin, grey seal, harbor seal, and North American river otter, and a rich variety of fish and bird life. In 2007, researchers at the Cornell University Lab of Ornithology and the NYSDEC recorded acoustic data of whale vocalizations of at least six species of whale within the NY-NJ Estuary.

The project site in Red Hook is located within a highly developed and industrialized section of Brooklyn's waterfront, which is bulkheaded or otherwise composed of solid man-made shoreline protection structures. Industrialization and pollution from the Gowanus Canal Superfund Site adjacent to the southwest part of the project area would have a large detriment to the 12 EFH species habitats. Therefore, the presence of federally listed species within or adjacent to the project area would be highly unlikely due

to unsuitable habitat conditions.

5.6.5 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would be no project implementation. Therefore, there would be no short- or long-term impacts on terrestrial wildlife, aquatic life, or habitats, including federally or state listed species, marine mammals, threatened and endangered species, and EFH.

Alternative 2: Proposed Action: Integrated Flood Protection System - 10-ft Elevation

Construction activities from the Proposed Action would have no impact on state or federally listed terrestrial wildlife. The project area is a heavily developed urban setting not suitable for terrestrial habitats or nesting. The proposed construction and staging sites are of extremely limited value to native wildlife and are subject to high levels of noise and activity under existing conditions. Trees removed during construction would be replanted or replaced using native species. Construction activities from the Proposed Action would result in minimal to no habitat loss and would not eliminate any known wildlife habitat. The Proposed Action would introduce additional native tree species to the project area and expand planting beds within Todd Triangle leading to potential long-term benefit to terrestrial wildlife and habitat. FEMA determined that the Proposed Action would have no effect, no suitable habitat for any listed terrestrial species or critical habitat under USFWS jurisdiction and initiated consultation with USFWS on August 15, 2022 (**Appendix D, Correspondence 2**). As of the date of this EA, USFWS has not provided any objection or comments for FEMA's no effect determination. As construction activities from the Proposed Action would occur entirely on land, any potential aquatic impacts would be mitigated through SWPPP and ESC plans during construction. Overall, FEMA has concluded that there may be negligible short-term adverse impacts during construction and no long-term impacts to aquatic life or critical habitat.

5.7 Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA; 54 U.S.C. Section 306108), of 1966, as amended and implemented by 36 CFR Part 800, requires federal agencies to consider potential effects of actions on cultural resources prior to commencement of work (an "undertaking"). The NHPA defines a historic property as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register of Historic Places (NRHP). Only those cultural resources determined to be potentially significant under NHPA are subject to avoidance or minimization measures for adverse impacts resulting from an undertaking. To be considered significant, a cultural resource must meet one or more of the criteria established by the National Park Service that would make that resource eligible for inclusion on the NRHP, as found in 36 CFR Part 60. The term "eligible for inclusion on the NRHP" includes all properties that meet the NRHP listing criteria. Sites not yet evaluated may be considered potentially eligible for inclusion on the NRHP and, as such, are afforded the same consideration as listed properties. Pursuant to 36 CFR 800.4(a)(1), and as defined in 36 CFR 800.16(d),

the Area of Potential Effects (APE) is defined as the geographic area(s) within which an undertaking may directly or indirectly affect cultural resources. FEMA determines an APE based on completed research identifying potential and NRHP-listed properties. Within the APE, FEMA evaluates impacts on identified cultural resources for above ground resources and below ground prehistoric or historic archaeological resources.

5.7.1 Existing Conditions

The New York State Historic Preservation Office (NYSHPO) maintains a regularly updated list of New York State's historic properties that are subject to NYSHPO and federal agency review. This list is accessible through the NYSHPO-maintained Cultural Resource Information System (CRIS). FEMA evaluated the Proposed Action's (undertaking's) potential effects on cultural resources using CRIS and in consultation with NYSHPO.

FEMA initiated the Section 106 consultation with NYSHPO on August 8, 2022. On September 6, 2022, NYSHPO concurred with FEMA's determination of No Adverse Effect to Historic Properties for above ground and below ground resources (**Appendix D**, **Correspondence 3**). Under the City Environmental Quality Review (CEQR), the Subrecipient initiated consultation with the NYC Landmarks Preservation Commission (LPC) on September 22, 2022. LPC concurred with their finding that there would be no adverse effects anticipated to architectural or archaeological resources as a result of the project (**Appendix D**, **Correspondence 6**).

5.7.2 Architectural Resources

Based on the proposed scope of work, FEMA determined that the APE for this undertaking would be limited to the Atlantic Basin and Beard Street "zones" for both above ground and below ground resources. The zones within the APE are defined using the NYC Department of Information Technology and Telecommunications (DoITT) maps (lot and blocks) and the adjacent viewsheds. FEMA evaluated all properties within the project area (APE) to identify NRHP-listed resources, NRHP-eligible resources, resources already determined not NRHP-eligible, not previously evaluated for NRHP-eligibility, or "undetermined" by SHPO.

The buildings identified as "NRHP-eligible" are of age for NRHP consideration and retain a high level of architectural integrity. They are reflective of the historical development of the Red Hook neighborhood and include the Sullivan Street Historic District, the Beard Street Store and Warehouse Pier, and intact waterfront warehouses.

The buildings identified as "not NRHP-eligible" may be of age for NRHP consideration, but do not appear to be associated with a significant historic person or event that is not generally known or commonly acknowledged. The buildings do not possess unique character defining features associated with a prominent architectural movement or vernacular architectural style or method of construction. In addition, the buildings do not represent the work of a master, possess high artistic values, or represent a significant

and distinguishable entity whose components may lack individual distinction.

In total, FEMA identified 173 resources. For all properties, FEMA concurred with SHPO's existing determinations or, evaluated potential resources that were not previously reviewed or, that are listed as "undetermined" in CRIS (Note: Some buildings and/or properties utilize multiple addresses. The full list of properties by lot and block are included in **Appendix D, Correspondence 3**.) FEMA concurred that ten (10) properties are NRHP-eligible, 162 are not NRHP-eligible, and one (1) (150 Sullivan Street) remains undetermined (**Appendix D, Correspondence 3**).

CRIS lists the following properties are eligible for listing on the NRHP: 151, 153, and 155 Sullivan Street; the Red Hook Stores at 480-500 Van Brunt Street; the Beard Store and Warehouse Pier at 421-573 Van Brunt Street; the former New York Dock Building at 100 Imlay Street; the former Wittemann Brothers Bottlers Supplies & Machinery Co. at 43 Ferris Street; and The Brooklyn Fire Brick Works complex at 89 Van Dyke Street and 98 Beard Street.

While outside of the APE, NYSHPO also noted that The Brooklyn Clay Retort and Fire Brick Works Storehouse (76-86 Van Dyke; Block 598-Lot 30) is eligible for the NRHP. It has also been recognized as a New York City Landmark.

5.7.3 Archaeological Resources

The APE for potential archaeological resources is limited to those areas where the project is expected to directly impact or disturb the ground surface due to excavation or other construction activities. No known archaeological sites are located within the APE and, aside from the extreme northeast corner of the Atlantic Basin APE which appears to be tied to a site on Governor's Island, the APEs are not mapped as archaeologically sensitive.

Because of their locations, potential archaeological resources identified and evaluated in prior surveys are waterfront resources (i.e., bulkheads and other fill structures; piers; transfer bridges; and buildings such as pier sheds), industrial sites (i.e., sugar refineries and brick factories), and warehouses. Potential to find archaeological resources was noted for building lots associated with residences that were built beginning in the mid-19th century. Earlier potential resources addressed include Colonial-era mills and Fort Defiance, a Revolutionary War Continental Army earthen redoubt. Intensive development of the Red Hook neighborhood continued into the 20th and 21st centuries and would have destroyed or substantially disturbed subsurface remains. The surveys concluded that Red Hook had been so heavily altered in the 19th century and later that little to no potential for archaeological resources remained. Likewise, precontact period archaeological potential was essentially ruled out due to the degree of landfill, grading, and development in the vicinity of the Red Hook waterfront.

Project activities including construction of new floodwalls, bulkheads, and gates, street re-grading, and public utility infrastructure would require subsurface disturbances to varying depths within the APEs. However, the proposed work would occur in previously disturbed/fill soils that are not likely to possess

intact and distinct soil horizons and are unlikely to yield archaeological artifacts or features within their original depositional contexts and would not impact NHRP-listed or eligible resources.

LPC's review of archaeological sensitivity models and historic maps indicated that there is potential for the recovery of remains from 19th Century occupation within the APE. However, after review of the RHCR project plans, LPC determined that the project is not likely to impact archaeological resources and concluded that no additional archaeological research is recommended for the Proposed Action (**Appendix D, Correspondence 6**).

5.7.4 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action alternative would result in no above-ground work or below ground disturbance. Therefore, it would have no impact on historic or archaeological resources.

Alternative 2: Proposed Action: Integrated Flood Protection System - 10-ft Elevation

Through completed consultation with NYSHPO, FEMA determined, with NYSHPO concurrence, that the Proposed Action would have No Adverse Effect to Historic Properties. The proposed flood wall and barrier system, having no physical connection to above ground resources, would not physically or visually impact NRHP-listed or eligible resources within the APEs. Additionally, the significant ground disturbance due to cycles of industrial scale demolition, construction, and development in the 18th, 19th, 20th, and 21st centuries demolished all but a few localized archaeological deposits within the APEs. Based on this completed research, FEMA determined that the potential to encounter *in situ* Prehistoric and/or Historic archaeological resources is assessed as low. Therefore, the Proposed Action (undertaking) would have no short-term or long-term impacts to cultural resources within the APE (**Appendix D**, **Correspondence 3**).

5.8 Aesthetic Resources

Aesthetic resources, or viewsheds, are areas of land, water, or other environmental elements that are visible to the human eye from a fixed vantage point. Viewsheds are areas of particular scenic or historic value that have been deemed worthy of preservation against development or other change and include spaces that are readily visible from public areas and thoroughfares, such as from public roadways, public parks, or high-rise buildings. If a viewshed is integral to the setting of a natural or historic resource or part of the NHPA Evaluation Criterion for a resource's NRHP eligibility, it must be considered in any new development or renovation proposal.

5.8.1 Existing Conditions

The Red Hook neighborhood is a peninsula that isolates it from the surrounding neighborhoods of Sunset Park and Gowanus. It was further isolated from the surrounding neighborhoods by the construction of the

Gowanus Expressway. Red Hook is a developed urbanized area with low-rise buildings and manufacturing/industrial facilities. With industrial and manufacturing facilities situated along the waterfront, there are few access points to the shoreline. Two access points are along Beard Street and Louis Valentino Jr. Park. The park has views of the Statue of Liberty, Governor's Island, New York Harbor, Staten Island, and the Manhattan skyline. The Waterfront Museum and Showboat Barge is another resource that reflects maritime heritage of the Red Hook neighborhood. The museum offers accessibility to the Lehigh Valley Railroad Barge Number 79 that is on the NRHP. While these aesthetic resources are adjacent to the project area, they would not be impacted by the RHCR project. Additionally, the project area does not fall within a New York State Scenic Area of Statewide Significance and no viewsheds integral to the setting of any NRHP listed eligible resource would be impacted.

5.8.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action Alternative

Under the No Action Alternative, there would be no construction of new structures within the project area. Therefore, there would be no impact to aesthetic resources as the neighborhood would remain in its existing condition.

Alternative 2: Proposed Action: Integrated Flood Protection System - 10-ft Elevation

Under the Proposed Action, roadways and sidewalks would be re-graded to an elevation of 8 feet, which would be unnoticeable to pedestrians. Proposed flood walls would not exceed 4 feet above the proposed re-graded streets throughout the project area. Flip up gates would be strategically placed to offer community accessibility to the waterfront and prevent obstruction of waterfront views at locations within the project area. Visual access to the waterfront from the Ikea Pier and Waterfront Public Access Area would not be impacted by the proposed project as work is inland from the waterfront and no in-water work is anticipated. As part of the Proposed Action, additional seating and landscape design would enhance the aesthetic resources in the project area. The proposed Todd Triangle design provides a more pedestrian accessible and friendly green space with expanded plant beds, additional trees, new seating, pedestrian pathways, and lighting. Therefore, the Proposed Action's design which minimizes visual impacts and adds additional landscaping, street trees, and street furniture would have no short-term or long-term impacts on aesthetic resources or viewsheds.

5.9 Environmental Justice

Executive Order 12898, *Federal Actions to Address the Environmental Justice in Minority Populations and Low-Income Populations*, requires federal agencies to identify and address any disproportionate and adverse human health or environmental burdens its activities may have on minority or low-income populations. NYSDEC defines a *minority population* as a population that is identified or recognized by the U.S. Census Bureau as Hispanic, African American or Black, Asian and Pacific Islander or American Indian; and defines *minority community* as a specific geographic area having a minority population equal

to or greater than 51.1% in an urban area, and 33.8% in a rural area, of the total population. NYSDEC defines a *low-income population* as a population having an annual income less than the poverty threshold; and defines a *low-income community* as a specific geographic area having a low-income population equal to or greater than 23.59% of the total population.

5.9.1 Existing Conditions

Data from USEPA's EJSCREEN and the US Census Bureau, 2020 census tracts 51, 53 (that includes 53.01, 53.02, and 53.03), 59, and 85 were used to provide the demographic profile information for Red Hook and the adjacent community (**Appendix B, Figure 8**). The census tract geographic boundaries were used to assess impacts to Environmental Justice. (The area for demographic analysis is referred to as "Red Hook" in this section.) According to the USEPA EJSCREEN Community Reports, Red Hook has a total population of 14,038 people and is a minority community with 67% of its population noted as People of Color. Red Hook's per capita income is $35,413.

Table 5-2: USEPA EJSCREEN Community Reports Summary

Area (NY)	Population	People of Color Population	% People of Color Population	Per Capita Income	% Low Income
Red Hook (including census tracts noted above)	14,038	9,405	67%	$35,413	44%
Kings County (Brooklyn)	2,712,360	1,708,787	63%	$38,812	37%
New York City (Five Boroughs)	8,736,047	5,940,512	68%	$41,000	34%

Source: USEPA EJSCREEN Community Reports: Red Hook, Kings County, and New York City.

EJSCREEN details minority population in Red Hook is 34% Black, 4% Asian, 26% Hispanic, 5% Hawaiian/Pacific Islander, 11% Other race, 6% two or more races, and 0% American Indian. Total minority representation is 67%. New York City (including the Bronx, Brooklyn, Manhattan, Queens, and Staten Island) has a minority population of 68%, which is about the same as Red Hook. New York City's minority population is 21% Black, 14% Asian, 29% Hispanic, 1% other race, 3% two or more races, and 0% American Indian and Hawaiian/Pacific Islander. Based on this data, the Red Hook project area meets the accepted threshold for defining an environmental justice community based on minority population.

As noted, Red Hook's per capita income is $35,413. The Red Hook low-income population is 44% compared with 37% in Kings County, and 34% in New York City. Within Red Hook, low-income population is concentrated in Tract 85, where the low-income population is 73%, compared with 17% in Tract 59, 15% in Tract 53, and 8% in Tract 51. Median household incomes range from $12,673 in Tract 85, $35,929 in Tract 53, $69,248 in Tract 59, to $85,108 in Tract 51. The project area meets the accepted threshold for defining an environmental justice community based on low-income statistics.

According to the 2010 and 2020 US Census data, Red Hook saw population increase of approximately 4%

from 13,277 in 2010 to 13,823 in 2020. The Black proportion of the population increased from approximately 30% to 37%, and the White proportion of the population increased from approximately 29% to 40%. In contrast, the Hispanic/Latino proportion of the population decreased from approximately 29% to 20% (**Appendix C, Tables 5-10 to 5-14**).

Based on 2020 Census data, the median (average) age of Red Hook is 35.3 years, which is slightly younger than New York City's 36.9 median age. The proportion of residents under 18 years is 25.3% in Red Hook compared with 20.7% in New York City and 22.8% in Kings County. For Red Hook, EJSCREEN lists life expectancy as 73 years in Tract 85 and Tract 59, 78 years of age in Tract 53 and 83 years in Tract 51. Life expectancy in New York City is listed as 74 years of age and Kings County as 81.

5.9.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, no flood resiliency improvements would be constructed. Future storm events and flooding would impact community facilities, thereby impacting EJ populations in the Red Hook neighborhood. In addition, these populations would be negatively impacted by short term moderate adverse impacts to public services and utilities (power, water, sewer, medical, waste), and transportation that would be limited or disrupted during and after flooding events. Therefore, the No Action Alternative would have long-term moderate adverse impacts to the population.

Alternative 2: Proposed Action: Integrated Flood Protection System - 10-ft Elevation

The Proposed Action would reduce the risk of future flooding damage within the Red Hook neighborhood by providing a continuous line of protection to limit flooding from storm surge and flooding events. The potential for impacts to public services, utilities, and transportation would also be reduced. Construction activities would have short-term minor adverse impacts to the Red Hook's population during construction from noise and traffic increases. (This is detailed in this EA's Noise and Transportation sections.) However, all construction activities would follow BMPs including New York City construction and noise regulations, which would minimize disproportionate impacts to the population. Therefore, the Proposed Action would not disproportionately impact the overburdened community and have long-term moderate beneficial impacts upon project completion.

5.10 Land Use and Planning

Construction of the Proposed Action would not entail change in land use or planning within the Red Hook neighborhood. However, the project is subject to New York City's Uniform Land Use Review Procedure (ULURP) for public review of land use applications (New York City Department of Planning [NYCDCP], 2022). Discretionary land use actions such as ULURP also subject the project to the State Environmental Quality Review Act (SEQRA; 6 NYCRR Part 617), as implemented by CEQR.

5.10.1 Existing Conditions

Red Hook is a neighborhood on a peninsula along Brooklyn's waterfront, located southwest of the Gowanus Expressway and primarily accessible by local roadways. Land uses are predominantly industrial at the neighborhood's edges, residential in the interior, and commercial along Van Brunt Street and Lorraine Street (NYCDCP, 2021). Proximity to the waterfront stimulated the development of industrial land uses characterized by many low-rise buildings and warehouses. Current industrial uses include marine freight transportation at Red Hook Terminal, recently developed "last-mile" delivery facilities, bus and food truck parking facilities, and a variety of food manufacturers and small-scale artisan-based uses. There are also large areas of vacant land used for parking and open storage. Existing zoning districts include manufacturing districts, residential districts, and commercial overlays mapped within residential districts (NYCDCP, 2018). Residential areas are zoned R5 and R6 for multi-story residential buildings. Industrial areas are zoned M1-1, M2-1, and M3-1, which allow for a mix of commercial and industrial uses and vary by intensity of industrial permitting. Red Hook Houses are six-story NYCHA apartment buildings that house the majority of the neighborhood's residents, while residential areas to the west are predominantly two- and three-story and one- and two-family buildings. Mixed commercial and residential buildings are located along Van Brunt Street within a C1-3 commercial overlay. In addition, commercial establishments such as stores and restaurants are scattered throughout Red Hook. The Southwest Brooklyn Industrial Business Zone, designated in 2005 to provide support for industrial businesses, runs along the waterfront from the Columbia Street Waterfront District to Sunset Park, encompassing large portions of Red Hook. A separate special mixed-use district, which contains a supermarket as well as residential space, is located on the southwestern waterfront.

Red Hook also contains parks, schools, and other community facilities. Recreational areas include Coffey Park, Erie Basin Park, Louis Valentino Jr. Park and Pier, and the Red Hook Recreation Area, which includes a swimming pool and multiple soccer and baseball fields. Educational facilities include Summit Academy Charter School, P.S. 676, BASIS Independent Brooklyn Upper School, and South Brooklyn Community High School. Other community facilities in Red Hook include the Brooklyn Public Library - Red Hook Branch, Red Hook East/Joseph Miccio Community Center, Red Hook Senior Center, and the Red Hook Community Farm Compost Operation.

NYCDCP has undertaken several studies and initiatives that overlap with the Red Hook neighborhood. *The Red Hook Transportation Study* describes existing land use and transportation conditions in Red Hook and recommends transportation improvements for pedestrians, bicycles, buses, roadways, truck routes, and mass transit (NYCDCP, 2014). *Zoning for Coastal Flood Resiliency, Planning for Resilient Neighborhoods* describes zoning strategies to promote resilient buildings and neighborhoods. The *New York City Comprehensive Waterfront Plan* is a guide to climate resiliency, waterfront access, economic opportunity, water quality, natural resources, ferries, and governance (NYCDCP, 2021; 2022).

5.10.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, no construction activities or flood protection improvements would be initiated and Red Hook would continue to lack climate and flood resiliency. Normal travel patterns within Red Hook would be interrupted during flood events and Red Hook businesses would experience impacts to their facilities and operations. Therefore, the No Action Alternative would have short and long-term minor adverse impacts to current and future development caused by flooding damages.

Alternative 2: Proposed Action: Integrated Flood Protection System - 10-ft Elevation

The Proposed Action would benefit the Red Hook neighborhood by providing a continuous line of flood protection. Improved climate resiliency would be provided to residential, industrial, and commercial land uses. The project would undergo the NYCDCP ULURP and WRP processes and follow any applicable NYCDCP policies and regulations. Community facilities would have a reduced potential for flooding impacts. Normal travel patterns within Red Hook would experience fewer interruptions during flood events and Red Hook businesses would have a reduced potential for flooding impacts to their facilities and operations.

Much of the Proposed Action is aligned with public ROW mapped streets and is therefore not subject to the requirements of New York City's Zoning Resolution. However, as certain tracts of roadway would raise legal street grades to higher elevations, the Proposed Action would require a change to the city map to accurately display new elevations.

The Proposed Action would be developed primarily on New York City-owned property, which includes City land within a mapped bed-of-street. However, the City of New York would acquire non-City owned property to facilitate the project. The Proposed Action would include easements required to maintain privately owned streets and roads. For said easements to be approved, the Proposed Action requires acquisition of real property. These acquisitions would allow New York City to operate, inspect, and maintain the proposed flood protection system, including floodwalls and deployable flood barriers. Therefore, the Proposed Action would have a long-term minor beneficial impact on Land Use and Planning, as current and future development would be protected from flooding.

The draft ULURP application is currently being prepared based on the July 20, 2022, Interdivisional Meeting. Based on the meeting, ULURP land use applications are required for the following actions: Change in the City Map (MM) and Acquisition of Real Property (PQ). The actions necessary to facilitate the proposed project include: Change in the City Map (MM) for raising of legal street grades to EL 8; Change in the City Map (MM) for the acquisition and mapping of Corporation Counsel Opinion (CCO) street Sullivan Street; Change in the City Map (MM) for the mapping of new parkland to enlarge Todd Triangle; and Proposed Acquisition of Real Property (PQ) for the acquisition of easements in order to maintain the aforementioned flood protection system that will include permanent flood protection

elements within Atlantic Basin and Ikea park, as well as several privately owned properties.

5.11 Noise

Sound pressure level (SPL) is used to measure the magnitude of sound and is expressed in decibels (dB). Noise levels are often given in dBA (A-weighted sound levels) instead of dB, with the threshold of human hearing defined as 0 dBA. A dBA is a weighted scale for judging loudness that corresponds to the hearing threshold of the human ear. The SPL increases logarithmically, so that when the intensity of a sound is increased by a factor of 10, its SPL rises by 10 dB, while a 100-fold increase in the intensity of a sound increases the SPL by 20 dB. Equivalent noise level (Leq) is the average of sound energy over time, so that one sound occurring for 2 minutes would have the same Leq of a sound twice as loud occurring for 1 minute. The day night noise level (Ldn) is based on the Leq and is used to measure the average sound impacts for the purpose of guidance for compatible land use. It weights the impact of sound as it is perceived at night against the impact of the same sound heard during the day. This is done by adding 10 dBA to all noise levels measured between 10:00 pm and 7:00 am. For instance, the sound of a car on a rural highway may have an SPL of 50 dBA when measured from the front porch of a house. If the measurement were taken at night, a value of 60 dBA would be recorded and incorporated into the 24-hour Ldn.

Leq and Ldn are useful measures when used to determine levels of constant or regular sounds, such as road traffic or noise from a ventilation system. However, neither represents the sound level as it is perceived during discrete events, such as emergency sirens and other impulse noises. They are averages that express the equivalent SPL over a given period of time. Because the decibel scale is logarithmic, louder sounds reflected by higher SPL are weighted more heavily; however, loud infrequent noises, such as emergency sirens with short durations would not significantly increase Leq or Ldn over the course of a day. The Noise Control Act of 1972 required USEPA to create a set of noise criteria. In response, USEPA published *Information On Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, in 1974, which explains the impact of noise on humans. The USEPA report found that keeping the maximum 24-hour Ldn value below 70 dBA would protect the majority of people from hearing loss. USEPA recommends an outdoor Ldn of 55 dBA. According to published lists of noise sources, sound levels, and their effects, sound causes pain starting at approximately 120 to 125 dBA (depending on the individual) and can cause immediate irreparable damage at 140 dBA. OSHA has adopted a standard of 140 dBA for maximum impulse noise exposure.

5.11.1 Existing Conditions

Existing noise and vibration exposure is mainly experienced from vehicular traffic, both on local streets and from the Gowanus Expressway and adjacent Hugh L. Carey Tunnel. The project areas include principal arterial and major collector roadways (roads that connect local roads and streets to arterials). Other noise sources in the project area are from waterfront activity, commercial, industrial, and manufacturing businesses, residential areas, and active recreation. Additionally, depending on flight paths

from JFK International and LaGuardia Airports, there may also be intermittent noise level increases from overhead jets arriving and/or departing from those airports. There are no other major sources of stationary-source noise or vibration within the project area or the Red Hook neighborhood.

In June 2022, the Subrecipient conducted continuous long-term noise measurements in three locations in the Atlantic Basin project area and two locations in the Beard Street project area to identify background noise levels for the construction noise assessment. Long-term noise level measurements were reviewed to identify the minimum existing weekday daytime noise levels between 7AM and 3PM, coinciding with proposed construction hours. The hour with the minimum weekday daytime background noise level was identified at each site since it would result in the greatest potential noise level increase from proposed construction activities. Noise levels documented at Noise Measurement Sites 2 (160 Imlay Street) and 3 (155 Sullivan Street), which are both located along the southern portion of the Atlantic Basin project area, were approximately 10 dB less than at Noise Measurement Site 1. Within the Beard Street project area, noise levels were documented at Noise Measurement Site 4 (251 Conover Street). This noise measurement site is located near the western portion of the Beard Street project area, directly adjacent to the Pier 44 Waterfront Garden and a large truck parking lot. Noise levels were also documented at Site 5 (Basis Independent Brooklyn Upper School). (See **Appendix B, Figures 10-12** for Noise Analysis Locations and **Appendix C, Tables 5-16 to 5-25** for Construction Noise Assessment Results).

5.11.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, there would be no construction activities or site preparation. Therefore, there would be no noise impacts under the No Action Alternative.

Alternative 2: Proposed Action: Integrated Flood Protection System - 10-ft Elevation

Construction Impacts

Under the Proposed Action, there would be limited temporary and localized effects on ambient noise levels during project construction. BMPs would include installation of an 11-foot-high solid perimeter barrier at each construction area within 200 feet of a residential receptor to block the work activity line of sight to sensitive sites. Based on this BMP, construction activities would result in potential noise impacts for a total of 1 to 18 weeks, depending on the analysis location. The location with the longest noise impact duration is 46 Beard Street, a mixed-use (residential and commercial) building. This analysis location also represents the Red Hook Farm. Of the 2.5 year or 130-week project duration, potential noise impacts would be expected to last no longer than 18 weeks. Analysis locations at 251 Conover Street and 417 Van Brunt Street, which are both three-story residential buildings, represent other mixed-use and multi-family residential buildings within the project area. Total duration of potential noise impacts at these analysis locations are expected to last no longer than 11 and 14 weeks, respectively. Lastly, of consideration is the analysis location at the newly built BASIS Independent Brooklyn Upper School. The school has central

air conditioning and assuming a conservative building attenuation of 25 dBA, resultant interior noise levels are predicted to be below 45 dBA during all construction scenarios.

Although construction-related noise associated with the proposed project would cause nuisance noise, the noise would be temporary and minimized or controlled by additional BMPs not considered in the noise assessment included within CEQR Chapter 28, Citywide Construction Noise Mitigation and listed within the Construction Impact Mitigation section. Based on the noise assessment, the Proposed Action's construction activities are anticipated to have temporary, minor short-term adverse impacts on ambient noise levels due to mobile- and stationary sources.

Operational Impacts

Post-construction, the Proposed Action including flood walls, street raising and regrading, and installation of new and improvements to the existing storm sewer and sanitary sewer infrastructure would not be a noise source. The Proposed Action's flip-up and roller gates would only be deployed under emergency conditions and would require infrequent testing to ensure proper mechanical functionality. Since the gates only function under emergency conditions and there are no new noise sources introduced with the Proposed Action, there would be negligible long-term noise or vibration impacts associated with the Proposed Action within the project area as noise levels would be relatively similar to pre-construction ambient sound levels. Overall, the Proposed Action would result in short-term minor adverse and long-term negligible noise impacts.

Additionally, construction activities and operational impacts from the Proposed Action would have no impact on federally listed threatened or endangered terrestrial as there is no suitable habitat in the Project Area and no suitable habitat conditions for federally listed aquatic species.

5.12 Transportation

5.12.1 Existing Conditions

Red Hook consists of primarily major collector and local roadways, minor arterial roadways, and local truck routes. The Gowanus Expressway is the only limited access highway in Red Hook. Beard Street and Van Dyke Street are primarily classified as Major Collector roadways, and Ferris Street and Dwight Street are classified as local roadways. Van Brunt Street is classified as a Principal Arterial (Other) north of the Pioneer Street intersection and classified as a Major Collector roadway south of the Pioneer Street intersection.

Beard Street is in south Red Hook and runs in the east-west direction, extending approximately 0.5 miles from Conover Street in the west to Otsego Street in the east. Beard Street is primarily a two-way road that includes one travel lane in each direction, except for the section between Conover Street and Van Brunt Street, where Beard Street operates as a one-way road travelling in the west direction. A "Buses Only" lane runs parallel to Beard Street and provides an exclusive pick-up/drop-off area for passengers accessing

Ikea via the New York City Transit (NYCT) bus service. Curb side parking is permitted on the north side of Beard Street between Conover Street and Richards Street and is permitted on the south side of Beard Street between Conover Street and approximately 200 feet west of Dwight Street, with parking restrictions for street cleaning during specific time periods. The approximate annual average daily traffic (AADT) of Beard Street is 1,463 vehicles per day.

Van Dyke Street is in south Red Hook and runs in the east-west direction, extending approximately 0.5 miles from a dead end that meets the Louis Valentino Jr. Park and Pier pathway in the west to Otsego Street in the east. Van Dyke Street is primarily a one lane one-way roadway traveling in the westbound direction, apart from the section between the dead end and Conover Street, where Van Dyke Street operates as a two-way road that includes one travel lane in each direction. Curb side parking is permitted on both sides of Van Dyke Street, with parking restrictions for street cleaning during specific time periods. The approximate AADT of Van Dyke Street is 844 vehicles per day.

Van Brunt Street is primarily a Major Collector roadway south of Pioneer Street, and a Principal Arterial roadway north of Pioneer Street. Van Brunt Street is in west Red Hook and runs in the north-south direction, extending approximately 1.1 miles from Degraw Street in the north to a dead end that meets the Red Hook Channel in the south. Van Brunt Street is a two-way road that includes one travel lane in each direction. Curb side parking is primarily permitted on both sides of Van Brunt Street, with parking restrictions for truck loading areas and street cleaning during specific time periods and bus stops. The approximate AADT of Van Brunt Street is 6,391 vehicles per day.

Dwight Street is a local roadway that is in east Red Hook and runs in the north-south direction, extending approximately 0.5 miles from Columbia Street in the north to Beard Street in the south. Dwight Street is primarily a one-way road that includes one travel lane in the southbound direction, except for the section between Verona and Otsego Street, where Dwight Street operates as a two-way road and includes one travel lane in each direction. Curb side parking is primarily permitted on both sides of Dwight Street, with parking restrictions for truck loading areas and street cleaning during specific time periods and bus stops.

Ferris Street is a local roadway that is in west Red Hook and runs in the north-south direction, extending approximately 0.3 miles from Clinton Wharf in the north to Van Dyke Street in the south. Ferris Street is primarily a two-way road that includes one travel lane in each direction, apart from the section between King Street and Sullivan Street, where Ferris Street operates as a one-way road travelling in the south direction. Curb side parking on the west side of Ferris Street north and south of the section under construction is permitted, and parking on the east side of Ferris Street is permitted, with parking restrictions for street cleaning during specific time periods.

Bowne Street is a local roadway that is in northeast Red Hook. Bowne Street runs in the north-south direction, extending approximately 0.3 miles from Clinton Wharf in the south to the Red Hook Container Terminals Parking Lot to the north, where the roadway changes to an east-west roadway and continues east for approximately 0.2 miles to the Hamilton Avenue intersection. Bowne Street is primarily a two-

way road that includes one travel lane in each direction, except for the section between Van Brunt Street and Hamilton Avenue, where Bowne Street operates as a one-way road travelling in the east direction. Curb side parking is not permitted on Bowne Street for the north-south roadway segment, as parking spaces for the developments along Bowne Street are located perpendicular and adjacent to Bowne Street. Curb side parking is permitted on both sides of Bowne Street between Van Brunt Street and the Richards Street intersection, with parking restrictions for street cleaning during specific time periods. The approximate AADT of Bowne Street is 1,617 vehicles per day.

This section of southwest Brooklyn is served by the B61 and B57 New York City buses, operated by Metropolitan Transportation Authority (MTA) NYCT. There are no subway stations in the project area. The closest subways being the F and G train lines (running underneath Smith Street until Carroll Street, after which they are elevated above ground), and the 4th Avenue R train line following a route along 9th Street after turning off Smith Street. The Smith/9th Street, Carroll Street, 4th Avenue/9th Street, and Prospect Avenue subway stations are the closest to the project area. However, the Gowanus Expressway inhibits access between Red Hook and these modes of public transit. NYC Ferry operates the South Brooklyn line which includes a stop in Red Hook's Atlantic Basin at the end of Ferris Street. In addition, weekend ferry service is operated by the New York Waterway Ferry providing service between Pier 11 in Manhattan to the Ikea Pier.

5.12.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

Under the No Action Alternative, no flood resiliency improvements would be constructed, and future storm events and flooding would impact transportation and transportation infrastructure. Parking utilization in the Red Hook neighborhood would remain similar to existing conditions, as no significant changes to on-street parking supply are anticipated. Normal travel patterns within Red Hook would be interrupted and local businesses would experience impacts to their facilities and operations. Additionally, public transportation and access to those modes including bus and subway service may be interrupted during a flooding event. Therefore, the No Action Alternative would have short- and long-term minor to major adverse impacts to transportation in the Red Hook neighborhood depending on flooding severity.

Alternative 2: Proposed Action: Integrated Flood Protection System - 10-ft Elevation

Under the Proposed Action, the flood wall and sidewalk width modifications proposed are anticipated to reduce the width of sidewalks or pedestrian circulation areas at 46 locations in the project area. The acceptable sidewalk width differed for each pedestrian analysis location and was developed in coordination with NYCDOT. However, the pedestrian analysis conducted shows that all locations are anticipated to operate at acceptable level-of-service conditions under the Proposed Action, and adverse effects to pedestrian locations are not anticipated. It is noted that construction would result in some temporary traffic lane and sidewalk closures during limited periods. A Maintenance and Protection of Traffic plan for temporary lane, sidewalk, and bike lane closures will be reviewed and approved by

NYCDOT to mitigate anticipated impacts to traffic during construction.

At the onset and end of flooding events, operation and maintenance of deployables (i.e., flip-up gates and roller gates) would require disruptions to traffic flow with durations lasting between two to eight hours (which includes opening and closing). Flip-up gates and sluice gates should be able to be deployed within 15-20 minutes with power or a maximum of 45 minutes with a telehandler. The one-hour time to open/close each gate includes deployment, time for the crews to move, as well as time to prep the area for deployment. Roller gates are expected to take four hours to deploy. However, during flooding events, the flood resiliency infrastructure would potentially minimize flooding in the project area, thereby, reducing impacts to localized transportation (i.e., walking, cycling, etc.) including flooded roads and sidewalks. Residents and businesses would maintain access and mobility within the flood protected areas of neighborhood during a flooding event and then into the surrounding community after a flooding event.

Overall, the Proposed Action would have short-term minor adverse impacts to transportation during construction and maintenance/operation of the deployables, with long-term minor beneficial impacts to mobility during and after flooding events including pedestrian, bicycle, and vehicular traffic.

5.13 Public Services and Utilities

5.13.1 Existing Conditions

The project area is connected to municipal sanitary, electric, gas, and water utilities. Most utility services run underground to the Red Hook neighborhood with primary electric services utilizing overhead transmission lines. The Red Hook neighborhood is served by New York City's sewer system. Red Hook and the northwest section of Brooklyn and Governor's Island have been serviced by the Red Hook Wastewater Treatment Plant located in the Brooklyn Navy Yard since 1987. CSOs along the waterfront that empty into local waterways around Red Hook include four along the Atlantic Basin and 12 along the Gowanus Canal, in addition to CSOs at the termini of Wolcott, Van Brunt, Columbia, Creamer, and Sackett Streets. Water distribution mains and storm sewers are operated and maintained by NYCDEP. Electricity within the project area is delivered by Con Edison. Unlike the majority of Brooklyn which has an underground distribution system, the power supply for most of Red Hook's residential areas is distributed by way of overhead power lines. However, along the waterfront, power is distributed through underground networks. National Grid provides natural gas service to the project area and AT&T-Verizon provides cable service at the edge of the project boundary, with Verizon conduits providing telephone service throughout the neighborhood. Trash service is collected by the New York Department of Sanitation (DSNY) twice weekly with recycling collection and large item collection once weekly. Garbage, recycling, and large items are left on the sidewalk in front of individual properties the night before collection. Red Hook is part of Commercial Waste Zone BK-2 which serves about 6,500-8,500 customers and transports about 500-570 tons of trash per day. DSNY implemented these zones to reduce industry truck traffic.

5.13.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would not directly affect utilities in the project area. However, public utility infrastructure would continue to suffer damage during and after storm events. Future flooding may potentially damage power and wastewater systems in the Red Hook neighborhood leaving residents without vital services. Future flooding could also delay trash collection and street cleaning, leaving piles of garbage and refuse in public areas during a post-event scenario. Therefore, the No Action Alternative would have moderate adverse impact on utilities and public services.

Alternative 2: Proposed Action: Integrated Flood Protection System - 10-ft Elevation

The Proposed Action would require ground disturbance during construction that could potentially disrupt existing utility services. The Subrecipient would be responsible for temporarily supporting or relocating any utilities and trash collection in areas affected by construction activities. The contractor will provide temporary utility service for the duration of construction to minimize impacts to property owners. Impacts from stormwater runoff during construction would be mitigated through SWPPP and ESC plans. The Proposed Action would also floodproof utilities along the flood protection system. The proposed tide gates and sluice gates would prevent floodwaters from entering utility infrastructure.

NYCDEP would be responsible for manually closing the sluice gates within 24 hours before an expected coastal storm event and would take about an hour to fully close. The Subrecipient determined that sluice gates would cut off some of the combined sewer lines from the drainage system during a storm event, preventing flow to the wastewater treatment facility. When the sluice gates are fully closed, untreated sewage will overflow directly into the Gowanus Canal from the temporarily cut off lines. Because there would not be a mandatory evacuation of the area, some residents or businesses may continue to use the area when it is cut off from sewer service. However, during coastal storm events the Red Hook neighborhood is in Evacuation Zone 1 (first zone to be issued an evacuation order). The sluice gates would be opened promptly if coastal flooding is no longer anticipated within the 24 hours of deployment to prevent surface flooding. Since the design includes an 8-foot passive protection, NYCDEP would not close the sluice gates during extra-tropical storms and any other storms with current limitations in forecasting. New York City will also review and enhance the sluice gate deployment procedures to minimize the potential for any discharges to the Gowanus Canal.

Overall, construction activities associated with the Proposed Action would result in potential negligible short-term adverse impacts and minor beneficial long-term impact on public services and utilities, as the project would provide increased resilience against future storm flood events and storm surge in the Red Hook neighborhood.

5.14 Public Health and Safety

5.14.1 Existing Conditions

During Hurricane Sandy, the Red Hook neighborhood experienced severe coastal storm surge flooding, causing significant damage and losses for residents and business owners. Water flooded Red Hook from all surrounding water bodies and flood depths exceeded six feet. This inundation impacted much of the neighborhood, including New York City Housing Authority (NYCHA) Red Hook Houses just outside the project area, except for a small, elevated section around Coffey Street and a few streets in northern Red Hook close to Hamilton Avenue. Properties along the Columbia Street Waterfront District also experienced significant flooding. High-rise buildings such as the Red Hook Houses lost mechanical equipment housed in basements, rendering buildings uninhabitable and leaving residents stranded on upper floors. Half of all affected businesses were industrial, with disruptions impacting production, storage, and distribution of goods. The Van Brunt Street Pumping Station was completely inundated, leaving the area without proper drainage and floodwaters mixed with sewage, oil, and trash from the street. Electricity was out in most of the neighborhood for several weeks following the storm, caused by damage to the electricity generation and distribution system. Gas supply lines were also shut down after water inundated gas lines through vents in the sidewalk. Transportation systems were down, stranding residents, limiting supplies and help from reaching the area.

FDNY services the Red Hook neighborhood via two fire stations: FDNY Engine 202 & Ladder 101, and FDNY Engine 279 & Ladder 131. Fire alarm cables and alarm posts are present and operated by FDNY. Police and Health and Medical services are provided by Police Service Area 1 - Red Hook Satellite and Addabbo Family Health Center, respectively. The project area is served by three nearby hospitals – New York-Presbyterian Brooklyn Methodist Hospital, NYU Langone Medical Center, and The Brooklyn Hospital Center.

5.14.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would have a minor to moderate adverse impact on the community's public health and safety as residents would remain vulnerable to flooding, likely resulting in dangerous conditions and property damage during future storm events. Flooding and storm events would also cause delays in emergency response times by FDNY and NYPD as well as transportation of medical emergencies to local hospitals further causing impacts to public health and safety.

Alternative 2: Proposed Action: Integrated Flood Protection System - 10-ft Elevation

The Proposed Action would reduce the susceptibility of the Red Hook neighborhood to future flood hazards and thereby protect the public health and safety of the Red Hook community. In addition, the Proposed Action would maintain FDNY, NYPD, and medical service access to the neighborhood by mitigating flooding conditions. The Proposed Action would have no short-term impacts during

construction and long-term minor to moderate beneficial impacts on public health and safety.

5.15 Hazardous Materials

5.15.1 Existing Conditions

The Subrecipient has prepared a Limited Phase 1 Environmental Site Assessment (Phase 1) in conformance with the scope and limitations of American Society of Testing Materials (ASTM) E1527-21 and CEQR for the project area. This assessment shows 14 Recognized Environmental Conditions, 3 Historical Recognized Environmental Conditions, 7 Controlled Recognized Environmental Conditions, and 8 Potential Recognized Environmental Conditions in connection with the project area. The environmental concerns include Federal Superfund Sites, Inactive Hazardous Waste Disposal Cleanup Sites, NYC Voluntary Cleanup Program Sites (VCP), Historical Auto Body Shops, Historical Dry Cleaners, and Formerly Used Defense Sites.

The Red Hook neighborhood contains several state and federal hazardous waste cleanup sites with contamination stemming from heavy historic chemical and industrial processing including coal tar, shipyards, automobile repair garages, and dry cleaners (**Appendix B**, **Figure 13**). Primary pollutants of concern contaminating soil and groundwater include VOCs, SVOCs, metals, PCBs, and Non-Aqueous Phase Liquid. While the flood protection alternatives to be constructed under the RHCR Project are primarily located in public right of ways, off-site contamination associated with the identified environmental concerns may be encountered.

The primary hazardous waste sites in the Beard Street project area are in the southwest area between Clinton and Smith Streets (Red Hook Park, Chemtura, 610 Smith Street) and along Halleck and Otsego Street (US Dredging Shipyard). The primary hazardous waste sites in the Atlantic Basin project area are in the southern area between Ferris and Conover Street (Red Hook 3/4 Properties, 145 Wolcott Street) and Delevan and Van Brunt Streets (Atlas White Metal and 260 Van Brunt). The majority of these documented properties are currently undergoing remediation or have not been fully remediated, so any construction work in these areas would take into consideration the existing contamination. The Phase 1 identified several NYSDEC registered existing and former underground storage tank and petroleum spills. While none were identified as environmental concerns that would immediately impact the Proposed Project's construction activities, petroleum spills and underground storage tanks in the vicinity of the selected flood protection construction areas would be reviewed for potential concerns. BMPs would be used, where applicable, to ensure all hazardous materials are addressed accordingly.

Other properties identified in the Phase 1 have completed remediation under NYC VCPs. Several of these properties have contamination left in place and institutional or engineering controls to manage the site. While right of way construction would not likely impact these properties, construction activities near properties designated by the NYC Office of Environmental Remediation to have environmental requirements that must be investigated and addressed before redevelopment ("E-designated" properties) and NYC zoning designations that indicate the presence of environmental requirements on a particular tax

lot, would be reviewed for potential concerns including existing contamination. BMPs including site specific excavation requirements would be used to ensure all hazardous materials are addressed accordingly.

The Subrecipient completed a Phase II Environmental Site Assessment Report (Phase II) that identifies exceedances of Soil Cleanup Objectives for commercial and residential use for SVOCs and metals throughout the project site. Groundwater samples contained exceedances of the Technical and Operational Guidance Series values for VOCs, SVOCs, pesticides and metals. The Area of Concern (AOC) within the Atlantic Basin area contained 11 borings with elevated detections of the analyzed parameters listed above in comparison to the boring in the work area outside the AOC. The AOC within the Beard Street area had 20 borings containing elevated exceedances compared to borings located outside this AOC.

5.15.2 Potential Impacts and Proposed Mitigation

Alternative 1: No Action

The No Action Alternative would result in no change to current conditions in the project area and therefore have no effect on hazardous materials.

Alternative 2: Proposed Action: Integrated Flood Protection System - 10-ft Elevation

According to the Phase II report, the potential for negative impacts related to hazardous materials could occur when elevated levels of hazardous materials are present on site and construction activities could create pathways for exposure for either humans or the environment. While no gross contamination was observed during the subsurface investigation, subsurface soil and groundwater samples contained elevated concentrations of primarily SVOCs and heavy metals. Numerous samples contained concentrations of these compounds exceeding applicable regulatory guidelines. The presence of these pollutants is most likely attributed to historic fill and the industrial and manufacturing history of the area.

NYSDEC has closed the historic spills with documented impacts for all known relevant spills, brownfields, and superfund sites in relationship to the flood protection infrastructure. However, residual soil and groundwater contaminants likely remain and could be encountered during construction excavation and dewatering.

Excavated soils and dewatering fluids generated during construction activities would require proper handling and disposal following BMPs and all federal, state, and local regulations. In order to delineate the requirements for proper handling of excavated soils and dewatering fluids, a Remedial Action Plan (RAP) would be prepared. The RAP would include requirements for transportation and disposal of soils; soil stockpiling; removal/closure of underground storage tanks/aboveground storage tanks; dust control; air monitoring; dewatering; engineering controls; capping with concrete/asphalt and/or imported clean fill, etc. The development and submittal of a site-specific Construction Health and Safety Plan (CHASP) on the basis of possible exposure of workers and/or community to contaminants from the proposed project

would be required. The CHASP would identify the possible locations and risks associated with the potential contaminants that may be encountered and the administrative and engineering controls that would be utilized to mitigate concerns. Additionally, NYC DDC will assign a construction community liaison to the project during construction to relay information regarding potential hazardous materials to residents.

A Community Air Monitoring Plan (CAMP) will also be implemented during all soil disturbance activities in accordance with the New York State Department of Health Generic CAMP. Depending on the requirements for the Project Area, the CAMP could require continuous and/or periodic air monitoring for VOCs and particulates (i.e., dust) during project activities. Depending on the results from the air monitoring, VOC and particulate response and actions as defined in the CAMP would be implemented to protect site personnel and the greater Red Hook neighborhood. Details of the CAMP would be included in the RAP.

Contractors will dispose of excavated soils that are not suitable for reuse in accordance with 6 NYCRR Part 375 at the proper permitted receiving facilities. Contractors will treat groundwater recovered during dewatering to remove suspended sediment and dissolved contaminants in accordance with permit requirements prior to discharge to the nearby surface waterbody. No untreated groundwater would be discharged directly to the surface water. With these measures in place, construction of the Proposed Action would result in short-term minor adverse impacts due to hazardous materials.

The Proposed Action itself would not result in the generation of hazardous materials. Construction activities would follow all applicable BMPs to ensure any encountered hazardous materials would be handled and remediated in accordance with all federal, state, and local laws, which may include removing hazardous materials currently on-site. Post-construction, as potential hazardous materials would be removed during construction, risks of encountering hazardous materials during emergency repairs to the RHCR flood resiliency infrastructure would be reduced or eliminated. Therefore, the Proposed Action would have an overall minor long-term beneficial impact from the reduced overall risk of release of hazardous materials and would reduce the potential for exposure to hazardous materials within the project area and the Red Hook neighborhood.

5.16 Cumulative Effects

This EA considers the overall cumulative impact of the proposed alternatives and other actions that are related in terms of time or proximity. According to the CEQ regulations, cumulative effects represent the impact on the environment, which results from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what government agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.1(g)(3)). In addition to NEPA, other statutes require federal agencies to consider cumulative impacts. These include the CWA Section 404 (b) (1) guidelines; the regulations implementing the conformity provisions of the CAA;

the regulations implementing Section 106 of the NHPA; and the regulations implementing Section 7 of the ESA. If the alternative does not have direct or indirect effects for a particular resource, there can be no cumulative effects resulting from the project because there would be no impacts to add to past, present, or reasonably foreseeable actions.

FEMA broadly considers the potential for cumulative effects based on the proposed action and experience with similar type projects. The Subrecipient is responsible for consulting with relevant federal, state, and local planning and regulatory agencies, and determining other actions that are underway or proposed, at or near the project site that, in combination with the proposed project, could result in substantive cumulative effects.

Independent of the Proposed Action, multiple projects are ongoing and/or planned with the intent of upgrading infrastructure and improving flood resilience within the Red Hook neighborhood. NYCHA's Recovery and Resiliency project at Red Hook Houses intends to construct flood resiliency measures and improvements for its NYCHA residents. FEMA does not anticipate any overlapping construction schedules or impacts with the Proposed Action.

NYC Department of Parks and Recreation has three projects to remediate contaminated soils and reconstruct soccer and ballfields in the Red Hook Recreation Area with new synthetic turf. FEMA does not anticipate substantive levels of overlap based on proximity or the changes brought by those projects and the Proposed Action.

NYC Economic Development Corporation and Port Authority of New York and New Jersey have proposed to create its second homeport (Homeport 2.0) located within the Atlantic Basin for nightly storage and maintenance of NYC Ferry vessels. Homeport 2.0 would accommodate maintenance and storage needs of additional vessels for an expanding NYC Ferry vessel fleet due to increasing ridership. Homeport 2.0 involves new maintenance slips, as well as a new travel lift and utility rack, to be installed at the site with anchor piles and monopiles to secure the slips and allow for the safe mooring of ferry vessels. FEMA does not anticipate substantive levels of overlap or increased usage of either facility based on this proximity, or the changes brought by that project and the Proposed Action.

The combination of all recovery development projects, including those mentioned above, would have cumulative effects to the Red Hook area, as specified in the previous paragraphs. However, FEMA does not anticipate substantive cumulative impacts on resources addressed in this EA due to construction of these projects. Implementing BMPs and requirements identified through permitting are expected to limit individual and cumulative impacts for the Proposed Action. Mitigation measures to reduce impacts are addressed in each affected environment section and project conditions section.

6.0 PERMITS AND PROJECT CONDITIONS

The Subrecipient is responsible for obtaining and adhering to all applicable federal, state, and local permits, permit conditions, regulatory compliance, and authorizations for project implementation prior to

construction. Any substantive change to the approved scope of work will require re-evaluation by FEMA for compliance with NEPA and other environmental and historic preservation laws and Executive Orders. The Subrecipient must also adhere to the following conditions during project implementations and consider the conservation recommendations. Failure to comply with grant conditions may jeopardize federal funding.

1. Any proposed construction in a floodplain must be coordinated with the local floodplain administrator and must comply with federal, state, and local floodplain laws and regulations.
2. Excavated soil and waste materials, including potentially hazardous wastes, must be managed and disposed of in accordance with applicable federal, state, and local regulations. Solid waste haulers will be required to have a NYSDEC waste hauler permit and all waste will need to be disposed of or processed at a permitted facility.
3. If any threatened or endangered species are encountered in the project area, the subrecipient must stop work and notify FEMA to continue consultation with USFWS.
4. Preparation of a Stormwater Pollution Prevention Plan and adherence to the conditions of SPDES General Permit for Stormwater Discharges is required on project sites where the soil disturbance would be greater than or equal to one acre.
5. The subrecipient and its contractors are required to use appropriate BMPs for construction not limited to sedimentation and erosion control measures, dust control, noise abatement and restriction of work areas to limit vegetation removal and habitat impacts.
6. In the event that unmarked graves, burials, human remains, or archaeological deposits are uncovered, the subrecipient and its contractors will immediately halt construction activities in the vicinity of the discovery, secure the site, and take reasonable measures to avoid or minimize harm to the discovery. The subrecipient will immediately inform DHSES and FEMA. Work in sensitive areas may not resume until consultations are completed or until an archaeologist who meets the Secretary of the Interior's Professional Qualification Standards determines the extent and historic significance of the discovery as per 36 CFR 79 standards.
7. Occupational Safety and Health Administration standards shall be followed during construction to avoid adverse impacts to worker health and safety.
8. BMPs will be used to limit NAAQS emissions during and after construction under USEPA guidelines.

The Proposed Action's adherence with all applicable federal, state, and local laws, regulations, and programs shall include the following permits, coordination and/or consultations, as required:

United States Army Corp of Engineers (USACE)

- River and Harbor Act Section 10 & Clean Water Act Section 404

United States Fish and Wildlife Service (USFWS)

- Endangered Species Act, Section 7 Consultation

National Marine Fisheries Service (NMFS)

- Magnuson-Stevens Act, Essential Fish Habitat Assessment

NYS Department of State (NYSDOS)

- NYS Coastal Consistency Review (NYSDOS Coastal Management Program)

NYS Office of Parks, Recreations, and Historic Preservation (NYSOPRHP)

- Section 106 Consultation

NYS Department of Environmental Conservation (NYSDEC)

- Natural Heritage Program
- Article 25 - Tidal Wetlands Permit
- Section 401 Water Quality Certification
- SPDES GP-0-20-001 Stormwater Discharges from Construction Activity

NYS Department of Transportation (NYSDOT)

- Highway Work Permit for Non-Utility Work
- Transportation Enhancement Program Project Application

NYS Office of General Services (NYSOGS)

- Lands Under Water (specific to Beard Street Area)

NYC Department of City Planning (NYCDCP)

- Uniform Land Use Review Procedure (ULURP)
- Waterfront Revitalization Program (WRP) - Consistency Assessment

NYC Department of Transportation (NYCDOT)

- Office of Construction Mitigation and Construction (OCMC) Permit:
- OCMC Stipulations required for Maintenance and Protection of Traffic (MPT) approval

NYC Department of Environmental Protection (NYCDEP)

- Storm Sewer Permit
- MS4 Construction Permit

NYC Department of Small Business Services (NYC SBS)

- Work Notice/Permit
- Affidavit for Certificate of Completion

NYC Public Design Commission (PDC)

- Design Commission Conceptual / Preliminary / Final Approval

NYC Department of Parks and Recreation (NYCDPR)

- Tree Work Permit

7.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

This EA is available for agency and public review and comment for a period of 30 days upon posting of the public notice and this EA. The public information process will include a public notice with information about the Proposed Action in the amNY and Brooklyn Paper with targeted outreach via NYC DDC's public meetings and workshops from 2020 to present. The EA is available for download at https://www.fema.gov/media-library/assets/documents. Interested parties may request an electronic copy of the EA by emailing FEMA at FEMAR2COMMENT@fema.dhs.gov.

A hard copy of the EA will be available for review at:

Red Hook Community Center
71 Sullivan Street
Brooklyn, NY 11231

This EA reflects the evaluation and assessment of the federal government, the decision maker for the federal action. FEMA will take into consideration any substantive comments received during the public review period to inform the final decision regarding grant approval and project implementation. The public is invited to submit written comments by emailing FEMAR2COMMENT@fema.dhs.gov or via mail to:

Federal Emergency Management Agency, Region 2 – DR-4085-NY
Attn: Environmental Planning and Historic Preservation
26 Federal Plaza
New York, NY 10278
RE: Red Hook Coastal Resiliency Project

If FEMA receives no substantive comments from the public and/or agency reviewers, FEMA will adopt the EA as final, and will issue a Finding of No Significant Impact (FONSI). If FEMA receives substantive comments, it will evaluate and address comments as part of the FONSI documentation and may consider whether changes to the grant or project implementation are appropriate.

8.0 SUMMARY OF IMPACTS

Section	Area of Evaluation	No Action Alternative	Proposed Action: Short-term / Temporary Impacts	Proposed Action: Long-term / Permanent Impacts
5.2	Geology, Topography, and Soils	No Impact	Minor Adverse	Minor Beneficial
5.3	Air Quality	No Impact	Minor Adverse	No Impact
5.4	Water Resources – Water Quality	Minor Adverse	Negligible Adverse	Minor Beneficial
5.4	Water Resources – Wetlands	Minor Adverse	Negligible Adverse	Minor Beneficial
5.4	Water Resources – Floodplain	Minor Adverse	No Impact	Minor Beneficial
5.5	Coastal Resources	No Impact	Negligible Adverse	Minor Beneficial
5.6	Biological Resources	No Impact	Negligible Adverse	No Impact
5.7	Cultural Resources – Architectural	No Impact	No Impact	No Impact
5.7	Cultural Resources – Archaeological	No Impact	No Impact	No Impact
5.8	Aesthetic Resources	No Impact	No Impact	No Impact
5.9	Environmental Justice	Moderate Adverse	Minor Adverse	Moderate Beneficial
5.10	Land Use and Planning	Minor Adverse	No Impact	Minor Beneficial
5.11	Noise	No Impact	Minor Adverse	Negligible Adverse
5.12	Transportation	Minor to Major	Minor Adverse	Minor Beneficial
5.13	Public Services and Utilities	Moderate Adverse	Negligible Adverse	Minor Beneficial
5.14	Public Health and Safety	Minor to Moderate Adverse	No Impact	Minor Beneficial
5.15	Hazardous Materials	No Impact	Minor to Moderate Adverse	Minor to Moderate Beneficial

9.0 LIST OF PREPARERS

FEMA Region 2
26 Federal Plaza
New York, NY 10278

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Environmental Assessment
Red Hook Coastal Resiliency

Appendix A
Documents

APPENDIX A: Documents

Document 1: EO 11988 / EO 11990 8-step Process

New York City Office of Management and Budget
Project: Red Hook Coastal Resiliency
FEMA 4085-DR-NY

Executive Order 11988 – FLOODPLAIN MANAGEMENT
Executive Order 11990 – WETLAND PROTECTION

8-STEP PROCESS SUMMARY

Date: October 2022

Prepared By: Patrick Lyman, Environmental Protection Specialist

Project: New York City of Management and Budget (NYC OMB – the Subrecipient) has applied for FEMA Hazard Mitigation Grant Program funding. The New York State Division of Homeland Security and Emergency Services (DHSES) is the Recipient partner for the Proposed Action to construct an integrated flood protection system (IFPS) that provides a passive level of protection to include raising street grades to an elevation of 8 to 10 feet with active protection through "deployables", such as flip-up gates and sluice (sliding) gates, to an elevation of 10 feet. The Proposed Action is divided into two "zones" (Atlantic Basin and Beard Street) with 3 and 5 smaller areas within each, respectively.

STEP 1 - Determine whether the proposed actions are located in a wetland and or the 100-year floodplain (500-year floodplain for critical action [44 CFR Sec. 9.4]) or whether they have the potential to affect or be affected by a floodplain or a wetland (44 CFR Sec. 9.7).

X The project site is located in the 100-year floodplain as mapped by:

Site: Red Hook
Preliminary FIRM map: #3604970192G,
01/30/2015, Zone VE (El. 13, 14 15), Coastal AE
(El. 12, 13), AE (El. 11, 12, 13), Shaded X,
NAVD88 datum
Atlantic Basin Area: (40.6834, -74.00592 to 40.67924, -74.01573)
Beard Street Area: (40.67598, -74.01670 to 40.66958, -74.01028)

X The project site is *not* located in the wetland as identified by:

A review of the National Wetlands Inventory (NWI) Map.

Note: The United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) mapping identified an Estuarine and Marine Deepwater Habitat (E1UBLx) waterward

of the shoreline and NYSDEC tidal and freshwater wetland mapping did not identify any wetlands within Red Hook.

STEP 2 - Notify the public at the earliest possible time of the intent to carry out an action in a floodplain or wetland and involve the affected and interested public in the decision-making process (44 CFR Sec. 9.8).

_____Not applicable - Project is not located in a floodplain or wetland.

__X__ Applicable - Notice will be or has been provided by:

A Cumulative Initial Public Notice was published in the New York Post 12/14/2012. An additional public notice will be provided in the public comment period for the Environmental Assessment for this project.

STEP 3 - Identify and evaluate practicable alternatives to locating the proposed action in a floodplain or wetland (including alternative sites, actions, and the "No Action" option) [44 CFR Sec, 9.9]. If a practicable alternative exists outside of the floodplain or wetland, FEMA must locate the action at the alternative site.

_____Not applicable – Project is not located in a floodplain or in a wetland.

__X__ Applicable – Alternative identified in the EA Document or as described below:

Alternative 1: No Action – Under the No Action Alternative, no federal funds would be provided to reduce damages from flooding and coastal storm surge within Red Hook in Brooklyn, NY. The current temporary mitigation protections in place to Elevation 8.5 feet and include pre-deployed Hesco flood barriers and just in-time installation with tiger dams or Hesco flood barriers.

Alternative 2: Proposed Action – The Proposed Action would result in the following actions in the floodplain: construct Elevation 10.0 feet floodwalls, flip-up gates and sliding gates, raise street grades to Elevation 8.0 feet, and construct new bike lands and a public open space. Construction of the flood walls would use a 1-foot-wide reinforced concrete "L" – shaped retaining wall. The Proposed Action would focus on the two low points, Atlantic Basin and Beard Street, that are most vulnerable to coastal storm surge and sea level rise. This approach maximizes coastal flood risk reduction benefits while minimizing impacts to the community. The Proposed Action pulls away from the waterfront, reducing impacts to private waterfront properties and will provide effective maintenance and operations of the flood protection system on the public right-of-way (ROW).

Alternative 3: Permanent 8-ft Waterfront and Interior Alignment – Alternative 3 would result in protection to Elevation 8.0 feet and provide permanent protection for the design storm event. The Subrecipient determined this alternative to be infeasible because the lower level of protection would

not meet the project purpose and need of reducing damages from flooding and coastal storm surge by improving the resilience of the Red Hook neighborhood.

Alternative 4: Permanent 10-ft Waterfront and Interior Alignment – Alternative 4 would provide the highest level of protection compared to the other alternatives. The Subrecipient determined this alternative to be technically infeasible due to extensive permitting and private property coordinated required to complete the proposal.

Alternative 5: Temporary 10-ft Waterfront and Interior Alignment – Alternative 5 would provide temporary protection to Elevation 10.0 feet. The Subrecipient determined this alternative to be infeasible because permitting and constructability complexities introduced from waterfront construction to complete the proposal.

STEP 4 - Identify the potential direct and indirect impacts associated with occupancy or modification of floodplains and wetlands and the potential direct and indirect support of floodplain and wetland development that could result from the proposed action (44 CFR Sec. 9.10).

_____Not applicable – Project is not located in a floodplain or in a wetland.

__X__Applicable – Alternative identified in the EA document or as described below:

Alternative 2: Proposed Action – Although the Proposed Action is in a floodplain, it will provide coastal resiliency and flood mitigation benefits. The Subrecipient would implement specific stormwater management practices, such as erosion and sediment control practices during construction, pollution prevention measures during construction, and soil stabilization measures. Additional details of measures to minimize construction impacts because of the Proposed Action would be determined in the design process, as would any additional measures to minimize the effect of the new impervious surface.

STEP 5 - Minimize the potential adverse impacts and support to or within floodplains and wetlands identified under Step 4, restore and preserve the natural and beneficial values served by floodplains, and preserve and enhance the natural and beneficial values served by wetlands (44 CFR Sec. 9.11).

_____Not applicable – Project is not located in a floodplain or in a wetland.

__X__Applicable – Mitigation measures identified in the EA document or as described below:

The purpose of this project is to improve resiliency to future storm surge and flooding events to the Red Hook community. Replacement/repairs and construction of new street elements

will be in accordance with local floodplain ordinances and meet codes to mitigate and minimize adverse effects.

STEP 6 - Re-evaluate the proposed action to determine first, if it is still practicable in light of its exposure to flood hazards, the extent to which it will aggravate the hazards to others and its potential to disrupt floodplain and wetland values. Second, evaluate if alternatives preliminarily rejected at Step 3 are practicable in light of the information gained in Steps 4 and 5. FEMA shall not act in a floodplain or wetland unless it is the only practicable location (44 CFR Sec. 9.9).

_____Not applicable – Project is not located in a floodplain or in a wetland.

__X__Applicable – Action proposed is located in the only practicable location as described below:

The proposed action is the chosen practicable alternative based upon a review of possible adverse effects on the floodplain and information found during the RCHR feasibility study.

STEP 7 - Prepare and provide the public with a finding and public explanation of any final decision that the floodplain or wetland is the only practicable alternative (44 CFR Sec. 9.12).

_____Not applicable – Project is not located in a floodplain or in a wetland.

__X__Applicable – Finding is or will be prepared as described below:

Step 7 requires that FEMA provide the public with an explanation of any final decisions that the Proposed Action in a floodplain is the only practicable alternative, potential impacts of the Proposed Action on floodplains, and associated mitigation measures. In accordance with CFR 9.12, FEMA will provide this notice with the notice of availability of the draft Environmental Assessment for public review and comment.

STEP 8 - Review the implementation and post-implementation phases of the proposed action to ensure that the requirements state in 44 CFR Sec. 9.11 are fully implemented. Oversight responsibility shall be integrated into the existing process.

_____Not applicable – Project is not located in a floodplain or in a wetland.

__X__Applicable – Approval is conditioned on review of implementation and post-implementation phases to ensure compliance with the order(s).

FEMA and the Subrecipient will ensure that this plan, as modified and described above, is executed during the design phase and that necessary language is included in all agreements with participating parties. Further, FEMA and the Subrecipient will see that all mitigation measures described in Step 5 of this 8-step review and in the EA will be implemented. FEMA and the Subrecipient will conduct the Proposed Action in accordance with applicable floodplain management requirements.

Environmental Assessment
Red Hook Coastal Resiliency

Appendix B
Figures

APPENDIX B: Figures

Figure 1 - Full Project Map Area

Figure 2 - Atlantic Basin Areas 1-3

Figure 3 - Beard Street Areas 1-5

Figure 4 - USFWS National Wetlands Inventory Map

Figure 5 - NYSDEC Environmental Resource Map - Tidal Wetland Map

Figure 6 - FEMA Preliminary FIRM Panel 3604970192G

Figure 7 - Coastal Zone Management Act Boundary Map

Figure 8 - 2020 Census Bureau Map

Figures 9 .1 - 9.5 - 2020 Social Vulnerability Index Maps

Figure 10 - Noise Measurement Locations

Figure 11 - Noise Measurement and Analysis Locations

Figure 12 - Vibration Analysis Locations

Figure 13 - Environmental Remediation Sites

Brooklyn Waterfront Greenway
Flood Wall
Flip-Up Gate
Roller Gate
Street Raising
Project Alignment Buffer (400ft)

0 375 750 1,500 2,250 3,000 US Feet

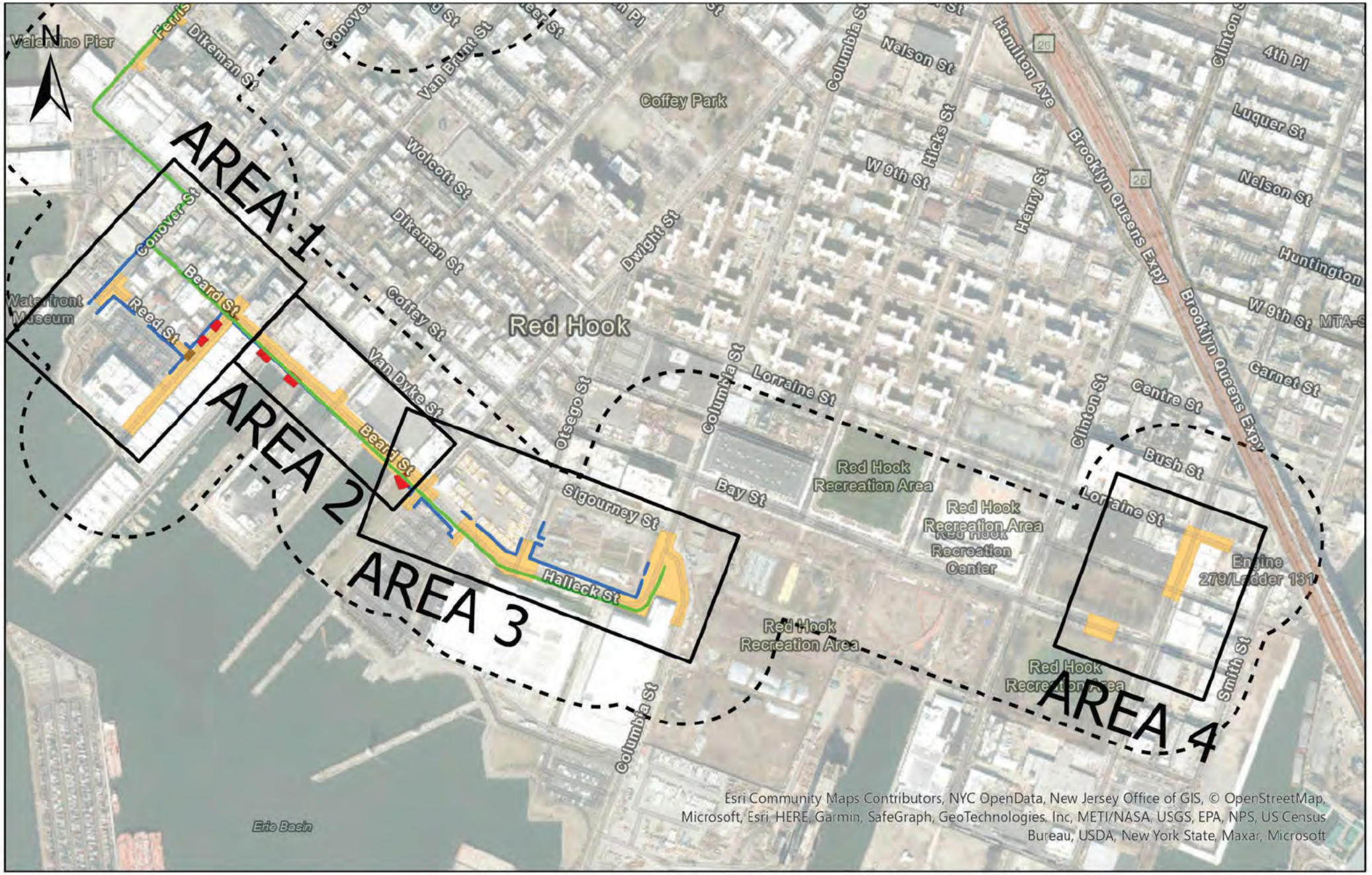
RED HOOK COASTAL RESILIENCY

Full Project Limit Area
Figure 1

RED HOOK COASTAL RESILIENCY

Atlantic Basin Areas 1-3

Figure 2



RED HOOK COASTAL RESILIENCY

Beard Street Areas 1-4

Figure 3

Brooklyn Waterfront Greenway
Flood Wall
Flip-up Gate
Roller Gate
Street Raising

Wetland Type
Estuarine and Marine Deepwater
Estuarine and Marine Wetland
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Other
Riverine

0 500 1,000 2,000 3,000 4,000

RED HOOK COASTAL RESILIENCY

Source: USFWS National Wetland Inventory

Red Hook USFWS NWI Map
Figure 4

RED HOOK COASTAL RESILIENCY

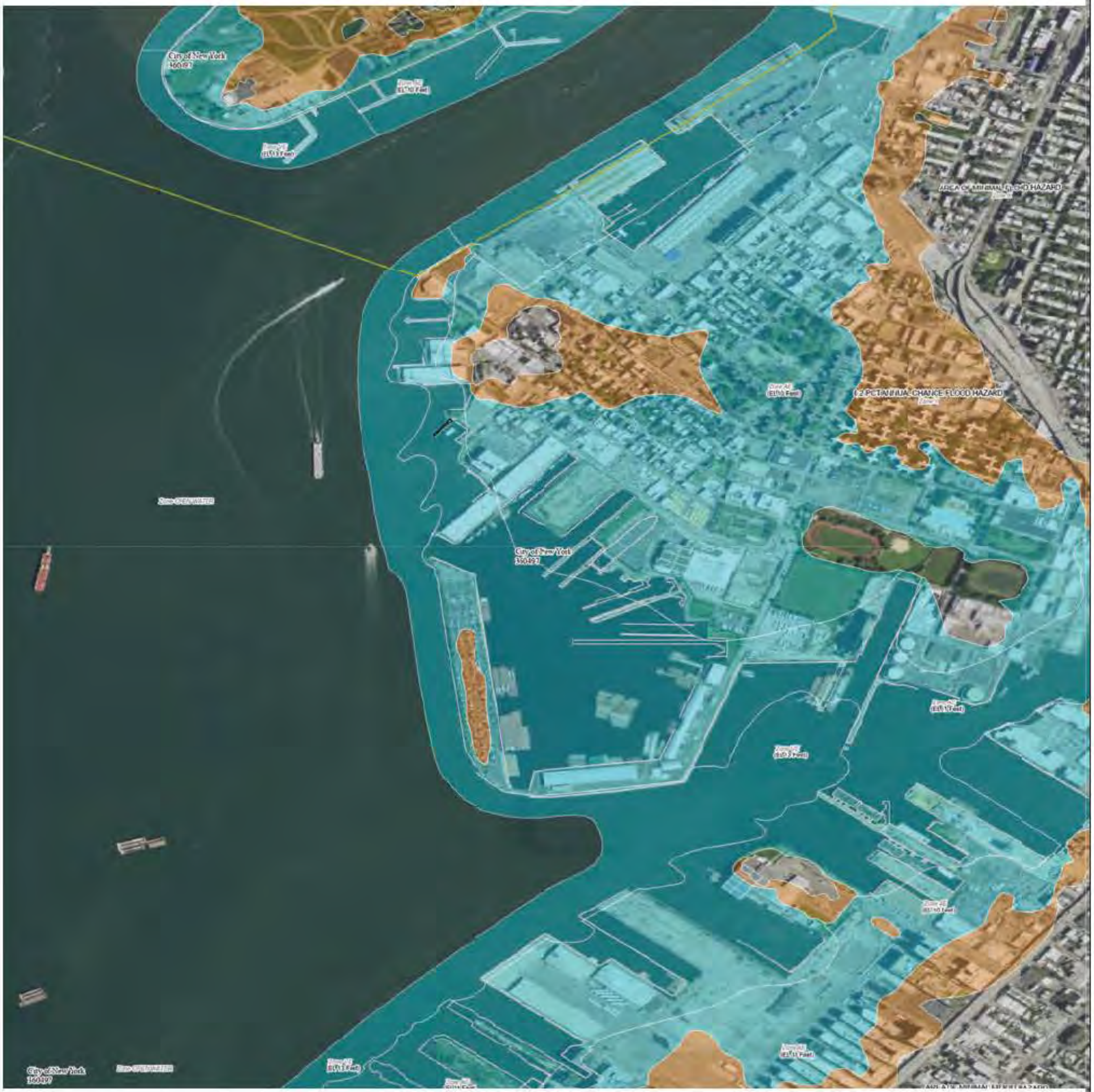
NYSDEC Tidal Wetland Map

Source: NYSDEC Environmental Resource Mapper. https://gisservices.dec.ny.gov/gis/erm/. Accessed 11/10/2023.

Figure 5

74°1'52.93"W 40°41 21.62"N

Figure 6: FEMA PRELIMINARY FIRM



73°59'59.58 W 40°39 15.94 N

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, A99
	With BFE or Depth Zone AE, AO, AH, VE, AR
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% Annual Chance Flood with Average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee See Notes Zone X
	Area with Flood Risk due to Levee Zone D
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard Zone X
	Effective LOMRs
	Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
OTHER FEATURES	20.2 Cross Sections with 1% Annual Chance
	17.5 Water Surface Elevation
	Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary

NOTES TO USER

[illegible]

SCALE

Map Projection
GCS, Geodetic Reference System 1980
Vertical Datum: NGVD29

For more information about the specific vertical datum for elevation features, datum conversions, or vertical monuments used to create this map, please see the Flood Insurance Study (FIS) Report for your community at https://msc.fema.gov

1 inch = 500 feet 1:6,000

0 250 500 1,000 1,500 2,000 Feet

0 50 100 200 300 400 Meters

N

FEMA National Flood Insurance Program

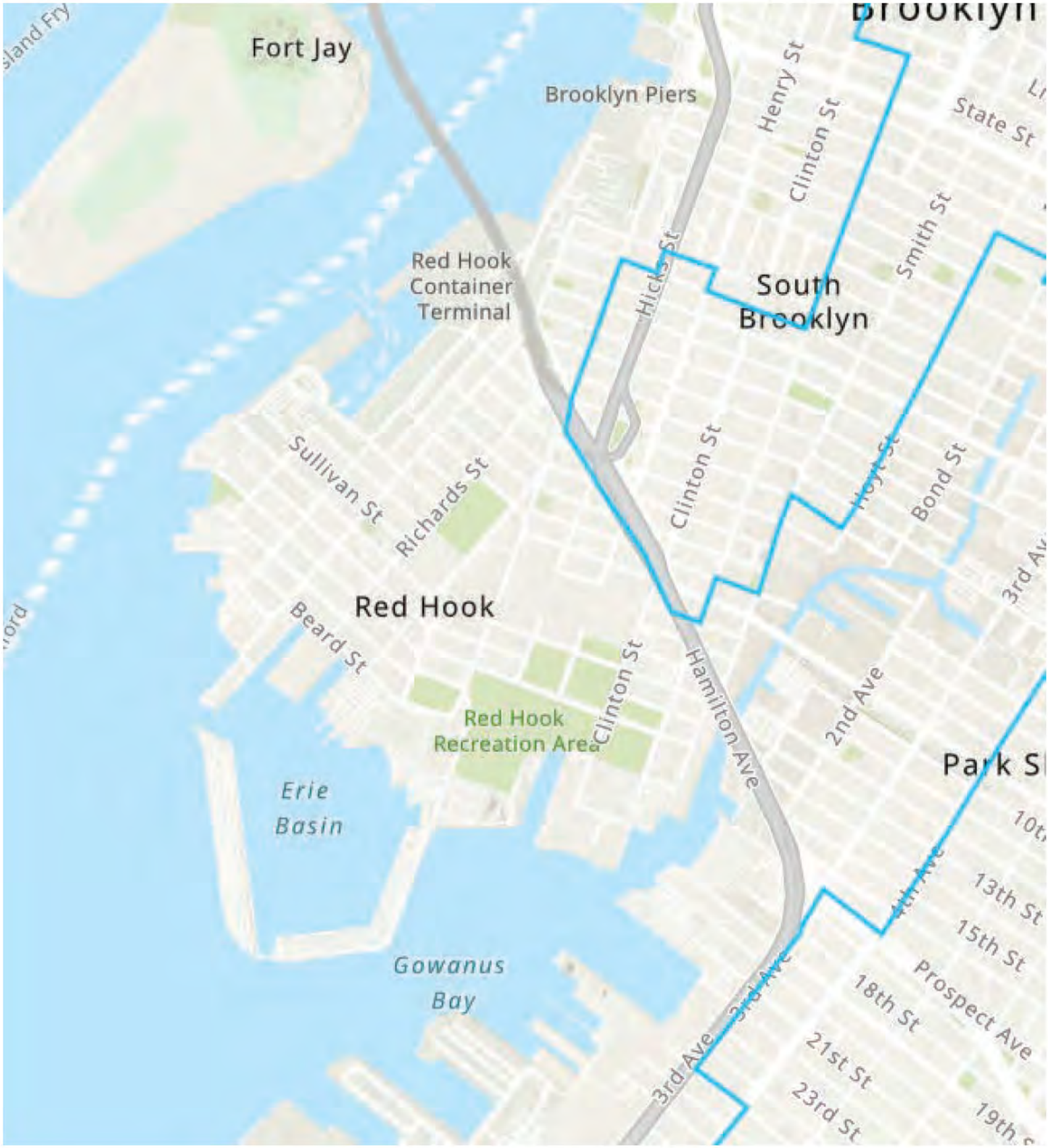
NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

PANEL 192 OF 451

Panel Contains:

COMMUNITY	NUMBER	PANEL
CITY OF NEW YORK	360497	0192

MAP NUMBER
36049701920F
EFFECTIVE DATE
September 05, 2007



Coastal Zone Boundary indicated by the blue border

0 500 1,000 2,000 3,000 4,000
US Feet

RED HOOK COASTAL RESILIENCY

Source: NYS Dept of State Geographic Information Gateway: Coastal Atlas https://new york opd geographic information gateway nysdos hub arcgis com/apps/coastal atlas/explore Accessed on /10/2023

Coastal Zone Map
Figure 7

RED HOOK COASTAL RESILIENCY

2020 New York City Census Maps

Figure 8

Source: New York City Department of City Planning. New York City Census Tracts 2020 US Census. https://www.nyc.gov/site/planning/data-maps/open-data/census-download-metadata.page. Accessed on /10/2023.

Level of Vulnerability

High

Low

0 375 750 1,500 2,250 3,000

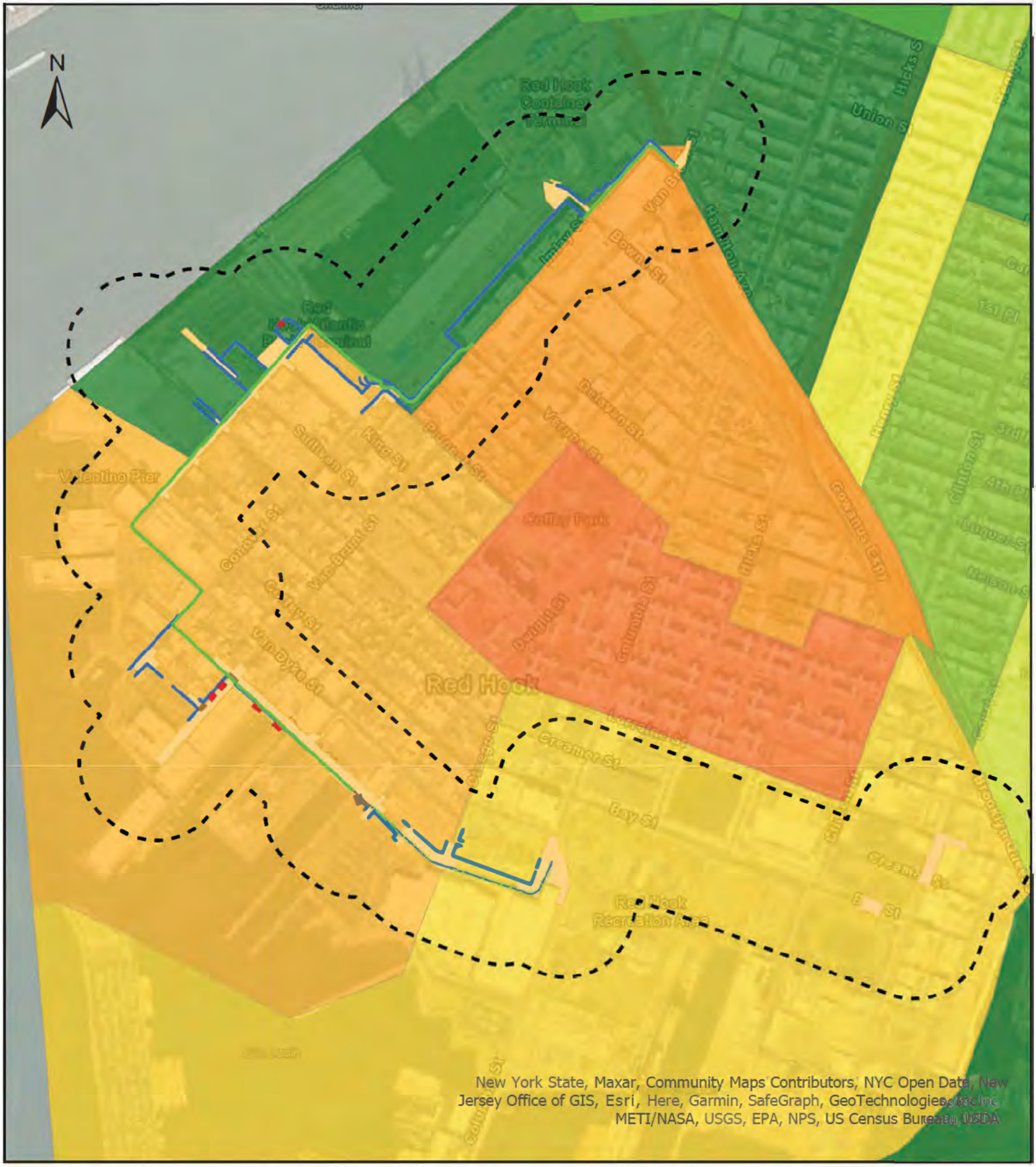
US Feet

RED HOOK COASTAL RESILIENCY

2020 SVI Index: Overall Vulnerability

Figure 9.1

Source: Center for Disease Control and Prevention Agency for Toxic Substances and Disease Registry/Geospatial Research, Analysis, and Services Program. CDC/STSOR Social VUlnerability Index 2020 Database New York. https://www.stsdr.cdc.gov/placesandhealth/svl/data_documentation_download.html. Accessed on 8/10/2023.



Level of Vulnerability

High

Low

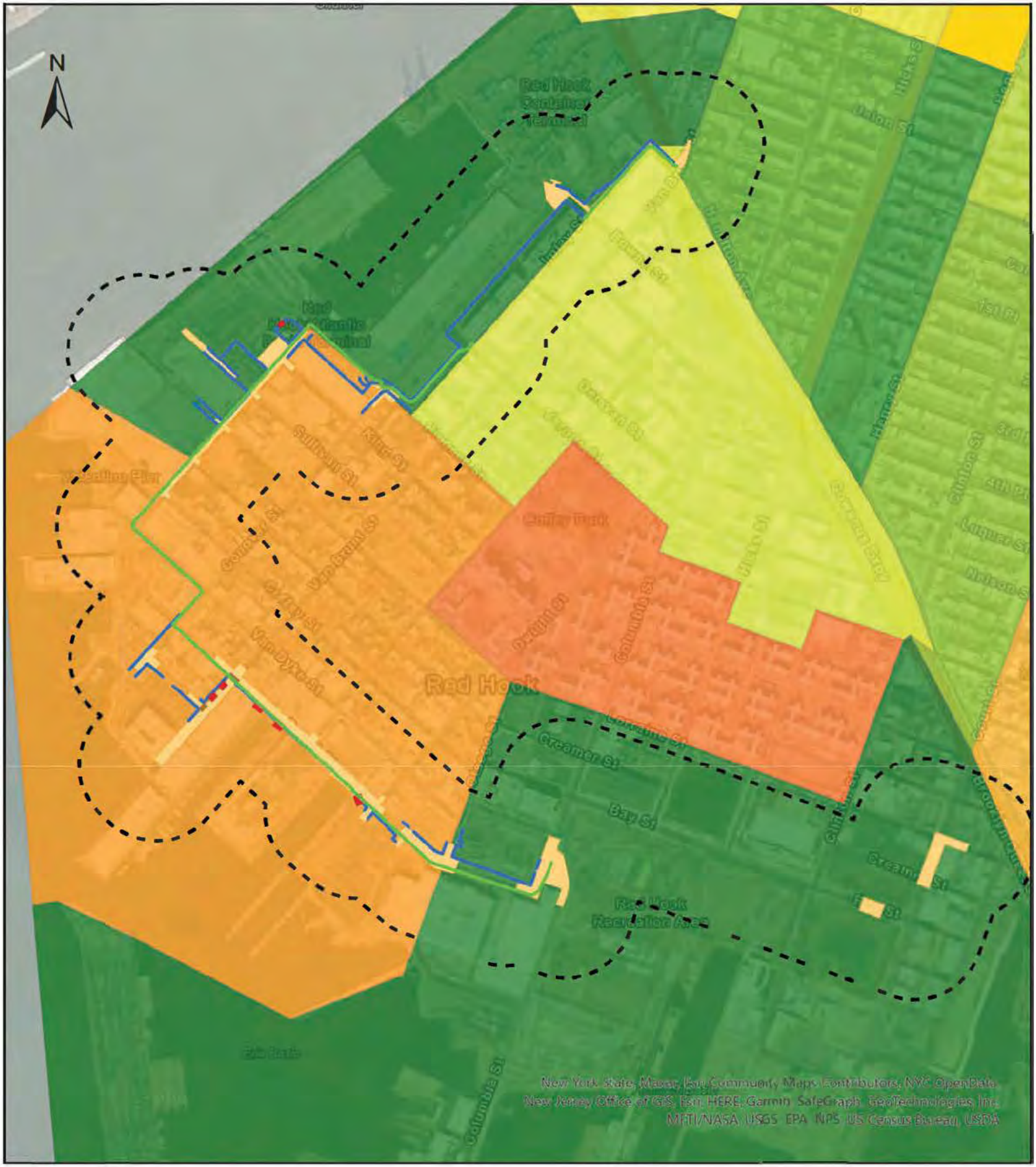
0 375 750 1,500 2,250 3,000 US Feet

RED HOOK COASTAL RESILIENCY

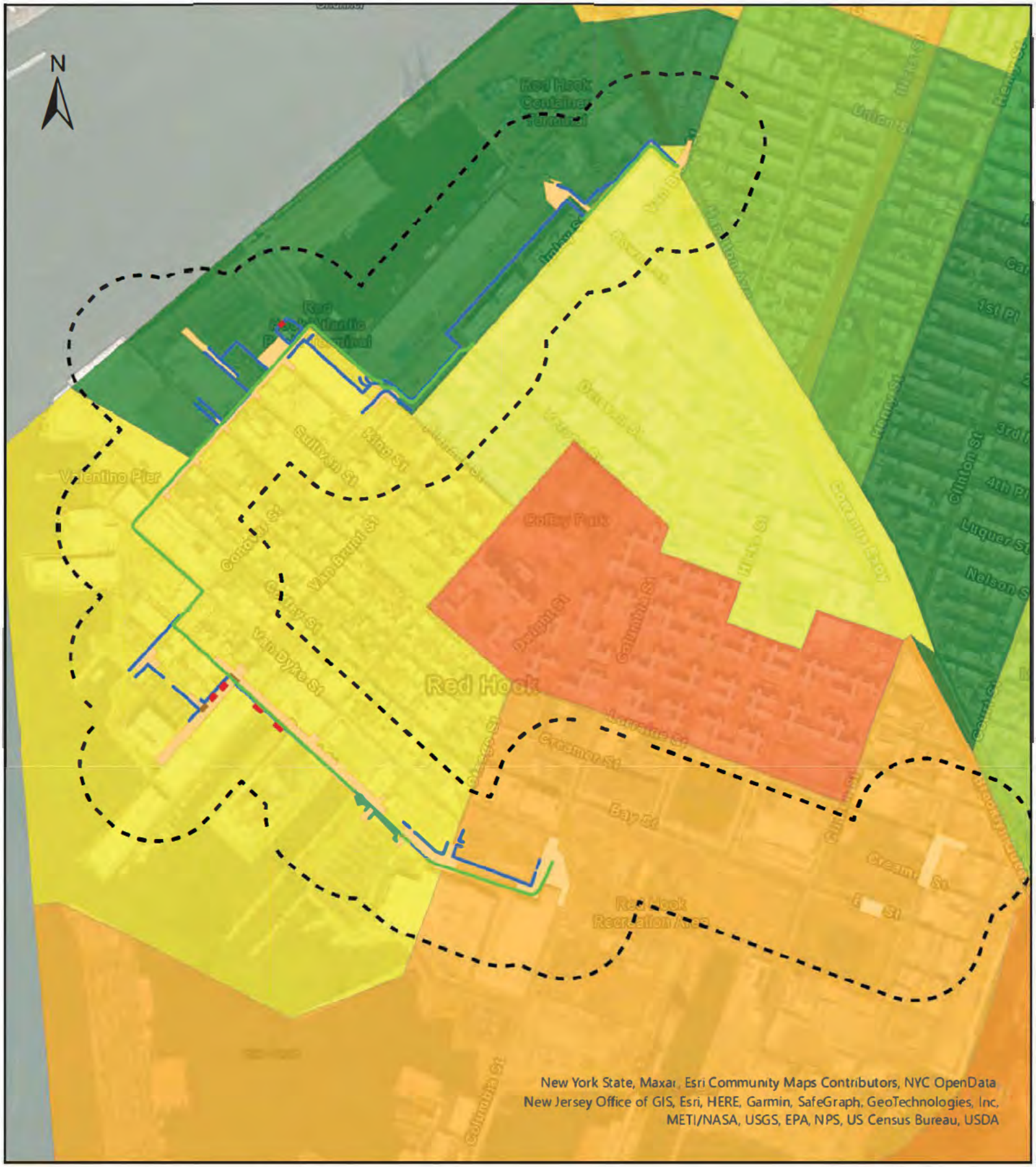
SVI Index Map: Socioeconomic Status

Figure 9.2

Source: Centers for Disease Control and Prevention Agency for Toxic Substances and Disease Registry/Geospatial Research, Analysis, and Services Program. CDC/ATSOR Social Vulnerability Index 2020 Database New York. https://www.stsdr.cdc.gov/placesandhealth/svi/data_documentation_download.html. Accessed on 8/10/2023.



Source: Center for Disease Control and Prevention Agency for Toxic Substances and Disease Registry/Geospatial Research, Analysis, and Services Program. CDC/ATSOR Social Vulnerability Index 2020 Database New York. https://www.stsdr.cdc.gov/placesandhealth/svi/data_documentation_download.html. Accessed on 8/10/2023.



Level of Vulnerability

High

Low

0 375 50 1,500 2,250 3,000

US Feet

RED HOOK COASTAL RESILIENCY

2020 SVI Index: Racial & Ethnic Minority Status

Source: Center for Disease Control and Prevention Agency for Toxic Substances and Disease Registry/Geospatial Research, Analysis, and Services Program. CDC/ATSOR Social Vulnerability Index 2020 Database New York. https://www.stsdr.cdc.gov/placesandhealth/svl/data_documentation_download.html.

Figure 9.4

Level of Vulnerability

High

Low

0 375 50 1,500 2,250 3,000 US Feet

RED HOOK COASTAL RESILIENCY

2020 SVI Index: Housing Type & Transportation

Figure 9.5

Source: Center for Disease Control and Prevention Agency for Toxic Substances and Disease Registry/Geospatial Research, Analysis, and Services Program. CDC/ATSDR Social Vulnerability Index 2020 Database New York. https://www.atsdr.cdc.gov/placesandhealth/svi/data_documentation_download.html. Accessed on 8/10/2023.

LEGEND

X Peak Hour Noise Measurement Location

X Long-Term Noise Measurement Location

Noise Measurement Location Number

PROJECT NORTH

0 375 750 1500 Feet

Date	March 15, 2023

NYCDDC

Red Hook Coastal Resiliency

Figure 10

Noise Measurement Locations

Drawn by: M Amabile Checked by: S P Carpenter

Paul Carpenter Associates, Inc.

LEGEND

X Long-Term Noise Measurement Location

\# Noise Measurement Location Number

X Noise Analysis Location

\# Noise Analysis Location Number

— Construction Limits

0 375 750 1500 Feet

PROJECT NORTH

Date	March 15, 2023
NYCDDC	

Red Hook Coastal Resiliency

Figure 11

Noise Measurement and Analysis Locations

Drawn by: M Amabile Checked by: S P Carpenter

Paul Carpenter Associates, Inc.

LEGEND

X Vibration Analysis Location

\# Vibration Analysis Location Number

Potential Structural Damage Location

Construction Limits

PROJECT NORTH

0 375 750 1500 Feet

Date	March 15, 2023
NYCDDC	

Red Hook Coastal Resiliency

Figure 12

Vibration Analysis Locations and Potential Structural Damage

Drawn by: M Amabile Checked by: S P Carpenter

Paul Carpenter Associates, Inc.

RED HOOK COASTAL RESILIENCY

Environmental Remediation Sites

Figure 13

Source: New York State Department of Environmental Conservation Environmental Remediation Sites Map and Database https://www.dec.ny.gov/chemical/8437.html Accessed on 8/10/2023

Environmental Assessment
Red Hook Coastal Resiliency Project

Appendix C
Tables

APPENDIX C: Tables

Air Quality

Table 5-3: National and New York Ambient Air Quality Standards

Pollutant	Averaging Period	National Primary	National Secondary
Carbon Monoxide	1 hour 8 hour	35 ppm 9 ppm	- -
Ozone	8 hour	0.070 ppm	0.070 ppm
Nitrogen Dioxide	Annual 1 hour	53 ppb 100 ppb	53 ppb -
Lead	Rolling 3 month Average	0.15µg/m3	0.15µg/m3
Sulfur Dioxide[1]	3 hour 1 hour	- 75 ppb	0.5 ppm -
Inhalable Particulates (PM_{10})	24 hour	150 µg/m3	150 µg/m3
Fine Particulates ($PM_{2.5}$)	24 hour Annual	35 µg/m^3 12 µg/m^3	35 µg/m^3 15 µg/m^3

Source: EPA, 2022; https://www.epa.gov/criteria-air-pollutants/naaqs-table

Table 5-4: General Conformity Rule *De Minimis* Thresholds for the Proposed Project

Pollutant	De Minimis Thresholds (Tons/Year)
CO	100
NO_x (O_3 Precursor)	50
VOC (O_3 Precursor)	50
$PM_{2.5}$	100

Source: 40 C.F.R. Section 93.153(b)(1)

Table 5.5: Representative Monitored Ambient Air Quality Data

Pollutant	Monitoring Station, County	Averaging Period	Concentration
Carbon Monoxide[1]	Queens College 2, 65-30 Kissena Boulevard Parking Lot #6, Queens County	1 hour 8 hour	1.90 ppm 1.60 ppm
Ozone[2]	Queens College 2, 65-30 Kissena Boulevard Parking Lot #6, Queens County	8 hour	0.071 ppm
Nitrogen Dioxide[3]	Queens College 2, 65-30 Kissena Boulevard Parking Lot #6, Queens County	Annual 1 hour	13.02 ppb 41.23 ppb
Lead[4]	IS 52, 681 Kelly Street Bronx County	3 months	.0035 µg/m3
Sulfur Dioxide[5]	Queens College 2, 65-30 Kissena Boulevard Parking Lot #6, Queens County	1 hour	5.77 ppb
Inhalable Particulates (PM_{10})[6]	Queens College 2, 65-30 Kissena Boulevard Parking Lot #6, Queens County	24 hour	49 µg/m3
Fine Particulates ($PM_{2.5}$)[7]	PS 314, 330 59th Street Kings County	24 hour Annual	18.6 µg/m3 6.5 µg/m3

Notes:

1. CO data corresponds to the second-highest maximum value.
2. Ozone data corresponds to the three-year average value of the fourth-highest maximum eight-hour concentration, consistent with the statistical form of the NAAQS. The three-year average is based on the last three years of monitored data (2019 to 2021).
3. The monitored one-hour value is based on a three-year average (2019 to 2021) of the 98th percentile of daily maximum one-hour average concentrations.
4. Lead data corresponds to the maximum rolling three-month average over a three-year period (2019 – 2021).
5. Sulfur dioxide one-hour value is based on three-year average of 99th percentile of the annual distribution of daily maximum one-hour average concentrations.
6. 24-hour PM_{10} value is based on maximum over a three-year period.
7. 24-hour $PM_{2.5}$ data is representative of the 98th percentile 24-hour concentration averaged over three years, consistent with the statistical form of the NAAQS. The annual $PM_{2.5}$ data is representative of the average of three consecutive annual means (2019-2021).

Source: NYSDEC, *New York Ambient Air Quality Report For 2021*.

Table 5-6: Preliminary Construction Schedule

	2024	2025				2026				2027
Activities	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Project Mobilization	X									
Pile Work		X	X	X	X	X	X			
Subsurface Utility Work			X	X	X	X	X			
Retaining Walls/Deployables			X	X	X	X	X			
Roadway and Sidewalks Construction				X	X	X	X	X		
Urban Design (Plantings, Aesthetic Features, Lighting							X	X	X	
Striping/Signage									X	
Project Demobilization										X

Source: NV5

Table 5-7: 2025 Construction-Related Activities, Crew Type and Reasonable Equipment

Construction Activity	Reasonable Equipment (Quantity)[Hp]
Pile Work	Concrete saw (2) [71] Excavator (2) [190] Excavator-Mounted Vibratory Hammer (2) [284] Backhoe (2) [190] Dump Truck (2) [400] Pile Drill Rig (2) [115] Box Truck (2) [300] Concrete Truck (3) [300]
Subsurface Utility Work	Concrete saw (1) [71] Excavator (1) [190] Backhoe (1) [190] Dump Truck (1) [400] Welder/Generator (1) [20] Paver (1) [142] Box Truck (1) [300] Concrete Truck (1) [300]
Retaining Walls/Deployables	Backhoe (1) [190] Dump Truck (1) [400] Jackhammer (1) [122] Air Compressor (1) [140] Box Truck (1) [300] Concrete Truck (2) [300]
Roadway and Sidewalks Construction	Concrete saw (1) [71] Backhoe (1) [190] Dump Truck (1) [400] Paver (1) [142] Roller (1) [82] Jackhammer (1) [122] Air Compressor (1) [140] Box Truck (1) [300] Concrete Truck (1) [300]

Table 5.8: Proposed Draft Design (Alternative 2) Net Year 2025 Construction Emission Results (tons/year)

Source	NOx	VOC	CO	$PM_{2.5}$
2025 Construction Emissions	3.11	0.10	1.01	1.08
De Minimis Thresholds	*50*	*50*	*100*	*100*
Exceeds CAA *De Minimis*?	NO	NO	NO	NO

Source: Paul Carpenter Associates, Inc.

Table 5.9: Proposed Draft Design (Alternative 2) Net Year 2025 Construction CO_2e Emission Results (tons/year)

SOURCE	CO_2e (metric tons/year)
2025 Construction Emissions	1,636.6

Environmental Justice

Table 5-10: Regional 2020 Census Population Data

Characteristic	New York State	New York City	Kings County
Population	19,514,849	28,379,552	2,576,771
Age			
Median Age	39.0 years	36.9 years	35.4 years
Percent under 18 years	20.9%	20.7%	22.8%
Percent over 64 years	16.5%	14.9%	14.0%
Race			
White	62.3%	41.3%	42.8%
Black	15.4%	23.8%	31.3%
American Indian	0.4%	0.4%	0.3%
Asian	8.6%	14.3%	11.9%
Native Hawaiian and Pacific Islander	0.0%	0.1%	0.1%
Some other race	8.6%	14.4%	8.9%
Two or more races	4.7%	5.6%	4.7%
Hispanic or Latino	19.1%	28.9%	18.9%

Table 5-11: 2020 Census Tract Population Data

Characteristic	Tract 51	Tract 53.01	Tract 53.02	Tract 53.03	Tract 59	Tract 85	Total or Average
Population	2,815	2,223	65	0	1,143	7,577	
Total Population	13,823						
Age							
Median Age	36.3 years	41.0 years	32.1 years	--	35.5 years	33.2 years	35.3 years
Percent under 18 years	28.7%	20.6%	16.9%	--	11.6%	27.5%	25.3%
Percent over 64 years	2.5%	13.8%	0.0%	--	9.9%	13.0%	10.7%
Race							
White	74.7%	69.1%	66.2%	--	69.6%	12.9%	40.2%
Black	3.2%	17.5%	0.0%	--	8.7%	59.9%	37.7%
American Indian	0.0%	0.3%	0.0%	--	0.0%	0.0%	0.1%
Asian	7.2%	2.7%	7.7%	--	2.4%	5.7%	5.4%
Native Hawaiian and Pacific Islander	0.0%	0.0%	0.0%	--	0.2%	3.4%	0.0%
Some other race	4.4%	5.3%	16.9%	--	11.5%	16.5%	12.0%
Two or more races	10.4%	5.2%	9.2%	--	7.5%	1.7%	4.6%
Hispanic or Latino	7.5%	21.5%	16.9%	--	26.2%	37.4%	20.9%

Table 5-12: 2010 Census Tract Population Data

Characteristic	New York City	Tract 51	Tract 53	Tract 59	Tract 85	Average
Population	8,078,471	2,304	2,037	1,199	7,737	--
Total Population		13,277				
Age						
Median Age	35.4 years	34.0 years	32.4 years	35.0 years	30.4 years	31.7 years
Percent under 18 years	22.1%	16.3%	16.4%	16.7%	32.8%	26.0%
Percent over 64 years	12.0%	7.1%	5.9%	5.6%	10.7%	7.0%
Race						
White	44.2%	67.3%	45.9%	58.5%	11.2%	29.8%
Black	25.2%	3.6%	17.4%	8.0%	44.2%	30.9%
American Indian	0.4%	0.0%	0.5%	0.0%	0.0%	0.3%
Asian	12.6%	18.3%	3.0%	5.3%	1.2%	4.9%
Native Hawaiian and Pacific Islander	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
Some other race	15.2%	5.7%	32.2%	27.3%	38.1%	30.1%
Two or more races	2.4%	5.1%	1.0%	0.9%	5.3%	3.9%
Hispanic or Latino	28.2%	15.0%	38.7%	36.3%	54.6%	29.3%

Table 5-13: 2020 Regional Census Economic Data

Characteristic	New York State	New York City	Kings County
Median household income	$71,117	$67,046	$63,973
Per income	$40,898	$41,625	$36,295
Family poverty rate	10.0%	14.0%	15.4%
Per capita poverty rate	13.6%	17.3%	19.2%

Table 5-14: 2020 Census Tract Economic Data

Characteristic	Tract 51	Tract 53.01	Tract 53.02	Tract 53.03	Tract 59	Tract 85	Average
Median household income	$147,973	$119,000	$126,250	--	$84,375	$17,649	$66,519
Per capita income	$70,494	$60,273	$71,689	--	$54,364	$12,580	$35,777
Family poverty rate	0.0%	17.6%	0.0%	--	4.7%	48.0%	27.9%
Per capita poverty rate	3.3%	15.5%	7.7%	--	7.6%	43.4%	27.6%

Census Tract Locations

Census Tract 51 is bounded by Degraw Street to northeast, Henry Street east, freeway to southwest, and Van brunt Street to northwest. It is to the east of the project area.

Census Tract 53.01 is bounded by water to the west and south; Dikeman Street, Ferris Street, and Pioneer Street to the north; and Richards, Street, Wolcott Street, and Otsego Street to the east. It includes the southern part of the project area.

Census Tract 53.02 Is bounded by Otsego Street to the northwest; Lorraine Street, Clinton Street, and Hamiliton Avenue to the northeast; and water to the southeast and southwest. It is southeast of the project area.

Census Tract 53.03 is bounded by water to the northwest; freeway to the north; Van Brunt Street, Imlay Street to the northeast; and Pioneer Street, Ferris Street, and Dikeman Street to the southwest west. It includes the northern part of the project area.

Census Tract 59 is bounded by Imlay Street on the northwest; freeway on the northeast; 9th Street, Verona Street, and Pioneer Street on the south. It is northeast of the project area.

Census Tract 85 is bounded by Richard Street on the west, 9th Street on the northeast, Clinton Street on the southeast, and Lorraine Street on the southwest.

Table 5-15: Summary of Coastal Flood Vulnerability and Risk within Red Hook Study Area (from the Red Hook Integrated Flood Protection System Feasibility Study)

Storm Event	Area Flooded		Affected Buildings		Affected Population	
	Acres	% of Total (597 acres)	No. of Buildings	% of Total (1,448 buildings)	Population	% of Total (12,399 people)
Hurricane Sandy	452	76%	964	67%	10,560	85%
10 year	92	15%	213	15%	820	7%
10 year + 2.5' SLR	356	60%	780	54%	6,230	50%
50 year	324	54%	756	52%	6,230	50%
50 year + 2.5' SLR	490	82%	1,067	74%	10,780	87%
100 year	489	82%	1,033	71%	10,650	86%
100 year + 2.5' SLR	564	94%	1,236	85%	11,080	89%

Noise

Table 5-16: Noise Levels of Common Sources

Sound Source	Sound Pressure Level (dBA)
Air Raid Siren at 50 feet	120
Maximum Levels at Rock Concerts (Rear Seats)	110
On Platform by Passing Subway Train	100
On Sidewalk by Passing Heavy Truck or Bus	90
On Sidewalk by Typical Highway	80
On Sidewalk by Passing Automobiles with Mufflers	70
Typical Urban Area	60-70
Typical Suburban Area	50-60
Quiet Suburban Area at Night	40-50
Typical Rural Area at Night	30-40
Isolated Broadcast Studio	20
Audiometric (Hearing Testing) Booth	10
Threshold of Hearing	0

Source: CEQR Technical Manual, 2021 – Cowan, James P. Handbook of Environmental Acoustics, 1994 and Egan, M. David, Architectural Acoustics, 1988

Table 5-17: Construction-Related Noise Measurements – Weekday Daytime (7AM – 3PM) Noise Levels (dBA)

Noise Measurement Site Number	Noise Measurement Location	Land Type	Minimum Weekday Daytime Noise Level ($L_{eq(1)}$)
1	Harold Ickes Playground	Recreational	67.9
2	160 Imlay Street	Residential	55.4
3	155 Sullivan Street	Residential	56.1
4	251 Conover Street	Residential	55.8
5	Basis Independent Brooklyn Upper School	School	62.0

Source: Paul Carpenter Associates, Inc., 2023

Table 5-18: Preliminary Construction Schedule

	2024	**2025**				**2026**				**2027**
Activities	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Project Mobilization	X									
Pile Work		X	X	X	X	X	X			
Subsurface Utility Work			X	X	X	X	X			
Retaining Walls/Deployables			X	X	X	X	X			
Roadway and Sidewalks Construction				X	X	X	X	X		
Urban Design (Plantings, Aesthetic Features, Lighting							X	X	X	
Striping/Signage									X	
Project Demobilization										X

Source: NV5

Table 5-19: Construction-Related Activities and Reasonable Equipment

Construction Activity	Reasonable Equipment (Quantity)	
Pile Work[1,2] (Scenario 1)	Sub Activity 1A	Concrete Saw (2) Excavator (2)
	Sub Activity 1B	Backhoe (2)
	Sub Activity 1C	Concrete Truck (3)
	Sub Activity 1Di	Excavator-Mounted Vibratory Pile Driver (2)
	Sub Activity 1Dii	Pile Drill Rig (2)
Subsurface Utility Work (Scenario 2)	Sub Activity 2A	Concrete saw (1) Welder/Generator (1) Excavator (1)
	Sub Activity 2B	Backhoe (1) Welder/Generator (1) Concrete Truck (1)
	Sub Activity 2C	Paver (1)
Retaining Walls/Deployables (Scenario 3)	Sub Activity 3A	Backhoe (1) Jackhammer (1) Air Compressor (1)
	Sub Activity 3B	Concrete Truck (1)
Roadway and Sidewalks Construction (Scenario 4)	Sub Activity 4A	Concrete saw (1) Backhoe (1) Jackhammer (1) Air Compressor (1)
	Sub Activity 4B	Paver (1) Roller (1) Concrete Truck (1)

1 – Drilled piles (5%) and sheet piles (95%) would not be driven concurrently.
2 – Reasonable equipment quantities reflect 2 crews (1-Atlantic Basin, 1-Beard Street).

Table 5-20: Construction-Related Noise Source Levels

Equipment	RCNM Equivalent	L_{max} at 50 feet (dBA)	Acoustical Use Factor	L_{eq} at 50 feet (dBA)
Concrete Saw	Concrete Saw	90	20%	83
Excavator	Excavator	85	40%	81
Excavator-Mounted Vibratory Pile Driver	Vibratory Pile Driver	95	20%	80
Backhoe	Backhoe	80	40%	76
Pile Drill Rig	Auger Drill Rig	85	20%	78
Concrete Truck	Concrete Mixer Truck	85	40%	81
Welder/Generator	Welder/Torch	74	40%	70
Paver	Paver	85	50%	82
Roller	Roller	85	20%	78
Jackhammer	Jackhammer	89	20%	82
Air Compressor	Compressor (Air)	80	40%	76

[1] *– 2021 CEQR Technical Manual, Chapter 22, Table 22-1*

Source: FHWA RCNM

Table 5-21: Maximum Distance Between 11-Foot-High Perimeter Noise Barrier and Equipment Source to Break Line of Sight

Noise Analysis Location Number	Noise Analysis Location	Scenario # 1 Pile Installation (ft)	Scenario # 2 Subsurface Utility Work (ft)
1A	Harold Ickes Playground	NA	NA
1B	149 Van Brunt Street	28	29
2A	160 Imlay Street	6	113
2B	131 Imlay Street	13	186
3A	155 Sullivan Street	84	73
4A	251 Conover Street	15	8
4B	417 Van Brunt Street	20	9
4C	64 Van Dyke Street	177	17
5A	Basis Independent Brooklyn Upper School	65	62
5B	46 Beard Street	20	9
5C	Red Hook Field # 6	NA	NA

NA – Not a residential location

Table 5-22: Construction-Related Noise Levels – Pile Work

Noise Analysis Location Number	Noise Analysis Location	Minimum Weekday Noise Level (L_{eq})	Total Noise Level Range Scenario # 1[1] (Pile Installation) dBA (L_{eq})	Total Noise Level Range Greater Than Minimum Weekday Noise Level dBA (L_{eq})	Duration[2] (weeks)
1A	Harold Ickes Playground[3]	68	68 – 77	0 – 9	<1
1B	149 Van Brunt Street[3]	68	69 – 80	1 – 12	<2
2A	160 Imlay Street	55	56 – 84	1 – 29	<8
2B	131 Imlay Street	55	56 – 82	1 – 27	<10
3A	155 Sullivan Street	56	58 – 73	2 – 16	<7
4A	251 Conover Street	56	62 – 85	6 – 29	<4
4B	417 Van Brunt Street	56	65 – 80	9 – 24	<6
4C	64 Van Dyke Street	56	57 – 70	1 – 14	<5
5A	Basis Independent Brooklyn Upper School	62	62 – 69	0 – 7	<10
5B	46 Beard Street	62	66 – 82	4 – 20	<9
5C	Red Hook Field # 6	62	NA	NA	NA

NA – No pile work within 1,500 feet of analysis location

[1] – Highest noise level result over sub-scenarios

[2] – Number of weeks exceeding 65 dBA

[3] – Minimum background exceeds 65 dBA; analysis based on less than a 3 dBA increase in total noise level

Table 5-23: Construction-Related Noise Levels – Subsurface Utility Work

Noise Analysis Location Number	Noise Analysis Location	Minimum Weekday Noise Level (L_{eq})	Total Noise Level Range Scenario # 2[1] (Subsurface Utility Work) dBA (L_{eq})	Total Noise Level Range Greater Than Minimum Weekday Noise Level dBA (L_{eq})	Duration[2] (weeks)
1A	Harold Ickes Playground[3]	68	70 – 71	2 – 3	<1
1B	149 Van Brunt Street[3]	68	71 – 72	3 – 5	0
2A	160 Imlay Street	55	56 – 57	1 – 2	0
2B	131 Imlay Street	55	56 – 57	1 – 2	0
3A	155 Sullivan Street	56	63 – 66	7 – 9	<1
4A	251 Conover Street	56	79 – 82	23 – 26	<3
4B	417 Van Brunt Street	56	78 – 80	21 – 25	<4
4C	64 Van Dyke Street	56	62 – 64	5 – 8	0
5A	Basis Independent Brooklyn Upper School	62	63 – 64	1 – 2	0
5B	46 Beard Street	62	78 – 80	15 – 18	<5
5C	Red Hook Field # 6	62	73 – 76	2 – 14	<5

[1] – Highest noise level result over sub-scenarios

[2] – Number of weeks exceeding 65 dBA

[3] – Minimum background exceeds 65 dBA; analysis based on less than a 3 dBA increase in total noise level

Table 5-24: Construction-Related Noise Levels – Retaining Wall/Deployables Work

Noise Analysis Location Number	Noise Analysis Location	Minimum Weekday Noise Level (L_{eq})	Total Noise Level Range Scenario # 3[1] (Retaining Wall/Deployables) dBA (L_{eq})	Total Noise Level Range Greater Than Minimum Weekday Noise Level dBA (L_{eq})	Duration[2] (weeks)
1A	Harold Ickes Playground[3]	68	69 – 70	1 – 2	0
1B	149 Van Brunt Street[3]	68	70 – 72	2 – 4	<1
2A	160 Imlay Street	55	72 – 75	16 – 19	2
2B	131 Imlay Street	55	67 – 70	12 – 14	<2
3A	155 Sullivan Street	56	61 – 63	5 – 7	0
4A	251 Conover Street	56	72 – 75	16 – 19	<2
4B	417 Van Brunt Street	56	68 – 70	12 – 14	<2
4C	64 Van Dyke Street	56	59 – 61	4 – 5	0
5A	Basis Independent Brooklyn Upper School	62	63 – 64	1 – 2	0
5B	46 Beard Street	62	70 – 73	8 – 11	<4
5C	Red Hook Field # 6	62	NA	NA	NA

NA – No retaining wall/deployable work within 1,500 feet of analysis location

[1] – Highest noise level result over sub-scenarios[2] – Number of weeks exceeding 65 dBA

[3] – Minimum background exceeds 65 dBA; analysis based on less than a 3 dBA increase in total noise level

Table 5-25: Construction-Related Noise Levels – Roadway and Sidewalks Construction

Noise Analysis Location Number	Noise Analysis Location	Minimum Weekday Noise Level (L_{eq})	Total Noise Level Range Scenario # 4[1] (Roadway and Sidewalks Construction) dBA (L_{eq})	Total Noise Level Range Greater Than Minimum Weekday Noise Level dBA (L_{eq})	Duration[2] (weeks)
1A	Harold Ickes Playground[3]	68	71 – 72	3 – 4	<1
1B	149 Van Brunt Street[3]	68	73	5	<1
2A	160 Imlay Street	55	57	1-2	0
2B	131 Imlay Street	55	57	1-2	0
3A	155 Sullivan Street	56	66 – 67	10 – 11	<1
4A	251 Conover Street	56	82 – 83	26 – 27	<4
4B	417 Van Brunt Street	56	81 – 82	25 – 26	5
4C	64 Van Dyke Street	56	64 – 65	8 – 9	<1
5A	Basis Independent Brooklyn Upper School	62	64 – 65	2 – 3	<1
5B	46 Beard Street	62	80 – 81	18 – 19	4
5C	Red Hook Field # 6	62	76 – 77	14 – 15	<4

[1] – Highest noise level result over sub-scenarios

[2] – Number of weeks exceeding 65 dBA

[3] – Minimum background exceeds 65 dBA; analysis based on less than a 3 dBA increase in total noise level

Environmental Assessment

Red Hook Coastal Resiliency

Appendix D Correspondence

APPENDIX D: Correspondences

Correspondence 1 - NYSDOS Coastal Zone Management Act Consultation

Correspondence 2 - NYSDEC Project Review

Correspondence 3 - USFWS Section 7 Consultation

Correspondence 4 - NYNHP Project Review

Correspondence 5 - NYSHPO Consultation

Correspondence 6 - NYC LPC Consultation

CORRESPONDENCE 1: NYSDOS COASTAL ZONE MANAGEMENT ACT CONSULTATION

U.S. Department of Homeland Security
Federal Emergency Management Agency
FEMA Region 2
One World Trade Center
285 Fulton Street
New York, New York 10007

FEMA

August 2, 2022

Rayana Gonzales
Deputy Commissioner for Recovery Programs
NYS Division of Homeland Security & Emergency Services
1220 Washington Avenue, Building 7A
Albany, New York 12242

Re: NY State's Coastal Management Program Consistency Review of FEMA-DR 4085-HMGP-0092 Red Hook Coastal Resiliency Project

Dear Ms. Gonzales,

The Federal Emergency Management Agency (FEMA) proposes to provide Federal funding from its Hazard Mitigation Grant Program (HMGP) to assist New York City Department of Design and Construction (NYCDDC) (Subrecipient) with the Red Hook Coastal Resiliency Project (Atlantic Basin Portion: 40.6834, -74.00592 to 40.67924, -74.01573 and Beard Street Portion 40.67598, -74.01670 to 40.66958, -74.01028). The project area falls within the western and southern portions of the Red Hook neighborhood of Brooklyn, Kings County, New York. Specifically, one portion of the project will occur in the vicinity of the Atlantic Basin on the western side of the neighborhood. The second portion is along the southern part of the neighborhood, roughly adjacent to and along Beard Street. The project is proposed around a passive system of walls and elevated roadbeds in conjunction with flood gates, designed to reduce flooding impacts to the existing drainage system. Project goals include improving and increasing pedestrian, bike, and vehicle circulation as well as waterfront access and waterfront connectivity while protecting landward areas from flooding events. The project will incorporate pedestrian and bicycle access via the Brooklyn Waterfront Greenway which will also include streetscape improvements such as planting strips, street furniture, safety striping and ADA accessibility.

Background

When Hurricane Sandy made landfall in October 2012, the Red Hook community experienced severe coastal storm surge flooding, causing significant damage and economic losses for businesses and residential properties. Topographically, Red Hook is a low-lying area that is bounded by the working waterways on the East River. From west to east, Red Hook is surrounded by the Buttermilk Channel (a small tidal strait in Upper New York Bay, approximately one mile long and one-fourth of a mile wide which runs between Brooklyn and Governor's Island), Gowanus Bay, and the Gowanus Canal. During the storm, water flooded Red Hook from all

surrounding water bodies with local flood depths exceeding six feet. This inundation impacted much of the neighborhood, including New York City Housing Authority (NYCHA) Red Hook Houses, except for a small, elevated section around Coffey Street and a few streets in northern Red Hook close to Hamilton Avenue. Properties along the Columbia Street Waterfront District also experienced significant flooding. High-rise buildings such as the Red Hook Houses lost mechanical equipment housed in basements, rendering buildings uninhabitable and leaving residents stranded on upper floors. Half of all affected businesses were industrial, with disruptions impacting production, storage, and distribution of goods. The Van Brunt Street Pumping Station was completely inundated, leaving the area without proper drainage and floodwaters mixed with sewage, oil, and trash from the street. There were electricity outages in most of the neighborhood for several weeks following the storm. Much of this was caused by flooding damage to the electricity generation and distribution system. Gas supply lines were also shut down after water inundated gas lines through vents in the sidewalk. Transportation systems were down, stranding residents, limiting supplies and help from reaching the area. The purpose of the Proposed Action is to reduce flood losses to the residents, infrastructure, and property within the Red Hook neighborhood of Brooklyn through implementation of an integrated flood protection project. Specifically, per the Red Hook Integrated Flood Protection System Feasibility Study, there are approximately 190 acres, 3,150 residents, and 500 buildings at risk in a 10-year coastal storm surge.

The proposed project will result in a level of protection from coastal tidal surge up to an elevation 10'. This elevation reduces the risk from a 10-year coastal storm surge and accounts for 2.5 feet of sea level rise expected by 2050 under the High-end scenario determined by the New York City Panel on Climate Change (NPCC) in their 2019 Report. The 10' elevation was chosen after a review of the six-highest recorded storm surges that have hit the neighborhood between 1953 and 2012. However, the Hurricane Sandy was an outlier to the historical norm, its elevation of 11.28 feet was replaced for design purposes with an elevation of 10'. All other surges ranged between approximately 4 and 6 feet. Meanwhile the modeled 10-year coastal storm surge, using the tidal data between 1990 and 2020, would be to an elevation of 7.5 feet. Sea Level rise by the 2050s would add another 2.5 feet of surge level and then an additional 0.5 feet of freeboard was added to the design. Red Hook is primarily located on the Preliminary FIRM 3604970192G, issued on 01/30/2015 and contains VE, LiMWA, AE, and Shaded-X zones. Specific 1% flood zones on land within Red Hook range between 11 and 14 feet.

As noted above, the project has been divided in two areas (Atlantic Basin and Beard Street) with 3 or 4 smaller areas within each. A brief description follows:

Atlantic Basin

Area 1: The project will start with a floodwall at the back of the sidewalk on the corner of the Van Brunt Street and Summit Street intersection and head west on Summit Street to Imlay Street. The wall will turn southwest on Imlay Street, and then to the west onto Bowne Street, continuing into the Port Authority terminal. The wall on the opposite side of Bowne

Street will follow the fence/guiderail between the Port Authority and Dock Building Condos/Warehouse and continue parallel to Bowne Street.

The streets and Brooklyn Waterfront Greenway will be regraded or raised to meet the requisite elevations for the wall in Area 1. The Port Authority parking lot will also be regraded and elevated.

Area 2: The wall continues along fence/guiderail between the Port Authority and Dock Building condos on the landward side of Bowne Street where it will meet the existing fence along the Brooklyn Waterfront Greenway at Verona Street. The wall continues into the Port Authority, parallel with Imlay Street, and then turning onto Conover Street running parallel to the Secret Service building along the landward side of Clinton Wharf.

The road along Conover Street, Imlay Street, and Pioneer Street will be regraded or elevated. A 15' wide ramp to connect the Brooklyn Waterfront Greenway to the waterfront and Ferris Street will be located here.

Area 3: The wall will continue along Clinton Wharf, turning along Ferris Street and ending that segment in a "T" along Ferris Street. On the opposite side of Ferris Street, the floodwall will surround the Port Authority substation and will include a deployable flip-up flood gate for access into that facility. Another wall will be placed on the opposite (southern or landward) side of Sullivan Street along the back of the sidewalk, meet along Ferris Street and continue east up a portion of Wolcott Street. A small segment of wall will be placed on the opposite side of Wolcott Street and meet with Ferris Street on the back of the sidewalk. The road will be raised or regraded along Sullivan Steet and Wolcott Street to an elevation of 10'. The regrading of the roads to an elevation of 10' act as a barrier to storm surge waters due to gaps in the wall required for vehicular access.

Beard Street

Area 1: A floodwall along the west side Conover Street, abutting the existing brick wall is proposed until the Beard Street intersection. The wall will continue along the existing brick wall on the south sidewalk on Reed Street to Van Brunt Street and turn south. A rolling flood gate is proposed at the corner of Reed Street and Van Brunt Street and meet with the wall on west side of Van Brunt Street as it continues north where two flip-up flood gates are proposed before it reaches Beard Street. The wall continues along the southern side of Beard Street and continuing to Dwight Street, along the back of the sidewalk to Area 2. Conover/Reed Street, Van Brunt Street, and Beard Street will be regraded or raised to an elevation of 8 feet.

Area 2: This area consists of the floodwall on the behind the sidewalk (south side) along Beard Street and continuing to Dwight Street. Beard Street will be regraded to an elevation of 8 feet. Three flip-up gates are proposed to allow access to the piers along this section. These gates will remain flush with the sidewalk until they are engaged for a storm event.

Area 3: This area is located along Beard, Halleck, and Columbia Streets. The Beard Street wall will run along the south side of the street to the north side of the Ikea parking lot entrance. The wall will also run along the north side of Halleck Street between Ostego and Columbia Streets. Portions of Beard Street, Ostego Street, Halleck Street, and Columbia Street will be regraded to an elevation of 10'. The Brooklyn Waterfront Greenway will also be extended through this area.

Area 4: This area is not contiguous to Areas 1 – 3. This area proposes to reconstruct the intersection of Court Street and Lorraine Street to a higher elevation. Additionally, minor roadway regrading along Bay Street, adjacent to a park known as Red Hook Field 6 is proposed. No impacts to the park will occur.

New York State Coastal Policies 1 through 44 have been reviewed with respect to the proposed measures to be performed per FEMA's disaster recovery operations. Based on this review, FEMA determined that the above referenced proposed activities are consistent with the policies of the New York State Coastal Management Program (CMP) and will not hinder the achievement of those policies. A summary of the proposed project's consistency with the State Coastal Policies is included as an attachment.

FEMA respectfully requests that NYS Division of Homeland Security & Emergency Services coordinates directly with the New York State Department of State's (NYSDOS) to obtain their concurrence with FEMA's Coastal Zone Consistency Determination, in accordance with the requirement of the Coastal Zone Management Act of 1972 (15 CFR Part 930, Subpart F), prior to the release of federal funding to the grant recipient. FEMA Environmental Planning and Historic Preservation (EHP) looks forward to your office's feedback within 60 days of receipt of this letter. If you have any questions, please contact me.

Sincerely,

JAMES M ZWOLAK

Digitally signed by JAMES M ZWOLAK
Date: 2022.08.02 10:10:17 -04'00'

James Zwolak
EHP Supervisor
DR-4085-NY

iPhone: (646) 832-6255
Email: james.zwolak@fema.dhs.gov

JZ/pl/dw

Enc: Site Location Map and Conceptual Renderings
Consistencies with Coastal Policies of New York Worksheet

ATTACHMENTS

Figures 1 – 20: Site Location Map and Conceptual Drawings

Red Hook Coastal Resiliency Project Location Map

and land users should exercise due caution. The data are dynamic and may change over time. The user is responsible to verify the limitations of the geospatial data and to use the data accordingly. | Airbus,USGS,NGA,CG|AR,NCEAS,NLS,OS,NMA,Geodatastyrelsen,GSA,GS| and the G|S User Community | Contributing counties, NYS Office of |nformation Technology Services G|S Program Office (GPO) and NYS Department of Taxation and Finance's Office of Real Property Tax Services (ORPTS). Primary Contact: GPO, G|SBoundaries@its.ny.gov, 518-242-5029. | Contributing counties, NYS Office of |nformation Technology Services |GS Program Office (GPO) and NYS Department of Taxation and Finance's Office of Real Property Tax Services (ORPTS). Primary Contact: GPO, G|SBoundaries@its.ny.gov, 518-242-5029. | U.S. Fish and Wildlife Service, Coastal Barrier Resources Act Program, CBRA@FWS.gov | NYS Office of Technology Services G|S Program Office (GPO). Primary Contact: GPO, G|SBoundaries@its.ny.gov, 518-242-5029. | source: National Hydrography Dataset: USGS | New York State, Maxar

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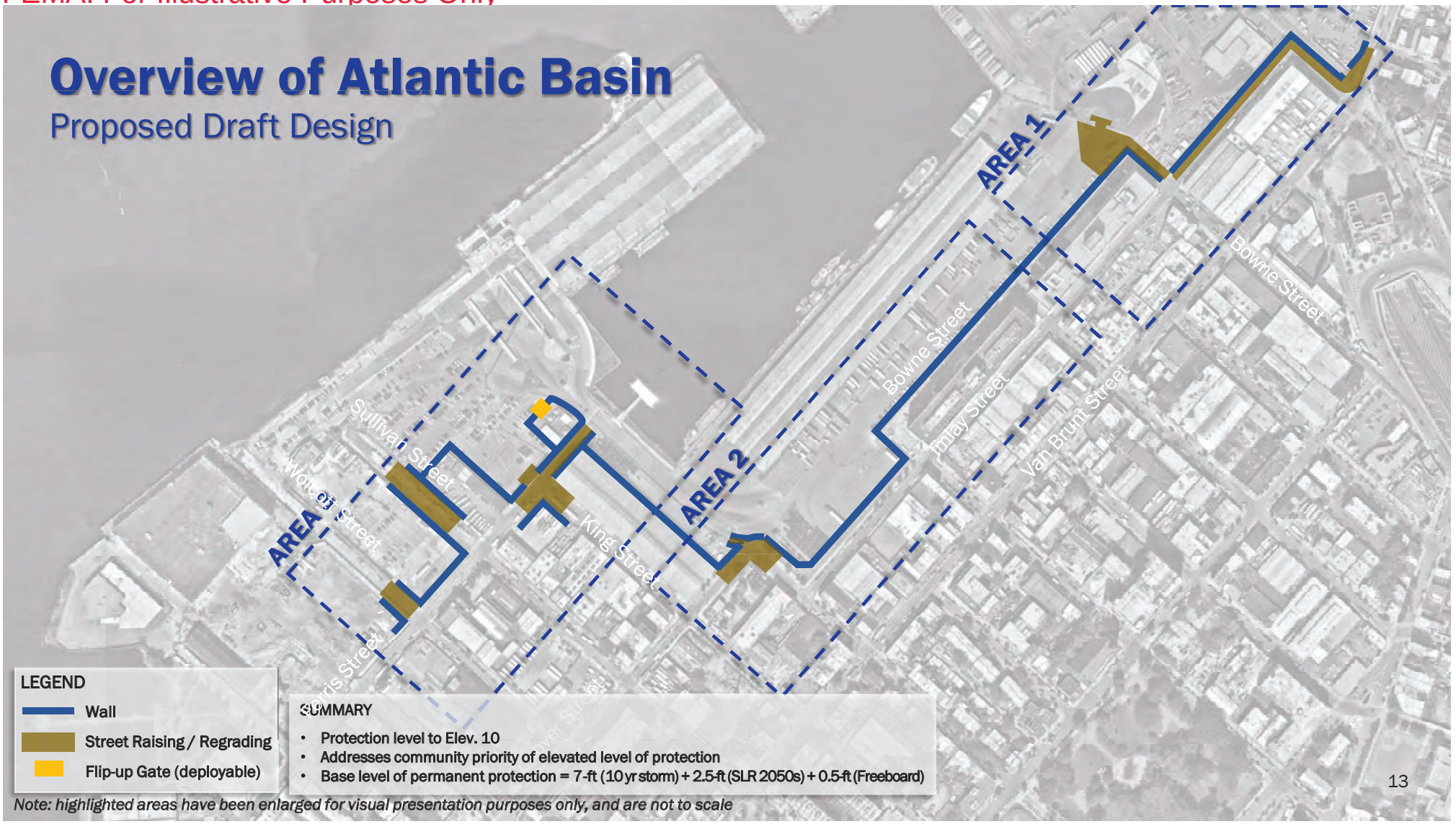

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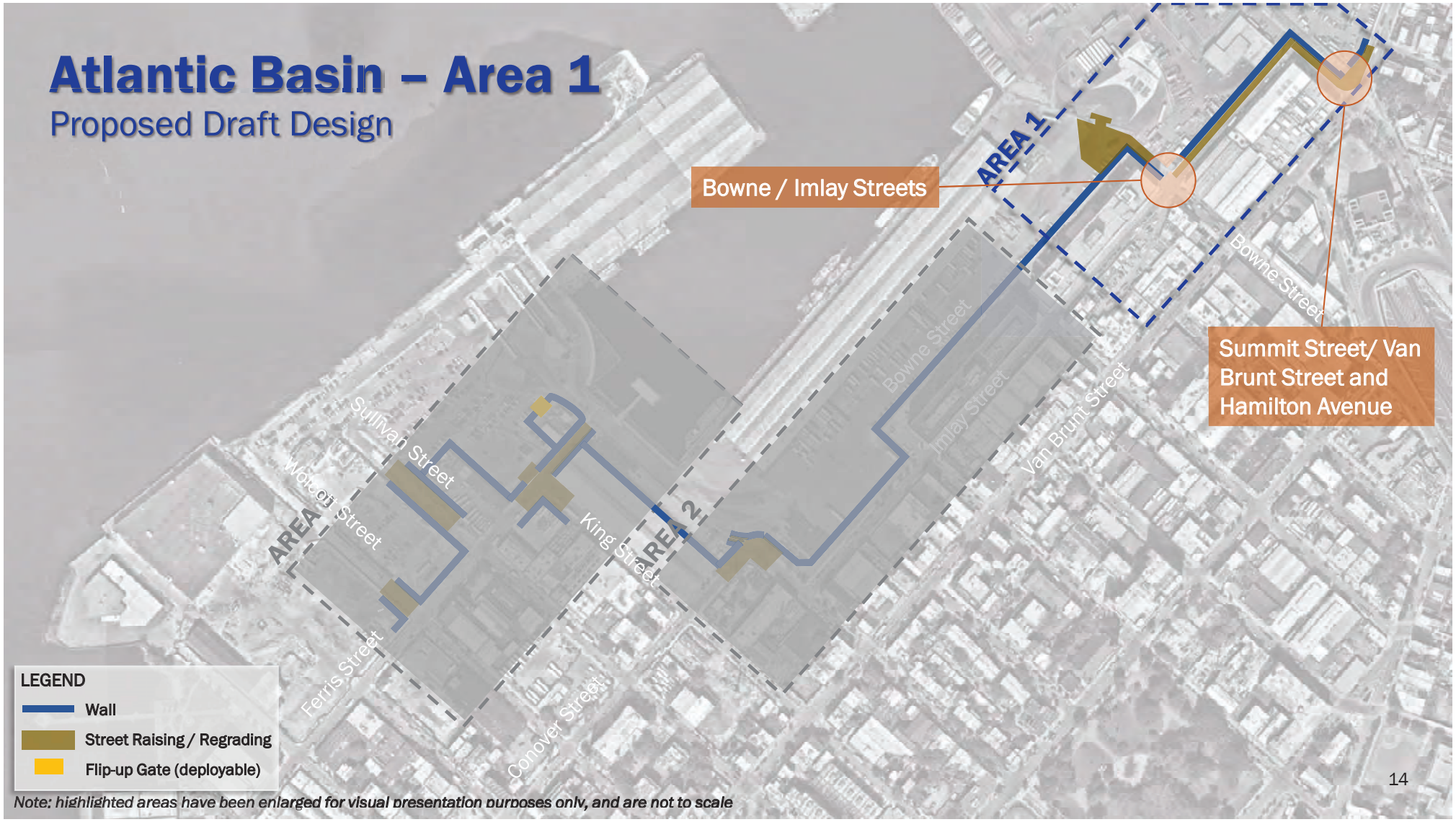

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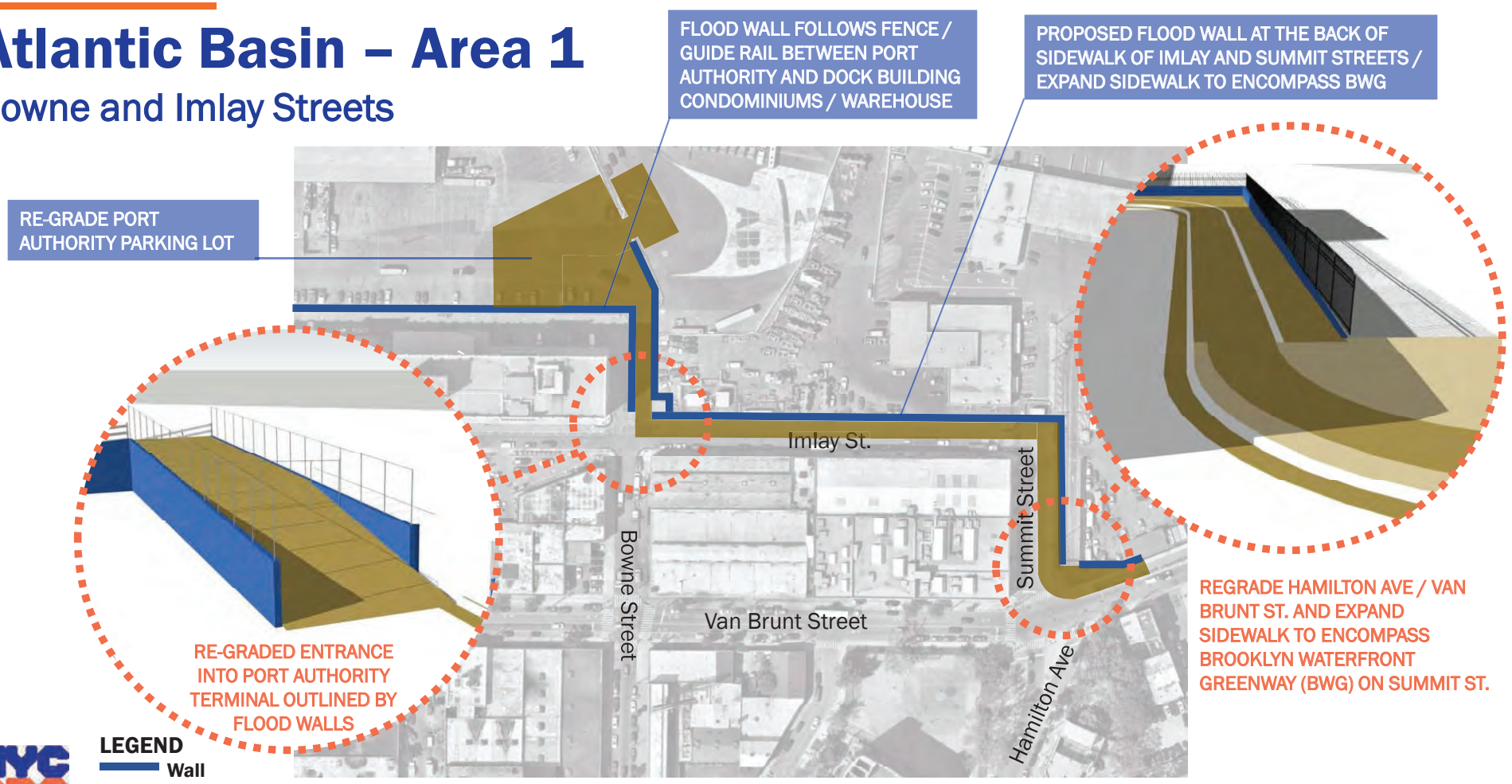
Atlantic Basin – Area 1

Bowne and Imlay Streets



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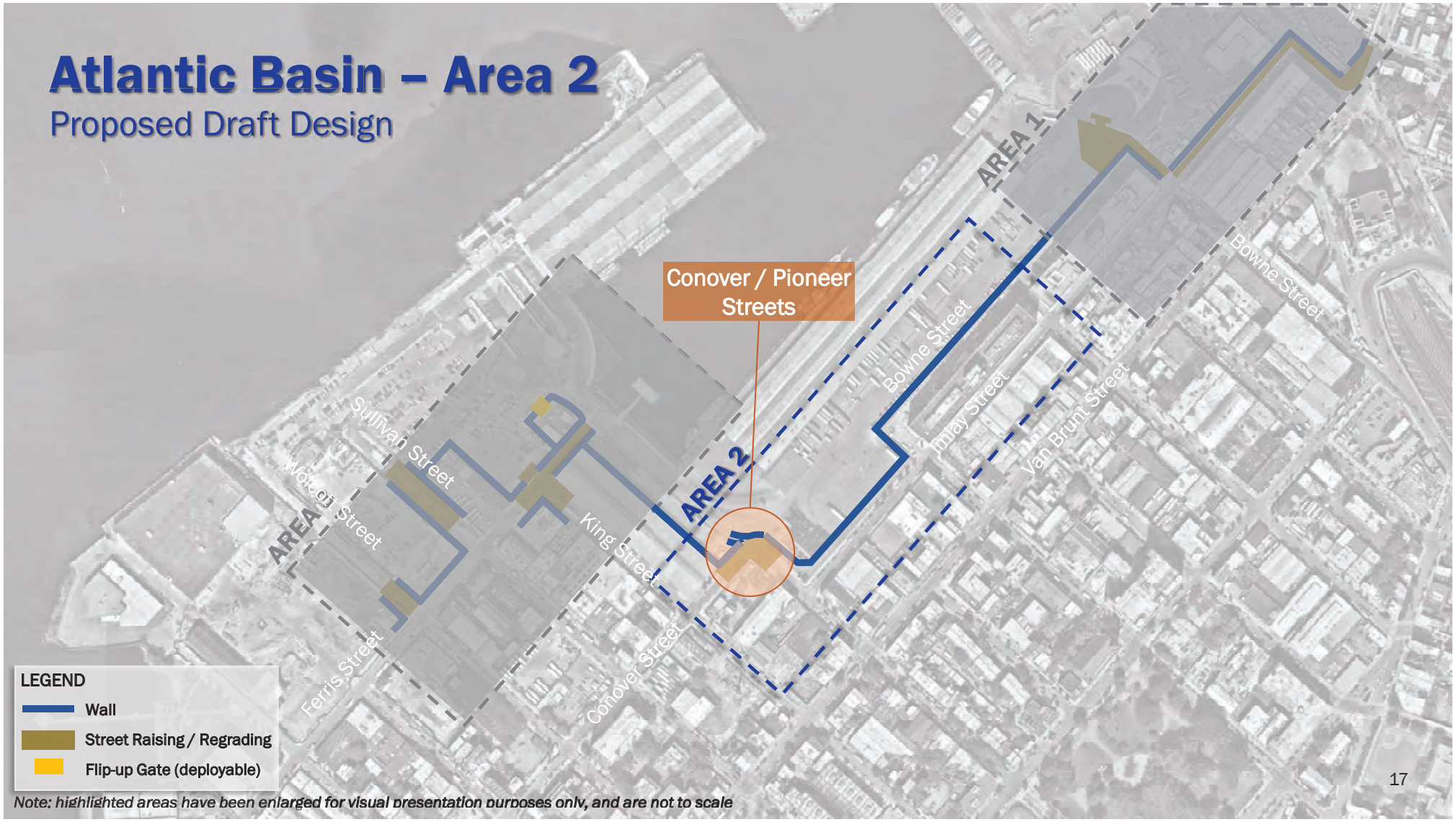

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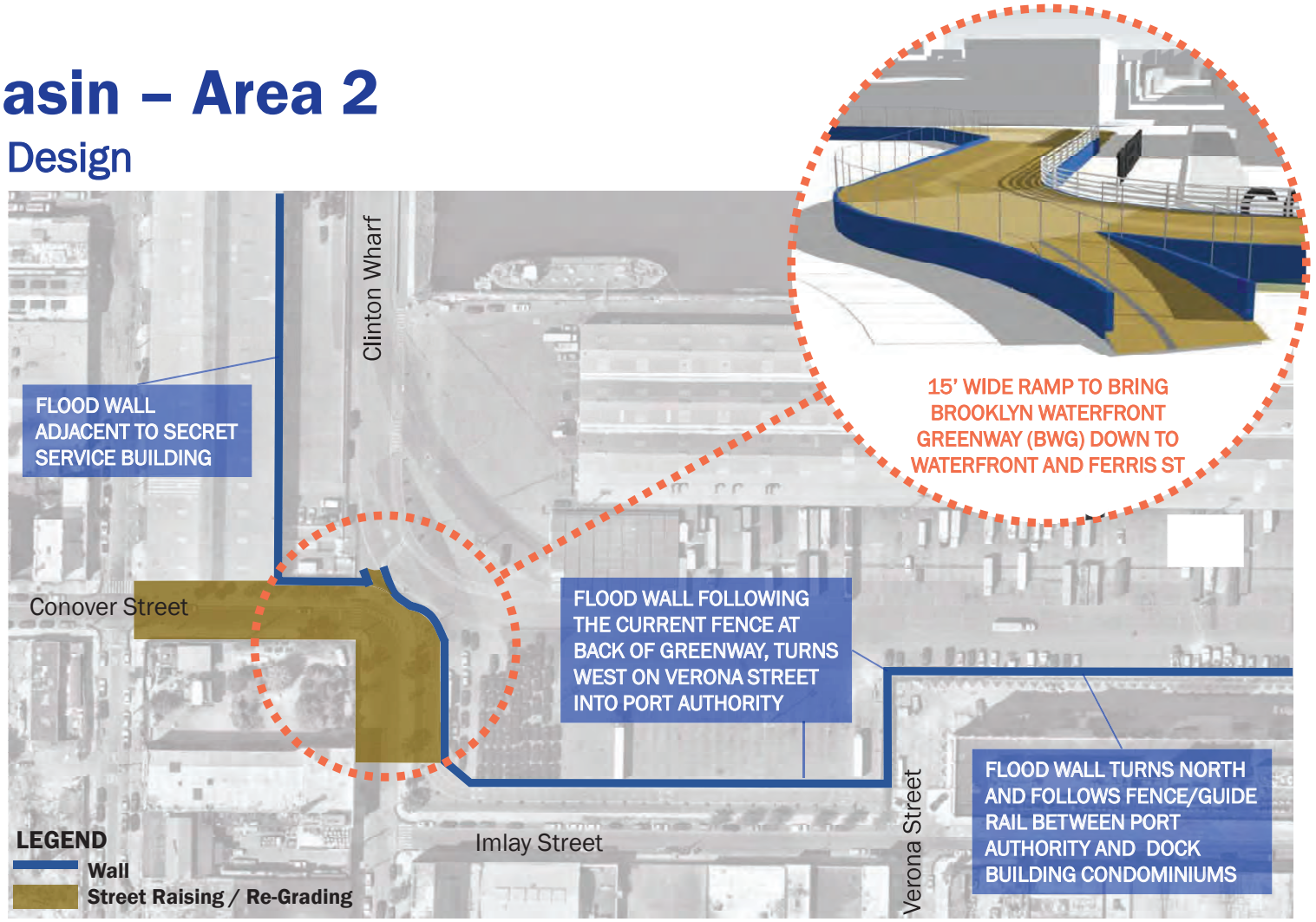
Atlantic Basin – Area 2

Proposed Draft Design



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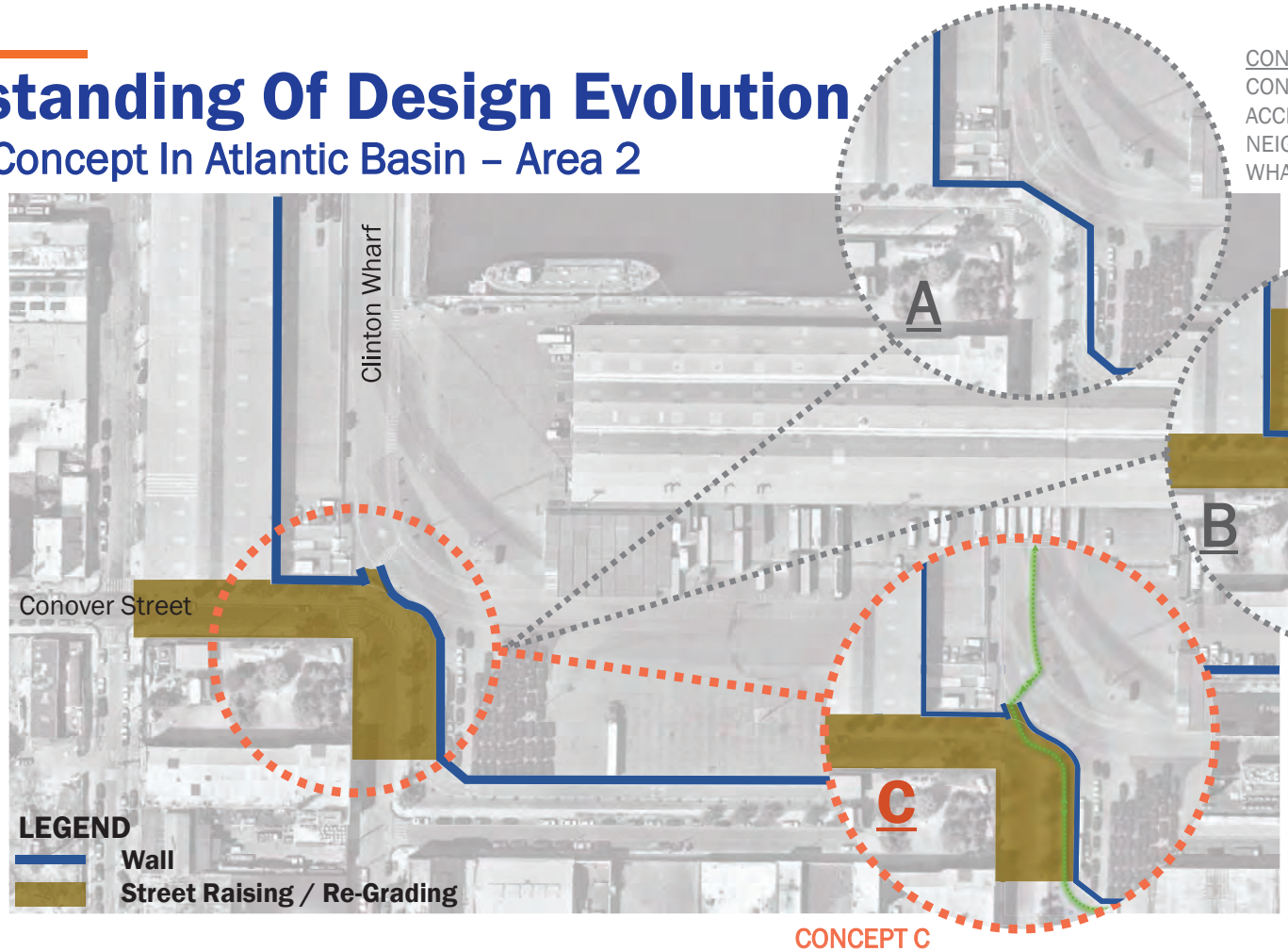
Understanding Of Design Evolution

Proposed Concept In Atlantic Basin – Area 2



CONCEPT A
CONTINUOUS WALL, BLOCKING ACCESS BETWEEN NEIGHBOORHOOD AND CLINTON WHARF / FERRY / WATERFRONT

CONCEPT B
RAISED GREENWAY / SIDEWALK; RECONSTRUCTED PARKING LOT; SIGNIFICANT IMPACT TO ADJACENT PROPERTIES; HIGHER COST

CONCEPT C
WALL WITH ACCESS FOR 15' WIDE RAMP TO BRING BROOKLYN WATERFRONT GREENWAY (BWG) DOWN TO WATERFRONT AND FERRIS ST

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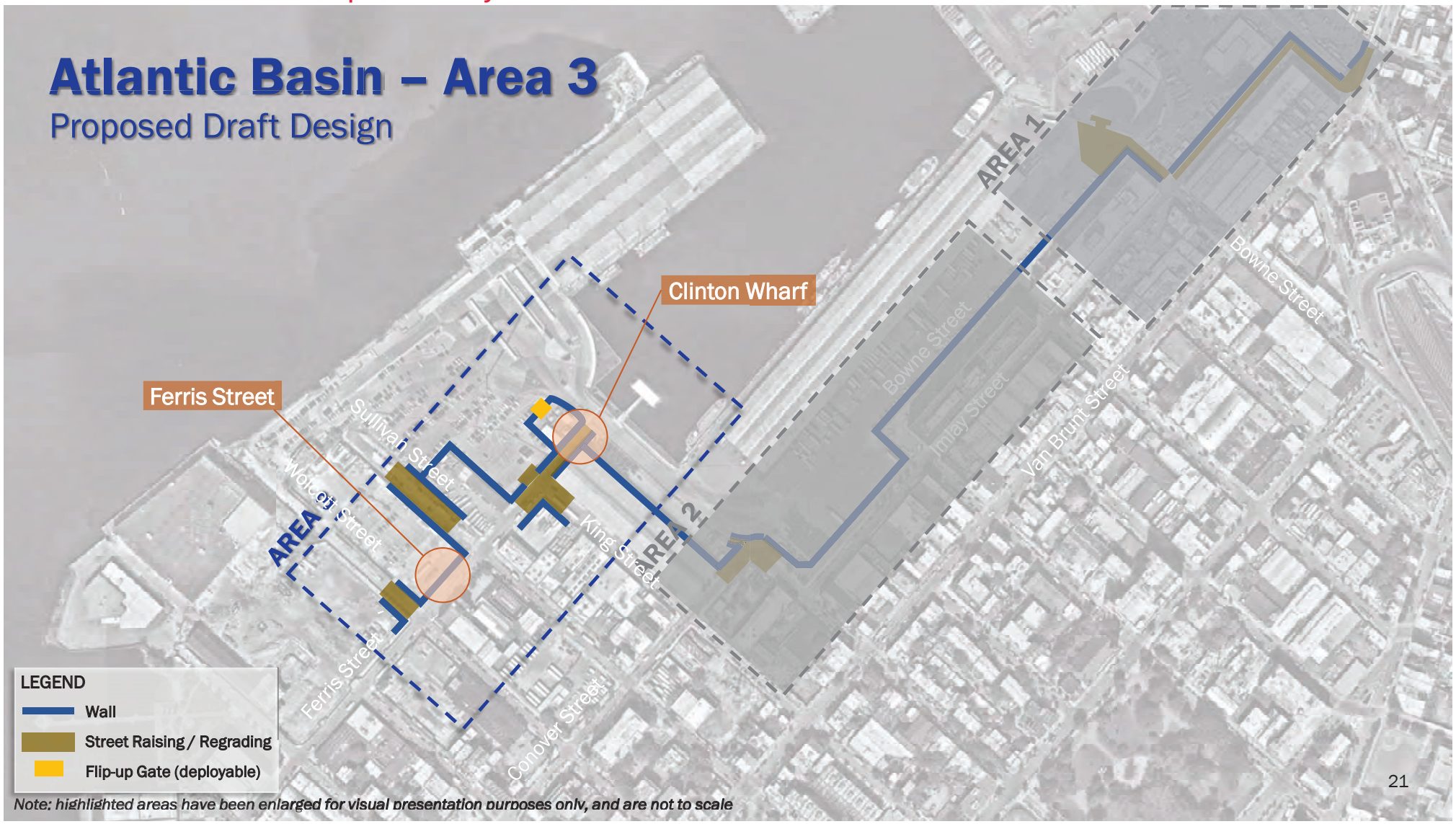

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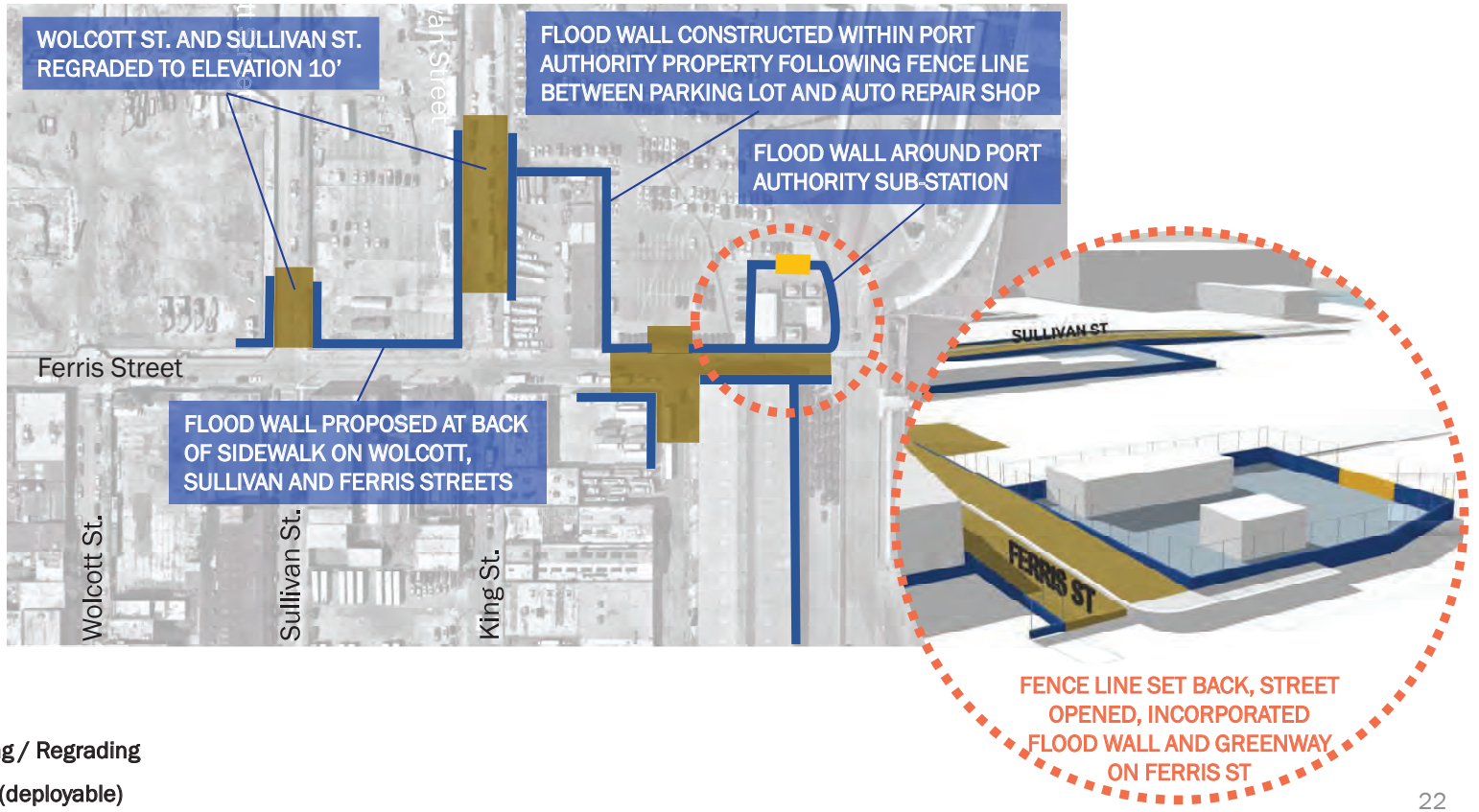
Atlantic Basin – Area 3

Proposed Draft Design



LEGEND

- Wall
- Street Raising / Regrading
- Flip-up Gate (deployable)

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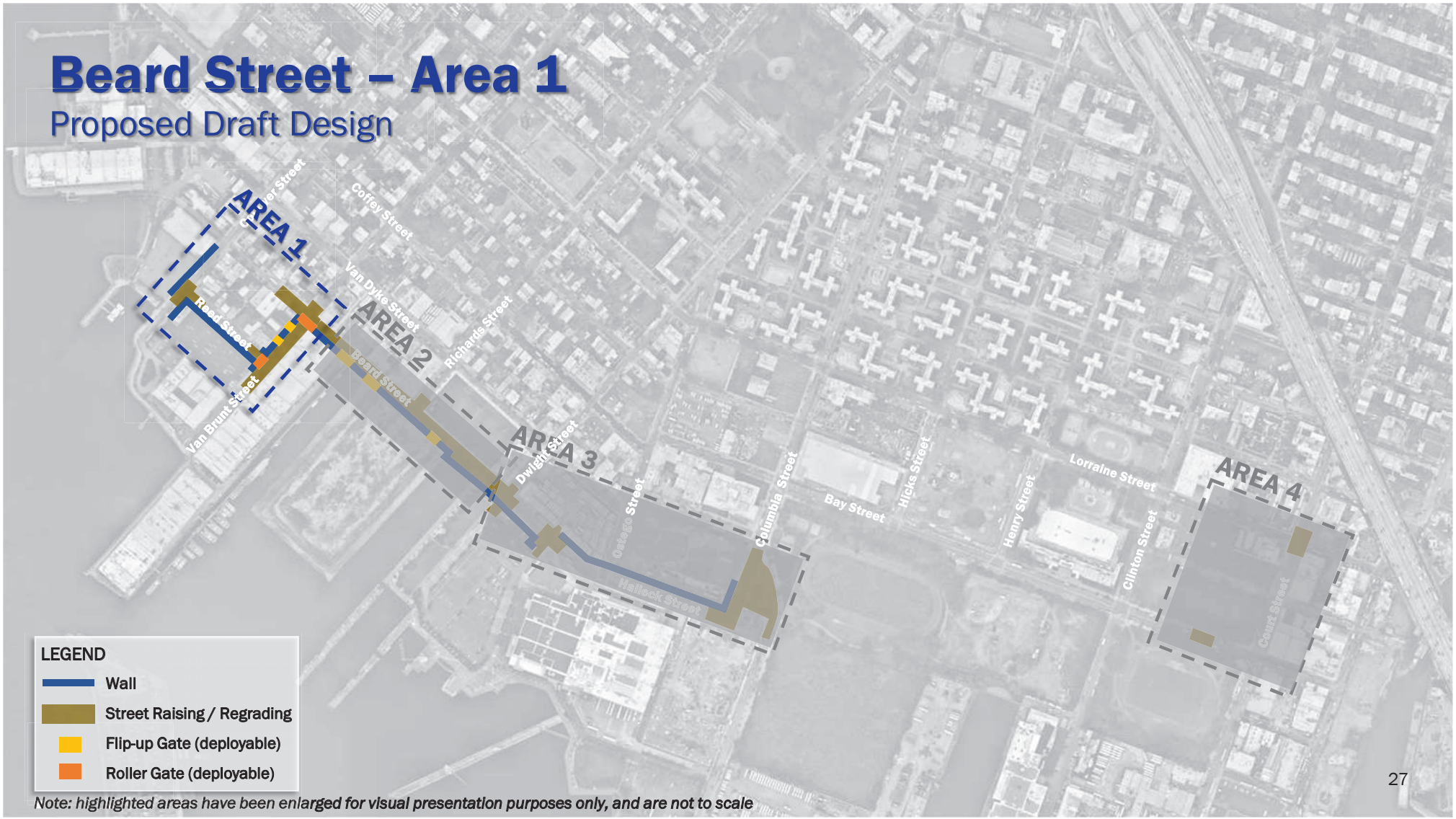

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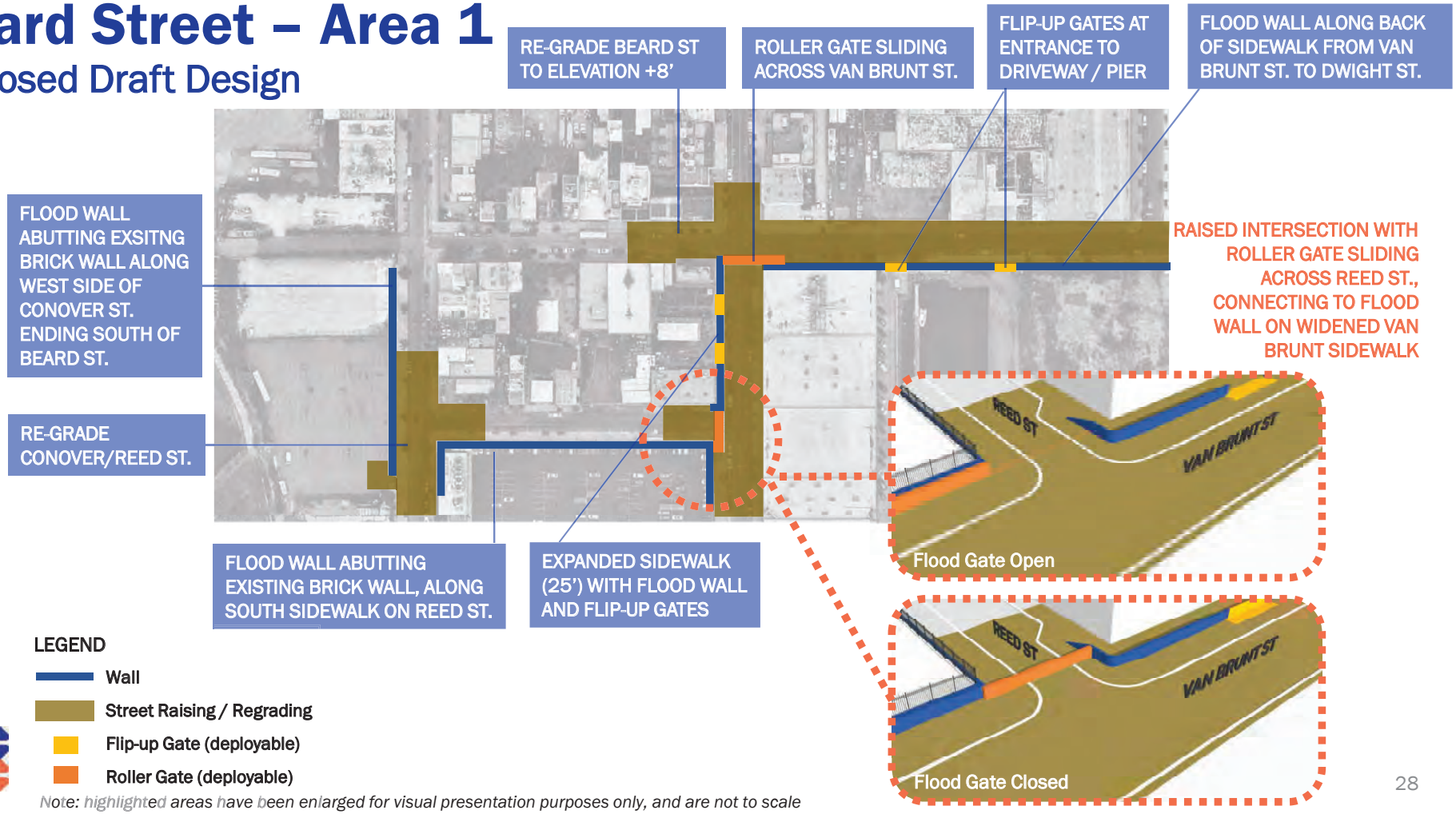
Beard Street – Area 1

Proposed Draft Design



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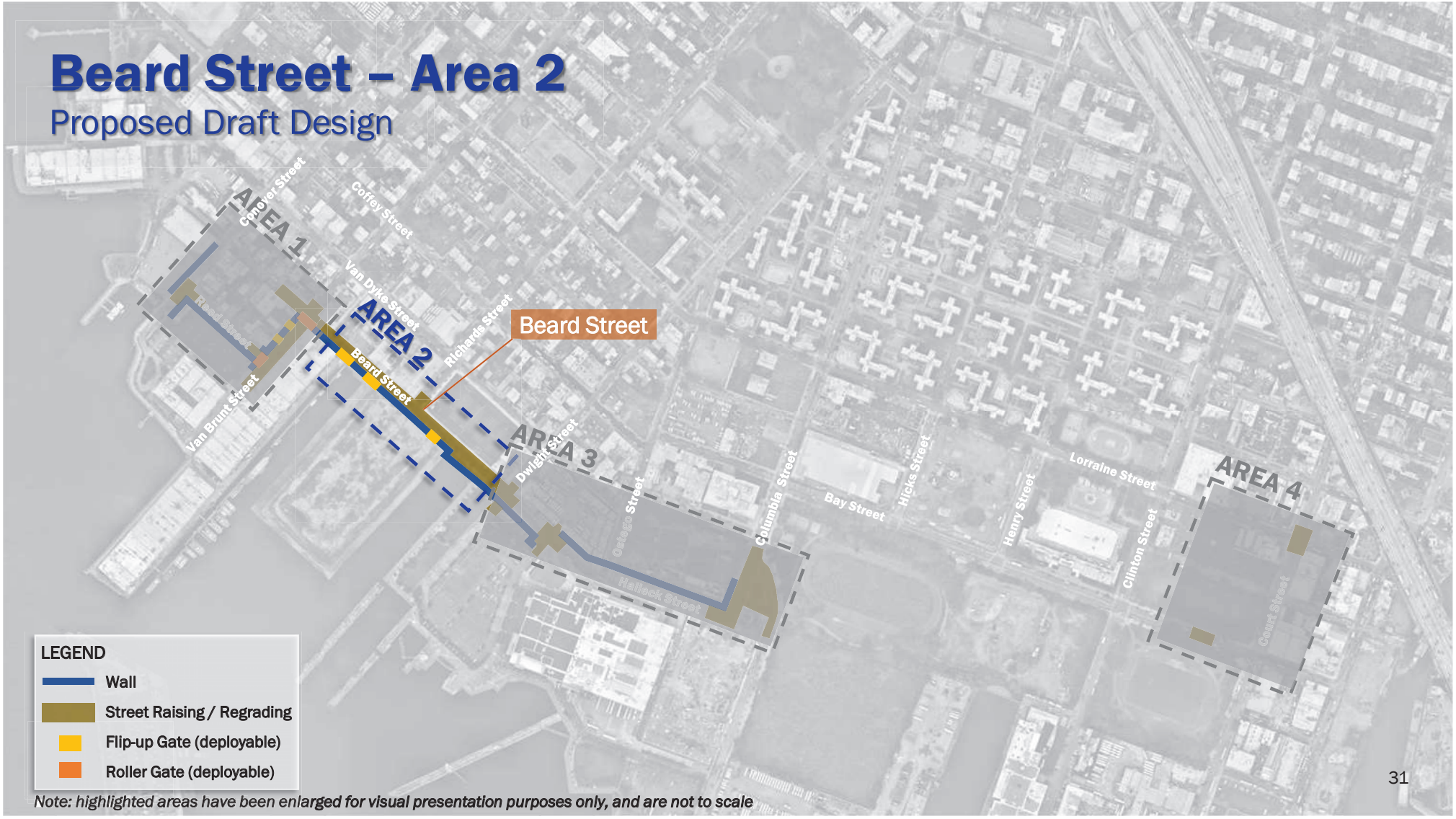

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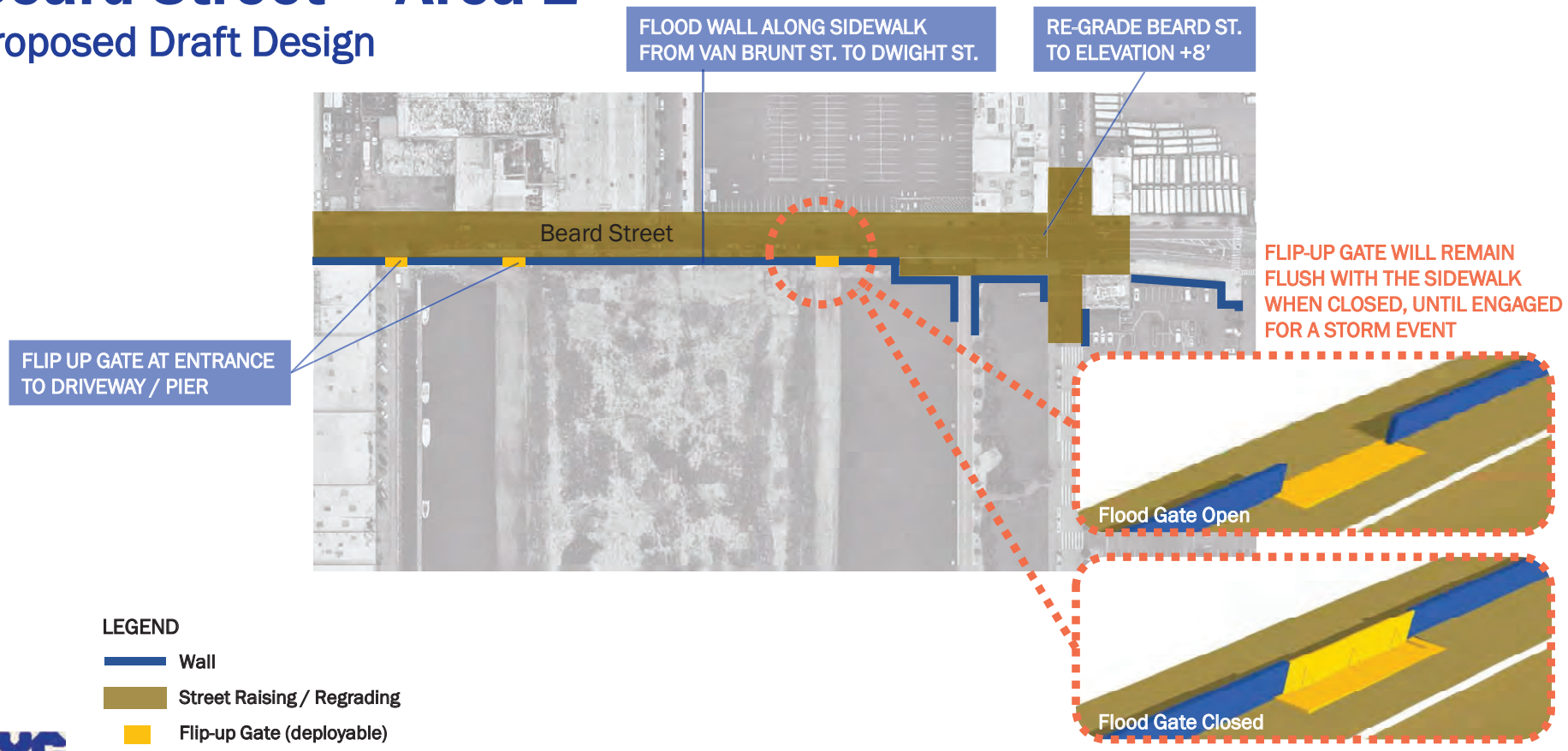
Beard Street – Area 2

Proposed Draft Design



Note: highlighted areas have been enlarged for visual presentation purposes only, and are not to scale

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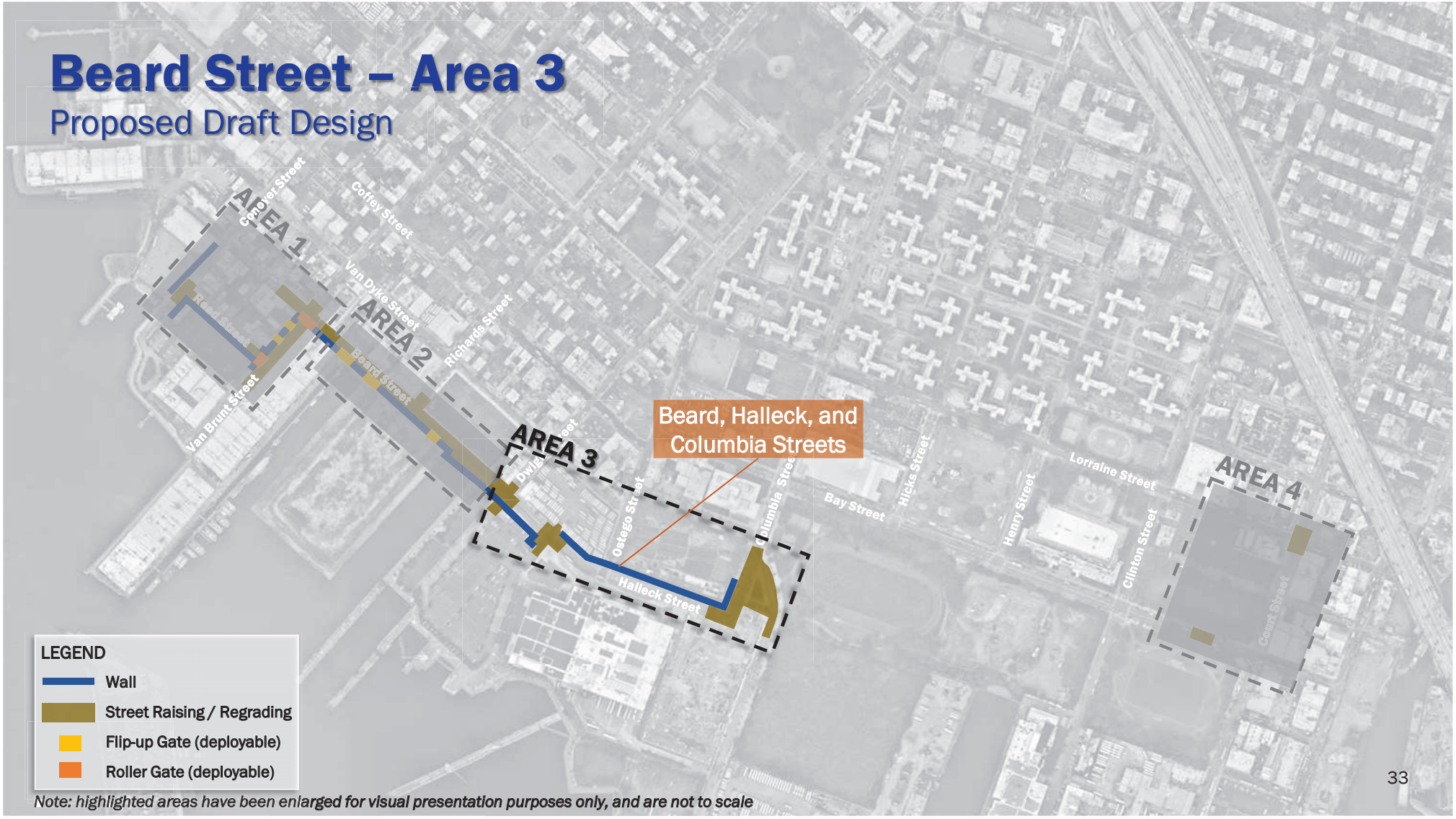
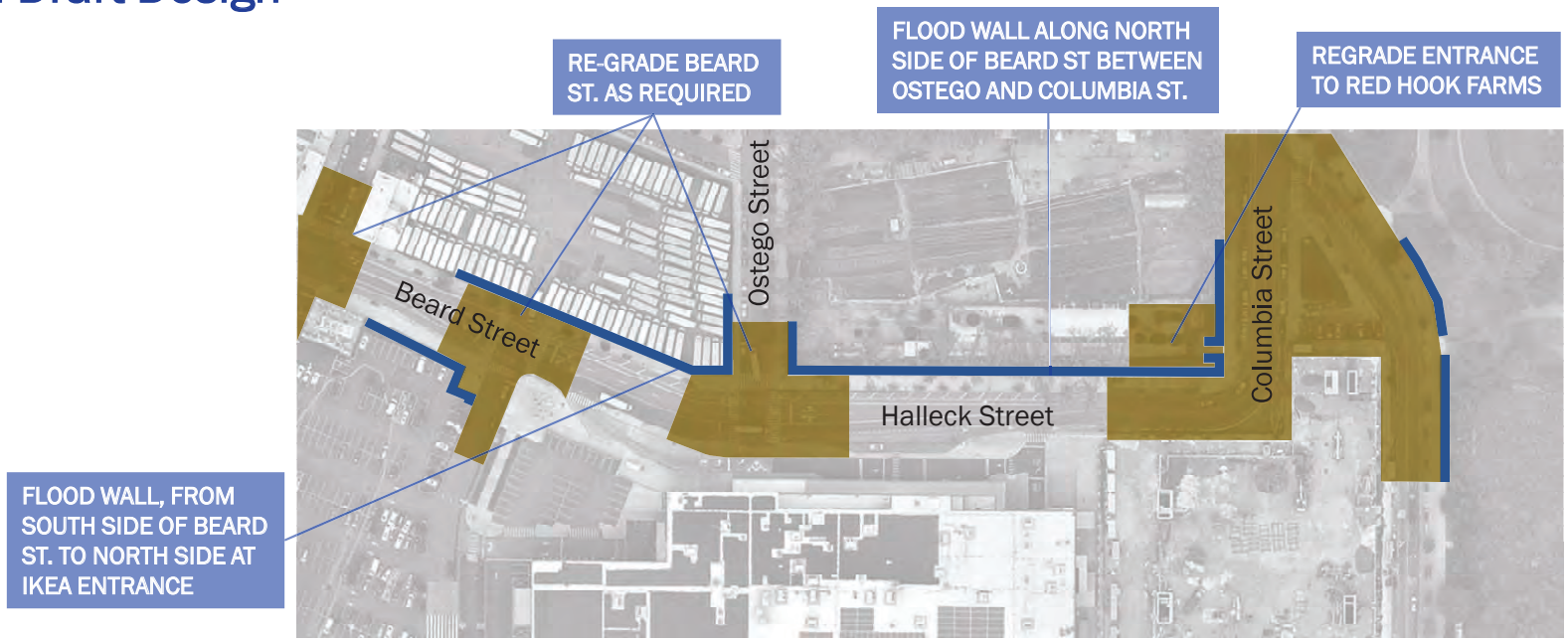


Note: highlighted areas have been enlarged for visual presentation purposes only, and are not to scale

FEMA: For Illustrative Purposes Only

Beard Street – Area 3

Proposed Draft Design



LEGEND

Wall

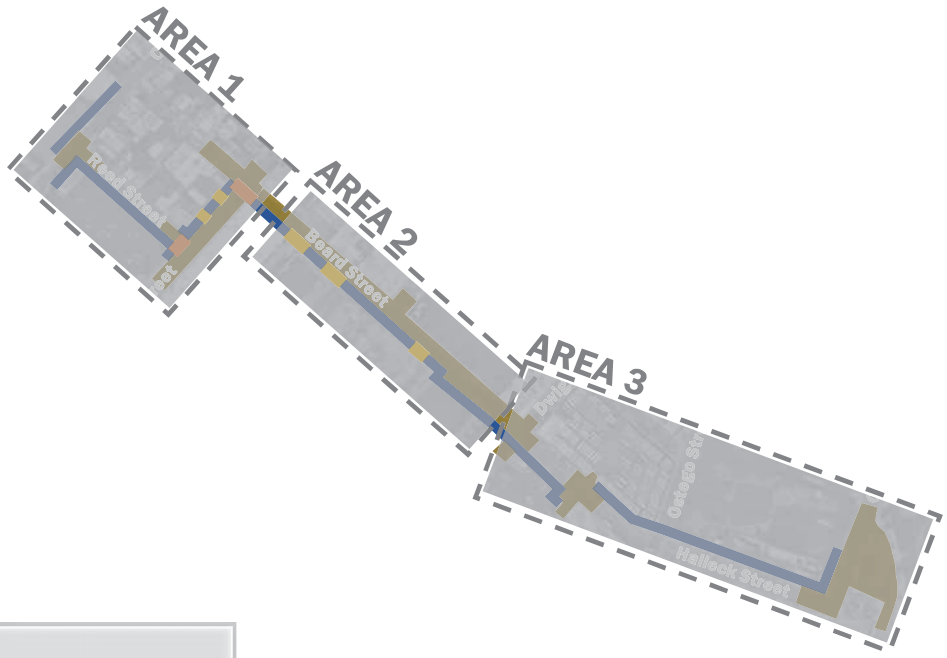
Street Raising / Regrading

Note: highlighted areas have been enlarged for visual presentation purposes only, and are not to scale

FEMA: For Illustrative Purposes Only

Beard Street – Area 4

Proposed Draft Design



LEGEND

- Wall
- Street Raising / Regrading
- Flip-up Gate (deployable)
- Roller Gate (deployable)

Note: highlighted areas have been enlarged for visual presentation purposes only, and are not to scale

FEMA: For Illustrative Purposes Only

Beard Street – Area 4

Proposed Draft Design

INTERSECTION OF COURT STREET AND LORRAINE STREET TO BE RECONSTRUCTED AT HIGHER ELEVATION

MINOR ROADWAY REGRADING ON BAY ST. BETWEEN PARK AREAS. NO IMPACT TO THE PARKS AS PART OF THIS WORK

New York State Coastal Policies

Summary Table for Project's Consistency with Coastal Policies of New York State

Policy 1

Restore, revitalize, and redevelop deteriorated and underutilized waterfront areas for commercial, industrial, cultural, recreational, and other compatible uses.

Consistent. Red Hook is largely industrial in use with buildings, warehouses, and open parcels dedicated to those functions. The area is primarily zoned for manufacturing with three residential districts that also incorporate some smaller manufacturing districts, parks and a mixed-use area. Hurricane Sandy flooded the neighborhood causing major damage as well as disrupting livelihoods for weeks afterwards due to loss of basic infrastructure services.

The proposed flood mitigation system will provide an element of protection to a vulnerable neighborhood, creating a more stable physical environment which in turn will allow Red Hook to be restored and revitalized. One of the major benefits of the project will be the improvement to waterfront public access via the Brooklyn Waterfront Greenway. The elevation of sections of the greenway and improved routing will connect Erie Basin Park to a larger 26-mile trail network. It will also ease routes of access to Louis Valentino Jr. Park and Pier (including a kayak launch), and Red Hook Recreation Area. The Red Hook Recreation Area, with its community pool, track, ballfields, etc., will have direct flood protection based on its location landward of the floodwall and elevated roads. Waterfront access will be improved as the roadway to the Atlantic Basin Ferry Terminal will be elevated and protected by floodwalls. Overall, the protection offered by the floodwalls, road elevation, and Greenway improvements will reduce or eliminate potential property loss and resulting flood damages, reduce access impediments to the neighborhood, help prevent loss of utility service, and provide a safer environment for its residents.

Policy 2

Facilitate the siting of water-dependent uses and facilities on or adjacent to coastal waters.

Consistent. The proposed project is an integrated flood protection system to increase flood resiliency from adjacent coastal waters. The project is largely passive and will not prevent future water dependent uses and facilities use on or adjacent to coastal waters. Additionally, by protecting a neighborhood vulnerable to flooding, existing water dependent uses are maintained and better protected.

Policy 3

Further develop the state's major ports of Albany, Buffalo, New York, Ogdensburg, and Oswego as centers of commerce and industry, and encourage the siting, in these port areas, including those under the jurisdiction of state public authorities, of land use and development which is essential to, or in support of, the waterborne transportation of cargo and people.

Consistent. The proposed flood protection system directly supports the port of New York as Red Hook is an important component of the Port with both maritime commercial and industrial areas. Specifically, these areas include ferry and cruise terminals as well as warehousing and barge fleeting services. The project will provide protection to these uses from coastal tidal surges to an elevation of 10 feet. While the flood protection system would be landward of the waterfront, the support infrastructure for these areas (populations, roads, etc.) will be protected from the 10-year coastal storm surge event.

Policy 4

Strengthen the economic base of smaller harbor areas by encouraging the development and enhancement of those traditional uses and activities which have provided such areas with their unique maritime identity.

Consistent. Proposal is anticipated to positively impact the economic base of the surrounding water-dependent facilities by offering protection to an area vulnerable to flooding thereby creating a more stable physical environment. The unique maritime identity of Red Hook will not be adversely impacted by the proposed flood protection system.

Policy 5

Encourage the location of development in areas where public services and facilities essential to such development are adequate.

Consistent. The proposed project will largely utilize existing infrastructure including sidewalks, roadways, and buildings and will not hinder existing public services and facilities. The flood protection system will also improve elements of existing public access such as the Brooklyn Waterfront Greenway by elevating and widening travel lanes. Additionally, these improvements will help fill an existing gap in the larger 26-mile trail network. As such, the proposed project will not exceed the capacity of existing public services.

Policy 6

Expedite permit procedures in order to facilitate the siting of development activities at suitable locations.

Consistent. FEMA will provide a 60-day consistency determination review period to the NYSDOS Coastal Management Program prior to the release of funds by FEMA to New York State for eligible costs incurred specifically for the Red Hook Coastal Resiliency Project (HGMP#4085-0092).

Policy 7

Significant coastal fish and wildlife habitats will be protected, preserved, and where practical, restored so as to maintain their viability as habitats.

Consistent. Proposal's construction impacts will be limited to the project site, which has historically been developed for maritime commercial and industrial uses. Additionally, the waterfront is now extensively developed with hard shorelines and minimal environmental benefit. Overall, the flood protection system will not impact the coastal fish and wildlife habitats positively or negatively. During flood events, the wall may prevent the contamination of water and its subsequent release into the adjacent waterway, protecting fish habitat in the Upper Bay.

Policy 8

Protect fish and wildlife resources in the coastal area from the introduction of hazardous wastes and other pollutants which bio-accumulate in the food chain, or which cause significant sub lethal or lethal effect on those resources.

Consistent. Proposal does not introduce hazardous wastes or other pollutants into the abutting aquatic ecosystem based on implementing Best Management Practices at the project site. By reducing flooding potential, the system will also protect fish and wildlife resources by helping to prevent contaminants and pollutants from entering the waterways by receding floodwaters. The proposed activities are not likely to adversely impact environmentally sensitive vegetation, soils, and/or animal resources.

Policy 9

Expand recreational use of fish and wildlife resources in coastal areas by increasing access to existing resources, supplementing existing stocks, and developing new resources.

N/A. Proposal is not related to natural resources/wildlife conservation management plan.

Policy 10

Further develop commercial finfish, shellfish, and crustacean resources in the coastal area by encouraging the construction of new, or improvement of existing onshore commercial fishing facilities, increasing marketing of the state's seafood, maintaining adequate stocks, and expanding aquaculture facilities.

N/A. Policy is not the proposal's purpose.

Policy 11

Buildings and other structures will be sited in the coastal area so as to minimize damage to property and the endangering of human lives caused by flooding and erosion.

Consistent. Proposal is for an integrated flood system designed to protect the Red Hook neighborhood from the 10-year coastal storm surge as well as account for future sea level rise. The project components will primarily be passive and located along existing buildings and sidewalks to minimize impact to properties when not in a flood situation. Additionally, portions of roadways will be elevated to reduce their flood risk and to improve drainage. Overall, the proposed project would help protect approximately 190 acres, 3,150 residents, and 500 buildings that would be at risk in a 10-year coastal storm surge.

Policy 12

Activities or development in the coastal area will be undertaken so as to minimize damage to natural resources and property from flooding and erosion by protecting natural protective features including beaches, dunes, barrier islands and bluffs.

Consistent. Proposal is sited in a coastal area that is heavily developed and urbanized. While minimal natural resources are located within Red Hook, the flood protection system will directly protect Red Hook Community Farms, a "youth-centered urban faming and food justice program," and the Red Hook Recreation Area with two greenspace areas, Red Hook Field 6 and Red Hook Soccer #1, where roadways will be elevated. No negative impacts to the other waterfront parks in the neighborhood will occur. Construction activities will occur within disturbed and/or improved locations and follow Best Management Practices listed in NYSDEC permits for minimizing erosional/flooding damages to surrounding natural resources.

Policy 13

The construction or reconstruction of erosion protection structures shall be undertaken only if they have a reasonable probability of controlling erosion for at least thirty years as demonstrated in design and construction standards and/or assured maintenance or replacement programs.

Consistent. Subrecipient will obtain and comply with any required state permits. The proposed project has been designed to withstand 2.5 feet of sea level rise which is projected to occur within the 2050s under the High-End Scenario per the 2019 NPCC Report.

Policy 14

Activities and development, including the construction or reconstruction of erosion protection structures, shall be undertaken so that there will be no measurable increase in erosion or flooding at the site of such activities or development, or at other locations.

Consistent. Proposal is not anticipated to increase erosion/flooding as the purpose of the project is to provide flooding protections in the Red Hook neighborhood via an integrated system of walls, flood gates, and elevation or regrading of roads. Prevention of the flooding of Red Hook will not impact flooding to any measurable degree or erosion elsewhere.

Policy 15

Mining, excavation or dredging in coastal waters shall not significantly interfere with the natural coastal processes which supply beach materials to land adjacent to such waters and shall be undertaken in a manner which will not cause an increase in erosion of such land.

N/A. Proposal does not include dredging.

Policy 16

Public funds shall only be used for erosion protective structures where necessary to protect human life, and new development which requires a location within or adjacent to an erosion hazard area to be able to function, or existing development; and only where the public benefits outweigh the long term monetary and other costs including the potential for increasing erosion and adverse effects on natural protective features.

Consistent. FEMA's environmental analyses of disaster assistance grants include these factors. Proposal will include minimal disruption to existing natural protective features in the area while protecting the most flood-prone portions of the neighborhood. Specifically, the project will protect up to 190 acres, 3,150 residents, and 500 buildings. As the project areas are not located directly on the water, the erosion risks are minimized.

Policy 17

Non-structural measures to minimize damage to natural resources and property from flooding and erosion shall be used whenever possible.

Consistent. The proposed flood protection system will be constructed in a developed, urbanized area that will utilize existing infrastructure and improvements to prevent flooding. Natural resources and property would not be affected. Non-structural measures would not be as effective in alleviating the flood risk as the proposed project given the existing characteristics of the project area.

Policy 18

To safeguard the vital economic, social, and environmental interests of the state and of its citizens, proposed major actions in the coastal area must give full consideration to those interests, and to the safeguards which the state has established to protect valuable coastal resource areas.

Consistent. Proposal protects the economic and social interests of the affected community and its citizens by providing additional protective measures to prevent future flooding damages. Specifically, the project will protect the neighborhood from flooding in a 10-year storm surge event via the integrated floodwall, sidewalk and roadway improvements and elevations. Additionally, public access resources such as the Brooklyn Waterfront Greenway will be enhanced through elevation and widening. Access to neighborhood parks will also improve and the floodwall will better protect parks like the Red Hook Recreation Area. Proposal will follow construction Best Management Practices per state/federal permit requirements.

Policy 19

Protect, maintain, and increase the level and types of access to public water-related recreation resources and facilities.

Consistent. The Brooklyn Waterfront Greenway, an existing recreational resource within the Red Hook neighborhood, will be elevated and widened in areas as a component of the flood protection system. The Greenway is part of a 26-mile cycling and pedestrian pathway along the waterfront of Brooklyn, 18 miles of which are currently open. Presently, here are "gaps" to the existing Greenway in the Red Hook neighborhood creating a discontinuous resource. The project, via elevation, widening, and sidewalk improvements will address closing these gaps in the Greenway. There will also be additional safety measures added to those areas of the Greenway as part of the project. Measures would include planting strips, planting boxes, benches, striping and signage, etc. There is an existing kayak/canoe launch at the Louis Valentino Jr. Park that will be easier to access following completion of the project. Additionally, the roads surrounding the commuter ferry terminal in the Atlantic Basin will be subject to elevation and protection from the floodwall, increasing the resiliency of the neighborhood. These will serve to protect, maintain, and increase public access to water-related resources within the Red Hook neighborhood.

Policy 20

Access to the publicly-owned foreshore and to lands immediately adjacent to the foreshore or the water's edge that are publicly-owned shall be provided and it shall be provided in a manner compatible with adjoining uses.

Consistent. Most of the direct waterfront properties in Red Hook are privately owned. The proposal does not negatively affect existing access to public water-related recreation resources or facilities such as Erie Basin Park, Red Hook Park, or Louis Valentino, Jr. Park and Pier. Public access will be enhanced through the Greenway, sidewalk, and roadway improvements.

Policy 21

Water-dependent and water-enhanced recreation will be encouraged and facilitated and will be given priority over non-water-related uses along the coast.

Consistent. While the proposal is not necessarily a choice between water dependent or non-water related uses, the proposed project benefits the Red Hook neighborhood by providing protection from a 10-year coastal surge event. Additionally, water-dependent activities such as kayaking from Louis Valentino, Jr. Park and Pier as well as use of the improved Greenway and sidewalks, plus roadway improvements would increase access to these water-dependent activities.

Policy 22

Development, when located adjacent to the shore, will provide for water-related recreation, whenever such use is compatible with reasonably anticipated demand for such activities, and is compatible with the primary purpose of the development.

N/A. The proposed flood protection project will occur slightly inland from the shore. While water-related use in this neighborhood is largely related to commercial and industrial uses, the project will not preclude existing, or prevent the development of new, water-related recreation opportunities.

Policy 23

Protect, enhance, and restore structures, districts, areas, or sites that are of significance in the history, architecture, archaeology or culture of the state, its communities, or the nation.

Consistent. FEMA, in accordance with Section 106 of the National Historic Preservation Act, will consult with the New York State Historic Preservation Officer to determine the potential to affect Historic Properties. Proposal will increase the resiliency of the area and will provide additional protective measures to prevent future flooding damages.

Policy 24

Prevent impairment of scenic resources of statewide significance.

Consistent. Proposal does not impact known scenic resources of statewide significance.

Policy 25

Protect, restore, or enhance natural and man-made resources which are not identified as being of statewide significance, but which contribute to the overall scenic quality of the coastal area.

Consistent. The proposed project will mitigate the vulnerable nature of the Red Hook neighborhood to storm surge without impairing the qualities and characteristics of this scenic area. Additionally, upgrades to the Brooklyn Greenway along with sidewalk and streetscape improvements will contribute to the overall scenic quality of this coastal neighborhood.

Policy 26

Conserve and protect agricultural lands in the state's coastal area.

Consistent. A small urban "farm" known as the Red Hook Community Farms operates as a "youth-centered urban farming and food justice program" It is located on the corner of Halleck and Columbia Streets which will be protected by the Beard Street portion of the project.

Policy 27

Decisions on the siting and construction of major energy facilities in the coastal area will be based on public energy needs, compatibility of such facilities with the environment, and the facility's need for a shorefront location.

N/A. Policy is not the proposal's purpose since it does not involve siting and construction of energy facilities.

Policy 28

Ice management practices shall not interfere with the production of hydroelectric power, damage significant fish and wildlife and their habitats, or increase shoreline erosion or flooding.

N/A. Policy is not the proposal's purpose as project activities do not involve ice management practices.

Policy 29

Encourage the development of energy resources on the outer continental shelf, in Lake Erie and in other water bodies, and ensure the environmental safety of such activities.

N/A. Policy is not the proposal's purpose since project activities do not include development of energy resources.

Policy 30

Municipal, industrial, and commercial discharge of pollutants, including but not limited to, toxic and hazardous substances, into coastal waters will conform to state and national water quality standards.

Consistent. The proposed project is a largely passive system and will not result in any discharge of pollutants into coastal waters. The project may prevent discharge of pollutants by preventing flooding, thereby eliminating the potential for receding contaminated floodwater from entering coastal waters.

Policy 31

State coastal area policies and management objectives of approved local waterfront revitalization programs will be considered while reviewing coastal water classifications and while modifying water quality standards; however, those waters already overburdened with contaminants will be recognized as being a development constraint.

Consistent. Proposal does not involve review of or modification to coastal water classifications or water quality standards.

Policy 32

Encourage the use of alternative or innovative sanitary waste systems in small communities where the costs of conventional facilities are unreasonably high, given the size of the existing tax base of these communities.

N/A. Policy is not proposal's purpose and project scope of work does not affect or involve sanitary waste systems.

Policy 33

Best management practices will be used to ensure the control of storm water runoff and combined sewer overflows draining into coastal waters.

Consistent. Best Management Practices will be utilized during construction of the project to reduce the potential for eroded soils or other organics from entering coastal waters. The project will occur in developed urbanized areas which will also reduce the potential for erosion.

Policy 34

Discharge of waste materials into coastal waters from vessels subject to state jurisdiction will be limited so as to protect significant fish and wildlife habitats, recreational areas, and water supply areas.

N/A. Policy is not the proposal's purpose since this project will have no impact on vessel discharges.

Policy 35

Dredging and filling in coastal waters and disposal of dredged material will be undertaken in a manner that meets existing State permit requirements, and protects significant fish and wildlife habitats, scenic resources, natural protective features, important agricultural lands, and wetlands.

N/A. Policy is not the proposal's purpose since the project does not involve dredging and filling in coastal waters, nor disposal of dredged material.

Policy 36

Activities related to the shipment and storage of petroleum and other hazardous materials will be conducted in a manner that will prevent or at least minimize spills into coastal waters; all practicable efforts will be undertaken to expedite the cleanup of such discharges; and restitution for damages will be required when these spills occur.

N/A. Policy is not the proposal's purpose since the project does not involve shipment and storage of petroleum and other hazardous materials.

Policy 37

Best management practices will be utilized to minimize the non-point discharge of excess nutrients, organics, and eroded soils into coastal waters.

Consistent. Best Management Practices will be utilized during construction of the project to reduce the potential for eroded soils or other organics from entering coastal waters.

Policy 38

The quality and quantity of surface water and groundwater supplies will be conserved and protected, particularly where such waters constitute the primary or sole source of water supply.

Consistent. The proposed project will have no impact on the quality or quantity of surface or groundwater supplies.

Policy 39

The transport, storage, treatment and disposal of solid wastes, particularly hazardous wastes, within coastal areas will be conducted in such a manner so as to protect groundwater and surface water supplies, significant fish and wildlife habitats, recreation areas, important agricultural land, and scenic resources.

Consistent. Proposal will use Best Management Practices listed in Federal/NYSDEC permits for transport, storage, treatment and disposal of all C&D, hazardous waste, etc. during the construction phase. There will be no adverse impacts on fish and wildlife resources, groundwater supply, recreation areas, scenic resources, or agricultural land.

Policy 40

Effluent discharged from major steam electric generating and industrial facilities into coastal waters will not be unduly injurious to fish and wildlife and shall conform to state water quality standards.

N/A. Policy is not the proposal's purpose or function as the facility is not a steam electric generating or industrial facility.

Policy 41

Land use or development in the coastal area will not cause national or state air quality standards to be violated.

Consistent. Proposal does not impact State or national air quality standards.

Policy 42

Coastal management policies will be considered if the state reclassifies land areas pursuant to the prevention of significant deterioration regulations of the federal Clean Air Act.

N/A. Policy is not the proposal's purpose or function as it does not propose reclassifying land areas pursuant to the federal Clean Air Act.

Policy 43

Land use or development in the coastal area must not cause the generation of significant amounts of acid rain precursors: nitrates and sulfates.

Consistent. Proposal is not anticipated to cause acid rain precursors.

Policy 44

Preserve and protect tidal and freshwater wetlands and preserve the benefits derived from these areas.

Consistent. Per the available mapping, there are no tidal or freshwater wetlands above the mean high-water line in project areas within in the Red Hook neighborhood. The project may prevent discharge of pollutants by preventing flooding, thereby eliminating the potential for receding contaminated floodwater from entering coastal waters and nearby wetlands.

STATE OF NEW YORK
DEPARTMENT OF STATE
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ALBANY, NY 12231-0001
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KATHY HOCHUL
GOVERNOR

ROBERT J. RODRIGUEZ
SECRETARY OF STATE

October 25, 2022

Alexandra Crivineanu
Administrative Assistant Trainee for
Disaster Recovery Programs
NYS Division of Homeland
Security & Emergency Services
1220 Washington Avenue - Bldg. 7A – Floor 4
Albany, N.Y. 12242

Re: F-2022-0612 (FA)
The Federal Emergency Management Agency (FEMA) proposed to provide Federal funding from its Hazard Mitigation Grant Proposal (HMGP) to assist New York City Department of Design and Construction (NYCDDC) with the Red Hook Coastal Resiliency Project.
FEMA-DR-4085-HMGP-0092
Upper New York Bay, Red Hook Neighborhood
Brooklyn, Kings County, New York
General Concurrence - No Objection to Funding

Dear Alexandra Crivineau,

The Department of State (DOS) received the information you submitted regarding the above proposed federal financial assistance on 08/12/2022 and has completed its review. Based on this review, the Department of State has no objection to the release of the Federal Emergency Management Agency (FEMA) Federal funding from its Hazard Mitigation Grant Proposal (HMGP) in support of the proposed project as identified in your e-mail dated 08/12/2022.

This concurrence pertains to the federal financial assistance activity or activities for this project only. If certain activities may require a federal permit or other form of federal agency authorization, the Department of State would conduct separate consistency review(s) of permit activities at the time such application(s) may be made to a Federal Agency.

When communicating with us regarding this matter, please contact us at (518) 474-6000 and refer to our file # F-2022-0612 (FA).

Sincerely,

Tanna D. LeGere

Tanna D. LeGere
Supervisor, Consistency Review Unit
Office of Planning, Development and
Community Infrastructure

TDL/pb
ecc: COE/NY District - Arlene Tirado
DEC/Region 2

CORRESPONDENCE 2: NYSDEC Project Review - Wetland Delineation

From: Nichols, Caitlyn P (DEC) <Caitlyn.Nichols@dec.ny.gov>
Sent: Thursday, August 3, 2023 5:45 PM
To: Surti, Afroz (DDC) <SurtiAf@ddc.nyc.gov>; Issac, Bobby (DDC) <IssacBo@ddc.nyc.gov>; Matthew Nayer <Matthew.Nayer@nv5.com>; Semel, Hilary <HSemel@cityhall.nyc.gov>
Cc: Watts, Stephen (DEC) <stephen.watts@dec.ny.gov>; Elisa Tsang <Elisa.Tsang@nv5.com>; Ashley Metius <Ashley.Metius@nv5.com>; Joseph Menzer <Joseph.Menzer@nv5.com>; Rodriguez, Jeanette (DEC) <Jeanette.Rodriguez@dec.ny.gov>; Dinh, Thu-Loan (DDC) <DinhTh@ddc.nyc.gov>; Ilijevich, Eric (DDC) <ILIJEVIER@ddc.nyc.gov>
Subject: RE: [EXTERNAL] RE: SANDRDHK | DEC | Pre-Application Meeting

Good afternoon,

Based on the plans prepared by NYCDDC titled, “Red Hook Coastal Resiliency Borough of Brooklyn,” sheets 1 through 7, dated July 13, 2023, NYSDEC has made a tentative determination that the depicted work is not within the jurisdiction of NYSDEC under the Tidal Wetlands Act (Article 25 of the Environmental Conservtion Law).

If DDC is seeking a formal determintion that the proposed project is not within the jurisdition of NYSDEC under the Tidal Wetlands Act (Article 25 of the Environmental Conservtion Law) and, therefore, a NYSDEC tidal wetlands permit is not required to construct the referenced project, please submit the following:

1. Joint Appliction Form: http://www.dec.ny.gov/docs/permits_ej_operations_pdf/jointapp.pdf

If you have any questions, please let us
know.

Sincerely,

Caitlyn Nichols
Environmental Analyst 3, Division of Environmental Permits

New York State Department of Environmental Conservation
47-40 21st Street – 4th Floor
Long Island City, NY 11101
P: (718) 482-4079 | caitlyn.nichols@dec.ny.gov
www.dec.ny.gov |
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CORRESPONDENCE 3: USFWS SECTION 7 CONSULTATION

U.S. Department of Homeland Security
Federal Emergency Management Agency
FEMA Region 2
One World Trade Center
285 Fulton Street
New York, New York 10007

FEMA

August 15, 2022

Mr. Steve Papa
U.S. Fish and Wildlife Service
Long Island Field Office
340 Smith Road
Shirley, NY 11967

Re: Section 7 Project Review – Effect Determination
FEMA Hazard Grant Mitigation Program (DR-4085-NY-0092)
Red Hook Coastal Resiliency Project
Brooklyn, Kings County, New York

Dear Mr. Papa:

On behalf of the New York City Department of Design and Construction (NYCDDC) (Sub-Recipient), FEMA proposes to provide Federal funding from its Hazard Mitigation Grant Program (HMGP) for the Red Hook Coastal Resiliency Project. The project is proposed around a passive system of walls and elevated roadbeds in conjunction with flood gates, designed to reduce flooding impacts to the existing drainage system within the Red Hook neighborhood of Brooklyn, Kings County, New York.

In accordance with Section 7 of the Endangered Species Act of 1973, as amended, FEMA is requesting USFWS concurrence on its determinations of impacts to Threatened and Endangered Species that may be present near the proposed project's action areas. Please see the assessment below with impact determinations, project location map, plans, and photos for review and comment.

1 INTRODUCTION

On October 29, 2012, Hurricane Sandy caused considerable storm damage to several areas of New York State, including the Red Hook neighborhood of Brooklyn. President Barack Obama declared Hurricane Sandy a major disaster on October 30, 2012. The declaration authorized the Federal Emergency Management Agency (FEMA) to provide aid to the state per federal disaster declaration DR-4085-NY and in accordance with Section 428 of the Robert T. Stafford Relief and

Emergency Assistance Act of 1974 (42 United States Code [USC] 5189f), as amended; the Sandy Recovery Improvement Act (SRIA) of 2013 and the accompanying Disaster Relief Appropriations Act, 2013.

NYCDDC has applied to FEMA for financial assistance to increase the resiliency of the Red Hook neighborhood to impacts from storm surge flooding through a passive system of floodwalls, flood gates and road elevations. The Project Area, depicted on ***Figure 1, Project Site Location Map,*** consist of two areas identified as Atlantic Basin and Beard Street; however, the entire neighborhood behind the wall will be protected by the floodwall system and elevation. DHSES is the grant partner for the Proposed Action.

Because there is a federal nexus created by NYCDDC receiving federal funding from FEMA, the Project is subject to environmental impact analysis pursuant to the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [U.S.C.] §§ 4321-4335) and the Council on Environmental Quality (CEQ) implementing regulations for NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508).

By means of this Biological Assessment, FEMA is requesting concurrence of the conclusion that there would be ***no effect, no suitable habitat*** on any species listed as threatened or endangered by the United States Fish and Wildlife Service (USFWS) pursuant to Section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. § 1531 et seq.).

2 PURPOSE OF THE PROPOSED ACTION

Section 404 of the Robert T. Stafford Relief and Emergency Assistance Act of 1974 (42 USC 5189f), as amended, authorizes FEMA to provide funding to eligible grant applicants for activities proposed for repair, restoration, and replacement of damaged facilities during disaster recovery while also improving long-term resilience and mitigation against future disasters. The Red Hook Coastal Resiliency Project will improve the neighborhood's protection against storm surge, taking into account the potential for Sea Level Rise. The purpose of the Proposed Action is to reduce flood losses to the residents, infrastructure, and property within the Red Hook neighborhood of Brooklyn through implementation of an integrated flood protection project. Project goals include improving and increasing pedestrian, bike, and vehicle circulation as well as waterfront access and waterfront connectivity while protecting landward areas from flooding events

3 DESCRIPTION OF THE PROPOSED ACTION

When Hurricane Sandy made landfall in October 2012, the Red Hook community experienced severe coastal storm surge flooding, causing significant damage and economic losses for businesses and residential properties. Topographically, Red Hook is a low-lying area that is bounded by the working waterways on the East River. From west to east, Red Hook is surrounded by the Buttermilk Channel (a small tidal strait in Upper New York Bay, approximately one mile

long and one-fourth of a mile wide which runs between Brooklyn and Governor's Island), Gowanus Bay, and the Gowanus Canal.

The current preferred alternative version of the project proposed resiliency work in two areas or Red Hook. One portion of the project will occur in the vicinity of the Atlantic Basin on the western side of the neighborhood. The second portion is along the southern part of the neighborhood, roughly adjacent to and along Beard Street. The project is proposed around a passive system of walls and elevated roadbeds in conjunction with flood gates, designed to reduce flooding impacts to the existing drainage system. The project will incorporate pedestrian and bicycle access via the Brooklyn Waterfront Greenway which will also include streetscape improvements such as planting strips, street furniture, safety striping and ADA accessibility.

The proposed project will result in a level of protection from coastal tidal surge up to an elevation 10'. This elevation reduces the risk from a 10-year coastal storm surge and accounts for 2.5 feet of sea level rise expected by 2050 under the High-end scenario determined by the New York City Panel on Climate Change (NPCC) in their 2019 Report. The 10' elevation was chosen after a review of the six-highest recorded storm surges that have hit the neighborhood between 1953 and 2012. However, Hurricane Sandy was an outlier to the historical norm, its elevation of 11.28 feet was replaced for design purposes with an elevation of 10'. All other surges ranged between approximately 4 and 6 feet. Meanwhile the modeled 10-year coastal storm surge, using the tidal data between 1990 and 2020, would be to an elevation of 7.5 feet. Sea Level rise by the 2050s would add another 2.5 feet of surge level and then an additional 0.5 feet of freeboard was added to the design. Red Hook is primarily located on the Preliminary FIRM 3604970192G, issued on 01/30/2015 and contains VE, LiMWA, AE, and Shaded-X zones. Specific 1% flood zones on land within Red Hook range between 11 and 14 feet.

4 ACTION AREA

Pursuant to 50 Code of Federal Regulations (CFR) §402.02, the action area is defined as, "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The "Action Area" for this Project includes the Project Site, including the terrestrial portions of Red Hook only. As no water impacts will occur, the adjacent waterbody was not included.

Information and descriptions of the Project Site contained in this report were obtained from a review of the best available scientific data, relevant literature, and mapping resources contributed to the following discussion.

4.1 Terrestrial Characteristics

As the Project Site is in a heavily disturbed urban area, upland portions of the Action Area are primarily improved with commercial, industrial, and residential buildings and is primarily paved

with impervious roadway and parking infrastructure. There are several small urban parks, with limited trees and landscaping interspersed in the neighborhood but none of which will be directly impacted by the proposed project. The shoreline is almost entirely bulkheaded with a small beach (~50 ft wide) that is used as a kayak launch at Louis Valentino Park and Pier and a small gravel and riprap beach is located adjacent to the Pier 44 Waterfront Garden.

5 SPECIES WITHIN THE ACTION AREA

The potential occurrence of federally-listed threatened and endangered species within the Action Area was evaluated using the United States Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) online system. The attached IPaC report indicates that three bird species – the Piping Plover (*Charadrius melodus*, Threatened), Red Knot (*Calidris canutus rufa,* Threatened*)* and Roseate Tern (*Sterna dougallii dougallii*, Endangered) – may be present within the Action Area. Additionally, IPaC also identifies Seabeach Amaranth (*Amaranthus pumilus* – Threatened) as also being present. Please note that the IPaC report identifies the Monarch Butterfly (*Danaus plexippus*, Candidate) as being potentially present within the Project Area; however, the Monarch Butterfly is a candidate species and not yet listed or proposed for listing. There are generally no Section 7 requirements for candidate species and, therefore, an effects determination has not been provided for this species. The IPaC report also states that there are no designated critical habitats in the Project Area.

Piping Plovers utilize wide, flat, open, sandy beaches with very little vegetation present for habitat. They eat insects, spiders, and crustaceans and are highly migratory. In the Atlantic Coast region, Piping Plovers breed in the spring and summer along the coast and migrate south for wintering. They breed on dry, sandy beaches or areas filled with dredged sand often near dunes with little to no vegetation present. Food is obtained by foraging on beaches, dunes and in tidal wrack.[1] During winter, Piping Plovers use both coastal and inland beaches, algal bay flats, mudflats, and sandflats along the Gulf of Mexico, inland bays, and Atlantic coast from Texas to North Carolina, sometimes as far south as the Bahamas and Greater Antilles.[2] Piping Plovers are extremely sensitive to human presence and parents will abandon their nests with too much human disturbance. Birds and nests on beaches can be accidentally crushed by people on foot or in vehicles. Additionally, dogs, cats, fox, gulls, and crows may harass, kill, or prey upon young piping plovers or eggs. The primary threat against the Piping Plover is coastal beach habitat loss due to commercial, residential, and recreational developments as well as Sea Level Rise.[3]

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[1] New York State Department of Environmental Conservation. (2020, August 17). Piping Plover. Retrieved from https://www.dec.ny.gov/animals/7086.html. Accessed August 2022.

[2] New York Natural Heritage Program. (2020). Conservation Guide for Charadrius melodus. Retrieved from https://guides.nynhp.org/piping-plover/. Accessed August 2022.

[3] United States Fish and Wildlife Service. (2020, March). Piping Plover 5-Year Review: Summary and Evaluation. Retrieved from doc6378.pdf (fws.gov). Accessed August 2022

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The **Red Knot** is a migratory shorebird flying from Tierra del Fuego to the central Canadian Arctic Tundra in the springtime and making the reverse trip every fall[4]. They utilize beaches, mudflats and marshes at locations along their migration route in order to refuel. Red Knot are known for their consumption of horseshoe crab eggs but also eat aquatic insects, small snails, mollusks, and worms, doubling in weight before continuing their migration.[5] Within New York State, the primary location for Red Knot is the South Shore of Long Island, including Jamaica Bay, where more than 1,000 individuals can be found in the spring and fall.[6]

The **Roseate Tern** nest on small barrier islands, and almost always in colonies for the populations in the northeast.[7] Nests typically consist of small ground depressions in sand, shell, or gravel, and may be lined with grass or other debris. Roseate Tern arrive on New York breeding grounds in late April or early May and begin nesting after one month. In late August to early September, they migrate south for winter to the waters off Trinidad and northern South America.[8] The Roseate Tern almost exclusively feeds on small fish, with the northern populations feeding primarily on the American sand lance. The Roseate Tern breeds on small barrier islands from Canada to Long Island. Within New York only a few colonies are present, the largest located at Great Gull Island. It is estimated in a recent survey that 87 percent of this species in New York nests at this colony,[9] with the only other stable breeding location being Fort Tyler/Gardiners Point Island.[10] Cartwright Island was considered the second largest nesting colony on Long Island but exists on a sandbar and has been underwater in recent years.[11] The most significant threats to the Roseate Tern are habitat loss and degradation both from human disturbance and climate change, increased predation, and competition from other birds.[12] Predators such as foxes, skunks, and brown rats' prey on nests at night when they are left unoccupied by the Roseate Tern. Predatory birds also pose a threat with the ability to reach island nesting sites protected from land predators.

Seabeach Amaranth is a small annual herbaceous plant located on beaches. Specifically, it is located between the high tide line to the edge of the foredune, in areas of low competition from

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[4] USFWS-Maine Field Office. Red Knot (*Calidris canutus*). Retrieved from Red Knot Fact Sheet (fws.gov). Accessed August 2022.

[5] American Bird Conservancy. Red Knot At a Glance. Retrieved from Red Knot - American Bird Conservancy (abcbirds.org). Accessed August 10, 2022

[6] NYSDEC. Species Status Assessment (December 2014). Retrieved from Species Assessment for Red knot (ny.gov). Accessed August 2022.

[7] NYSDEC. Roseate Tern. Retrieved from https://www.dec.ny.gov/animals/7084.html. Accessed on August 10, 2022.

[8] ibid.

[9] ibid.

[10] Garcia-Quismondo, Nisbet, Mostello & Reed. Modeling population dynamics of roseate terns (*Sterna dougallii*) in the Northwest Atlantic Ocean. Ecological Modeling 368 (2018) 298-311. Retrieved from Modeling population dynamics of roseate terns (Sterna dougallii) in the Northwest Atlantic Ocean (tufts.edu). Accessed August 2022

[11] New York Natural Heritage Program (NYNHP). Roseate Tern. Retrieved from https://guides.nynhp.org/roseate-tern/. Accessed on August 10, 2022.

[12] USFWS. Roseate Tern Northeastern North America Population: 5 Year Review Summary and Evaluation (August 2020). Retrieved from doc6559.pdf (fws.gov). Accessed August 2022

other plants.[13] Germination occurs in June and July with seeds maturing in August and September, relying on seed banks and dispersal to maintain and grow populations. The extensive work on beaches and dunes following Hurricane Sandy appears to have contributed to an expansion of its typical range on the beach, sometimes being found among the landscaping past the boardwalk on New York City beaches[14]. Within New York City, populations can be found from Coney Island to east end of the South Fork along the southern shore.[15]

6 EFFECTS DETERMINATION

The Action Area is in a heavily developed urban setting with no known Piping Plover habitat suitable for nesting or foraging present. The Piping Plover requires open, sandy beaches with sparse vegetation for nesting, and the shoreline within the Action Area is hardened with shoreline infrastructure, deteriorated bulkhead and human debris containing no open sandy regions. Piping Plovers are highly sensitive to human disturbance and are known to abandon nests if disturbances become too great. It is highly unlikely that any successful nesting, hatching, and rearing of Piping Plover could occur in the area. Piping Plovers utilize mudflat habitat during wintering; however, Piping Plovers typically winter south of North Carolina. Additionally, mudflat habitat within the Action Area is highly limited and only exposed during extreme low tides. Therefore, it would be highly unlikely that Piping Plovers would be present within the Action Area utilizing the limited mudflat habitat during wintering, and no suitable sandy beach habitat for nesting is present within the Action Area.

The Action Area also does not contain suitable foraging habitat for Red Knot. These birds require beaches, mudflats and marshes for their preferred meal of horseshoe eggs along their migration route, of which there is little to none in Red Hook. Within New York, the suitable stopover locations are located on the South Shore of Long Island with Jamaica Bay being the closest to the Action Area. Jamaica Bay is located over seven (7) miles to the east from Red Hook.

Moreover, the Action Area does not provide suitable habitat for nesting or foraging for the Roseate Tern. The Roseate Tern requires small ground depressions in sand, shell, or gravel, almost entirely found on barrier islands. Within New York, only a few colonies are present, including Gull Island and Fort Tyler/Gardiners Point Island. Cartwright Island was also the location of a Roseate Tern nesting colony on Long Island but exists on a sandbar and has been underwater in recent years. Therefore, it would be highly unlikely that Roseate Terns would be present within the Action Area.

Finally, Seabeach Amaranth is highly unlikely to be present on the small sandy areas present along the Red Hook coastline. This annual plant species is reliant upon a seedbank and seed dispersal

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[13] NYC Parks. Seabeach Amaranth (*Amaranthus pumilus*) at Rockaway Beach, Monitoring and Conservation Report 2018. Retrieved from 2018SeabeachMonitoringAndConservationReport.pdf (fs.fed.us). Accessed August, 2022.

[14] Ibid.

[15] New York Natural Heritage Program . Seabeach Amaranth. Retrieved from Seabeach Amaranth Guide - New York Natural Heritage Program (nynhp.org). Accessed August, 2022.

for successful propagation, neither of which are present within approximately six (6) miles of the Action Area. Additionally, the limited sandy areas within the Action Area are gravelly and unlike the ideal beaches found on New York's barrier islands. Sandy areas in Red Hook also do not meet the preferred width requirements and likely receive more disturbance than is required for a sustainable population.

7 Conclusion

Based on the analysis that all effects of the Proposed Action when added to baseline conditions will be insignificant or discountable, FEMA has determined that the Red Hook Coastal Resiliency Project has ***no effect, no suitable habitat*** for any listed species or critical habitat under USFWS jurisdiction. We respectfully request your concurrence with this determination. Should you have any questions on this request, please do not hesitate to contact Patrick Lyman at (202) 394-2359 or by email <patrick.lyman@fema.dhs.gov>. Thank you for your time and assistance.

Sincerely,

JAMES M ZWOLAK

Digitally signed by JAMES M ZWOLAK
Date: 2022.08.15 12:25:23 -04'00'

James Zwolak
EHP Supervisor - DR-4085-Sandy NY
FEMA Region 2
Mitigation Division/EHP
Phone: (646) 832-6255
Email: james.zwolak@fema.dhs.gov

JZ/pl/kb

Attachments:

- Species Conclusion Table
- Figure
- USFWS Official Species List
- NYSDEC ERM Screenshot
- Renderings

Species Conclusions Table
Project Name: Red Hook Coastal Resiliency Project
Date: 8/15/2022

Species Name	**Potential Habitat Present?**	**Species Present?**	**Critical Habitat Present**	**ESA/Eagle Act Determination (REQUIRED) (e.g. no effect, may affect but not likely to adversely affect, likely to adversely affect, no take, may affect but 4(d) rule).**	**Notes/Documentation (include full rationale in your report)**
Piping plover	No	No	No	No effect	No suitable habitat for nesting or foraging is located onsite or in vicinity. Project area is . primarily hardened shoreline, unlike the sandy regions the plover prefers.
Red Knot	No	No	No	No effect	No suitable habitat for nesting or foraging is located onsite or in vicinity. Project area does not contain any suitable beaches mudflats, or marshes that may provide foraging opportunities.
Roseate tern	No	No	No	No effect	No suitable habitat for nesting or foraging is located onsite or in vicinity. The tern prefers requires small ground depressions in sand, shell, or gravel.
Seabeach Amaranth	No	No	No	No effect	No suitable habitat for growth. Plant requires beaches found on New York's barrier islands. Beaches within project area do not have these characteristics.

Attachment 1

Figure

Red Hook Coastal Resiliency Project Location Map

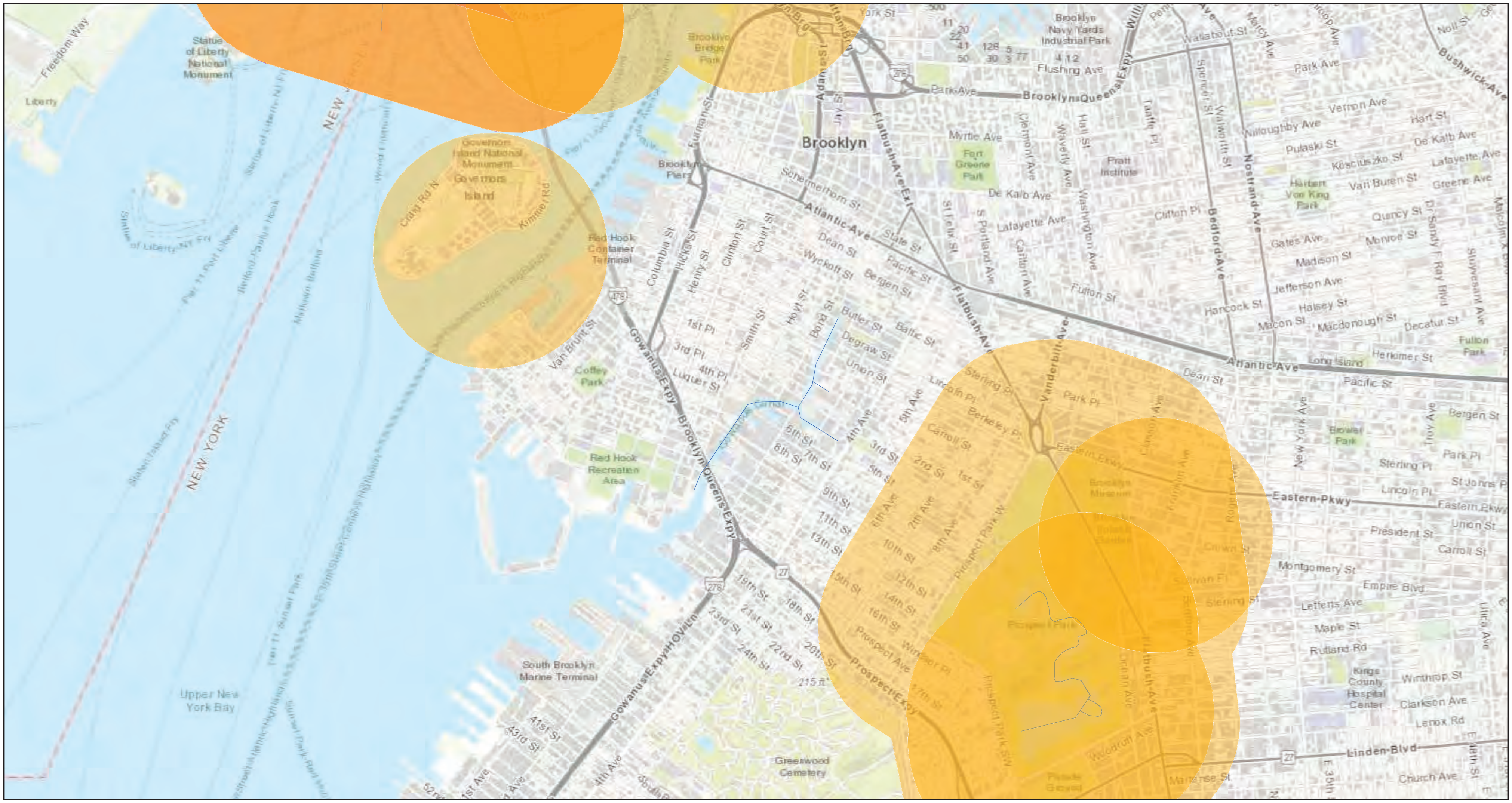
Source: NOAA, Esri | Source: USDA NRCS, Esri | The USDA Forest Service makes no warranty, expressed or implied, including the warranties of merchantability and fitness for a particular purpose, nor assumes any legal liability or responsibility for the accuracy, reliability, completeness or utility of these geospatial data, or for the improper or incorrect use of these geospatial data. These geospatial data and related maps or graphics are not legal documents and are not intended to be used as such. The data and maps may not be used to determine title, ownership, legal descriptions or boundaries, legal jurisdiction, or restrictions that may be in place on either public or private land. Natural hazards may or may not be depicted on the data and maps,

and land users should exercise due caution. The data are dynamic and may change over time. The user is responsible to verify the limitations of the geospatial data and to use the data accordingly. | Airbus,USGS,NGA,NASA,CGIAR,NCEAS,NLS,OS,NMA,Geodatastyrelsen,GSA,GSI and the GIS User Community | Contributing counties, NYS Office of Information Technology Services GIS Program Office (GPO) and NYS Department of Taxation and Finance's Office of Real Property Tax Services (ORPTS). Primary Contact: GPO, GISBoundaries@its.ny.gov, 518-242-5029. | Contributing counties, NYS Office of Information Technology Services GIS Program Office (GPO) and NYS Department of Taxation and Finance's Office of Real Property Tax Services (ORPTS). Primary Contact: GPO, GISBoundaries@its.ny.gov, 518-242-5029. | U.S. Fish and Wildlife Service, Coastal Barrier Resources Act Program, CBRA@FWS.gov | NYS Office of Information Technology Services GIS Program Office (GPO). Primary Contact: GPO, GISBoundaries@its.ny.gov, 518-242-5029. | source: National Hydrography Dataset: USGS | New York State, Maxar

Attachment 2

NYSDEC ERM Screenshot

Red Hook Coastal Resiliency Project



August 11, 2022

1:36,112

0 0.35 0.7 1.4 mi

0 0.5 1 2 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

NYS Department of Environmental Conservation
Not a legal document

FEMA Environmental & Historic Preservation
Region 2
One World Trade Center
285 Fulton Street, 53rd Floor
New York, NY 10007

MEMORANDUM to: File

Prepared by: Patrick Lyman

Date: 09/15/2022

Applicant: New York City Department of Design and Construction (NYCDDC)

Project Name: FEMA-DR-4085-HMGP-0092 Red Hook Coastal Resiliency Project

Proposed Action: The project's Action Area is located in two areas of the Red Hook neighborhood in Brooklyn. One portion of the project will occur in the vicinity of Atlantic Basin on the western side of the neighborhood. The second portion is along the southern part of the neighborhood, roughly adjacent to and along Beard Street. The project is proposed around a passive system of walls and elevated roadbeds in conjunction with flood gates, designed to reduce flooding impacts. The project will incorporate pedestrian and bicycle access via the Brooklyn Waterway Greenway which will also include streetscape improvements such as planting strips, street furniture, safety striping, and ADA accessibility.

Environmental and Historic Preservation Notes: Informal Consultation with the U.S. Fish and Wildlife Service (USFWS) was initiated on 08/15/2022 under the Endangered Species Act (ESA) (16 U.S.C. 1531 et seq.). No response from USFWS was received within 30 days.

Determination: Based on the analysis that all effect of the Proposed Action when added to baseline conditions will be insignificant or discountable. FEMA determined that the Red Hook Coastal Resiliency Project will have ***no effect, no suitable habitat*** for any listed species or critical habitat under USFWS jurisdiction. As no response was received from USFWS within 30 days, FEMA intends to proceed with assumed concurrence with the findings from the project analysis and consultation.

CORRESPONDENCE 4: NYNHP PROJECT REVIEW

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

This has been referenced in the 5.12 Transportation Chapter.Elisa Tsang
NV5
32 Old Slip
New York, NY 10005

Re: Red Hook Coastal Resiliency
County: Kings Town/City: Brooklyn

Dear Elisa Tsang:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

We have no records of rare or state-listed animals or plants, or significant natural communities at the project site.

Common tern (*Sterna hirundo*, state listed as Threatened) has been documented nesting within 1/4 mile of the project site. For information about any permit considerations for your project, please contact the Permits staff at the NYSDEC Region 2 Office, Division of Environmental Permits, at dep.r2@dec.ny.gov.

For most sites, comprehensive field surveys have not been conducted. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other resources may be required to fully assess impacts on biological resources.

For information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the Permits staff at the NYSDEC Region 2 Office as described above.

Sincerely,

Heidi Krahling
Environmental Review Specialist
New York Natural Heritage Program

CORRESPONDENCE 5: NYSHPO CONSULTATION

U.S. Department of Homeland Security
Federal Emergency Management Agency
FEMA Region 2
One World Trade Center
285 Fulton Street
New York, New York 10007

FEMA

August 8, 2022

R. Daniel Mackay
Deputy State Historic Preservation Officer
Division for Historic Preservation
Peebles Island State Park
P. O. Box 189
Waterford, NY 12188-0189

RE: Section 106 Consultation
Project #: HMGP-02-NY-4085-0092
Recipient/Subrecipient: DHSES/NYC Department of Design and Construction (NYC DDC)
Addresses: Atlantic Basin & Beard Street, Red Hook, Brooklyn, New York
Undertaking: An integrated flood protection system to include flood walls, flood gates, street and sidewalk improvements and re-grading, planting strips, and use of existing infrastructure to be used in conjunction with the new flood systems.

Dear Mr. Mackay:

The Federal Emergency Management Agency (FEMA) will be providing funds authorized under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93-288, as amended, in response to the major Disaster Declaration for FEMA-4085-DR-NY, dated October 28, 2012, as amended. FEMA is submitting a Section 106 consultation in accordance with FEMA's New York Statewide Programmatic Agreement executed on November 26, 2019.

Project Information
During the incident period from October 27 through November 9, 2012, storm surge from Hurricane Sandy combined with high velocity winds and flooding caused damage to the Red Hook area of Brooklyn. Red Hook is a low-lying area that is bounded by working waterways on the East River. From west to east, Red Hook is surrounded by the Buttermilk Channel, Gowanus Bay, and the Gowanus Canal. During the storm, water flooded Red Hook from all surrounding water bodies with local flood depths exceeding six feet. This inundation impacted much of the neighborhood, including New York City Housing Authority (NYCHA) Red Hook Houses.

Red Hook consists of commercial and residential buildings as well as the maritime activities along the waterfront. To protect the neighborhood as well as inland areas, NYC DDC is proposing the "Red Hook Coastal Resiliency" project. It is an integrated flood protection system to include flood walls, flood gates, street and sidewalk improvements and re-grading, planting strips, and use of

existing infrastructure to be used in conjunction with the new flood systems. The overall project would reduce flood losses to the residents, infrastructure, and property within the Red Hook neighborhood of approximately 190 acres, 3,150 residents, and 500 buildings at risk in a 10-year coastal storm surge.

Proposed Undertaking

The Red Hook Coastal Resiliency project has been proposed for construction in two "zones" within the Red Hook neighborhood, one surrounding the Atlantic Basin, and the other running along Beard Street. The system includes an integrated floodwall that will operate in tandem with a series of roller and flip-up gates and re-grading of low-lying streets. As noted above, there will be sidewalk improvements consisting of new concrete "paving" and curbs, planting strips, street trees, lighting, benches, etc. Additionally, not yet completed sections of the Brooklyn Waterfront Greenway will be finished and incorporated into the overall coastal resiliency project. The entire flood mitigation system will passively serve to protect at a design flood elevation (DFE) of eight-feet, and a ten-foot DFE when the gates are deployed.

In the Atlantic Basin zone, the flood wall is proposed to run along Imlay Street from Summit to the turn of Bowne Street and again from Verona to Pioneer Street. The wall will then run along the L-shaped Bowne Street to Verona. The wall will also encompass Clinton Wharf, continuing along Ferris Street with several turns on King Street, Sullivan Street, and Wolcott Street along the waterfront. A flip-up gate will be installed next to Clinton Wharf. The streets will be regraded along the wall on Wolcott Street, Sullivan Street, King Street, and Imlay Street where it connects with Clinton Wharf, Bowne Street, and Summit Street.

In the Beard Street zone, the flood wall is proposed to run along Beard Street from Columbia Street to Van Brunt Street, where it runs up to Reed Street before concluding at the intersection of Beard Street and Conover Street. Six flip-up gates are proposed for installation along the wall between Richards Street and Van Brunt Street. Two roller gates are proposed for installation on Van Brunt Street. The streets will be regraded along the wall from Otsego Street to Conover Street, and in the area surrounding the conclusion of the wall on Columbia Street.

To meet a DFE level of ten feet, the proposed flood walls are shown in sections to be buried six feet, with a reveal varying from ground level to +/-2 feet. Gates, where installed, will match the adjacent wall elevations. On the accompanying streets, the sidewalks will be poured four inches deep, and the road surface will be 1.5 inches of asphalt on three inches of asphalt and concrete. Both sidewalk and road surface will be on a six-inch stone base.

Along the wide sidewalks, new sets of plantings are proposed. Trees will be planted fifteen feet apart on Conover, Pioneer, Imlay, and Wolcott Streets. A second row of trees will be installed on Pioneer and Wolcott Streets interspersed by city benches. Additional trees will be planted in smaller quantities along the King, Ferris, and Coffey Street sidewalks. A planting area will follow the Beard Street wall. Where the wall intersects with the Pier, larger planting areas, trees, and benches will be installed with a section of historic road materials preserved.

Area of Potential Effects (APE)
Pursuant to 36 CFR 800.4(a)(1), the area of potential effects (APE) is defined as the geographic area(s) within which the Undertaking may directly or indirectly affect historic resources. Based on the proposed scope of work, FEMA has determined that the APE for this Undertaking will be limited to Atlantic Basin and Beard Street "zones." As defined by the NYC DoITT maps, these zoned include blocks 502, 507, 514, 515, 517, 529, 545, 555, 564, 573, 574, 603, 604, 605, 606, 607, 611, 612, and the adjacent viewsheds.

Evaluation of Architectural Significance
As noted, the proposed location of the new flood wall system runs through two sections of the Red Hook neighborhood in Brooklyn. The neighborhood developed as a waterfront village beginning in 1636 established by the Dutch on land previously inhabited by the Lenape tribe. As it developed, the area continued to grow and maintain its maritime connections. The area became the Red Hook port in the mid-18th century. It has continued to maintain visual and architectural remnants of its maritime history, including the docks, barges, waterfront warehouses, longshoreman housing, and cobblestone roads.

The two areas of the neighborhood included in the APE are the blocks surrounding the Atlantic Basin and the blocks on either side of Beard Street. Both areas feature simple, red masonry warehouses and Italianate row houses in addition to modern infrastructure and parking lots. The following tables summarize buildings within the APE based on National Register of Historic Places (NRHP) eligibility.

NRHP Eligible Buildings

Address – Atlantic Basin Zone	Construction Date	USN (CRIS)	Historic District (if applicable)	FEMA Determination	Potential Effect
43 FERRIS STREET	1904	4701.019342		FEMA concurs	Protection of wall; visual connection along Ferris St., no physical connection
328 VAN BRUNT STREET	1931			NRHP eligible	Protection of wall; no physical/visual connection
114 SULLIVAN STREET	1921			NRHP eligible	Protection of wall; no physical/visual connection
116 SULLIVAN STREET	1921			NRHP eligible	Protection of wall; no physical/visual connection
144 CONOVER STREET	1890	4701.019052		NRHP eligible	Protection of wall; no physical/visual connection
149 PIONEER STREET	1931			NRHP eligible	Protection of wall; visual connection on Pioneer & Imlay Sts., no physical connection
151 SULLIVAN STREET	1900	4701.023083	Sullivan Street HD	FEMA concurs	Protection of wall; no physical/visual connection
153 SULLIVAN STREET	1900	4701.023724	Sullivan Street HD	FEMA concurs	Protection of wall; no physical/visual connection
155 SULLIVAN STREET	1900	4701.023723	Sullivan Street HD	FEMA concurs	Protection of wall; no physical/visual connection

322 VAN BRUNT STREET	1931			NRHP eligible	Protection of wall; no physical/visual connection
326 VAN BRUNT STREET	1931			NRHP eligible	Protection of wall; no physical/visual connection
330 VAN BRUNT STREET	1931			NRHP eligible	Protection of wall; no physical/visual connection
Address – Beard Street Zone	**Construction Date**	**USN (CRIS)**	**Historic District (if applicable)**	**FEMA Determination**	**Potential Effect**
158 BEARD STREET	1900			NRHP eligible	Protection of wall; no physical/visual connection
159 BEARD STREET	1875	4701.018951		NRHP eligible	Protection of wall; no physical/visual connection, Beard St. partially regraded
173 BEARD STREET	1899			NRHP eligible	Protection of wall; no physical/visual connection, Beard St. partially regraded
174 BEARD STREET	1899			NRHP eligible	Partial protection from wall; Visual connection on Conover St., no physical connection
251 CONOVER STREET	1899			NRHP eligible	Protection of wall; Visual connection on Conover St., wall to be constructed visually across the street from building, corner of Conover St. regraded
253 CONOVER STREET	1899			NRHP eligible	Protection of wall; Visual connection on Conover St., wall to be constructed visually across the street from building, corner of Conover St. regraded
415 VAN BRUNT STREET	1885	4701.01895		FEMA concurs	Protection from wall; Visual connection across Beard St., no physical connection, Beard & Van Brunt Sts. regraded around building.
417 VAN BRUNT STREET	1885			NRHP eligible	Protection from wall; Visual connection across Beard St., no physical connection, Beard & Van Brunt Sts. regraded around building.

480 VAN BRUNT STREET	1860	4701.015103		FEMA concurs	Protection from wall; Physical connection to masonry elevation on Van Brunt St., deployment of flood gate/wall could cause standing water to sit in building. Street will be regraded along Van Brunt & Reed St. elevations.
500 VAN BRUNT STREET	1860	4701.015103		FEMA concurs	Protection from wall; Physical connection to masonry elevation on Van Brunt St., deployment of flood gate/wall could cause standing water to sit in building. Street will be regraded along Van Brunt & Reed St. elevations.
421-573 VAN BRUNT STREET	1869	4701.000082	Beard St. Store and Warehouse Pier (21 connected structures)	FEMA concurs	No protection from wall; visual connection along Van Brunt St., physical connection to brick wall across Van Brunt St., deployment of flood gate/wall could cause standing water to sit in building. Street will be regraded along Van Brunt St. elevation.

Not NRHP-Eligible Buildings

Address – Atlantic Basin Zone	Construction Date	USN (CRIS)	FEMA Determination	Potential Effect
9 IMLAY STREET	1920		Not NRHP eligible	Protection of wall, surrounded by wall on Imlay & Summit Sts., road regraded on Imlay & Summit Sts., will not physically connect to building
28 SUMMIT STREET	1920		Not NRHP eligible	Protection of wall, surrounded by wall on Imlay & Summit Sts., road regraded on Imlay & Summit Sts., will not physically connect to building
29 IMLAY STREET	1920		Not NRHP eligible	Protection of wall, surrounded by wall on Imlay & Summit Sts., road regraded on Imlay & Summit Sts., will not physically connect to building
39 FERRIS STREET	1931		Not NRHP eligible	Protection of wall; visual connection along Ferris St.; no physical connection

118 CONOVER STREET	1936		Not NRHP eligible	No protection from wall; visual connection on Imlay St., no physical connection
75 BOWNE STREET	1924		Not NRHP eligible	No protection from wall; visual connection on Clinton Wharf & Bowne Sts., no physical connection
558 COLUMBIA STREET	Not known		Not NRHP eligible	Protection of wall; physical connection along Halleck & Columbia Sts., regrading along street and to side of building, visual connection on Halleck & Columbia Sts.
238 VAN BRUNT STREET	1963		Not NRHP eligible	Protection of wall; no physical/visual connection
262 VAN BRUNT STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection
87 BOWNE STREET	1924		Not NRHP eligible	Protection of wall; no physical/visual connection
87 IMLAY STREET	2000		Not NRHP eligible	Protection of wall; visual connection along Verona St., no physical connection
101 COMMERCE STREET	2000		Not NRHP eligible	Protection of wall; no physical/visual connection
102 CONOVER STREET	1922		Not NRHP eligible	Partial protection of wall; visual connection along Clinton Wharf, physical connection to wall and street regrading along Ferris St., King St., set back from wall on Clinton Wharf
112 SULLIVAN STREET	N/A		Not NRHP eligible	Protection of wall; physically surrounded by wall on Commerce, Commercial Wharf, Bowne Sts., visual connection too
117 IMLAY STREET	1931		Not NRHP eligible	Protection of wall; visual connection along Verona St., no physical connection
127 CONOVER STREET	1900		Not NRHP eligible	Protection of wall; visual connection along Conover St., physically located across Conover St., street regrading
128 SULLIVAN STREET	unknown		Not NRHP eligible	Protection of wall; no physical/visual connection
131 IMLAY STREET	1952		Not NRHP eligible	Protection of wall; visual connection along Imlay St., physically located across Imlay St.
133 IMLAY STREET	1931		Not NRHP eligible	Protection of wall; visual connection along Imlay St., physically located across Imlay St.
133 SULLIVAN STREET	1931		Not NRHP eligible	Protection of wall; no physical/ visual connection.

135 IMLAY STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection
137 KING STREET	1901		Not NRHP eligible	Protection of wall; no physical/visual connection
139 IMLAY STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection
142 KING STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection
142 CONOVER STREET	1961		Not NRHP eligible	Protection of wall; no physical/visual connection
143 CONOVER STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection
144 KING STREET	1931		Not NRHP eligible	Protection of wall; visual connection on Pioneer St., no physical connection
145-165 WOLCOTT STREET	Unknown		Not NRHP eligible	Protection of wall; visual connection across Ferris St., no physical connection
148 CONOVER STREET	1890	4701.019053	Not NRHP eligible	Protection of wall; no physical/visual connection
150 CONOVER STREET	1961		Not NRHP eligible	Protection of wall; no physical/visual connection
150 KING STREET	1866		Not NRHP eligible	Protection of wall; visual connection on Pioneer St., no physical connection
150 SULLIVAN STREET	1950		Not NRHP eligible	Protection of wall; no physical/visual connection
153 PIONEER STREET	1931		Not NRHP eligible	Protection of wall; visual connection on Pioneer St., no physical connection
154 CONOVER STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection
154 SULLIVAN STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection
156 SULLIVAN STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection
157 PIONEER STREET	1866		Not NRHP eligible	Protection of wall; visual connection on Pioneer St., no physical connection
158 DIKEMAN STREET	1990		Not NRHP eligible	Protection of wall; no physical/visual connection
158 PIONEER STREET	Unknown		Not NRHP eligible	Protection of wall; visual connection on Pioneer St., no physical connection
160 DIKEMAN STREET	2019		Not NRHP eligible	Protection of wall; no physical/visual connection
160 SULLIVAN STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection
160 VAN BRUNT STREET	2000	4701.019339	FEMA concurs	Protection of wall; visual connection on Summit St., no physical connection, Summit St. regraded

162 WOLCOTT STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection
163 IMLAY STREET	1942		Not NRHP eligible	Protection of wall; visual connection on Pioneer St., no physical connection
164 DIKEMAN STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection
164 WOLCOTT STREET	1931		Not NRHP eligible	Protection of wall; visual connection across Ferris St., no physical connection
166 DIKEMAN STREET	1931		Not NRHP eligible	Protection of wall; visual connection across Ferris St., no physical connection
170 VAN BRUNT STREET	1920		Not NRHP eligible	Protection of wall, surrounded by wall on Imlay & Summit Sts., road regraded on Imlay & Summit Sts., will not physically connect to building
183 KING STREET	1950	4701.014969	Not NRHP eligible	Protection of wall; visual connection on King & Ferris Sts., no physical connection
184 CONOVER STREET	Unknown		Not NRHP eligible	Protection of wall; no physical/visual connection
198 CONOVER STREET	1901		Not NRHP eligible	Protection of wall; no physical/visual connection
199 KING STREET	1919	4701.023722	Not NRHP eligible	Protection of wall; visual connection on King & Ferris Sts., no physical connection
202 CONOVER STREET	2019		Not NRHP eligible	Protection of wall; no physical/visual connection
210 VAN BRUNT STREET	1924		Not NRHP eligible	Protection of wall; visual connection on Bowne & Imlay Sts., no physical connection
228 VAN BRUNT STREET	1921		Not NRHP eligible	Protection of wall; no physical/visual connection
230 VAN BRUNT STREET	1915		Not NRHP eligible	Protection of wall; no physical/visual connection
232 VAN BRUNT STREET	1932		Not NRHP eligible	Protection of wall; no physical/visual connection
234 VAN BRUNT STREET	1900		Not NRHP eligible	Protection of wall; no physical/visual connection
236 VAN BRUNT STREET	1960		Not NRHP eligible	Protection of wall; no physical/visual connection
242 VAN BRUNT STREET	1899		Not NRHP eligible	Protection of wall; no physical/visual connection
244 VAN BRUNT STREET	1899		Not NRHP eligible	Protection of wall; no physical/visual connection
246 VAN BRUNT STREET	1899		Not NRHP eligible	Protection of wall; no physical/visual connection

248 VAN BRUNT STREET	1899		Not NRHP eligible	Protection of wall; no physical/visual connection
250 VAN BRUNT STREET	1899		Not NRHP eligible	Protection of wall; no physical/visual connection
252 VAN BRUNT STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection
254 VAN BRUNT STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection
256 VAN BRUNT STREET	1899		Not NRHP eligible	Protection of wall; no physical/visual connection
258 VAN BRUNT STREET	1899		Not NRHP eligible	Protection of wall; no physical/visual connection
272 VAN BRUNT STREET	1971		Not NRHP eligible	Protection of wall; no physical/visual connection
274 VAN BRUNT STREET	Not known		Not NRHP eligible	Protection of wall; no physical/visual connection
276 VAN BRUNT STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection
278 VAN BRUNT STREET	1926		Not NRHP eligible	Protection of wall; no physical/visual connection
280 VAN BRUNT STREET	1921		Not NRHP eligible	Protection of wall; no physical/visual connection
284 VAN BRUNT STREET	1931	4701.019123	FEMA concurs	Protection of wall; no physical/visual connection
288 VAN BRUNT STREET	1899		Not NRHP eligible	Protection of wall; no physical/visual connection
290 VAN BRUNT STREET	1899		Not NRHP eligible	Protection of wall; no physical/visual connection
292 VAN BRUNT STREET	1899		Not NRHP eligible	Protection of wall; no physical/visual connection
294 VAN BRUNT STREET	1925		Not NRHP eligible	Protection of wall; no physical/visual connection
296 VAN BRUNT STREET	1925		Not NRHP eligible	Protection of wall; no physical/visual connection
298 VAN BRUNT STREET	1925		Not NRHP eligible	Protection of wall; no physical/visual connection
300 VAN BRUNT STREET	1925		Not NRHP eligible	Protection of wall; no physical/visual connection
304 VAN BRUNT STREET	Not known		Not NRHP eligible	Protection of wall; no physical/visual connection
310 VAN BRUNT STREET	1962		Not NRHP eligible	Protection of wall; no physical/visual connection
318 VAN BRUNT STREET	1925		Not NRHP eligible	Protection of wall; no physical/visual connection
320 VAN BRUNT STREET	1925		Not NRHP eligible	Protection of wall; no physical/visual connection
332 VAN BRUNT STREET	Not known		Not NRHP eligible	Protection of wall; no physical/visual connection

338 VAN BRUNT STREET	1901		Not NRHP eligible	Protection of wall; no physical/visual connection
344 VAN BRUNT STREET	1921		Not NRHP eligible	Protection of wall; no physical/visual connection
346 VAN BRUNT STREET	2015		Not NRHP eligible	Protection of wall; no physical/visual connection
350 VAN BRUNT STREET	1921		Not NRHP eligible	Protection of wall; no physical/visual connection
352 VAN BRUNT STREET	1921		Not NRHP eligible	Protection of wall; no physical/visual connection
57 IMLAY STREET	1912		Not NRHP eligible	Wall to be constructed on Commercial Wharf side of building, set away from building, within flood protection
63 FERRIS STREET	N/A		Not NRHP eligible	Protection of wall; visual connection across Ferris St., no physical connection
99 COMMERCE STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection
Address – Beard Street Zone	**Constriction Date**	**USN (if applicable)**	**FEMA Determination**	**Potential Effect**
1 BEARD STREET	2008		Not NRHP eligible	Partial protection from wall; physical and visual connection on Halleck St., partial regrading of Halleck St.
16 REED STREET	N/A		Not NRHP eligible	Protection of wall; Visual connection on Reed St., wall to be constructed visually across the street from building, Reed St. regraded
24 REED STREET	2012		Not NRHP eligible	Protection of wall; Visual connection on Reed St., wall to be constructed visually across the street from building, Reed St. regraded
26 REED STREET	1931		Not NRHP eligible	Protection of wall; Visual connection on Reed St., wall to be constructed visually across the street from building, Reed St. regraded
44 BEARD STREET			Not NRHP eligible	Protection of wall; no physical/visual connection
46 BEARD STREET			Not NRHP eligible	Protection of wall; no physical/visual connection
48 BEARD STREET	1920		Not NRHP eligible	Protection of wall; no physical/visual connection
60 BEARD STREET	1900		Not NRHP eligible	Protection of wall; no physical/visual connection
94 FERRIS STREET	N/A		Not NRHP eligible	No protection from wall; no physical/visual connection
37 VAN DYKE STREET	Unknown		Not NRHP eligible	Protection of wall; no physical/visual connection.

39 VAN DYKE STREET	1920		Not NRHP eligible	Protection of wall; no physical/visual connection
145 VAN DYKE STREET	1925		Not NRHP eligible	Protection of wall; no physical/visual connection
147 VAN DYKE STREET	1925		Not NRHP eligible	Protection of wall; no physical/visual connection
149 VAN DYKE STREET	1890		Not NRHP eligible	Protection of wall; no physical/visual connection
98 BEARD STREET	1900		Not NRHP eligible	Protection of wall; visual connection on Beard Sts., no physical connection, Beard St. regraded to front of building
100 BEARD STREET	1900		Not NRHP eligible	Protection of wall; visual connection on Beard Sts., no physical connection, Beard St. regraded to front of building
110 BEARD STREET	1900		Not NRHP eligible	Protection of wall; visual connection on Beard Sts., no physical connection, Beard St. regraded to front of building
89 VAN DYKE STREET	1900		Not NRHP eligible	Protection of wall; no physical/visual connection
152 BEARD STREET	1927		Not NRHP eligible	Protection of wall; visual connection on Beard & Van Brunt Sts., no physical connection, Beard St. regraded to front of building
156 BEARD STREET	2017		Not NRHP eligible	Protection of wall; visual connection on Beard & Van Brunt Sts., no physical connection, Beard St. regraded to front of building
161 VAN DYKE STREET	1965		Not NRHP eligible	No protection from wall; no visual/physical connection
161 BEARD STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection, Beard St. partially regraded
162 BEARD STREET	2009		Not NRHP eligible	Partial protection of wall; visual connection on Beard & Van Brunt Sts., no physical connection, Beard St. regraded to front of building
166 BEARD STREET	2009		Not NRHP eligible	Partial protection of wall; visual connection on Beard & Van Brunt Sts., no physical connection, Beard St. regraded to front of building
167 BEARD STREET	1931		Not NRHP eligible	Protection of wall; no physical/visual connection, Beard St. partially regraded
168 BEARD STREET	1931		Not NRHP eligible	Partial protection of wall; visual connection on Beard & Van Brunt Sts., no physical connection, Beard St. regraded

170 BEARD STREET	1931		Not NRHP eligible	Partial protection of wall; visual connection on Beard & Van Brunt Sts., no physical connection, Beard St. regraded
172 BEARD STREET	1899		Not NRHP eligible	Partial protection of wall; visual connection on Beard & Van Brunt Sts., no physical connection, Beard St. regraded
233 CONOVER STREET	1987		Not NRHP eligible	Protection of wall; Visual connection on Conover St., wall to be constructed visually across the street from building, corner of Conover St. regraded
243 CONOVER STREET	1931		Not NRHP eligible	Protection of wall; Visual connection on Conover St., wall to be constructed visually across the street from building, corner of Conover St. regraded
255 CONOVER STREET	1931		Not NRHP eligible	Protection of wall; Visual connection on Conover St., wall to be constructed visually across the street from building, corner of Conover St. regraded
426 VAN BRUNT STREET	1899		Not NRHP eligible	Partial protection of wall; visual connection on Beard & Van Brunt Sts., no physical connection, Van Brunt St. regraded
151 VAN DYKE STREET	1901		Not NRHP eligible	No protection from wall; no visual/physical connection
424 VAN BRUNT STREET	1925		Not NRHP eligible	Partial protection of wall; visual connection on Beard & Van Brunt Sts., no physical connection, Van Brunt St. regraded
428 VAN BRUNT STREET	1925		Not NRHP eligible	Partial protection of wall; visual connection on Beard & Van Brunt Sts., no physical connection, Van Brunt St. regraded
430 VAN BRUNT STREET	2017		Not NRHP eligible	Partial protection of wall; visual connection on Beard & Van Brunt Sts., no physical connection, Van Brunt St. regraded
432 VAN BRUNT STREET	2018		Not NRHP eligible	Partial protection of wall; visual connection on Beard & Van Brunt Sts., no physical connection, Van Brunt St. regraded
434 VAN BRUNT STREET	2018		Not NRHP Eligible	Partial protection of wall; visual connection on Beard & Van Brunt Sts., no physical connection, Van Brunt St. regraded

436 VAN BRUNT STREET	2005		Not NRHP eligible	Partial protection of wall; visual connection on Beard & Van Brunt Sts., no physical connection, Van Brunt St. regraded
440 VAN BRUNT STREET	2008		Not NRHP eligible	Partial protection of wall; visual connection on Beard & Van Brunt Sts., no physical connection, Van Brunt St. regraded
442 VAN BRUNT STREET	1925		Not NRHP eligible	Protection of wall; visual connection on Van Brunt St., wall on building side of Van Brunt St., Van Brunt St. regraded
448 VAN BRUNT STREET	unknown		Not NRHP eligible	Protection of wall; visual connection on Van Brunt St., wall on building side of Van Brunt St., Van Brunt St. regraded
454 VAN BRUNT STREET	1931		Not NRHP eligible	Protection of wall; visual connection on Van Brunt St., wall on building side of Van Brunt St., Van Brunt St. regraded
460 VAN BRUNT STREET	2005		Not NRHP eligible	Wall to be constructed abutting brick wall on Van Brunt & Reed Sts., visual connection on both streets, regrading on both streets
236 RICHARDS STREET	1900		Not NRHP eligible	Protection of wall; Visual connection along Beard St., physical connection on Beard St. sidewalk (wall along sidewalk), Beard St. to be regraded
115 VAN DYKE STREET	2000		Not NRHP eligible	No protection from wall; no physical/visual connection
405 VAN BRUNT STREET	2001		Not NRHP eligible	Protection of wall; no physical/visual connection, Van Brunt St. regraded
419 VAN BRUNT STREET	unknown		Not NRHP eligible	Protection of wall; Visual connection to wall across Beard St., physical connection to wall across Beard St. sidewalk (wall on sidewalk), Beard St. regraded in front of building
70 BEARD STREET	unknown		Not NRHP eligible	Protection of wall; Visual connection to wall across Beard St., physical connection to wall across Beard St. sidewalk (wall on sidewalk), Beard St. regraded in front of building
411 VAN BRUNT STREET	2017		Not NRHP eligible	Protection of wall; visual connection across Van Brunt St., no physical

640 COLUMBIA STREET	2022		Not NRHP eligible	Partial protection from wall; physical and visual connection on Halleck St., partial regrading of Halleck and Columbia Sts.

"Undetermined" for NRHP Eligibility (as shown in CRIS)

Address – Atlantic Basin Zone	Construction Date	USN	FEMA Determination	Potential Effect
160 IMLAY STREET	1911	4701.016712	Not NRHP Eligible	Wall to be constructed on Commercial Wharf side of building, set away from building, will protect from flooding
100 IMLAY STREET	1913	4701.023939	Not NRHP Eligible	Wall to be constructed on Commercial Wharf side of building, set away from building, will protect from flooding
112 IMLAY STREET	1911	4701.016712	Not NRHP Eligible	Wall to be constructed on Commercial Wharf side of building, set away from building, will protect from flooding
200 CONOVER STREET	1850	4701.023909	NRHP Eligible	Protection of wall; no physical/visual connection
282 VAN BRUNT STREET	1885	04701.023720	NRHP Eligible	Protection of wall; no physical/visual connection

The buildings identified as "NRHP-eligible" are of age for NRHP consideration and retain a high level of architectural integrity. They are reflective of the historical development of the Red Hook neighborhood and include the intact waterfront warehouses, the Sullivan Street Historic District (a row of Italianate townhouses), and the Beard Street Store and Warehouse Pier, which is 21 interconnected buildings dating to 1869 and recognizable to their date of construction. Based upon the neighborhood history, architectural integrity, and significance to late-18th and early 19th century waterfront development, these buildings rise to the level of significance required to be eligible for the National Register of Historic Places.

The buildings identified as "non-NRHP eligible" may be of age for NRHP consideration, but do not appear to be associated with a significant historic person or event that is not generally known or commonly acknowledged. The buildings do not possess unique character defining features associated with a prominent architectural movement or vernacular architectural style or method of construction. In addition, the buildings do not represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction. In addition, the surrounding neighborhood generally does not meet the level of significance required to be considered an NRHP Historic District.

In addition to the buildings within the neighborhood are additional historic features including Belgian block streets and potentially sub-road surface "trolley" tracks. The cobblestone streets,

which mainly survive in the areas closest to the waterfront (and therefore most prone to flooding), are of a lower elevation than the neighboring asphalt streets. The asphalt streets in the neighborhood appear to be paved-over cobblestone streets, visible in some cases where potholes have exposed the stones underneath. In order to make the streets level and ensure the flood wall system can function properly, large sections of cobblestone are proposed for re-grading with asphalt. This includes sections of Ferris St. at Sullivan St., King St., and Commercial Wharf St. along with Browne St. and Imlay St. as they intersect and continue to Hamilton Ave. Additionally, at Van Brunt St. from Reed St. to Beard St., continuing along Beard St. to Dwight St., and sections of Beard St. at the intersections of Otsego St. and Columbia St. While this will alter the visual character of the neighborhood, they are not in areas listed or eligible for listing on the as a NRHP as a historic district. Therefore, re-grading the streets would not have an effect to historic resources.

Evaluation of Archaeological Impact

The APEs are both in the Red Hook Section of Brooklyn. A review of CRIS shows of the two APE sections only the extreme northeast corner of the Atlantic Basin APE is located within an archaeologically sensitive mapped area. However, it appears to be tied to the undetermined archaeological sites on Governors Island across the East River and no ground disturbing activity is planned for within 500 feet of this site. The remaining expanse of the Atlantic Basin APE and the entirety of the Beard Street APE fall outside of any currently mapped archaeologically sensitive area. Additionally, according to historic maps much of the landforms for both APEs are known to be 19th and 20th century majority landfill especially along the waterfronts.

Mapped USDA soils are depicted for the Atlantic Basin APE as a combination of Urban LaGuardia Complex (ULA) (0-3% slopes) and Urban Land (Reclaimed Substratum) (UrA) (0-3% slopes). Both the ULA and UrA are described as Asphalt over human-transported material, with a profile of a cemented material (0-15 inches) with a gravelly sandy loam (15 to 79 inches). The Beard Street APE mirrors the Atlantic Basin soils with mostly UrA and a small percentage of LaGuardia-Urban land complex (LUA) a loamy-skeletal human transported material variation similar to ULA, but with soil profiles breaking typically at 0-8 inches, 8-26 inches and 26-79 inches through varying degrees of cobbly to very cobbly-artifactual coarse sandy loam. All of these soils are typical of a modern urban cityscape in the metro-New York area, but the depths of the soil breaks indicate deeper natural soils in this predominantly built up, landfilled setting.

Just across the East River from Governors Island, and not quite 3 miles south of the Brooklyn Navy Yard, the 2 APEs proximity to vast historic complexes, and closer multiple historic structures and facilities are directly tied to a rich documented history of culture and development linked to the sea. This Maritime Cultural Landscape stretches back over 300 years in the Red Hook section of Brooklyn, and the unmapped archaeological potential of both APE could be significant, if undisturbed. The CRIS Geodatabase shows multiple Section 106 Consultations in the vicinity of the Atlantic Basin APE including 21PR02863 (Homeport II New Ferry Slips and Utility System), 20PR00175 (Brooklyn Cruise Terminal Upgrades), and 16PR06095 (Hugh L. Carey (Brooklyn-Battery) Tunnel Improvements). All of which involved at least some measure of shallow ground disturbance and the proposed work was determined by NYSHPO to have either No Adverse Impact or No Effect on Historic Resources, including archaeological resources.

For the Beard Street APE, there have been significant Archaeological projects reviewing and

investigating the sensitivity, and nature of archaeological deposits of the area including the 1984 NY Harbor Collection and Removal of Drift Project for Brooklyn Reach I and spanning the 1991 280 Richards Street (Revere Sugar Factory), and 2003 and 2008 Ikea Red Hook, reports. The consensus regarding archaeological sensitivity for this area touched upon three main aspects. First, there are significant indicators (geography, proximity to water, and cultural records) to support the potential for intact precontact contexts, but in deeply buried (35-50ft below grade) deposits. This was clearly stated in the 1984 NY Harbor Drift report and touched on in the others. Second, the transition across the 17th to 20th centuries from coastal fishing and residential, to early industrial and tenement, to early shipping and boatbuilding to heavy commercial industrial (Sugar factory), and Shipbuilding (NY ("Todd") Shipyard, and a 21st century commercial and residential renaissance has left a massive, disturbed Historic Archeological context in the first six to eight feet below grade, throughout most of the Beard Street APE. And finally, that the few intact documented deposits (around the former Revere Sugar Factory, Building 3 (Pump Building) at NY Shipyard, and the Graving Docks 1 and 2), are likely highly discrete and localized, and potentially the only intact Historic Archaeological Deposits within the landscapes along the Beard Street APE.

There are over two dozen previously recorded archaeological sites within one (1) mile radius to the Atlantic Basin APE, but all of them are mapped on Governors Island, over 1,000 feet across the East River, and therefore were not evaluated for this consultation. There are three previously recorded archaeological sites within one (1) mile of the Beard Street APE, clustered to the northeast near the extent of the one mile, adjacent to a spur of the Gowanus Canal. All three sites are historic, an undetermined terrestrial site in a yard, the eligible vessel hulk of the ex Point O'Woods V in the canal spur itself, and an undetermined Revolutionary War Mass Gave of unknown exact location.

Previously discussed Precontact sensitivity for both APEs have been determined to show potential for intact deposits based on recorded occupation and environmental factors but at depths exceeding 35 feet below grade. Per the submitted plans, the depth of disturbance for the Undertaking would be approximately 0 feet to +/-10 feet 6 inches depending on location. Therefore, the potential for encountering these deposits is unlikely.

Historic *potential* for sensitivity has been determined to be high due to the centuries long documented development of both APE as part of a large Maritime Cultural Landscape of New York City. Though reports, archaeological investigations (including soil borings), and NYSHPO consultations have determined that significant disturbance due to cycles of industrial scale demolition, construction and development in the 18th, 19th 20th, and 21st centuries demolished all but a few localized deposits at the sugar factory, graving docks, and pump buildings. As the planned work for the Undertaking does not involve disturbance directly on these properties, the potential to encounter these intact archaeological deposits are also unlikely. Therefore, the potential to encounter *in situ* Precontact and/or Historic archaeological resources during this undertaking is assessed as low.

Determination of Effect

Based on the research above, FEMA has determined that the proposed construction of a flood mitigation protection system in the Atlantic Basin and Beard Street areas of the Red Hook neighborhood in Brooklyn will not negatively impact the historic resources identified in the

neighborhood. The proposed new construction, being a max of eight feet in height and having no physical connection to the buildings, will not physically or visually impact the adjacent National Register of Historic Places-eligible structures. Additionally, the potential to encounter *in-situ* prehistoric and/or historic archaeological resources is assessed as low. Therefore, FEMA has concluded that the determination for the proposed Undertaking is **No Adverse Effect to Historic Properties** that are either on, or eligible for inclusion on, the State or National Register of Historic Places.

FEMA requests concurrence with this determination of effect within thirty (30) calendar days. For additional information, please contact project reviewer Ashley Gaudlip (ashley.gaudlip@fema.dhs.gov) or archaeology reviewer Christopher P. Morris (christopher.p.morris@fema.dhs.gov).

Sincerely,

JAMES M ZWOLAK

Digitally signed by JAMES M ZWOLAK
Date: 2022.08.08 11:57:20 -04'00'

James Zwolak,
FEMA EHP (Sandy) Supervisor
DR-4085-DR-NY

JZ/ag/cpm

cc: Stephanie Couture, New York Division of Homeland Security and Emergency Services (DHSES)
Gina Santucci, Director of Environmental Review, NYC Landmarks Preservation Commission
Amanda Sutphin, Director of Archaeology, NYC Landmarks Preservation Commission

enc: 20220808_Map Index_RedHook_CoastalResiliency
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20220512_RedHook_CoastalResiliency_Renderings
Plan sets:
- 01 General
- 02_Typ Sections
- 03 HWY Construction
- 04 HWY Construction Profiles
- 05 Site Plans
- 06 Structural
- 07 Utilities
- 09_Street Lighting
- 10 Street Trees
- 11_Urban Design
- 14_Borings

Map Index
FEMA-NY-4085-HMGP-0092
Red Hook Coastal Resiliency
Brooklyn, Kings County, NY 11231

Fig. 1. APE of Atlantic Basin. Image via CRIS.

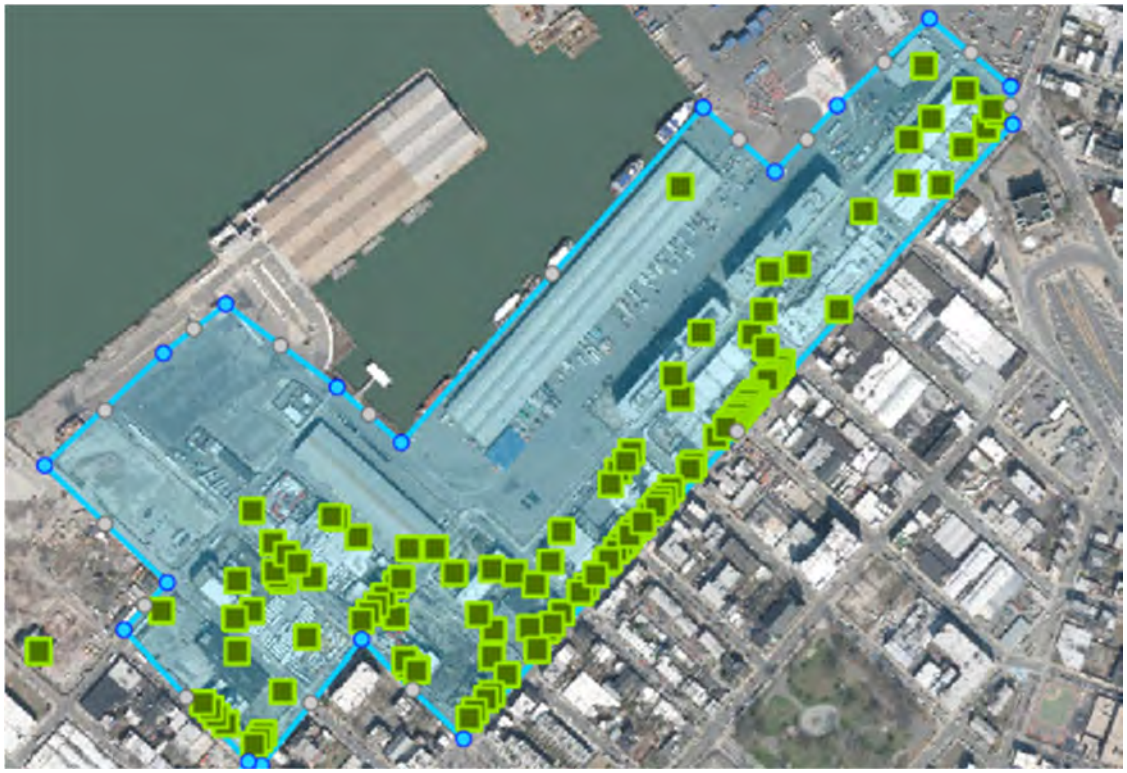

Fig. 2. APE of Beard Street. Image via CRIS.

Map Index
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Brooklyn, Kings County, NY 11231

Fig. 3. Image of Atlantic Basin site. Image via NY CRIS.

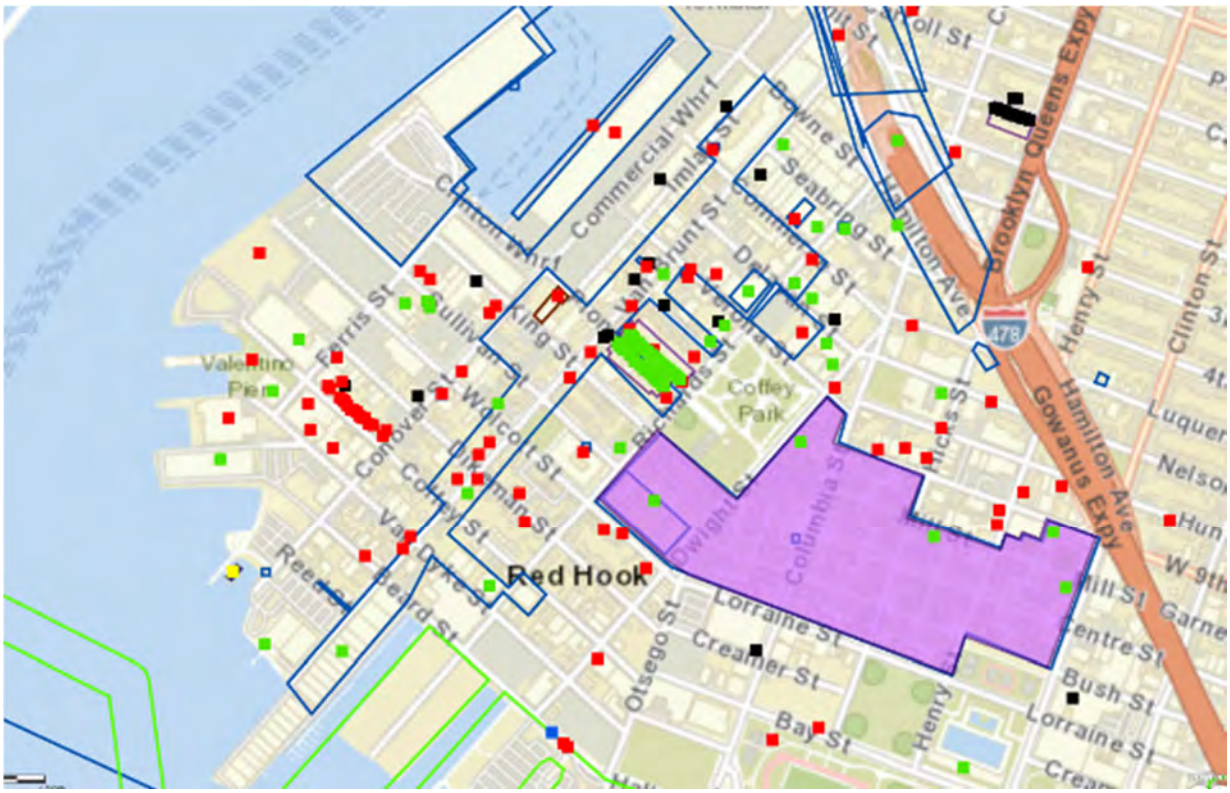

Fig. 4. Image of Beard Street site. Image via NY CRIS.

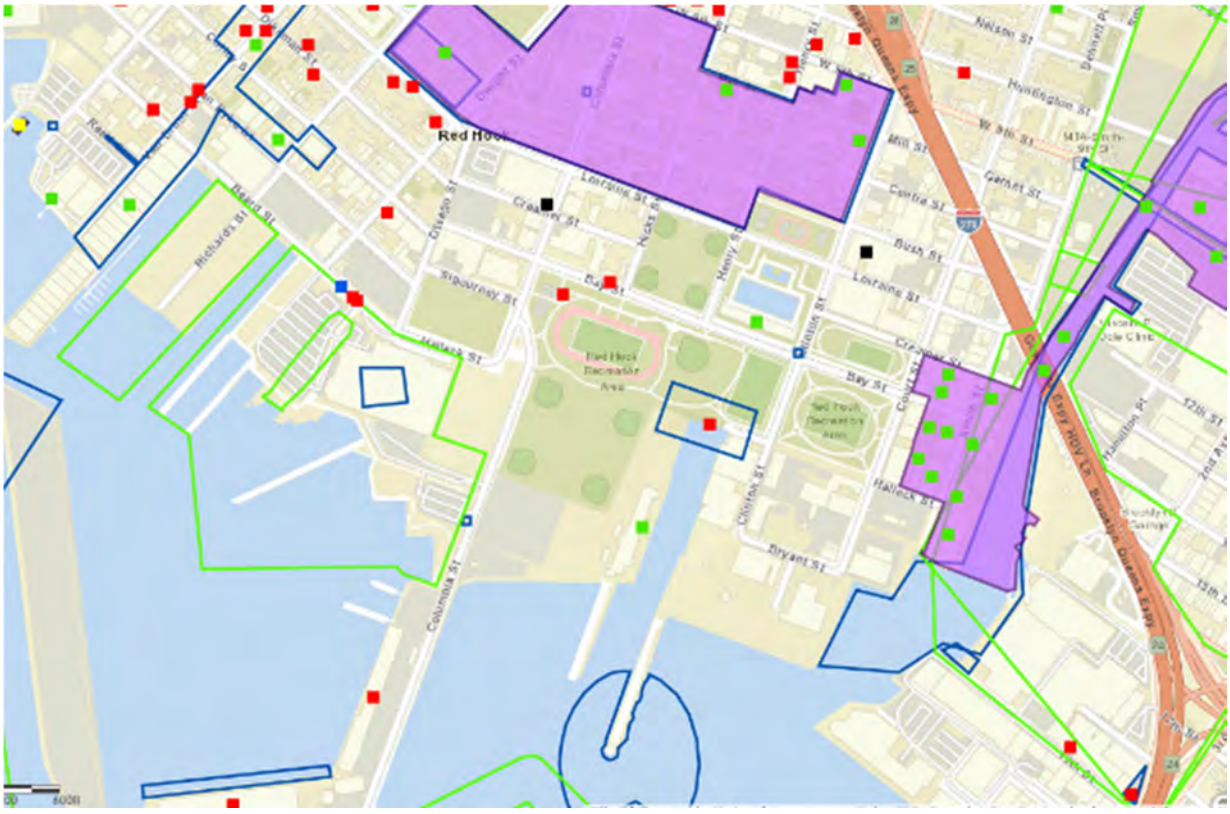

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Fig. 5. Image of Beers, Ellis, and Soulle Map circa 1867. Image via David Rumsey Map Collection.

Fig. 6. Image of Beers, Comstock & Cline Map circa 1873. Image via Wikimedia Commons.

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Fig. 7. Image of Brooklyn City Map circa 1890. Image via Art.com.

Fig. 8. Image of NYC Five Boroughs Street Atlas, Hagstrom, circa 1949. Image via Historic Map Works.

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Fig. 9. Image of site circa 1954. Image via HistoricAerials.com.

Fig. 10. Image of site circa 1954. Image via HistoricAerials.com.

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Fig. 11. Image of site circa 1980. Image via HistoricAerials.com.

Fig. 12. Image of site circa 1980. Image via HistoricAerials.com.

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Fig. 13. Image of site circa 2006. Image via HistoricAerials.com.

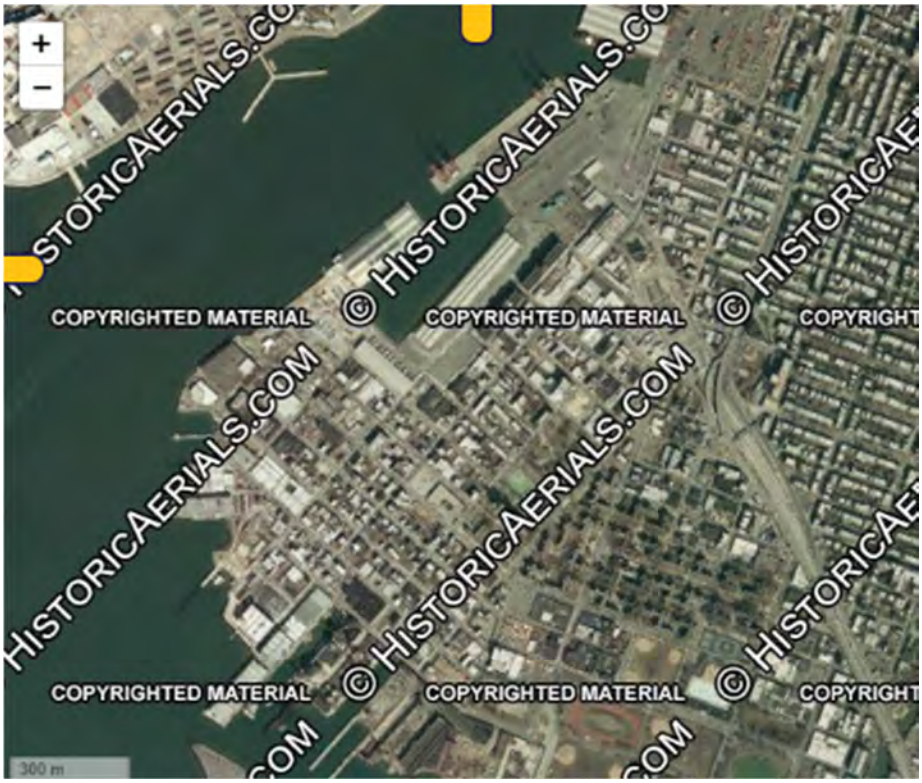

Fig. 14. Image of site circa 2006. Image via HistoricAerials.com.

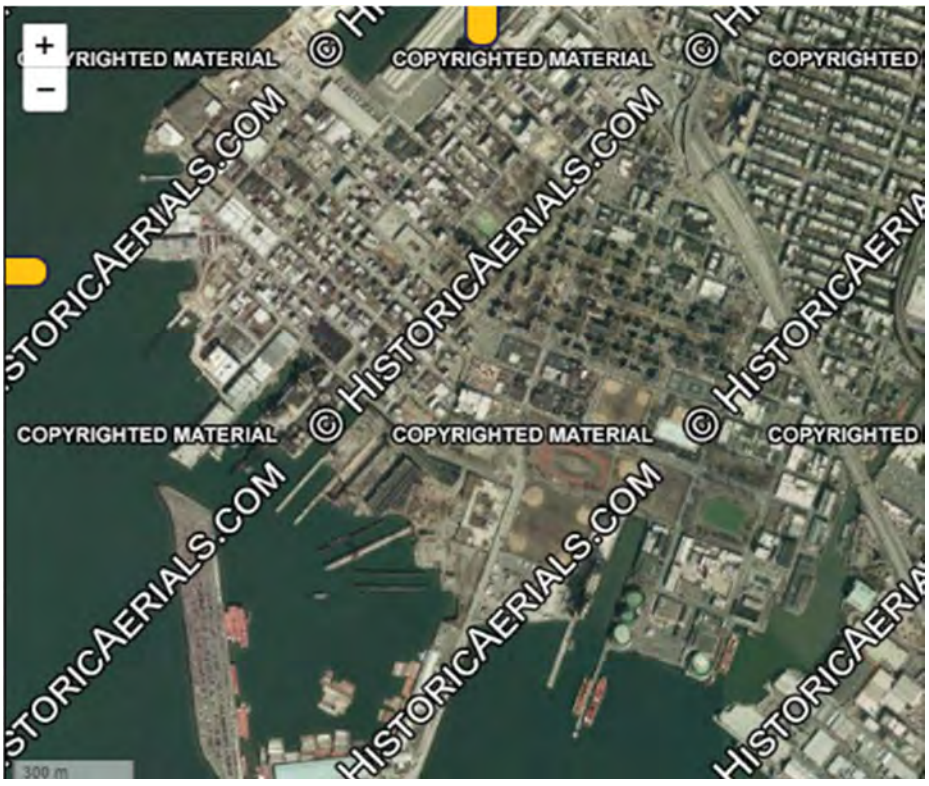

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Fig. 1. Image of NRHP-eligible 43 Ferris St. Image via Google Streetview.

Fig. 2. Image of the NRHP-eligible 328 Van Brunt St. outlined in red. Image via Google Streetview.

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Fig. 3. Image of the NRHP-eligible 114 Sullivan St. Image via Google Streetview.

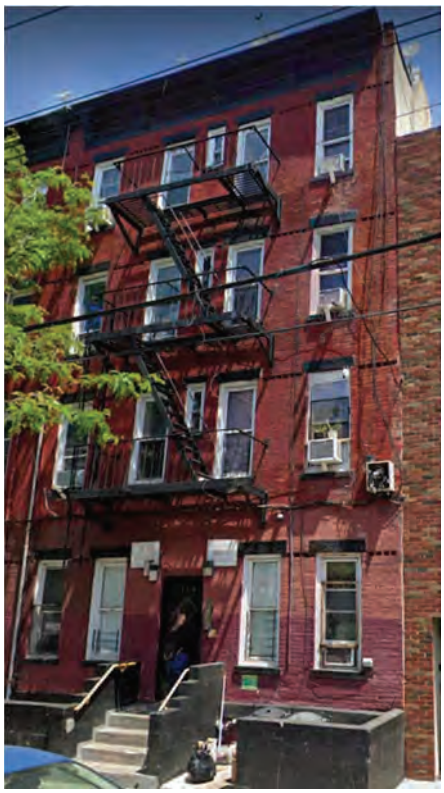

Fig. 4. Image of NRHP-eligible 116 Sullivan St. Image via Google Streetview.

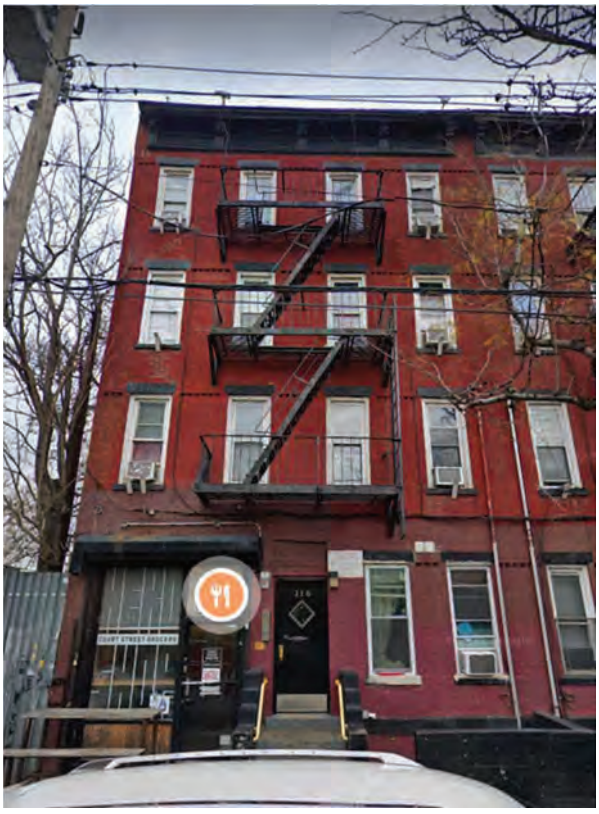

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Fig. 5. Image of NRHP-eligible 149 Pioneer St. Image via Google Streetview.

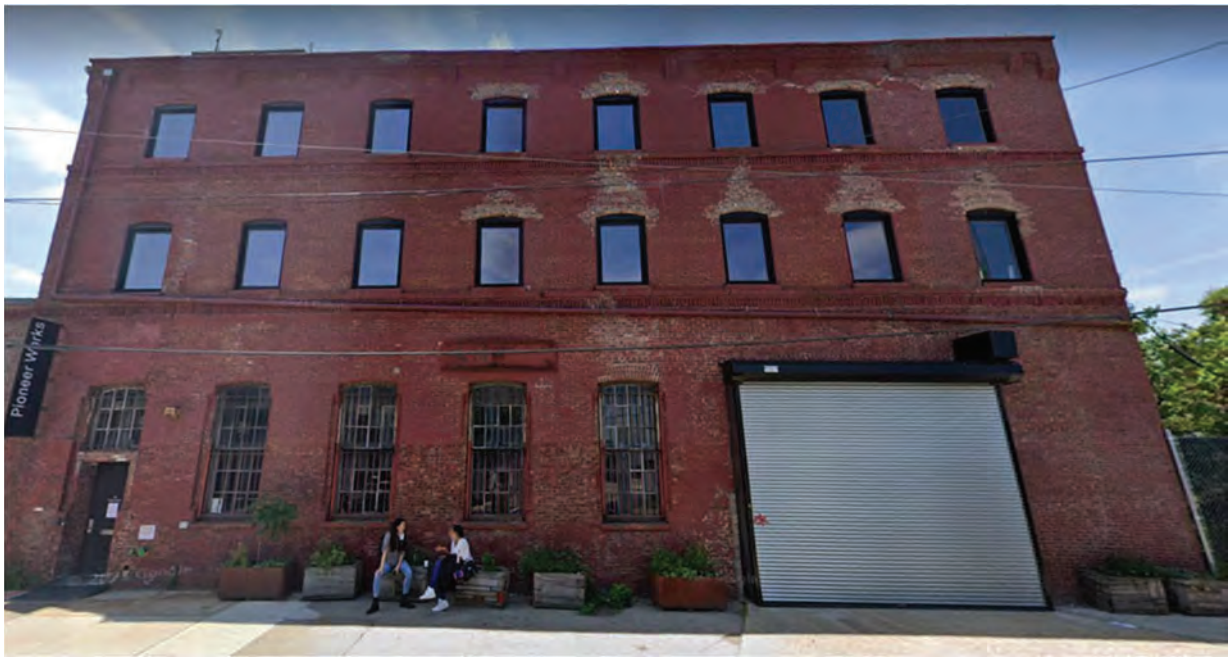

Fig. 6. Image of NRHP-eligible 151 Sullivan St. Image via Google Streetview.

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Fig. 7. Image of NRHP-eligible 153 Sullivan St. Image via Google Streetview.

Fig. 8. Image of NRHP-eligible 155 Sullivan St. Image via Google Streetview.

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Fig. 9. Image of NRHP-eligible 322 Van Brunt St. Image via Google Streetview.

Fig. 10. Image of NRHP-eligible 326 Van Brunt St. outlined in red. Image via Google Streetview.

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Fig. 11. Image of NRHP-eligible 330 Van Brunt St. Image via Google Streetview.

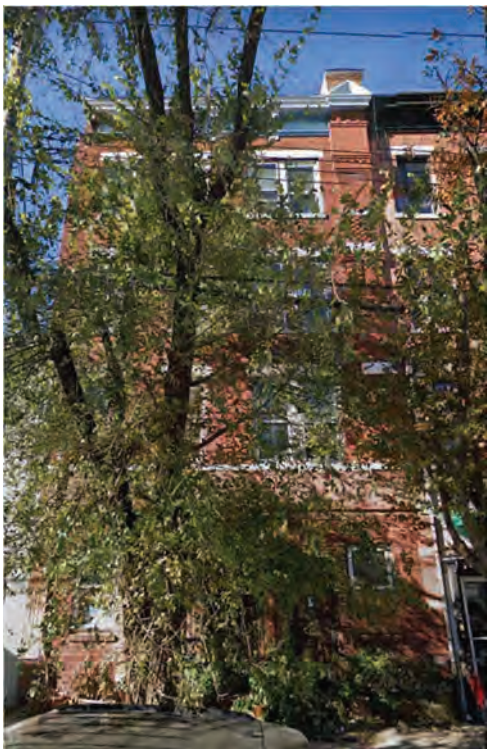

Fig. 12. Image of NRHP-eligible 158 Beard St. Image via Google Streetview.

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Fig. 13. Image of NRHP-eligible 174 Beard St. Image via Google Streetview.

Fig. 14. Image of NRHP-eligible 415 Van Brunt St. Image via Google Streetview.

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Fig. 15. Image of NRHP-eligible 417 Van Brunt St. Image via Google Streetview.

Fig. 16. Image of NRHP-eligible 480 Van Brunt St. Image via Google Streetview.

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Fig. 17. Image of NRHP-eligible 500 Van Brunt St. Image via Google Streetview.

Fig. 18. Image of NRHP-eligible 421-573 Van Brunt St. Image via Google Streetview.

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Fig. 19. Image of **not** NRHP-eligible 152 Dwight St. Image via Google Streetview.

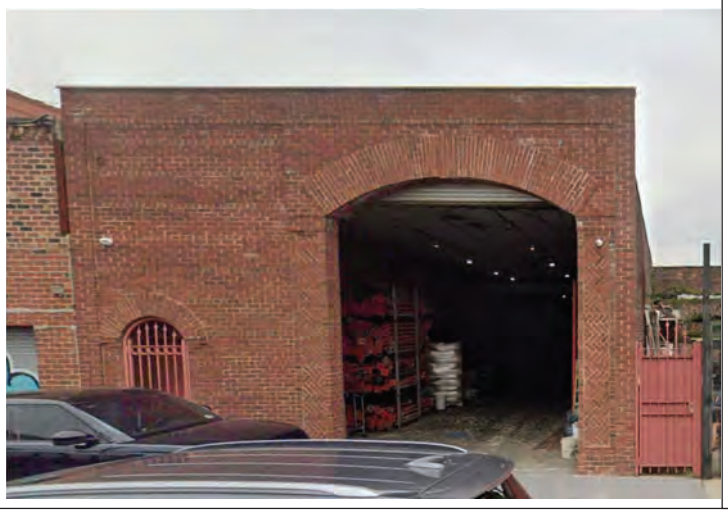

Fig. 20. Image of **not** NRHP-eligible 558 Columbia St. Image via Google Streetview.

Fig. 21. Image of **not** NRHP-eligible 238 Van Brunt St. Image via Google Streetview.

Fig. 22. Image of **not** NRHP-eligible 262 Van Brunt St. Image via Google Streetview.

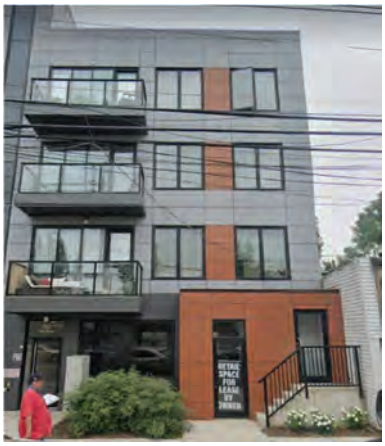

Fig. 23. Image of **not** NHPR-eligible 101 Commerce St. Image via Google Streetview.

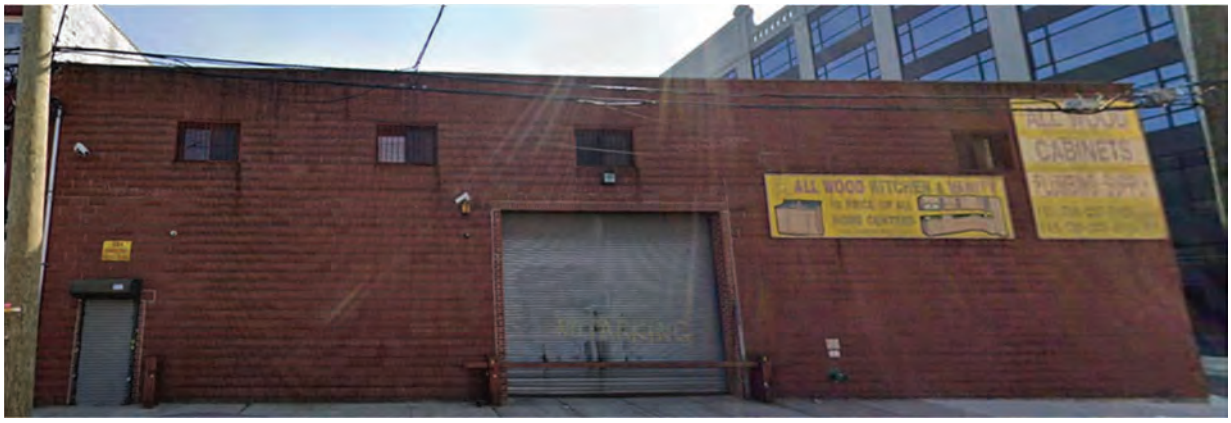

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Fig. 24. Image of **not** NRHP-eligible 102 Conover St. Image via Google Streetview.

Fig. 25. Image of **not** NRHP-eligible 112 Sullivan St. Image via Google Streetview.

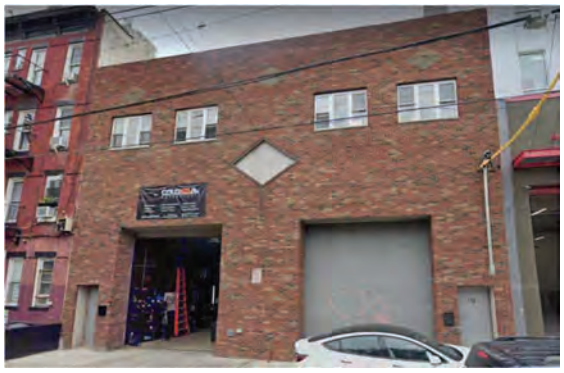

Fig. 26. Image of **not** NRHP-eligible 117 Imlay St. Image via Google Streetview.

Fig. 27. Image of **not** NRHP-eligible 127 Conover St. Image via Google Streetview.

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Fig. 28. Image of **not** NRHP-eligible 128 Van Brunt St. Image via Google Streetview.

Fig. 29. Image of **not** NRHP-eligible 130 Van Brunt St. Image via Google Streetview.

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Fig. 30. Image of **not** NRHP-eligible 131 Imlay St. Image via Google Streetview.

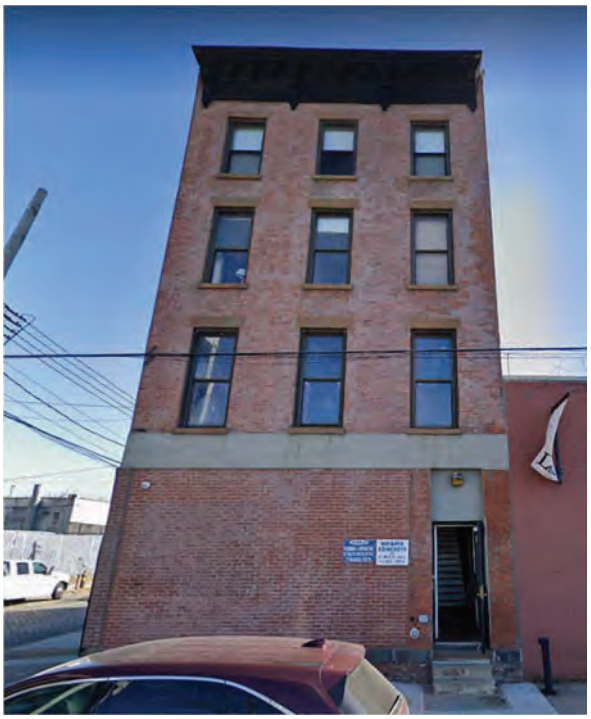

Fig. 31. Image of **not** NRHP-eligible 137 King St. Image via Google Streetview.

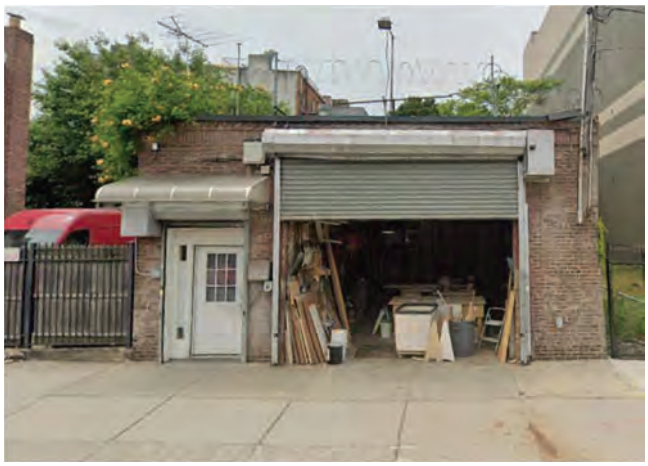

Fig. 32. Image of **not** NRHP-eligible 133 Sullivan St. Image via Google Streetview.

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Fig. 33. Image of **not** NRHP-eligible 139 Imlay St. Image via Google Streetview.

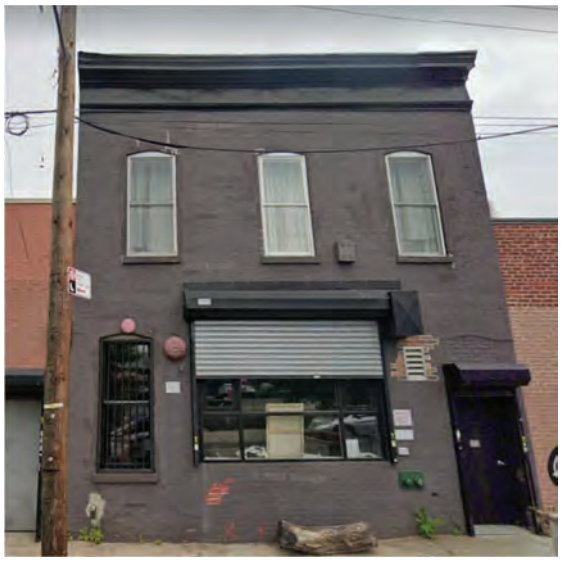

Fig. 34. Image of **not** NRHP-eligible 142 King St. Image via Google Streetview.

Fig. 35. Image of **not** NRHP-eligible 143 Conover St. Image via Google Streetview.

Fig. 36. Image of **not** NRHP-eligible 144 King St. Image via Google Streetview.

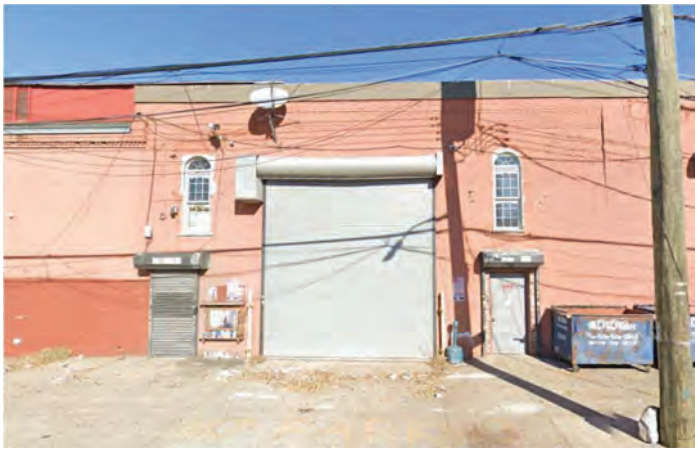

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Fig. 37. Image of **not** NRHP-eligible 157 Pioneer St. Image via Google Streetview.

Fig. 38. Image of **not** NRHP-eligible 158 Dikeman St. Image via Google Streetview.

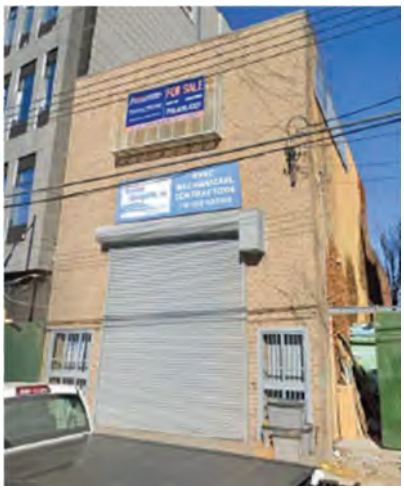

Fig. 39. Image of **not** NRHP-eligible 160 Dikeman St. Image via Google Streetview.

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Fig. 40. Image of **not** NRHP-eligible 162 Wolcott St. Image via Google Streetview.

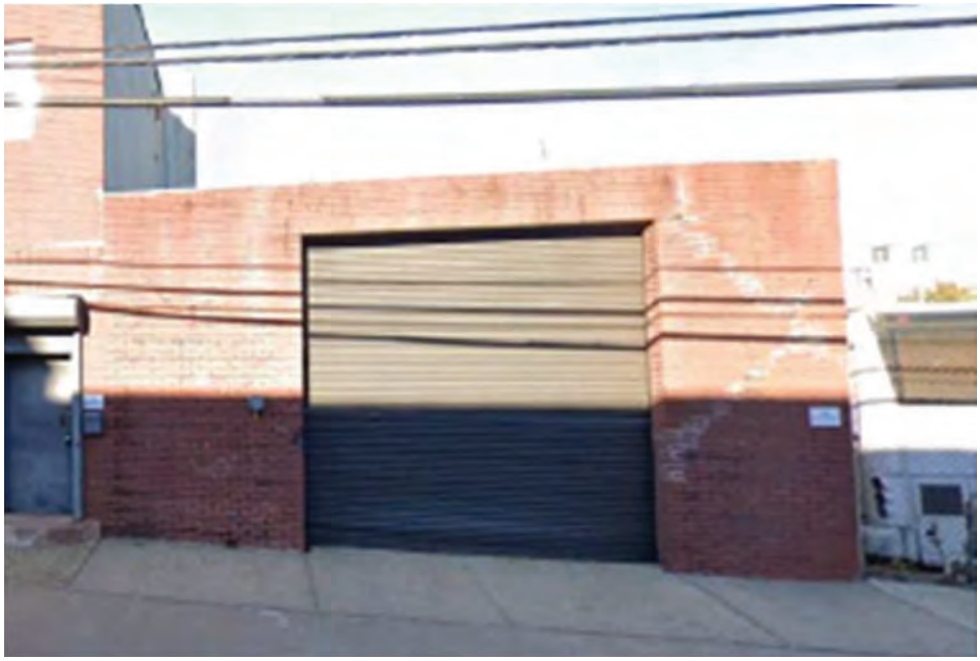

Fig. 41. Image of **not** NRHP-eligible 163 Imlay St. Image via Google Streetview.

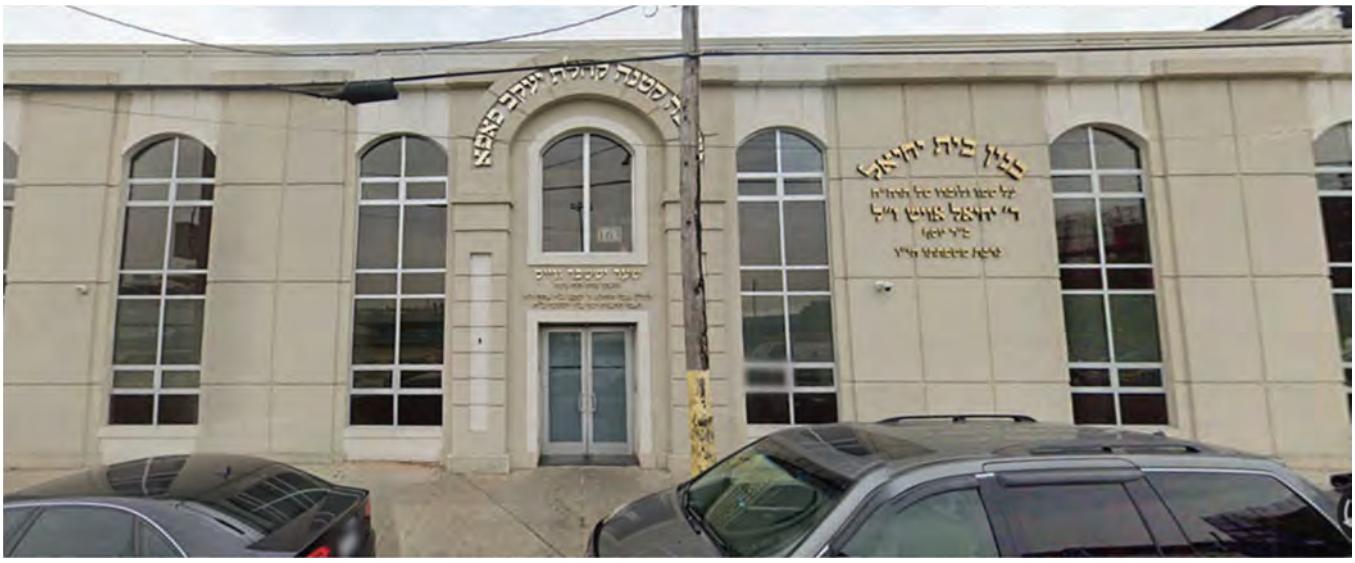

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Fig. 42. Image of **not** NRHP-eligible 164 Dikeman St. Image via Google Streetview.

Fig. 43. Image of **not** NRHP-eligible 164 Wolcott St. Image via Google Streetview.

Fig. 44. Image of **not** NRHP-eligible 166 Dikeman St. Image via Google Streetview.

Fig. 45. Image of **not** NRHP-eligible 170 Van Brunt St. Image via Google Streetview.

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Fig. 46. Image of **not** NRHP-eligible 198 Conover St. Image via Google Streetview.

Fig. 47. Image of **not** NRHP-eligible 210 Van Brunt St. Image via Google Streetview.

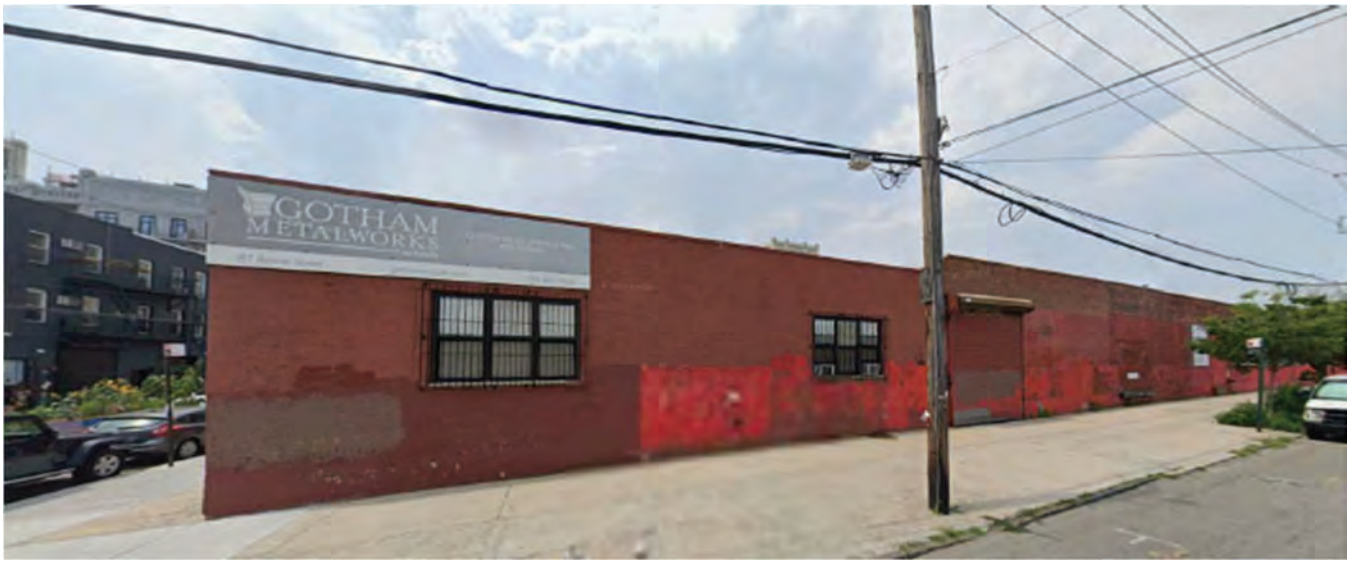

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Fig. 48. Image of **not** NRHP-eligible 228 Van Brunt St. Image via Google Streetview.

Fig. 49. Image of **not** NRHP-eligible 230 Van Brunt St. Image via Google Streetview.

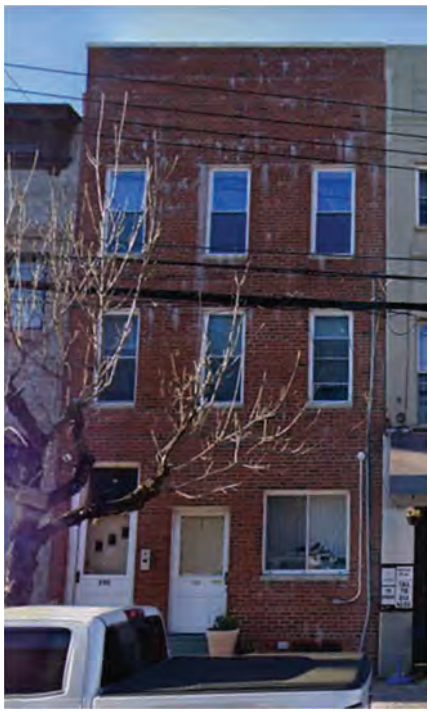

Fig. 50. Image of **not** NRHP-eligible 232 Van Brunt St. Image via Google Streetview.

Fig. 51. Image of **not** NRHP-eligible 234 Van Brunt St. Image via Google Streetview.

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Fig. 52. Image of **not** NRHP-eligible 236 Van Brunt St. Image via Google Streetview.

Fig. 53. Image of **not** NRHP-eligible 242 Van Brunt St. Image via Google Streetview.

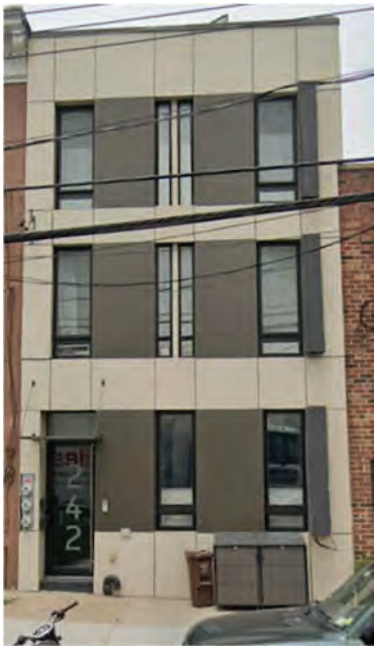

Fig. 54. Image of **not** NRHP-eligible 244 Van Brunt St. Image via Google Streetview.

Fig. 55. Image of **not** NRHP-eligible 246 Van Brunt St. Image via Google Streetview.

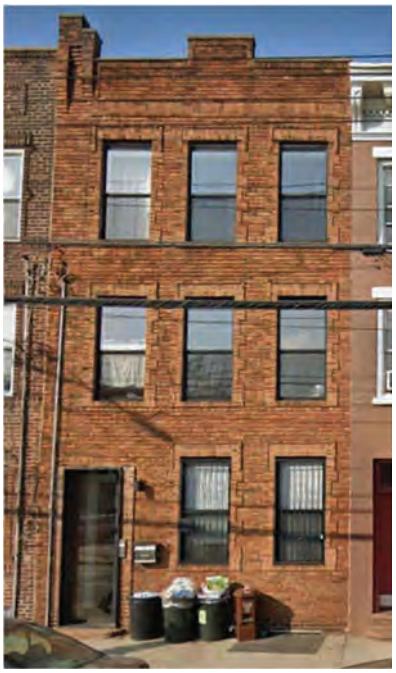

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Fig. 56. Image of **not** NRHP-eligible 248 Van Brunt St. Image via Google Streetview.

Fig. 57. Image of **not** NRHP-eligible 250 Van Brunt St. Image via Google Streetview.

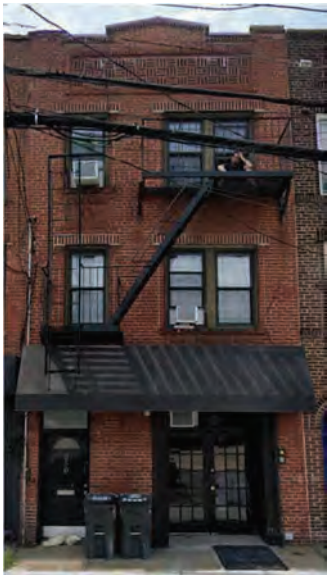

Fig. 58. Image of **not** NRHP-eligible 252 Van Brunt St. Image via Google Streetview.

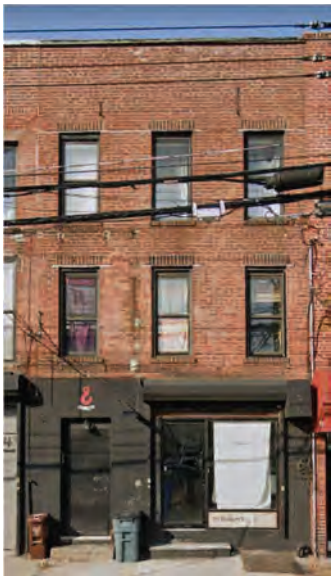

Fig. 59. Image of **not** NRHP-eligible 254 Van Brunt St. Image via Google Streetview.

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Fig. 60. Image of **not** NRHP-eligible 256 Van Brunt St. Image via Google Streetview.

Fig. 61. Image of **not** NRHP-eligible 258 Van Brunt St. Image via Google Streetview.

Fig. 62. Image of **not** NRHP-eligible 270 Van Brunt St. Image via Google Streetview.

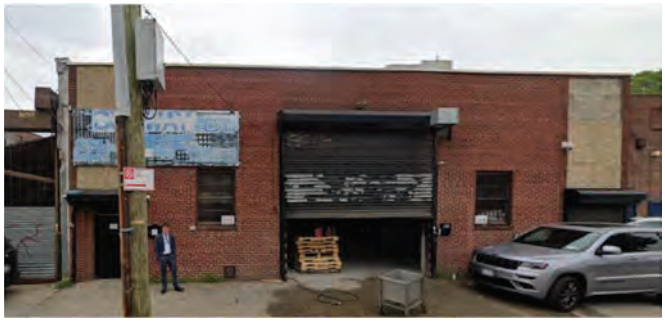

Fig. 63. Image of **not** NRHP-eligible 274 Van Brunt St. Image via Google Streetview.

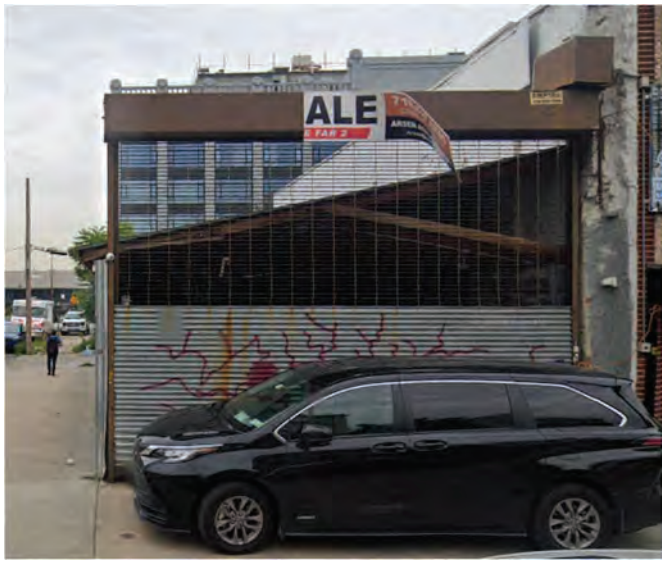

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Fig. 64. Image of **not** NRHP-eligible 276 Van Brunt St. Image via Google Streetview.

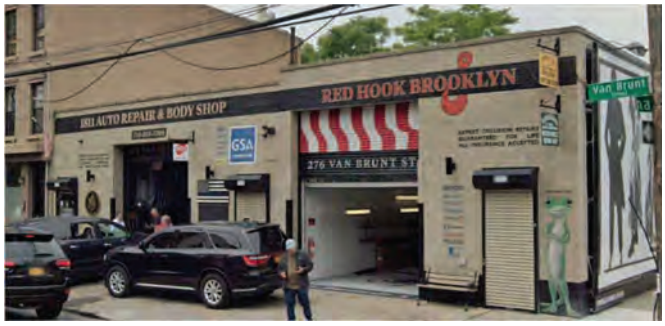

Fig. 65. Image of **not** NRHP-eligible 278 Van Brunt St. Image via Google Streetview.

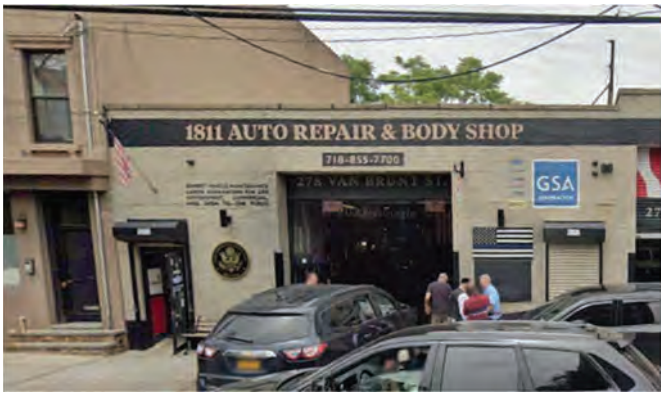

Fig. 66. Image of **not** NRHP-eligible 280 Van Brunt St. Image via Google Streetview.

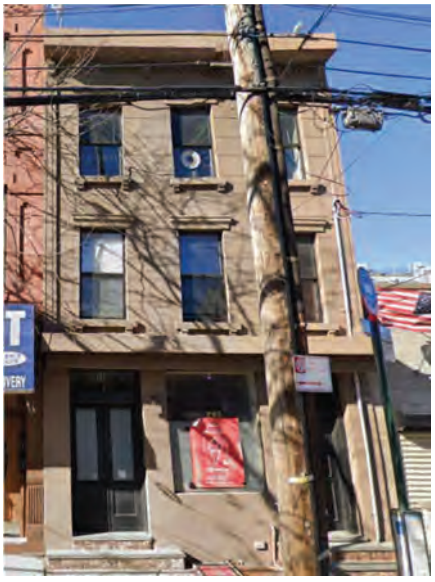

Fig. 67. Image of **not** NRHP-eligible 284 Van Brunt St. Image via Google Streetview.

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Fig. 68. Image of **not** NRHP-eligible 290 Van Brunt St. Image via Google Streetview.

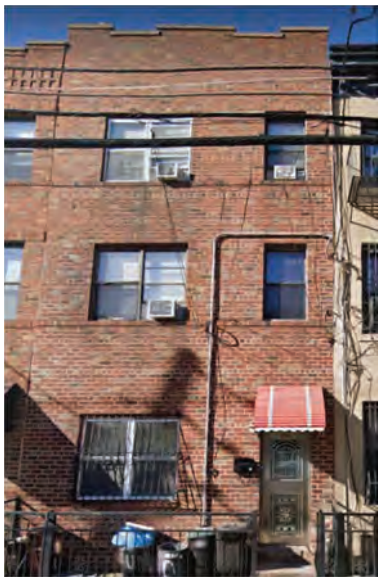

Fig. 69. Image of **not** NRHP-eligible 292 Van Brunt St. Image via Google Streetview.

Fig. 70. Image of **not** NRHP-eligible 294 Van Brunt St. Image via Google Streetview.

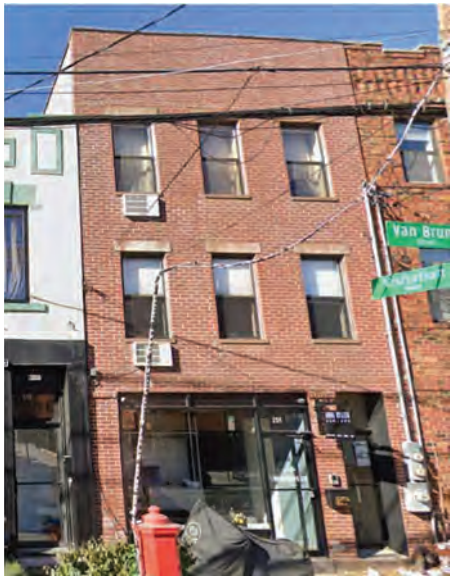

Fig. 71. Image of **not** NRHP-eligible 296 Van Brunt St. Image via Google Streetview.

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Fig. 72. Image of **not** NRHP-eligible 298 Van Brunt St. Image via Google Streetview.

Fig. 73. Image of **not** NRHP-eligible 300 Van Brunt St. Image via Google Streetview.

Fig. 74. Image of **not** NRHP-eligible 304 Van Brunt St. Image via Google Streetview.

Fig. 75. Image of **not** NRHP-eligible 306 Van Brunt St. Image via Google Streetview.

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Fig. 76. Image of **not** NRHP-eligible 318 Van Brunt St. Image via Google Streetview.

Fig. 77. Image of **not** NRHP-eligible 320 Van Brunt St. Image via Google Streetview.

Fig. 78. Image of **not** NRHP-eligible 332 Van Brunt St. Image via Google Streetview.

Fig. 79. Image of **not** NRHP-eligible 338 Van Brunt St. Image via Google Streetview.

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Fig. 80. Image of **not** NRHP-eligible 344 Van Brunt St. Image via Google Streetview.

Fig. 81. Image of **not** NRHP-eligible 346 Van Brunt St. Image via Google Streetview.

Fig. 82. Image of **not** NRHP-eligible 350 Van Brunt St. Image via Google Streetview.

Fig. 83. Image of **not** NRHP-eligible 352 Van Brunt St. Image via Google Streetview.

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Fig. 84. Image of **not** NRHP-eligible 57 Imlay St. Image via Google Streetview.

Fig. 85. Image of **not** NRHP-eligible 63 Ferris St. Image via Google Streetview.

Fig. 86. Image of **not** NRHP-eligible 99 Commerce St. Image via Google Streetview.

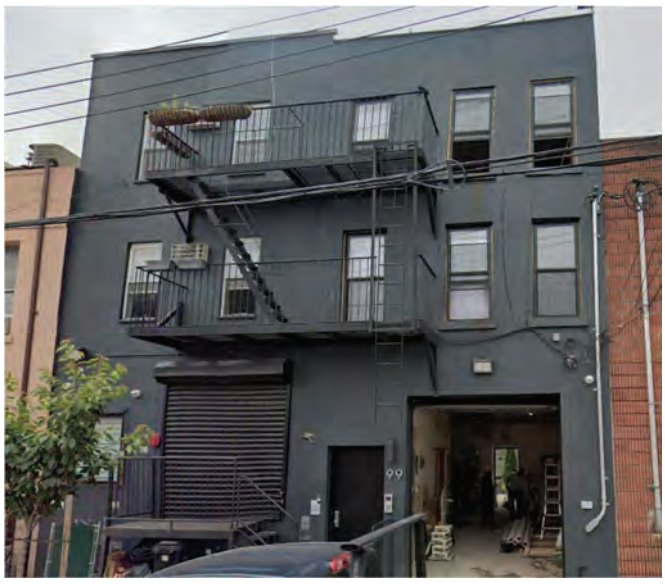

Fig. 87. Image of **not** NRHP-eligible 94 Ferris St. Image via Google Streetview.

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Fig. 88. Image of **not** NRHP-eligible 145 Van Dyke St. Image via Google Streetview.

Fig. 89. Image of **not** NRHP-eligible 147 Van Dyke St. Image via Google Streetview.

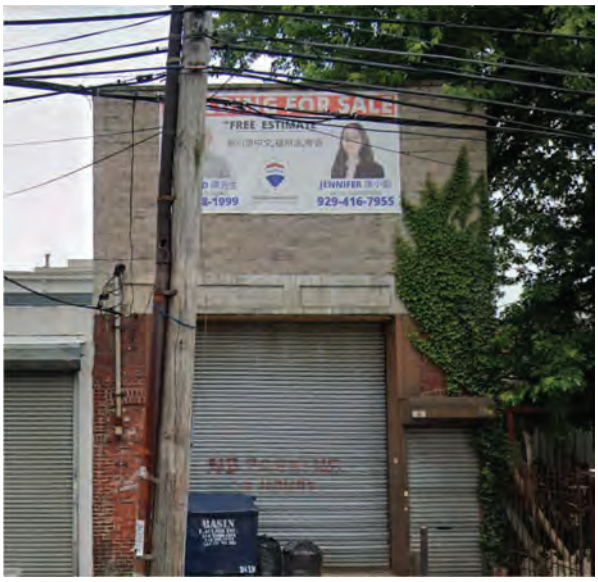

Fig. 90. Image of **not** NRHP-eligible 149 Van Dyke St. Image via Google Streetview.

Fig. 91. Image of **not** NRHP-eligible 152 Beard St. Image via Google Streetview.

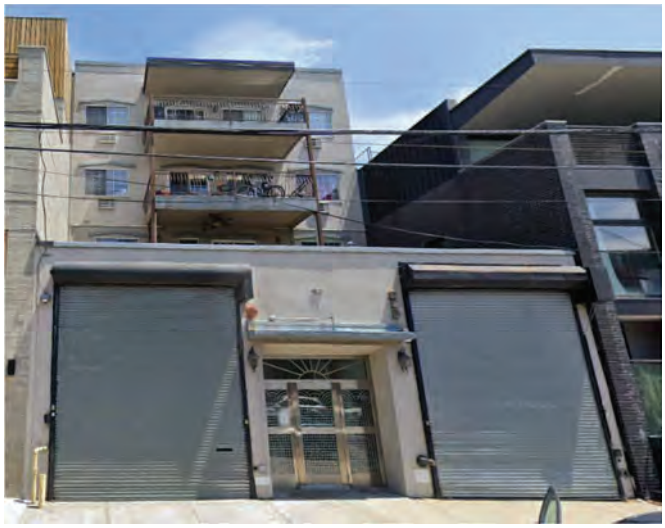

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Fig. 92. Image of **not** NRHP-eligible 156 Beard St. Image via Google Streetview.

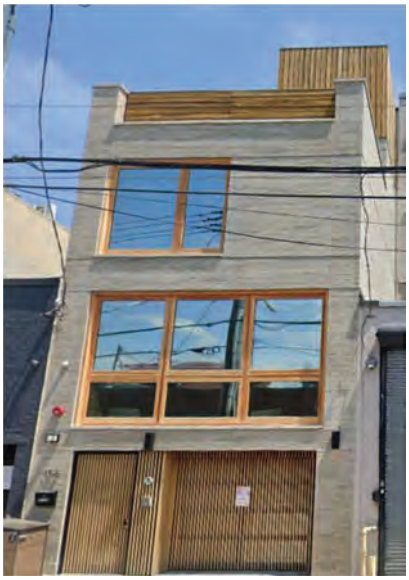

Fig. 93. Image of **not** NRHP-eligible 161 Van Dyke St. Image via Google Streetview.

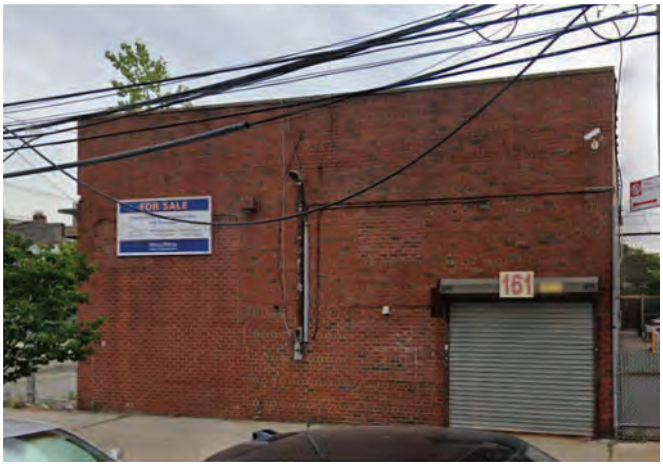

Fig. 94. Image of **not** NRHP-eligible 162 Beard St. Image via Google Streetview.

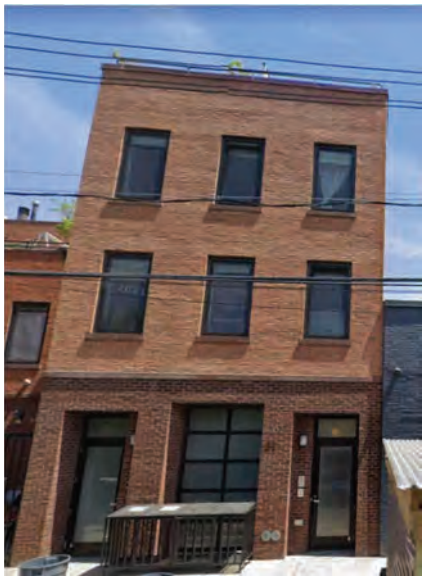

Fig. 95. Image of **not** NRHP-eligible 166 Beard St. Image via Google Streetview.

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Fig. 96. Image of **not** NRHP-eligible 168 Beard St. Image via Google Streetview.

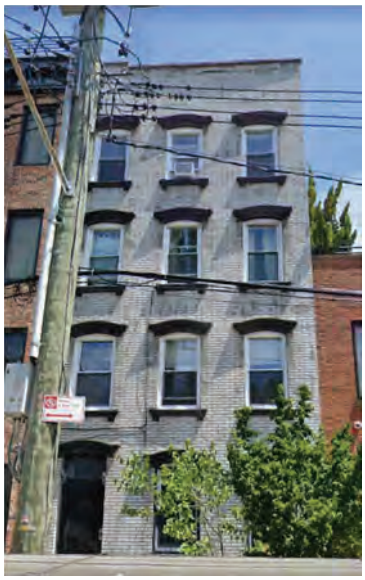

Fig. 97. Image of **not** NRHP-eligible 170 Beard St. Image via Google Streetview.

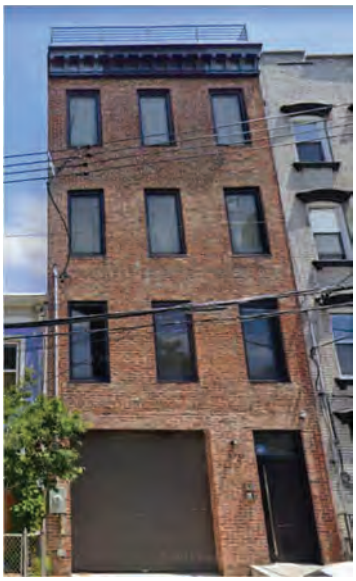

Fig. 98. Image of **not** NRHP-eligible 172 Beard St. Image via Google Streetview.

Fig. 99. Image of **not** NRHP-eligible 426 Van Brunt St. Image via Google Streetview.

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Fig. 100. Image of **not** NRHP-eligible 151 Van Dyke St. Image via Google Streetview.

Fig. 101. Image of **not** NRHP-eligible 424 Van Brunt St. Image via Google Streetview.

Fig. 102. Image of **not** NRHP-eligible 428 Van Brunt St. Image via Google Streetview.

Fig. 103. Image of **not** NRHP-eligible 432 Van Brunt St. Image via Google Streetview.

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Fig. 104. Image of **not** NRHP-eligible 432 Van Brunt St. Image via Google Streetview.

Fig. 105. Image of **not** NRHP-eligible 436 Van Brunt St. Image via Google Streetview.

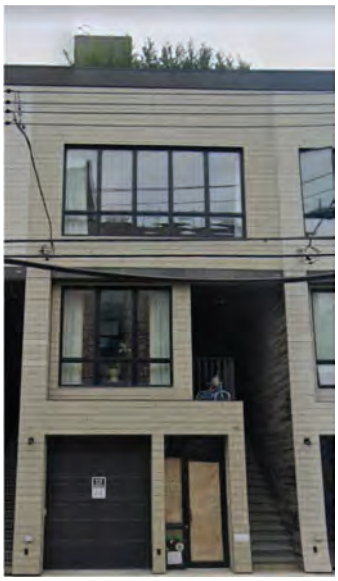

Fig. 106. Image of **not** NRHP-eligible 440 Van Brunt St. Image via Google Streetview.

Fig. 107. Image of **not** NRHP-eligible 236 Richards St. Image via Google Streetview.

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Fig. 108. Image of **not** NRHP-eligible 115 Van Dyke St. Image via Google Streetview.

Fig. 109. Image of **not** NRHP-eligible 405 Van Brunt St. Image via Google Streetview.

Fig. 110. Image of **not** NRHP-eligible 419 Van Brunt St. Image via Google Streetview.

Fig. 111. Image of **not** NRHP-eligible 70 Beard St. Image via Google Streetview.

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Fig. 112. Image of **not** NRHP-eligible 411 Van Brunt St. Image via Google Streetview.

Fig. 113. Image of previously undetermined, **not** NRHP-eligible 160 Imlay St. Image via Google Streetview.

Fig. 114. Image of previously undetermined, **not** NRHP-eligible 100-112 Imlay St. Image via Google Streetview.

Fig. 115. Image of previously undetermined, NRHP-eligible 200 Conover St. Image via Google Streetview.

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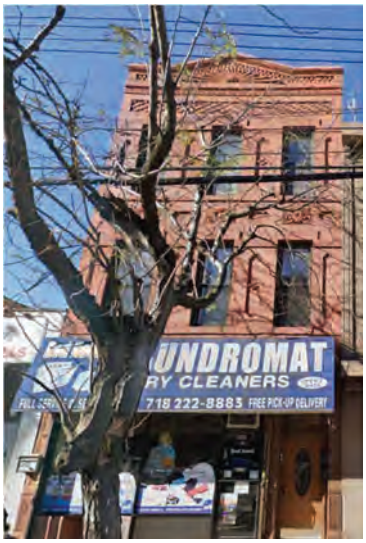
Fig. 116. Image of previously undetermined, NRHP-eligible 282 Van Brunt St. Image via Google Streetview.



NEW YORK STATE OF OPPORTUNITY. Parks, Recreation, and Historic Preservation

KATHY HOCHUL
Governor

ERIK KULLESEID
Commissioner

September 6, 2022

James Zwolak
FEMA
285 Fulton Street
New York, NY 10007

Re: FEMA
Red Hook Coastal Resiliency Project
22PR05523
HMGP-02-NY-4085-0092

Dear James Zwolak:

Thank you for requesting the comments of the New York State Historic Preservation Office (SHPO). We have reviewed the provided documentation in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include other environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (NY Environmental Conservation Law Article 8).

We note that the our office has determined the following properties to be eligible for listing in the State and National Registers of Historic Places: 151, 153, and 155 Sullivan Street; the Red Hook Stores at 480-500 Van Brunt Street; the Beard Store and Warehouse Pier at 421-573 Van Brunt Street; the former New York Dock building at 100 Imlay Street; the Brooklyn Fire Brick Works complex at Beard and Van Dyke Streets; the former Wittemann Brothers Bottlers Supplies & Machinery Co. at 43 Ferris Street; and The Brooklyn Clay Retort & Fire Brick Works complex at Van Dyke and Richard Streets. The remainder of the properties called out by FEMA have been determined to be Not Eligible, with the exception of the commercial building at 150 Sullivan Street, which remains Undetermined. We have reviewed the Section 106 initiation letter dated August 8th, 2022 and the supporting documentation that was provided to our office on the same date. Based upon our review, SHPO concurs with the determination that the undertaking will have No Adverse Effect to historic properties.

If you have any questions, I am best reached via e-mail.

Sincerely,

Olivia Brazee
Historic Site Restoration Coordinator
olivia.brazee@parks.ny.gov via e-mail only

cc: A. Sutphin and G. Santucci, NYC LPC
S. Couture, DHSES

CORRESPONDENCE 6: NYCLPC CONSULTATION

Landmarks Preservation Commission

1 Centre Street
9th Floor North
New York, NY 10007

Voice (212)-669-7700
Fax (212)-669-7960
http://nyc.gov/landmarks

ENVIRONMENTAL REVIEW

Project number: FEDERAL EMERGENCY MGT AGENCY / 106.K
Project: RED HOOK DR 4085 COASTAL RESILIENCY, HMGP-02-NY-4085-0092, SANDRDHK, DHSES/NYC DDC
Date Received: 9/15/2022

Comments: as indicated below. Properties that are individually LPC designated or in LPC historic districts require permits from the LPC Preservation department. Consult the LPC Preservation Department if any properties have been calendared for designation.

Properties that are S/NR listed or S/NR eligible require consultation with SHPO if there are State or Federal permits or funding required as part of the action.

The LPC is in receipt of FEMA documentation of May, 2022, the SHPO comments of 9/6/22, and the NYC DDC request of 9/26/22.

Architectural comments:

Atlantic Basin Project Area:

S/NR and LPC-eligible:

- 55 Ferris Street, former Wittman Brothers Bottlers Complex BBL 3005640001

S/NR eligible:

- 151 Sullivan St. BBL 3005640019
- 153 Sullivan St. BBL 3005640114
- 155 Sullivan St. BBL 3005640014
- 100 Imlay Street, former NY Dock Building BBL 3005150050

Beard Street Project Area:

S/NR and LPC-eligible:

- 421-573 Van Brunt Street, the Beard Store and Warehouse Pier BBL 3006120001
- 480-500 Van Brunt Street, the Red Hook Stores BBL 3006110011

S/NR eligible:

- 89 Van Dyke Street, Brooklyn Clay Retort and Fire Brick Works BBL 3006040016
- 236 Richards St., Stone Boiler House/Carpentry Shop/Engine Room BBL 3006040016
- Northern Gantry Crane BBL 3006120130

No adverse effects are anticipated to architectural resources as a result of this undertaking.

Archaeology comments:

LPC review of archaeological sensitivity models and historic maps indicates that there is potential for the recovery of remains from 19th Century occupation on the following BBLs associated with the project site:

3003070001
3006100024
3006100025
3006100026
3006100027
3006100028
3006100029
3006100030
3005730001

NYC Landmarks Preservation Commission

1 Centre Street
9th Floor North
New York, NY 10007

Voice (212)-669-7700
Fax (212)-669-7960
http://nyc.gov/landmarks

3005140040
3005540001
3004990001
3005000001

Accordingly, the Commission recommends that an archaeological documentary study be performed for these sites to clarify these initial findings and provide the threshold for the next level of review if such review is necessary (see CEQR Technical Manual 2021).

There are no further archeological concerns for the following BBLs:

3006020001
3006060050
3006060005
3006120130
3006120150
3006120001
3006110006
3005950170
3005950009
3006110001
3005730100
3005140021
3005140001
3005150001
3005150300
3005150050
3005150061
3005020001
3005020038

Gina Santucci

10/7/2022

SIGNATURE DATE

Gina Santucci, Environmental Review Coordinator

File Name:
\\csc.nycnet\landmarks\Groups\ENVREV\aaERGIS\data\36628_FSO_DNP_09222022_TF_final.docx

Cc: SHPO 22PR05523

Landmarks Preservation Commission

1 Centre Street
9th Floor North
New York, NY 10007

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http://nyc.gov/landmarks

ENVIRONMENTAL REVIEW

Project number: FEDERAL EMERGENCY MGT AGENCY / 22DDC001K
Project: RED HOOK DR 4085 COASTAL RESILIENCY
Date Received: 2/2/2023

Comments: as indicated below. Properties that are individually LPC designated or in LPC historic districts require permits from the LPC Preservation department. Properties that are S/NR listed or S/NR eligible require consultation with SHPO if there are State or Federal permits or funding required as part of the action.

Comments:

The LPC is in receipt of additional scope of work dated 1/23/23. There are no concerns for architecture and archaeology.

Documentation provided regarding changes that are part of the latest design plans indicate that construction of the project is mainly in the street beds and appear to have low potential to impact archeological properties. There are no further archeological concerns.

Gina Santucci

2/3/2023

SIGNATURE DATE
Gina Santucci, Environmental Review Coordinator

File Name: 36628_FSO_DNP_02032023.docx

Cc: SHPO